CONCHOLOGICAL NOTES.

But few mussels have been recorded from the Hudson Bay drainage area of Ontario, though many must occur.

Mr. J. B. Tyrrell, who explored the District of Patricia in 1913, found *Unio* (*Lampsilis*) *luteolus* in the Fawn and Severn about lat. 54° N. The species doubtless extends down to Hudson Bay as it does down the Mackenzie. The shells are smaller and lighter in color than these of the same species from the Rideau river and the Rideau canal. In the latter between Bank and Concession Streets, Ottawa, they are ordinarily of large size, green in color, and beautifully rayed. The Patricia shells resemble closely the *L. luteola* found in Lake Nipissing at North Bay, and in Lake Talon, near Rutherglen, but are not as yellow on the same species from Lake Gauvreau in the Gatineau hills.

No mussel peculiar to America has a wider range than this. It is found from the Brazos of Texas to the Arctic Circle and from the Rocky Mountains to the St. Lawrence and the Hudson drainage areas. Throughout this vast extent, under conditions varying from crystal lakes and streams to muddy sloughs and pools, in polar cold and torrid heat, it preserves unvaried the peculiar undulations of the beaks which distinguish it from allied species. It thus affords a striking proof of the proposition of Quatrefages, that specific characteristics—properly so-called—are not permanently affected by environment.

An *Anodonta* found by Mr. Tyrrell in the Fawn river has the beaks so eroded that it cannot be identified. It is not improbably *A. kennicottii* Lea, which was described from Lake Winnipeg and Great Slave lake.

Another lot of mussels from Northern Ontario was collected in 1914 by Mr. J. K. Latchford in the Missinaibi, where on its way to Hudson Bay it flows under the National Transcontinental Railway, about twenty miles east of Hearst. They are mainly *L. luteola*, but include two Anodontæ which may be undescribed. Throughout Ontario, especially northward, the Anodontæ, or paper-shell mussels, abound. It is seldom, however, that any but mature specimens are collected. The beaks of old shells are nearly so always eroded that positive identification is extremely difficult, except in the case of a few species with prominent characteristics. The result outside of narrow limits is absolute confusion. It is safe to say the only thin-shelled mussels found near Ottawa which can be identified with any certainty are *A. (Strophitus) edentula* Say *A. cataracta* Say (= *fluviatilis* Dillw. of our lists) and *A. subcylindracea* Lea. Many

others undoubtedly occur. In the Rideau canal for instance, while it is impossible to distinguish two species among the large Anodontæ found there, a series of young shells, such as may easily be obtained in the little bay on the left side of the canal immediately above Hartwell's Locks, demonstrates the presence of two species—one certainly *cataracta* Say, and the other probably *implicata* Say. I used the word "probably" because I do not know what the young of *implicata* are like, and I know of no satisfactory description. Stimpson in his Descriptive Catalogue of the Naiades (Detroit, 1914) says "their sculpture consists of straight bars running parallel with the linge line, or they may be slightly curved and sometimes a little corrugated,"—which seems to me a confounding of two species. The beak sculpture of the Unionidæ is—I have observed—for any species invariable. *A. cataracta* in every stage of growth has been collected by the writer in at least fifty localities in Quebec and Ontario—from the lakes in the Laurentides to Toronto Bay, where it occurs with *A. grandis* Say—and the undulations of the beaks, when they could be made out, were in every case the same.

In addition to the three species named, many others occur in the Ottawa valley, but, until large series of shells are procured in every stage of growth, they cannot be determined, or, if new, described. It is really not more difficult to collect the young of mussels than to collect other small bivalves; that they cannot be seen should not prevent a search for them—nor the fact that they are often far less numerous than adults. A wire bowl strainer with a suitable handle will often produce the most astonishing returns from places that appear quite barren of molluscan life.

Till the Missinaibi is visited by an experienced collector, the Anodontæ from it can be regarded as only *probably* new.

Among the Missinaibi shells are two medium sized examples of *Unio pressus* Lea, now designated *Symphonota compressa* Lea. In addition of the localities mentioned in previous notes—the Rideau at Strathcona Park and Paquette's Rapids, near Pembroke and Moore's Creek on the Aylmer Road, and a brook crossing the Opeongo Road, near Foymount, in the County of Renfrew, afford this attractive little mussel. It has been recorded from as far north as the Montreal river near Sault Ste. Marie (Stimpson, Des. Cat. 483) but has not hitherto been known to exist in the Hudson Bay drainage.

L.