

Geol. vjesnik	Vol. 40	str. 39—44	Zagreb 1987.
---------------	---------	------------	--------------

UDC 565.3:551.782

Izvorni znanstveni rad

***Pannoninotus* n. gen. (Crustacea, Ostracoda) from the Middle Miocene of Bjelanovac (Psunj Mountain, North Croatia)**

Ana SOKAČ

*Faculty of Mining, Geology and Petroleum Engineering,
University of Zagreb, Pierottijeva 6, YU — 41000 Zagreb*

A new genus *Pannoninotus* n. gen. with the type species *P. slavonicus* n. gen. n. sp. is described. The genus belongs to the suborder Podocopa and to the family Cyprididae. The stratigraphic position of the deposits in which the new genus has been found is discussed.

Opisan je novi rod *Pannoninotus* n. gen. s tipičnom vrstom *P. slavonicus* n. gen. n. sp. Ovaj rod pripada podredu Podocopa i familiji Cyprididae. Raspravlja se o stratigrafskom položaju naslaga u kojima je ovaj rod nađen.

INTRODUCTION

During the geological mapping of the western slopes of Psunj Mountain in 1973 my colleague I. Blašković and myself have collected the samples from the Miocene deposits of Bjelanovac.

Of particular interest were the deposits represented mostly by marls and silty marls, which lie under the Badenian beds. There is an unconformity between those deposits. The microfauna under the Badenian beds indicates freshwater environments in spite of the typical marine microfauna found in the Badenian deposits. After Blašković et al. (1984) the lower layers were marked as the Pretortonian (= Prebadenian).

There exists some similarity between the association of the freshwater ostracode fauna of Bjelanovac and those found in the Pretortonian deposits of the Medvednica Mountain, for which Šikić (1968) presumed the Middle Miocene age. A comparison of this ostracode fauna with some other localities in the Pannonian basin suggest the conclusion that the freshwater deposits of Bjelanovac belong to the Middle Miocene. In the same Pretortonian deposits on the western slopes of Psunj, Mountain, Kochansky-Devidé & Slišković (1978) also found some *Congerina*-forms which are characteristic of the Middle Miocene age.

Concerning the study of sedimentary environments in the Miocene of the slopes of Psunj Mountain, the cross-section of Bjelanovac (Fig. 1/B) has been investigated again by Blašković et al. (1984). These authors conclude that during the sedimentation of the Pretortonian the restricted shoals environment was present, which is indicated mostly by pelitic and marly sediments.

PALEONTOLOGIC DESCRIPTIONS

Suborder Podocopa Sars, 1866
Family Cyprididae Baird, 1850
Subfamily Cypridinae Baird, 1845
Genus *Pannoninotus* n. gen.

Name: after the Pannonian basin where the genus has been found.

Diagnosis: Carapace subovate to subtriangulate. Both ends rounded. Greatest height approximately in the middle of the length. Dorsal margin convex, ventral margin concave. Left valve overlapping the right one. Surface smooth. Inner lamella broad with large anterior and smaller posterior free part. Marginal zone rather narrow with numerous, simple and straight marginal pore-canals. Hinge adont. Central muscle scars typical of Cyprididae. Sexual dimorphism present.

Age: Lower and Middle Miocene.

Comparison. Differs from the genus *Amplocypris* in shape. The new taxon described here is subovate to subtriangulate, while the genus *Amplocypris* is elongate-reniform in shape. However, there is some similarity in the muscle scar patterns with the species *Amplocypris reticulata* (Zalányi) (Sokač, 1972, Pl. XIV, Fig. 7). Compared with the genus *Cyprinotus*, there are differences in the muscle scar patterns. The genus *Pannoninotus* n. gen. has four large adductors, three of them being almost of the same size, and the one, which lies over the preceding ones, is subdivided. There are also two antennular scars. In the genus *Cyprinotus* these four adductor scars are quite different in size, and there are no subdivided scars. The genus *Cyprinotus* has only one antennular scar (Benson, 1967, figs. 9/9, 10/8, 11/9).

Type species: *Pannoninotus slavonicus* n. gen. n. sp.

Pannoninotus slavonicus n. gen. n. sp.

Pl. I, Figs. 1—12

Name: after the first finding in Slavonia.

Holotype: male left valve, pl. I, fig. 1, RGN-2384.

Paratypes: 46 valves, 1 carapace.

Type locality: Bjelanovac, western slopes of Psunj Mountain. The existing position of the type locality is shown in fig. 1/A.

Age: Middle Miocene.

Diagnosis: as for genus.

Description: Carapace relatively large in size, subovate to subtriangulate in shape. Greatest height approximately in the middle of the length in the right valve, nearer to the anterior end in the left one. Dorsal margin convex, subangulate medially in the right valve, obliquely and uniformly descendent towards the posterior margin in the left valve. Anterior margin broadly rounded, posterior margin acutely rounded. Dorsal margin convex, which is particularly clearly visible in the right

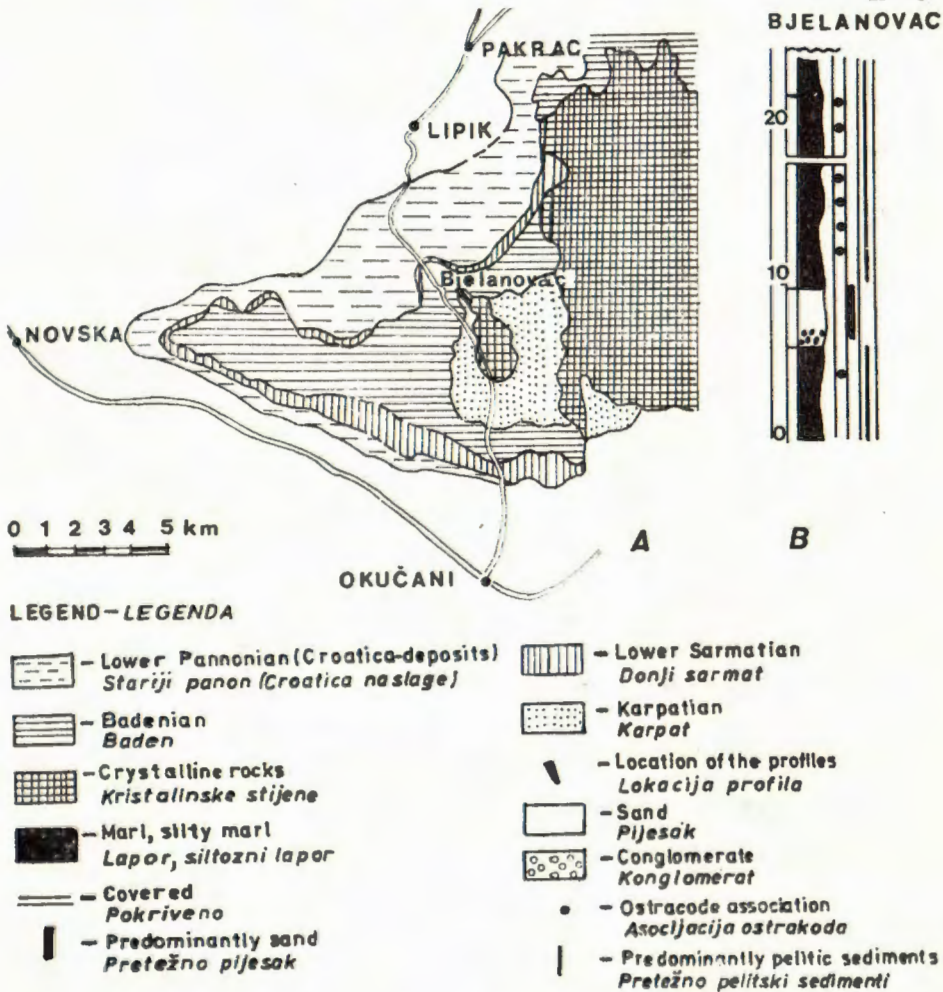


Fig. 1. A. Situation sketch-map of the type locality of Bjelanovac. B. Cross-section of the Prebadenian deposits of Bjelanovac (After Blašković et al., 1984, partly modified)

Sl. 1. A. Situaciona karta tipičnog lokaliteta Bjelanovac. B. Profil prebadenskih naslaga Bjelanovca (po Blaškoviću i dr., 1984, djelomično izmjenjeno)

valve. Surface completely smooth, rather thin-shelled. Inner lamella broad with a large anterior and smaller posterior free part. Marginal zone rather narrow with numerous, simple and straight marginal pore-canals. Hinge typically adont, dorsal border of the right valve fits into a weak dorsal groove in the left valve. Normal pores small, rather numerous and open. Muscle scars composed of four large and two small adductors, two mandibule adjustor scars anteroventral to the adductors. One of four large adductors situated over the other three is more or less visibly subdivided in two parts (pl. I, figs. 7—12). Left valve lar-

ger than the right one, and overlapping the right valve strongly along the dorsal margin. Sexual dimorphism present. The males are longer than the females. Imprints of sexual organs are visible in transmitted light, as well as in reflected light.

Dimensions:

Holotype: male left valve L = 1.425, H = 0.900 mm

Paratypes:

Female — right valve: L = 1.400—1.475 mm H = 0.760—0.920 mm

left valve: L = 1.350—1.475 mm H = 0.725—0.850 mm

Male — right valve: L = 1.375—1.425 mm H = 0.750—0.762 mm

left valve: L = 1.325—1.475 mm H = 0.800—0.950 mm

Comparison. The species *Pannoninotus paljine* (Krstić), which is found in the Lower Miocene of the locality of Donja Paljina in the Aleksinac basin has been insufficiently described (Krstić, 1980, figs. 25—26). Only the female valves are presented, in which interior characteristics are not visible. For the reason of similarity of shape, the species first described as *Amplocypris? paljinae* Krstić, was included in the genus *Pannoninotus* n. gen. Comparing the special *Pannoninotus paljinae* (Krstić) with the new species *P. slavonicus* n. gen. n. sp., we found that the species *P. paljinae* is considerably smaller in size (L = 0.90—0.93, H = 0.64—0.47) and the posterior end is broadly rounded. Probably there is a phylogenetic relation between these two species.

Ecology. The new taxon *Pannoninotus slavonicus* n. gen. n. sp. is found in a monospecific association (Sokač & Krstić, 1987, pl. I, fig. 2), which is characteristic of freshwater environments.

Received January 9, 1987

REFERENCES

- Benson, R. H. (1967): Muscle-scar Patterns of Pleistocene (Kansan) Ostracode. *Essays Paleont. & Stratigr. Raymond C. Moore comemor. vol., Univ. Kansas, Depart. Geol. Spec. Publ., 2*, 211—241, 15 figs., 1 tab., Kansas.
- Blašković, I., Tišljarić, J., Dragičević, I. & Velić, J. (1984): Razvoj sedimentacijskog okoliša miocenskih naslaga na zapadnim obroncima Psninja (Sjeverna Hrvatska). *Geol. vjesnik*, 37, 11—32, 6 figs., Zagreb.
- Kochansky-Devidé V. & Slišković, T. (1978): Miocenske kongerije Hrvatske, Bosne i Hercegovine. *Paleont. jugosl. Jugosl. akad.*, 19, 1—98, 8 figs., 2 tabs., 14 pls., Zagreb.
- Sokač, A. (1972): Pannonian and Pontian ostracode fauna of Mt. Medvednica. *Paleont. jugosl. Jugosl. akad.*, 11, 9—140, 47 pls., 3 figs., 1 map, Zagreb.
- Sokač, A. & Krstić, N. (1987): Ostracode fauna of some non-marine Neogene basins in Yugoslavia. *Geol. vjesnik*, 40, Zagreb.

Pannoninotus n. gen. (Crustacea, Ostracoda)
iz srednjeg miocena Bjelanovca (Psunj, sjeverna Hrvatska)

A. Sokač

U toku geološkog kartiranja zapadnih obronaka Psunja 1973. godine zajedno s kolegom dr. I. Blaškovićem sakupila sam uzorke iz miocenskih naslaga Bjelanovca.

Posebnu pažnju posvetili smo naslagama koje leže ispod badena. Ove naslage su slatkovodnog karaktera, predstavljene laporima i siltoznim laporima, a nalaze se u diskordantnom odnosu prema badenu. Prema Blaškoviću i dr. (1984) taložile su se u mirnim zatvorenim plićacima. Isti autori označuju ih kao pretortonske naslage (sl. 1).

Na osnovi faune ostrakoda potvrđena su ranija mišljenja (Šikić, 1968; Kochansky-Devidé & Slišković, 1978) o pripadnosti ovih naslaga srednjem miocenu.

PALEONTOLOŠKI OPISI

Podred Podocopa Sars, 1866

Familija Cyprididae Baird, 1850

Podfamilija Cypridinae, 1845

Rod *Pannoninotus* n. gen.

Ime: prema Panonskom basenu gdje je ovaj rod nađen.

Dijagnoza: Ljuštura ovalna do trokutasta sa zaobljenim krajevima. Najveća visina otprilike u sredini dužine ljušture. Dorzalni rub konveksan, ventralni rub konkavan. Lijeva ljuštura obuhvaća desnu. Površina glatka. Unutrašnja lamela široka s većim prednjim i manjim stražnjim slobodnim dijelom. Marginalna zona prilično uska s brojnim, jednostavnim i ravnim marginalnim kanalima pora. Brava adontna. Centralni mišićni otisci tipični za familiju Cyprididae. Seksualni dimorfizam prisutan.

Starost: donji i srednji miocen.

Usporedba. Razlikuje se od roda *Amplocypris* po obliku. Ovdje opisani novi rod *Pannoninotus* n. gen. ima ovalnu do trokutastu ljušturu za razliku od roda *Amplocypris* koji je produljeno-bubrežasta oblika. Međutim, neke sličnosti postoje u građi mišićnih otisaka s vrstom *Amplocypris reticulata* (Zalányi) (Sokač, 1972, tab. XIV, sl. 7). Usporedbom s rodom *Cyprinotus* uočava se razlika u građi mišićnih otisaka. Rod *Pannoninotus* n. gen. ima četiri velika aduktorna mišića, od kojih su tri približno iste veličine, a jedan koji leži iznad ovih je podijeljen. Također ima dva antenalna mišićna otiska. U roda *Cyprinotus* ova četiri aduktorna mišića su različite veličine i nisu podijeljeni i postoji samo jedan antenalni otisak (Benson, 1967, sl. 9/9, 10/9, 11/9).

Tipična vrsta: *Pannoninotus slavonicus* n. gen. n. sp.

Pannoninotus slavonicus n. gen. n. sp.

Tab. I, sl. 1—12

Ime: prema prvom nalazu u Slavoniji.

Holotip: lijeva ljuštura mužjaka, tab. I, sl. 1, RGN-2384.

Paratipovi: 46 ljuštura, 1 zatvorena ljuštura.

Nalazište: Bjelanovac, zapadni obronci Psunja (sl. 1/A).

Starost: srednji miocen.

Dijagnoza: kao kod roda.

Opis: ljuštura relativno velika, ovalnog do trokustastog oblika. Najveća visina otprilike u sredini dužine desne ljušture, bliže prednjem kraju u lijevoj ljušturi. Dorzalni rub konveksan, uglast u središnjem dijelu desne ljušture, zaobljen i nagnut prema prednjem kraju u lijevoj ljušturi. Prednji kraj široko zaobljen, stražnji kraj uglasto zaobljen. Površina glatka, stijenke prilično tanke. Unutrašnja lamela široka s većim prednjim i manjim stražnjim slobodnim dijelom. Marginalna zona prilično uska s brojnim, jednostavnim i ravnim kanalima pora. Bra-

va tipično adontna, dorzalni greben desne ljuštore ulaže se u dorzalni žlijeb lijeve ljuštore. Mišićni otisci sastoje se od četiri velika i dva mala aduktorna mišića, dva mandibularna mišića položena anteroventralno u odnosu na aduktorne mišiće. Jedan od četiri velika aduktorna mišića koji se nalazi iznad ostala tri velika mišića je podijeljen u dva dijela, što je više ili manje izraženo (tab. I, sl. 7—12). Lijeva ljuštura veća je od desne i obuhvaća desnu, posebno u dorzalnom dijelu. Seksualni dimorfizam prisutan. Otisci seksualnih organa vidljivi su u prolaznoj i reflektiranoj svjetlosti.

Veličine:

Holotip: lijeva ljuštura mužjaka L = 1,425, H = 0,900 mm

Paratipovi:

Ženka — desna ljuštura: L = 1,400—1,475 mm H = 0,760—0,920 mm
 lijeva ljuštura: L = 1,350—1,475 mm H = 0,725—0,850 mm
 Mužjak — desna ljuštura: L = 1,375—1,425 mm H = 0,750—0,726 mm
 lijeva ljuštura: L = 1,325—1,475 mm H = 0,800—0,950 mm

Usporedba: Vrsta *Pannoninotus paljinae* (Krstić) koja je nađena u donjem miocenu Donje Paljine u Aleksinačkom basenu (Krstić, 1980, sl. 24—25) nije dostatno opisana. U topotipskom materijalu prisutne su samo ljuštore ženki, a unutrašnje karakteristike nisu vidljive. Sličnost u obliku ove vrste, koja je prvotno opisana kao *Amplocypris? paljinae*, dozvoljava da se pribroji rodu *Pannoninotus* n. gen. Usporedbom vrsta *Pannoninotus paljinae* (Krstić) i *P. slavonicus* n. gen. n. sp. zapaža se da je vrsta *P. paljinae* znatno manjih dimenzija (L = 0,90—0,93, H = 0,64—0,47) i ima jače zaobljen prednji kraj. Moguće postoji filogenetska veza između ove dvije vrste.

Ekologija. Vrsta *Pannoninotus slavonicus* n. gen. n. sp. nađena je u monospecifičnoj asocijaciji (Sokač & Krstić, 1987, tab. I, sl. 2), koja karakterizira slatkovodne sredine.

PLATE — TABLA

Figs. 1—12. *Pannoninotus slavonicus* n. gen. n. sp.

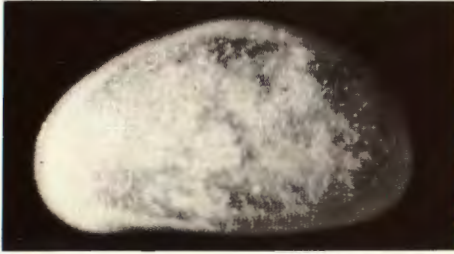
Bjelanovac, Psunj Mountain, Middle Miocene. (Bjelanovac, Psunj, srednji miocen)

1. Exterior lateral view of male left valve, holotype (Vanjska strana lijeve ljuštore mužjaka, holotip)
2. Interior lateral view of female left valve (Unutrašnja strana lijeve ljuštore ženke)
3. Exterior lateral view of male right valve (Vanjska strana desne ljuštore mužjaka)
4. Exterior lateral view of female right valve (Vanjska strana desne ljuštore ženke)
5. Interior lateral view of male right valve (Unutrašnja strana desne ljuštore mužjaka)
6. Interior lateral view of female right valve (Unutrašnja strana desne ljuštore ženke)
- 7—12. Muscle scar patterns, photographed from inside in transmitted light (Mišićni otisci slikani u prolaznoj svjetlosti s unutrašnje strane)
 7. Male left valve (Lijeva ljuštura mužjaka)
 8. Male right valve (Desna ljuštura mužjaka)
 - 9—10. Female left valve (Lijeva ljuštura ženke)
 - 11—12. Female right valve (Desna ljuštura ženke)

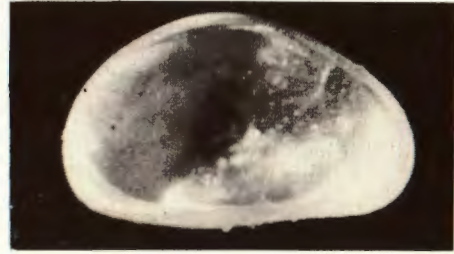
Microphotographs enlarged
(Mikrofotografije povećane):

Figs. 1—6 cca 35 ×
 Figs. 7—12 cca 100 ×

Photos by (Foto):
 N. Rendulić



1



2



3



4



5



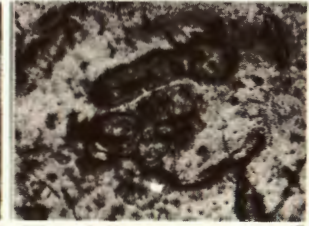
6



7



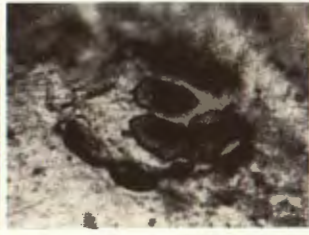
8



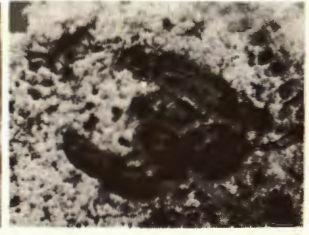
9



10



11



12