XL.—*A Revision of the Genera and Species contained in Lendenfeld's 'Die Chalineen des australischen Gebietes.'*

By Maurice Burton, M.Sc.

The notes contained in the following pages are the first of a series which it is hoped will be published from time to time, with the desire of eliminating the confusion into which Lendenfeld's memoir on the Chalininæ of the Australian Seas has thrown the systematic arrangement of that group. It is fortunate that a large number of that author's type-specimens are now in the British Museum. It will be impossible in many cases to do more than make a few notes as to the value of some of the species, for there can be little doubt that many of Lendenfeld's type-specimens were nothing more than thoroughly beach-worn specimens, often completely devoid of any microscleres they may have possessed. Some, again, are but fragments. In many cases his description of the skeleton was quite erroneous. Where it is possible to recognize a species by the descriptions available to us in our literature, I have regarded them as valid. Where this is not possible, but sufficient material is to hand to enable me to do so, I shall include a re-description. In all other cases the species will be regarded as *sp. dub.* and set aside as valueless until such time as our knowledge of these species may be extended. In some cases I fear this may never occur.

As often as is possible I shall endeavour to make a survey of the genus in question at the same time as the species described by Lendenfeld are dealt with.

A full list of references to the literature consulted will be published at the conclusion of this series.

I. The Genus *Cacochalina*, O. Schmidt, 1868 a, p. 37.

Genotype: *C. subtilis*, Schmidt, 1870 a, p. 33.

The genus was first mentioned by Schmidt in 1868, when he suggested that it be used for sponges, belonging to the Chalininæ, with the external form of a *Cucospongia*. No species were named until two years later, when two were inadequately described from the Gulf of Mexico. The first of these was *C. subtilis*, which, since none has previously been named, I now regard as the type-species. The British Museum possesses a microscopic preparation from the holotype, but it is so poor that it is impossible to gauge accurately the character of the skeleton from it. Schmidt's

description is also much too inadequate to give any further clue. This sponge is a Chalinine undoubtedly, but further than this it is not possible to state with any degree of certainty. For the time being, and pending a re-description of the holotype from better material than I have at my disposal, I would suggest that the genus be regarded as insufficiently characterized and the use thereof abandoned. The fate of the various species hitherto assigned to it is discussed below.

1. *Cacochalina calyx*, Keller, 1889 A.

From its author's description there can be little doubt that this cup-shaped or tubular sponge with a reticulate skeleton of styli and spongin is none other than *Phakellia donnani* (Bowb.), a species very common in the Red Sea and vicinity.

2. *Cacochalina digitata* (Schmidt), Czerniavsky, 1879 A.

The reticulate skeleton of spongin fibres and styli of this species suggest that it may be either the reduced form of some Esperelline genus or an Axinellid for which a new genus may possibly be required. Provisionally I regard it as *Axinella digitata*.

3. *Cacochalina globosa*, Lendenfeld, 1887 E.

This species has been already transferred to the genus *Chalina* by Whitelegge (1901 A). The British Museum possesses the holotype figured by Lendenfeld (*l. c.* pl. xviii. fig. 1). From the examination of this it would appear necessary to place the species in *Acervochalina*. This is a species which may be readily recognized from its author's figure and Whitelegge's re-description.

4. *Cacochalina inornata* (Bowb.), Lendenfeld, 1887 E.

This species is closely related to *C. digitata*, Schmidt, and must share the same fate.

5. *Cacochalina irregularis*, Czerniavsky, 1878 A.

From his description there can be little doubt that Czerniavsky's species is very like *C. limbata*, Bowb., if not actually synonymous with it.

6. *Cacochalina limbata* (Bowb.), Levinsen, 1887 B.

This species has been taken as genotype for *Acervochalina*, a genus which it is now proposed be retained.

7. *Cacochalina macrorhaphis*, Lendenfeld, 1887 E.

I have seen neither a specimen nor a microscopic preparation of the species, and, since Lendenfeld's descriptions in the work quoted above are so utterly unreliable, there is nothing left to do than to take his description of the species at its face value until such time as revision thereof is forthcoming. It must be regarded as a *Chalina*?, sp. dub.

8. *Cacochalina maculata*, Keller, 1889 A.

This appears to be a *Cladochalina* with a special dermal skeleton, characterized by the presence of sand in the fibres and strongyles as the only spicule-form present. The two last-named characters, although unusual for the Chalininæ, are not unknown to me from Red Sea examples of that family. I have known them to occur on two occasions in specimens belonging to a species which ordinarily possesses oxea and no foreign inclusions in the fibres.

9. *Cacochalina mollis*, Topsent, 1897 A.

In my opinion this species should be placed in *Acervochalina*, although one cannot be sure without seeing the actual specimen or a figure thereof.

10. *Cacochalina pandæa*, Lendenfeld, 1887 E.

A fragment of the holotype is in the British Museum Collection, from which it may be seen to be a true Chalinine with a special dermal skeleton. Its nearest allies are to be found among the species of *Placochalina*.

11. *Cacochalina rubiginosa*, Schmidt, 1870 A.

A species insufficiently characterized, for which we must await a re-description.

12. *Cacochalina rubra*, Lendenfeld, 1887 E.

My remarks concerning *C. macrorhaphis* apply equally here.

13. *Cacochalina subtilis*, Schmidt, 1870 A.

The only evidence available as to the characters of this, the genotype, is in a very poor microscopic preparation—so poor, indeed, as to make it worthless to endeavour to piece together the scanty evidence it affords. Undoubtedly it is

a Chalinine and has some resemblance, so far as the structure of the skeleton is concerned, to the repent British Chalinas (e. g., *C. montaguii*, Bowb.), but further than this nothing can be said.

14. *Cacochalina truncatella*, Lendenfeld, 1887 E.

This species is composed of two varieties. Var. *laxa* was very evidently a thoroughly beach-worn specimen, as so many of the sponges described by this author in the work quoted were. The remains of the skeleton consist of a stout reticulation of spongin cored by numerous subtylostyli. These spicules have the same shape as the megascleres of *Mycale serpens* (*vide* Hallmann, 1914 c, pp. 406–408), and measure on an average 0·18 by 0·003 mm. I can only suggest that this variety, like *Arenochalina mirabile*, Lendf. (*vide* Hallmann, 1914 c, p. 399), is a beach-worn *Mycale* which has lost all spicules but the megascleres.

C. truncatella, var. *mollissima*, possesses a stout reticulation of spongin-fibres containing polyserially arranged amphistrongyles like those figured by Hentschel (1911 A, p. 326) for *Batzella inæqualis*, with which species the present variety is probably synonymous. The spicules in var. *mollissima* measure 0·175 by 0·003 when fully grown.

15. *Cacochalina typica*, Lendenfeld, 1887 E.

I have seen no material of this species, but to take the author's description at its face value it appears to be a *Batzella*, very much like the foregoing.

16. *Cacochalina velinæ*, Lendenfeld, 1887 E.

With no material available, and only the author's description to depend on, I regard this as a *Chalina*?, sp. dub.

SUMMARY OF THE SPECIES OF *CACOCHALINA* AND THEIR PRESENT SYSTEMATIC POSITION.

C. calyx = *Phakellia donnani* (Bowb.).
C. digitata = *Axinella digitata* (Schmidt).
C. globosa = *Acervochalina globosa* (Lendenfeld).
C. irregularis = *Acervochalina limbata*?
C. limbata = *Acervochalina limbata* (Bowb.).
C. macrorhaphis = *Chalina*?, sp. dub.
C. maculata = *Cladochalina maculata* (Keller).
C. mollis = *Acervochalina mollis* (Topsent).
C. pandæa = *Placochalina*? *pandæa* (Lendenfeld).

C. rubiginosa = *Cacochalina*, sp. dub.
C. rubra = *Chalina*?, sp. dub.
C. sublilis = sp. dub.
C. truncatella, var. *laxa* = *Mycale* sp.
C. truncatella, var. *mollissima* = ? *Batzella inæqualis*, Hentschel.
C. typica = *Batzella*? *typica* (Lendenfeld).
C. velinæ = *Chalina*?, sp. dub.

II. THE GENUS *CHALINOPORA*, LENDENFELD, 1887 E.

Genotype: *Acervochalina claviformis*, Carter, 1886 H.

In this genus, again, no genotype has hitherto been named, so that the first species mentioned in connection with the genus is chosen.

1. *Chalinopora claviformis* (Carter), Lendenfeld, 1887 E.

This species, originally placed in the genus *Acervochalina* by Carter, has been successfully removed thence to *Chalinopora* and, finally, to *Pachychalina* by Dendy (1895). To my mind it belongs quite definitely to neither the first nor the last, but to the genus *Halichondria*. *Chalinopora* must of necessity be regarded as a synonym of that genus. Descriptions of the species are given by the three authors named, so that there should be no difficulty in recognizing it. The only point which concerns us here is its systematic position. The sponge is friable, with a definite dermal skeleton formed of a delicate reticulation of oxea. The ectosome containing this skeleton is readily detachable. In appearance the sponge is very like the members of the genus *Halichondria*, particularly those species found in the Indo-Pacific areas. The main skeleton is a very irregular reticulation, almost halichondroid, of oxea. There is no distinction into primary and secondary fibres such as one would expect in the genera *Acervochalina* and *Pachychalina*. The possession of a dermal skeleton at once demands its removal from the former. Some of the fibres of this irregular reticulation are multispicular, formed of a spongin-fibre containing multiserially arranged spicules, while some are unispicular. Others, both multispicular and unispicular, are devoid of spongin. The main skeleton is best described as halichondroid with more spongin than is usual for that genus. This to my mind by no means prevents its being placed in the genus *Halichondria*. There is a dermal skeleton

composed of a reticulation of usually single oxea forming a polygonal to triangular network. The ends of the spicules only are cemented together by spongin. In texture and appearance this species is very strongly suggestive of such species as *Petrosia seychellensis*, Dendy, *Reniera cribricutis*, Dendy, *R. semifibrosia*, Dendy, all of which must be regarded as belonging to *Halichondria*, *Halichondria retiderma*, Dendy, and *H. nigra*, Dendy. In fact, the only thing which can be called, and somewhat doubtfully at that, a real difference between these species and *Chalinopora claviformis* is the presence of a little more spongin in the skeleton of the latter, and I hardly think such a difference can be of generic or even specific importance.

2. *Chalinopora retepora*, Lendenfeld, 1887 E.

This species is a flabellate *Phakellia* with a skeleton composed of a reticulation of horny fibres cored by styli.

3. *Chalinopora tenella* and *C. lutea*.

Of these two species I have no information. Dendy has mentioned the former, but gives no further information as to the characters of its skeleton, certainly not of the dermal skeleton. Under the circumstances I shall regard them as *Cladochalina*?, sp. dub.

The remaining species of the genus all have both main and dermal skeletons similar to those of *Cladochalina armigera*, and will accordingly be placed in the same genus. Many of these species will probably prove to be synonymous with older species, or even synonyms the one of the other, but for the time being they will be treated as valid species.

Summary of the Species of the Genus *Cladochalina* and their present Systematic Position.

C. claviformis = *Halichondria claviformis* (Carter).
C. conulata = *Cladochalina armigera*, Schmidt.
C. intermedia = *Cladochalina subarmigera*, Ridley.
C. lamella = *Cladochalina lamella*, Lendenfeld (1887 E).
C. laxa = *Cladochalina laxa* (Lendenfeld).
C. lutea = *Cladochalina*?, sp. dub.
C. paucispina = *Cladochalina paucispina* (Lendenfeld).
C. raphidiophora = *Cladochalina raphidiophora* (Lendenfeld).

C. retepora = *Phakellia retepora* (Lendenfeld).
C. siphonopsis = *Cladochalina siphonopsis* (Lendenfeld).
C. subarmigera = *Cladochalina subarmigera* (Ridley).
C. tenella = *Cladochalina*?, sp. dub.
C. truncata = *Cladochalina truncata* (Lendenfeld).
C. typica et varr. = *Cladochalina typica* (Lendenfeld).

III. The Genus *Cladochalina*, O. Schmidt, 1870 A.

Genotype: *Tuba armigera*, Duch. & Mich., 1864.

The genus is composed at the present time of eleven species and one variety, of which seven species are described as new by Lendenfeld (1887 E). It will be convenient then to examine the remaining species at the same time as those of Lendenfeld. All species belong truly to the genus (that is, they correspond in their characters to the genotype), although many have from time to time been removed to other genera.

Summary of the Species of *Cladochalina* and their present Systematic Position.

Since all the species actually belong to this genus, no comment will be made except in special cases, as, for example, when the species is obviously synonymous with another species.

1. *C. armigera* (Duch. & Mich.), Schmidt.
2. *C. aurantiaca*, Lendenfeld, 1887 E.
3. *C. dendroides*, Lendenfeld, 1887 E.
4. *C. diffusa*, Lendenfeld, 1887 E.
5. *C. elegans*, Lendenfeld, 1887 E.
6. *C. euplax*, Lendenfeld, 1887 E.

[This species is regarded by Whitelegge (1901 A) and Dendy and Frederick (1924) as a synonym of *Chalina palmata*, which species is also an undoubted *Cladochalina*.]

7. *C. mammillata*, Lendenfeld, 1887 E.
8. *C. mollis*, Lendenfeld, 1887 E.
9. *C. nuda*, Ridley, 1884 C.

[This species was placed in *Ceraochalina* and later *Chalina* by Lendenfeld (1887 E) and Hentschel (1912 A), respectively.]

10. *C. nuda*, var. *abruptispicula*, Ridley, 1884 C.
11. *C. pergamentacea* (Ridley).

[This species was originally described as *C. armigera*, var. *pergamentacea*, by Ridley (1884 c), and has since appeared under the following names: *Ceraochalina papillata*, Lendenfeld (1887 E), *C. pergamentacea*, Keller (1889), Dendy (1895, 1924 A), *Chalina pergamentacea*, Ridley & Dendy (1887). All these must now be considered as synonyms of *Cladochalina pergamentacea*.]

12. *C. subarmigera*, Ridley, 1884 c.

[The species has been known as *Chalinopora subarmigera*, Lendenfeld (1887 E), and *Chalina subarmigera*, Lindgren (1898). These are now synonyms of the species.]

13. *C. tenuirhaphis*, Lendenfeld, 1887 E.

IV. The Genus *Chalinella*, Lendenfeld, 1887 E.

Genotype: *C. macropora*, Lendenfeld, *l. c.*

Only two species are contained in the genus, *C. macropora* and *C. tenella*, both of which are synonymous with *Cladochalina elegans*, Lendf. The genus becomes therefore a synonym of *Cladochalina*.

XLI.—*A new Species of* Sparnia, *Stål, from South Chile* (Delphacidæ, *Homoptera*). By F. Muir, Hawaiian Sugar Planters' Experiment Station, Honolulu, T.H.

Sparnia edwardsi, sp. n. (Figs. 1 & 2.)

Male.—Brachypterous. Length 2, tegmen 1·7 mm.

Head slightly narrower than thorax, width including eyes 1·8 times the length; vertex a little longer than wide, base distinctly behind middle of eyes and slightly wider than apex, median carinæ indistinct; length of frons 2·3 times the width, the width at apex 1·4 times the width at base, carinæ large, median carina simple; clypeus tricarinate, the median carina obscure. Antennæ nearly as long as frons and clypeus together, first segment long, narrow, flat, without a longitudinal carina, second subequal to first in length, terete. The lateral pronotal carinæ curved, first divergingly, then convergingly, reaching hind margin. Hind basitarsus about equal in length to the other two together, spur subequal in