

**Critical revision of some Peruvian Neniinae treated by Loosjes & Loosjes-van Bemmelen (1966, 1984, 1989), with the descriptions of new taxa (Gastropoda Pulmonata: Clausiliidae)**

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Some Peruvian Neniinae species and genera which were treated by Loosjes & Loosjes-van Bemmelen (1966, 1984, 1989) are taxonomically revised. This concerns the following genera sensu Loosjes & Loosjes-van Bemmelen: *Columbinia* and related genera, *Hemicena*, *Peruina*, *Bequaertinia*, *Temesa*, *Neniactra* and related genera, *Steeriana*, and *Andiniella*. The following taxa are described as new: *Cyclonema* n. gen., *Cyclonema alpina* n. sp., *C. violeta* n. sp., *Cylindronema cicatricosa leimebambensis* n. subsp., *Pfeifferiella haasi magnifica* n. subsp., *Neniactra exoptata* n. sp..

Key words: Gastropoda, Pulmonata, Clausiliidae, Neniinae, taxonomy, new taxa, Peru.

## INTRODUCTION

For an overall revision of the South American Clausiliidae (Neniinae) which is carried out within the project „World-wide Clausiliidae“ I worked through the papers of Loosjes & Loosjes-van Bemmelen (1966, 1984, 1989) in which a thorough revision of the Peruvian Neniinae based on shell and anatomical characters is presented. I also examined the type material of the new species taxa which were described by the authors and other material of the Loosjes collection. The type material of nearly all Neniinae species described was revised in the course of the named project; thus a comparison with all these species was possible. The result being that for several species and groups the classification followed or proposed by Loosjes & Loosjes-van Bemmelen should be altered. The following genus taxa sensu Loosjes & Loosjes-van Bemmelen are concerned: 1, *Columbinia* Polinski, 1924, and related genera; 2, *Hemicena* Pilsbry, 1949; 3, *Peruina* Polinski, 1922; 4, *Bequaertinia* Weyrauch, 1964; 5, *Temesa* H. & A. Adams, 1855; 6, *Neniactra* Pilsbry, 1926, and related genera; 7, *Steeriana* Jousseaume, 1900, and related genera; 8, *Andiniella* Weyrauch, 1958.

The examined type material is deposited in the collections of the following institutions (with abbreviations used): Academy of Natural Sciences, Philadelphia (ANSP); British Museum (Natural History), London (BMNH); Florida State Museum, Gainesville (UF); Instytut Zoologii Polska Akademia Nauk, Warszawa (IZPAN); Muséum d'Histoire naturelle, Genève (MHNG); Muséum National d'Histoire naturelle, Paris (MNHN); Nationaal Natuurhistorisch Museum, Leiden (NNM); Senckenberg-Museum, Frankfurt am Main (SMF); Universidad del Valle, Cali (Univalle).

Additional abbreviations: H, shell height; W, shell width.

## SYSTEMATIC DESCRIPTIONS

1, *Columbinia* Polinski, 1924, and related genera

The species which were placed by Loosjes & Loosjes-van Bemmelen (1966: 51, 53) in the genus *Columbinia* belong to three different groups, *Columbinia*, *Steatonenia* Pilsbry, 1926, and the group of *Clausilia cyclostoma* L. Pfeiffer, 1850. *Steatonenia* which is not restricted to the type species *Nenia cooki* Pilsbry, 1919, but provisionally comprises all ventricose *Columbinia* species with few whorls is regarded as a subgenus of *Columbinia*. The group of *C. cyclostoma* however, differs from *Columbinia* as much as other genera so that it is separated as a new genus which is described below. *Pfeifferiella* Weyrauch, 1957, which was described as a subgenus of *Columbinia* is closely related to this genus but differs from it by the sculpture (streaked) and the presence of a diverticulum (Zilch, 1953: fig. 3; Loosjes & Loosjes-van Bemmelen, 1966: fig. 14; confirmed by personal examination).

**Cyclonenia** n. gen.

Type species. — *Clausilia cyclostoma* L. Pfeiffer, 1850.

Diagnosis. — Shell entire; neck with more or less pronounced dorsal keel (rarely missing); streaked; spiral lamella connected with the superior lamella (rarely separated); lunellar separated from the subcolumellar lamella; posterior lower palatal plica present (occasionally reduced), basalis occasionally present.

Differs from *Columbinia* by the development of the neck and the sculpture; a basalis is never present in that genus. Similar to *Bequaertina*, but dorsal keel not continuous with the basal edge of the body whorl and lunellar normal in position.

Etymology. — Derived from a combination of *cyclo(stoma)* and *Nenia*.

Note. — The anatomical characters of the group are nearly unknown. The radula of *C. cyclostoma* was described by Hesse (1925: 156). As to the genital organs see under *C. violetta* n. sp.

To this genus the following species belong: *C. cyclostoma* (BMNH), *C. boliviana* (O. Boettger, 1893) (SMF) and several new species (the two species from Columbia described below and three undescribed species from northern Peru).

*C. cyclostoma* is known from Columbia and Ecuador, *C. boliviana* from Bolivia, the other species from Columbia and Peru; thus the distribution of the genus covers nearly the whole of the South American range of the subfamily.

**Cyclonenia alpina** n. sp. (figs. 1-2)

Material. — Holotype (Univale 83-056): Columbia, dept. del Valle, Municipio de Florida, Hacienda „Los Alpes“, 2200 m alt., in a forest under dead leaves, 15.v.1983, leg. Y. Solarte, ex coll. Loosjes.

Diagnosis. — Shell with nearly rounded neck, dorsal keel ill-defined; spiral lamella connected with the superior lamella with only a slight curve; lunellar with a short basalis near to the subcolumellar lamella, posterior lower palatal plica nearly missing.

Description. — Shell with a short apical part; reddish-brown; teleoconch whorls densely rib-striated, lower whorls more densely than upper ones (rib number per 1 mm



Figs. 1-4. *Cyclonema* species. 1-2, *C. alpina* n. sp., holotype (Univalle 83-056); 1, frontal view; 2, dorsal view of body whorl. 3-4, *C. violetta* n. sp., holotype (Univalle 84-072); 3, frontal view; 4, dorsal view of body whorl. All figures  $\times 5$ . Photographs by E. Neubert (SMF).

of the penultimate whorl about 23), at the suture of the upper whorls rib-striae forming papilla-like patches, ribbing of the neck coarser and undulate; neck nearly rounded, dorsal keel faintly developed; aperture somewhat protruding, probably roundish-oval (insufficiently known because aperture damaged), peristome expanded; superior lamella continuous with the spiral lamella by a slight curve, the former scarcely elongated; inferior lamella medium in position, obliquely ascending, relatively high, in front s-like bent and ending on the columellar edge; subcolumellar lamella in an oblique view in the aperture visible far inwards; lunellar dorsal in position, principal plica ending nearly dorsolaterally; upper palatal plica short, steeply continuous with the lunella, lunella reaching near to the subcolumellar lamella, basalis very short, posterior lower palatal plica nearly missing; clausilium plate in an oblique view in the aperture totally visible, distally narrower and pointed at the outer end.

Measurements. — Holotype: H 20.0 mm, W 4.7 mm, W/H 0.235; whorls  $8\frac{1}{4}$ .

Etymology. — Named for the hacienda where the species was collected.

Notes. — See the following species.

**Cyclonenia violetta** n. sp. (figs. 3-4)

Material. — Holotype (Univale 84-072): Columbia, dept. del Valle, Municipio de Palmira, NE. Tenerife, 3000 m alt., between organic soil, 8.vii.1984, leg. C. Restrepo, ex coll. Loosjes.

Diagnosis. — Shell with rounded neck, without dorsal keel; spiral lamella connected with the superior lamella with only a slight curve; posterior lower palatal plica well-developed, basalis missing.

Description. — Shell with a short apical part; violet-brown; teleoconch whorls densely rib-striated, lower whorls more densely than upper ones (rib number per 1 mm of the penultimate whorl about 22), rib-striae partly white, at the suture patches with distinct sculpture alternating with weakly sculptured ones, on the lower whorls indistinct, the patches with distinct sculpture on the upper whorls papilla-like, rib-striae on the neck scarcely coarser; neck rounded; aperture somewhat protruding and turned outwards, roundish-oval, violet-brown in the interior, peristome somewhat expanded; superior lamella continuous with the spiral lamella by a slight curve; inferior lamella medium in position, obliquely ascending, relatively high, in front strongly s-like bent and continuous to the peristome; subcolumellar lamella in an oblique view in the aperture visible far inwards; lunellar dorsal in position, principal plica ending dorsolaterally; upper palatal plica long, continuous with the lunella by a curve, posterior lower palatal plica well-developed, converging with the subcolumellar lamella, basalis missing; clausilium plate in an oblique view in the aperture nearly totally visible, relatively broad, distally rounded, with an inconspicuous outer corner.

Measurements. — Holotype: H 18.5 mm, W 4.4 mm, W/H 0.238; whorls  $8\frac{1}{3}$ .

Etymology. — Named for the colour of the aperture.

Notes. — *C. alpina* and *C. violetta* are externally very similar, but lunellar and clausilium plate are so different that both forms are provisionally separated as species. While *C. alpina* was at once recognized as belonging to *Cyclonenia*, at first I thought *C. violetta* was a *Columbinia* species. The sculpture and the development of the lamellae similar to that of *C. alpina* however, were decisive for the grouping of this species with *Cyclonenia*.

A fragmentary preparation from the same locality but with another date which was found in the Loosjes collection may belong to *C. violetta*. The genital organs correspond to those of the *Columbinia* species (Loosjes & Loosjes-van Bemmelen, 1966: fig. 36; Thompson, 1985: figs. 9-10; further species personally examined) in having no diverticulum but the male end ducts are strikingly small as if atrophied, penis and epiphallus together being shorter than the vagina, epiphallus nearly as thin as the vas deferens, but penial retractor strong, broadly inserted. Further material has to be examined in order to ascertain that these are the normal genital organs of this *Cyclonenia* species.

**Pfeifferiella haasi magnifica** n. subsp. (figs. 7-8)

Material. — Holotype (NNM 59388): Peru, dept. of Cajamarca, Cascabamba near to Cuevas de Amachay (6°31'S, 79°07'W), 2200-2650 m alt., 5-7.iii.1958, leg. H.-W. Koepcke, ex coll. Loosjes ex Koepcke 1505ba; paratype (NNM 59389), with the same data.

Diagnosis. — Differs from the nominate subspecies (figs. 5-6) by the following characters: shell larger; sculpture coarser.

Description. — Shell with relatively thick apical part; yellowish-brown; teleoconch whorls densely ribbed, riblets on the lower whorls undulate by a spiral sculpture (rib



Figs. 5-8. *Pfeifferiella haasi* (Weyrauch, 1957). 5-6, *P. h. haasi*, Cerro Chunrun near Llama, 2350 m alt., leg. W. Weyrauch, holotype (SMF 155715); 5, frontal view; 6, dorsal view of body whorl. 7-8, *P. h. magnifica* n. subsp., holotype (NNM 59388); 7, frontal view; 8, dorsal view of body whorl. All figures  $\times 5$ . Photographs by E. Neubert (SMF).

number per 2 mm of the penultimate whorl: 14, 13), ribbing on the neck not coarser, riblets partly white, at the suture patches with distinct sculpture alternating with weakly sculptured ones; neck rounded; aperture somewhat protruding, roundish-oval to oval, peristome expanded; superior lamella somewhat lengthened in the interior; inferior lamella high in position, s-like ascending, low, ending on the columellar edge; subcolumellar lamella in an oblique view in the aperture visible but not far inwards; palatal plicae and lunella missing; clausilium plate reduced, near to the parietal side, more or less narrowed, distally pointed.

Measurements. — Holotype: H 32.3 mm, W 6.5 mm, W/H 0.201; whorls 10. Paratype: H 30.1 mm, W 6.7 mm; whorls  $9\frac{1}{4}$ .

Etymology. — Named for the considerable size of the shell.

Notes. — From the soft parts which could be drawn out of the shells the end ducts of the genital organs could be prepared. They correspond to those of the nominate subspecies (Loosjes & Loosjes-van Bemmél, 1966: fig. 14), except that the vagina is longer.

The nominate subspecies of *P. haasi* (figs. 5-6) was collected at the Cerro Chunrun near Llama, where it lives sympatrically with *P. subterranea* (Weyrauch, 1957) which has a complete clausiliar (Weyrauch, 1957: 4, 6, pl. 1 figs. 1-3; both SMF). A further species with complete clausiliar, *P. koepcke* (Zilch, 1953), was found at the Hacienda Taulis more to the south (Zilch, 1953: 49, pl. 14 fig. 1; SMF). Thus, there are two groups of the genus, one with complete and one with reduced clausiliar, which live in corresponding biotopes at nearly the same altitude of the same region, as is also the case in *Hemicena* (cf. 2) and *Temesa* (cf. 5).

## 2, *Hemicena* Pilsbry, 1949

*H. cerrateae* Weyrauch, 1958 (SMF) and the forms which were described by Zilch (1959) as subspecies of *H. polinskiana* (Pilsbry, 1949), *H. p. damianensis* Zilch, 1959 (SMF) and *H. p. colcabambensis* Zilch, 1959 (SMF), agree in the development of the clausiliar which is more or less complete, while in *H. polinskiana* (ANSP) it is reduced (nearly only superior and inferior lamellae developed). Therefore, the latter is separated as an independent species from the other forms which are classified as subspecies of *H. cerrateae*. The specimen of *H. c. colcabambensis* which was regarded by Zilch as transitional to *H. polinskiana* is not representative of the subspecies.

The genital organs of *Hemicena* species which are figured by Loosjes & Loosjes-van Bemmél (1966: figs. 34-35) are, it seems, immature, at least in regards to the male end ducts. This is made probable by a comparison with those of *H. c. colcabambensis* figured by Zilch (1959: fig. 2) which are normally developed (confirmed by personal examination).

## 3, *Peruinia* Polinski, 1922

*Clausilia granulosa* Sykes, 1900 (BMNH) is identical with *P. peruana* (Troschel, 1847) sensu Boettger (1889: 167; SMF) and Polinski (1922: 73; SMF). The samples which were anatomically examined by Loosjes & Loosjes-van Bemmél (1966: figs. 6-7) also belong to this taxon. *P. flachi superba* Weyrauch, 1960 (SMF) corresponds in genital characters (length of the diverticulum, structure of the male end ducts, Loosjes & Loosjes-van Bemmél, 1966: fig. 9) with *P. peruana*; this form is apparently intermediate between *P.*

*peruana* and *P. flachi* (O. Boettger, 1889) (SMF). *P. albicolor* Weyrauch, 1957 (SMF) agrees in the same genital characters with the neighboring *P. flachi tingamariae* (Pilsbry, 1922) (ANSP) (Loosjes & Loosjes-van Bemmelen, 1966: figs. 8, 10; 1984: fig. 3; for *P. f. tingamariae* confirmed by personal examination) to which it is also similar in shell characters. Therefore, until further notice the taxa *P. peruana*, *P. flachi* and *P. albicolor* should be united in one species *P. peruana*.

#### 4, *Bequaertinia* Weyrauch, 1964

*Temesa* (*Neniactractus*) *bequaerti* Weyrauch, 1957 (SMF) was separated by Weyrauch (1964: 150) in an independent genus *Bequaertinia*, because in contrast to the *Neniactractus* species it has a well-developed posterior lower palatal plica. The genus is additionally characterized by the dorsal keel which is continuous with the basal edge of the body whorl and the deeply situated lunellar. This character combination is also shared by the species described by Loosjes & Loosjes-van Bemmelen as *Columbinia admirabilis* (1989: 86-87, fig. 4; NNM) which therefore should be classified with *Bequaertinia*. A belonging to *Columbinia* can be excluded because there are no species of this genus with such a sculpture and keel and a laterally situated lunellar. *B. admirabilis* differs from *B. bequaerti* by the following characters: apical part of the shell more attenuated; whorls sculptured with characteristic rib folds originated by the fusion of ribs; lunellar situated laterally; clausilium plate relatively narrow, with the outer edge pointed.

#### 5, *Temesa* H. & A. Adams, 1855

The genus *Temesa* is restricted to the nominate subgenus sensu Weyrauch (1957: 16; 1963: 261-262), because it agrees with *Neniactractus* sensu Weyrauch only in the entire shell and the reduced lower palatal plicae but differs by a less protruding aperture, simple sculpture and a lunellar which is always separated from the subcolumellar lamella. Because of the weak detachment of the final part of the body whorl the apostrophy is hardly discernible (cryptapostrophy). Both groups also differ in the genital morphology (especially the development of the diverticulum, Loosjes & Loosjes-van Bemmelen, 1966: figs. 15-25, 27, 38; 1984: figs. 7-8).

The genus comprises two groups, one group with a complete clausiliar (only in one species superior lamella and lunella reduced), and the other in which the clausiliar is nearly totally reduced (only rudiments of the lamellae present). The classification of forms of the first group with species of the second group, which was proposed by Weyrauch (1963: 263, *T. primigenia* Weyrauch, 1960, with *T. pilsbryi* Weyrauch, 1956, *T. mantaroensis* Weyrauch, 1963, with *T. decimvolvis* Weyrauch, 1957), is not accepted because transitions between the forms with complete clausiliar and those with a reduced one within these „species“ are missing. Both of the following species belong to the group with complete clausiliar.

The form which was anatomically examined by Loosjes & Loosjes-van Bemmelen under the name *T. andecola* (Morelet, 1863) (1966: fig. 16) is not identical to this species which belongs to *Incaglaia* Pilsbry and occurs in another region (cf. 6), but with *T. omissa* Weyrauch, 1957 (cf. Weyrauch, 1957: 19-20; SMF). The form named *T. omissa* by Loosjes & Loosjes-van Bemmelen (1966: fig. 20) was collected at the same locality at a somewhat higher altitude.

*T. parcecostata* (Polinski, 1922) (IZPAN) which was also anatomically examined by Loosjes & Loosjes-van Bemmél (1966: fig. 27) does not belong to *Neniactracta*, but to *Temesa* (already classified as such by Weyrauch, 1963), as is proved by the characters of the shell and the genital organs (length of the diverticulum). In contrast to the other species of the genus it has some characters which are regarded as plesiomorphic: no cryptapostrophy; central tooth of the radula tricuspid.

*Nenia pusilla* Polinski, 1922 (IZPAN) which was placed by Weyrauch (1957: 16) in the genus *Temesa* does not belong there because it has a delicate shell with attenuated apical part, rib folds on the whole teleoconch, a body whorl with compressed neck and oblong aperture, a low spiral lamella nearly separated from the superior lamella, and a lunellar consisting only of a long upper palatal plica, lunella missing. For this species probably a new genus must be erected; it could be related to *Incania* Polinski, 1922.

#### 6, *Neniactracta* Pilsbry, 1926, and related genera

The group *Neniactracta* which was classified by Weyrauch (1957: 22; 1964: 146) as a subgenus of *Temesa* contains two different groups which differ considerably.

*Neniactracta* Pilsbry, 1926, characterized by a relatively large shell with attenuated apical part and a rounded neck, lunellar separated from the subcolumellar lamella. To this genus only the type species, *Nenia belahubbardi* Pilsbry, 1922 (ANSP), and *Temesa* (*Neniactracta*) spec. sensu Loosjes & Loosjes-van Bemmél (1984: 14; NNM) belong. The latter is described as a new species below.

*Incaglaia* Pilsbry, 1949, characterized by a relatively small shell with normal apical part and a neck with a dorsal keel, lunellar varies between narrowly separated from to connected with the subcolumellar lamella. To this genus the other species of *Neniactracta* sensu Loosjes & Loosjes-van Bemmél, among them the type species *Nenia olssoni* Pilsbry, 1949, and the groups *Weyrauchiella* Loosjes & Loosjes-van Bemmél, 1966 and *Gibbonenia* Zilch, 1954 belong.

The separation of *Nenia angrandi huanucensis* Pilsbry, 1949 (ANSP) as an independent genus *Weyrauchiella* by Loosjes & Loosjes-van Bemmél (1966: 48, fig. 38) because of the lacking diverticulum and the development of a „penial appendix“ could not be maintained when it became apparent that its genital morphology does not differ from that of a subspecies of *I. adusta* (O. Boettger, 1880) (Loosjes & Loosjes-van Bemmél, 1984: 14-16, figs. 7-8). *I. huanucensis* is closely related to *I. angrandi* (Morelet, 1863) (MHNG) as a subspecies of which it was described by Pilsbry. Another relative of *I. angrandi* is *I. andecola* (Morelet, 1863) (MHNG) which likewise was collected near Huadquena in the Urubamba valley (this was not clear to Weyrauch, 1964: 154-155, because he had not studied the original labels of Morelet). This species has nothing to do with *Temesa andecola* sensu Loosjes & Loosjes-van Bemmél, 1966 (cf. 5).

The group *Gibbonenia* was already classified by Weyrauch (1957: 28) as a subgenus of *Temesa*. The only species, *Clausilia raimondii* Philippi, 1867 (= *versicolor* Jousseaume, 1900) (SMF, MNHN) is similar to *I. huanucensis* in the shell shape, the sculpture and the development of the lamellae and differs from it only by the development of the lunellar (lunella and adjacent subcolumellar lamella around the clausilium plate thickened, lunellar with a rudimentary basalis) and the presence of a sutural plica.

Thus, *Incaglaia* comprises the *adusta* group, the *angrandi* group, *I. argentina* (Hylton Scott, 1954), the *huanucensis* group (= *Weyrauchiella*), and the *raimondii* group (= *Gibbonenia*).



***Neniatracta exoptata* n. sp. (figs. 9-10)**

Material. — Holotype (NNM 59390): Peru, dept. of Junin, 2.3 km S. of Mina Pichita Caluga, 19.5 km WNW. of San Ramón, 1850 m alt., 8.iii.1975, leg. A. S. H. Breure.

Diagnosis. — Differs from the type species *N. belahubbardi* by the sculpture (ribs more narrowly spaced), the development of the lamellae (spiral lamella weaker, connected with the superior lamella by only a slight curve; principal plica weaker and shorter) and of the lunellar (upper palatal plica shorter, lunella obsolete, no posterior lower palatal plica).

Description. — Shell slender, apical part attenuated (apex unknown, as broken off); yellowish-brown; teleoconch whorls sculptured with narrowly spaced and slightly undulating riblets (rib number per 2 mm of the penultimate whorl: 34), riblets partly white, at the suture patches with distinct sculpture alternating with weakly sculptured ones, ribbing of the neck coarser; neck rounded; aperture somewhat protruding, oval-piriform, peristome expanded; superior lamella continuous with the spiral lamella by a slight curve; inferior lamella near to the spiral lamella, obliquely ascending, moderately high, in front ending on the columellar edge; subcolumellar lamella in an oblique view in the aperture visible far inwards, in front separated from the lunellar; lunellar nearly dorsal in position, principal plica ending dorsolaterally; upper palatal plica short, somewhat diverging from the principal plica, lunella obsolete, no lower palatal plicae present; clausilium plate in an oblique view in the aperture totally visible, leaving gaps on both sides, distally narrower and pointed at the outer end.

Measurements (cf. Loosjes & Loosjes-van Bemmél, 1984: 14). — Holotype: H (apex broken off, aperture damaged) 20.0 mm, W 4.0 mm; whorls (apex broken off) 8.

Etymology. — Named for the want of more and undamaged specimens.

Notes. — *N. belahubbardi* (Pilsbry, 1922: 93, pl. 2 figs. 1, 2, 15-17; ANSP) has in comparison with the new species the following characters: ribs more distantly spaced; superior lamella connected with the spiral lamella by a marked curve; lunellar dorso-lateral in position, principal plica of normal length; longer upper palatal plica, fully developed lunella, posterior lower palatal plica developed as a broadening of the lunella.

*N. exoptata* n. sp. was collected in the valley of the Rio Chanchamayo, *N. belahubbardi* in that of the Rio Huallaga. Both species live at altitudes where tropical rain or cloud forests occur, while the *Incaglaia* species (except *I. argentina*) are distributed in the semiarid steppes of higher altitudes (cf. Weyrauch, 1964: 148).

**7, *Steeriana* Jousseaume, 1900, and related genera**

The groups *Steeriana* Jousseaume, 1900 and *Cylindronenia* Ehrmann, 1949 which until now were regarded as subgenera of *Steeriana* differ as much as other genera and should therefore be evaluated as independent genera. *Steeriana* has some characters regarded as apomorphic which are not present in *Cylindronenia*: shell abruptly increasing where the permanent whorls of the adult shell begin (in *Cylindronenia* gradually merging into the adult shell as normal); cryptapostrophy (cf. 5, in *C.* normal apostrophy); superior and spiral lamellae more or less separated (in *C.* connected or spiral lamella touching the superior lamella from the left side); inferior lamella deeply situated (in *C.* normal in position). The genital morphology of *Steeriana* and *Cylindronenia* (especially the structure of the male end ducts, Loosjes & Loosjes-van Bemmél, 1966: figs. 29-30, 32-33) is also different.

The form which was described by Loosjes & Loosjes-van Bemmelen (1989: 82-83, fig. 2; NNM) as *Steeriana* (*Cylindronenia*) *canescens pangamitoensis* must be evaluated as an independent species *C. pangamitoensis*, because it differs considerably from *Cylindronenia canescens* (Polinski, 1922) (IZPAN) and agrees in some characters with *C. maranhonensis* (Albers, 1854) (SMF). It is smaller than *C. canescens*, less slender with convex whorls; inferior lamella in front more s-like; subcolumellar lamella more steeply ascending; basal is present; narrower clausilium plate. Thus, the statement of Loosjes & Loosjes-van Bemmelen (1989: 83) that the clausilium does not differ from that of *C. canescens* could not be confirmed. The inferior lamella and the basal is are similar to those of *C. maranhonensis*, but the subcolumellar lamella ascends more steeply, the posterior lower palatal plica is wanting, and the clausilium plate is narrower, without the finger-like projection of that species.

Another *Cylindronenia* species was described by Loosjes & Loosjes-van Bemmelen as *S.* (*C.*) *cicatricosa* (1989: 84-85, fig. 3; NNM). It differs from *C. canescens* by the following characters: more slender shell, smaller aperture; neck with dorsal keel; umbilicus conspicuously open; less high inferior lamella; posterior lower palatal plica present; less pointed clausilium plate. In the development of the neck and the lunellar *C. cicatricosa* bridges the gap between the other *Cylindronenia* species and *Nenia cumulloana* Pilsbry, 1949 which also belongs to *Cylindronenia*, not to *Andiniella* Weyrauch (cf. 8).

### ***Cylindronenia cicatricosa leimebambensis* n. subsp. (figs. 13-14)**

Material. — Holotype (NNM 59391): Peru, dept. of Amazonas, Leimebamba (on and under rocks), xi. 1997, collector unknown, ex coll. Hemmen; paratypes (NNM 59392; coll. Hemmen) with the same data.

Diagnosis. — Differs from the nominate subspecies (figs. 11-12) by the more fusiform shell with fewer whorls, the more narrowly spaced ribs and the less deeply situated lunellar.

Description. — Shell more fusiform than the nominate subspecies, whorls more convex; greyish-brown; teleoconch whorls densely ribbed, riblets more narrowly spaced on the lower whorls (rib number per 2 mm of the penultimate whorl 25-35), riblets partly distinct and white, partly indistinct, thus looking like interrupted, at the suture patches with distinct sculpture alternating with weakly sculptured ones, ribbing of the neck coarser; neck with basal keel (more pronounced behind) and dorsal keel (more pronounced in front), also with subsutural swelling, umbilicus open; aperture somewhat protruding, rhomboid-oval, peristome expanded; spiral lamella touching the superior lamella from the left side, the latter more or less elongated; inferior lamella medium in position, s-like ascending, differently high, in front ending on the columellar edge; subcolumellar lamella in an oblique view in the aperture visible far inwards; lunellar dorsally situated, principal plica ending dorsolaterally; upper palatal plica continuous with the lunella by a curve, basal is more or less reduced, posterior lower palatal plica short to absent; clausilium plate in an oblique view in the aperture totally visible, distally narrower, pointed at the outer end.

Measurements. — Holotype: H 21.2 mm, W 5.7 mm, W/H 0.269; (remaining) whorls 5¾. Paratypes (n=5): H 20.0-23.5 mm, W 5.4-6.2 mm; (remaining) whorls 5-6¼.

Etymology. — Named after the locality Leimebamba where the subspecies was collected.

*Steeriana pomabambensis* (Loosjes & Loosjes-van Bemmelen, 1989)

The species which was described by Loosjes & Loosjes-van Bemmél as *Andiniella pomabambensis* (1989: 81-82, fig. 1; NNM) does not belong to *Andiniella*, but is so closely related to *Steeriana cajamarcana* Weyrauch & Zilch, 1954 (SMF) that I took it at first for a subspecies of this species. It is similar to an undescribed subspecies of *S. cajamarcana* from Cajabamba (SMF) which also has, in contrast to the nominate subspecies, a



Figs. 9-14. *Neniactra* and *Cylindronenia* species. 9-10, *N. exoptata* n. sp., holotype (NNM 59390); 9, frontal view; 10, dorsal view of body whorl. 11-12, *C. cicatricosa cicatricosa* (Loosjes & Loosjes-van Bemmél, 1989), between Leimebamba and Balsas, leg. J. Amaya, holotype (NNM 56309); 11, frontal view; 12, dorsal view of body whorl. 13-14, *C. c. leimebambensis* n. subsp., holotype (NNM 59391); 13, frontal view; 14, dorsal view of body whorl. All figures  $\times 5$ . Photographs by E. Neubert (SMF).

detached aperture and a less narrowed clausilium plate but differs from it by the following characters: shell smaller and more slender; spiral lamella more weakly developed; inferior lamella less high; clausilium plate with straight palatal edge because distal end not turned outward. A lower palatal plica mentioned by Loosjes & Loosjes-van Bemmelen but not figured (1989: fig. 1e), the relation of which to the subcolumellar lamella was said to be unclear, could not be found. *S. pomabambensis* has no lower palatal plica, the lunellar is separated from the subcolumellar lamella as in all *Steeriana* species (in contrast to the *Andiniella* species, cf. 8).

#### 8, *Andiniella* Weyrauch, 1958

The four species which were classified with the genus *Andiniella* sensu Weyrauch (1958: 93) belong to three different groups. They have only the decollated shell and the superior lamella which is continuous with the spiral lamella in common but differ much in the sculpture and the development of the lunellar. The groups are characterized as follows:

*Andiniella* Weyrauch, 1958, belonging to the type species *A. flammulata* (Loosjes, 1957) (SMF) and *A. sztolcmani* (Polinski, 1922) (IZPAN). These species differ from those of the other groups by the following characters: rib folds missing; lunellar narrowly separated from or connected to the subcolumellar lamella; no lower palatal plicae present. *Andiniella* is in shell characters so similar to *Ehrmanniella* Zilch, 1949 (the only difference is the more pronounced dorsal keel of *Ehrmanniella*, the other differences indicated by Weyrauch, 1958: 93-94 could not be confirmed) that both genera should be united if there were not the considerable differences in the genital morphology (development of the diverticulum and the male end ducts, cf. Loosjes & Loosjes-van Bemmelen, 1966: figs. 2-5; 1984: figs. 1-2). A third group which was classified until now with *Ehrmanniella*, that of *E. dedicata* (Weyrauch & Zilch, 1954) (SMF), is similar to *Andiniella* in the development of the neck (dorsal keel nearly missing), but lunellar and subcolumellar lamella are completely connected; it should be separated as a subgenus (but of which genus?) or as an independent genus.

*Nenia cumulloana* Pilsbry, 1949 (ANSP) belongs to *Cylindronenia* with species of which it corresponds in the development of the neck (with dorsal keel) and of the lunellar (lunellar separated from the subcolumellar lamella; posterior lower palatal plica present). It is related to *C. cicatricosa* (Loosjes & Loosjes-van Bemmelen) from which it differs mainly by the rib folds of the neck and the superior lamella which is connected to the spiral lamella without an elongation by its side (cf. 7).

*Nenia wagneri* Polinski, 1922 (IZPAN) differs from the other groups by the following characters: rib folds on the whole teleoconch; neck rounded; lunellar widely separated from the subcolumellar lamella; basalis and posterior lower palatal plica present (in the lectotype even subclaustralis and sulcalis discernible). Because of these characters which are all regarded as plesiomorphic the species cannot be classified with *Cylindronenia*; thus, the erection of a new genus may be necessary. The original locality Amable María near Tarma is probably incorrect because the specimens of the type series (two *wagneri* specimens and one of an undescribed species and genus) are apparently collected at a lower altitude.

## ACKNOWLEDGEMENTS

Thanks are due to all curators who have lent out type material of Neniinae species, especially to Dr. E. Gittenberger who has provided the material of the new taxa and Dr. R. Janssen who made the revision of the Neniinae collection of the Senckenberg-Museum possible. I also thank Dr. E. Neubert for producing the photographs and the tables.

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