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William Clark Esq.

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XIII.—*Further Observations on the Chemnitzia*.

By WILLIAM CLARK, Esq.

To the Editors of the Annals of Natural History.

GENTLEMEN,

Exmouth, July 18, 1851.

AFTER the many admissions to the 'Annals' I have lately been favoured with, I would gladly have withdrawn for a moment from the invasion of its pages, but an unexpected discovery, which was so forlorn a hope, that even the Gods would hardly have dared to promise the fulfilment of, having occurred, I am irresistibly led to present myself again to your notice, lest I should be guilty of a neglect to science, to the 'Annals,' and its readers. I announce the discovery of one of, perhaps, the rarest of the British Gasteropodan unrecorded molluscan animals, the shell of which I found near thirty years ago at this place; and my then specimens, I believe, passed into Mr. Jeffreys' hands, but by some strange omission this elegant object has until very lately remained without a name; the cause has perhaps been its anomalous aspect; as soon as I was aware of this circumstance I flew to the rescue of my own discovery, and in the 'Annals,' vol. vi. p. 459, N. S., I hazarded a conjecture of its position, and honoured my protégé with the name of a lady of distinguished science; I need scarcely say that the species I allude to is the *Chemnitzia Gulsonæ*. This rare creature was met with in the coralline zone of the South Devon coast, at Exmouth, in thirteen fathoms water; it remained alive three days, and furnished me with the minutes I now submit. It is necessary to say, that my friend Mr. Jeffreys did not concur with me in my opinion of the natural position of the animal, and announced his conflicting views in the 'Annals,' vol. vii. p. 27, N. S.

I also send descriptions of four other rare unrecorded *Chemnitzia*; that on the *C. Sandvicensis* being a continuation of the paper in the 'Annals,' vol. vii. p. 388, N. S.

Chemnitzia Gulsonæ, Clark.

Animal inhabiting an elongated, slender, hyper-hyaline shell of six rounded volutions, the body occupying half the axis, with a large patulous, sinuated, and a little outwardly reflected aperture, the peristome of which is entire; the animal rarely protrudes the eyes and tentacula; the tip of the effete muzzle, the mentum of authors, is only seen, and also a part of the foot, which is so short as almost to allow of progression within the aperture. The shell is of such hyaline purity as to give a full view of the organs as if they were without that protection; the mantle is flake-white and even with the shell; the neck is very

long, cylindrical, like that of the *Chem. spiralis*, and finely transversely corrugated, ending at the tentacula, which, though somewhat apart, are united by the usual membrane of the *Chemnitzia*; they are thick, broad, short, not very membranous, rounded at the tips, which have the characteristic minute flake-white lobe or inflation. The black eyes are not very near together; they are immersed *exactly* and close to the base of each tentaculum on minute white circles; they do not in the least invade the area of the neck, but rather impinge on the stamens of the tentacula. The effete muzzle or mentum is undoubtedly the continuation of the neck, and has no connection with the foot, which position I propose to show in a separate work; it is long, slender, grooved at the margins antea and on each side, the upper and lower surface being perfect and unbroken; the vertical fissure of the mouth is under the tentacular awning. The foot is of the palest frosted yellow, exceedingly short, narrow, deeply bifurcated in front, at rest rounded behind, and a little lengthened in action. The animal examined was an "*Alma Venus*," and when fully retracted occupies the fourth volution; then the light green liver, and very pale red granular ovarium, occupy the three primary volutions; but when the animal is fully out in the body of the shell, the liver and ovarium are altogether withdrawn from the first whorls, leaving them perfectly hyaline, and they are then deposited in the lower part of the third and the whole of the fourth volution, the other parts of the body and organs being in the fifth and sixth. The narrow arcuated branchial plume of about 15-18 rather coarse, opaque, pale drab strands, and with the auricle and heart, distinguished by their intense snow-white colour, is perfectly visible, under a powerful Coddington lens, at the smaller and posterior end of the branchial plume. I have been thus particular as to the site of the organs, because I never met with a shell so perfectly hyaline in which their position could be so well seen. The operculum is an almost invisible film, pear-shaped or suboval, with a narrow border of pale bistre with a pinkish hue; the striæ of increment radiate as in most of the other *Chemnitzia*; it is fixed on a plain lobe near the posterior extremity. I saw no ornamental appendages to the head and neck. In this example the apex is subreflexed, and there is a rudimental denticle on the pillar lip. Axis $\frac{1}{12}$, diameter $\frac{1}{50}$ uncia.

This very rare animal is an undoubted *Chemnitzia*, and probably the first of the species that has ever been seen alive. To add to the interest of this little narrative, I state, that Mrs. Gulson, who last year allowed me the honour of attaching her name to this elegant shell, examined and saw her namesake in a living state.

Chemnitzia Sandvicensis, Walker, Test. min. rariora.

Odostomia dolioliformis, nonnull.

Animal inhabiting a white spirally striated subglobose shell of four volutions, with a reflexed apex and strong fold on the pillar. The colour throughout is hyaline pale azure. Mantle even with the apertural margin, except a slight canaliculation at the upper angle of the right side. The proboscidal muzzle, which some call the mentum, is the exact characteristic essential shape of the tribe; in quietude it scarcely extends to the anterior margin of the foot, but on the march it considerably precedes that organ. The tentacula are proportionately longer than in its congeners, not so triangular, nor furnished with such broad lateral membranes, nor do they coalesce so decidedly as in some species to form a veil; nevertheless they are bevelled and subtriangular, with the eyes at the internal bases. The tip of each tentaculum has a point of flake-white, giving, I think, only the appearance of a slight inflation, or it may be real for a limited period, caused by the contraction of the muscle of the tentaculum.

The foot is a singular deviation from that organ in the typical species; it is short, broad and blunt, truncate anteriorly, there often twisting itself into acute angles, which, when they happen to fall in a line with the true tentacula, give the appearance of a pair on each side, but a change of position instantly makes that appearance disappear; the anterior third portion of the foot is somewhat contracted; at this point a transverse groove appears, from the centre of which another longitudinal one proceeds to the posterior end, dividing the foot below the transverse portion into two suboval lobes, each rounded at its termination and separated by an emargination: whether these grooves are only depressions or solutions of continuity, I could not in so minute a creature satisfactorily determine; but the appearance is a foot formed of three lobes, an anterior and two suboval lateral ones with rounded termini. This is the great singularity, and malacologists would constitute a genus for it, but in all the essential points it is a decided and typical *Chemnitzia*. The operculum is fixed on a plain, not extended lobe; it has the flap-process or apophysis of the tribe, not in the same plane, but inflexed at right angles; on each side the notch that receives the tooth it is cartilaginous and flexible in this species, and the striæ of increment range in elliptical curves, as in the typical *Chemnitzia pallida*.

The animal is not lively, at least the only one I have examined was not so, and it is possible more active creatures, which are exceedingly rare, may cause some modification of the points described. It inhabits the littoral zone, and is unrecorded. Axis

$\frac{1}{13}$, diameter $\frac{1}{18}$ uncia. This description will be the sequence of my account of the shell in a former Number of the 'Annals of Natural History.'

A second example has shown, that the transverse groove in the foot does not exist, and that in the first specimen it was due to contraction, which when it is completely developed disappears; nevertheless the structure is peculiar: at rest it is sub-oval, but divided into two portions by an apparent superficial line due to colour; when fully deployed, the anterior one is constricted, slender, attenuated, capable of great extension, slightly auricled and emarginate, subhyaline white; the posterior portion is suboval, short, broad, fleshy, of an opaque pale drab, divided by a deep medial longitudinal fissure, that seems almost to penetrate the integuments into two lobes, forming together a rounded termination with a narrow central emargination.

Chemnitzia decussata, Montagu.

Animal inhabiting a pale drab spiral decussated shell of 4-5 volutions; it is hyaline white, except the proboscidal muzzle, that passes for the mentum with some malacologists, which is pale pink or red. The mantle is even. The muzzle of this species is less lobed and more truncate than in its congeners, but it has at times varying phases; it is small, subcylindrical and narrow, and on the march, as is the invariable practice in all the species, it is in advance of the anterior portion of the foot, which, like the terminus of the rostrum, is truncate and without the auricular points at the angles; it is rather broad, and when extended reaches halfway on the antepenultimate volution, posteriorly becoming a little constricted, and has a very rounded termination. The tentacula are triangular, bevelled laterally, pointed, with the usual two minute flake-white lobes at the tips, which may be partly real, but principally simulations that depend on the will of the animal; the lateral membranes, which are not so extensive as in some species, coalesce and form a shallow veil; the eyes are very close together strictly at the internal bases, not immersed, but are a little elevated on minute prominences. We may remark, that in this tribe the membranes on both sides of each tentaculum simulate all kinds of shapes and foldings, which have been termed auriform or subtubular; these are deceptions, and due to the will of the animal, as on the march the tentacula are always carried in a regular, smooth, triangular, bevelled position; these changes from one form to another only occur when the animal is disquieted by position; then they are frequently and suddenly made, and as quickly assume a natural form. The operculum is of a narrow, rather elongated oval shape, carried on a simple lobe at some little distance from the posterior terminus of the foot; it has the usual characteristic right-angled semi-

cartilaginous minute notched apophysis and oblique striæ of the tribe.

The animal is not at all shy, progresses rapidly, and inhabits the coralline zone at Budleigh Salterton, where we have taken it in twelve fathoms water, more than once, alive. The animal has not been described.

Chemnitzia elegantissima, Montagu.

Animal inhabiting a white spiral elongated glabrous shell of 12-16 costated volutions; it is, except the eyes, hyaline-white throughout. The produced rostrum, the mentum of some authors, is on the upper surface deeply medially grooved, and at the termination imperforate? there is at its clavate extremity a vertical, and a little below a linear transverse deeply impressed line, both having the appearance of a breach of continuity, though perhaps not really so. I mention these circumstances in this species to excite attention, as they are more developed than in such of its congeners as I have examined. The rostrum is conspicuously carried before the foot on the march, when it appears truncate, but at rest is rounded and sinuated as in *C. pallida*. The foot is also truncate, very slightly auricled; the upper flap-skin or real mentum does not reach to its margin; it is narrow, not very long, attenuates and tapers to a rounded broad extremity, carrying at a short distance therefrom, on an obsolete lobe, a narrowish pear-shaped obliquely striated corneous operculum that has a subelastic rectangular apophysis, not notched in the centre, as the fold or denticle in this species is not usually visible; but in those examples where it is more or less pronounced, the notch is proportionately marked. The tentacula are short, triangular and pointed, having large lateral membranes which coalesce to half their altitude, and are capable of assuming various shapes, as the auriform, the semitubular, and longitudinal folds on the stamens, and of again being, as if magically, returned to a smooth, pointed, correctly bevelled, unfolded, symmetrical condition, coalescing regularly at the bases; all these phases are effected by the will of the animal; in short, the tentacula in this creature have an arcuated, leaf-like, broadly subtriangular aspect, scarcely showing inflations at the obtuse tips; the eyes are at a little distance from the internal line of the bases.

This elongated animal of sixteen volutions differs in no essential point, and scarcely in specialties, from its pigmy congeners of three turns, whether they be smooth, costated, toothed, or edentular; emphatically pronouncing as impossible, on reasonable grounds, a generic division of the family: all the species must, I think, range as *Chemnitzia*. I have omitted to say, that the mantle is even, plain, scarcely showing a trace of branchial cana-

liculation. This is the first year I have succeeded in obtaining live examples, which occurred in the littoral zone off Budleigh Salterton, where in former years I have taken abundance of fresh, excellent shells, but always without the inhabitant. The existing malacological notes on this animal are so meagre, that the present account may almost be considered as that of an unrecorded creature.

Chemnitzia pusilla, Philippi, tab. 28. fig. 21.

Chemnitzia var. *elegantissima*, Anglorum.

A single live specimen of this very distinct species has occurred, which enables me more decisively than in any of its congeners, to insist on the position, that the eyes and tentacula are planted across the rostrum (miscalled the mentum), which is an undoubted continuation of the neck. What has led to the idea that the so-called mentum belongs to the foot, is that the pedal union with the general body of the animal is in this tribe a little more anteaally advanced than in the *Rissoa* of similar proportions, thus giving the neck, and its sequence the rostrum, an apparent connection with the foot, which, if really organically viewed, it does not possess.

It will only be necessary to notice the variations of the *C. pusilla* from its more stately-congener the *C. elegantissima*; it is, as respects the shell, not half the size, much more tumid, and does not taper in the decided manner of an example of that species of similar size. The variations of the malacology are more pronounced: the foot is much longer, extending on the march to the third basal volution, and terminating in almost a needle point; whilst in the other, in a similar condition, it is quite rounded, and does not reach beyond the body-whorl. In the "*pusilla*," the tentacula when spread have the membranes united almost to the extremities, which are minute and pointed, so that they appear in action a single united leaf; in its congener they are more triangular, less, though greatly, membranous, and do not unite above half their length, and have very obtuse terminations. The *C. pusilla* has a palish purple streak on each tentaculum, and on each side the rostrum; this little fact is not without its value, as it proves pretty clearly, that the rostrum, miscalled the mentum, belongs to the neck and tentacula, and not to the foot: in the *C. elegantissima* both the same parts are hyaline-white. The two inhabit together the same littoral levels at Littleham Cove. I now take leave of the *Chemnitzia*, and will not again allude to them, unless I am compelled, as an "*ultima ratio*," or to communicate decidedly new facts.

I am, Gentlemen, your most obedient servant,

WILLIAM CLARK.