

**Avenionia brevis roberti Boeters (Prosobranchia, Hydrobiidae)
in the Netherlands, with notes on its habitat**

J. NOTENBOOM

Instituut voor Taxonomische Zoölogie,
P.O. Box 20125, 1000 HC Amsterdam, The Netherlands

&

A. J. DE WINTER

Dorpsstraat 139, 6871 AG Renkum, The Netherlands

Recently the ground-water gastropod *Avenionia brevis roberti* Boeters, 1967, was collected again in the Netherlands, in the province of Limburg. *Avenionia* was reported for the first time from there by Venmans (1943a, b, c), s.n. *A. bourguignati* (Locard, 1883); Venmans had found two empty shells in flood-debris of the river Jeker south of Maastricht. While investigating several wells in the valley of the Jeker (fig. 1), a large number of additional specimens was collected in a well at Lombok (Van Regteren Altena, 1946; Venmans, 1947).

Boeters (1967) considered *A. bourguignati* a subspecies of *A. brevis* (Draparnaud, 1805), which is known from the French department Aube. He described *A. brevis roberti* with the well at Lombok as its type-locality. Unfortunately this well has been destroyed.

In April 1982 one adult and three juvenile specimens of *A. brevis roberti* were found alive in a net-sample, taken from a pump near Geulhem (fig. 1) in the province of Limburg (UTM FS 9636; EIS 330216), together with five species of ground-water crustaceans. In August 1982 this locality was visited again and this time three juvenile *Avenionia* were collected. The only adult specimen is 2.0 mm high and 1.1 mm broad (fig. 2). Its surface is covered with black encrustments. The juvenile shells measure less than 0.88 mm in length. For a further description see Boeters (1967). Anatomical characters are given by Boeters & De Winter (1983).

The only Belgian localities known until recently, two wells in sediments of the river Meuse at Hermalle-sous-Argenteau (fig. 1), province of Liège (Boettger, 1939; Leruth, 1938) could not be refound. However, intensive sampling of ground-water habitats by members of the Biological Group of 'Speleo Nederland' has revealed a few new localities in the Ardennes (unpublished results; Boeters & De Winter, in press). The species appears to have been overlooked because of the difficulties involved in exploring its habitat.

The pump near Geulhem is situated in the valley of the river Geul, at a distance of about 10 meters from the river. This valley was incised in Upper Cretaceous limestone. The pump takes its water from gravel, which was deposited on the underlying limestone by a braided river in the Late Pleistocene. During the Holocene, fine, silty sediments were laid down on top of it (Van de Westeringh, 1980) (fig. 3). In both Dutch localities,

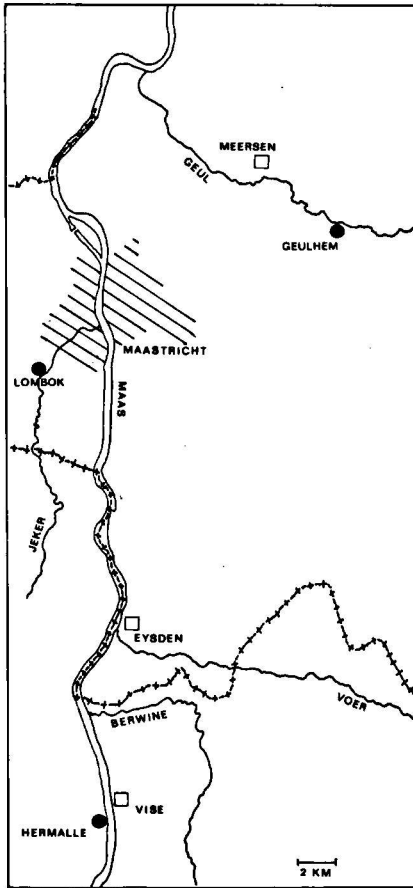


Fig. 1. *Avenionia brevis roberti* Boeters in the Meuse basin north of Liège (black dots). The Dutch (left) Belgian frontier cuts across the area shown.

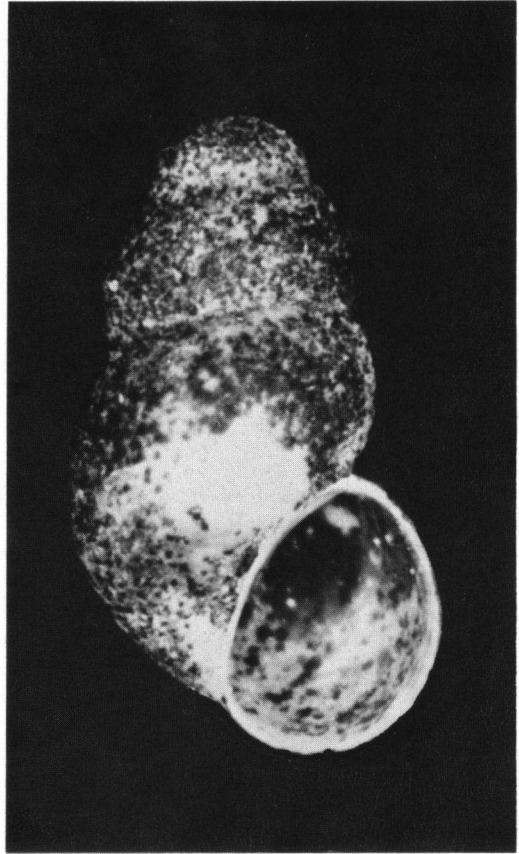


Fig. 2. *Avenionia brevis roberti* Boeters, Geulhem. Actual height 2.0 mm; width 1.1 mm (Rijksmuseum van Natuurlijke Historie).

as well as in Hermalle-sous-Argenteau, *A. brevis roberti* has been found in aquifers consisting of coarse granulated Pleistocene river sediments. In August 1982 the water temperature was 11°C. The pump was previously visited by Stock (1962); *Avenionia* was not reported by this author, however.

Table 1 summarizes the fauna known from the pump near Geulhem. The rich fauna in the March sample might be explained by the fact that this sample was taken after about a six months period in which the pump was not used.

Leruth (1938) has given a detailed account of the fauna of the wells at Hermalle-sous-Argenteau. Near Geulhem and at Hermalle *A. brevis roberti* was found together with

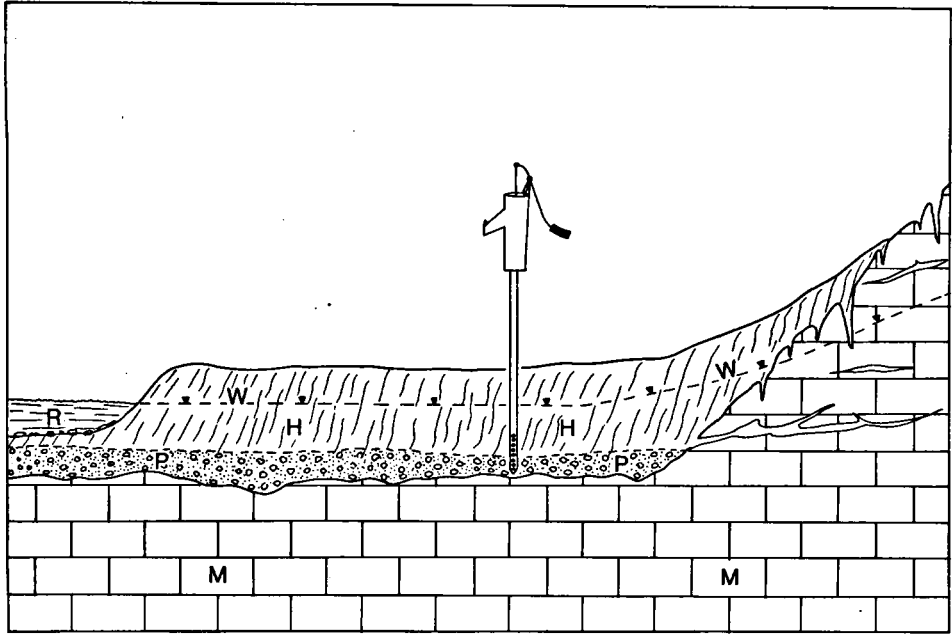


Fig. 3. Schematized cross-section through the Geul valley near Geulhem; partly based on two boreholes in the neighbourhood, placed at our disposal by the Waterleidingmaatschappij Limburg. R, river Geul; M, limestone of the Formation of Maastricht; P, coarse granulated Pleistocene river sediments; H, fine silty Holocene sediments; W, water table.

	Stock (1962)		
	9/10-1-1961	27-3-1982	20-8-1982
	2000 l.	50 l.	400 l.
Crustaceans			
<i>Crangonyx subterraneus</i> Bate	5	1	1
<i>Niphargus kochianus dimorphopus</i> Stock & Gledhill	9	16	42
<i>Niphargus schellenbergi</i> Karaman		1	1
<i>Proasellus hermallensis</i> (Arcangeli)		7	5
<i>Acanthocyclops (Rhenocyclops) sensitivus</i> (Greater & Chappuis)	12		
<i>Acanthocyclops (A.) venustus</i> (Norman & Scott)			3
<i>Diacyclops languidoides</i> (Sars)	3		
<i>Pseudocandona zschokkei</i> (Wolf)		25	18
Turbellaria			
<i>Dendrocoelum boettgeri</i> An der Lan ⁺	3		
Gastropoda			
<i>Avenionia brevis roberti</i> Boeters		4	3
	32	54	72

+ The identification of this species requires elucidation (Van de Velde & Cuppen, 1981)

Table 1. The fauna from the pump near Geulhem.

Pseudocandona zschokkei, *Acanthocyclops venustus*, *Niphargus kochianus dimorphopus*, *Proasellus hermallensis* and *Dendrocoelum* spec. These species might be typical for river sediments of the Meuse basin in this region. Only *Valvata cristata* Müller, 1774, and *Planorbis albus* Müller, 1774, were mentioned as accompanying fauna at Lombok (Van Regteren Altena, 1946; Venmans, 1947); these two species are not typical ground-water organisms, however.

The *Avenionia* specimens are deposited in the Rijksmuseum van Natuurlijke Historie, Leiden, and in the collection of De Winter; the amphipods and isopods are in the Zoölogisch Museum, Amsterdam, the copepods and ostracods are in the collections of the Koninklijk Belgisch Instituut van Natuurwetenschappen, Brussels.

We are indebted to Drs. Frank Fiers and Karel Wouters, Koninklijk Belgisch Instituut van Natuurwetenschappen (Brussels), who identified the copepods and ostracods, respectively, and to Susan Parren, who corrected the English text.

REFERENCES

- BOETERS, H.D., 1967. *Bythinella brevis* auct. und die Gattung *Avenionia* Nicolas 1882 (Prosobranchia, Hydrobiidae). – Arch. Molluskenk. 96: 155-165.
- BOETERS, H.D., & A.J. DE WINTER, 1983. Neues über *Avenionia*. – Arch. Molluskenk. 114: 25-30.
- BOETTGER, C.R., 1939. Die subterrane Molluskenfauna Belgiens. – Mem. Mus. r. Hist. nat. Belg. 88: 1-68.
- LERUTH, R., 1938. La faune de la nappe phréatique du gravier de la Meuse à Hermalle-sous-Argenteau, Etudes biospéologiques IX. – Bull. Mus. r. Hist. nat. Belg. 14 (41): 1-37.
- REGTEREN ALTENA, C.O. VAN, 1946. Faunistische aantekeningen, I. *Avenionia bourguignati* (Locard) in Nederland. – Basteria 10: 45-46.
- STOCK, J.H., 1962. Animals from pump-water in Geulhem (South Limburg). – Natuurh. Maandbl. 51: 38.
- VELDE, G. VAN DE, & H.P.J.J. CUPPEN, 1981. The distribution and ecology of ground-water and rheophilous freshwater triclads (Platyhelminthes, Turbellaria) in the Netherlands. – Nieuwsbrief EIS-Nederland, 10: 89-98.
- VENMANS, L.A.W.C., 1943a. Een nieuwe vondst (*Avenionia bourguignati* Loc.) en een opwekking. – Natuurh. Maandbl. 32: 84-86.
- , 1943b. *Avenionia bourguignati* (Locard 1883), een nieuwe soort voor Nederland. – Basteria 8: 64-71.
- , 1943c. *Avenionia bourguignati* (Locard 1883). – Arch. Molluskenk. 75: 156-162.
- , 1947. *Avenionia bourguignati* (Locard) in Zuid-Limburg. – Natuurh. Maandbl. 36: 2-5.
- WESTERINCH, W. VAN DE, 1980. Soil conditions, soil carbonates and former vegetation in the Geul valley from Gulpen to Meerssen (South Limburg, The Netherlands). – Meded. Landb. Hoogesch. Wageningen 80: 1-60.

SAMENVATTING

Onlangs werd het grondwaterslakje *Avenionia brevis roberti* Boeters, 1967, opnieuw in Zuid-Limburg gevonden. Enkele exemplaren werden opgepompt met een handpomp te Geulhem, op ca. 10 m afstand van de Geul. Ongeveer veertig jaar geleden werd "*Avenionia bourguignati*", zoals de ondersoort toen nog genoemd werd, voor het eerst in ons land aangetroffen, aangespoeld langs de Jeker bij Maas-tricht. Enkele jaren later werd in een waterput te Lombok veel meer materiaal verzameld. Uit België was *Avenionia* al iets langer bekend, uit grondwater in de Maasterrassen bij Hermalle-sous-Argenteau, tussen Luik en Maastricht. Fig. 1 geeft een overzicht van de genoemde vindplaatsen.

De begeleidende fauna in Geulhem en Hermalle vertoont grote onderlinge overeenkomsten. Nadere gegevens over de fauna van het grondwater in de put bij Lombok ontbreken helaas. In alle drie de gevallen leven de dieren kennelijk in een grofkorrelige Pleistocene rivierafzetting.

A. brevis roberti is waarschijnlijk algemener dan men op grond van het aantal vondsten zou kunnen aannemen. De zeldzaamheid van het slakje is waarschijnlijk voornamelijk een gevolg van de moeilijke toegankelijkheid van het door dit dier bewoonde biotoop.