

Polytypic *Carinigera buresi* in NE Greece
(Gastropoda, Pulmonata, Clausiliidae)

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The diagnosable, geographically localized forms of *Carinigera buresi* that are known from NE Greece, are dealt with systematically as subspecies. Two subspecies are described as new to science, viz. *C. b. nordsiecki* and *C. b. polimilitis*. The structure of the lamella inserta, hitherto neglected in this species, turned out to be partially diagnostic.

Key words: Gastropoda, Pulmonata, Clausiliidae, *Carinigera*, clausilial apparatus, lamella inserta, taxonomy, Greece.

INTRODUCTION

During malacological fieldwork in NE Greece, the authors, searching for clausiliids in particular, came across some geographically localized forms of *Carinigera buresi* (A.J. Wagner, 1927). Nearly all these vicariant forms are mentioned already in the literature (Nordsieck, 1977), but some of them still have no valid names. They proved to be more clearly differentiated than could be concluded from the published data. Here we characterize, illustrate and name these taxa as subspecies, two of which as new to science. Only the taxa represented in Greece are included. The only subspecies reported from outside Greece, i.e. *C. b. damjanovi* Likharev, 1972, from adjoining Bulgaria, could not be dealt with in a comparable way because of lack of sufficient research material.

Carinigera buresi can be recognized by its medium-sized (height 10.4-19.3 mm), dark- to greyish-brown shell, with a more or less prominent, narrow, white sutural line and some white sutural papillae on the initial teleoconch whorls. The lunella is situated dorsally. The initial whorls are convex, the lower ones are increasingly more flattened. Both the lamella parallela and the plica suturalis are usually more or less clearly discernible as very fine lines. Their structure is not clearly diagnostic for any of the subspecies. The same applies to the presence versus absence of both a fold and a whitish, oblique, more or less broadened patch below the plica principalis in the aperture. In all but one subspecies at least the middle whorls are smooth; rather coarse radial riblets may be present on the initial teleoconch whorls and on the final half to quarter of the body whorl. The apertural lip is reflected and may be strongly to extremely thickened, characterizing an entire population, or as only an individual character. The shell measurements (based on over 50 specimens for all subspecies) may vary considerably, with large overlaps even between the subspecies that differ most for this character, i.e. *C. b. dramaensis* with a shell height varying between 10.4 and 16.5 mm and *C. b. conciliatrix* measuring between 14.2 and 19.3 mm.

To differentiate between the subspecies the following conchological characters are considered most useful: (1) the shape of the aperture, (2) the position and prominence of a dorsal crest on the body whorl, (3) the sculpture of the middle whorls, (4) the shape of the lamella columellaris, (5) the forward extension of the lamella subcolumellaris, (6) the lamella inserta and its relation to the spiralis, (7) the plica principalis and its relation to the lunella, (8) the presence and prominence of the plica basalis.

It turned out that the structure of the lamella inserta, hitherto neglected in *Carinigera buresi*, can be used as an additional character to differentiate between some of its subspecies. It is a short lamella (figs 1-2), that may be present, running obliquely between the inner ends of the lamellae columellaris and spiralis. It supports the most distal part of the clausilial stalk, where the clausilial blade begins. Whenever developed, the lamella inserta is visible only through a hole that should be made in the wall of the body whorl, behind the lunella. In *C. buresi*, the inserta is either developed as a separate lamella (fig. 1), or it is more or less smoothly connected to the spiralis (fig. 2). In the latter case, the lamella spiralis may seem to have an irregular course near its inner end, where it smoothly changes into the inserta. It may also continue regularly, but more or less obsolete, after only contacting the inserta. The lamella inserta was clearly described already by Schmidt (1868: 6-7), who indicated that its character states can sometimes be used to characterize low level taxa.

The illustrated specimens are in the National Museum of Natural History, Leiden (= RMNH). For additional collections the following abbreviations are used: MAA, W.J.M. Maassen, Duivendrecht; MEN, H.P.M.G. Menkhorst, Krimpen aan de IJssel; SUB, P. Subai, Aachen. The reference 'Nordsieck, 1977' is abbreviated as 'N'. To show distributional patterns most clearly, UTM 1-kilometre square codes are indicated for the localities and are used in figure 3. For only the RMNH localities these are based on primary GPS measurements. For the other localities the codes are less precise since they had to be determined on the basis of maps and distances usually indicated in km, measured along the road.

IDENTIFICATION KEY

- 1a. Last whorl with a basal and an asymmetrical, prominently swollen, dorsal crest: *C. b. buresi*
 1b. Basal and dorsal crests approximately symmetrical, or dorsal crest obsolete or lacking completely: 2
 2a. Apertural lip continuous and protruding in most specimens: 3
 2b. Apertural lip partly attached across the parietal side, not protruding: 6
 3a. Lamella columellaris relatively low, running obliquely upwards: . . . *C. b. cavallaensis*
 3b. Lamella columellaris nearly horizontally flaring as far as about halfway into the aperture: 4
 4a. Plica principalis reaching much further than the lunella inside (fig. 7b): *C. b. conciliatrix*
 4b. Plica principalis reaching not or hardly further than the upper part of the curved lunella inside (fig. 8b): 5
 5a. Lamella inserta smoothly connected to the spiralis, the innermost part of which sometimes discernible as a whitish line or lacking completely: *C. b. dramaensis*
 5b. Lamella inserta as prominent as the innermost part of the spiralis and reaching equally far or somewhat further inside: *C. b. nordsiecki*
 6a. The entire teleoconch with radial riblets: *C. b. militis*
 6b. At least the middle whorls smooth: 7
 7a. Lamella inserta running next to the innermost part of the spiralis and reaching equally far or somewhat further inside: *C. b. insularis*
 7b. Lamella inserta smoothly connected with the spiralis, the innermost part of which is obsolete or missing completely: *C. b. polimilitis*

SYSTEMATIC PART

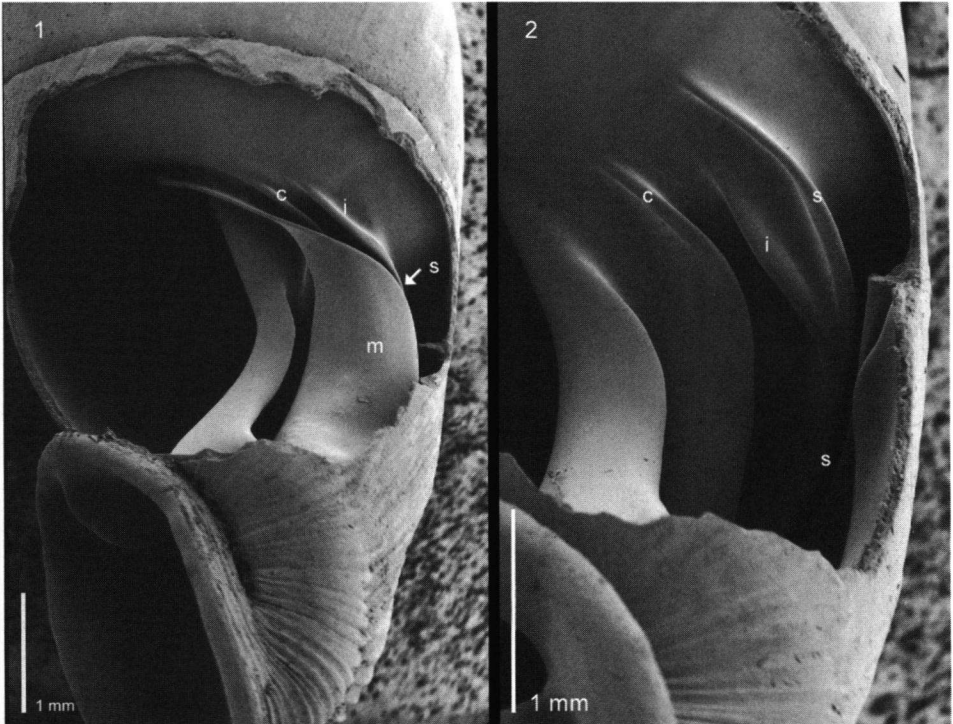
Carinigera buresi buresi (A.J. Wagner, 1927) (figs 3-5)

Delima (*Carinigera*) *buresi* A.J. Wagner, 1927: 330, pl. 16 figs 125-127. Urbaniński, 1960: 83, pl. 2 fig. 2a-b.

Carinigera (*Carinigera*) *delimaeformis buresi*; Brandt, 1962: 137, pl. 5 fig. 9.

Carinigera (*Carinigera*) *delimaeformis delimaeformis*; Brandt, 1962: 137, pl. 5 fig. 8. Not O. Boettger, 1879 (see Nordsieck, 1977: 81).

Records. – Makedonia. Drama: 4 km N of Prossotsani, 200 m alt., GL4967 (RMNH); 6 km N of Prossotsani, 300 m alt., GL4969 (SUB 14386); 8 km N of Prossotsani, 500 m alt., GL4970 (SUB 16658); from Granitis 9 km towards Prossotsani, GL4970 (N: 82); 18 km (= 25 rkm) WNW of Drama, 400 m alt., GL4970 (RMNH); 0.4 km along by-road to Volakas, GL4975 (SUB 14385); 1 km E of Mikroklysoura, road to Potami, KF5486 (SUB16990); 1.3 km SE of Agora, road to Peristeria, 380 m alt., KF7455 (SUB16676); Nikiforos, KF7462 (N: 82); 1 km W of Peristeria, road to Adriani, 400 m alt., KF7955 (SUB17243).



Figs 1-2. The lamella inserta (i) in relation to both the lamellae columellaris (c) and spiralis (s) in (1) *Carinigera buresi cavallaensis* Brandt, 1962, from Kavala and (2) *C. b. conciliatrix* (Fuchs & Käufel, 1936) from ancient Philippi. In *C. b. conciliatrix* the three lamellae run next to each other inside, whereas in *C. b. cavallaensis* the spiralis is fused with the inserta in such a way that only a single lamella with a slight bend seems to be present next to the columellaris (the final part of the spiralis may still be visible as a whitish line). In fig. 1 the clausilium (m) is still in situ; it has been removed in the other specimen. SEM photographs J. Goud, Leiden.

Kavala: Pondolivado, KF9638 (N: 83); S of Kechrokambos [see the notes] near by-road to Skopos, LF0153 (SUB 16989); 0.4 km S of Kechrokambos, 350 m alt., LF0258 (SUB 14392); Hrisoupoli (= Chrysopolis), LF0639 (RMNH); W-side Nestos river, W of Stavroupoli, LF0663 (SUB 12045, 16487).

Thraci. Xanthi: Nestos gorge near Paradisos, LF1251 (MAA; RMNH; SUB 16720; N: 83); Xanthi, type locality, LF2258 (N: 81); gorge north of Xanthi, LF2258 (MAA; RMNH; SUB12028; Zilch, 1981: 123); 2.0-2.1 km along by-road to Echinus north of Xanthi, LF2368 (SUB 14387, 16735).

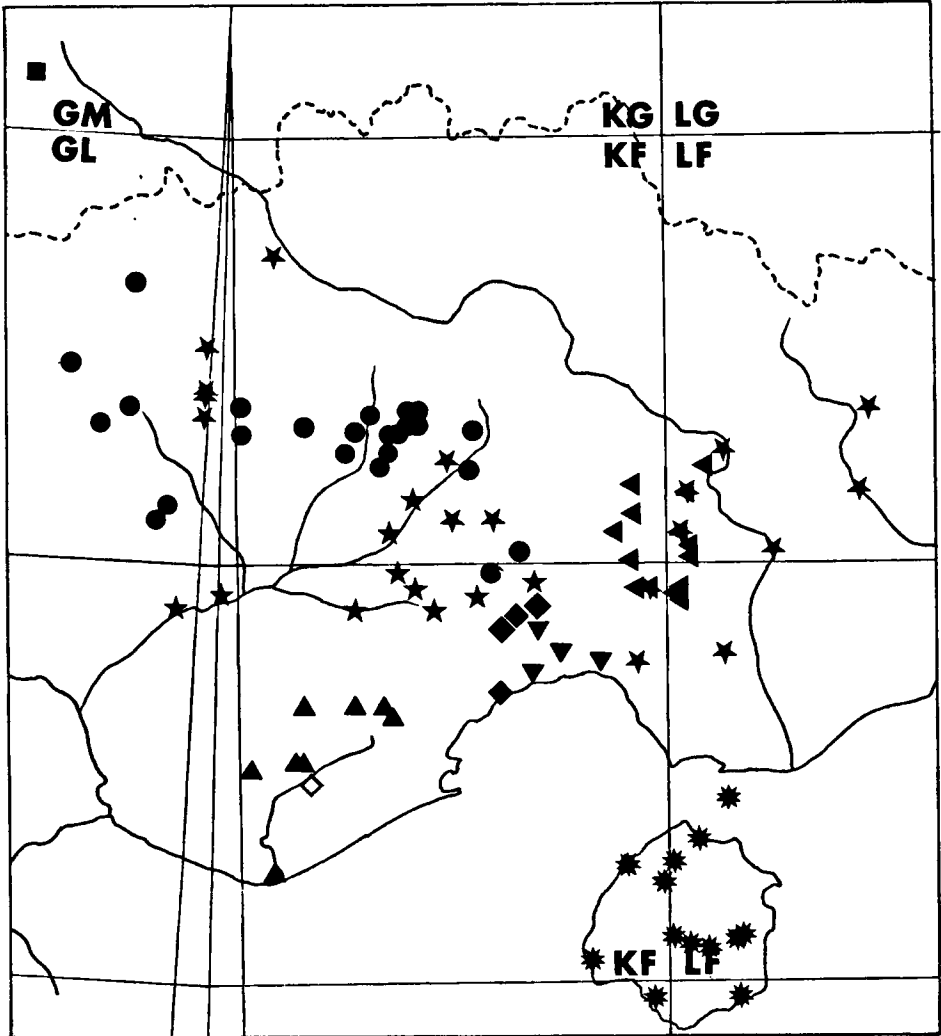


Fig. 3. Records of *Carinigera buresi* subspecies in Greece and Bulgaria: *C. b. buresi*, 5-rayed stars pointing downwards; *C. b. conciliatrix*, 5-rayed stars pointing upwards; *C. b. cavallaensis*, oblique squares; *C. b. damjanovi*, square; *C. b. dramaensis*, dots; *C. b. insularis*, 10-rayed stars; *C. b. militis*, triangles pointing downwards; *C. b. nordsiecki*, triangles pointing upwards; *C. b. polimilitis*, oblique triangles.

Shell. – Aperture pear-shaped; apertural lip continuous, protruding. Body whorl with a moderate basal crest and an asymmetrical, prominently swollen dorsal crest. The plica principalis runs somewhat further inside than the uppermost part of the lunella and may be accompanied by a very prominent lower fold, ending in front with a broadened, white patch; basalis relatively long and very prominent. Lamella columellaris nearly horizontally flaring as far as halfway or even further into the aperture; in frontal view the sub-columellaris is not visible (but see the notes). Lamella spiralis smoothly fused with the inserta, which may seem to be absent therefore; innermost part of the lamella spiralis either missing or discernible as only a whitish line.

Dimensions: shell height 11.7-19.0 mm; major diameter of the spire 2.45-3.75 mm.

Notes. – Brandt (1962) distinguished two subspecies that are supposed to differ mainly in shell slenderness and in the absence versus presence of a prominent palatal fold below the plica principalis. In the form from the gorge north of Xanthi there is always a second, prominent, palatal fold and the shells are very slender, with all whorls being rather convex. However, below the principalis a fold may be present also in other subspecies of *C. buresi*. The slenderness of the shells and the convexity of the whorls is too variable, showing too much overlap among the subspecies, to be diagnostic.

There are wide gaps in the known range of *C. b. buresi*, which seems to encompass parts of the basins of the rivers Nestos (in Greece) and Xanthis. The distribution pattern (fig. 3) would make more sense with additional records of *C. b. buresi* more to the north, in the adjoining Nestos basin. Apart from that, the records in the northwestern part of the range of *C. buresi* in Greece are somewhat problematic, which may be hypothesized to be indicative of hybridization with *C. b. dramaensis* and *C. b. conciliatrix*. The shells are generally somewhat less slender, with more flattened lower whorls, as compared to those from the prefecture of Xanthi, the plica basalis is prominent but shorter, the dorsal crest is raised less conspicuously, and the lamella subcolumellaris may be visible in frontal view. The two samples listed here from south of Kechrokambos are intermediate in characters between *C. b. buresi* and *C. b. polimilitis*; the dorsal keel is less prominent, the plica basalis is not very conspicuous and the aperture may be hardly or not protruding.

Carinigera buresi cavallaensis Brandt, 1962 (figs 1, 3, 9)

Carinigera (Carinigera) cavallaensis Brandt, 1962: 136, pl. 4 fig. 7.

Carinigera (Carinigera) buresi cavallaensis, Zilch, 1981: pl. 11 fig. 6.

Records. – Makedonia. Kavala: 1.2 km from Sidiochori, road to Folia, 250 m alt., KF5824 (SUB17140/26 [see note]); Kavala, KF8034 (MAA; N: 83; RMNH; SUB 9454, 12477); Kavala, city walls, KF8034 (Zilch, 1981: 124); 3 km W of Palia Kavala, KF8042 (SUB 14348); Palia Kavala, KF8243 (N: 83); 2.5 km NE of Palia Kavala, road to Korifes, KF8444 (SUB14345).

Shell. – Aperture rounded elliptical; apertural lip continuous, protruding or attached over a short distance across the parietal side. Body whorl with an inconspicuous basal crest, accompanied by a shallow indentation and no dorsal crest. Plica principalis usually not accompanied by an additional palatal fold and running not or hardly further inside than the inwardly curved uppermost part of the lunella; basalis developed as a short, prominent to more or less obsolete fold, or lacking completely. Lamella columellaris relatively low and quickly ascending into the aperture; in frontal view the subcolumellaris is hardly or not visible. Lamella spiralis smoothly fused with the inserta; innermost part of the lamella spiralis either missing or discernible as only a whitish line.

Dimensions: shell height 13.9-17.4 mm; major diameter of the spire 3.3-4.0 mm.

Notes. – The sample from near Sidiochori, road to Folia, in the Simvolu mountains is provisionally classified here because of the relatively low lamella columellaris. The shells are aberrant by the plica principalis, which runs far inside in most specimens (as in *C. b. conciliatrix*), and the prominent innermost part of the lamella spiralis (as in *C. b. nordsiecki*).

Carinigera buresi conciliatrix (Fuchs & Käufel, 1936) (figs 2, 3, 7)

Delima (*Carinigera*) *conciliatrix* Fuchs & Käufel, 1936: 602.

Carinigera (*Carinigera*) *conciliatrix*; Brandt, 1962: 135 [part.], pl. 4 fig. 6.

Carinigera (*Carinigera*) *buresi conciliatrix*; Nordsieck, 1977: 82, pl. 4 fig. 10.



Figs 4-6. *Carinigera buresi* subspecies (H = actual height of the shell). 4-5, *C. b. buresi*, Xanthi, Nestos gorge near Paradisos [4] and Drama, Hrissoypoli (= Chrysopolis) [5], H 15.2 and 13.9 mm; 6, *C. b. dramaensis*, Drama, 18 km (= 25 rkm) WNW of Drama, H 15.7 mm. Photographs J. Goud, Leiden.

Records. – Makedonia. Drama: Adriani, KF7057 (N: 82).

Kavala: 3 km S of Doxato, 200 m alt., KF6753; 0.5 km E of Ano Kefalari, 250 m alt., KF6848 (RMNH); Filipi (= Philippi), archeological site, KF7046 (MAA; RMNH; SUB 12860, 14393); Krinides, KF7244 (RMNH); E-side of Filippi, KF7746 (SUB 8008, 8086); Korifes (= Korifai), KF8447 (N: 83).

Seres: Angitis gorge, GL4744 (N: 82; Zilch, 1981: 124); near cave of Aistrati, 35 km E of Seres, 200 m alt., KF4846 (RMNH; SUB 17023).

Shell. – Aperture pear-shaped to obliquely oval; apertural lip reflected and thickened to strongly thickened, continuous, protruding or attached over a short distance across the parietal side. Body whorl with a moderate basal crest and separated by an indentation a less conspicuous dorsal one, which may be lacking completely. Plica principalis usually not accompanied by an additional palatal fold and running considerably further inside than the inwardly curved uppermost part of the lunella; basalis developed as a short, prominent to more or less obsolete fold, or lacking completely. Lamella columellaris nearly horizontally flaring as far as halfway into the aperture; in frontal view the sub-columellaris is visible. The lamellae spiralis and columellaris run about equally far inside, whereas the inserta is usually nearly equally prominent but slightly shorter.

Dimensions: shell height 14.2-19.3 mm; major diameter of the spire 3.2-4.0 mm.

Carinigera buresi damjanovi Likharev, 1972 (fig. 3)

Carinigera damjanovi Likharev, 1972: 119, fig. 2.

Records. – Bulgaria, Koprivlen (= 8 rkm SSE of Goce Delčev), GM2706 (N: 81).

Notes. – There were no shells available for study. According to the illustration in the literature (Likharev, 1972: 119, fig. 2; = Damjanov & Likharev, 1975: 179, fig. 114), the shells recall *Carinigera buresi buresi* because of their slender shape, whereas the relatively low and quickly ascending columellaris is similar to that in *C. b. cavallaensis*.

Dimensions (after Damjanov & Likharev, 1975): shell height 15.6-16.7 mm; shell width 3.2-3.3 mm.

Carinigera buresi dramaensis Nordsieck, 1977 (figs 3, 6)

Carinigera (Carinigera) conciliatrix, Brandt, 1962: 135 [part.], pl. 4 fig. 5. Not Fuchs & Käufel, 1936.

Carinigera (Carinigera) buresi dramaensis Nordsieck, 1977: 82, pl. 3 fig. 9.

Records. – Makedonia. Drama: 3.8-4.3 km from Kato Vrontou, road to Panorama, 850-800 m alt., GL3372 (SUB 16792, 17281); Mikropolis - Panorama, 700 m alt. GL3766 (N: 82; SUB 17013); Angitis, GL4068 (N: 82; SUB 16791); N-side Kato Nevrokopi, 750 m alt., GL4082 (SUB 17101); Kallithea, GL4455 (N: 82; SUB 14375); Anthochori, GL4557 (N: 82); Petroussa, KF5065 (N: 82); 3.0-3.5 km N of Petroussa, road to Pirgi, 510 m alt., KF5068 (SUB 17066); N-side Xiropotamos, 250 m alt., KF5765 (SUB 14376); Monastirakion, type locality, KF6263 (N: 82); 5 km N of Drama, 170 m alt., KF6344 (RMNH); N-side Taxiarches, KF6365 (SUB 16639, 17130); 11 km N of Kalifitos (= Kalliphytos), KF6567 (N: 82; SUB 12848); Kalifitos, KF6661 (N: 82); 1 km N of Kalifitos, KF6762 (RMNH; SUB 12495); Kallifitos, 3 km towards Timotheos, KF6765 (N: 82); 2.6 km SW of Makriplagi, 520 m alt., KF6865 (SUB 14374); Makriplagi, 880 m alt., KF6966 (SUB 17127); 3.2 km N of Makriplagi, 950 m alt., KF6968 (SUB 17067); 2 km N of Makriplagi, KF7067 (SUB 12874); 3.4 km NE of Makriplagi, 800 m alt., KF7168 (SUB 14377); 1.8 km E of Nikiforos, 280 m alt., KF7661 (SUB); N-side Psili Rachi, 500 m alt., KF7765 (SUB 16683).

Kavala: NE-side Limnia, 720 m alt. KF8251 (SUB); 5 km SW of Limnia, road to Zigos, 630 m alt., KF7948 (SUB17037).

Shell. – Aperture pear-shaped; apertural lip continuous, usually protruding. Body whorl with a moderate basal crest and separated by an indentation a symmetrical, or less conspicuous dorsal one. The plica principalis may be accompanied by an additional, more or less obsolete fold and a frontal, broadened callus; basalis developed as a short but prominent fold. Lamella columellaris nearly horizontally flaring as far as halfway into the aperture; in frontal view the subcolumellaris varies between clearly visible and hidden. Lamella spiralis smoothly fused with the inserta; innermost part of the lamella spiralis either missing or discernible as only a whitish line.



Figs 7-8. *Carinigera buresi* subspecies (H = actual height of the shell). 7, *C. b. conciliatrix*, Seres, near cave of Alistrati, 35 km E of Serres, H 15.3 mm; 8, *C. b. nordsiecki*, Kavala, Louthra Eleftheron, H 16.2 mm. Photographs J. Goud, Leiden.

Dimensions: shell height 10.4-16.5 mm; major diameter of the spire 3.0-3.5 mm.

Notes. – *Carinigera buresi dramaensis* is known from several valleys in the mountains ranging from W to ENE of Drama. In the adjoining area, stretching from SW to SE of Drama, *C. b. conciliatrix* replaces *C. b. dramaensis*. See further the notes with the nominate subspecies.

Carinigera buresi insularis (Urbański, 1960) (figs 3, 10)

Delima (*Carinigera*) *conciliatrix insularis* Urbański, 1960: 82, pl. 2 fig. 1a-c.

Records. – Makedonia. Kavala, island Thassos: Potos, KE9898 (Zilch, 1981: 124); Skala Marion, KF9002 (SUB 12562); 1.5 km N of Kalives, KF9513 (SUB 12549); mountain-road, 4.9 km from Prinos to Maries, 300 m alt., KF9911 (SUB12214); Aliko, LE0898 (RMNH; SUB 9455, 15275); Rachonion, LF0014 (N: 81); N of Kastron, LF0005 (RMNH); 5 km from Theologos to Maries, LF0204 (MAA); 5 km W of Limenas (= Thassos town), LF0317 (RMNH); Theologos (near graveyard), 300 m alt., LF0403 (SUB 15042); 2.8 km NE of Theologos, 550 m alt., LF0704 (SUB 12055); c. 5 km from Theologos to Kinira, LF0805 (SUB 15429). Kavala, island Thassopoula, LF0622 (N: 83).

Shell. – Aperture rounded quadrangular; apertural lip more or less clearly discontinuous across the parietal side, not protruding. Body whorl with only a moderately prominent basal crest next to an indentation; a dorsal crest is hardly or not discernible. The plica principalis is not accompanied by an additional strong fold; basalis obsolete or missing completely. Lamella columellaris relatively low and quickly ascending into the aperture. The lamellae spiralis and columellaris run about equally far inside, or the columellaris is somewhat longer, whereas the inserta is equally prominent and reaches equally far or slightly further than the spiralis inside.

Dimensions: shell height 10.6-16.5 mm; major diameter of the spire 2.8-3.35 mm.

Carinigera buresi militis Nordsieck, 1977 (fig. 3)

Carinigera (*Carinigera*) *buresi militis* Nordsieck, 1977: 82, pl. 4 fig. 11. Zilch, 1981: 124, pl. 11 fig. 8.

Records. – Makedonia. Kavala: 4.2 km from Palia Kavala to Halkero, 340 m alt., KF8442 (SUB 16652); 2.5 km E of Kavala, KF8537 (MAA; SUB15066); Chalkeron, KF8739 (N: 82; SUB 9450, 12881); Nea Karvali, 2 km towards Gravouna, type locality, KF9238 (N: 82).

Shell. – Teleoconch with regular, radial riblets, varying from blunt to sharp (in different populations). Aperture rounded quadrangular; apertural lip more or less clearly discontinuous across the parietal side, not protruding. Body whorl with an inconspicuous basal crest, accompanied by an indentation; a dorsal crest is hardly or not discernible. The plica principalis is not accompanied by an additional strong fold; basalis obsolete or missing completely. Lamella columellaris nearly horizontally flaring into the aperture over a short distance and reaching less than halfway into the the aperture; in frontal view the subcolumellaris is visible. Lamella spiralis smoothly fused with the inserta; innermost part of the lamella spiralis missing. Lamella columellaris near its inner end less prominent than the inserta; both lamellae reach about equally far inside.

Dimensions: shell height 12.1-15.9 mm; shell width 3.0-3.8 mm.

Notes. – See the notes with *C. b. polimilitis*.

Carinigera buresi nordsiecki subsp. nov. (figs 3, 8)

Records (paratypes, unless stated otherwise). – Macedonia. Kavala: gorge E of Platanotopos, KF5125 (RMNH 96358/2); Louthra Eleftheron, type locality, 80 m alt., KF5312 (RMNH 96353/holotype, 96354/18); gorge W of Moustheni, KF5626 (RMNH 96355/13); E-side Moustheni, KF5726 (SUB 14356/17); 9.2 km from Pangeo summit to Akrovouni, 1350 m alt., KF5733 (SUB/10+1); along road to Pangeo mt., 16 km W of Kavala, KF6333 (MEN/13; RMNH 96356/4); along road to Pangeo mt., 20 km W of Kavala, KF6633 (MEN/26; RMNH96357/5); 1 km NE of Akrovouni, 180 m alt., KF6731 (RMNH96359/23); 7.5, 8, 11.6, and 12.3 km, from Akrovouni to Pangeo summit, 480, 600, 900, and 950 m alt., KF63 (SUB/2, 14357/2, 15245/18, 15179/10).



Figs 9-11. *Carinigera buresi* subspecies (H = actual height of the shell). 9, *C. b. cavallaensis*, Kavala, Kavala castle, H 15.7 mm ; 10, *C. b. insularis*, Kavala, island Thassos, Aliki, H 14.9 mm; 11, *C. b. polimilitis*, Kavala, 1 km N of Zarkadia, H 12.6 mm. Photographs J. Goud, Leiden.

Diagnosis. – Lamellae spiralis, inserta, and columellaris about equally prominent near their innermost ends; plica basalis short to more or less obsolete.

Shell. – Aperture rounded quadrangular; apertural lip continuous, protruding or attached over a short distance across the parietal side. Body whorl with a moderate basal crest, accompanied by a rather inconspicuous indentation; a dorsal crest can hardly or not at all be recognised. Plica principalis usually not accompanied by an additional palatal fold and running not or hardly further inside than the inwardly curved uppermost part of the lunella; basalis developed as a short, prominent to more or less obsolete fold, or lacking completely. Lamella columellaris nearly horizontally flaring as far as halfway into the aperture; in frontal view the subcolumellaris is usually visible. The lamellae spiralis and columellaris run about equally far inside, whereas the inserta is equally prominent and reaches equally far or slightly further inside.

Dimensions: shell height 13.6–18.9 mm; major diameter of the spire 3.1–3.7 mm.

Notes. – See the notes with *C. b. cavallaensis*.

Derivatio nominis. – Named after H. Nordsieck, who referred to this subspecies without naming it.

Carinigera buresi polimilitis subsp. nov. (figs 3, 11)

Records (paratypes, unless stated otherwise). – Makedonia. Kavala: 4 km from Platamonas to Lekani, 720 m alt., KF9353 (SUB14401/3); Disvato, 450 m alt., KF9550 (SUB/6); from Makrichori 5 km to Elafochori, KF9647 (SUB 9452/3); 0.8 km W of Dipotamos, 700 m alt., KF9655 (SUB16684/7); 2 km E of Lekani, to Kechrokambos, 750 m alt., KF9659 (SUB 14394/2); from Makrichori 3 km to Elafochori, KF9847 (no paratypes: SUB 12545/17); mountain E of Makrichori, 650 m alt., LF0046 (SUB 14399/33); Agh. Kosmas (= 12 km NNW of Hrissoupoli), 350 m alt., LF0251 (RMNH 96362/3); 1.2 km N of Zarkadia, 350–500 m alt., LF0145 (MAA/17; RMNH 96360/holotype, 96361/18; SUB 14370/3, 12459/33, 13974/47); 2.5 km from Makrichori to Agh. Kosmas, LF0147 (SUB17166/19); 1 km S of Agh. Kosmas, LF0250 (SUB 17136/27); 4 km N of Kechrokambos, road to Stavroupoli, 180 m alt., LF0461 (no paratypes: RMNH/5; SUB14395/50).

Diagnosis. – Aperture rounded quadrangular, not protruding. Lamellae spiralis and inserta forming a single lamella; plica basalis short to lacking completely.

Shell. – Aperture rounded quadrangular; apertural lip hardly or not protruding, continued by a more or less prominent callus across the parietal side. Body whorl with a moderately prominent basal crest, accompanied by an indentation; a dorsal crest is hardly or not discernible. The plica principalis is not accompanied by an additional relatively strong palatal fold; basalis short, obsolete or missing completely. Lamella columellaris nearly horizontally flaring into the aperture and reaching halfway into the the aperture; in frontal view the subcolumellaris is visible. Lamella spiralis smoothly fused with the inserta; innermost part of the lamella spiralis obsolete or missing. Lamella columellaris near its inner end less prominent than the inserta, but sometimes reaching somewhat further inside.

Dimensions: shell height 10.5–17.0 mm; major diameter of the spire 2.8–3.6 mm.

Notes. – Two samples collected south of Kechrokambos are intermediate in characters between *C. b. buresi* and *C. b. polimilitis*; these are listed with *C. b. buresi*. Shells from 4 km north of Kechrokambos are aberrant by the extremely thickened, ring-like protruding, apertural lip. A sample collected 3 km from Makrichori along the road to Elafochori is intermediate with *C. b. buresi* by the protruding apertural lip and a rather prominent dorsal crest in combination with an obsolete plica basalis.

Derivatio nominis. – The shells closely resemble *C. b. militis*, but are smooth [*poli*], hence *poli-militis*.

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