

**Rediscovery of the marine gastropod *Spiricella unguiculus* Rang, 1827
(Euthyneura, Umbraculidae) in Miocene deposits of the North Sea Basin
and in the Recent fauna of South West Europe**

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INTRODUCTION

In 1827 Rang introduced the name *Spiricella unguiculus* (new genus, new species) for an opisthobranch gastropod, one shell of which was found in Burdigalian (Early to Middle Miocene) deposits at Méridnac, Aquitaine Basin, SW. France. Some fragments of the same species were collected by Benoist (fide Cossmann, 1899: 184) from equally old deposits at Moulin de l'Eglise, Saucats, also in the Aquitaine Basin. These specimens seem to be the only material known up to now, which is most probably the reason for the fact that the genus *Spiricella* is neglected in modern literature.

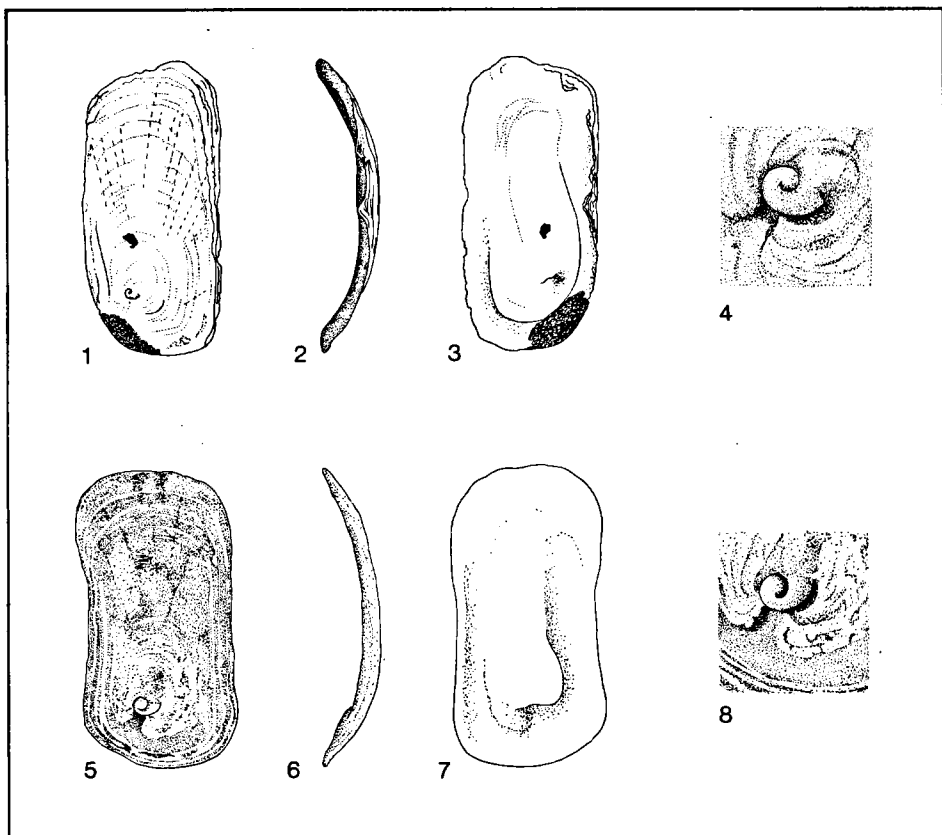
Some years ago the second author isolated a complete shell of *S. unguiculus* from sieving residues collected in 1971 from Miocene (Hemmoorian) deposits at Winterswijk-Miste (province of Gelderland, The Netherlands) (Janssen, in press). This find was quite surprising, as the locality Winterswijk-Miste is situated about 1,000 km NNE. of the type locality Méridnac. The strata in question, however, are of about the same age.

Much more unexpected therefore was the discovery of an undoubtedly Recent specimen of the same species, in a sample of fine shell grit taken from the beach between Alvor and Lagos, at the east bank of the mouth of the Ribeira de Afão, Algarve, South Portugal, by the first author in July 1981. Apparently *S. unguiculus* has been a constituent of the European marine fauna ever since the Miocene, in spite of the fact that younger Miocene, Pliocene or Pleistocene specimens have never been found, or, at least, have never been recorded in the literature.

DESCRIPTION OF THE RECENT SPECIMEN FROM PORTUGAL

Figs. 5-8

The original description of *S. unguiculus* by Rang (in Rang & Des Moulins, 1827: 227-230, figs. 1-5) is very detailed and complete; the accompanying illustrations are very clear. But as the Portuguese specimen seems to be the only known Recent shell of this



Figs. 1-8. *Spiricella unguiculus* Rang, 1827. 1-4, Winterswijk-Miste (Miocene, Hemmoorian, Aalten Member, Mist Bed); RGM 225.666. 1, dorsal view, x 6; 2, left side view, x 6; 3, ventral view, x 6; 4, apical region with protoconch, x 25. 5-8, east bank of the Ribeira de Arão, between Alvor and Lagos, South Portugal (Recent); RMNH 55655. 5, dorsal view, x 12½; 6, left side view, x 12½; 7, ventral view, x 12½; 8, apical region with protoconch, x 25. The shells are represented with their posterior sides below.

species, a short description and drawings of this specimen are given here. On account of a supposed relationship of *Spiricella* with *Umbraculum* Schumacher, 1817 (see below), the known orientation of an *Umbraculum* shell is used for the description.

The shell has the shape of a rectangular plate with rounded corners, elongated in the antero-posterior axis, with slightly concave lateral margins and distinctly convex anterior and posterior margins. The plate is moderately curved round the transverse axis (dorsal side convex). The apex is situated at about 1/5 of the shell length before the posterior margin and at about 3/8 of the shell width from the left margin. The protoconch, with a somewhat bulbous nucleus measuring 0.14 mm in diameter, is coiled sinistrally. It has about 3/4 whorl in an almost horizontal plane. The embryonic and the post-embryonic shell-parts are separated by a distinct groove-like growth line. The teleoconch is not coiled

but expanded into a rectangular plate, which is arched in side view. The centre-part of the teleoconch is thin and transparent; towards the lateral margins and the posterior margin the shell is thickened, especially at the ventral side, whereas the margins themselves are very thin and transparent again. The shell material is not recrystallized.

The dorsal side of the shell is a little rough and somewhat glossy. Some very faint radiating lines are visible between the apex and the shell margins. Concentric growth lines are present, more close-set towards the margins. From the growth lines close to the protoconch it can be seen that initially the teleoconch developed as two lobes separated by an interruption which in a somewhat later stage was closed with shell material. In the full-grown shell this separation is visible as a clear depression, sloping from the apex to the left part of the posterior margin. At the posterior margin some remnants of periostracum are present, which, together with the non-recrystallized condition of the shell, show beyond any doubt that the present specimen is Recent and not a reworked fossil.

The ventral side of the shell is smooth and very glossy. The aperture of the protoconch, the upper margin of which is lost in the teleoconch, forms a small septum. The actual aperture is only visible, when obliquely viewed. The partial thickening of the shell creates a horseshoe-like scar, having its open side directed to the anterior margin of the shell. At the inner left posterior part of the shell this thickening is coherent with a swelling on the ventral side of the shell below the protoconch, together forming the most solid part of the shell.

The colour of the shell is transparently white; the growth lines are opaque. The protoconch and the remnants of the periostracum are yellowish white.

The dimensions of the shell are: length 3.4 mm, width 1.7 mm, height 0.6 mm, the thickness of the teleoconch in side view is about 0.2 mm. The Méridnac specimen, according to Rang's fig. 5, and the shell of Winterswijk-Miste measure 8.9 mm and 6.6 mm in length respectively, which indicates that the Recent specimen is probably immature.

DESCRIPTION OF THE MIOCENE SPECIMEN FROM WINTERSWIJK-MISTE

Figs. 1-4

The fossil specimen from Winterswijk-Miste was collected from a temporary exposure of Miocene (Hemmoorian, Oxlundian) deposits, lithostratigraphically indicated as Aalten Member (Miste Bed). Biostratigraphically these sediments are assigned to the *Hiatella arctica* Acme Zone or the basal part of the *Astarte radiata* Acme Zone (see Van den Bosch, Cadée & Janssen, 1975, and Janssen, in press). The mollusc association points to an open marine, euryhaline environment of rather shallow water in a subtropical to temperate-subtropical climate.

The shell has about twice the size of the Recent specimen. It is entirely recrystallized; locally along the margins some pyrite is present. The shell-form is generally comparable to that of the Recent shell, except for the shape of the lateral margins, which are almost straight in the fossil specimen, whereas they are concave in the Recent shell. The growth lines of the fossil specimen, at a size comparable to that of the Recent shell, show that the lateral margins were slightly convex then. Further details, like the form and situation of the protoconch, the upper shell surface, the aperture of the protoconch and the construction of the ventral part of the shell, are identical to those of the Portuguese shell.

Dimensions: length 6.6 mm, width 3.1 mm, height 1.3 mm, thickness of the teleoconch in side view about 0.5 mm, diameter of the nucleus of the protoconch 0.14 mm.

SYSTEMATICS

Rang, in the discussion accompanying the description of *S. unguiculus*, concluded that the genus *Spiricella* is closely allied to the genus *Umbraculum*, probably together forming a small family. Bronn (1862-1866: 1058) placed *Spiricella* in the family Capulidae. Fischer (1885: 755) did the same, but made the remark: "Le nucléus des *Spiricella* les rapproche des *Umbrella* (Rang)". Cossmann (1899: 184) pointed out that the sinistral embryonic shell shows a closer relationship to *Umbraculum* than to *Capulus* and classified *Spiricella* with the Umbrellidae. Bronn (1896-1907: 1044), however, maintained *Spiricella* close to *Capulus* in his family Calyptraeidae. Finally Peyrot (1932: 131-132) summarized the points of view of Rang, Fischer and Cossmann. He placed *Spiricella* in the Tectibranchiata Notaspidea, without assigning the genus to a family. After Peyrot the genus *Spiricella* disappears from the literature completely.

Considering the similarity of the shells, in our opinion *Spiricella* is akin to the genera *Umbraculum* Schumacher, 1817, and *Tylodina* Rafinesque, 1819. In *Tylodina* the animal can completely, or almost completely, withdraw its body into its shell (Thiele, 1931: 417), which is neither possible for *Umbraculum* nor for *Spiricella*, because of their relatively small and flat shells (see also Rang, 1827: 232-235). Therefore *Spiricella* seems closest to *Umbraculum*. The genus may conveniently be placed among the Umbraculidae Dall, 1889. A future investigation of the soft parts, however, might prove otherwise.

The differences between the shell described by Rang, the specimen from Winterswijk-Miste and the one from Portugal, seem to be of minor importance. The protoconch of the Mérignac specimen is represented in Rang's drawings as being slightly more loosely coiled. The Recent specimen differs somewhat by its concave lateral margins. In general we have no doubt whatsoever that these three specimens all belong to the same species.

THE MATERIAL

The whereabouts of the Aquitaine Basin material is unknown to us. The shell from Winterswijk-Miste is kept in the Rijksmuseum van Geologie en Mineralogie, Leiden (registration no. RGM 225.666, A. W. Janssen leg., 1971).

The specimen from South Portugal has been deposited in the Rijksmuseum van Natuurlijke Historie, Leiden (registration no. RMNH 55655, D. F. Hoeksema leg., 20.VII.1981).

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SAMENVATTING

Van de mariene gastropode *Spiricella unguiculus* Rang, 1827, waren tot dusver slechts één exemplaar en enkele fragmenten bekend uit het Mioceen van het Aquitaine Bekken in Zuidwest-Frankrijk. De auteurs berichten hier de vondst van een eveneens Mioceen exemplaar uit Winterswijk-Miste, en, zeer verrassend, van een recent exemplaar uit Zuid-Portugal. Gezien de kenmerken van de schelp past het geslacht *Spiricella* het best in de familie Umbraculidae.