BASTERIA, 54: 167-169, 1990

On the identification of protoconchs of some European Caecidae (Gastropoda Prosobranchia)

H.J. HOENSELAAR & J. HOENSELAAR

Instituut voor Taxonomische Zoölogie (Zoölogisch Museum),
Postbus 4766, NL 1009 AT Amsterdam, The Netherlands

The identification of protoconchs of European Caecidae is discussed. Photographs of *Caecum trachea* and *C. amoricum* are provided.

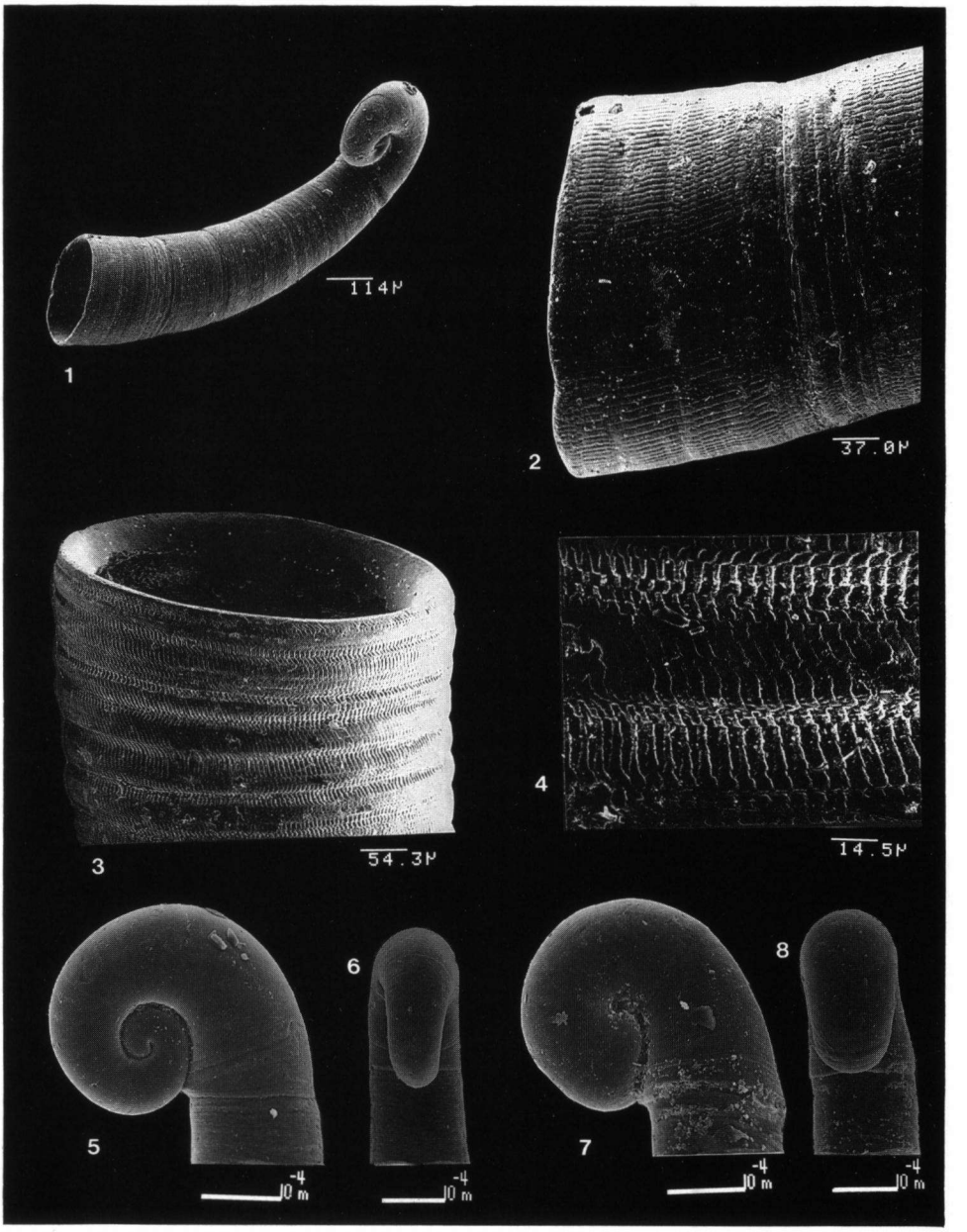
Key words: Gastropoda, Prosobranchia, Caecidae, taxonomy, protoconch, eastern Atlantic.

The European Caecidae are a family of prosobranch snails with shells that lose the initial whorls while growing to maturation. The mechanism of this decollation is unknown. Until now, very little is known about the decollated part of the shells, especially about the question to which species the juvenile stages belong. In this paper we consider as juvenile *Caecum* the larval shell together with the directly attached part of the tube.

Our attention was drawn to this subject because in August 1982, we found many juvenile stages of *Caecum* in shell-sand of Penthièvre (Morbihan, France). Trying to identify these juveniles, we encountered a drawing of the larval shell of *Caecum glabrum* (Montagu, 1803) in Thorson (1946), with the remark that *C. glabrum* is the only northern species. Also Hubendick & Warén (1971) gave a drawing of the *C. glabrum* larval shell with the directly attached tube. The drawing in Thorson (1946) shows a perfectly smooth larval shell and that of Hubendick & Warén a smooth larval shell as well as a smooth attached tube.

Lebour (1936) figures the larval shell of *C. imperforatum* (Kanmacher, 1798) which is considered a nomen nudum (Van Aartsen, 1977). Its correct name is *C. trachea* (Montagu, 1803). All three drawings of the larval shells look very much alike and our attempt to count the exact number of whorls did not solve the problem, because of the degree of torsion of the nucleus varies from specimen to specimen. Also, the diameter of the larval shell did not solve our problem. Dr. Vera Fretter (in litt., 1983) informed us that the variations in egg size could reflect the size of the larval shell, as was proved for various other larval shells.

As we found the juveniles on the south coast of Brittany (France), together with adult specimens of *C. glabrum, C. trachea* and *C. armoricum* De Folin, 1869, we might expect to find three species of juvenile *Caecum* too. We carefully examined all larval shells and the attached tubes and could divide them into two types. One type has the larval shell and attached tube totally smooth. In our view this is the juvenile of *C. glabrum*. The other type has a smooth larval shell but the attached tube shows very delicate, longitudinal, short striae, framed in small rings around the tube (figs. 1-2). These striae are sometimes hardly discernible. Incident light and a magnification of 40-60 times do assist in the process. Jeffreys (1867) noticed these striae already on adult specimens of *C. trachea* and Van Aartsen (1977) also mentioned them for adult



Figs. 1-8, *Caecum* species from the west coast of France. 1-6. *C. trachea*, Pentièvre; 1, juvenile; 2, magnified part of fig. 1; 3, aperture of adult specimen; 4, surface sculpture of fig. 3, highly magnified; 5-6, protoconch. 7-8. *C. armoricum*, St. Lunaire, protoconch.

C. trachea (fig. 3). As none of the European caecids shows these peculiar striae, we consider the second type to represent the juvenile of *C. trachea* (figs. 1-2).

In our search for identification of more juvenile caecids, we encountered a different type of juvenile *Caecum* (figs. 5-6) in shell grit from different places on the north coast of Brittany (France) in July 1983. This shell grit contained adults of *C. glabrum, C. armoricum* and *C. clarkii* (Carpenter, 1858). The larval shell is smooth and shows 3/4 whorl and the tube, attached to the larval shell, is also smooth. This could only be the juvenile of *C. clarkii* or *C. armoricum*. It is neither *C. trachea* (lack of striae) nor *C. glabrum* (larval shell consists of about 1 1/2 whorls, see figs. 7-8). We are not able to find a specific structure, even when highly magnified, so we could not identify this juvenile stage.

Accidentally, an identical type of juvenile *Caecum* was found in shell grit from the Fleet (Dorset, England) obtained from Mr. D. Seaward (in litt., 1989). This shell grit also contained adults of *C. armoricum*, dead as well as alive, the first record for England (Seaward, 1989). *C. clarkii* was not found in this sample, so that this juvenile type most probably is the one belonging to *C. armoricum*.

Thorson (1946) found the larval shell of *C. glabrum* to be pelagic, as did Lebour (1936) for *C. trachea*. The larval shell of *C. armoricum* (figs. 5-6) is in our opinion of the direct development type. In this case it is worth mentioning that the juvenile stage, as figured in Fretter & Graham (1978, fig. 195), does not represent a juvenile of *C. glabrum* but of *C. armoricum*. Dr. V. Fretter informed us (in litt., 1983) that the specimen, of which the camera lucida drawing was made, came from Plymouth Sound, England.

ACKNOWLEDGEMENTS

We highly appreciate the correction of our English by Mr. R. Kwadijk and the valuable information from Dr. V. Fretter, Mr. D. Seaward and Mr. J.E. Phorson. Thanks are also due to Mr. D. Hoeksema for his suggestions concerning this research and to Robert Moolenbeek for making the SEM photographs at the Laboratorium voor Elektronenmiskroskopie, University of Amsterdam.

REFERENCES

AARTSEN, J.J. VAN, 1977. Revision of the East Atlantic and Mediterranean Caecidae—Basteria 41:7-19.

——, & H.J. HOENSELAAR, 1984. European marine Mollusca: notes on less well-known species VIII. Caecum armoricum De Folin, 1869.—Basteria 48:23-26.

FRETTER, V., & A. GRAHAM, 1978. The prosobranch molluscs of Britain and Denmark 4—Marine Rissoacea.—J. Moll.Stud.Suppl. 6:153-241.

HOEKSEMA, D., & H.J. HOENSELAAR, 1984. On the distribution of Caecum clarkii Carpenter, 1858 (Prosobranchia, Caecidae) in the Channel.—Basteria 48:27-30.

HUBENDICK, B., & A. WARÉN, 1971. Småsnäckor från Svenska Västkusten. 3. Släktena Cingula, Capulacmea, Homalogyra, Caecum, Nassarius m.fl.—Arstr. Göteborgs Naturh. Mus. 1971: 43-49.

JEFFREYS, J.G., 1867. British conchology, or an account of the Mollusca which now inhabit the British Isles and the surrounding seas IV: 1-487. London.

LEBOUR, M.V., 1936. Notes on the eggs and larvae of some Plymouth prosobranchs.—J. Mar.biol.Ass. 20:547-565.

SEAWARD, D.R., 1989. Caecum armoricum (Prosobranchia: Rissoacea) new to the British marine fauna.—J. Conch. Lond. 33:268.

THORSON, G., 1946. Reproduction and larval development of Danish marine bottom invertebrates, with special reference to the planktonic larvae in the Sound (Øresund).—Meddr Kommn Danm. Fisk.-og Havunders. 4:1-522.