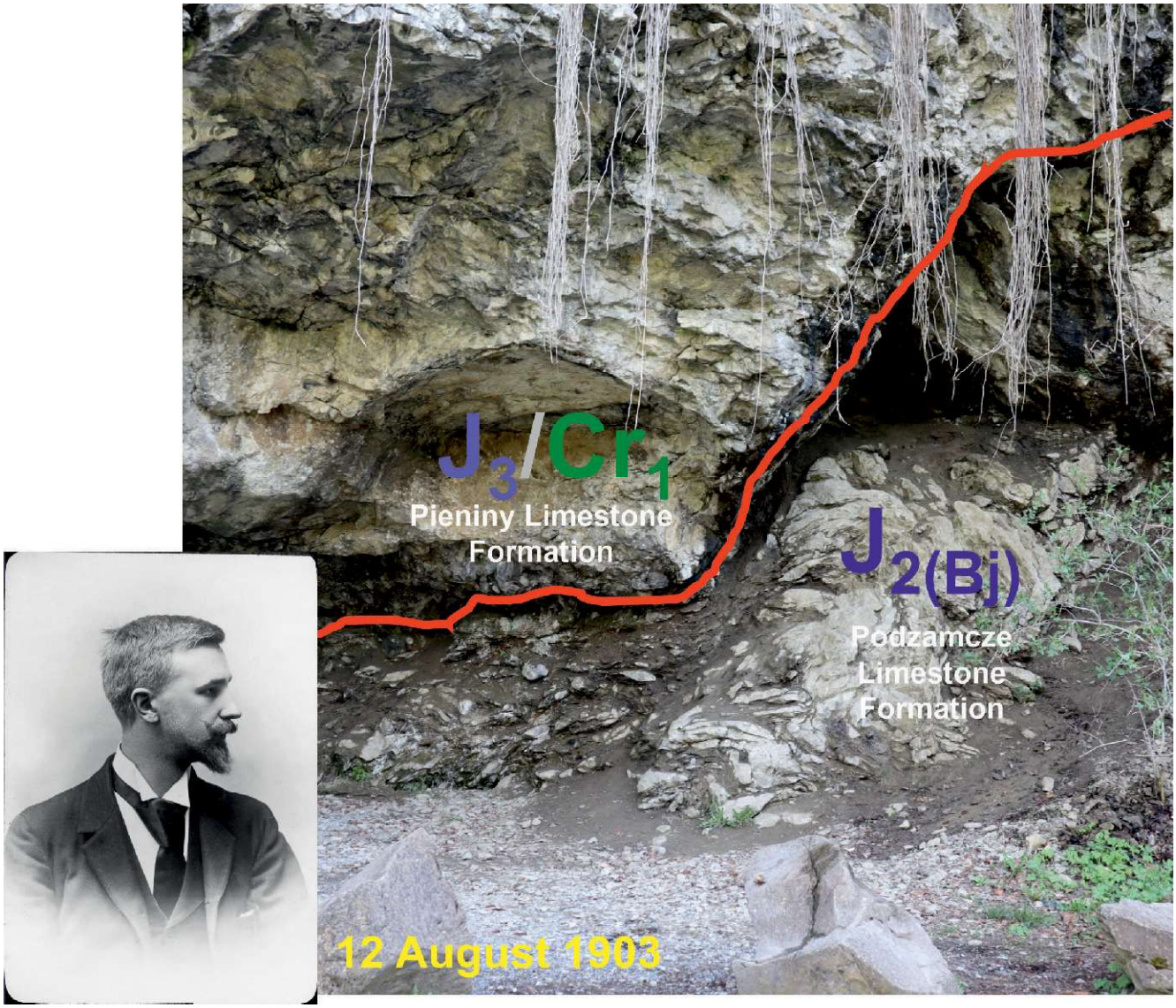
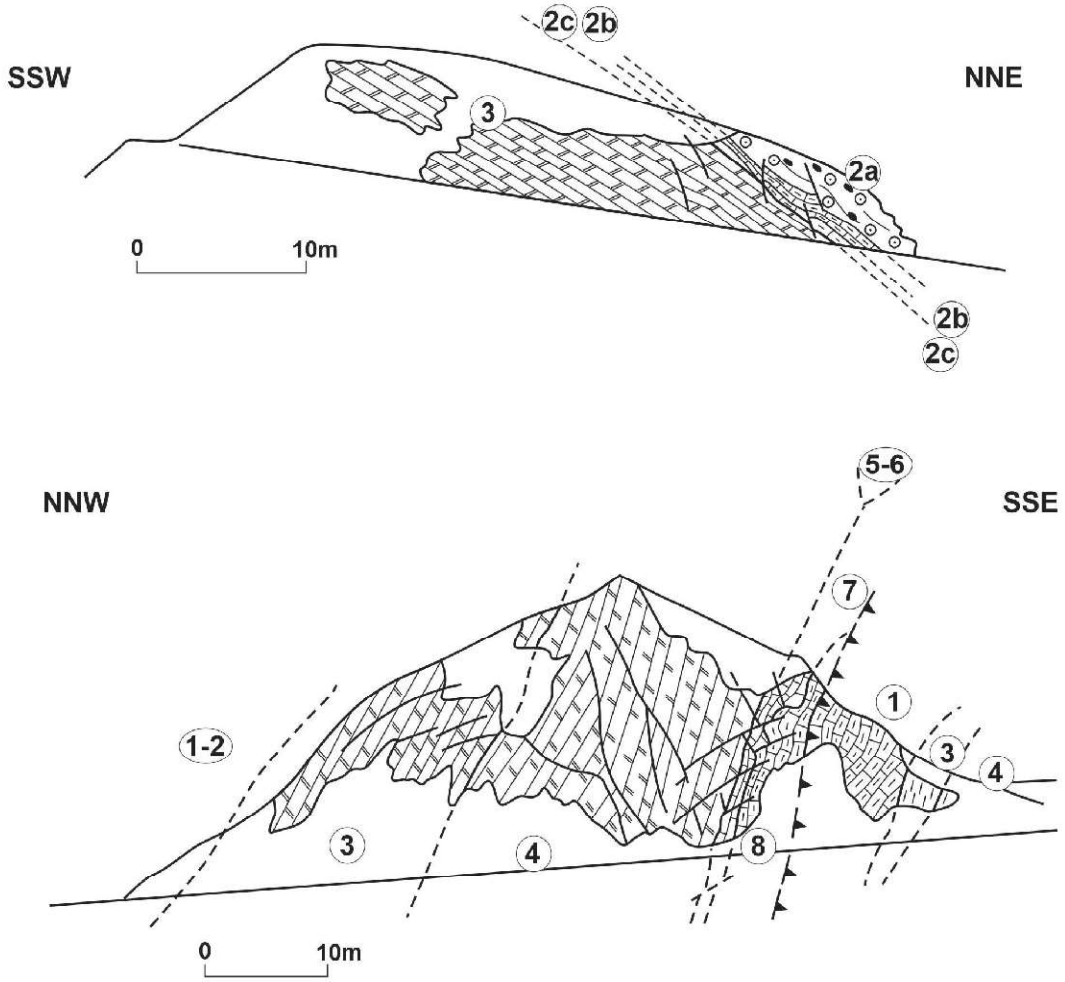


Fig. 37. Zyblikiewicz's cave in Szczawnica Niżna, along so-called "Pieniny road" along Dunajec River nearby of Orlica hostel – 120 anniversary of Maurice Lugeon visit of this place during International Geological Congress (Vienna'1903) – tectonic contact between two nappes?/thrust sheets?

Stop 8 – Flaki range (Jurassic deposits of the Branisko Succession) (Figs 38, 39)

(*Michał Krobicki, Jarosław Tyszka, Alfred Uchman*)

At road cutting through the Flaki Range we can see an outcrop of the Branisko Succession developed as: grey crinoid-cherty limestones and overlying greenisch micritic limestones and green chamosite-bearing marls (Flaki Limestone Formation), black-brown manganiferous and green radiolarites of ?Bathonian-Callovian-Oxfordian age (Sokolica Radiolarite and Czajakowa Radiolarite formations) (Birkenmajer, 1977) (Fig. 38). These rocks are surrounded by less resistant Upper Cretaceous marls and flysch siliciclastics belonging to different tectonic units of the PKB. At the road cut in the Flaki Range, the Branisko Succession crops out in tectonically overturned position. They are deep-water stratigraphic equivalent of shown earlier in the Czorsztyn Castle shallow-water facies of crinoidal and red nodular limestones of the Czorsztyn Succession (Myczyński, 1973; Birkenmajer, 1977, 1979, 1985). The Flaki Limestone Formation represents a condensed sequence of grey filament limestones, spiculites and green filament marls with ferruginous (chamositic) oncoids. The filament limestones and marls consist of pelagic bivalve *Bositra* shells.



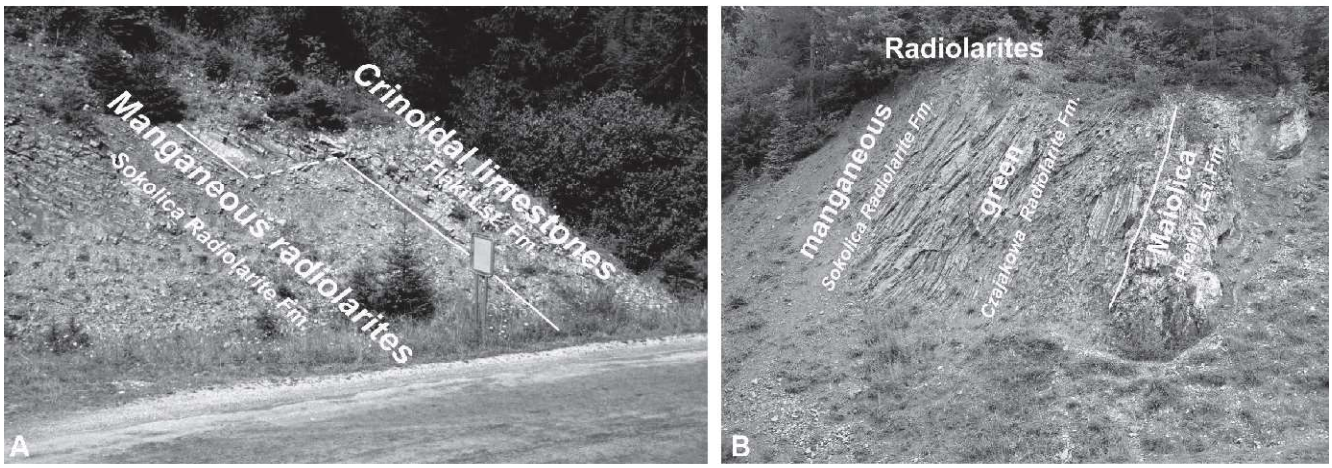


Fig. 38. View of the Flaki Range sections; Branisko Succession (lower part: A – western side; B – eastern side) and general sketch of studied sections (upper part) (after Birkenmajer *et al*., 1985). Lithostratigraphical units: 1 – Podzamcze Limestone Fm.; 2 – Flaki Limestone formations (grey crinoidal limestones with cherts in upper part (2a) and grey-green limestones (2b) and marls with chamosite concretions (2c); 3 – Sokolica Radiolarite Fm. (grey-black manganiferous spotty radiolarites); 4 – Podmajerz Radiolarite Mbr of the Czajakowa Radiolarite Fm. (green radiolarites); 5–6 – Czajakowa Radiolarite Fm. (Buwałd Radiolarite Mbr – red radiolarites) and Czorsztyn Limestone Fm. (Upszar Limestone Mbr – white nodular limestones) exposed upslope further east; 7 – Pieniny Limestone Fm. (micritic limestones with cherts of the maiolica-type facies) (strongly tectonically reduced); 8 – Kapuśnica Fm. (greenish spotty marls/limestones) (after Krobicki *et al.*, 2006)

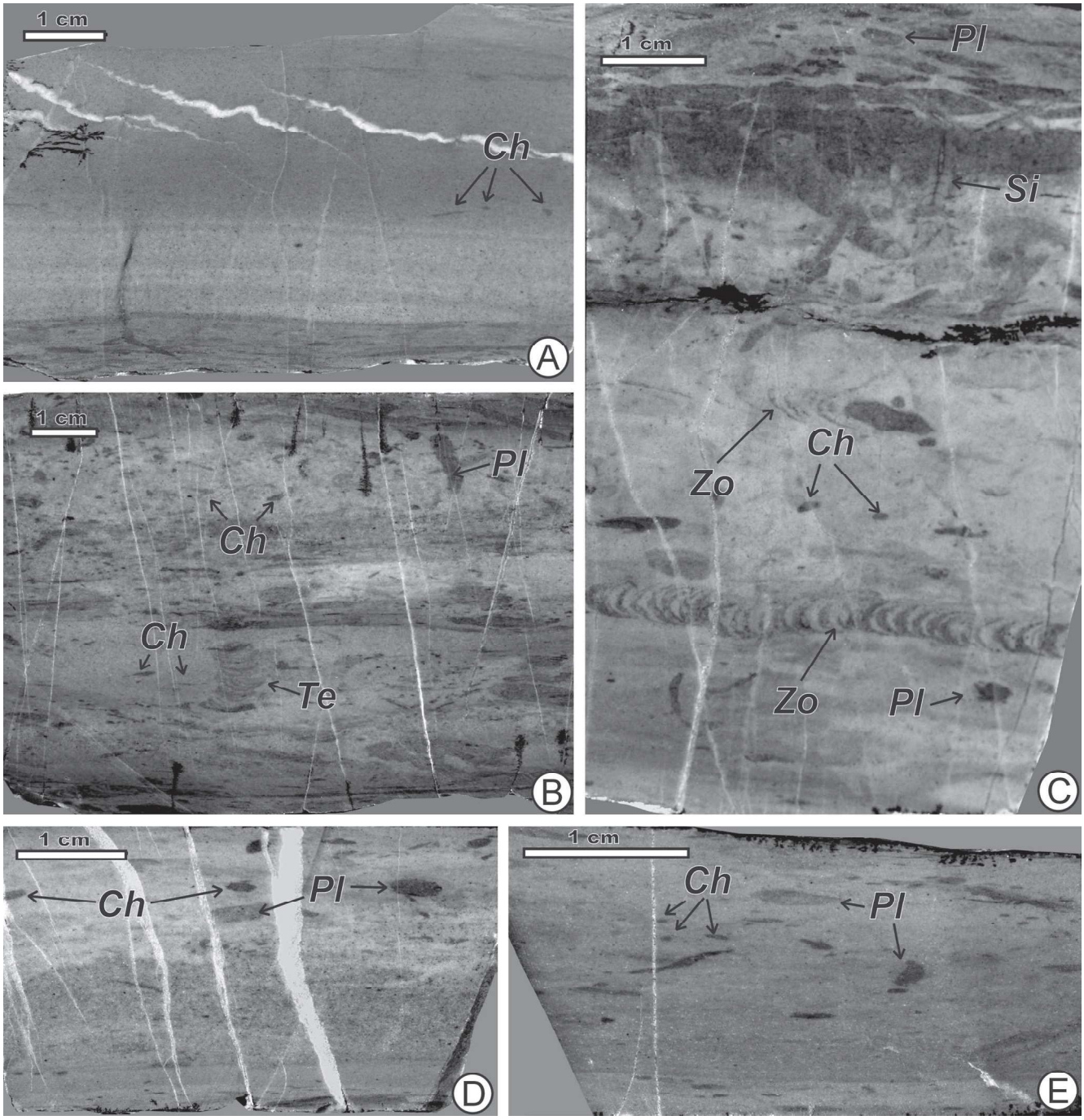


Fig. 39. Trace fossils within Sokolica Radiolarite Fm. in the Flaki Range, Branisko Succession: *Ch* – *Chondrites*; *Pl* – *Planolites*; *Si* – *Siphonichnus*; *Te* – *Teichichnus*; *Zo* – *Zoophycos* (after Krobicki *et al*., 2006)

In several radiolarite beds of Middle Jurassic manganiferous radiolarites (Sokolica Radiolarite Formation), normal graded bedding is noted in layers. In the layers trace fossils are abundant (common *Planolites* and *Chondrites*, less frequent *Taenidium* and *Teichichnus*, rare *Siphonichnus* and *Zoophycos*) (Krobicki *et al*., 2006). They belong to ichnogenera produced in the deepest tiers in the sediment. The trace fossil assemblage is typical of deep-sea fine-grained sediments deposited in well-oxygenated sea floor. Very little ichnological data come from radiolarites, however lately Kakuwa (2004) presented their ichnofabric from the Triassic and Jurassic of Japan.