NOTE REGARDING THE SILURIAN FOSSILS OF THE GORDON LIMESTONES, WITH GENERIC DESCRIPTIONS, AND A SPECIFIC LIST OF THE ORGANISMS ALREADY NAMED AND CLASSIFIED, BY VARIOUS AUTHORS.

By Robt. M. Johnston, F.L.S.

[*Read May* 12, 1885.]

Over thirty years ago the late Dr. Milligan obtained a very interesting series of Silurian Fossils from the Gordon River, in the vicinity of the Macquarie Harbour, which was subsequently lodged in the Society's Museum. This collection was supplemented by a suite of specimens obtained from the same locality by Mr. C. Gould in the year 1862. Prior to the year 1866, Mr. Gould made a selection of the most typical specimens, which he submitted to the judgment of Prof. M'Coy, who, according to Mr. Gould's account, "immediately identified several of the species and most of the generic forms." It is most unfortunate that in the account referred to, Mr. Gould, from want of access to his notes, was unable to give a complete list of the species so determined, and I have failed to find any trace of such list elsewhere in any of our local records. Mr. Gould, however, stated generally that the fossils belonged principally to the family *Orthoceratidæ*, together with corals *Murchisoniæ*, and species of *Raphistoma*, and that from such evidence the position of the Gordon limestones was referred to, "the very base of the lower Silurian of Europe, anterior to the described fossiliferous beds of Victoria, as well as to the Calymene, containing beds of the Eldon Valley," in Tasmania. In the year 1862, however, Mr. Gould gave a more definite enumeration of the more characteristic fossils then collected by him, as follows :—*Orthoceratites*, 2 sp.; *Lituites*, 1 sp.; *Halysites*, 1 sp.; *Favosites*, 2 sp.; *Raphistoma*, 1 sp.; *Orthis*, 1 sp.; *Rhynconella*, 1 sp.; *Euomphalus*, 2 sp.; *Murchisonia*, 3 sp.; in all 14 species so enumerated.

It is interesting to note, from his remarks at the time, that though the fossils are very abundant, and especially observable in sections of the limestone rock exposed to the action of running water, the different beds or zones in the formation are not equally fossiliferous, and that certain species are more or less limited in their distribution; corals abounding in certain beds, and univalve shells and large chambered orthocerata in others.

From that most valuable catalogue of Australian Fossils, by Rob. Etheridge, jun., I find a further and more extended series of specimens from *Tasmania West* (no doubt from the Gordon), was submitted to Prof. Salter prior to the

year 1868. I have not yet ascertained by whom or from whence these fossils were transmitted to Mr. Salter, but it is of importance to note that 28 species were named and classified by him, and afterwards included in Bigsby's Thesaurus Sil., 1868. The following is a detailed list of the species, as enumerated in this work, and in Mr. Etheridge's catalogue :—

BRACHIOPODA.

Retzia	mima	*Salter* (M.S.)

MOLLUSCA PROPER.

Cyrtodonta	auriculata	*Salter* (M.S.)
,,	compressa	,,
,,	distorta	,,
,,	gibbosula	,,
,,	inflata	,,
,,	obliquata	,,
,,	pinguis	,,
,,	reversa	,,
Tellinomya	amygdala	,,
,,	antipoda	,,
Bellerophon	pugnus	,,
Eunema (?)	æmula	,,
Helicotoma	Milligani	,,
,,	pusilla	,,
Holopaea	mumia	,,
Hormotoma	nerinæa	,,
,,	usitata	,,
Murchisonia	Franklinii	,,
,,	mimetica	,,
Raphistoma	æterna	,,
Scalites	Australis	,,
Trochonema	Bigsbyana	,,
Lituites	Gouldii	,,
Orthoceras	antilope	,,
,,	Murchisoni	,,
,,	Theca	,,
,,	Youngii	,,

Here, again, it is to be feared, from (M.S.) references against each name, that the specific descriptions are not recorded, and, consequently, from this want we are unable to determine to what extent the species still preserved in the Society's Museum are included in the list so named and classified.

To add to our difficulty, there is no copy of Bigsby's useful work in the Society's Library, a want which should, if possible, be supplied.

It is clear, however, that the Society's collection of fossil Mollusca only contains a portion of the species classified by Mr. Salter, and it is most probable that the latter includes

nearly all the species still remaining in the Society's collection. I also notice in the latter the following fossils, which do not seem to be included in Salter's list, namely:—Phragmoceras, 1 sp.; Pleurotomaria, 2 sp.; Euomphalus, 1 or 2 sp.; Orthis, 1 or 2 sp.; Rhynconella, 1 sp.; Corals, several species.

It is also worthy of record in this place that I have obtained fragments of a limestone rock similar in character to that of the Gordon and Point Hibbs from the New River, immediately to the south of the Craycroft, among which is the well preserved remains of a coral allied to the genus *Strombodes*.

Before any more specimens are sent away from the Society's collection for description or identification, I submit that it is most desirable to obtain detail descriptions of the larger collections classified already in the hands of European authorities or in European collections. With this end in view, and to aid me in dealing more satisfactorily with this subject in the work now under preparation by me for the Government of Tasmania, I had some time ago requested Mr. Robert Etheridge, jun., to furnish me, if possible, with full descriptions and figures of the species already referred to as contained in Bigsby's Thesaurus Sil. When Mr. Etheridge supplies this most necessary information, we will be all the better prepared to select for further determination such fossils still in the Society's collection as may have not been already described. To send away another typical collection at present would deprive local workers of the only source of reference available to them, and at the same time, as regards the greater number of species, only duplicate specimens already at the command of European authorities.

In the meantime, to facilitate reference to the species contained in the Society's collection, and to aid others who may not be in possession of works of reference, I have in the following part of my paper, with one or two exceptions, given a full description of all the genera which have been referred to in this paper as contained in the Silurian limestones of the Gordon River, in Tasmania. Prof. McCoy may, if applied to, be able to throw some light as regards the species identified by him in the collection submitted to his judgment by Mr. Gould about the year 1866.

DESCRIPTION OF CERTAIN GENERA FOUND FOSSIL IN THE SILURIAN LIMESTONE OF THE WESTERN PART OF TASMANIA.

Class BRACHIOPODA, (*Spiriferid.æ*)

Retzia, *King*, 1850.

Bigsby's Thes. Sil. 1868; Eth. Cat. Aust. Fossils, P.; Tryon, iii., p. 324.

Shell punctuate, Terebratula shaped, beak truncated by a

round foramen, rendered complete by a distinct deltidium; hinge area small, triangular sharply defined; interior with diverging shelly spires. (Silur-Trias.)

Retzia mima, Salter, M.S. Tasmania West.

Class Pelecypoda (Lamellibranchiata or Conchifera.)

Cyrtodonta *Billings* (*Cypricardites*, Conrad.)

Bigsby's Thesaurus. Sil 1868. Eth. Cat. p. 23. Austr. Fossils.

Shell ventricose, suborbicular or broad ovate in outline, with an external flattened ligamental area; cardinal teeth four to five; short oblique; lateral teeth two or more oblique; muscular impressions two (anterior one single ?); pallial line simple. (Tryon.)

C. auriculata. Salter (M.S.) Tasmania, West.
C. compressa. ,, ,,
C. distorta. ,, ,,
C. gibbulosa. ,, ,,
C. inflata. ,, ,,
C. obliquata. ,, ,,
C. penguis. ,, ,,
C. reversa. ,, ,,

Eunema. *Salter.*

Bigby's Thes. Sil. 1868; Eth. Cat. Austr. Fossils, p. 24.

E. æmula. *Salter*, M.S. Tasmania West.

Straparollus, *Montfort*, 1816.

Euomphalus Sowb.,; *Helicotoma*, Salter.

Bigsby's Thes. Sil., p. 868; Eth. Cat. Austr. Fossils, p. 24. Tryon ii., p. 218.

Shell depressed; Whorls, angular or carinated; aperture, sub-quadrangular; umbilicus wide, conical; operculum shelly, multi-spiral. (Tryon.) Lower Silurian to Trias. United States, Europe, Australia.

S. æmula. *Salter* (M.S.) Tasmania, West.
S. (Helicotoma). Milligani ,, ,,
S. ,, pusilla ,, ,,

Raphistoma. *Hall*, 1847.

Bigsby's Thes. Sil., 1868. Eth. Cat. Austr. Fossils, p. 25. Tryon II., p. 219.

Shell, lenticular, or orbicular; whorls, flattened, with a carination above; umbilicus, moderate; outer lip, with slight sinus at the keel. (Tryon.)

R. æterna. *Salter* (M.S.) Tasmania, West.

R. (Holopaea)

Scalites. (Conrad M.S.) Emmons, 1842.
Bigsby's Thes. Sil.. 1868; Eth. Cat. Austr. Fossils, p. 25. Tryon ii., p. 223.

Shell, turriculated; whorls, flattened above, angulated at the shoulder and convex below; outer lip, sinuous; umbilicus, none, or very small. Silurian. United States, Australia. (Tryon.)

S. (Holopea). Mumia. *Salter* (M.S.) Tasmania, West.
S. Australis, ditto ,,

CLASS GASTEROPODA.

Bellerophon, De Montfort, 1808.

Microceras. Hall; Bigsby's Thes. Sil., 1868, Eth. Cat. Aust. Fossils, p. 24. Tryon II., p 322.

Shell, symmetrically convoluted, globular, or discoidal; strong, few-whorled; whorls often sculptured; dorsally keeled; aperture, sinuated, and deeply notched on the dorsal side.

Cambrian to Carboniferous; North America, Europe, Australia, India. (Tryon.)

B. pugnus. *Salter* (M.S.) Tasmania, West.

Trochonema. *Salter*, 1859.

Trochonemopsis, Meek; Bigsby's Thes. Sil., 1869. Eth. Cat. Aust. Fossils, p. 25. Tryon II., p. 309.

Shell, delphinula-like, with wide umbilicus. (Tryon.) Sil. Europe, America, Australasia.

Hormotoma. *Salter*, 1859.

Bigsby's Thes. Sil., 1868. Eth. Cat. Aust. Fossils, p. 25.

H. nerinæa. *Salter* (M.S.) Lower Sil. Tasmania, West.

Murchisonia, *D'Archiac* and *De Verneuil*, 1841.

Bigsby's Thes. Sil., 1868. Eth. Cat. Aust. Fossils, p. 25.

Shell, elongated; many whorled; whorls, variously sculptured, and zoned, like Pleurotomaria; aperture, slightly channeled in front; outer lip, deeply notched. L. Silurian to Permian; North America, Europe, Australasia. (Tryon.)

M. Franklin. *Salter* (M.S.) Gordon Limestone, Tas.
M. mimetica. ,, ,, ,, ,,

Tellinomya, *Hall*, 1847.

Ctenodonta, Salter, 1851.

Tryon iii., p. 260; Bigsby's Thes. Sil. 1868, p. 144. Eth. Cat. Austr. Foss. p. 25.

Shell elongately oval, sub equilateral, smooth, or finely concentrically striate; valves moderately convex; hinge represented by two diverging comb-like denticulated margins, without a special hinge area between them and the beak, and below the latter, not interrupted by a pit; ligament apparently external, posterior to the beak. (Tryon.)

Silurian—Carboniferous. Europe, Bolivia, Australia.
T. amygdala, *Salter*, (M.S.) Tasmania, West.
T. antipoda, *Salter*, (M.S.) Tasmania, West.

Class Cephalopoda.

Lituites, *Breynius*, 1732.

Bigsby's Thes. Sil. 1869; Eth. Cat. Aust. Fossils, p. 26; Tryon ii., p. 56.

Shell planorbiform, the whorls close or separate; the last chamber produced in a straight or outwardly curved line; lateral margins of the aperture extended and curved towards the interior of the shell, contracting the aperture into two distinct orifices.

Silurian. North America, Europe, Australasia. (Tryon.)
L. Gouldii.

Orthoceras. *Breynius*, 1732.

Bigby's Thes. Sil. 1868; Eth. Cat. Aust. Fossils, p. 26; Tryon ii., p. 51.

Shell straight, aperture sometimes contracted. (Tryon.)
L. Silurian to Triassic. N. America, Europe, Australasia.

O. antilope.	Salter. M.S.	Gordon Limestone, Tas.	
O. Murchisoni.	„	„	„
O. Theca.	„	„	„
O. Youngii.	„	„	„

Phragmoceras. *Brod.* 1839.
Tryon ii., p. 55.

Shell compressed on the sides, curved; aperture contracted in the middle; last chamber large; siphuncle dorsal, with radiations; septa simple.

Silurian to Devonian. Europe, N. America, Australasia.
One sp. in the Museum of the Tasmanian Royal Society.

TASMANIAN MOSSES, THEIR IDENTIFICATION, &c.,

By R. A. Bastow.

[*Read May* 12, 1885.]

The Mosses of this and the neighbouring colonies are, like the fauna, singular and peculiar, presenting genera and species analogous in many respects to those of the British Isles, and yet many of them have some peculiarity of structure rendering them unique. In "Hooker's Flora Tasmaniæ" we have a great number of Tasmanian Mosses carefully described, and beautiful drawings of many of them are therein contained.