IX. *An Account of Margarodes, a new Genus of Insects found in the Neighbourhood of Ants' Nests. By the Rev. Lansdown Guilding, B.A. F.L.S.*

Read December 4, 1827.

I USED to imagine that nothing would give me so much pleasure (excepting the discovery of a recent Belemnite), as an opportunity of investigating those curious and minute bodies which have been so often sent to Europe in collections of shells, under the name of ground pearl; and by accident I have at last been gratified in this respect.

The only person who has lately noticed them is Dr. Nugent, a learned geologist resident in Antigua. In the second part of the fifth volume of the *Transactions of the Geological Society of London*, page 463, he informs us, that the ground pearl (erroneously supposed to be fossil) occurs in the marl of that island, and "is found in prodigious quantity in the furrows of the land when newly turned up." Dr. Nugent appears, however, to have suspected its real nature, for he says, (page 473,) "that though it be derived exclusively from the marl, it may possibly be in some unaccountable manner the production of some recent insect on the surface. The ground pearl generally has an opening as if the larva had escaped; but in a few cases I have found them without opening, containing a minute portion of mucous matter: the negroes then call them live ground pearl. It is singular that turkeys and other poultry devour these ground pearls; and their

death ensues in consequence, unless immediate relief be afforded. Vinegar is poured down the throat, which probably dissolves these substances in the crop, and thus removes the distention they had occasioned. The astonishing quantity in the land puzzles me. I know of no insect sufficiently abundant to produce them in such vast quantity. The ant and the musquito are the only insects whose number bears any proportion to these little substances."

With the musquito they are of course in no way connected; but I have every reason to believe that the animal is placed by a merciful Providence in the dry colonies, as a parasite to keep down the numbers of those little invincible and voracious creatures the ants, which would otherwise swarm in countless myriads uninjured by the rains which thin their ranks in the mountainous and more rainy islands. They occur plentifully in the Bahamas; and, under the name of ant-eggs, are strung into necklaces and ornamental purses by the ladies. In the rainy climate of St. Vincent they have not been found; but in the smaller islands of the Government, which, from the absence of gigantic mountain ranges, are subject to continued drought, these bodies are met with in abundance. On a late visit to the Union Island I collected a boxfull; and suspecting that others had failed in tracing the animals to maturity from improperly placing them in too dry a situation, I brought them home in moist marl, and had soon the satisfaction to observe the insects which are here figured issuing from the pearls. I lament to say, that from the distance of this island, it may be a long time before I am able to obtain an animal so delicate and small in its state of ovum and larva; or have an opportunity of observing them *in coitu*, to ascertain whether there be any apparent difference in the structure of the sexes.

I met with them most plentifully in marly soil about stones, under

under which some families of ants had established receptacles for their broods. Many lay near the surface, while others, buried at the depth of many inches, would require (even aided by their strong fossorious legs) the favourable opportunity of a shower to enable them to penetrate to the surface, and attack the congregated larvæ of the ant. Though armed with a noble microscope, I cannot satisfy myself as to the form of the foramen in the anterior claws, through which the liquid food is pumped, as in the mandibles of the larvæ of the *Myrmeleonidæ*. I do not remember any other *perfect* insect in which the mouth is altogether wanting, and the food is absorbed by tubes ending in a foramen; and it will probably be found necessary to constitute a new order for its reception. It is curious, too, that the tubes for feeding should be seated in the anterior *legs*. It is well known that the raptorious legs of the *Scolopendridæ* are tubular, but this structure is only applied to the injection of the deadening poison by which they kill or stupefy their prey.

I once thought that the ground pearls were the ova of some insect; but from the great diversity in their size and shape it was impossible to maintain this opinion: the ova of the same insect rarely differing in any very sensible degree. It was moreover easy to trace on the greater number of specimens, when cleaned, a rostriform projection (*tab.* 12. *f.* 5. *a.*), with several minute and obliterated spots, which seem to mark the position of the legs, or rather, perhaps, the spiracula of the larvæ: the anal portion of the pearl is also remarkable for five minute and regular spots, two placed in a line, and three (*tab.* 12. *f.* 6.) smaller ones in a triangle between them. The pearl is irregular in its outline, the smaller specimens are roundish, while the larger ones are swollen on the sides, with the anal termination often bent upwards (*tab.* 12. *f.* 5.). The whole puparium is covered with large caducous scales, which strongly *effervesce* and disappear in nitric and muriatic acids,

acids, while sulphuric turns them black. Vinegar slowly decomposes them. Exposed to flame they bubble and burn like horn.

A most remarkable circumstance in the history of these animals is, the power which the puparia possess, when placed in too dry a spot, to throw out gradually certain filiform and very long organs, for the purpose of preventing the drying and destruction of the animal within by obtaining moisture by capillary attraction. These organs I have named *Siphones* (*fila absorbentia*), a term, I believe, not already selected by Mr. Kirby. They appear tubular, and are composed of parallel friable fibres. At first I readily accounted for their appearance, by supposing that they were delicate filiform fungi which had sprung up on the pearls; but on further investigation it proved that, contrary to the law observed by Fungi, they were thrown out when placed in a very dry camphorated box, or on dry soil; and that they only sprung from the half-obliterated spots which seem to mark the position of the spiracula of the larva. There can, therefore, be little doubt as to the use of these singular threads, which seem to have no analogues in the animal kingdom, and which imitate in so curious a manner the operation of some vegetable organs.

St. Vincent, July 24, 1827.

INSECTA.

ORDO ??*

Genus. MARGARODES. *Guild.*

Character Genericus.

Corpus obesum, molle.
Caput evanidum.
Thorax abdomine annuloso vix distinctus.

* Ordo, statio, et affinitas omnino incerti. Locum monstret doctissimus amicus Dominus Kirby.

Os

Os nullum.
Oculi nulli, aut omnino obscuri.
Antennæ mediocres, filiformes, 7-articulatæ, sub fronte approximatæ.
Manus validissimæ, fossoriæ, raptoriæ, unguiculis foraminatis?
Pedes minuti, breves, gressorii, unguiculis simplicibus.
Anus terminalis.
Corpus adminiculis scabrum. *Motus* valde segnis.
Ovum?
Larva?
Pupa. —— Metamorphosis subcoarctata.
Puparium margaritiforme, suboperculatum, squamis calcareis tectum.
Siphones (fila absorbentia pupæ), longissimi, mox spirales.

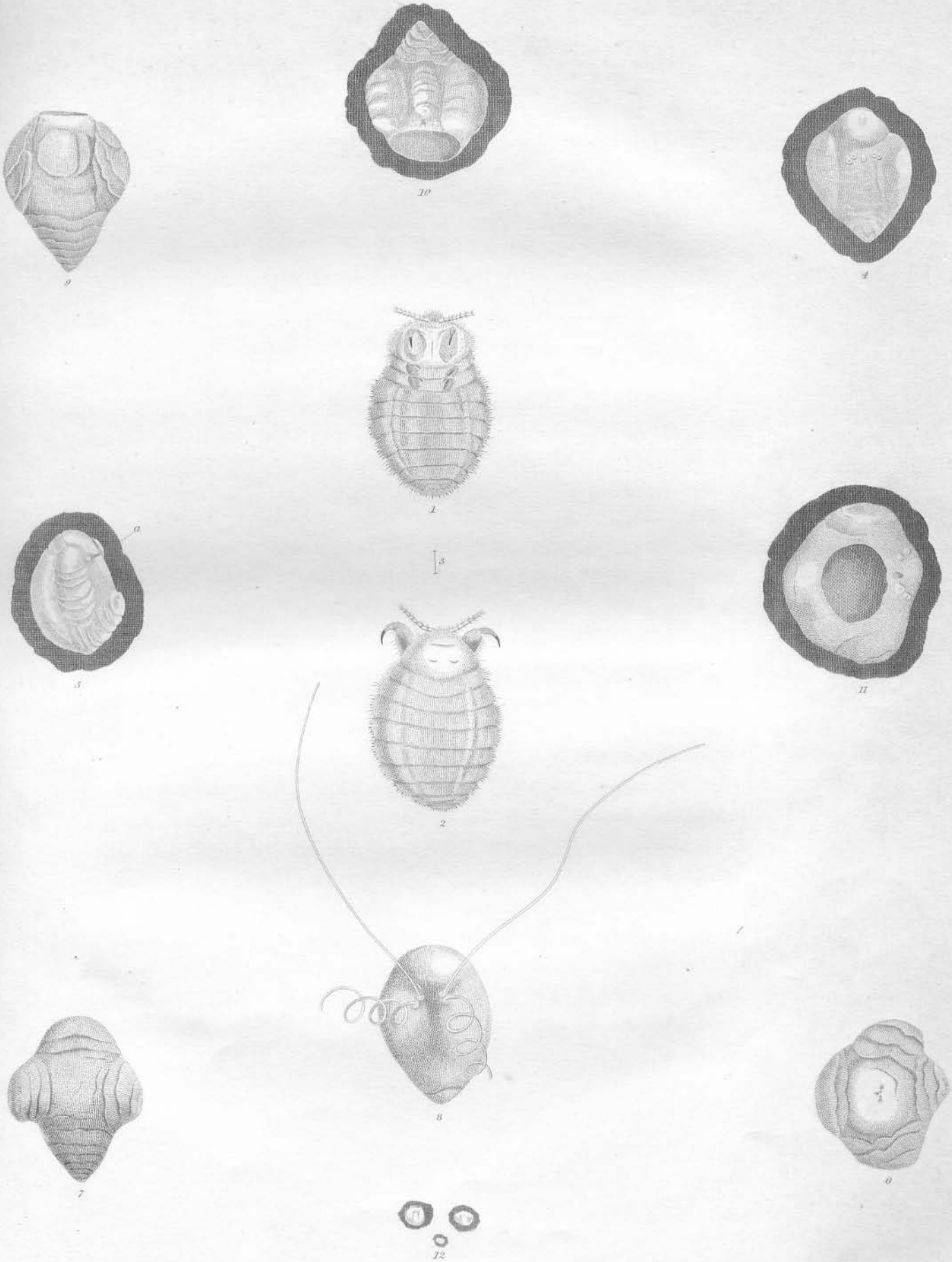
MARGARODES FORMICARUM.

TAB. XII.

M. totus flavescens, hirsutulus; unguiculis brunneis, recurvis.
Habitat mirè frequens in Coloniis aridis Indiæ Occidentalis; an formicarum destructor?

EXPLICATIO TABULÆ XII.

Figuræ 1. & 2. Margarodes formicarum auctus. Fig. 3. Long. nat. Fig. 4. Puparium squamâ operculiformi infractâ. Fig. 5. Idem ad latus visum, rostro projecto (*a.*). Fig. 6. Puparii anus signatus. Fig. 7. Varietas ferruginea. Fig. 8. Puparium siphonibus exsertis. Fig. 9. Idem operculo rejecto, ad dorsum visum. Fig. 10. Idem ad ventrem visum. Fig. 11. Antrum puparii. Fig. 12. Mag. naturalis.



Margarodes formicarum.