

This species has been considered by some writers as a synonym of *S. litorea*, Flin., but the Jan Mayen specimens are darker and longer and darker-haired than in *litorea*. The legs are entirely dark, the male hind femora longer-haired and without any strong bristles, middle femora also without bristles at tip. Acrostichal bristles on thorax longer and rather finer. Holmgren's specimens were from Bear Island and Spitsbergen.

XXI.—*The Genus Chondrilla*. By MAURICE BURTON, M.Sc.,  
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A VERY extensive and complete survey of the genus *Chondrilla* has been made by Topsent (1918), in which he puts forward very strong suggestions for a revision of its species. In view of the comprehensive nature of Topsent's work, there is little, if any, need to add anything further on the question of species, except to say that examination of a considerable amount of material has shown his suggestions to be perfectly justified. On the question of the removal of certain species to a new genus, for which he proposes the name *Chondrillastra*, however, I do not find myself in such complete agreement, for reasons which I will state later. Meanwhile, I tabulate below a complete list of the species of *Chondrilla*, as here understood, together with short diagnoses thereof.

Genus CHONDRILLA, Schmidt.

Corticata Astrotetragonida with complex canal system and small flagellate chambers. Without megascleres. Microscleres euasters of one or more kinds.

1. *Chondrilla nucula*, Schmidt, 1862.

Synonymy: *Chondrilla embolophora*, Schmidt, 1862.

Sponge flattened to lobose, varying in colour from white to purplish-brown, and possessing one form of spicule only—viz., spherasters 0.008–0.040 mm. in diam.

*Distribution*. Almost Cosmopolitan.

2. *Chondrilla australiensis*, Carter, 1873.

Synonymy: *Chondrilla papillata*, Lendenfeld, 1885.  
*Chondrilla corticata*, Lendenfeld, 1885.  
*Chondrilla globulifera*, Keller, 1891.  
*Chondrilla ternatensis*, Thiele, 1900.  
*Chondrilla australiensis*, var. *lobata*, Dendy, 1905.

Sponge encrusting to lobose, greyish-white to reddish-yellow in colour, often with dark specks. Spicules of two kinds: (1) Spherasters 0.019–0.036 mm. in diam.; (2) Smooth-rayed oxyasters 0.020–0.030 mm. in diam.

*Distribution*. Australia and Indian Ocean generally.

3. *Chondrilla australiensis*, Ctr. var. *mixta*, Schulze.

Synonymy: *Chondrilla mixta*, Schulze, 1877.  
*Chondrilla distincta*, Schulze, 1877.  
*Chondrilla nuda*, Lendenfeld, 1897.  
*Chondrilla media*, Hentschel, 1912.  
*Chondrilla agglutinans*, Dendy, 1916 a.

Sponge encrusting, dark brown to nearly black. Spicules of two kinds: (1) Spherasters 0.006–0.042 mm. in diam.; (2) Oxyasters, with spiny, often branched, rays, 0.024–0.037 mm. in diam.

*Distribution*. Australia and Indian Ocean generally.

4. *Chondrilla sacciformis*, Carter, 1879.

Synonymy: *Magog sacciformis*, Sollas, 1888 b.  
*Chondrilla grandistellata*, Thiele, 1900.

Sponge encrusting to massive, dark brown. Spicules: spherasters of two kinds up to 0.14 mm. in diam.

*Distribution*. Mauritius, Ternate, Saya de Malha.

5. *Chondrilla secunda*, Lendenfeld, 1885.

Sponge encrusting or massive, greyish-yellow to dark-blue. Spicules of two kinds: (1) Spherasters 0.060–0.070 mm. in diam.; (2) Oxyspherasters 0.012–0.024 mm. in diam.

*Distribution*. Port Phillip, Australia.

Carter (1885–6) mentions one kind of aster only in this species. The fact is, I think, the young forms of the larger asters are so like the smaller asters as to be indistinguishable. As proof that two forms are present, the oxyspherasters are present in such quantities as to exclude the possibility of their being all young forms of the larger asters, while, at the same time, immature forms of these

spicules must of necessity be present somewhere, so that one must conclude that they are indistinguishable from the smaller asters (or oxyasterasters).

#### 6. *Chondrilla jinensis*, Hentschel, 1912.

Sponge encrusting, grey to black. Spicules of two kinds: (1) Spherasters 0.048–0.056 mm. in diam.; (2) Oxyasters 0.045–0.080 mm. in diam.

*Distribution.* Arafura Sea.

Topsent (*l. c.*) proposed to divide these species into two groups, according to whether they possessed one or two forms of aster. The former, including *Chondrilla nucula* and *C. sacciformis*, he retained in the genus *Chondrilla*, while for the latter he erected a new genus *Chondrillastra*. Viewed merely from the standpoint of spiculation, such a course might be justified to some extent, but the problem is much more complex than this. From a phylogenetic point of view, such a division is illogical. In the first place, this grouping places *C. nucula* with *C. sacciformis*, with which it has less affinity than with the other species of *Chondrilla*, and separates it from the latter with which it has much in common, for there appears little doubt that *C. nucula* has been derived from a form closely related to *C. australiensis* by the loss of its oxyasters.

That the genus *Chondrilla* has been derived from an *Aurora*-like ancestor has been suggested by Dendy (1916 c), and I see no alternative to this. Thiele has suggested its derivation from *Donatia*, but a comparison of the two genera will readily discredit this. Certainly both have sprung from a Stellettid ancestor, and that closely allied to *Aurora*, as now understood.

According to Dendy (*l. c.*) the diagnosis of the genus *Aurora* is as follows: "Stellettidæ in which the principal microscleres are large spherasters (or sterrospherasters) accumulated especially in a cortical layer." The spherasters of *Chondrilla sacciformis* are very similar to the sterrospherasters of *Aurora rowi*, Dendy, while the spherasters of the remaining species of *Chondrilla* more closely resemble the spherasters of *Aurora providentia*, Dendy. In the genus *Aurora* the spherasters (or sterrospherasters) show stages of evolution from a Stellettid-aster to a *Geodia*-aster, and of the two species mentioned above *A. rowi* is certainly the more advanced in this respect. From this reasoning it is seen that *Chondrilla sacciformis* is a later offshoot from *Aurora*

than any of the other species of *Chondrilla*. If any subdivision of the genus *Chondrilla* is to be made, it must surely be one in which *C. sacciformis* is separated from the remaining species of that genus, and not one on an artificial basis of spicule-form in which the details of anatomy and phylogeny are ignored. Possibly it may become necessary, in the future, to revive the genus *Magog*, with an amended diagnosis, for the reception of *C. sacciformis*, but in the present state of our knowledge of both *Aurora* and *Chondrilla*, such action would be premature. The only course open is to abandon Topsent's genus *Chondrillastra*, and defer any subdivision of *Chondrilla* until such time as our knowledge may prove the need for it.

NOTE.—The following four papers contain, together, a complete account of the genus *Chondrilla*, its species and their synonyms, distribution, &c.—also a complete list of literature on the subject. Accordingly, it is to these I refer for further details.

- 1916 a. DENDY, A. "Report on the Non-calcareous Sponges collected by Mr. J. Hornell at Okhamandal, &c." Report to the Government of Baroda on the Marine Zoology of Okhamandal, part 2, pp. 98–146.
- 1916 c. —. "Report on the Homosclerophora and Astrotetraxonida, collected by H.M.S. 'Sealark,' &c." Trans. Linn. Soc. London, vol. xvii, part 2, pp. 227–271.
1877. SCHULZE, F. E. "Untersuchungen über den Bau und die Entwicklung der Spongien. Die Familie der Chondrosidæ." Zeitschr. für Wiss., Zool. Bd. xxix.
1918. TOPSENT, E. "Les Éponges de San Thomé." Arch. Zool. Expér. et Gén. 1918, t. lvii, fasc. 6, pp. 601–609.

#### XXII.—Preliminary Revision of the Family Phryganeidæ, its Classification and Evolution. By A. V. MARTYNOV (Petrograd).

THE family Phryganeidæ, Burm., contains the largest and most common of our species of Trichoptera which were known for a long time. Nevertheless, their classification is in a very unsatisfactory condition. The division in the genera, proposed by old systematists, was unsatisfactory, and Hagen and McLachlan united all known species into three genera—*Neuronia*, Leach, *Phryganea*, L., and *Agrypnia*, Curt. McLachlan added (1880) a new genus, *Agrypnetes*. This

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