Fig. 3. The pupa, natural size. 3 *a*. The same magnified.
Fig. 4. The perfect beetle seen from above.
Fig. 5. The same, ventral aspect.
Fig. 6. The eggs of the same highly magnified.
Figs. 7, 7 *a*, and 8, 8 *a*, represent the Eggs of two Lepidopterous insects also found on turnips by Mr. Le Keux, by whom they were reared:—the first is that of *Leucophasia Sinapis*, or Wood White Butterfly; and the second, that of *Plusia Gamma*, or the Y. Moth. Fig. 7 and 8 being of the natural size, and 7 *a*, and 8 *a*, magnified.

VI. *Description of a new Irish Crustaceous Animal.* By Robert Templeton, Esq., *R.A.*

1837

[Read September 7, 1835.]

(Plate V.)

A short time since, I received from my friend R. Patterson, Esq., Vice-President of the Belfast Society of Natural History, specimens of Irish *Crustacea*, the greater part of which, though not new to the British fauna, are yet met with but rarely, and the whole, with one exception, not recorded by my father as natives of our Irish coast. As however I have not yet had time to give them all a thorough examination, I shall defer notice of any excepting two species which present some singular peculiarities, and tend to remove in some measure the doubts which have existed as to the proper position in the scale of animated beings to be assigned to one of them; since a similarity, I conceive, may be traced between the organs of manducation in these, and in genera whose position has been correctly ascertained, sufficient to warrant their being associated: data are also offered us from whence to infer the accuracy of a surmise of the celebrated Latreille, whose sagacity and penetration stand in estimation so deservedly high, that any thing tending either to confirm or disprove his views, derive from that circumstance alone increasing interest.

The first of these specimens I imagined at first glance to be a *Nebalia*; it however proves remarkably distinct and requires the establishment of a new sub-genus. I received eight specimens, six of which have been sacrificed in the examination of the mouth, and the two remaining I forward to be placed among their congeners in the Society's collection.

CRUSTACEA, *Briss. Lam.*
ENTOMOSTRACA, *Müll.*
BRANCHIOPODA, *Latr.*
LOPHYROPA, *Latr.*
Genus CYCLOPS, *Müll.*
(Sub-Genus ANOMALOCERA.)

Antennæ 4. superioribus duabus multò longioribus, cujusdam qui mares existimantur dextrâ in medio tumidâ, suprà et extrà oculi pedunculum exorientibus; inferioribus, palpiformibus, virgâ minutâ ad apicem pilosâ è basi procidente, trium articulorum ultimis pilis longis curvatis instructis.

Oculus unicus, in maribus valdè peduculatus, in alteris (fœminis) subsessilis.

Corpus elongatum, sensim posticè angustatum, segmentis 6 divisum: segmento primo majore, subtriangulare, in medio lateris dente incurvato et cum rostro deorsum bifurcato et hamato, super oculum porrigente.

Cauda ultimo segmento, appendicibus duabus lamellatis quasi natatoribus instructo.

Pedes natantes pari 4. subæquales, ultimis articulis (me observante) indivisis, sed intrà cum lanceolis uno latere serratis, extrà hamis tribus. Parum ultimorum pedes in sexubus et inter se dissimiles, maris dexter articulo apicale tumido, processu obtuso quasi pollice, et digito mobili instructo, sinister unguibus tribus rectiusculis.

ANOMALOCERA *Patersonii.*

Body elongate, contracting posteriorly, composed of several joints; the first large, sub-triangular, with obsolete sub-divisions, and a tooth on each side near the middle; rostrated anteriorly, the rostrum curving downwards and dividing into two strong curved hooks which divaricate, the eye in some, which are presumed to be males, standing out between them. The joints of the body successively diminish in extent, the last prolonging itself into lateral acuminate processes. The tail is composed of three or four joints, the last with two spatulate lamellæ, to which are articulated at the apices five long, flat, hairy lances, the outer being externally serrated and occasionally contracted in its dimensions.

The *antennæ* are four. The superior about $\frac{2}{3}$ the length of the body; in those, which I shall continue to call males, dissimilar, in the females alike, being with that on the left side of the males tapering, spiny, and numerously articulated, one articulation at the

base and those beyond the middle being distinctly marked, the rest obsoletely, and at this part the spines are very strong and are inclined slightly inwards. The right superior antenna of the male is very singularly formed, being swoln out about its middle; it is composed of nine joints, the first basal is very minute and seems more like a little jutting process carrying the antenna, than a part of that organ; the second joint is very large, longer than a fourth part of the antenna, it swells out just beyond its origin and has beneath, projecting inwards, a pinnate spine; towards its apex it gradually diminishes in diameter, and curves downwards to meet the next joint, a spine jutting out from the curvature: the next joint is very small, lobed and with pencils of hairs and a strong spine anteriorly: the fourth joint very large, obpyriform, irregular, obsoletely divided into five joints, particularly well made behind, and furnished in front about its middle with an articulated process, curved, toothed, and hooked at its extremity. Several pencils of hairs and spines project from this joint anteriorly: the fifth joint is about half as long as the last, is slightly curved, and has about thirty minute teeth ornamenting the sinus; the sixth joint is smaller, irregular, and has the basal half similarly furnished with about twenty still more minute teeth; the last three joints are minute, elongate, and subequal. The *inferior antennæ* are very short, palpiform, remote at their base, three-jointed; the first joint sending inwards and upwards a minute, elongate, clavate appendage, with long spiny hairs at its apex. The second joint is longest, and the third is somewhat triangular, deeply notched at the apex, and furnished with strong porrect spines or hairs curved toward their termination.

The *eye* in the supposed females is sessile, occupying the summit of a conical eminence; in the male it is placed on a large thick peduncle which projects beyond the hooks of the rostrum; the base of this peduncle is contracted, and is connected to the head by an articulation which admits of a slight degree of motion.

Immediately beneath and behind the inferior antennæ are the parts of the mouth and maxillary apparatus. The first in order is an upper lip, which seems thick, curved and furnished with hairs; two rounded bodies extend backwards and laterally from this, whose surface is studded with minute spatulate, serrated, or pinnated bodies, resembling thick short bristles, and precisely similar to those figured in the Magazine of Natural History for January 1834, on the maxillæ of a species of spider; between these rounded bodies is the slit-like opening of the fauces, and from their base posteriorly arises a palpus or thoracic foot, five-jointed, the second being elongate, somewhat *f* shaped, when at rest pro-

ceeding backwards, and having articulated to the apex superiorly the third joint, which is similar in form, of nearly equal dimensions, placed erect, and supporting externally a minute fourth joint: the fifth is large, tumid in its middle, and with two minute articulated processes which give origin to pencils of long, curved, hairy spines. Behind and between these appears a singularly formed body, flattish, placed longitudinally, sub-quadrangular, and with stiff spines passing forwards and backwards, and from near the posterior inferior angle a large elongate process, partially articulated to it, which proceeds downwards and forwards, spined at its apex, and carrying near its base an irregularly lunated body, with strong waved spines passing backwards from its horns. In the female specimens I detected behind the above another smaller appendage, also quadrangular, with long waved hairy spines, directed forwards and entangling with those of the last described body, and with an elongate articulated spined process from its inferior angle. I do not know whether it is to be found in the remaining specimens; but, from the exact similarity of the more obvious pieces, I have every reason to expect its existence in them. The last part, connected in any way with the organs of the mouth, lies exterior to that described above, and lies immediately beneath the posterior angle of the large ring of the body; it is very large, irregular, curved forwards with traces of articulations, the anterior margin being divided by clefts into processes, which sustain at their apices one or two long, coarse, hairy spines, arched upwards near their tips, and obviously intended to entangle the minute objects which serve as food to the animal. It may be named a thoracic foot.

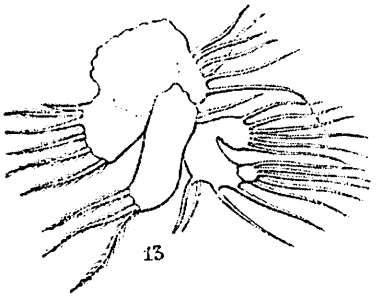
The *swimming feet* are four pairs: the fourth joint of each is flat and dilated backwards so as to be broadly triangular; the lamellate joints, which seem three in number, have two or three strong short hooks articulated externally, and flat-toothed lances internally. The last pair of feet are unlike each other and dissimilar in the sexes, if I be correct in supposing those to be females which have the undilated antenna. In the male, four articulations of the left foot project beyond the testa; the first small, somewhat elongate and curved; the second large, tumid, rounded posteriorly; the third longer, somewhat arched, with a blunt tooth at the apex, posteriorly, and the articulation for the last joint directed forwards. The fourth, or last joint, is minute, conical, and supports a very small articulated appendage, which is armed with the three claws. The right foot has in the same space only three articulations, the two basal sub-equal, swoln posteriorly; the last flat, roundish, with a blunt process anteriorly directed downwards

and resembling a little thumb, towards which approaches the apex of the long, cylindric, curved finger which is articulated to the joint behind. In the female the leg has the first joint very large, obsoletely subdivided, and by a longitudinal channel, marked out into two parts, the inner of which supports a very short bifurcate member capable of retraction, the outer the three last joints of the leg; the basal of which is elongate, nearly straight, and with a spine or long tooth near its apex. The next joint smaller and shorter, with a tooth occupying a similar position, and an elongate tapering articulated process on the opposite side. The last joint dilates a little towards its apex, giving origin to three moderate-sized teeth, and one long, flat, and toothed process directed inwards.

To the first joint of the tail is attached beneath a biarticulate spatulate appendage; it was confined to the left side of the female, and is probably a collapsed ovary.

Length, 0.12 inch.

PLATE V.*



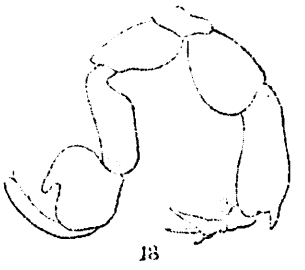


Fig. 1. Represents the male magnified, the parts of one side only are represented except the tumid antenna, the more anterior of the last pair of legs, and a process beneath the tail which belong to the opposite side.

Fig. 2. The female.

Fig. 3. The same specimen seen from above.

Fig. 4. The appearance of the left antenna of the male, and both of the female.

Fig. 5. The right antenna of the male.

Fig. 6. The inferior antenna, with the minute branch set off from the base.

Fig. 7. This minute branch still more magnified.

Fig. 8. The head seen from beneath. Anteriorly the basis of the antennæ with the rostrum curving down between them and splitting into its two hooks. The sessile appearance of the eye in the female, next in order. And lastly, the mouth, with the lip, mandibles, and palpus.

Fig. 9. These parts of the mouth seen in profile.

* Figs. 13 and 18 have been introduced as wood-cuts, there not being sufficient space for them in the plate.—Sec. E. S.

Fig. 10. One of the hairs greatly magnified.
Fig. 11. The terminal joints of the palpus, as seen sidewise.
Fig. 12. The same seen from behind.
Fig. 13. The third pair of appendages to the mouth, seen sidewise.
Fig. 14. The first leg, or last appendage to the mouth, seen laterally.
Fig. 15. A body, the exact position of which I could not ascertain, but believe that in the female it lies between the pair fig. 14., and behind those marked fig. 13. The minuteness of the animal rendered it impossible to ascertain the point clearly. The moment the separation of the parts No. 14. was effected, I found this, but could not tell where it came from; it is perhaps basally attached to No. 14.
Fig. 16. One side of the tail and the swimming feet beneath, seen from above.
Fig. 17. The underside of the terminal joint of the right last foot.
Fig. 18. The last pair of legs in the male.
Fig. 19. The last pair of legs in the female.
Fig. 20. The apical joint still more magnified.
Fig. 21. Form of the fourteen minute teeth on the long process.
Fig. 22. An appendage to the first joint of the tail in a female specimen only observed on the left side—it may have existed on the other—and is most probably a collapsed ovary.

My friend Mr. Patterson has furnished me with the following interesting particulars in a letter which accompanied the specimens. "The sketch I send you is a very rude representation of a small *Crustacea*, five or six specimens of which are sent on a card. The drawing has no pretensions to accuracy except so far as the antennæ are concerned, and in these the anomaly of two distinct forms made me delineate them with as much accuracy as in my power. This difference is not perceptible in all the specimens. The rostrum in the part which is inked (Note.—This refers to the pedunclc of the eye) is a dark blue. The colour of the animal is itself a bright green, mottled with darker shadings; the green colour is very fugacious, and observable only in the recent specimens. The antennæ are covered with numerous small hairs. The feet beautifully fringed and formed for swimming. * * * * The first time on which I took any of these was in crossing the ferry, at the mouth of Larne Lough, county Antrim, in the evening of the 2nd of May. They were so numerous, that in the space of about fifteen minutes above three hundred were taken. Though kept in a glass jar of sea-water they all died during night, and were almost colourless next morning. The ensuing day I passed the ferry, but only took four specimens. These I lost, as well as some of those of the previous evening, by having *Beroes* in the same vessel. The fact of the *Beroes* feeding on small *Crustacea* has been recorded by Fabricius, and at present appears to rest on his authority. It was interesting to *observe the fact*, which I did without

knowing it was previously known.* The *Crustacea* were almost as visible in the transparent body of the *Beroe* as they had previously been, and very conspicuous by the bright green of their colouring. From the 3d of May I was almost daily using my towing net, yet did not take another specimen of this animal until the 16th of the same month; on that day I took sixteen of them, but was at the time on the point of starting for Belfast, and had only leisure to make the rude drawing I have given, and attach the specimens hastily to cards.

"They swim with a lively and constant motion, and jerk themselves out of the way when pursued. I am anxious to know what they are, as they form a portion of the food of a tentaculated *Beroe*, which differs in many respects from the description and drawing of the *Beroe Pileus* given by Dr. Grant, and which I am at present inclined to regard as a distinct species."

(The descriptions of the other Species alluded to in the introductory remarks will appear in the next Number.)

VII. *Notes respecting the Variety of the Silk-Worm which spins white Silk. By* W. Sells, *Esq., M. E. S.*

[Read November 7, 1836.]

As I was desirous of giving some attention to the history and economy of the new variety of silk-worm, the eggs of which were stated to have been imported from China, and were distributed among some members of the Society at their June meeting, I made some notes from day to day, a copy of which is now submitted to the notice of the Society.

June 7.—The eggs began to hatch on the evening of their distribution, and the young worms were all out in the course of eight or nine days; as mulberry-leaves were easily procured in abundance, and they were regularly fed, they throve remarkably well, and arrived at maturity by the last week of July.

August 4.—The worms have been spinning their cocoons of perfectly white silk during the last week; they are decidedly larger than those of the common sort, and vary much in figure, several being nearly spherical, others cylindrical,

* M. Risso mentions his finding *Phronima sedentaria* in the interior of a *Beroe*.