

the disappearance of the Atlantis.—*Comptes Rendus*, May 3, 1869, pp. 1040–1042.

*Note on the Structure of the Blastoidea.*

By E. BILLINGS, F.G.S., Palæontologist, Canada Geol. Survey.

The remains of the Blastoidea have as yet proved to be extremely rare in our Canadian rocks, only five small specimens (three of *Pentremites* and two of *Codaster*) having been collected up to the present time. While studying these with a view to their description, I was led to investigate the structure of the order, especially with regard to the function of the summit openings. On combining the observations of other authors, whose views I shall give in detail in another paper, I find that we have now sufficient data to establish the following points:—

1. In the genus *Nucleocrinus*, Conrad, there are sixteen apertures in the summit. Of these, the large lateral aperture is both mouth and vent. There is no opening in the centre of the apex, where the mouth has hitherto been supposed to have its position. The ten so-called “ovarial orifices” are respiratory apertures. Between each two of these, one of the ambulacral grooves enters to the interior through a small pore, which is a true ovarian orifice. There are thus ten spiracles, five ovarian orifices, and one buccal and anal orifice—in all sixteen.

2. In *Pentremites* there are also five ovarian pores, in the same position. The mouth is not in the centre, but in the larger of the five spiracles.

3. *Codaster* has no ambulacral pores in the so-called “pseud-ambulacral fields.” The striated surfaces in the interradian areas are true Cystidean rhombs of the type of those of the genus *Pleurocystites*. These in *Pentremites*, *Granatocrinus*, and *Nucleocrinus* are situated under the ambulacra, where they constitute the tubular apparatus described by Roemer and others.—*Silliman's American Journal*, May 1869.

*Tadpoles of Lissotriton punctatus reproducing the Species.*

By M. J. JULLIEN.

On the 11th of April 1869, the author obtained four tadpoles of *Lissotriton punctatus*, which he dissected the next day, when he found in two of them not only fully developed ovaries, but in the oviducts eggs enveloped in the usual gelatinous layer. The other two were males. The only external differences between the two sexes were that in the females the labia of the cloaca were more developed than in the males, and that the body was shorter in the latter. The two females were as large as adults.

The testes, which were pretty well developed and fusiform, contained mother cells of spermatozooids, but no free spermatozooids. The ovaries formed two fine bunches, and the oviducts contained perfectly developed eggs in both females.

Subsequently the author obtained two more female tadpoles, which deposited several eggs in the course of a few days, without acquiring the adult characters.—*Comptes Rendus*, April 19, 1869, pp. 938, 939.



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