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CONTRIBUTIONS TO THE DISTRIBUTION OF THE CLAUSILIIDAE (GASTROPODA, PULMONATA) IN THE KARST REGIONS OF ROMANIA

by

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With 2 figures in the text and 1 plate

INTRODUCTION

In this paper the Clausiliidae collection of the Institutul de Speologie "Emil Racovitza" at Bucharest, Romania, is dealt with. The specimens are from 68 localities of the Karst regions of Romania. They were collected in caves or in the direct neighbourhood of caves, between 1956 and 1965 by S. Avram, A. Bălăcescu, D. Dancău, V. Decu, M. Dumitrescu, M. Georgescu, A. Negrea, St. Negrea, T. Orghidan, E. Serban, I. Tăbăcaru and J. Tanasache.

Twenty four species, subspecies or varieties could be identified. Among these one species was found to be new to science, viz. *Laciniaria (Bulgaria) dobrogensis* sp. nov., which is described in this paper.

Boettger (1940), Grossu (1943, 1955, 1964) and Negrea (1962, 1963, 1964, 1965, 1966) published on the Clausiliidae from the Romanian caves. The last mentioned study is a survey of the mollusks known from these caves. Of the Clausiliidae of the Karst regions outside the caves, only little is known (Grossu, 1955).

Boettger (1940) mentioned the following species from caves: (1) *Cochiodina laminata* from Peștera¹⁾ Pojarul Ghețarului de la Scărișoara

1) Peștera = cave.

2) The first number corresponds to that of the map (fig. 1), the second number is that of the cave as mentioned in "Harta regiunilor carstice" by Orghidan a.o., 1965.

(= Peștera Pojarul Poliței), 72, 753.²) (2) *Clausilia (C.) dubia transsylvanica* from Peștera Zgurăști (= Ghețarul de sub Zgurăști) 71, 748; Pojarul Ghețarului (= Peștera Pojarul Poliței) 72, 753; Peștera Hoancele Căldărilor, 73, 761. (3) *Laciniaria (Strigilecula) cana* from Peștera din Dîmbul Colibei, 74, 823. (4) *Alophia (A.) livida* from Peștera Hoancele Căldărilor, 73, 761.

Grossu (1943) reported *Cochlodina orthostoma viridana* from Peștera Dîmbovicioara, 76, 188.

Grossu (1955) mentioned *Cochlodina transsylvanica*, *Clausilia dubia*, *Clausilia grimmeri*, *Laciniaria pagana*, *Graciliaria concilians undulata*, all from Peștera Cetatea Bolii, 69, 257; *Laciniaria plicata* from Peștera Ungurului, 75, 960; and *Herilla dacica* from Peștera Veterani, 49, 495.

Grossu (1964) gave *Laciniaria (L.) plicata* from Peștera de la Podul Natural, 70, 409.

Negrea (1966: 132-133) described a small part of the collection now under study (viz., her numbers 64 (*Cochlodina laminata*), 68 (*Laciniaria plicata*), 71 (*Laciniaria rugicollis*), 73 (*Laciniaria montana*), 74 (*Alophia bogatensis*), 77 (*Graciliaria filograna*), 78 (*Herilla dacica*). Revising this material, we found some mistakes in the identifications mentioned. The specimens from the localities 235 (Peștera lui Cocolbea), 235a (Peștera Opreței), 253 (Peștera Gaura Oanei) identified as *Cochlodina laminata* (no. 64), belong in reality to *Cochlodina orthostoma*; the specimen from locality 427 (Peștera Topolnița), identified as *Cochlodina laminata* belongs to *Macedonica (M.) marginata*; the specimens from the localities 523 (Peștera din Drumul Prolazului), 526 (Peștera de sub Cetate II), 529 (Peștera Văleaga), identified as *Cochlodina laminata* belong to *Herilla dacica*; the specimens from locality 256 (Peștera Gura Cetății) identified as *Laciniaria (L.) plicata* belong to *Pseudalinda (P.) stabilis* and that from 598 (Peștera din Cioaca Birtului) identified as *Laciniaria (L.) plicata* turned out to be *Laciniaria (Strigilecula) cana*.

LIST OF THE LOCALITIES STUDIED (fig. 1)

We enumerate here the localities in a geographic sequence, grouped according to the biospeleological provinces of Romania outlined by Decou (1967) (roman numerals). Each locality is preceded by two numbers, the first gives the order in which the caves are listed here, the second number (between brackets) refers to the number under which the caves are mentioned in "Harta regiunilor carstice" (Orghidan a.o., 1965). A locality is preceded by an asterisk (*) if the specimens dealt with here are found

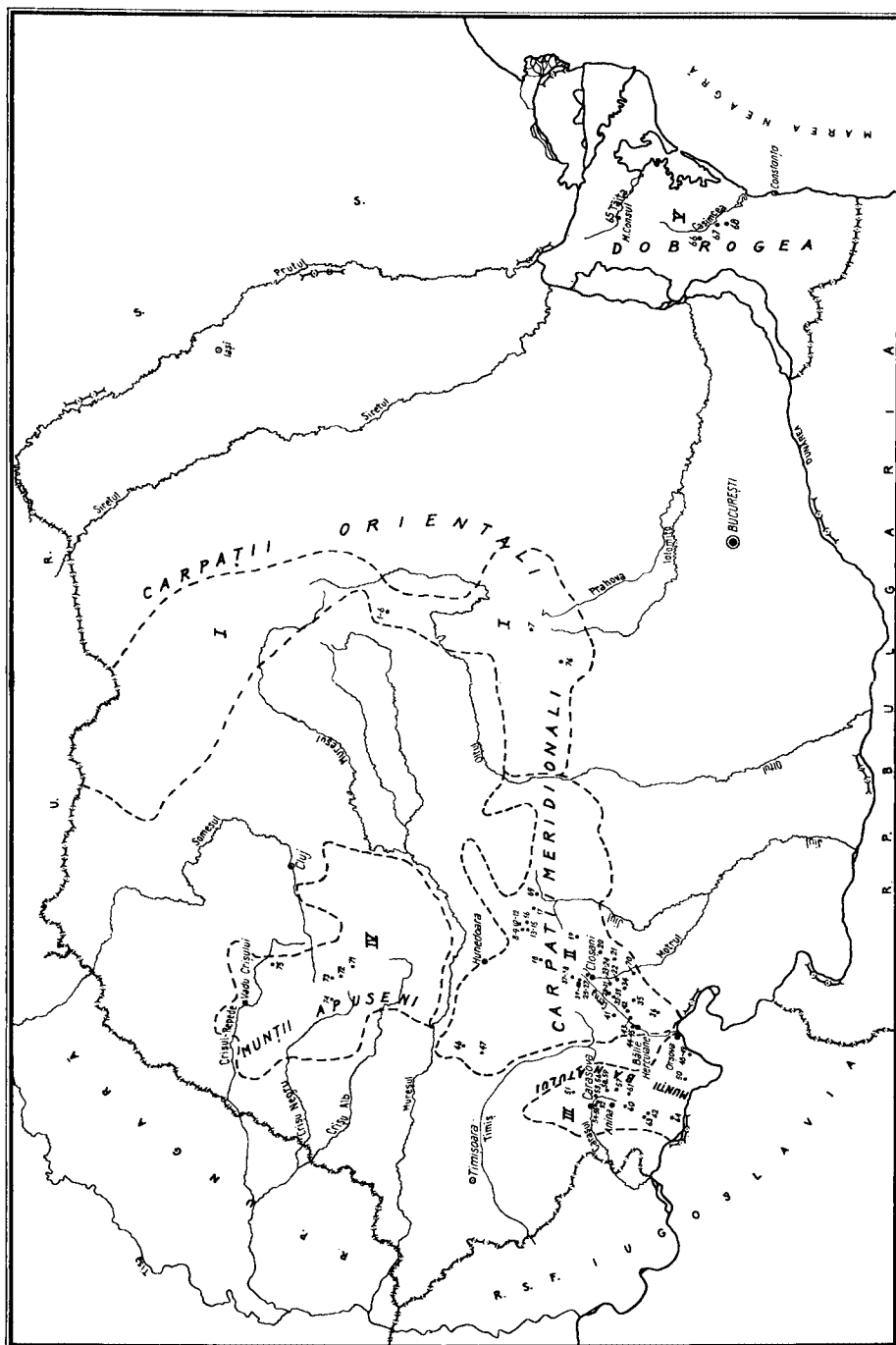


Fig. 1. Situation of the Romanian localities mentioned in the text. I to V, biospeological provinces; 1-68, caves from where the present material was collected; 69-76, caves from where other authors mentioned Clausiliidae.

inside as well as outside the cave. A locality is preceded by an open circle (°) if the specimens were only collected outside the cave in question.

I. Eastern and southern Carpathian Mountains as far as the river Oltul

* 1 (89) Peștera nr. 1 din Cheile Virghișului; 2 (91) Peștera nr. 3 din Cheile Virghișului; * 3 (123) Peștera nr. 35 din Cheile Virghișului; 4 (131) Peștera nr. 44 din Cheile Virghișului; ° 5 (153) Peștera nr. 66 din Cheile Virghișului; 6 (153a) Peștera nr. 1 din Cheile Virghișului; 7 (168) Peștera din Cerneadeal.

II. Southern Carpathian Mountains between the river Oltul and the Timiș Cerna valley

8 (221) Avenul din Șesul Leordei; ° 9 (230) Peștera Valer Munteanu; 10 (231a) Malul drept al apei Luncanilor; ° 11 (231 b) Lunca Ponorului; 12 (234) Peștera de pe malul drept al Ohabei; ° 13 (235) Peștera lui Cocolbea; ° 14 (235 a) Peștera Opriței; ° 15 (236) Peștera de la Bordul Mare; ° 16 (242) Peștera de la Fintina Socilor; * 17 (253) Peștera Gaura Oanei; ° 18 (256) Peștera Gura Cetății; 19 (286) Peștera de la Gîrla Vacii; 20 (295) Peștera de la Gura Plaiului; 21 (302) Peștera Fușteica; 22 (325) Peștera nr. 5 din Steiul Orzeștilor; 23 (336) Peștera nr. 11 din Valea Cernișoarei; 39 (432-467) Peștera nr. 49 din Valea Cernișoarei; Peștera nr. 2 de la Cloșani; 26 (358) Peștera Vacilor de la Cloșani; 27 (279) Peștera din Crovul cu Ferigă de la Mărcoane; 28 (389) Avenul nr. 1 de la Căzărmi; 29 (391 a) Avenul nr. 4 de la Căzărmi; ° 30 (391 b) Virtoape; 31 (395) Peștera de la Prisacă; 32 (400) Avenul din Furca Văii; 33 (403) Avenul din Cracul cu Plopi; 34 (408) Peștera nr. 1 de pe Valea Bulbei; * 35 (418 a) Peștera Hoților-Nadanova; 36 (427) Peștera Topolnița; 37 (433) Peștera nr. 1 din Valea Cernișoarei; 38 (434) Peștera nr. 2 din Valea Cernișoarei; 39 (432-467) Peștera nr. 49 din Valea Cernișoarei; 40 (432-467) Peștera nr. 55 din Valea Cernișoarei; 41 (476) Peștera nr. 2 de la Sălitrari; ° 42 (480) Peștera Prisaca lui Schiopu; ° 43 (483 a) Valea Cernei, 6 km upstream of Băile Herculane; 44 (485) Peștera Hoților de la Băile Herculane; ° 45 (486 a) Domogled; 46 (590) Peștera de la Românești; 47 (598) Peștera din Cioaca Birtului.

III. Banat Mountains

° 48 (494) Peștera Gura Ponicovei; 49 (495) Peștera din Pinza Curii; 50 (502a) Peștera cu apă de sub Socolovăt; ° 51 (511) Peștera Gaura Pîrșului de la Capu Baciului; 52 (523) Peștera din Drumul Prolazului; 53 (526) Peștera de sub Cetate II; 54 (529) Peștera Văleagă; 55 (530) Peștera de după Cîrșă; 56 (532 a) Peștera nr. 1 din Cerveniaia; 57 (535) Peștera

Cîrneală; 58 (536) Peștera Buhui; ° 59 (538) Peștera Mărghitaș; 60 (543) Peștera Ponor-Plopa (entrance Plopa); 61 (552) Peștera Izvoru Infundat; 62 (558) Peștera de la Lacu Dracului; 63 (566) Peștera Dubova; 64 (576) Peștera de la Izvoru Mînzului.

IV. Apuseni Mountains

We have no Clausiliidae at our disposal from localities in these mountains. The caves 71-75 (fig. 1) are mentioned by Boettger (1940) and Grossu (1955).

V. Dobroudja

° 65(4) Peștera de la Moară (Muntele Consul); 66 (9) Peștera de la Cheia; ° 67 (15) Peștera de la Casian; ° 68 (19) Peștera Lilieciilor de la Gura Dobrogei.

ENUMERATION OF THE SPECIES COLLECTED AND DATA ON THEIR DISTRIBUTION

1. *Cochlodina orthostoma* (Menke)

This species is known from the Baltic area, Prussia, German secondary mountains, East Alps and the Carpathian Mountains.

Material. Province I: ° 5, among leaves near the cave, 19 November 1961, 1 specimen. Province II: 10, 29 June 1963, 1 sp. 12, 27 June 1963, 1 sp. ° 13, outside the cave, among leaves, 28 February 1958, 1 sp.; same cave, 18 May 1962, 1 sp. ° 14, among leaves near the cave, 28 February 1958, 4 sp. ° 16, outside, in front of the cave, 27 May 1962, 1 sp. * 17, 19 August 1962, 1 sp.; near the same cave, 18 August 1962, 2 sp.

This species is rather common, but it is found only in small numbers, it seems to prefer forest litter.

2. *Cochlodina laminata* (Montagu)

This species is known from Europe, from Spain in the west to Moscow in the east and from Scotland and Norway to Italy and the Balkans.

Material. Province I: 3, 26 March 1961, 3 sp. Province II: ° 17, among leaves near the cave, 19 August 1962, 3 sp. 20, 27 July 1957, 1 sp. 28, 17 July 1961, 1 sp. 33, 19 July 1961, 1 sp. 34, 14 April 1959, 1 sp. 37, 2 October 1961, 1 sp. ° 42, among leaves outside the cave, 27 July 1958, 1 sp. ° 43, among leaves, under stones, 26 July 1958, 1 sp. ° 45, under decaying wood and among leaves, 25 July 1957, 1 sp. Province III: 57, on vegetable litter and on the soil, 18 November 1961, 1 sp. 58 (entrance of Grotta Buhui), on loamy soil and on wood, 28 September 1961, 1 sp. 64, on loamy soil, 9 June 1962, 1 sp.

The species is common, as well in as near caves, among leaves, on decaying wood and under stones in forests.

3. *Clausilia dubia* Draparnaud

A European species which is found from Spain in the west to the western Baltic area in the east and from Scotland and Norway to Italy and the northern Balkans. In Romania it is known from Transsylvania and from the eastern Carpathian Mountains as far south as the river Oltul; the only record from caves is that from the Peștera Bolii (Grossu, 1955).

Material. Province II: ° 11, along the brook Lunca Ponorului, on rocks, 3 August 1963, 1 sp.

The species lives on wet rocks covered with moss and lichens. It is not very common in Romania.

4. *Laciniaria (L.) plicata* Draparnaud

This species is known from north-eastern France in the west to the Ural Mountains in the east and from southern Sweden to Ticino (Switzerland) and Macedonia (Yugoslavia).

Material. Province II: ° 13, among leaves near the cave, 28 February 1958, 1 sp. 17, 19 August 1962, 2 sp. 20, 27 July 1957, 2 sp. 21, 2 November 1956, 1 sp. 22, 23 October 1960, 1 sp. 23, 17 October 1960, 1 sp.; from the same locality 27 April 1961, 1 sp. 24, 29 April 1961, 1 sp. 26, 5 March 1959, 1 sp.; from the same locality, 15 April 1959, 2 sp. 29, 3 August 1962, 2 sp. 31, 26 July 1962, 1 sp. 32, 29 July 1961, 1 sp. 35, August 1957, 2 sp. 38, 7 July 1961, 1 sp. 39, 8 October 1963, 1 sp. 41, 30 July 1958, 1 sp. ° 42, outside the cave, among leaves and on decaying wood, 27 July 1958, 3 sp. ° 43, among leaves and on decaying wood, 26 July 1958, 1 sp. ° 45, among leaves and on decaying wood, 25 July 1957, 22 sp.

Province III: 50, on the cave wall in the dark zone, 30 May 1965, 3 sp. ° 51, near the entrance of the cave, in a forest of lilacs and beech trees, on decaying material and among leaves, 13 November 1961, 1 sp. 58 (entrance Certes), on the sandy banks of the underground river, 5 July 1965, 1 sp. 60 (entrance Plopa), on vegetable matter and on sandy soil, 26 September 1961, 3 sp. 61, on the soil, 18 June 1960, 2 sp. 62, on cave walls in the dark zone, 3 October 1963, 2 sp.

Province V: ° 65, among leaves and moss on stones at the entrance of the cave, 4 April 1962, 3 sp.

This is the Clausiliid species most often found in the caves of Romania, but not in large numbers, only some few specimens at one site. Its biotope is on the soil in beech forests of the lower mountain regions, on open sites (on rocks, the edge of forests, small caves) etc.

5. *Laciniaria (L.) plicata costata* Bielz

This subspecies has so far only been found in the Romanian Carpathians (Grossu, 1955) and at Mangalia in the Dobroudja.

Material. Province I: * 3, 26 August 1958, 1 sp.; from the same locality, among leaves near the cave, 23 March 1961, 1 sp. 4, 17 November 1961, 1 sp. ° 5, near the cave, among leaves, 19 November 1961, 2 sp.

This subspecies is rather rare. It is for the first time that it is found in caves in the Karst region of Romania.

6. *Laciniaria (Alinda) biplicata* Montagu

The species inhabits north western and central Europe to western Russia in the east, to the south-east known as far as the northern Balkan Peninsula.

Material. Province II: 27, 2 November 1960, 1 sp.

Province III: 63, on the cave walls, in semi darkness (zone of diffuse light), 23 September 1962, 8 sp.

This is the first record of the species from caves. It is rather rare.

7. *Laciniaria (Idylopsina) rugicollis* (Rossmässler)

The species has so far been found in the southern Carpathians and in the Banat Mountains.

Material. Province II: 8, 2 November 1963, 1 sp. 12, 27 June 1963, 1 sp. ° 13, among leaves near the entrance of the cave, 18 May 1962, 2 sp. ° 14, among leaves, under stones and on decaying wood near the cave, 28 February 1958, 9 sp.; from the same locality, 5 November 1963, 1 sp. ° 15, among leaves, 30 October 1964, 1 sp. 19, 24 October 1963, 1 sp. ° 35, under stones, 3 August 1957, 4 sp. 44, 30 June 1961, 1 sp.

Province III: ° 48, on rocks near the cave, 22 May 1965, 2 sp. 56, on the cave wall in the dark zone, 1 October 1965, 1 sp.

The species is rather common in Province II, being present inside as well as outside the caves. It lives in the open on limestone rocks, among leaves and on stones in the woods.

8. *Laciniaria (Idylopsina) rugicollis* var. *hasta* Küster

In Romania this form is so far known only from the Banat.

Material. Province II: 31, 26 July 1962, 2 sp.

Province III: 55, in semi darkness, 16 May 1965, 1 sp.

This is the first record of the variety from Romanian caves.

9. *Laciniaria (Idylopsina) pagana* (Rossmässler)

The species is only known from the southern Carpathians and from the Banat. In Romania it is known from the Carpathian zone of Olténie, from Hunedoara and from the Banat.

Material. Province II: ° 9, near the entrance of the cave, among moss on the rocks and among leaves, 28 February 1958, 6 sp. ° 14, among leaves at the entrance of the cave, 20 July 1956, 2 sp. 25, 8 November 1960, 1 sp. ° 42, at the entrance of the cave, among leaves, 27 July 1958, 2 sp. 44, 30 July 1961, 1 sp.

This species is in general rather common, but not widely distributed in the Karst regions of Valea Cernei. It lives on limestone rocks.

10. *Laciniaria (Strigilecula) cana* (Rossmässler)

The species is known from eastern and south-eastern Europe, from western Prussia in the west to Moscow, and from southern Finland to the eastern Balkans.

Material. Province II: 47, on vegetable litter in the dark, 29 May 1963, 1 sp.

The species is rare in the Karst regions of Romania.

11. *Laciniaria (Strigilecula) vetusta* (Rossmässler)

The species is known from Central Europe, from Germany in the north west to the northern Balkans in the south. In Romania it is known from Transsylvania, the Banat and Olténie, especially from the mountain zones.

Material. Province II: ° 30, between leaves, 2 August 1962, 1 sp. 31, 26 July 1962, 2 sp.

Province III: 50, on the cave wall, 30 September 1965, 1 sp. 51, on the cave wall, 20 May 1965, 1 sp. ° 59, among leaves near the cave, 14 November 1961, 1 sp.

This is the first record of the species from the caves of Romania. In the Karst regions studied, it is not common. In the open it lives on rocks, under stones, under decaying wood and among leaves, in small caves it lives on the walls and in the moist soil.

12. *Laciniaria (Strigilecula) vetusta striolata* Pfeiffer

This carpathian subspecies is known in Romania from the Apuseni mountains and from the Banat.

Material. Province III: ° 48, near the cave, on rocks, 22 June 1965, 2 sp.

This subspecies is thus not very common.

13. ***Laciniaria (Bulgarica) dobrogensis*** spec. nov. (fig. 2)

Material. Province V: ° 65, near the cave, under stones, 4 April 1962, 28 sp. 66, in the Casimcea valley, near Cheia, under stones (leg. M. Dumitrescu, T. Orghidan and M. Georgescu), 25 May 1961, 43 sp. ° 67, under stones in the entrance of the cave, 7 May 1963, 2 sp. ° 68, under moss that covers the rocks near the entrance of the cave, 20 February 1961, 5 sp.

Diagnosis. — A species of *Bulgarica* closely allied to *L. (B.) fraudigera* (Rossmässler), but distinctly smaller with the striae slightly less crowded.

Description. — The shell is of medium height, fusiform, not very solid, yellowish-brown and definitely translucent. The spire has almost straight lateral outlines; however, in some specimens the embryonic whorls may be

attached slightly concavely. The shell has 11 to 13 moderately convex whorls, which are sculptured with numerous slightly undulating striae, about 7 to 10 per mm on the whorl above the aperture, in *L. (B.) fraudigera* (Rossmässler) about 9 to 12; in *L. (B.) varnensis* (L. Pfeiffer) about 5 to 8 per mm. The striae are not or only slightly coarser on the neck. Groups of striae or parts of them are whitish. A thread along the suture is sometimes present. The last whorl has a ribbed basal crest. The left outer wall of the last whorl (behind the aperture) is slightly impressed below the plica principalis, but not in such a way, that a second (outer) basal crest occurs.

The aperture is pear-shaped and horn-coloured within; the sinulus is broad, not high. The upper margin has only a faint angle where the superior lamella ends. The peristome is continuous, white, reflexed, the upper margin is clear of the preceding whorl. The base of the peristome is semicircular, it may be slightly angular in the centre.

The lamella superior is rather low and long, it reaches the margin and is clear of the lamella spiralis. The latter begins dorso-laterally at the left side of the end of the lamella superior and is separated from it by a rather wide gap. The lamella spiralis ends inwards at the ventro-lateral side of the shell. The lamella inferior is rather high and extends horizontally into the lumen of the aperture, the ventral end is slightly thickened, from this end two faint diverging lamellae may run to the margin, but do not reach it. The lamella inferior ascends inwards diminishing in height, being low at a dorso-lateral position at the right side of the shell, it ends ventro-laterally at the same height or slightly beyond the inner end of the lamella spiralis. Looking into the aperture from below, it is just possible to see the inner side of the base of the lamella inferior. The lamella subcolumellaris is not visible in a front view of the aperture, it is only visible in the aperture if one looks from the extreme left side, it ends on the columella at the right side of the shell.

The closing apparatus lies at the dorsal side of the last whorl. The principal plica runs from the left side, to just beyond the dorsal side, it is about $\frac{1}{4}$ whorl long. Below the principal plica is a callous (false) upper palatal plica which runs from a position almost between the margin of the peristome and the outer end of the principal plica downwards and backwards, parallel to the principal plica, sometimes touching the true upper palatal plica, which is short and lies dorsally ending about as far inward as the plica principalis. This true upper palatal plica is often visible as the upper horn of the lunella. The false upper palatal plica may be faint to very distinct. A long basal plica runs downward, slightly diverging from the false upper plica; it touches the lunella at its lowest outer angle. The lunella is well

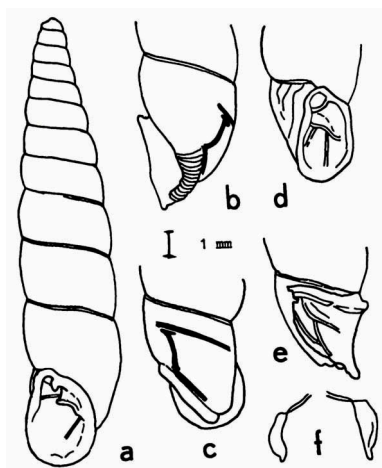


Fig. 2. *Lacimaria (Bulgarica) dobrogensis* spec. nov.; a-d, holotype; e-f, paratype. a, ventral view of the shell; b, right side of the last whorl; c, dorsal side of the last whorl; d, ventro-lateral left side of the last whorl; e, right side of the last whorl, opened to show the inner structure of the shell; f, two views of the clausilium.

developed, bow-shaped, its upper end touches the upper palatal plica, its lower end points inward from the connection with the basal plica.

The plate of the clausilium is long and narrow, it has a distinct thickened, elongated top; the two sides of the plate which are almost parallel, merge almost gradually into the pedicle.

The length of the plate is ca 1.8 mm, its width ca 0.7 mm.

The holotype (from the Cave "de la Cheia") is in the collection of the "Rijksmuseum van Natuurlijke Historie" at Leiden, Netherlands, the paratypes from the same cave and from outside the cave "de la Moara" are deposited in the collection of the "Institutul de Speologie Emil G. Racovitza", Bucharest, in that of the Leiden Museum and in the private collection of F. E. Loosjes, Wageningen.

The dimensions of the shells are (in mm):

	shell		aperture		number of whorls
	length	diam.	height	width	
holotype	14.7	3.2	3.2	2.4	12
paratypes					
Cave de la Cheia, 42 specimens	12.9-17.6	3.0-3.7	2.9-3.4	2.1-2.5	11-13
Cave de la Moara, 28 specimens	12.9-17.1	3.0-3.6	2.8-3.3	2.1-2.5	11-13
Cave de la Casian, 2 specimens	13.0-14.7	3.2-3.4	3.0-3.3	2.2-2.6	11-12
Cave Liliecilor, 5 specimens	13.8-16.7	3.1-3.4	3.0-3.1	2.3	12-13

The ventrosity $\frac{1}{d}$ is respectively 4.6 (holotype), 3.9-4.8 (Cheia), 4.0-5.3 (Moara), 4.1-4.3 (Casian) and 4.5-5.1 (Lilieilor).

This is as far as we know, the first record of a species of the subgenus *Bulgarica* from the Dobroudja. The nearest locality whence species of *Bulgarica* have been reported is Varna, in eastern Bulgaria, where *L. (B.) varnensis* (L. Pfeiffer) lives. The shells of this species are much larger and wider, comparatively more slender however and have a dark brown colour.

In central Bulgaria lives *L. (B.) fraudigera* (Rossmässler). It is, among other differences, larger than the new species and more densely striated. *L. (B.) fritillaria* (Rossmässler) too is known from central Bulgaria (Rodope Mountains). It is definitely wider than the new species, the lamella inferior is less protruding into the lumen of the aperture and the closing apparatus lies more laterally of the dorsal line.

14. *Pseudalinda (P.) montana* (Pfeiffer)

The species is known from the eastern and southern Carpathians and from the Banat Mountains.

Material. Province II: 40, 7 July 1964, 1 sp.

15. *Pseudalinda (P.) stabilis* (Pfeiffer)

The species is known from the Carpathians, between the Tatra and the Danube.

Material. Province II: ° 18, outside the cave under stones, 4 October 1962, 1 sp.

Province III: 58 (entrance Certes), on the cave wall, 19 May 1965, 1 sp.

This is the first record of the species from caves of Romania. The animals live in the woods among litter, and in the cave at the base of the walls.

16. *Pseudalinda (Vestia) elata* (Rossmässler)

This species is known from the Romanian Carpathians up to 1800 m altitude.

Material. Province I: ° 3, between leaves near the cave, 23 March 1961, 1 sp.

The species lives in woods among decaying litter.

17. *Alopia (A.) bogatensis* (Bielz)

The species is endemic in the Perșani mountains (eastern Carpathians).

Material. Province I: * 1, 23 March 1961, 2 sp.; near the same cave, 23 March 1961, 23 sp. 2, 23 July 1957, 1 sp. * 3, 29 August 1958, 2 sp.; the same cave on loam, 26 March 1961, 3 sp.; outside the same cave, among leaves, 23 March 1961, 6 sp.

This species is only found in a very restricted area, where it is rather abundant among leaves and on the loamy soil of small caves.

18. *Alophia (A.) occidentalis* (O. Boettger)

The species is endemic in Hunedoara and in the valley of the river Cerna.

Material. Province II: ° 42, among leaves in the entrance of the cave, 27 July 1958, 7 sp.

This is the first record from the Karst region of Romania. The species is rather rare.

19. *Alophia (A.) occidentalis jickelii* Kimakowicz

The subspecies occurs together with the nominate form in the same region (Hunedoara).

Material. Province II: ° 11, near the brook, 3 July 1963, 9 sp.

This is the first record from the Karst region of Romania.

20. *Herilla dacica* (Pfeiffer)

The species occurs in the Banat and south of the Danube in Yugoslavia.

Material. Province III: ° 48, near the cave, among leaves and on rocks, 22 June 1965, 12 sp. 49, 12 December 1956, 1 sp. 52, on the cave walls, 17 May 1965, 2 sp. 53, on the cave walls in semi darkness and in the zone of complete darkness, 17 May 1965, 2 sp. 54, on moist walls covered with algae, in the lighted area, 16 May 1965, 11 sp.

Until now the species was only known from Peștera Veterani, our dates indicate that it is rather numerous in the small caves of the Banat. Outside the caves it is found on limestone rocks in the shade.

21. *Macedonica (M.) marginata* (Rossmässler)

This species has only been found in the Carpathian mountains, between the river Prahova and the river Cerna (Grossu, 1955) and in other localities of Transsylvania not mentioned by him. We only have material from one site:

Province II: 36, in the entrance of "Peștera Femeii", 9 June 1965, 1 sp.

22. *Graciliaria (G.) concilians* (A. Schmidt)

The species is known only from the southern Carpathians, the Retezat mountains, the zone of Hațeg and from the valley of the river Cerna.

Material. Province II: ° 14, among leaves near the entrance of the cave, 28 February, 1958, 1 sp. ° 17, 19 August 1962, 3 sp. 46, on the soil in semi darkness, 22 May 1963, 1 sp.

This element in the caves of Romania is rather rare in the localities studied. The species occurs among dry leaves and under stones.

23. *Graciliaria (Ruthenica) filograna* var. *polita* Kimakowicz

The variety is only known from south-western Transsylvania (Hunedoara).

Material. Province II: ° 14, among leaves near the cave, 28 February 1958, 4 sp. ° 17, 19 August 1962, 1 sp.

The variety is rather rare.

24. *Graciliaria (Ruthenica) filograna* var. *transsylvanica* A. Schmidt

Material. Province I: 1957, 1 sp.

RÉSUMÉ

Contribution à la connaissance de la famille Clausiliidae (Gastropoda, Pulmonata) des zones karstiques de Roumanie.

Le matériel étudié appartient à l'Institutul de Speologie „Emil Racovitza”, Bucarest. Il a été recueilli entre 1956 et 1965 dans 68 stations, situées dans des zones karstiques: grottes ou leurs environs. Les localités sont groupées par provinces biospéologiques de Roumanie:

- I. Carpatés orientales et méridionales jusqu'à l'Olt;
- II. Carpatés méridionales entre l'Olt et le couloir Timis Cerna;
- III. Monts du Banat;
- IV. Monts Apuseni;
- V. Dobroudja.

Voici quelques conclusions de l'étude:

1. Dans le matériel étudié, on a découvert une espèce nouvelle, *Laciniaria (Bulgarica) dobrogensis* sp. nov.

2. Dans la plupart des stations explorées, on a recueilli pour la première fois, des Clausiliides, ce qui complète les données sur l'aire de distribution des espèces considérées et fournit des précisions sur le mode de vie préféré par chaque espèce, sous-espèce ou variété.

3. A la liste des Clausiliides connues des grottes de Roumanie, on a ajouté 6 éléments nouveaux: *Laciniaria plicata costata* Bielz, *L. biplicata* (Montagu), *L. rugicollis* var. *hasta* Küster, *L. vetusta* (Rossmässler), *Pseudalinda stabilis* (Pfeiffer) et *Macedonica marginata* (Rossmässler).

4. Du point de vue de la dispersion géographique, parmi les 24 espèces

et sous-espèces de Clausiliides, 8 sont des éléments européens et 16 appartiennent à la faune endémique de la Roumanie (diverses provinces).

5. Dans les grottes étudiées, les Clausiliides sont des composants des associations du plancher et des parois. Elles sont généralement présentes dans les zones d'ouverture des grottes, là où la lumière pénètre et où l'humidité et la nourriture sont suffisantes.

6. Les espèces les plus fréquentes dans les grottes sont: *Laciniaria plicata* (Draparnaud), 19 grottes; *Cochlodina laminata* (Montagu), 9 grottes; *Laciniaria rugicollis* (Rossmässler), 5 grottes; *Herilla dacica* (Pfeiffer), 4 grottes.

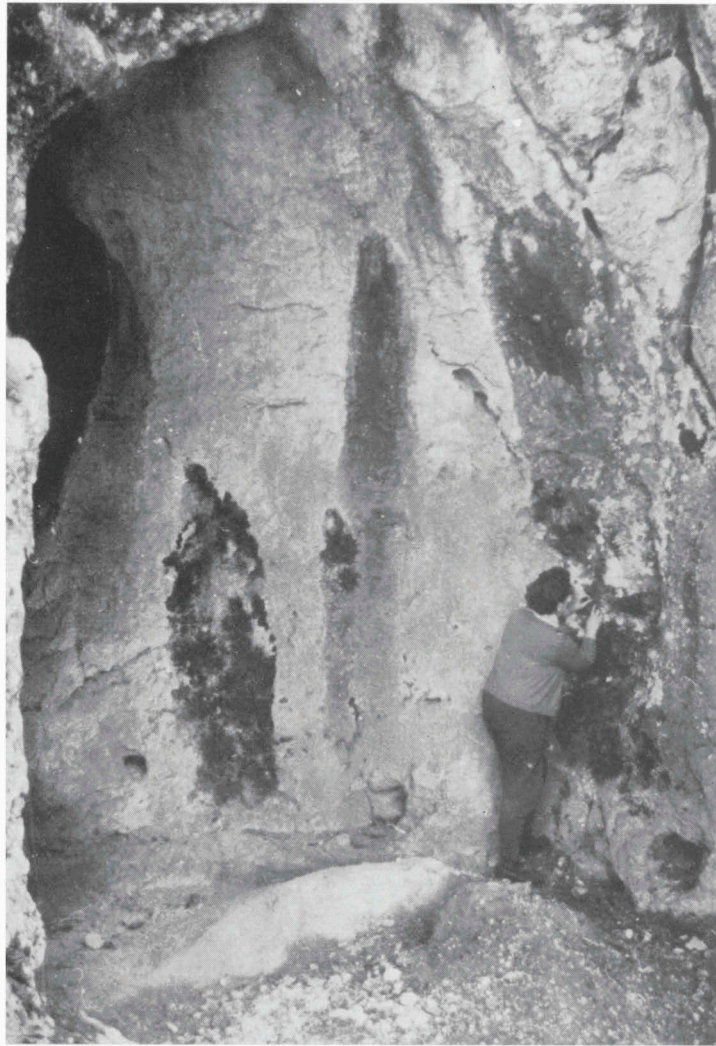
7. Dans les stations extérieures, les Clausiliides préfèrent la litière des forêts de montagne ou sous-montagneuses des zones karstiques (feuilles, bois morts, pierres) et les roches calcaires fissurées, recouvertes de mousses et de lichens. Lorsque la sécheresse est trop grande, ces mollusques pénètrent dans la zone d'entrée des grottes si elles y trouvent un sol recouvert de feuilles, de l'humidité et un peu de lumière. On les rencontre plus rarement dans la profondeur des grandes grottes.

8. En ce qui concerne la fréquence par province (grottes et stations épigées étudiées): *Cochlodina laminata* a été recueilli dans les provinces biospéleologiques no. I, II et III; *Laciniaria plicata* dans II, III et V; *Cochlodina orthostoma* dans I et II; *Laciniaria rugicollis* et *L. vetusta* dans II et III. Les autres espèces n'ont été trouvées que dans une seule province.

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Entrance of Peștera de la Cheia (66), the habitat of
Laciniaria (Bulgarica) dobrogensis spec. nov.

photogr. T. Orghidan