

La Rocque

CHANGES IN THE MOLLUSCAN FAUNA OF WHITE LAKE,
LANARK AND RENFREW COUNTIES, ONTARIO,
AFTER THIRTY YEARS.

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My first visit to White Lake took place in the early thirties in the company of no less a guide than Chief Justice Francis R. Latchford of Toronto. He had seen some of my early papers on Mollusca in the Canadian Field-Naturalist and we had corresponded, but one fine day which I have unfortunately neglected to record, he walked into my office in the old Victoria Memorial Museum in Ottawa and we talked Mollusca for a long while. Since he was spending the summer with his son in Ottawa, we decided to go collecting the following Sunday and I left him the choice of locality. He decided on White Lake and we spent the day there. That excursion proved most enjoyable and I had a first-hand demonstration of Judge Latchford's knowledge of the habitat of Sphaeriidae and of his expert use of a Walker scoop-dredge. White Lake made such a favorable impression on me that I decided I would collect it thoroughly at the first opportunity, which came in September (7-13) of 1935. The specimens collected then are now in the National Museum of Canada collections and I list them from my field note book below.

In July, 1965, on a prospecting trip for shell marl with one of my graduate students, I returned to White Lake and spent a few hours collecting Mollusca and marl from the bottom of the lake. The marl fauna will be reported upon later. The object of this paper is to point out an addition to the molluscan fauna of White Lake and an apparent change in the abundance of other species. The most remarkable feature of White Lake this summer (1965) is the extraordinary abundance of a viviparid snail, tentatively identified as the European *Vitpa-*

rus viviparus Linn., which seems to have taken over most of the lake. Further details on its occurrence are given below. In the following list the 1935 situation for each species is compared with that of 1965.

Anodonta grandis (Say). In 1935 a few live specimens were collected from muddy bays and a great many more were seen in muskrat heaps along shore. In 1965 no live specimens were collected but the species must still survive in the lake as dead shells with the animal still present were noted floating near shore in masses of waterweed along with shells of other species.

Elliptio complanatus (Dillwyn). In 1935 a few live specimens were noted and the species was well represented in muskrat heaps with *Anodonta grandis*. In 1965 the species is probably still to be found alive in the lake as dead but fresh specimens were collected near the outlet, on the shore just below the retaining wall of the dam there.

Sphaerium cf. *S. simile* (Say). In 1935 many specimens of this species or a near relative were collected alive with a Walker scoop-dredge, following the example of Judge Latchford's earlier collecting. Whether they should be referred to *S. simile* (Say) or *S. sulcatum* (Lam.) is still doubtful. In 1965 no live specimens of *Sphaerium* were seen but it must be said that no dredging was done for them. Smaller species of *Sphaerium* may turn up in the marl.

Pisidium sp. In 1935 several live specimens of species of this genus were obtained. None

was seen in 1965 but again this may be due to lack of specific searching with a dredge. Abundant specimens, so far unidentified, were noted in the marl collected from the bottom of the lake.

Valvata tricarinata Say. This was noted in 1935 collections but not in 1965. Several bleached and long-dead specimens were collected from the marl.

Viviparus cf. *V. viviparus* Linn. In 1935 not a single specimen of this species was noted. It was introduced into the lake, probably with other material dumped out from aquaria for tropical fish. When this happened, I am unable to say as few malacologists have visited White Lake in the last thirty years. If anyone interested in shells had collected there during that time the species would have attracted his or her attention because of its relatively large size and banding. It is possible that it has been scarce enough to escape attention until recently but it is most conspicuous at present. It lives in large numbers on all kinds of bottom, in ex-

posed and protected situations, with and without vegetation, in water less than one foot to as much as 10 feet deep. The concentration of individuals varies from one part of the lake to another. In many places it was estimated to be as many as 10 per square foot, in others only one per square yard. *Viviparus* seemed to occupy the bottom of the lake to the exclusion of almost everything else. Nevertheless, all is not well with this enormous population. Dead shells, only half grown, are more numerous than living ones in most places and it proved difficult to find full-grown specimens. One is tempted to speculate that the species has achieved a period of phenomenal increase and that factors which we can only theorize upon are beginning to reduce the population. In any event, the increase has adversely affected other species of the lake, as this account will show.

Amnicola limosa (Say). The species was collected alive in 1935. Not a single live specimen was seen in 1965. This may be due to lack of intensive collecting this summer, of course, but it still seems to be scarcer than it might.

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BINNEY REPRINT

With the following page in this number of STERKIANA we continue the reprint of Binney's *Land and Freshwater Shells of North America* (1865) which was started in the previous number (No. 18, p. 21-50).

As noted previously, this valuable work is being reprinted by permission of the authorities of the Smithsonian Institution to whom the Editor reiterates his thanks.

The entire text is being reset as cost of fac-simile reproduction would be prohibitive.

In the course of resetting this work, a few problems arose, some of them foreseen - e.g. the reprinting of figures - and some unforeseen - e.g. the variety of type fonts used in the original and not available to STERKIANA. A word on the solutions adopted may not be amiss.

The position of each figure in the text is indicated by number in the appropriate position. Each figure will be reproduced photographically and figures grouped on plates in serial order. The first of these plates should be ready to appear in the next number of STERKIANA.

The variety of type fonts used in the original text is nothing short of amazing. It has proved to be impossible to duplicate - or even to approach - this in the reprint so all headings have been set as centered or side heads of the same size. We hope that this necessary expedient will not prove too distasteful to the reader.

Installments of this work will appear in future issues of STERKIANA as space permits.

Changes in the molluscan fauna of White Lake, Ontario, after thirty years.

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Lymnaea stagnalis (Linn.). In 1935 this was the most obvious of the larger snails in the lake; there were enormous concentrations of dead shells near the outlet and living specimens were common in the weedy bays of the lake. In 1965 not a single dead shell of *L. stagnalis* was to be seen at the outlet although hundreds of dead *Viviparus viviparus* were in evidence there. A search for living *L. stagnalis* was successful in quiet water near the outlet where the species still survives in small numbers in company with much more numerous *Viviparus*. It can be found in small numbers elsewhere in the lake also, but everywhere *Viviparus* outnumbers it at least five to one.

Bulinna megasoma (Say). One of the main reasons for visiting White Lake with Judge Latchford (see above) was to collect *B. megasoma*. None was found on that first trip, probably because we did not get into the swampy areas where it lives. In 1935 I made a point of examining several such areas and found *B. megasoma* both living and dead but in small numbers even then. In 1965, the species had disappeared from two suitable areas examined where not even a dead shell could be found.

Physa heterostropha Say. This species was present in the lake in 1935 but not abundant. No live specimen was seen in 1965. This seems remarkable when the hardiness of *Physa* in other lakes of the region is remembered.

Helisoma campanulatum (Say). This species was common in water weed in most places in the

lake in 1935. Some specimens were also collected on logs and crawling about on the soft marl bottom. Only two live specimens were collected in 1965 and only a few dead shells were noted.

Helisoma anceps (Menke). In 1935 I collected this species at several different places in White Lake, in shallow water 8 to 15 inches deep, on sand and mud. A few specimens were collected alive in 1965 and I had the impression that the abundance of this species had not changed appreciably.

Helisoma trivolvis macrostomum (Whiteaves). This large form of *H. trivolvis* was common in 1935 in protected, muddy bays of White Lake, accompanying *Bulinna megasoma* and *Anodonta grandis*. No live specimens were seen in 1965 and only a few dead shells were collected.

Gyraulus deflectus (Say) was collected in small numbers in 1935, particularly on the underside of water lily leaves. Not a single specimen was seen in 1965.

To summarize, it would seem that the phenomenal success of *V. cf. viviparus* in White Lake at the present time has caused a reduction in numbers of some of the native species. Signs of a downward trend were noted and the fluctuations of *V. cf. viviparus* in future should be carefully observed.

Columbus, August 16, 1965.