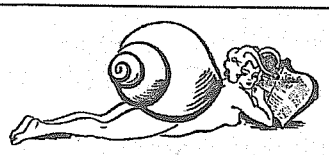

Рецензии — Информация
Reviews — Information

Important results of paleomalacological studies in Russia

1. NEVESSKAYA L.A., GONCHAROVA I.A., PARAMONOVA N.P., POPOV S.V., BABAK E.V. BAGDASARYAN K.G., VORONINA A.A., 1993. A key to identification of Miocene Bivalvia of southwestern Eurasia. *Trudy Paleontologicheskogo Instituta Rossiyskoy Akademii Nauk*, **247**, 411 pp. (in Russian).
2. AMITROV O.V., 1993. History of gastropods of Paleogene seas of the west of Eurasia. *Trudy Paleontologicheskogo Instituta Rossiyskoy Akademii Nauk*, **254**, 208 pp. (in Russian)
3. ILJINA L.B., 1993. A key to identification of marine Middle Miocene gastropods of south-western Eurasia. *Trudy Paleontologicheskogo Instituta Rossiyskoy Akademii Nauk*, **255**, 151 pp. (in Russian).
4. POPOV S.V., VORONINA A.A., GONCHAROVA I.A., 1993. Stratigraphy and bivalvian molluscs of Oligocene - Lower Miocene of the eastern Paratethys. *Trudy Paleontologicheskogo Instituta Rossiyskoy Akademii Nauk*, **256**, 207 pp. (in Russian).

There are four significant monographs issued during 1993. All of them are devoted to the Cenozoic marine molluscan fauna of south-eastern Europe and adjacent parts of Asia (Caucasus, western Kazakhstan), i.e., the region often named Eastern Paratethys. The first and the most voluminous book is a key supplied with descriptions and photographs of multiple fossil bivalves lived from the earliest Miocene (about 23 million years ago) till the demarcation between Maeotian-Pannonian and Pontian age (about 5.5 million years ago). The book was written by 7 authors: L.A. Nevesskaya revised the superfamilies Gastrochaenoidea, Mytiloidea, Ostreoidea, Anomioidea, Spondyloidea, Crassatelloidea, Arcticoidea, Glossoidea, and the family Limidae; I.A. Goncharova revised the superfamilies Pectinoidea, Veneroidea (excluding Lutetiidae), Pleurodesmatoidea, and the family Rzehakiidae; N.P. Paramonova revised the superfamilies Mactroidea (excluding Mesodesmatidae), Scrobiculatioidea, Solenoidea (excluding Rzehakiidae) and Sarmatian Cardiidae; S.V. Popov revised the superfamilies Arcoidea, Lucinoidea, Carditoidea, Cardioidea (excluding Sarmatian genera and species), and Myoidea; E.V. Babak revised the superfamily Dreissenoidea; K.G. Bagdasaryan revised the superfamilies Pterioidea, Pinnoidea, Bakewellioidea, Limoidea, Hiatelloidea, Donacoidea, and the family Mesodesmatidae; A.A. Voronina revised the superfamilies Nuculoidea, Nuculanoidea, Limopsoidea, and Glycymeridoidea; all seven authors together revised the superfamilies Pholadomyoidea, Pandoroidea, Ungulinoidea, Tellinoidea, Chamoidea, Pholadoidea, and Cuspidarioidea.

The book begins with a short morphological part with explaination of used terms and stratigraphical review. The main part of the book is the description of the fauna with keys. Each species and subspecies is adequately described and supplied by necessary synonymy and photo illustration. The book is finished by a very complete bibliography and an index of species names.

The participation of several authors has led to a certain disagreement in the text. The genus *Cerastoderma* is included on p. 217 (by S.V. Popov) into the subfamily Fraginae and on p. 234-235 (by N.P. Paramonova) into the subfamily Lymnocardiinae. But this is the only disagreement in generally very clear text. A criticism may also concern pictures. There is a tradition among paleontologists and, partly, zoologists to illustrate the bivalvian shell in the lateral view and sometimes from inner side of a valve. However the frontal view is no less important. The tradition leads to the ignorance of the differences in the frontal profiles and the statement (erroneous) that either the ratio of height to width is constant within a species or this ratio can vary within a wide range. Actually the outline of the valve frontal profile is a segment of a logarithmic spiral which cannot be described by algebraic equation containing linear dimensions (e.g. by ratio of height to width). This criticism may be addressed to many taxonomic works on Bivalvia including the monograph under consideration.

I think that the book will be necessary for everybody who studies Miocene Bivalvia of the Eastern Paratethys.

Continued on page 70

Ruthenica, 1995, 5(1): 45-48.

The first sinistral representative of *Turanena* (Gastropoda: Pulmonata: Enidae) and notes on the taxonomy of the genus

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Turanena inversa sp.n. from Chatkal Range (Tien-Shan) is descibed. Area of the genus consists of two isolated parts: Asia Minor (including southern Transcaucasus and northern Iran) and Central Asia. In each part the genus is represented by 10 species. For the Central Asian group a new subgenus *Asuranena* is erected, with *Ena (Turanena) leptogyra* Lindholm, 1927 as a type species. The new subgenus is characterized by relatively long slender conical flagellum while representatives of nominotypical subgenus have short blunt or rounded flagellum.

Первый синистральный представитель *Turanena* (Gastropoda: Pulmonata: Enidae) и заметки по таксономии рода

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Описание ***Turanena inversa*** sp.n. из Чаткальского хребта (Тянь-Шань). Ареал рода состоит из двух изолированных участков: малоазиатского (включая южное Закавказье и северный Иран) и центральноазиатского. В каждом из участков род представлен 10 видами. Для центральноазиатской группы предложен новый подрод ***Asuranena*** с типовым видом *Ena (Turanena) leptogyra* Lindholm, 1927, который характеризуется относительно длинным коническим флагеллумом, тогда как у представителей номинативного подрода флагеллум короткий, на конце притупленный или закругленный.

One of the authors (S.M.) has collected a good series of large left-coiled *Turanena* in the mountains of Central Asia. After description of a new species we will discuss this fact and will give a short review of the genus.

Turanena inversa Schileyko et Moisseeva, sp. nov.

Fig. 1, 2

LOCUS TYPICUS — Tien-Shan, Chatkal Range, upper part of the valley of the Aflatun River (left tributary of the Chatkal River).

MATERIAL. 25 specimens from the type locality (collected on July 28, 1991) are stored in the Zoological Museum of Moscow State University (one of them has been collected alive and dissected); holotype No. Lc-22029, paratypes No. Lc-22030.

SHELL (Fig. 1) sinistral, highly conical, rather thick-walled, weakly shining. Outlines of the spire are practically straight. Whorls 6, moderately convex, body whorl inflated, not elevated towards the aperture, its height exceeds a half of the total shell height. Color light horny, with irregular radial creamy stripes;

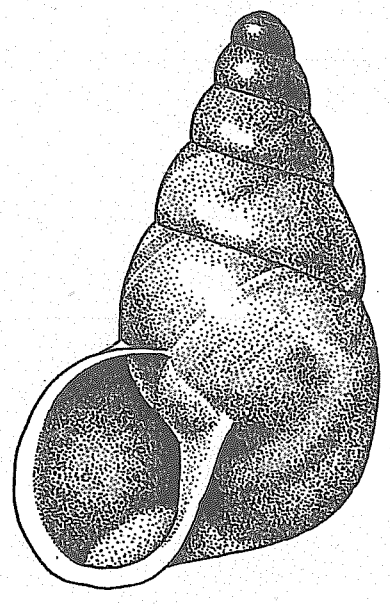

FIG. 1. *Turanena inversa* **sp.n.** Holotype.

РИС. 1. *Turanena inversa* **sp.n.** Голотип.

upper part somewhat darker. Embryonic whorls glossy, practically glabrous, but under high magnification one can see the slightest dense spiral striation, predominantly near the suture. The rest surface is covered with rough irregular radial wrinkles and, in some places, vague malleation. Aperture oval, oblique, internally buff. Apertural margins reflected and somewhat expanded; lip is absent. Umbilicus slit-like, very narrow. Dimensions: holotype — height 16.3, diameter 9.0 mm; paratypes — height 14.3-17.5, diameter 9.0-9.5 mm.

ANATOMY (Fig. 2). Albumen gland with wide apical-lateral notch. Length of upper portion of vagina is approximately equal to its lower division. Vas deferens enters the epiphallus at nearly right angle. Part of vas deferens, running alongside the vagina, is very thin, but at the atrium its diameter is substantially enlarged. Flagellum is short and conical. Epiphallus of moderate length, cylindrical; there is a well expressed boundary between penis and epiphallus. Penis consists of long, cylindrical, distal (i.e. next to atrium) and short, nearly globose, proximal portions. Caecum is situated near the place of vas deferens attachment. Penis contains usual V-shaped pilaster; lower part of the pilaster is modified into a sort of fleshy tongue-like stimulator. All divisions of penial appendix are well distinguished. Lengths of A-1 and penis are almost equal. A-2 small; A-3 passes into thread-like A-4 without distinct boundary; A-5 highly musculized and enlarged. Branchs of penial muscle retractor are united immediately near the diaphragm; penial branch is attached to globular portion of penis, appendical one — to A-1 just below A-2. Common stalk of spermatheca rather thick, diverticle without apical enlargement, somewhat longer than voluminous reservoir.

REMARKS. The species is closely related to dextral species *Turanena cognata* (Lindholm, 1927). Besides the direction of coiling, there are additional small differences: in ***T. inversa*** the penis is subdivided into cylindrical and globular portions whereas in *T. cognata* such a subdivision is absent; internal penial pilaster in *T. cognata* does not form a tongue-like stimulator; vas deferens in *T. cognata* is uniformly thin along the entire length while in ***T. inversa*** its distal part is enlarged.

It is necessary to note that the area of *T. cognata* embraces Ferghana and Chatkal Ranges while ***T. inversa*** was found only in one locality on Chatkal Range, and besides there is no more *Turanena* species neither up nor down along the valley of the Aflatun River, at least at the distance of several kilometers from the point where the new species has been found. The distance between the type locality of ***T. inversa*** and the nearest point of *T. cognata* occurrence (lower part of the Turduk River valley — type locality) is no more than 25 kilometers.

So we believe that ***T. inversa*** is the immediate derivative of *T. cognata* and separated from the latter due to genetically determined change of coiling direction. This conclusion is in accordance with the statement of one of the authors: "If some species forms sinistral populations existing for many years, such populations are, potentially or already in fact, separate species and must be considered as such in practical taxonomy." [Schileyko, 1975, p. 173].

Taxonomical notes

Area of the genus *Turanena* consists of two completely isolated parts.

The first part covers south-western Palearctic (Asia Minor, Greek island Samos, northern Iran, southern Transcaucasus). This part is inhabited by 9 or 10 "western" species (the species with unknown anatomy are marked with asterisk): *T. hemmeni* Bank et Butot, 1990*; *T. tuccari* Gittenberger, 1986; *T. albrechti* Rahle, 1988; *T. forcartiana* Schnell, 1979; *T. cochlicopoides* Gittenberger et Menkhorst, 1993*; *T. zilchi* Gittenberger et Menkhorst, 1993; ? *T. conelongata* Gittenberger et Menkhorst, 1993 (see below); *T. yusufelensis* Gittenberger et Menkhorst, 1993; *T. scalaris* (Naegele, 1902); *T. herzi* (O.Boettger, 1889)* (type species of the genus).

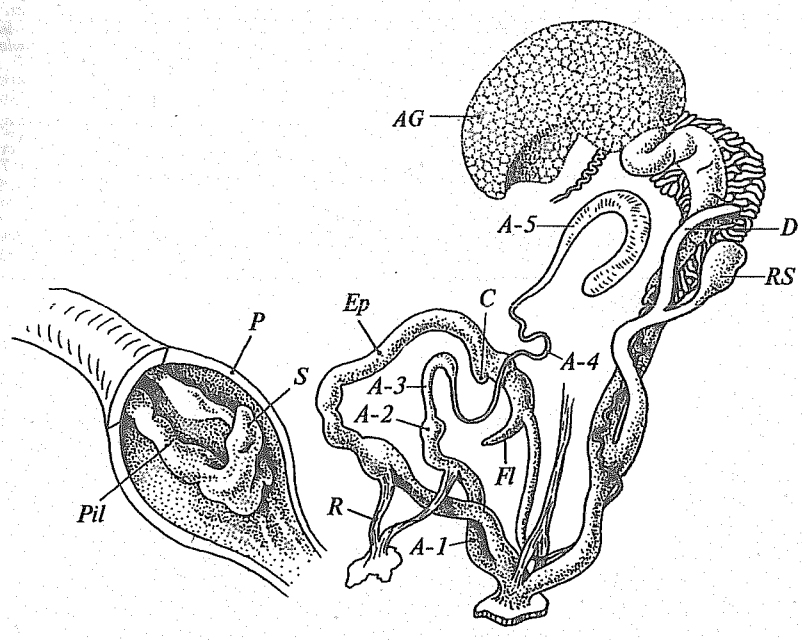

FIG. 2. *Turanena inversa* **sp. nov.** Reproductive apparatus and opened penis. Paratype. A-1 — A-5 — divisions of penial appendix; AG — albumen gland; C — caecum; D — diverticle of spermatheca; Ep — epiphallus; Fl — flagellum; P — penis; Pil — pilaster; R — penial retractor; RS — reservoir of spermatheca; S — stimulator.

РИС. 2. *Turanena inversa* **sp. nov.** Половой аппарат и вскрытый пенис. Паратип. A-1 — A-5 — отделы пенialного аппендикса; AG — белковая железа; C — цекум; D — дивертикул семеприемника; Ep — эпифаллус; Fl — флагеллум; P — пенис; Pil — пилястр; R — пениальный ретрактор; RS — резервуар семеприемника; S — стимулятор.

Besides there are a few species of uncertain systematic position in both Central Asia (western China, Himalaya) and Asia Minor (particularly, *Bulimus benjamiticus* Benson, 1859) whose anatomy is unknown but which may belong to the genus under consideration.

If we compare the external appearance of reproductive apparatus in representatives of these two spatial groups, we can see at least one constant difference between them: all the "eastern" species have relatively long slender conical flagellum [Schileyko, 1984; Schileyko, Moisseeva, 1989] (Fig. 3 A), while the flagellum of "western" species is much shorter and has quite different appearance: it may be nearly spherical, with rounded or blunt apex (*T. forcartiana, T. zilchi* — see Gittenberger and Menkhorst, 1993) or spatula-shaped (*T. albrechti, T. scalaris* — see Akramovski, 1976; Rahle, 1988; Schileyko, 1984) or in form of very short swelling on the upper end of the penis (*T. tuccari* — see Gittenberger, 1986) (Fig. 3 B, C, D); flagellum of *T. yusufelensis* is spatula-like or very shortly conic — compare figs 2, 6, 7 in the article by Gittenberger and Menkhorst [1993].

Unfortunately, the anatomy of the type species of the genus is unknown but, judging by its distribution (northern Iran), it must belong to the "western" group.

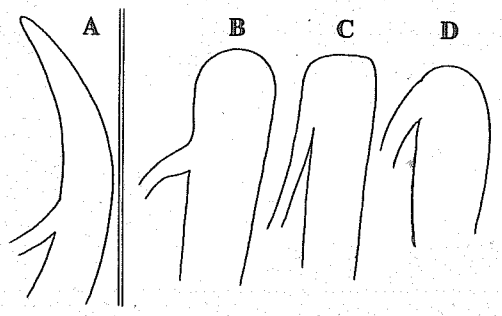

FIG. 3. Outlines of flagellum of subgenera *Asuranena* (A) and *Turanena* s.str. (B, C, D). A — all species of the *Asuranena* subgenus; B — *T. (T.) forcartiana*; C — *T. (T.) scalaris, T. (T.) zilchi, T. (T.) albrechti*; D — *T. (T.) tuccari* (flagellum of *T. yusufalensis* occupies intermediate position between "B" and "C").

РИС. 3. Контуры флагеллума, свойственные видам подродов *Asuranena* (A) и *Turanena* s.str. (B, C, D). A — все виды подрода *Asuranena*; B — *T. (T.) forcartiana*; C — *T. (T.) scalaris, T. (T.) zilchi, T. (T.) albrechti*; D — *T. (T.) tuccari* (флагеллум *T. yusufalensis* занимает промежуточное положение между "B" и "C").

So we believe that the genus *Turanena* should be splitted into two subgenera. The first — *Turanena* s.str. — is characterized by very short flagellum having rounded or blunt apex; the second subgenus is described below.

Asuranena Schileyko et Moisseeva, subgen. nov.

TYPE SPECIES: *Ena (Turanena) leptogyra* Lindholm, 1927.

DIAGNOSIS: Turanenae with relatively long, slender, tapering towards the apex flagellum. The species live in mountains of Central Asia.

DERIVATIO NOMINIS: the name *Asuranena* is a combination of words As(ia) and *(T)uranena*.

In conclusion, several words should be added about species described as *Turanena conelongata* Gittenberger et Menkhorst, 1993. The only specimen that has been dissected by the authors was unfortunately dried and then soaked in natrium phosphate. Therefore the original anatomical description is very short: "Der Penis ist sehr kurz, etwa so lang wie der Appendixabschnitt A 1 & 2; die Teile A 1 & 2, A 3 und A 5 sind etwa gleich lang und zusammen etwa so lang wie A 4." [Gittenberger, Menkhorst, 1993: 76]. However in the Abb. 1 (op. cit., S. 75) one can see some features not characteristic of the genus at all. First, there is no penial caecum; second, flagellum is completely absent; third, vas deferens enters apically. These three characters in combination with very short penis make us to believe that the species should be removed from the genus *Turanena*. The correct systematical position of the species will be established when its anatomy is studied properly.

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Ruthenica, 1995, 5(1): 49-54.

Reproduction of *Helix albescens* Rossmässler, 1839 (Pulmonata, Helicidae) in captivity

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Some aspects of laboratory rearing and spawning of *Helix albescens* from south-western part of the Crimea have been studied for the first time. Data on reproduction cycle, spawning, and egg survival are presented. The results are preliminary but may be useful for the protection of natural populations and cultivation of *H.albescens* in the Crimea.

Изучение размножения *Helix albescens* Rossmässler, 1839 (Pulmonata, Helicidae) в экспериментальных условиях

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Впервые в экспериментальных условиях изучены некоторые аспекты репродуктивного поведения и размножения *Helix albescens* из юго-западной части Крыма, в частности: сроки и продолжительность репродуктивного цикла, эффективность и интенсивность размножения производителей, процесс откладки яиц и их выживаемость, индивидуальная абсолютная плодовитость и т.п. Полученные результаты, несмотря на их предварительный характер, будут полезны как в плане организации природоохранных мероприятий, так и разработки биотехнологии выращивания *H. albescens* в Крыму.

INTRODUCTION

Like some other representatives of the genus *Helix*, the species *Helix albescens* is well known as a "grape snail". It belongs to edible species of great commercial interest. *H. albescens* is inadequately studied in comparison with relative species from Western and Central Europe. This species is known to occur in steppes and foothills; its geographical distribution is closely connected with the Black Sea region and may be designated as circumpontical. The range extends from Turkey to the North Caucasus and Georgia, including Bulgaria, Romania, southern regions of the Ukraine and the Crimea [Pusanov, 1925, 1926; Likharev, Rammelmeier, 1952; Schileyko, 1978]. The available literature contains no data on biology, life cycle, intraspecific structure, and ecology.

In recent years, these snails are intensively collected in many areas, including the Crimea, due to high commercial importance and steady demand at the international market [Bonnet et al., 1990]. This may lead to a dramatic decrease in the snails stocks, even to a complete extinction of this species. Such situation occurred in populations of *Helix pomatia* from Poland greatly affected by a large-scale export to France and other Western European countries after the Second World War [Urbanski et al., 1983].

Under this circumstances the survival of natural populations and the rational exploitation of *H. albescens* acquire scientific importance. This relevant problem is assumed to be successfully solved on the basis of basic bioecological researches that combine population and biocenotic ecosystem approaches. On the other hand, the results of investigations can be applied to the cultivation of snails.