

fragments of gold and blue sapphire, to the amount apparently of one fiftieth part—the former often united with quartz, and more or less covered by an opaque uncrystalline substance of a yellow-red colour, like that about the “gold-quartz” of California.

This is the first time out of the many “sea-bottoms” examined from different parts of the world that I have found gold present; and as the Seychelle Islands are composed of granite, it seems to me desirable, when the opportunity offers, that they should be prospected for “auriferous quartz.”

To the different forms of sponge-spicules, which prove to me that the “dust” came from *this Euplectella*, I shall advert on a future occasion.

*On a new Marsupial from Australia.*

By Prof. R. OWEN, F.R.S. &c.

The Australian marsupial, the subject of my note in the ‘Annals and Magazine of Natural History’ for December 1877, I have since found described in the ‘Proceedings of the Linnean Society of New South Wales,’ Sydney, 1876, p. 33, under the name of *Hypsi-prymnodon moschatus*, by the accomplished Curator of the Australian Museum, Sydney, E. Pierson Ramsey, F.L.S., C.M.Z.S.

*Metamorphosis of the Cantharis (Cantharis (Lytta) vesicatoria).*

By M. LICHTENSTEIN.

For a long time the entomologists of all countries have sought to discover the transformations of the Cantharis. In 1837 M. Mulsant, of Lyons, said, in his ‘Histoire des Vésicants,’ “The study of the metamorphoses of the Cantharides will furnish the subject of a curious chapter to the naturalist who shall succeed in tracing their development.”

Since this period I have investigated this question; and now, at length, I believe I can give the entire history from the egg to the pupa.

On the 27th of June I took numerous Cantharides from the ash, selecting fecundated females having the abdomen distended with eggs. Two or three days afterwards they set to work to dig into the earth in the vessel in which I kept them, and, in the little cylindrical holes they formed, deposited masses of from fifty to sixty eggs and more, agglomerated together, and of a hyaline whiteness. About seven days after the oviposition there issued from these eggs larvæ, called by Léon Dufour *Triungulini*, and figured by Réaumur, Ratzeburg, and Mulsant. They are 1 millim. in length, and of a dark brown colour, with the two segments of the meso- and meta-thorax and the first segment of the abdomen whitish. The abdomen is terminated by two long filaments. This was previously known.

After a thousand fruitless trials, I succeeded in getting these larvæ to accept an artificial nourishment, consisting of the stomachs of bees which had just sucked the juices of flowers. These larvæ



increased in size; and five or six days afterwards their skin split. There then appeared a perfectly different larva, of a milk-white colour, without caudal appendages, and having only very soft integuments in place of the coriaceous envelope which it had just thrown off. Here, again, I was obliged to feel my way to find an acceptable food; and supposing that in nature the larvæ live on the concreted honey of the subterranean bees of the genera *Halictus*, *Andrena*, and their allies, I offered them honey of *Osmia*, and especially of *Ceratina*, the only one I had at hand in my apiaries.

Although considerably objecting to this nutriment, which evidently is not that intended for them by nature, my larvæ, finding nothing else in the glass tubes which served as their prison, ate the honey of *Ceratina*, grew, and moulted three times. Gradually the jaws, at first smooth and much pointed, acquire first one, and then two teeth on the inner side; the antennæ change in form; the eyes, at first very visible, disappear by degrees; and finally, in about thirty days, a larva, arrived at its full development (about 2 centims. in length), moved uneasily in its tube, indicating sufficiently that it wanted a condition indispensable to its transformation, namely the earth.

I was willing enough to furnish it with this, but wished at the same time to be able to continue to observe it. I therefore took a glass tube about 2 centims. in diameter, stopped at its extremity by a piece of sponge, and 3 inches long; this I buried in the moist earth of a vessel; then, after filling it with garden mould, I put my larva into it. The latter soon set to work with ardour; by the aid of its strong legs and horny mandibles, it quickly buried itself and concealed itself from my view. This was on the 7th of September; after waiting eight days I carefully drew out the glass tube, and, to my great joy, saw against its walls a small rounded cell in which the larva reposed. But the next day (16th September), and therefore nine days after it had buried itself, the skin of this last larva split in its turn and left me in presence of the *pseudonymph*, which is common, I believe, to all the Vesicantia; that is to say, there is a true chrysalis with a coriaceous envelope surrounding the actual nymph, which will be afterwards marked out.

I ought, perhaps, to have waited for the exclusion before making the present communication to the Academy; but as the last transformation will not take place till towards the spring, I thought that it would be of interest to make known the Cantharis in its different forms from the egg to the *pseudonymph*. The latter is slightly arched, of a light brown colour, with the head and feet showing themselves in the form of obtuse mamillæ. The skin of the larva is completely thrown off, whilst in *Meloë* it half envelops the pseudonymph, and in *Sitaris* covers it entirely\*.—*Comptes Rendus*, October 1, 1877, p. 628.

\* This summary will be completed in a memoir that I am preparing with M. Valéry Mayet, who is at present busy making the drawings of the different states of the insect. This paper will appear in the 'Annales de la Société entomologique de France.'



Lichtenstein, Jules. 1878. "Metamorphosis of the Cantharis (Cantharis (Lytta) vesicatoria)." *The Annals and magazine of natural history; zoology, botany, and geology* 1, 103–104. <https://doi.org/10.1080/00222937808682300>.

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