CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

Zooplankton.
Sheet 62.

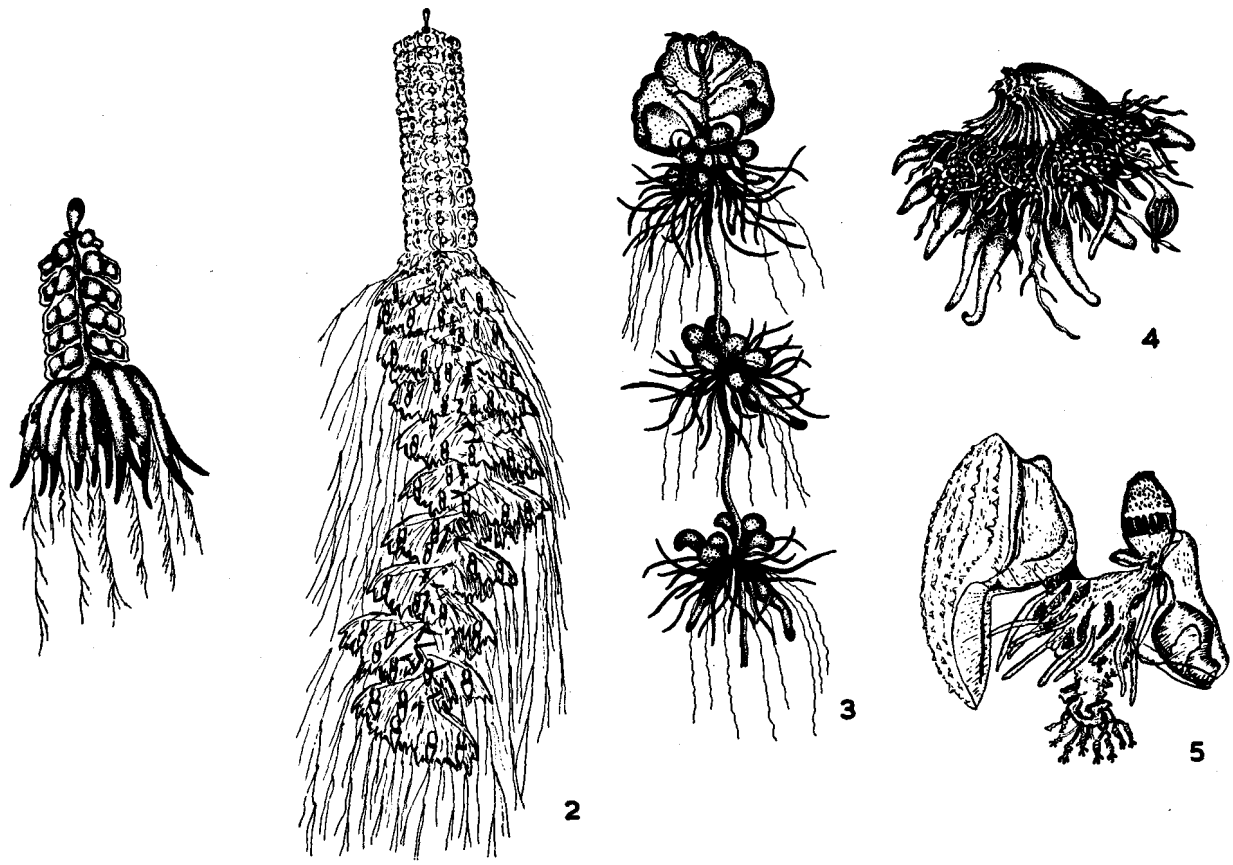
SIPHONOPHORA

SUB-ORDER: PHYSONECTAE

Families Various

(By A. K. Totton and
J. H. Fraser)

1955.

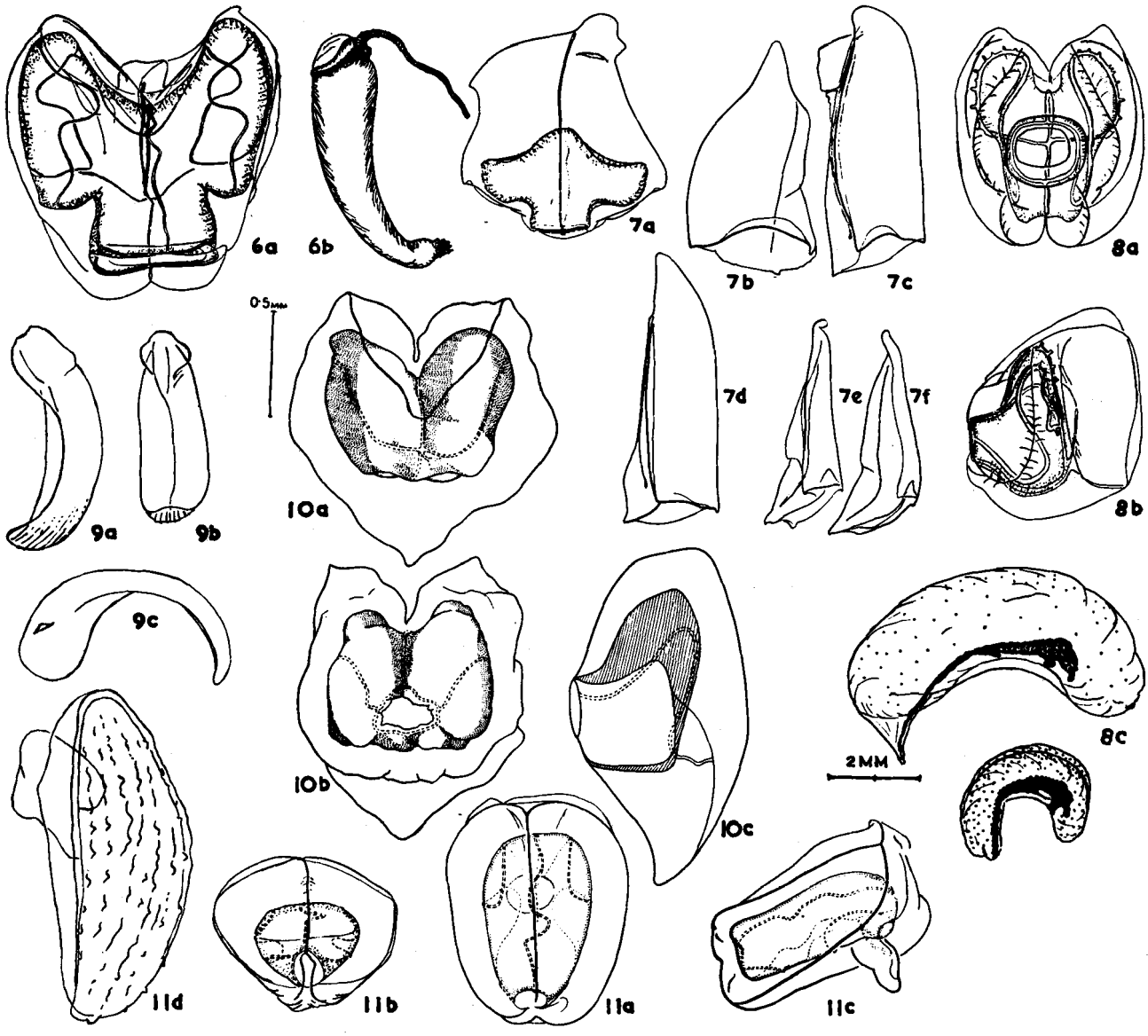


1. *Physophora hydrostatica*, after Gegenbaur (1859).
2. *Forskalia edwardsii*, after Kölliker (1853).
3. *Apolemia uvaria*, after Gegenbaur (1853).
4. *Athorybia rosacea*, after Bigelow (1911).
5. *Melophysa melo*, after Bigelow (1931).

Families of Physonectae, other than Agalmidae given in Sheet 61.

Except for the genus *Forskalia* which contains perhaps three known species, and *Apolemia* which has two (one still undescribed), the genera included below are monotypic, and their inter-relationships are obscure.

1. *Physophora hydrostatica* Forskål (Fig. 1) is characterized by the ring of large palpons round the edge of the dilated hemispherical siphosome. These are easily identified when detached (Fig. 6b) and the loose nectophores can also readily be identified by their sub-angular expansions of the nectosac (but not of the gelatinous substance) on the oral side and deep emargination of the aboral side, (Fig. 6a).
2. The genus *Forskalia* is characterized by its crowded and very numerous flattened nectophores, which are identifiable generically when detached (Fig. 7a), and pedunculated gasterozoids — which enable denuded corms to be identified. *Forskalia edwardsii* Kölliker is the best described species and when alive has a lemon yellow spot at the junction of the ventral radial and circular canals of the nectophore, but this spot is not visible after fixation in formalin.
3. *Apolemia uvaria* (Lamarck) (Fig. 3) has nectophores with branches (spur canals) on the lateral radial canals which enable this to be identified when detached (Fig. 8a, b). It can grow to great length — up to 50 metres or more. It has simple tentacles and the bracts, which have a characteristic shape (Fig. 8c), have patches of nematocysts. There are a few brown palpons scattered amongst the normal ones.
4. *Athorybia rosacea* (Forskål) (Fig. 4) has no nectophores but has a corona of numerous bracts, easily identified when detached (Fig. 9a—c) borne on the nectostyle which covers one side of the oblique pneumatophore.



6. *Physophora hydrostatica;* a) nectophore from upper (outer) side, original A. K. T.; b) palpon.
7. *Forskalia edwardsii;* a) nectophore, original A. K. T.; b—f) different categories of bracts, from Totton (1954).
8. *Apolemia uvaria;* a) nectophore from front; b) from side, original A. K. T.; c) bracts, J. H. F.
9. *Athorybia rosacea;* a—c) bracts, original A. K. T.
10. *Cordagalma cordiformis;* a) ventral view of nectophore; b) dorsal; c) side view (diagrammatic to show simple lateral radial canal), from Totton (1932).
11. *Melophysa melo;* a) nectophore from upper side; b) from abaxial end; c) from left side; d) bract; a—c from Totton (1954), d, original A. K. T.

5. *Cordagalma cordiformis* Totton is a minute species at present known only by its heart-shaped nectophores (Fig. 10, a—c).
6. *Melophysa melo* (Q. & G.) bears a corona of thick spiny bracts which are easily identifiable (Fig. 11d). The specimen figured (Fig. 5) has lost most of the bracts, palpons and siphons.

All six species occur in the Mediterranean and may therefore be expected to occur in the Atlantic area affected by a Mediterranean influence, but species 1, 4 and 6 have a wider distribution in the Atlantic. *Physophora* is almost cosmopolitan in oceanic waters and occurs in the boreal area, but not in the Polar seas.

Further Information on Identification

1. *Physophora hydrostatica:* Kölliker, 1853, Pl. V; Vogt, 1854, Pls. 3—6; Gegenbaur, 1859, Pl. 30 (sic) [31] Figs. 32—42; Claus, 1860, Pls. 25—27; Keferstein & Ehlers, 1861, Pl. IV; Sars, 1877, Pl. 5, 6, Figs. 1—8; Bigelow, 1911, Pl. 16; Bigelow & Sears, 1937, Fig. 49.
2. *Forskalia edwardsii:* Kölliker, 1853, Pl. 1; Keferstein & Ehlers, 1861, Pl. V, Fig. 25; Totton, 1954, p. 71, Figs. 29, 30, Pl. IV, Figs. 4, 5, 8.
3. *Apolemia uvaria:* Gegenbaur, 1853, Pl. XVIII, Fig. 1; Vogt, 1854, Pl. 12 (as *Agalma punctata* — branched tentacles shown in error).
4. *Athorybia rosacea:* Huxley, 1859, Pl. IX; Haeckel, 1888, Pl. XI, XII (as *Athorybia ocellata*); Bigelow, 1911, Pl. 20, Figs. 7—13 (as *Anthophysa rosea*).
5. *Cordagalma cordiformis:* Totton, 1932, Figs. 8—9.
6. *Melophysa melo:* Bigelow, 1931, Figs. 217—18 (as *Athorybia rosacea*); Totton, 1954, Figs. 7—8.

Distribution

	Species (Species in brackets occur only exceptionally)
Gulf of Bothnia	—
Gulf of Finland	—
Baltic proper	—
Belt Sea	—
Kattegat	—
Skagerak	(1)
Northern North Sea	1, (3)*
Southern North Sea	(1)
English Channel (eastern)	—
English Channel (western)	—
Bristol Channel and Irish Sea	—
South and West Ireland and Atlantic	1, (2), (3), 4, (5), 6
Faroe Shetland Area	1, (3)
Faroe Iceland Area	1
Norwegian Sea	1
Barents Sea	—

* Species 3 in N. North Sea, see Fraser (1955).

References to Work on Biology

see especially Totton, 1954, and references given therein.

References.

Bigelow, H. B., 1911. Mem. Mus. comp. Zool. Harv., **38**, 2, pp. 173—402.

Bigelow, H. B., 1931. Zoologica, N. Y., **8**, 11, pp. 525—92.

Bigelow, H. B., & Sears, M., 1937. Rep. Danish oceanogr. Exped. 1908—10, **2**, 2, pp. 1—144.

Claus, C., 1860. Z. wiss. Zool., **10**, pp. 295—332.

Fraser, J. H., 1955. Scot. Home Dept., Mar. Res., 1955, 1, pp. 1—12.

Gegenbaur, C., 1853. Z. wiss. Zool., **5**, pp. 285—344.

Gegenbaur, C., 1859. Nova Acta K. Leop.-Carol., dtsch. Akad. Naturf., **27**, pp. 331—424.

Haeckel, E., 1888. Rep. sci. Res. "Challenger", 1873—76, Zool., **28**, pp. 1—380.

Huxley, T., 1859. *Oceanic Hydrozoa during the voyage of H. M. S. "Rattlesnake" in 1846—50*, pp. 143, Ray Soc., London.

Keferstein, W., & Ehlers, E., 1861. *Zool. Beitr. gsmt. im Winter 1859—60 in Neapel u. Messina,* Pt. 1, pp. 1—34, Leipzig.

Kölliker, A., 1853. *Die Schwimmpolypen oder Siphonophora von Messina,* pp. 1—96, Leipzig.

Sars, M., 1877. *Fauna littoralis Norvegiae...*, **3**, pp. 1—48.

Totton, A. K., 1932. Sci. Rep. Gr. Barrier Reef Exped., **4**, 10, pp. 317—74.

Totton, A. K., 1954. Discovery Rep., **27**, pp. 1—162.

Vogt, C., 1854. Mém. Inst. Nat. génev., 1, pp. 1—164.