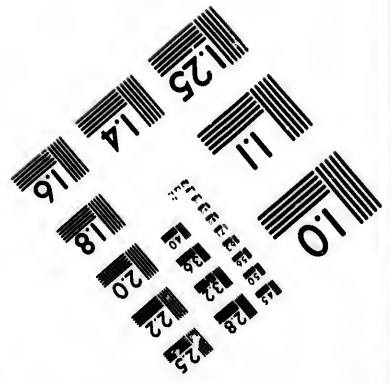


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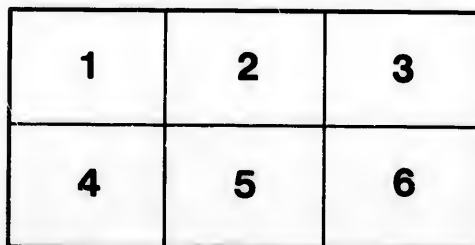
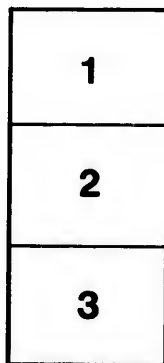
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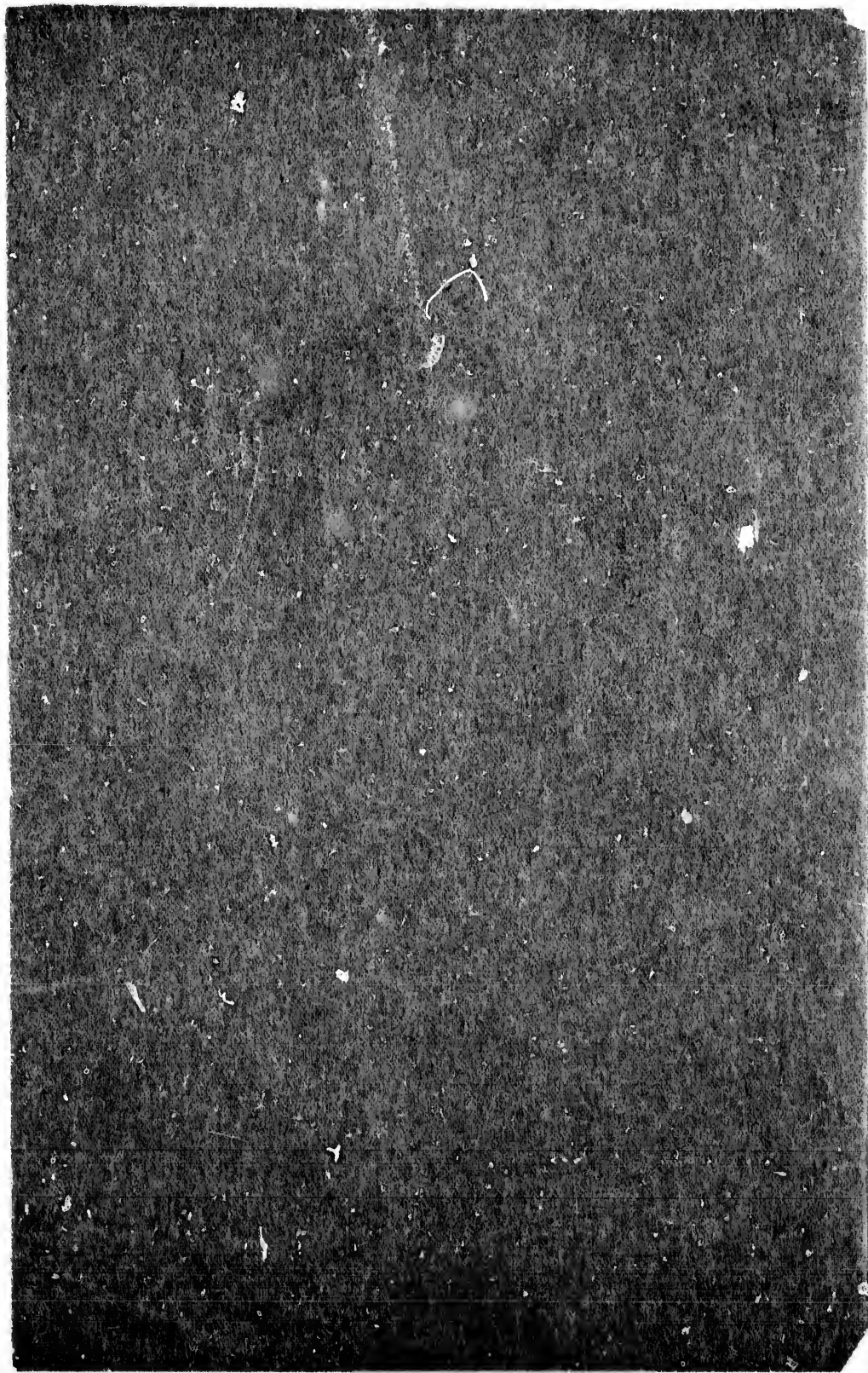
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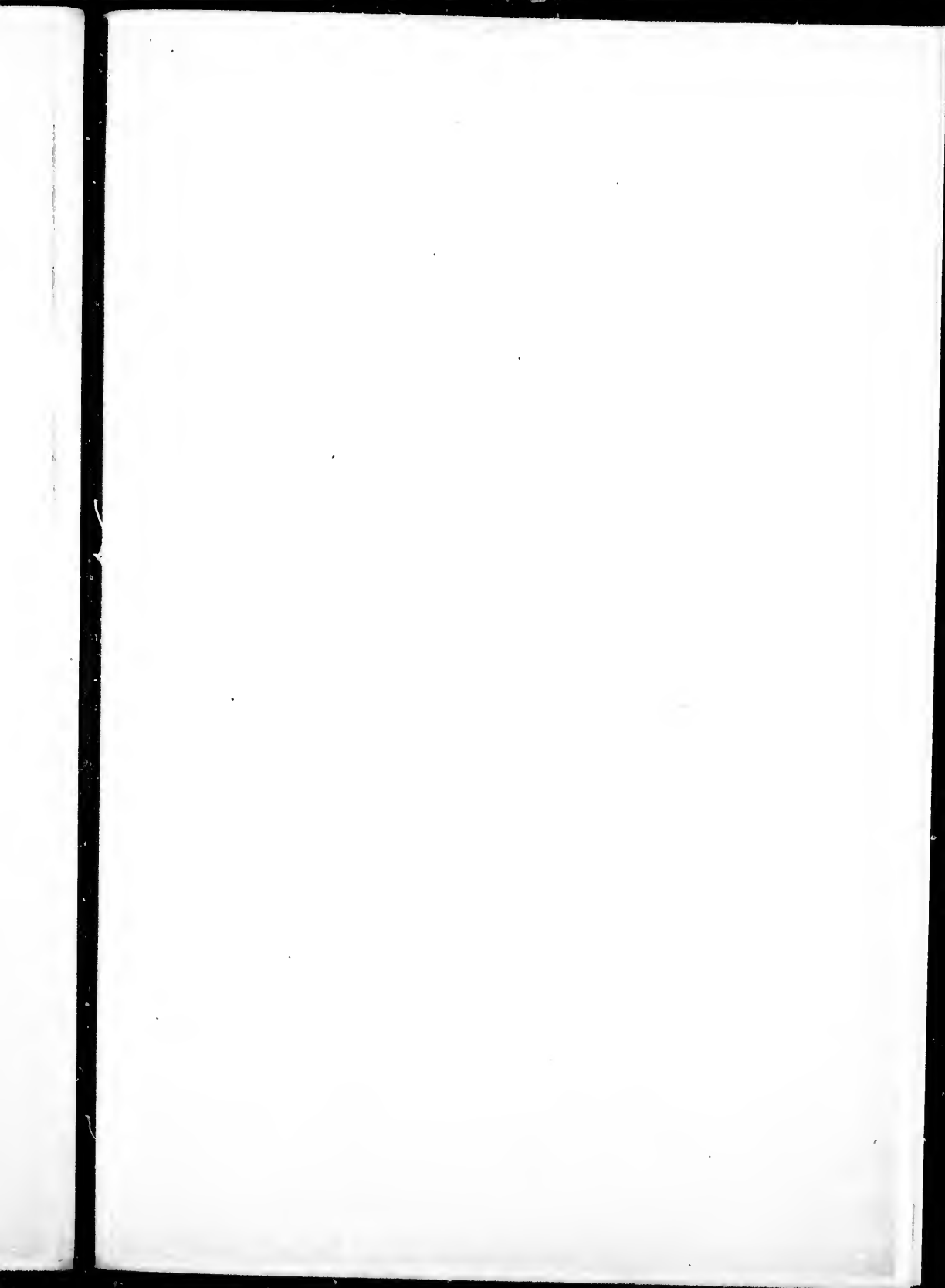
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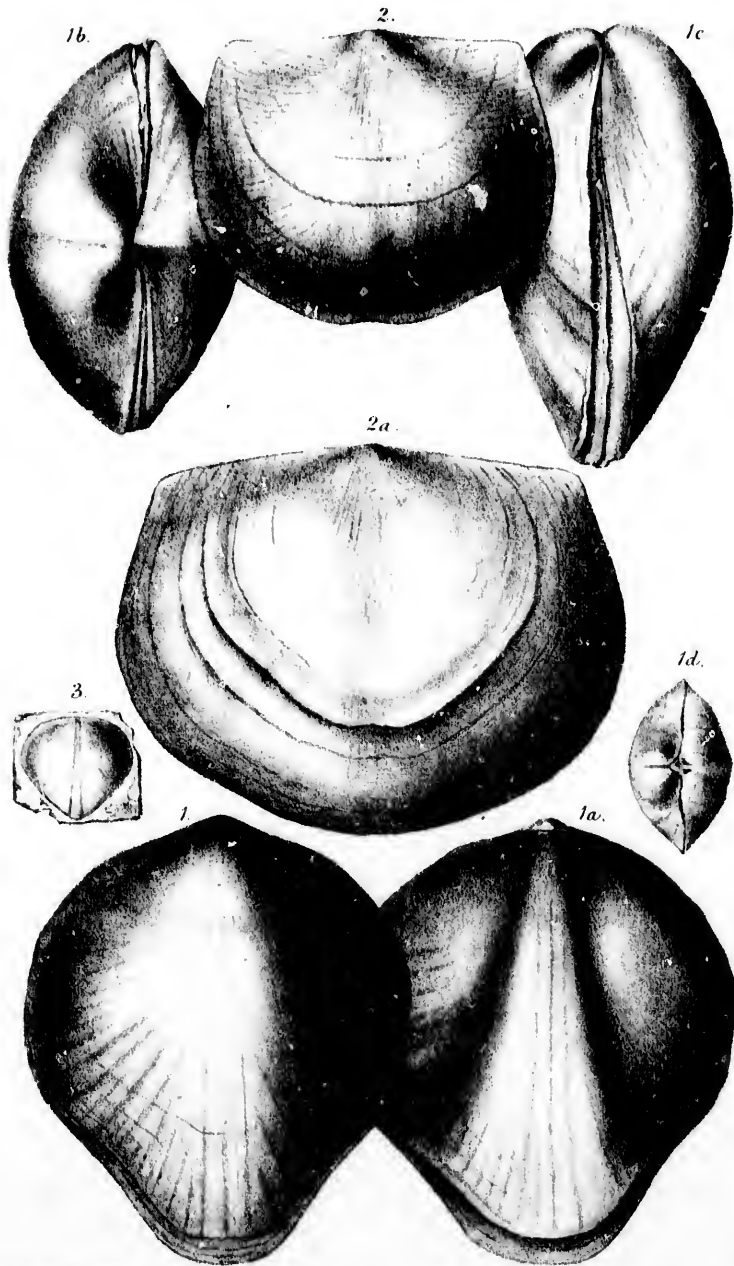
DESCRIPTION  
OF  
TWO NEW SPECIES  
OF  
STRICKLANDINIA.

BY  
E. BILLINGS, F.G.S.,  
PALAEONTOLOGIST TO THE GEOLOGICAL SURVEY OF CANADA.

1868  
(22)







H.S. Smith del. A. Hollück lith.

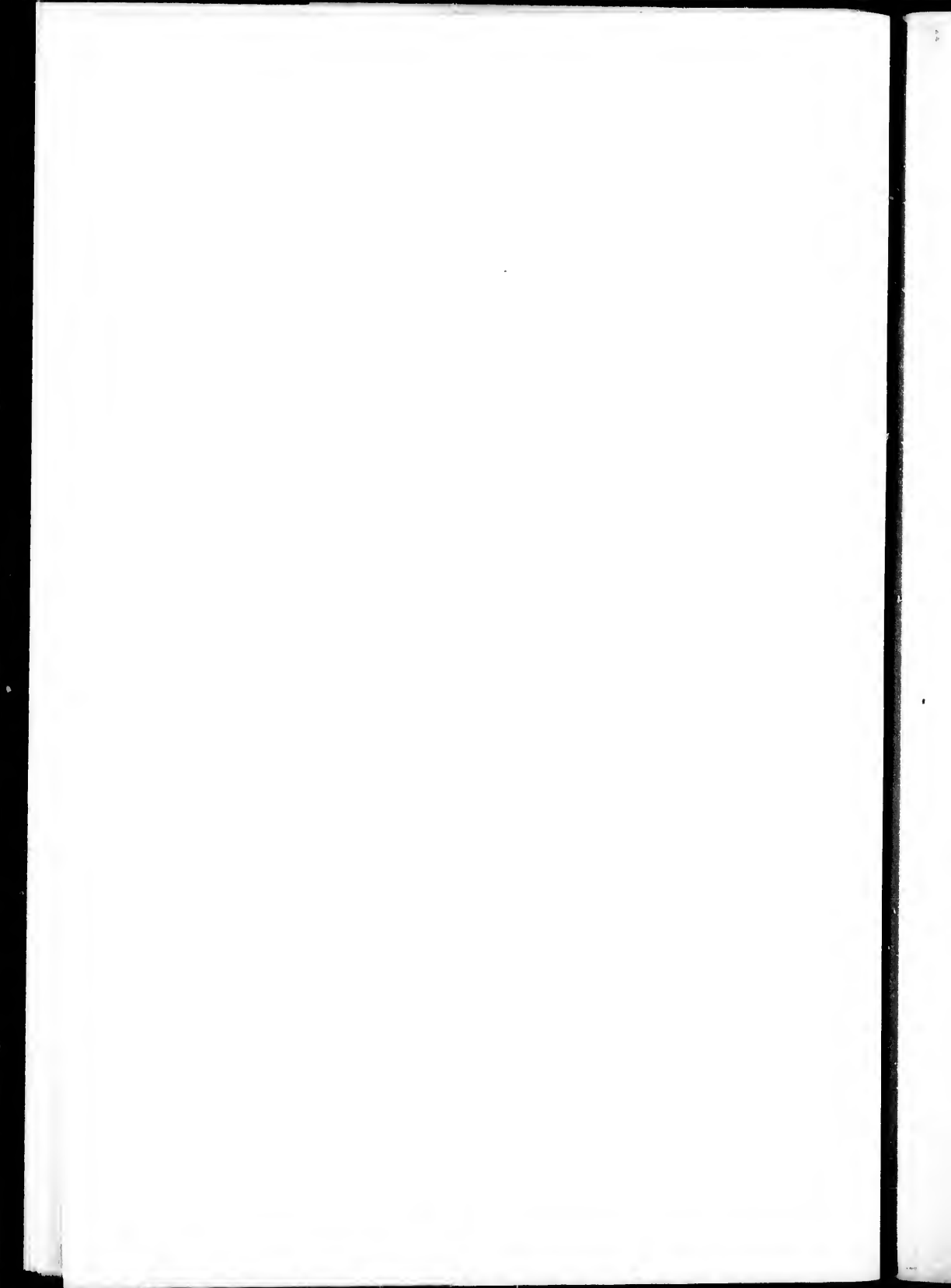
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Figs 1. 1d, *Stricklandinia Davidsoni*.

Figs 2. 2a, S. ———— *Salteri*.

Fig 3. *Pentamerus oblongus*.





[Extracted from the GEOLOGICAL MAGAZINE, Vol. V. No. 2.  
February, 1868.]

DESCRIPTION OF TWO NEW SPECIES OF STRICK-  
LANDINIA.

By E. BILLINGS, F.G.S., Paleontologist to the Geological Survey of Canada.

(PLATE IV.)

IN the "Canadian Naturalist and Geologist," vol. iv. p. 134. figs. 8-9 (1859), I figured a small specimen of a species of *Stricklandinia* under the name of *S. lens*; but, at the same time, stated that I was not certain whether it was the true *S. lens* or a variety. It was more pointed in front than any of the English specimens I had seen. It had been collected in the Middle Silurian rocks on the Island of Anticosti, along with numerous other specimens, most of them in a fragmentary condition. Among these I thought that *S. lirata* could also be identified; and thus both of the British species have been cited in several of the publications of our Survey.

Through the kindness of the author I received, several months' ago, "Part 2" of Mr. Davidson's "Monograph of the British Silurian Brachiopoda." The clear descriptions and beautiful illustrations of this magnificent work at once enabled me to perceive that we have not (so far as is yet known) either of the two species above mentioned. What I supposed to be *S. lirata*, is the adult of the form figured by me as *S. lens*. The young and small individuals are smooth; but with increasing size and age they become more and more strongly ribbed.

While re-examining the whole collection, with a view to this paper, I broke up several pieces of limestone, which were almost entirely composed of the imperfect and detached valves of another species, and succeeded in getting out several specimens, sufficiently perfect to authorize a description. We have thus two new species; and, as the error with regard to *S. lirata* and *S. lens* has been transferred from my publications into several important English works, it is thought advisable to describe them in the GEOLOGICAL MAGAZINE at once, without waiting for my next report, which cannot be issued for several months.

*Stricklandinia Davidsoii*, sp. n.—Plate IV. Figs. 1-1d.

*Spec. Char.*—Shell longitudinally ovate; sides and cardinal extremity rounded; front usually with a linguiform extension about one-third of the whole width, and of variable length, sometimes simply narrowed from the mid-length to a rounded point; greatest width about the middle, or a little above. The valves are almost equally convex. The ventral valve has, in young individuals, an obscure mesial sinus, which

becomes obsolete with age; towards the front this sinus often gives place to a well-developed fold. Some of the large individuals have neither fold nor sinus in this valve. The dorsal valve usually exhibits a fold, which becomes gradually broader from the beak to the front, where its width is equal to that of the tongue-like projection. The umbones and beaks are so slightly developed as to give only a very moderate angulation to the cardinal extremity. The hinge-line is about one-third or one-fourth of the whole width, and the areas are, in general, concealed by the close approximation of the beaks when the valves are in place; but in separated valves the ventral area is well seen: that of the dorsal valve is linear. In the interior of the ventral valve the mesial septum extends only four lines from the beak in a specimen thirty lines in length; the triangular chamber is apparently two lines in length. In the dorsal valve the socket plates are very short, and not united. They have, as yet, only been seen by grinding down the beak. The small specimens are smooth, or only exhibit faint indications of ribs; but as the shell increases in size the ribs become stronger, although in some of the larger (as in the one figured) they are not very distinct. In general there are three or four ribs running straight from the beak to the front; but on each side of these they curve outwards to the sides. The ribs are rounded, and there are from three to five in the width of three lines at the margin. There are also fine concentric wrinkles, not, however, always visible.

Length of large individuals, three inches; width, varying from nearly equal to one-fifth less than the length. They occur in all sizes from a length of three-fourths of an inch to three inches.

*Obs.*—*Stricklandina Davidsoni* differs from *S. lens*, in being more narrowed in front, more strongly ribbed, and in having the area concealed when the two valves are in their natural position. Notwithstanding the variable form of the shell, there are none, in a collection of nearly a hundred specimens, that could be considered specifically identical with any of those figured by Mr. Davidson in the "Monograph," pl. xix. figs. 14-21. But there is a dorsal valve from the Niagara limestone of Cabet's Head, Lake Huron, exceedingly like fig. 13. It is, however, quite distinct from *S. Davidsoni*, and I think from *S. lens* also.

As before stated the large individuals often have the ribs strongly developed, and curved out to the sides. They thus closely resemble the figure of *S. lirata* in "Sil. Syst.," pl. xxii, fig. 6. Indeed, I could very nearly re-produce that figure from some of our broken specimens. It is these that I thought could be identified with *S. lirata*. The small smooth ones I supposed to be *S. lens*; but, after seeing Mr. Davidson's figures, I re-examined the whole collection, and found that there is a gradual passage from the smooth to the strongly ribbed. The specimen figured (figs. 1-1c) is about as perfect as a fossil can be, and is a good example of an intermediate form.

*Position and locality.*—This species occurs at a number of localities around the coast of the Island of Anticosti, from Jupiter river to East Point. It is most abundant at South-west Point, where the specimen figured was collected. It is associated with *Strophomena rhomboidalis*, *S. pecten*, *S. antiquata*, *Leptaena transversalis*, *Orthis Davidsoni*, *Pentamerus oblongus*, *Spiriferu plicatella*, *Leptocoela (Atrypa) hemispherica*, *Atrypa reticularis*, and many others, mostly new species. The rocks belong to the Anticosti group, division 3, a horizon which is very nearly, if not exactly, that of the Upper Llandovery rocks. It also abounds on the mainland at the Schick-

schock mountains, on the south side of the St. Lawrence, about 250 miles easterly from Quebec. I have never seen a specimen from any other part of America.

*Stricklandinia Salterii*, sp. n.—Plate IV. Figs. 2-2a.

*Spec. Char.*—Shell transversely oval; width greater than the length; sides and front usually rounded, but often with an obscure linguiform extension. Hinge-line nearly as wide as the shell, straight and a little sloping on each side of the beaks. Both valves are gently and uniformly convex. The ventral valve has often a barely perceptible mesial sinus; the umbo small; the beak not incurved; the area very narrow, scarcely exceeding the thickness of the shell; the foramen (as seen in detached fragments) angular and open to the beak; the small chamber at the beak almost exactly like that of *S. levis*, and *S. microcamerus*, as figured by Sowerby, McCoy, and Davidson. The dorsal valve sometimes gives indications of an obscure mesial fold; but, in general, it is uniformly convex. I have not seen the area of this valve, but it must be linear; there is no umbo. Surface with several concentric imbrications of growth, and with very narrow obscure ribs, three or four in two lines, curving outwards to the sides, and some of them upwards to the hinge-line. These are also crossed by fine concentric wrinkles. When the specimens are slightly exfoliated all the surface-characters disappear.

Length of the largest specimen seen, twenty-five lines; greatest width of the same, at about the mid-length, thirty-three lines. Some of the specimens indicate a greater proportional length.

*Obs.*—There is no other known species with which this need be compared except *S. levis*, Sowerby, as described by McCoy, under the name of *Pentamerus microcamerus* (Brit. Pal. Foss., p. 210). The width of that species, in proportion to the length, is stated to be as fifty-five is to one hundred, whereas in this it is, on an average, about eighty to one hundred. This great difference in proportions rarely occurs in the same species. Messrs. Davidson and Salter are of opinion that McCoy's *P. microcamerus* is identical with *S. lens*. Be that as it may, the figure of *S. levis*, given by Sowerby in "Sil. Syst.," pl. xxi. fig. 21, seems to be distinct from *S. lens*, and also from *S. Salterii*. He says (*Op cit.*, p. 638), "Semicircular, compressed, smooth; a slight elevation along the middle; beaks rather prominent, the area between them narrow, with parallel edges. Length, eight lines; width, twice as much." The words "elevation along the middle" could only apply to the dorsal valves of *S. lens* and *S. levis*, in neither of which can the dorsal foramen be seen, when viewed in the position in which Sowerby's specimen is drawn, as it is in the figure cited. This figure, however, always appears to me to exhibit a sinus rather than a fold, in which case it would be a ventral valve. Judging from Mr. Davidson's figures, I should say that the upper part of the ventral valve of *S. lens* must be of a very different form from that of the specimen represented by Sowerby.

*Position and locality.*—*Stricklandinia Salterii* occurs at Heath Point and Cormorant Point, Anticosti, in the Anticosti group, division 3== to the Upper Llandoverly rocks.

Besides these two species there is a form with the ribs straight, which may possibly be a variety of *S. Davidsonii*. It occurs at Anticosti in the same beds with the others.

In describing *Stricklandinia* I unfortunately stated that "This

genus includes three English species, which have been long known under the names of *Pentamerus lens*, *P. liratus*, and *P. levis*." I was aware that the *P. levis* of J. Sowerby was the young of *P. oblongus*, and supposed that the name had become obsolete as to its first application. In that case *Spirifera? levis*, J. de C. Sowerby, which was a true *Pentamerus*, as the genus was then understood, became *P. levis*. That this is the one I had in view may be seen by the remark quoted from my Pal. Foss., p. 84, by Mr. Davidson in his "Monograph," p. 158. The sentence is irregular; but it was intended to read thus, "The hinge-line in some of the species, such as in *S. levis* and *S. microcamerus*, is straight and much extended."<sup>1</sup> This could not possibly apply to the original *P. levis*, which has no hinge-line at all: but it does apply to the figure of *Spirifera? levis* above cited. There is not the slightest trace of any of the generic characters of *Stricklandinia* in J. Sowerby's figure of *P. levis*, and it is impossible that I could have intended to include it in my genus. Several years before I proposed *Stricklandinia* I was under the impression that *P. levis* was the young of *P. oblongus* from comparing our own specimens, one of which I have figured (Fig. 3); and in 1858 I was informed, I think by Mr. Salter, that it was so regarded in England.

## EXPLANATION OF PLATE IV.

- Fig. 1.—*Stricklandinia Davidsoni*, ventral valve; 1a, dorsal valve; 1b, cardinal extremity; 1c, side view; 1d, cardinal view of a small specimen, with beaks ground off to show the chamber and septa.
- Fig. 2.—*Stricklandinia Salteri*, ventral valve, the right-hand cardinal angle restored. 2a, ventral valve, both cardinal angles restored.
- Fig. 3.—Young of *Pentamerus oblongus*, from the Niagara limestone at Cockburn Island, Lake Huron. When I read the paper on *Stricklandinia* in Merch, 1859, I exhibited to the Natural History Society of Montreal a specimen just like this, only a little larger, in order to show the difference between *Pentamerus* and *Stricklandinia*.—E. B.

