NMORB characteristics (Pearce, 1983). The HFSE contents and ratios in these rocks are close to average NMORB (e.g. Zr/Y around 2.3 and Ti/Y around 245 in comparison to the recommended values for NMORB of 2.5 and 240, respectively, Saunders & Tarney, 1984), whereas certain scattering of LILE is due to secondary alteration and/or metamorphic processes. The most primitive rocks have around 150 ppm and 560 ppm of Ni and Cr, respectively, with #Mg around 0.6. Given the rather constant ratios of trace elements of slightly different incompatibility (Y/Nb, Zr/Nb, etc.), it seems probably that differing in the degree of partial melting has probably no important role in magma evolution. On the basis of partial melting modelling the most primitive samples of the OCŽ could be obtained by modal batch melting of 25-30 % of a MORB-like mantle source. Parental magma was primarily modified by processes of fractional crystallization. It is indicated by both petrographical and geochemical evidence e.g. glomeroporphyritic texture in mafic and cumulitic texture in ultramafic rocks and the presence of olivine gabbros in close relation with serpentinized peridotites, as well as by compatible behavior of Al_2O_3, CaO, Sr, Cr and Ni. Plagioclase and clinopyroxene ± olivine likely represented the most important fractionation phases. Magnetite was essentially absent from the fractionation assemblage in keeping with clear tholeiitic trend of differentiation of these rocks. According to available data, the origin of plagiogranites could be explained by liquid immiscibility rather than by an advanced fractionation, but for confirming the assumption new data are necessary.

In the OCŽ occur calc-alkaline igneous rocks of VA-affinity, represented by quartzdiorites, quartzmoncodiorites, granites and granodiorites. These rocks show similar values of HFSE as the first group (NMORB, i.e. plagiogranites), but they appear to be richer in LILE. Their clear VA-character is further interpreted as corresponding to precollisional granitoids (Harris et al., 1986). This assumption gives a new point of view for interpretation of geological setting of the whole complex, because the occurrences of the VA-rocks imply that an intraoceanic subduction might have operated, suggesting the existence of an immature island arc, during the development (evolution) of the eastern branch of the VZCT. So, there is a possibility that the OCŽ could represent relicts of the oceanic crust/immature volcanic-arc related to a back-arc basin development.

The emplacement age of the OCŽ is inferred by the presence of late Upper Jurassic sediments within the overstep sequence. Available K/Ar radiometric ages of basaltic rocks reveal younger ages (post-emplacement events). However, a radiometric age determination on hornblende from a VA-affinity quartzdiorite gave 168.4±6.7 Ma. If the precollisional character of these rocks is correctly defined, it could be taken as the youngest age of the oceanic crust of the OCŽ.

Key words: Ophiolitic complex, Ždraljica, MORB-affinity, VA-affinity, depleted source, fractional crystallization

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Short review of Paleozoic units of the Dinarides and the northwestern part of the Vardar zone

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Five blocks/terranes built up of Paleozoic rocks are exposed in the Dinarides and the Northwestern part of the Vardar zone (Figure). These blocks/terranes originated at different parts of the Tethys margin, they had different evolution, and they were added/docked to the (pre-Upper Permian) Dinaridic block or were included into the present geologic framework at different time.

THE CENTRAL BOSNIAN MOUNTAINS BLOCK/TERRANE (CBMT). The oldest members are Early Paleozoic (probably also Uppermost Proterozoic) schists, with rare quartzites originating from psammitic and pelitic protolithes. They were deformed and metamorphosed before the end of the Silurian. The Uppermost Silurian metapsammites and phyllites are followed by a thick sequence of dolomites and limestones (Devonian and partly Tournaisian). Over them were deposited shales and sandstones of undetermined age. In all these formations occur lenses and sills of rhyolites (of undetermined, Devonian

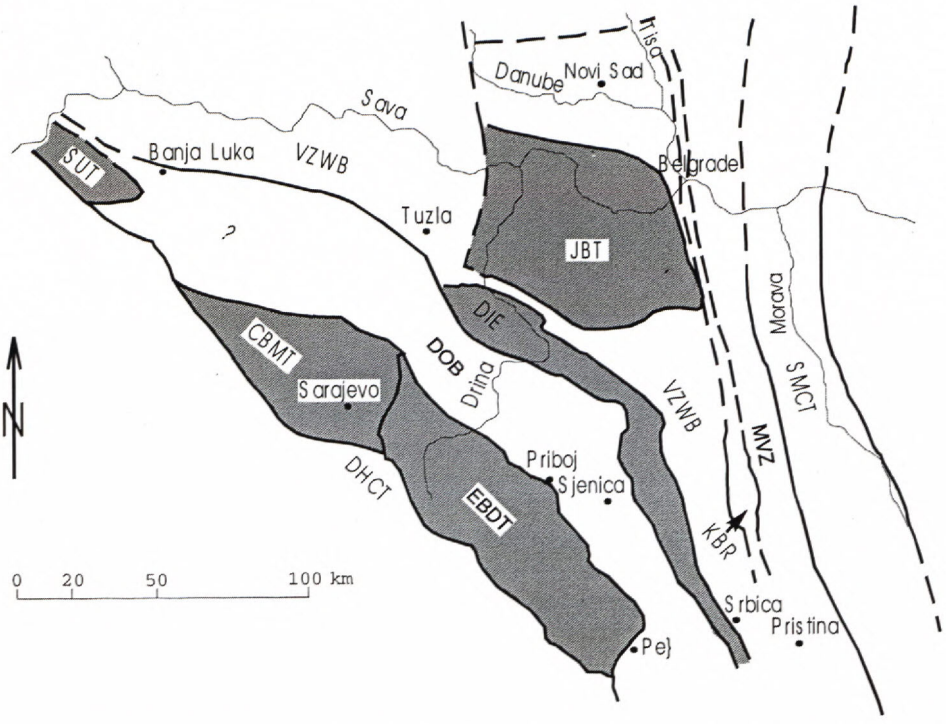

Fig.1 Paleozoic terranes in the Dinarides and the NW part of the Vardar zone. DHCT- Dalmatian-Herczegovinian composit terrane; CBMT- Central Bosnian mountains block/terrane; EBDT- East Bosnian-Durmitor unit; SUT- Sana-Una terrane; DOB- Dinaridic ophioliet belt; DIE- Drina-Ivanjica element/terrane; VZWB- Western belt of the Vardar Zone; JBT- Jadar block terrane; KBR- Kopaonic block and ridge; MVZ- Main Vardar zone; SMCT- Serbo Macedonien composite terrane.

to Permian age). The CBMT was first a margin of a continental unit, but because of subsidence became a continental shelf, which after a long quiescence (Devonian) grades into a continental slope.

The main characteristics of this unit are the presence of large masses of Devonian dolomites and limestones (carbonate platform), the break in deposition from Tournasian to Upper Permian and the abundance of rhyolites.

THE DRINA-IVANJICA ELEMENT/TERRANE (DIE). The oldest units are quartz rich metaclastics (Kovilje conglomerates) followed by sedimentary and mafic volcanic rocks of Cambrian-Lower Ordovician age, metamorphosed under low-grade amphibolite facies conditions. After a break in sedimentation follow Tournaisian to Bashkirian anchi- to unmetamorphosed pelites and lidites, olistostromes, carbonate-clastic sediments and flysch. In the olistostromes among olistolithes occur Devonian limestones.

Those units are covered by Triassic continental red beds.

The lower units were during the late Malm to late Beriassian, metamorphosed (hT-lP conditions) because the northward subduction of the Dinaride oceanic basin's young oceanic crust below the DIE.

The main characteristics of this unit are the presence of mafic volcanics in the lowermost unit, high predominance of terrigenous rocks, and the hT-lP metamorphism, as well as the breaks in deposition from the Ordovician to Tournaisian and from the Bashkirian to Triassic.

THE SOUTHEAST BOSNIAN-DURMITOR UNIT (EBDT) is by the late Alpine tectonics divided into slices, what makes its reconstruction difficult. The Silurian-Devonian low-grade schists are covered by a continuous series of Middle Devonian to Middle Permian low to very low grade metamorphosed sandstones and shales, with interlayered lenses of limestones and conglomerates, and very rare occurrences of quartz keratophyres (sodic rhyolites). Lower and Middle Carboniferous is developed as flysch. The sedimentation starts again in the Upper Permian with evaporites, shales, sandstones and limestones, grading into the Lower Triasssic.

The main characteristics of the EBDT unit are an interruption in deposition in the Devonian, continuity of sedimentation from the Devonian to Middle Permian, and from the Upper Permian to Triassic, as well as the unique occurrence of terrigenous sediments with very scarce sodic rhyolites.

THE SANA-UNA TERRANE (SUT) and THE JADAR BLOCK TRERRANE (JBT) are very similar. In both terranes the oldest units are represented by Devonian-Lower Carboniferous flysch deposits with intercalated olistostromes. The main difference is the occurrence of siderite beds in the SUT. From Middle Moskovian to lowermost Permian shallow water siltstones and limestones were deposited. New sedimentation in a shallow sea starts in the Middle Permian and contiunues to Triassic.

In order to summarize the following conclusions could be underlined. The DIE originated at a continental margin,

the lower levels probably during an initial rifting, becoming later proximal part of a continental slope. The CBMT was also a margin of a continental unit, but became later a continental shelf, which after a long quiescence (Devonian) grades into a continental slope. The SEBDT represents a formation originated at a waxing to uniform continental slope. The JBT and the SUT are almost identical, both were deposited first at a proximal (waxing) continental slope, but later they became parts of a shallow continental margin. All those units came from different parts of the southern-southwestern margin of the Tethys, what made possible that the shelf unit (CBMT) was docked to the Dinaride block in Permian but before the DIE situated deeper in the continent. Both units docked before the units composed of continental slope sediments: the SEDBT during Jurassic, the JBT in the Middle Cretaceous, while for the SUT additional studies are necessary. In addition, it has to be considered that the JBT belongs to the western branch of the Vardar zone, the EBDT to the Dinaride ophiolite basin/belt, the SUT position is unclear.

All this indicates that each Paleozoic unit had its own individual development. Therefore, for regional consideration is necessary to study and consider the development and history of each unit or group of identical units.

It is wrong to consider the Paleozoic units as parts of a "superunit", even the identical JBT and SUT can not be treated as parts of a large nappe with roots in the Pannonian basin, since analogous sediment-sequences are absent in the basement of the basin. Furthermore an analogous Paleozoic unit exists at Bukk (N.Hungary), making a palinspastic reconstruction of such a nappe almost impossible.

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The facial architecture and sedimentological interpretation of submarine canyon fill sediments near Ždiar village (the Subtatras group, the Spišska Magura Mts.).

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The coarse - grained deposits, often named as marginal (Marschalko & Radomski, 1970, Janočko & Jacko, 1998) are integral part of the Central Carpathians Paleogene. These deposits are represented by sandstones - conglomerates complex, making submarine canyon fill near Ždiar village. We interpreted these deposits as the Pucov conglomerates sense Gross et al. (1984) classification. Study area is situated on the northern slope of the Tatra Mts. and the southern slope of the Spišská Magura Mts., near Ždiar village. Area is build by sediments of Central Carpathians Paleogene (Subtatras Group in sense Gross et al. (1984)), which are represented by the Borové, Huty and Zuberec Formations. The age of sedimentary fill is the Barthonian to the Early Rupelian (Janočko & Jacko, l.c.). The Šambron beds (the Szaflary beds) and the Pucov conglomerates are situated in the Huty Formation (Sliva,1999). The canyon fill complex form lenticular, around 7 km long body, gradually pinching - out toward west to east (Marschalko & Radomski, 1970). Maximum thickness sediments is around 170 m in the central part of canyon. Submarine canyon is cut about 60 m deep into underlaying the Mesozoic and the Paleogene deposits. Canyon is filled by coarse - grained, unsorted or slightly sorted breccias and conglomerates, relatively better sorted conglomerates normally or inverselly gradded and coarse – grained, massive, normally gradded, horizontal and cross - bedded sandstones. Fine - grained sediments are very rare. Unsorted breccias create sheet - like beds concentrates in the lower part of canyon, their contact are usually nonerosive. Graded - bedded conglomerates and sandstones increase toward the upper part of canyon fill. These conglomerates and sandstones with erosive bases