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JAROSLAV PETRBOK:
MĚKKÝŠI PRO BULHARSKO NOVÍ.
MOLLUSCA BULGARICA NOVA.

PRAHA 1950

NÁKLADEM NÁRODNÍHO MUSEA V PRAZE

V GENERÁLNÍ KOMISI MATICE ČESKÉ, PRAHA II - 1700, VÁCLAVSKÉ NÁM.

JAR. PETRBOK:

Měkkýši pro Bulharsko noví.

Mollusca bulgarica nova.

(Předloženo 17. XI. 1949.)

Do této práce zahrnuji všechny tvary z Bulharska popsané po r. 1941 a 1948, kdy vyšla má sdělení: 1. *Posttertiaria mollusca bulgarica nonmarina.* („Věstník Královské České Společnosti Nauk") a 2. *Příspěvek k poznání posttercierních měkkýšů Bulharska.* A contribution to the knowledge of the Post-tertiary molluscs of Bulgaria. („Acta Musei Nationalis Pragae 1948.)

Práce sama je výsledkem mé tříměsíční cesty po Bulharsku, kterou mi umožnilo r. 1948 ministerstvo školství, věd a umění Československé republiky svým výměnným stipendiem vědeckých pracovníků a dále vědecké ústavy Bulharska, které mi zpřístupnily veškerý svůj materiál.

* *

Wladislawia sztolcmani Wagner Ant.

Dr. J. Bureš collected this beautiful and exclusively mountain Campyleea on the Kamenitý Vrch on the Pirin planina, between 2000—2700 m.

As Wagner's paper "Studien zur Molluskenfauna der Balkanhalbinsel mit besonderer Berücksichtigung Bulgariens und Thraziens, nebst monographischer Bearbeitung einzelner Gruppen" (Prace zoologiczne Polskiego Państwowego Muzeum Przyrodniczego, Warszawa 1927) is largely inaccessible and his figuring of this very intersting species rather poor, I give here our own photos of 1949 of our own material collected on a journey in Bulgaria in 1948.

It has not been found as a fossil up till now-though it is not excluded that in some of the ravines there fossil loams or other formations may be found in which it may be preserved in fossil form. Up till now we searched for it in vain. It is also possible that it may be found in some lower localities from the time when during the last glaciation also the Pirin planina was covered with ice, as this Wladislawia cannot be a product of the present postglacial.

Helicopsis spiruloides Ant. Wagner dev. sinistrorsa.

To the seven forms (Petrbok 1948) ascertained up till now in Bulgaria comes the present one collected in 1948 in the Bay of Varna, where this species lives on the large flat between the Varna Lake and the coast of the Black Sea. This area can be dated geologically as Atlantic Litorinian (J. Petrbok: Sladkovodnite mekoteli na Varnenskoto i Gebedženskoto ezera. — The Fresh-water Molluscs of the Lakes of Varna and of Gebedže. Trudove na Morskata biologična stancia vav Varna, 1948) and it made possible here a vastly greater development of this species than anywhere else on this sea coast of Bulgaria.

Up till now this species is known only from the coast of the Black Sea in Bulgaria. In the Bulgarian inland it has not yet been collected.

Orcula doliolum Bruguière var. turcica autt. f. curta f. n.

It was formed by the shortening of its height axis while preserving its original width. It is quite analogous to all the similar forms of the different species of Pupiidae and Buliminidae which have the same designation. The cause of this shortening of the height axis we still ignore, as it has not been studied in the anatomy of the soft body.

The shortening gives it an ovoid shape except for the large aperture, which is distinctly overlage in relation to the size of this form. Hence the anatomical examination of the soft body is all the more necessary.

Form:	Holocene	Recent
f. typica	0	0
f. typica var.		0
var. turcica	0	0
var. turcica f. minor		0
var. turcica f. curta		0

Not yet found in the Bulgarian (or any other) Plistocene.

Pupilla tičaensis sp. nova.

Minute shell, 2 mm. high and 1 mm. broad, barrel-shaped, of five windings very fine to indistinctly striate, convex, and the windings thus separated from each other by a deep suture; the last of the windings corresponds to half the height of the whole shell. The windings increase regularly. Apex small, distinctly raised. Aperture relatively small, broader than long, with the outer lip turned up and with a small tooth in the palate. Found in the alluvium of the Tiča River (Longus forest), 1948, about 1 km. above its mouth. Thus it lives in the basin of this river, apparently rare as among thousands of shells of other species only one shell of it was found, and that was damaged.

It belongs to the group of minute Pupillae, which occur in Bohemia (and of course also elsewhere, f. inst. around Parkáň = Šturovo in Slovakia) already in the Plistocene, and which require a separate monographic study, of course after intensive collection. The present materials is insufficient for the purpose.

Zebrina detrita Müller.

The following forms, which are new for Bulgaria, have been determined: 1. recorded by Wohlberedt (Zur Molluskenfauna von Bulgarien. Görlitz 1911) from Slivno: *var. tumida Parreys* as: *Zebrina detrita Müller var. radiata Pfeiffer f. tumida Parreys,* i. e. in a form entirely new for Bulgaria.

Habit.: Devna. Long. altit:

Wohlberedt probably does not admit the very good variety of Pfeiffer, as he does not list it in his paper.

2. *Zebrina detrita Müll. var. melanorhinus Crist & Jan.* transition form to var. radiata Pfeif. (Petrbok: Posttertiary mollusca bulgarica etc. no. 186).

Shell white, with very rare transverse stripes which are brown or "bluish".

Besides this form there occurs still another one where these transverse stripes are still fewer, occurring only here and there.

Up till now: Primorska.

Remark: I have, however, in my possession one shell which has the first four windings like *radiata Pfaif.* and the last one like *var. melanorhinus Crist. and Jan,* which would prove that this striping is of physiological origin and depends on certain inner organs, on their function, which of course is in its turn sometimes due to exogenic causes or agents, as f. inst. the spring pigmentation of the zones after the winter sleep of the Central Bohemian *Tachea hortensis Müller.*

3. *Zebrina detrita Müll. f. major Férussac.*

Where we are not in the presence of an individual gigantism (of a purely orthogenic origin), a population of this form is always due to the influence of exogenic agents, as I proved for *Tachea austriaca Mühlfeld var. gigas* Frankenberger once as a product of the last interglacial period in Bohemia and once as a product of about the same or at least very similar geographical conditions or exogenic agents. It goes without saying that we are still unable to determine all these questions, for our research is still mainly systematic, especially in some branches, and only on the basis of well-established facts can we try to solve also evolutionary or biological problems. Some of them we have already solved, but most of them remain still unsolved.

If we have been able to determine accurately the cause of the origin of *var. gigas* in *Tachea austriaca,* in two places far from each other in time and space, we cannot do so for the present for f. major of Zebrina detrita, because we do not know sufficiently well the conditions under which it could develop. It was originally described from France, and from Bulgaria we know it only from Devna.

4. *Zebrina detrita Müll. f. minor Férussac.*

Also a population of a form reduced in size the result of exogenic agents. As one type of this reduction in size I described some time ago *Z. detrita var. primigenia Pbk.,* from some interglacial period of the

Danube at Ruse, then from the Plistocene of Peinardžik at Varna, where the shell is reduced in size; this is a result of evolution and not only of local outside influences, for it is simply an older evolutionary race. From it we have to distinguish *f. minor Férussac,* which shows a real diminution caused by certain exogenic agents (and not a mere expression of individual nanism).

The diminution is due to the lack of food in such sites as in sands and wasteland of karstic peneplains and slopes between the "Pobity kameny" above Beloslav (= Gebedže) near Varna.

From there I have, of 1948, also forms of the size: With a better knowledge of the Plistocene forms of *Zebrina detrita* it will once be possible to determine whether this species divided already in the Plistocene into a striped and an unstriped form, i. e. *var. radiata Pfeiff.* At present such a determination would be premature, as apart from my shell of indubitable Plistocene origin in the Balkan and after the disavowal of Sandberger by Geyer I know no others, though I am certain that either in Anatolia or especially in the Russian Black Sea Plistocene further localities will surely be found; but all this the present generation of scientists are prevented from exploring because of the war psychosis.

Nor do I yet see clearly whether *Charpentier's var. albinos* is an original form of this colour or a successive one. I have not enough material from different parts of the world to decide this. In Bulgaria this variety occurs, too, in recent form as well as in fossil form in the terrace fauna of the Danube at Russe, and this has here to be distinguished as:

5. *Zebrina detrita Müller var. primigenia Petrbok ab. albinos Charpentier,* and the shells from the Pobity kameny as:

Zebrina detrita Müll. f. minor Fér. ab. albinos Charpentier.

Here we have to remember that *ab. albinos* Charp. is not a manifestation of albinism, but has a rich, white colouring. And it is not excluded that just in this species the question of the white colouring of the Mediterranean Helicidae and Buliminidae can be solved.

5. *Zebrina detrita Müll. f. longissima f. n.*

From its measurements: longit.: 29 r, altit.: 10 mm its diagnosis can best be seen: a typo testam long differt.

It was found in one specimen in the karst area of the Pobity kameny, above Beloslav.

6. Just as in *Zebrina detrita Müll.* we find also in *var. radiata Pfeiff.* a *f. minor Férussac,* and this diminution goes even to 7. *f. minima f. n.,* which in this form seems to be the final possibility in this direction, and occurs also in two other forms: 8. *Zebrina detrita Müller ab. albidos Charp. f. minima f. n.*

We obtain for Bulgaria the following survey of morphological groups:

Zebrina detrita Müller f. curta f. n.

It differs from the type by its depressed disk.

Up till nov one shell: Neolithic of Svištov an the Danube.

Stratigraphico-chronological survey of the forms of *Zebrina detrita* Müller in Bulgaria cf. p. 11 MS. From this survey it is evident that the Bulgaria *Zebrina detrita* Müller is very plastic, that it is in stormy evolution, and only its *var. primigenia* Pbk. has been found up till now as a fossil and extinct shape, together with its form: *f. minor.*

This fossil variety has been found up till now only in the Bulgarian Plistocene, in two localities very far from each other: Russe-Plistocene,

Stratigraficko-chronologický přehled tvarů Zebrina detrita Müller v Bulharsku. The stratigraphic chronological review of the forms Zebrina detrita Müller in Bulgaria.

Tvar — Form	Plistocen					Holocen		Historicum	Recent
	nehorizontov. undiveded	terasa Dunaje Danube terrace	spras loess	černozem black earth	spraš loess	litorinišn atlant.	litorinišn subbor.		
1. detrita f. typica Müller	●				●	●	●		●
2. detrita f. curta f. n.							●		
3. detrita Müll var. radiata Pfeiff.					●				●
4. detrita f. melanorhinchus Crist. & Jan									●
5. detrita f. longissima f. n.									●
6. detrita ab, albinos Chorpentier						●			●
7. detrita f. minor Férussac									●
8. detrita f. minima f. n.									●
9. detrita var. primigenia Petrbok		●							
10. detrita var. primigenia f. minor f. n.		●							
11. detrita var. radiata Pf. f. minor. f. n.						●			●
12. detrita var. radiata Pf. f. minima f. n.									●
13. detrita var. radiata Pf. f. tumida Parreyss									●
14. detrita var. radiata Pf. f. major Charp.									●
15. detrita ab. albinos Charp. f. minima f. n.									●

Danube terrace and Peinerdžik, upper loess. It is today evident that it shows a tendency to split into a non-striped form and a striped one, which is designated *var. radiata Pfeiff.* The non-striped form still predominates in the Quaternary as well as among the living specimens.

In Plistocene profiles it has been found so far only in Bulgaria and in Serbien Macedonia.

Today its geographical area is incresing, as it advances farther to the north and reached in historic or protohistoric times Central Bohemia (region of Slaný).

Zebrina bulgarica Bourguignat 1876.

(Syn.: *Leucomastus bureši* Ant. Wagner: Studien zur Molluskenfauna der Balkanhalbinsel mit besonderer Berücksichtigung Bulgariens und Thraziens, nebst monographischer Bearbeitung einzelner Gruppen. — Prace zoologiczne Polskiego Państwowego Muzeum Przyrodniczego. Warszawa, 1927.)

Remark: Wohlberedt (Zur Molluskenfauna von Bulgarien. Abhandlungen der Naturforschenden Gesellschaft in Görlitz 1911) gives as locality: Allgemeines Vorkommen: Bulgarien, but that is not stated anywhere in the literature, for it was originally described from Eidos = Eitos near Burgas and until 1948 it had not been found anywhere else in Bulgaria. As late as 1947 K. Táborský found shelles in Central Anatolia which I determined as belonging to this species in December 1948. This new locality is called Osmanoglu, and is the first locality outside Europe from which it has been recorded; from this it follows that this species came to Europe from Anatolia either by natural means as by its being washed into the sea by running water, or by artifical though unintentional means with the arrival of primeval man. Up till now we know for certain only as its oldest occurence the loams at Solnicite and Sarafovo near Burgas, where it was found in the following profile:

Solnicite-Sarafovo near Burgas.

Profile of the shore above the sea:

black earth — 1 m.: conchylia: *Zebrina bulgarica* Bourg.
brown soil — 1 m.
white clayey loam
brown compact loam
white clayey loam
brown compact loam. } 12—15 m.

Profile II:

black earth: 1 m. Conchylia: *Zebrina bulgarica* Bourg.
brown soil: 1 m. in its upper portion Conchylia,

i. e. in either directly Neolithic layers or in shortly pre-Neolithic layers, this we cannot decide in this area safely without archeological finds. I never found it in Plistocene beds either at Burgas and especially the Vaja Lake, or elsewhere on the coast of the Bulgarian Black Sea, or in the Dobrudja from Balčik to Sulina, or in Bessarabia at Reni and the

Kagul Lake. It may be expected to be found in the Plistocene beds of Anatolia or under the Caucasus. This does not mean that it did not penetrate Bulgaria already in the Plistocene; we can only say that up till now we have not found it in these beds. Nor can we mainted that it is merely an Anatolian endemite, and that it has no relations to the Caucasus itself.

When we regard Anatolia as its last home before its penetrating into Europe, then we see that it lives here in a largely reduced form, which has here a tendency to still further reduction; for the present I cannot account for this, as I do not know the natural conditions under which it lives in Anatolia.

In 1940 I described a newly recognized form of this species, var. *burgasensis* (Zebrina bulgarica Beurg. var. burgasensis v n. "Příroda", Brno, p. 150), which distinguishes itself from the type by its narrower aperture, broader outer lip always lined with a thickeniss, which has always an elevation on its outer margin. The shell is whiter, the embryonal winding either completely white or slightly horn-coloured.

The find at Osmanoglu gave us also an answer to several questions which we raised already in 1940, when we did not know yet the find in Anatolia, and these questions have now become irrelevant.

Morphologico- and stratigrahico-chronological survey:

Geological period	forma: typica	var. burgasensis	f. elongata	Pbk. minor	demifasciata
recent:	Aitos (Osmanoglu)	Burgas (Sarafovo)	Burgas	—	Burgas
black earth (Subboreal Litorinian)	—	Sarafovo	Sarafovo	Sarafovo	Sarafovo
brown soil (Literinian s. l.)					

R e m a r k: It is not excluded that it reached Bulgaria already during the Plistocene, when the Bosporus was not yet open (it became so only at some time towards the end of the Plistocene).

Chondrula seductilis Ziegler 1837.

(syn.: Jaminia Niso, Risso: Hist. natur Europe merid. IV, p. 92, 1826,
= Pupa seductilis Ziegler: Rossmaesslar "Iconographie", V, VI, p. 10, fig. 306,
= Chondrula sd. Beck: Ind. Moll. 1837, p. 87,
= Gonodon sd., Held: Isis 1837, p. 918,
= Torquilla sd., Villa: Disp. Conch. 1841, p. 24,
= Bulimus sd., L. Pfeiffer: Symb. Helic., 1841, I, p. 85,
= Bulimus Niso, L. Pfeiff., loc. cit. 1842, II, p. 1842,
= Pupa Niso, Dup.: Hist. Moll., IV, p. 378, pl. XVIII, fig. 8e, 1850.
hab.: L'Hérault and Cette (Dupuy), Corsica, Original localities: Dalmatia,

Hercegovina, Montenegro, Bulgaria, Dobrudja.

It would be interesting to follow its spread upstream the Danube, as it has been found beginning with the Subboreal Litorinian at Svištov and in the Upper Plistocene at Russe.

Of *Chondrula seductilis* Ziegler Rossmaessler recorded *var. cilindrica,* which is a synonym of *Pupa lunatica Crist. & Jahn.*

From a larger material it is evident that *Chondrula seductilis* Ziegler has really a tendency to divide into the following two lines:

f. *typica* and *var. cylindrica* (= *lunatica*); for as fas as we know today they occur together. But we do not yet know their historical evolution, as we know these forms very imperfectly just from this historical point of view. Besides we do not know (as also in the case of almost all species of Balkan molluscs) the original place of origin.

In Bulgaria it is rather polymorphic, and it is here equally abundant in the Danube Basin and on the Black Sea. The change of its shape concerns its size, number of teeth in the outer lip, and general shape of the shell. Up till now 14 forms have been determined, which are shown in the following chronological survey:

Form:	Plistoc.	Holoc.	Recent
1. for, typica Ziegler	0	0	0
2. var. bidentata var. n.	0	0	0
3. var. unidentata var. n.			0
4. f. major f. n.			0
5. f. minor f. n.	0		0
6. var. mutatus			0
7. ab. pallescens			0
8. var. bidentata f. minor f. n.			0
9. var. unidentata f. minima f. n.			0
10. var. cylindrica Rossm. = Pupa lunatica Crist & Jan	0		0
11. var. cylindrica f. bidentata f. n.			0
12. var. cylindrica f. minor f. n.		0	
13. var. cylindrica f. major f. n.	0		0
14. for, typica var.			0

New forms:

var. bidentata var. n.
with only two teeth in the outer lip

var. unidentata var. n.
with only one tooth in the outer lip

f. major f. n.
with a larger shell

f. minor f. n.
with a smaller shell

var. bidentata v. n. f major f. n.
with larger shell than *var. bidentata* v. n.

var. unidentata v. n. f. minor f. n.
with smaller shell than *var. unidentata* v. n.

var. cylindrica Rossm f. bidentata f. n.
with only two teeth in the outer lip

var. cylindrica Rossm. f. n.
larger than the normal *var. cylindrica*

var. cylindrica Rossm. f. minor f. n.
with a smaller shell than the normal *var. cylindrica.*

Chondrula microtragus Parreys (Rossm.) f. curta f. n.

It differs from the type by the depressed disk, while the breadth of the shell remains unchanged.

Of course: what causes the depression of the disk, we do not know, as it was observed only on empty shells, and to determine the cause itself at least the anatomy of the soft body is necessary.

We have still to remember that the opposite process of this "shortening" of the length axis of the shell is its "elongation".

In the first case we get forms which we call: var., for., subforma "Curta", and in the second case: "Elongata".

Up till now we have not explained the biological causes of these changes, but have been satisfied with their mere designation as given here. It is necessary to determine whether they are a purely individual manifestation, then this is in the population a purely physiological result; if it applies to whole populations then it must be due to outside agents and then they are hereditary forms, which of course maintain themselves only as long as these impulses as such continue. To this I drew attention already in 1911 (Jar. Petrbok: Plasticita českých Najadeí . . ., „Věstník Klubu přírodovědeckého Prostějov").

As a terrestrial Gasteropod is nearly permanently fixed to the spot where it lives, it strongly reacts to every more permanent change, usually it dies out after one, as it has no possibility to leave the site in time and find a more favourable one. But if for long generations the outer agents do not change upon the whole, a form thus adapted can acquire the value of a local form.

Of the form "elongata" we know whole populations (f. inst.: *Lucena oblonga* Draparnaud *var. elongata* A. Braun and Clessin, though in fact two forms of two separate geological periods are designated thus); but of the form "curta" we know only forms which today appear to us to be sporadic.

Here we have still to mention that the form "curta" is not identical with the form "minor", where there is a reduction of the whole shell and not a reduction in one axis only.

R e m a r k: The shortening of the length axis in the genus Discus = Goniodiscus, f. inst. in *Discus rotundatus* Müller, leads to the origin of *var. Turtoni Fleming.* Its prolongation gives rise to *var. globosus Friedel.*

Chondrula microtragus Parreyss (Rossm.) f. major f. n.

syn.: Chondrula microtragus Parreyss var. (? = f. major Petrbok: "Posttertiaria nonmarina mollusca bulgarica", 1941).

It distinguishes itself from the type by its elongated, i. e. larger shell.

A typo testam majorem (elongatam) differt.

Chondrula microtragus Parreys (Rossmaessler) var splendida var. nova.

It distinguishes itself from the type by the well developed lower intermediate tooth, a tendency to which appears in some sporadic specimens.

Thus this form is the final form of this tendency. We believe this form to be orthogenic; to its manifestation outer agents could contribute by making it possible by a certain surplus of the necessities of life, such as food, space and microclimate, or by excluding from the environment all that could prevent its manifestation. For the present we do not know how to distinguish between the two possibilities.

Chondrula Valkanovi sp. nova.

Cylindrically ovoid shell, relatively thin though firm, irregularly finely and transversally striate, slightly brilliant, yellowish. Six windings, of which the first one is very convex; the fifth and sixth ones are less convex. Suture shallow. Terminad winding high. Mouth oval, outher lip, slightly turned up, lined with a slight annular thickeniss. Both borders connected by a slight whitish callus.

Bulgaria. Nearest locality unknown

Brephulus bicallosus Friwaldsky (Pfeiffer)

(syn.: Raymondi Bourguignat: 1856).

Recorded from Bulgaria for the first time from Aitos beyond Burgas and from Slivno. Then also from Malko Trnovo, Strandža Planina, further from my own localities: Tiča-dere, Varna, and with supplements from my journey of 1948: Čengene skele beyond Burgas and Mandarsko blato. Here 13 shells were found, among which are:

4 shells *f. typica* = 20½ mm.
4 shells *f. media* f. n.
2 shells *f. minor* f. n.
1 shell *f. edentata* f. n.

f. media f. n. is a transition form between the type and the form *MINOR* l. = 177 mm.

f. minor f .n. has a height of only l. = 14½ mm., against of the type l. = 14½ mm.

f. edentata f. n. has the tooth on the outer lip completely reduced.

From this it is evident that it is a species living in the interior (i. e. in a small area such as that at the Mandarsko blato), and that it is very polymorphous. Up till now it has not been found as a fossil, not even in Bulgaria which is already well known in these places.

Cochlicopa lubrica Müller var. albinos Moquin-Tandon.

The orig. diagnose: « Coquille plus ou moins blanchatre », syn.: Bulimus subcylindricus Linné var. γ = albinos Moq-Tand.: Histoire naturelle des Mollusques terrestres et fluviatiles de France. II. Paris 1855.

One specimen only, yellow-white, normal, halftransparented. In the outer lip with a riged thickniss, verry bright, also: one pollescent-form.

The origine localite: Nantes and Les Vosges en France.

Mastus pupa Bruguière f. Ludovici Salvatori Pbk.

combines f. minor and f. etuberculatus.

Sicily.

I mention it here so that already from its figuring its difference from *Chondrula carneola Ziegler* may be seen.

Carychium tridentatum Risso.

(syn. Carychium minimum Müller var. tridentatum Risso).

Novum for Bulgaria, collected for the first time in the alluvium north of Varna on the so-called Čajka-pláž. Not yet known from Bulgaria in a fossil state, just as up till now *Carychium minimum* Müller has not been found; this of course is due solely to incomplete collecting.

At the above locality together with the type and with a certain form which is reminiscent of *var. inflatum* Hartmann, but the only and a typical Thuringia (Geyer: Unsere Land- und Süsswasser-Mollusken, 1927), but the geological age of these beds is not given.

Carychium tridentatum Risso is known from the older and younger travertines and gravels (which? reporter's note) of Würtemberg and specimen is in this case insufficient for an accurate determination.

Carychium has been very little collected in Bulgaria up till now. Petrbok records in 1941 only one locality of another author (Marica, apparently also in alluvium) and one locality of his own: Gebedže (= Belevo = Beloslav), from the meadows around the lake there. It is, however certain that it is abundant in the Bulgarian Danube region as well as on the Bulgarian Black Sea, though in the alluvium there it has been collected only in 1948 in marine beds below Galata (against Varna) and from the Peinerdžik valley above the Varna Lake.

Notice:

In Penčo Drenski "Synopsis and Distribution of Fresh-Water Mollusca in Bulgaria (Annuaire de l'Université de Sofia, 1946/7), is his 1. *Physa acuta Drap.* = *Physa dalmatina Küster*, 2. *Planorbis corneus maritzanus n. sp.* = *Coretus corneus Linné*, 3. *Bithynia bulgarica sp. nova* = *Amphimelania Hollandri Férussac*, 4. *Theodoxus Pallasi Lindholm* = *Theodoxus fluviatilis Linné*. The other material I did not see on the occasion of my revision in the Museum at Sofia, in 1948. The author mentioned above does not know the literature of the Bulgarian freshwater Molluscs, and therefore his paper must be excluded from scientific literature.

List of the New Forms of Bulgarian Molluscs:

1. Helicopsis spiruloides A. Wagner dev. sinistrorsa
2. Orcula doliolum Bruguiere var. turcica autt. f. curta f. n.
3. Pupilla tičaensis sp. n.
4. Zebrina detrita Müller f. curta f. n.
5. Zebrina detrita f. melanorhinchus Crist & Jan
6. Zebrina detrita f. longissima f. n.
7. Zebrina detrita ab. albinos Charpentier
8. Zebrina detrita f. minor Férussac
9. Zebrina detrita f. minima f. n.
10. Zebrina detrita var. primigenia Petrbok f. minor f. n.
11. Zebrina detrita var. radiata Pfeiffer f. minor f. n.
12. Zebrina detrita var. radiata Pfeiffer f. minima f. n.
13. Zebrina detrita var. radiata Pfeiffer f. tumida Parreyss
14. Zebrina detrita var. radiata Pfeiffer f. major Charpentier
15. Zebrina detrita ab. albinos Charpentier f. minima f. n.
16. Zebrina bulgarica Bourguignat var. burgasensis Petrbok f. elongata f. n.
17. Zebrina bulgarica var. burgasensis Pbk. f. minor f. n.
18. Zebrina bulgarica var. burgasensis Pbk. f. demifasciata f. n.
19. Chondrula seductilis Ziegler var. bidentata var. n.
20. Chondrula seductilis Ziegler var. unidentata var. n.
21. Chondrula seductilis f. major f. n.
22. Chondrula seductilis f. minor f. n.
23. Chondrula seductilis var. bidentata var. n. f. minor f. n.
24. Chondrula seductilis var. unidentata var. n. f. minima f. n.
25. Chondrula seductilis var. cylindrica Rossmaessler
26. Chondrula seductilis var. cylindrica Rssm. f. bidentata f. n.
27. Chondrula seductilis var. cylindrica Rssm. f. minor f. n.
28. Chondrula seductilis var. cylindrica Rssm. f. major f. n.
29. Chondrula microtragus Parreyss f. curta f. n.
30. Chondrula microtragus f. major f. n.
31. Chondrula microtragus var. splendida var. n.
32. Chondrula Valkanovi sp. n.
33. Brephulus bicallosus Friwaldsky f. media f. n.
34. Brephulus bicallosus f. minor f. n.
35. Brephulus bicallosus f. edentata f. n.
36. Cochlicopa lubrica Müller var. albinos Moquin-Tandon
37. Carychium tridentatum Risso.

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REDAKTOR IVAN KLÁŠTERSKÝ

JAROSLAV PETRBOK: MĚKKÝŠI PRO BULHARSKO NOVÍ.
MOLLUSCA BULGARICA NOVA.

V PROSINCI 1950 VYDALO SVÝM NÁKLADEM V POČTU 1000 VÝTISKŮ NÁRODNÍ MUSEUM V PRAZE - VYTISKLA STÁTNÍ TISKÁRNA V PRAZE III. CENA BROŽOV. VÝTISKU 25·- Kčs

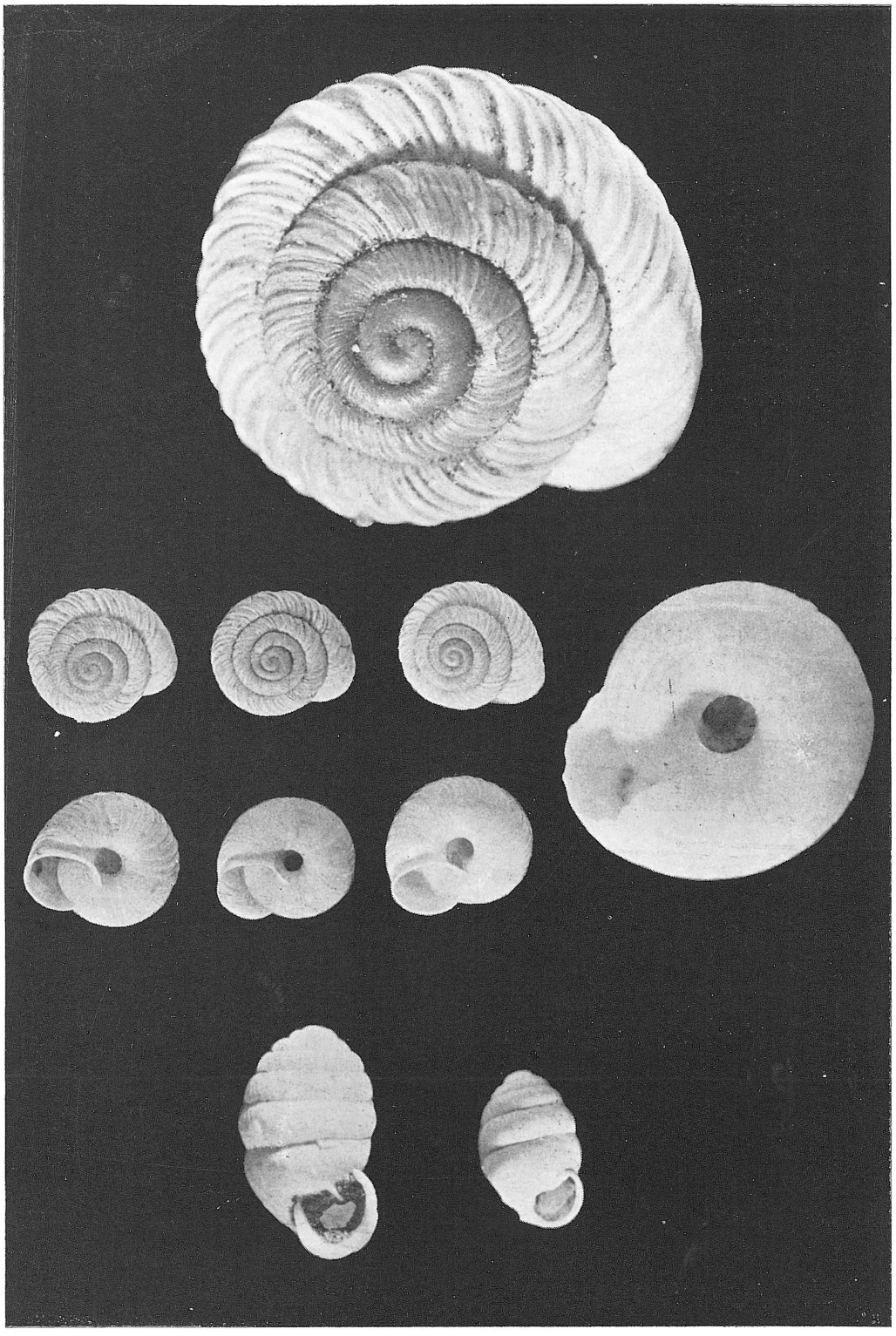
Wladislawia sztolcmani WAGNER ANT.
(lineární zvětšení v průměru = 8×).

Wladislawia sztolcmani WAGNER ANT.
1/1: alt.: 10—11, long.: 5 mm
Kamenity Vrh: Pirin planina.
(Bulgaria).

Helicopsis spiruloides ANT. WAGNER
dev. sinistrorsa.

Orcula doliolum BRUGUIÈRE
var. turcica aut. *f. curta* f. n.

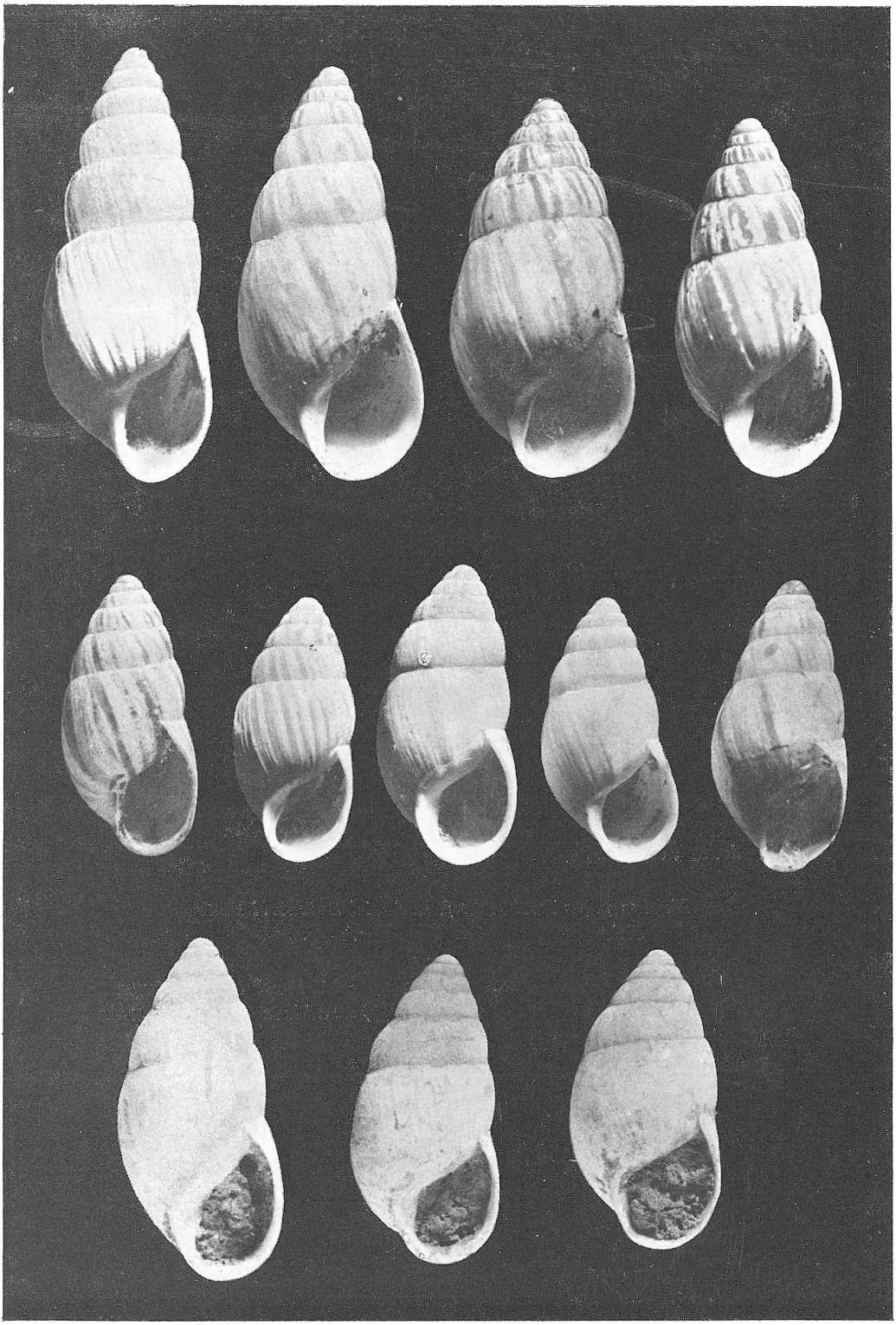
Pupilla tičaensis sp. nova.



Zebrina detrita MÜLLER:

1. *f. longissima* f. n.
2. *var. radiata Pfeif. f. major* CHARPENTIER
3. *var. radiata Pfeif. f. tumida* PARREYSS
4. *var. radiata Pfeif.*
5. *var. radiata Pfeif. f. minor* f. n.
6. *var. radiata Pfeif. f. minima* f. n.
7. ab. *albinos* CHARPENTIER *f. minor* FÉRUSSAC
8. ab. *albinos* CHARPENTIER *f. minima* f. n.
9. *f. melanorhinchus* CRIST. & JAN.

1. *Var. primigenia Petrbok ab. albinos* CHARP. plistoc. Russe
2. *var. primigenia f. minor* f. n. plistoc. Russe
3. *f. curta* f. n.



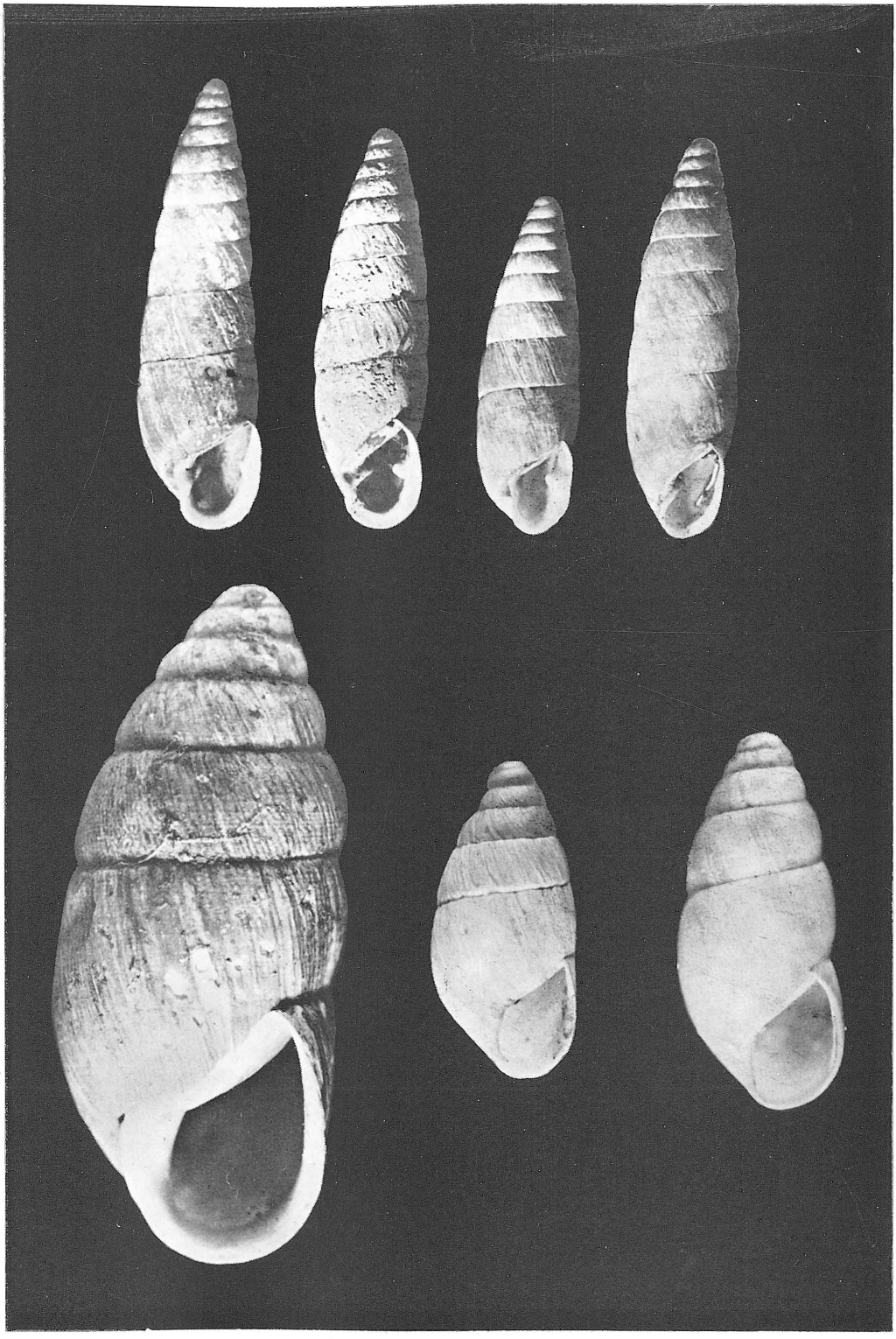
Brephulus bicalosus Friwaldsky (Pf.).

1. *f. typica* $^1/_1 = 20\frac{1}{2}$ mm
2. *f. media* f. n. $^1/_1 = 17$ mm
3. *f. minor* f. n. $^1/_1 = 14\frac{1}{2}$ mm
4. *f. edentata* f. n.

Chondrula Valkanovi sp. n.

Mastus pupa Bruguière *f. Ludovici Salvatori* Pbk.
Siciy $^1/_1 = 13 : 6$

Cochlicopa lubrica Müller
var. (y) = albinos Moquin-Tandon



Zebrina bulgarica BOURGUIGNAT:

1., 2. z Osmanoglu (Anatolie)
3. forma nesystematická, individuální
4. *var. burgasensis* PETRBOK: atlant. litorinten
5., 6. *f. elongata* f. n.
7. *var. burgasensis* PETRBOK
8. *var. burgasensis f. demifasciata* f. n.
9. *var. burgasensis f. minor.* f n.

Chondrula seductilis ZIEGLER:

1. *var. unidentata* v. n. *f. minima* f. n.
2. *var. cylindrica* ROSSM. *f. bidentata* f. n.
3. *var. bidentata* v. n. *f. major* f. n.
4. *var. bidentata* v. n. *f. minor* f. n.
5. *var. unidentata* v. n. *f. minor* f. n.
6. *var. cylindrica* ROSSM. *f. unidentata* f. n.

Chondrula microtragus PARREYSS:

1. *f. curta* f. n.
2. *f. minor*
3. *f. major* PETRBOK

(The photographics by Jarosl. Škoda, Prague-university)