

REPRINTS OF RARE PAPERS ON MOLLUSCA: J. F. WHITEAVES, 1863, ON THE LAND AND FRESH-WATER MOLLUSCA OF LOWER CANADA. --- Canadian Naturalist and Geologist, vol. 8, pp. 98-113, 12 figures.

ART. IX. — On the Land and Fresh-water Mollusca of Lower Canada; by J. F. Whiteaves, F.G.S., &c.

(Read before the Natural History Society of Montreal.)

PART II. — LIST OF SPECIES INHABITING LOWER CANADA.

The writer of this list wishes to acknowledge his obligations to many of the most eminent United States conchologists for practical suggestions and assistance. Mr. Temple Prime has kindly identified the Cycladidae; The writer is also indebted to Messrs. Bland, Binney, J. G. Anthony, I. Lea, A. D. Brown, Tryon, and others, for critical advice and sympathy.

In the nomenclature of the Unionidae, the names given by Rafinesque have been retained; these having priority. The writer has been unable to see why Lamarck's short, insufficient diagnoses of species in this difficult family, should be preferred to the exclusion of the earlier descriptions of the author of "the Bivalve Shells of the Ohio River."

NOTE. — The following abbreviations have been made use of in citing the authority for each species in Lower Canada: — R.B. (R. Bell) : W.D. (W. D'Urban) : E.B. (E. Billings) : R.J.F. (R. J. Fowler) : J.F.W. (J. F. Whiteaves) : W.C. (W. Couper) M. de V. (M. de Villeneuve).

As the Lower Canadian Cycladidae seem very little understood, Mr. Prime's careful descriptions of these somewhat intricate shells

have, with his consent, been added; together with wood-cuts, taken from original drawings.

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LAMELLIBRANCHIATA.

UNIONIDAE.

Unio radiatus, Lamarck. Abundant in the rivers and lakes of Canada East. The *U. siliquoides* is often taken for this shell.

Unio siliquoides, Barnes. Equally common with the above. For details of difference between the former species and this, see Conrad's Monograph of the genus *Unio*. As many able conchologists deny that this is the *Unio luteolus* of Lamarck, I have preferred keeping the name given to the species by Barnes.

Unio Canadensis, Lea. St. Helen's Island, Montreal; apparently very rare. Some rayed specimens of a *Unio* which I took at Quebec may be a dwarf form of this species. A single dead typical specimen on the beach of the Island of Orleans: J.F.W.

Unio cardium, Rafinesque. (*U. ventricosus*, Barnes.) St. Lawrence; very fine near Quebec. *Unio subovatus*, Lea, appears to be the male of this species; and *U. occidentis*, Lea, a variety of the female.

Unio complanatus, Solander. By far the commonest *Unio* in the district; living (according to Mr. Bell) as far down the St. Lawrence as Berthier below Quebec.

Unio dilatatus, Rafinesque. (*U. gibbosus*, Barnes.) Widely distributed in the St. Lawrence and its tributaries, but scarce. Some varieties closely resemble the last species.

Unio rectus, Lamarck. St. Lawrence

at Quebec and Montreal, but somewhat rare.

Unio alasmodontinus, Barnes, (U. pressus, Lea.) Rare: L'Assomption river; M. de V. River St. Pierre, and Lachine canal near Montreal: R.J.F. Rideau Canal near Ottawa city: E.B.

Unio alatus, Say. Ottawa river, near Ottawa: mouth of River Rouge: R.B.

Unio olivarius, Rafinesque. (U. ellipsis, Lea, fide J. G. Anthony.) St. Lawrence at Quebec and Montreal; fine and not infrequent at Quebec.

Margaritana margaritifera, Linn. (*Alasmodon arcuatus*, Barnes.) Very large and fine in the St. Charles river near Quebec: J.F.W. Green and Rimouski rivers; both of the Matapedia lakes; Lake St. John: R.B.

Margaritana costata, Rafinesque. (*Alasmodon rugosa*, Barnes.) Sparingly in the St. Lawrence about Montreal. Yamaska river near St. Hyacinthe: J.F.W.

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Margaritana marginata, Say. With the foregoing, but not very common.

Margaritana undulata, Say. Common in the St. Lawrence down to Quebec; at which latter place it is very abundant, and often beautifully coloured.

Anodonta cataracta, Say. (*A. fluviatilis*, Lea.) Lake Calvaire, near Quebec: abundant in small creeks near the St. Charles river at Quebec: J.F.W. Large and plentiful at Brome Lake in the Eastern Townships: R.J.F. Probably common in suitable places throughout the district.

Anodonta Lewisii, Lea. Lachine canal near Montreal. R.J.F.

Anodonta Benedictensis, Lea. Mississquoi bay, Lake Champlain.

Anodonta implicata, Say. Fine in the St. Lawrence near Quebec: J.F.W. Berthier: R.B.

Anodonta Ferussaciana, Lea. Creek at L'Orignal: R.B. Fine in old stone quarries near the Mile-end toll-gate, Montreal.

Anodonta undulata, Say. St. Charles river about three miles from Quebec.

Anodonta edentula, Say. Lake Matapedia: R.B. Brome Lake in the Eastern Townships: R.J.F. I consider this species, and perhaps even the next, as identical with *A. undulata*, Say.

Anodonta subcylindracea, Lea. Lachine Canal: R.J.F. St. Lawrence at Quebec. J.F.W.

Anodonta Footiana, Lea. Sixteen Island, Eagle Nest, and Bevan's lakes. W.D.

Anodonta modesta? Lea. A few specimens which appear to me to agree with Mr. Lea's figures and description of this species, were taken by Mr. Bell from Lake St. John.

CYCLADIDAE

The genus *Cyclas* was proposed by Bruguière in the year 1792; but Scopoli's genus *Sphaerium* bears date 1777; and consequently has priority, as has been shown by Dr. Gray. See Mr. Temple Prime's elaborate monograph of the North and South American species of this genus, published in the "Proceedings of the Academy of Natural Sciences of Philadelphia" for December, 1861.

Sphaerium sulcatum, Lamarck. (*Cyclas similis*, Say) Metis lakes, and a small lake six miles S.W. of Metis: R.B. Common

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in the St. Lawrence at Montreal; and probably widely diffused throughout the province.

Sphaerium solidulum, Prime. Creek at L'Orignal: R.B. It will probably be detected in Canada East, as it has been taken so near the border.

Sphaerium striatinum, Lamarck. (*Cyclas edentula*, Say.) Lachine Canal, near Montreal: R.J.F. St. Lawrence and St. Charles rivers near Quebec, abundant: J.F.W.

Sphaerium rhomboideum, Say, (sp.). Gregarious, but very local. Old quarries near

the Mile-end toll-gate, Montreal, but apparently confined to a very limited space there. R.J.F. and J.F.W.

Sphaerium occidentale, Prime.

Swamps on an island near Lachine: R.J.F.

Sphaerium transversum, Say, (sp.). Lachine Canal near Montreal: R.J.F. St. Lawrence near Quebec: J.F.W.

Sphaerium securis, Prime. Old stone quarries filled with water, near the Mile-end toll-gate, Montreal: R.J.F. and J.F.W. Lachine: R.J.F.

Psidium Virginicum, Brongniart. (*Cyclas dubia*, Say.) St. Lawrence and St. Charles rivers at Quebec: J.F.W. Montreal, in the St. Lawrence, and the Lachine canal. Probably common in all the large tributaries of the St. Lawrence.

Psidium altile, Anthony. Fine in the ponds near the Mile-end, Montreal: R.J.F., and J.F.W. A smaller, more compressed variety abounds in the St. Charles River near Quebec: J.F.W. It is the *P. compressum* of Prime; but Mr. Anthony's name seems to have priority.

Psidium abditum, Haldeman. A very common species in Lower Canada. I cite four localities where I have taken it, as examples. Swamps in woods near the St. Charles river, Quebec: trenches in fields near the Beauport road: marshy ground on the Plains of Abraham, -- both near Quebec. Brook near river St. Pierre, Montreal.

GASTEROPODA, -- PECTINIBRANCHIATA.

VIVIPARIDAE.

Paludina decisa, Say. Common throughout the district. Reversed varieties occasionally occur in the St. Lawrence, about Montreal.

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Valvata tricarinata, Say. Also abundant. At Quebec the species generally occurs

large, with the carinae sometimes almost obsolete.

Valvata sincera, Say. Marl lake, Anticosti: R.B.

Valvata humeralis, Say. This species, so closely allied to the depressed form of *V. piscinalis* of Europe, has been taken by Mr. Bell at the following localities: Matanne; small lake at the head of Awaganasees brook, and Little Lake Matapedia.

Amnicola porata, Say. Lake Calvaire, near Quebec: J.F.W. Little Lake Matapedia: R.B. Near Montreal: R.J.F.

Amnicola tenuipes, Haldeman. St. Lawrence, near Quebec: burrowing in the sand between tide-marks: J.F.W.

MELANIADAE.

Melania subularis, Lea. (*M. acuta*, Lea.) St. Lawrence at Montreal.

Melania Niagarensis, Lea. St. Lawrence, from Quebec to Montreal. At Quebec I obtained only the pale yellowish, unbanded variety.

GASTEROPODA, -- PULMONIBRANCHIATA.

LIMNAEIDAE.

Limnaea stagnalis, Linnaeus. (*L. jugularis*, Say.) Common at Montreal in the St. Lawrence, but rare at Quebec. Metis lakes, and lakes on the Rimouski river: R.B. Probably of wide distribution in Canada East.

Limnaea megasoma, Say. Very fine at Nuns' Island, near Montreal: M. de V., and R.J.F. Hawkesbury village: R.B.

Limnaea ampla, Mighels. This fine species was first detected in Lower Canada by R. J.F. at Brome Lake.

Limnaea decollata, Mighels. Great Lake Matapedia, and Rimouski village: R.B.

Limnaea columella, Say. St. Lawrence at Quebec, adhering to stones at low water-mark: J.F.W. The var. *macrostoma* occurs with the type.

Limnaea reflexa, Say. Upper Metis

Lake : R.B. Near Grenville village : W.D.
Limnaea umbrosa, Say. Point Levis :
 J.F.W. Montreal

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Mountain : St. Anne : creek about two miles
 below Chat river : Metis and Restigouche riv-
 ers : R.B.

Limnaea elodes, Say. (L. palustris ?
 Linn.) Common everywhere throughout the
 district. Haldeman in his monograph considers
 it the L. fragilis of Linnaeus. In Europe L. fra-
 gilis is considered a variety of L. stagnalis, Linn.,
 and the L. elodes of Say as probably identical
 with the L. palustris.

Limnaea catascopium, Say. A com-
 mon species. As unpublished localities, I may
 cite the St. Charles river near Quebec, and Cap
 Rouge in the same neighborhood. Dr. Lewis of
 Mohawk (N.Y.) considers it a variety of the
 preceding shell.

Limnaea solida, Lea. (L. apicina, Lea:
 fide Haldeman.) Profusely abundant every-
 where about the St. Lawrence at Quebec. Me-
 tis, Rimouski, and White rivers : R.B.

Limnaea caperata, Say. Widely dis-
 tributed. Abundant with *Succinea ovalis*, Say,
 on the banks of the St. Charles river, near Que-
 bec. *Limnaea umbilicata*, Adams : is generally
 considered a variety of this species.

Limnaea humilis, Say. (L. modicel-
 lus, Say.) Green Island village : Rimouski : St.
 Anne : R.B. Lake Calvaire near Quebec : and
 ponds near the Mile-end toll-gate, Montreal :
 J.F.W. L. parva, Lea, is supposed by Haldeman
 to be the young of this species.

Limnaea desidiosa, Say, (L. acuta
 and L. Philadelphica, Lea: fide Haldeman.)
 Upper Lake Metis : Marl lake, Anticosti : (the
 var. acuta) : R.B.

Limnaea pallida, Adams. Great Lake
 Matapedia : Cape Chat : R. B.

Limnaea alternata (or a new species).
 Point Levis : R.B. A species which I am unac-
 quainted with.

Limnaea exigua, Lea : (young). In a
 small lake near Hamilton's farm : W.D.

Limnaea galbanus, Say. Abundant in
 shell-marl from the bottom of Eagle's Nest lake:
 W.D.

Physa heterostropha, Say. Common
 everywhere throughout the district.

Physa ancillaria, Say. St. Charles
 river near Quebec : J.F.W. near Montreal :
 R.J.F. Rimouski village : R.B. Doubtful if
 distinct from the preceding.

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Physa marginata, Lea. (not of Say.)
 Near Rimouski village. Probably a variety of
 P. heterostropha.

Physa hypnorum, Linn. (P. elongata,
 Say.) Abundant about Quebec and Montreal.
 Green Island: Metis : St. Anne : R.B.

Physa aurea Lea. Several localities in
 the county of Rimouski : R.B. Near Quebec :
 J.F.W.

Physa elliptica, Lea. Small lake one
 mile west of the Indian village in Arundel : W.D.

Planorbis macrostomus, nobis. (see
 description, and Figure 12.) Ponds near the
 Mile-end toll-gate, Montreal : R.J.F., and J.
 F.W.

Planorbis trivolvis, Say. Common
 throughout the district. *Planorbis corpulentus* of
 Say appears to be a variety of this species.

Planorbis lentus, Say. Less frequent
 than the above. St. Lawrence at Montréal. An
 almost hyaline variety occurs with the normal
 form.

Planorbis bicarinatus, Say. Abund-
 ant apparently all through the province. Ex-
 tremely large at Brome Lake, R.J.F. At Que-
 bec a variety with transverse wrinkles, and the
 upper carina almost obsolete (P. megastoma?
 De. Kay.) is more abundant than the type.

Planorbis campanulatus, Say. Near
 Quebec : J.F.W. : Fine at Brome Lake : com-
 mon in the Richelieu River at St. Johns : St.
 Helen's Island, Montreal : R.J.F. Near Gren-
 ville, and in numerous lakes throughout that
 district. W.D.

Planorbis excavatus, Say. Scarce : swamps near the City mills, Montreal : R.J.F.

Planorbis deflectus, Say. Near Quebec : J.F.W. Great Lake Matapedia : R. B. Sixteen-Island and Sugar-bush lakes : W.D.

Planorbis parvus, Say. Widely distributed, and plentiful throughout the district.

Planorbulina armigera, Say. (sp.) Trenches in fields near the Beauport road, Quebec : J.F.W., and W. Couper : Nuns' Island, Montreal : R.J.F. Ponds on the top of Montreal Mountain : R.B.

Ancylus fuscus? Adams. Ponds near the Mile-end toll-gate, Montreal : R.J.F., and J.F.W.

Ancylus rivularis? Say. St. Lawrence, at Quebec and Montreal : St. Charles river near Quebec. Not having access to Haldeman's monograph of this genus, I am uncertain about these two species. The last may be *A. parallelus*, Haldeman.

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GASTEROPODA, -PULMONIBRANCHIATA.

HELICIDAE.

Tebennophorus Carolinensis, Bosc. Point Levis, large and fine : probably common in wooded districts.

Limax campestris? Gould. Abundant under stones in fields : also in woods.

Vitrina limpida, Gould. (≠*V. pellucida*;) Montreal Mountain, abundant : R.J.F., and J.F.W. Rivière du Loup : R.B. and J.F.W. Trois Pistoles : St. Anne : Restigouche river, ten miles above its junction with the Matapedia : R.B.

Succinea obliqua, Say. Abundant everywhere, but generally in dryer situations than most North American Succineas.

Succinea ovalis, Gould. Banks of the St. Charles river near Quebec : J.F.W. Metis, Matanne, and St. Anne : R.B.

Succinea avara, Say. Island of Orleans : J.F.W.

Succinea vermeta, Say. Mouth of the Magdalen and Restigouche rivers : R.B. As many conchologists consider this a distinct species from the preceding, in deference to their opinion I keep them separate.

Helix albolaris, Say. Fine and frequent throughout the district : Mr. Bell appears, however, not to have met with it in the county of Gaspé.

Helix dentifera, Binney. St. Lambert, Montreal : near Brome Lake : R.J.F. Apparently very rare in Lower Canada.

Helix exoleta, Binney. About the Montmorenci river, near the falls : W.C., and J.F.W. Wentworth, Montcalm and Harrington : W.D.

Helix Sayii, Binney. Widely diffused, but scarce : Island of Orleans, near Quebec : W.C., and J.F.W. Montreal Mountain : near Brome lake : R.J.F. Restigouche river, about five miles above the mouth of the Matapedia : R.B. Near Doran's lake, Grenville : W.D.

Helix hortensis, Muller. Brandy Pots and Hare Island : extending from Metis to Gaspé bay. R.B.

Helix tridentata, Say. Montreal Mountain, but very rare.

Helix monodon, Racket. Abundant throughout the district, in suitable situations. In Lower Canada the typical form is abundant but the varieties (?) *H. fraterna*, Say; and *H. leaii*, Ward; have not occurred to me in Lower Canada.

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Helix multidentata, Binney. In 1861 I found one living specimen of this species on the Island of Orleans, and not noticing the teeth, took it for *H. capsella* of Gould. I am indebted to Mr. Bland for the correction of this error.

Helix lineata, Say. A species widely distributed throughout the district, but not abundant.

Helix labyrinthica, Say. The same remarks will apply to this species as to the above. Island of Orleans, Montmorenci falls, etc.

Helix alternata, Say. Very abundant everywhere in Lower Canada.

Helix striatella, Anthony. In different situations to the above but equally common.

Helix rufescens, Muller. Living in abundance at Quebec on that part of the Plains of Abraham known as the Cove fields. J.F.W.

Helix (Zonites) cellaria, Muller. Dead shells of this species have been taken by Mr. Fowler near gardens in Craig Street, Montreal.

Helix pulchella, Mull. Abundant throughout the province.

Helix concava, Say. Not very common, but apparently with a wide range.

Helix electrina, Gould. Near Brome Lake in the Eastern Townships: R.J.F.

Helix arborea, Say. One of the commonest of the Canadian land-snails.

Helix indentata, Say. Montreal Mountain R.J.F.

Helix asterisca, Morse. Valley of the Marsouin river: R.B.

Helix chersina, Say. (=*H. fulva*? Mull.) Common in damp situations.

Bulimus lubricus, Mull. Rivière du Loup; Trois Pistoles; Metis lakes, and along the Restigouche: R.B. Montreal Mountain: R.J.F., and J.F.W.

Bulimus harpa, Say. Montreal Mountain: R.J.F., and J.F.W. Rivière du Loup: J.F.W. Metis: mouth of Magdalen river, and very abundant in the Marsouin valley: R.B.

Bulimus marginatus, Say. (*Pupa fallax*, Say.) Sugar Bush Lake, and near Gate Lake: W.D.

Pupa armifera, Say. Plains of Abraham, Quebec: W.C. and J.F.W.

Pupa contracta, Say. Island of Orleans: J.F.W.

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Vertigo simplex, Gould. Rivière du Loup: J.F.W. Valley of the Marsouin: along the Restigouche and at Metis: R.B.

Vertigo Gouldii, Binney. Island of Orleans, and Rivière du Loup: J.F.W. Sixteen-Island lake. W.D. Montreal Mountain: R.J.F.

Vertigo ovata? Say. Montreal mountain: R.J.F., and J.F.W. The only specimen taken was not quite adult, but appeared to belong to this species.

Carychium exiguum, Say. Sixteen-Island Lake, one specimen: W.D.

DESCRIPTIONS OF NEW, OR IMPERFECTLY KNOWN SPECIES.

SPHAERIUM.

(Section A. Species with Rounded but not Protuberant Beaks.)

(Figure 1)

Sphaerium sulcatum, Lamarck.

Animal white; tubes, a light orange color.

Shell transversally oval, nearly equilateral, light in texture for its size; posterior margin somewhat more pointed; anterior rounded; base slightly curved; valves convex; beaks full raised above the outline of the shell; posterior portion a little longer; sulcations coarse, regular; epidermis dark chestnut brown; interior light blue; hinge margin narrow, nearly a straight line; cardinal teeth small, indistinct, situated somewhat towards the anterior side, double in both valves, and so placed as to assume the shape of the letter V reversed; lateral teeth on a line with the primary teeth, large, strong and prominent.

Long. 11-16; lat. 71-61; diam. 5-16 inches.

The young is more equilateral than the adult, and more compressed; it presents the shape of a quadrilateral, and is of a light lemon colour: the striations are as heavy as those of the mature shell. The hinge-margin is generally straight, but, in specimens from Alabama, Pennsylvania, and Rhode Island it is slightly curved.

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(Figure 2.)

Sphaerium solidulum, Prime.

Animal not observed.

Shell transversely inequilateral, elongated, slightly convex; beaks full, not very prominent; anterior margin rounded; posterior drawn out to an angle; base slightly curved; epidermis variable, dark chestnut or brownish yellow, with sometimes a yellow zone on the basal margin; sulcations coarse, irregular; interior dark blue; hinge margin considerably curved; cardinal teeth double, in the shape of the letter V reversed; lateral teeth large; the anterior placed at an angle with the margin; the posterior more on a continuation of the curve.

Long. 9-16; lat. 7-16; diam. 5-16 inches.

Differs from the preceding species in being less elongated, more inequilateral, less convex; the hinge margin is more curved, and the shell is more solid than in the *S. sulcatum*. Having unfortunately mislaid my only specimen from L'Orignal, the figure is taken from a fine large specimen from the Little Miami river, at Waynesville, Ohio. Canadian specimens will probably be smaller, and with their distinctive characters less strongly marked.

(Figure 3.)

Sphaerium striatinum, Lamarck.

Animal white; tubes light reddish yellow.

Shell slight, transversely elongated, somewhat compressed, inequilateral; anterior margin rounded, posterior distended, inferior rounded; beaks full, not much raised; sulcations irregular, at times so light as hardly to be seen with the naked eye, thus giving the shell a lustrous appearance; colour varying from a light greenish-yellow to a darker shade; valves slight; interior blue; hinge margin

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slightly curved; cardinal teeth double, very small, of the same size; lateral teeth larger, not very prominent.

Long. 7-16; lat. 5-16; diameter 4-46 inches.

Compared to the *Sphaerium solidulum*, this

species is smaller, more inequilateral, less tumid, more compressed, less solid, less heavily sulcated, and its posterior extremity is more distended.

A very common species in the rivers of Lower Canada; but appears to have been generally overlooked.

(Figure 4.)

Sphaerium rhomboideum, Say. (sp.)

Animal; white? syphons reddish-yellow.

Shell sub-globular, rhombic, orbicular, equilateral; anterior margin truncated; posterior slightly angular; basal nearly straight; beaks full, but not prominent; valves slight, convex towards the beaks, gradually decreasing in fullness towards the margins; interior blue; sulcations very delicate; epidermis olive-green, often with a straw coloured zone on the margins; young shell more compressed than the adult; hinge margin nearly straight; cardinal teeth rudimentary; lateral teeth distinct, somewhat acute, not elongated.

Long. 8-16; lat. 6-16; diam. 5-16 inches.

A very local, but gregarious species.

(Figure 5.)

Sphaerium occidentale, Prime

Animal not observed.

Shell oval, small, pellucid, fragile, equilateral, margins rounded; valves slight, rather convex; beaks full, rounded, not much raised; sulcations very fine, hardly visible; epidermis horn coloured; cardinal teeth very diminutive, lateral teeth more distinct.

Long. 5-16; lat. 4-16; diam. 3-16 inches.

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This species is remarkable for its completely oval shape, which renders it quite distinct from all others. Apparently rather rare in Lower Canada.

(SECTION B. - SPECIES WITH PROTUBERANT,
OR CALYCVULATE BEAKS.)

Figure 6.

Sphaerium transversum, Say. sp.

Animal white, syphonal tubes pink, foot white.

Shell transversely oblong, elongated, sub-inequilateral, translucent; anterior side narrow; anterior margin rounded, posterior margin sub-truncate, basal very much curved; beaks placed somewhat on the anterior side, large, calyculate, very much raised above the outline of the shell; striae very delicate; epidermis greenish-yellow (generally whitish in Canadian specimens), of a darker shade at times in the region of the beaks; valves slight; interior bluish; hinge-margin very nearly straight, narrow; cardinal teeth compressed, in the shape of the letter V reversed, and very much expanded; lateral teeth slightly elongated.

Long. 10-16; lat. 7-16; diam. 4-16 inches.

This large and delicate species is remarkable for its very transverse shape and for the narrowness of the anterior extremity, as compared to the posterior.

Figure 7.

Sphaerium securis, Prime.

Animal pinkish; syphons of the same colour.

Shell rhombic-orbicular, ventricose, sub-equilateral, both sides nearly of the same length; anterior margin a little curved; posterior margin abrupt, forming an obtuse angle with the hinge margin; basal margin much longer than the superior margin, rounded;

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beaks large, calyculate, slightly inclined towards the anterior, very approximate at apex; valves slight, very convex, especially in the region of the umbones; striae delicate, regular, hardly perceptible; epidermis glossy in some

cases, very variable in colour, but generally of a greenish-horn tint; at times of a brilliant yellow or straw colour (in Canadian specimens often translucent glossy white); hinge-margin curved, narrow; cardinal teeth very small, united at base; lateral teeth slight elongated; very narrow.

Long. 6-16; lat. 5-16; diam. 4-16 inches.

Unlike any other Canadian species.

The descriptions of the Lower Canadian species of *Sphaerium* have been taken from Mr. Prime's able monograph. The ensuing descriptions are original, except in the case of *Limnaea ampla*.

PISIDIUM

Figure 8.

Pisidium Virginicum, Brongniart.

Shell ovate, elliptical, oblique, strongly concentrically sulcate; "beaks placed much nearer one end;" slightly elevated, rounded, with a decided inclination to the anterior portion of the shell. Posterior end elongated, rounded; anterior portion truncate; ventral margin convex. Easily distinguished from all the Lower Canadian *Pisidia* by its large size, strong concentric sulcations, and general outline.

Figure 9.

Pisidiumatile, Anthony.

Shell sub-triangular, very tumid (except in the variety *compressum*, which may prove a distinct species), especially in the region

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of the beaks: generally much broader from the umbo to the ventral margin, than in the opposite direction: beaks elongated into an obtuse point:

anterior portion shortly rounded, but not truncate; posterior end forming a rounded, slightly pointed angle with the very convex ventral margin. Surface very finely striated.

Figure 10.

Pisidium abditum, Haldeman.

Shell ovate, orbicular, not very inequilateral; ventricose; beaks prominent, rounded; general outline very variable, sometimes very oblique; in others the umbones almost central, the general form being nearly circular, but elongated and very bluntly pointed posteriorly; surface striated, the striae stronger than in the preceding species.

LIMNAEIDAE.

Limnaea ampla, Mighels.

"L. testa amplâ, subovata; anfractibus quinque, convexis, supernè geniculatis; suturâ valde impressâ; spira brevi; apertura latâ; umbilico profundo (?); columella valde plicata."

I have copied the original diagnosis of this very characteristic species from the proceedings of the Boston Society of Natural History for June 21st, 1843.

Dr. Mighel's description agrees with our Lower Canadian specimens in nearly every respect; but the Brome Lake specimens

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are imperforate, or very nearly so. The species is easily known by its large and wide body-whorl, which is decidedly angulated towards the sutures. The spire varies in length, but is seldom more than half as high as the last volution.

Figure 12.

Planorbis macrostomus, nobis.

Shell in many points closely resembling *Planorbis lentus*, Say; of which it may perhaps be only a variety. It is much larger, higher, and has deeper costae; its lines of growth are very prominently marked; the upper angle of the whorls as shown in the mouth is more prominent. Lip widely expanded, and reflected, covered with a white enamel. In this latter character it differs from all the North American species of *Planorbis*. It is a species nearly allied to *Planorbis lentus* and *P. trivolvis*; but apparently distinct from both.

EDITOR'S NOTE. The figures in this paper have not been reproduced in this reprint. AL