

Natural stone : famous natural stone varieties in Croatia : [poster]

Maričić, Ana; Mileusnić, Marta; Hruškova Hasan, Michaela

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NATURAL STONE

Famous natural stone varieties in Croatia



Variety: Istranka
Age: Eocene

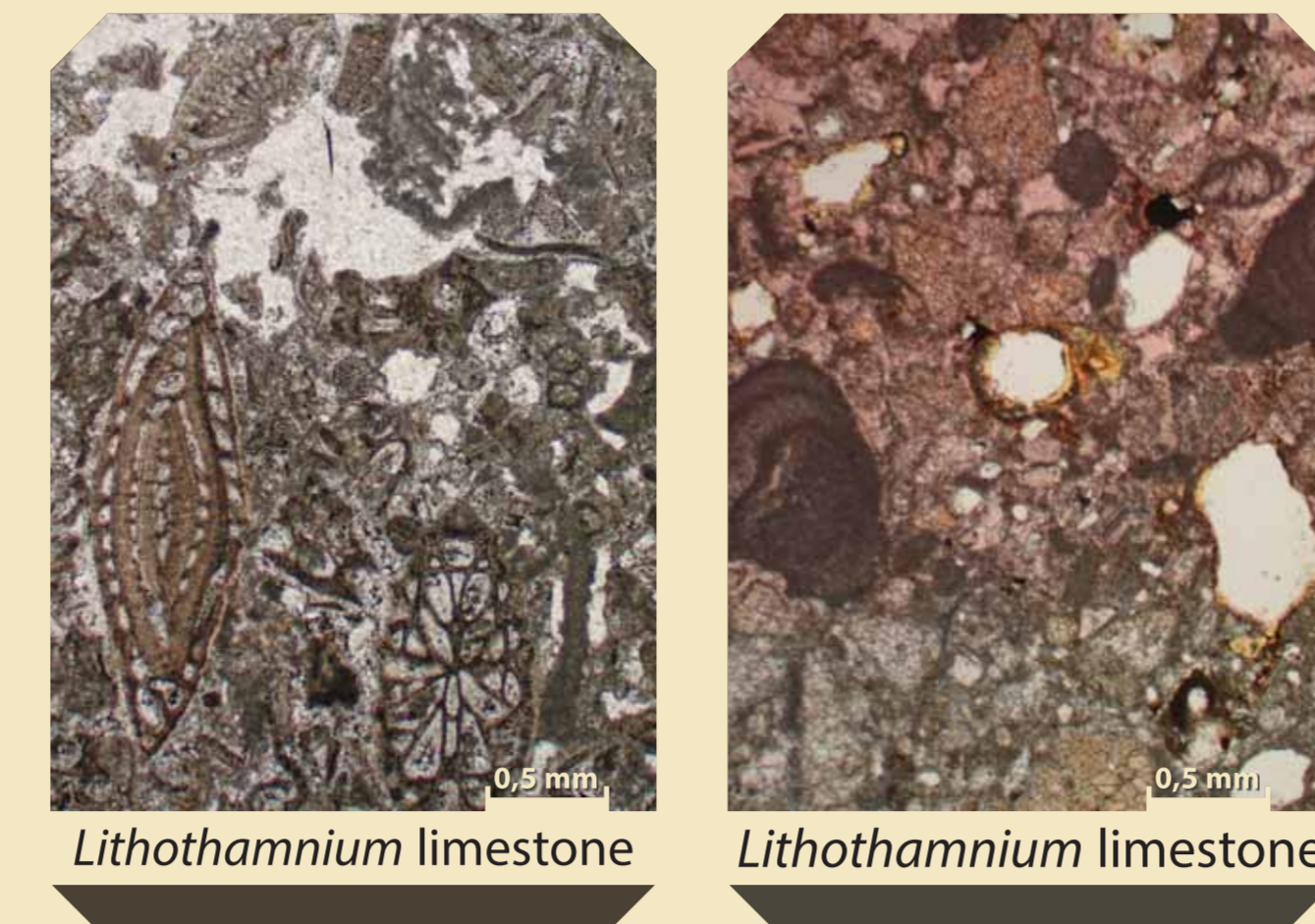
Petrography:
Nummulitic limestone – nummulitic packstone/floatstone – biomicrite/biomicrudite.

This limestone type consists of larger bentic foraminifera (dominantly *Nummulites*) in a dark micritic or fine-grained lime matrix. Various orientation (crosscuts) of foraminifera can be observed. Lime matrix is enriched in organic component therefore significantly darker than foraminifera tests.

Properties:
Due to abundant organic-rich matrix this stone is easily subjected to oxidation and colour fading that result in diminished decorativity.

Monuments:
- Parts of front entrance of NAMA department store in Zagreb

Interesting facts:
Installation in interior or other protected areas is recommended. There is no active quarry nowadays.



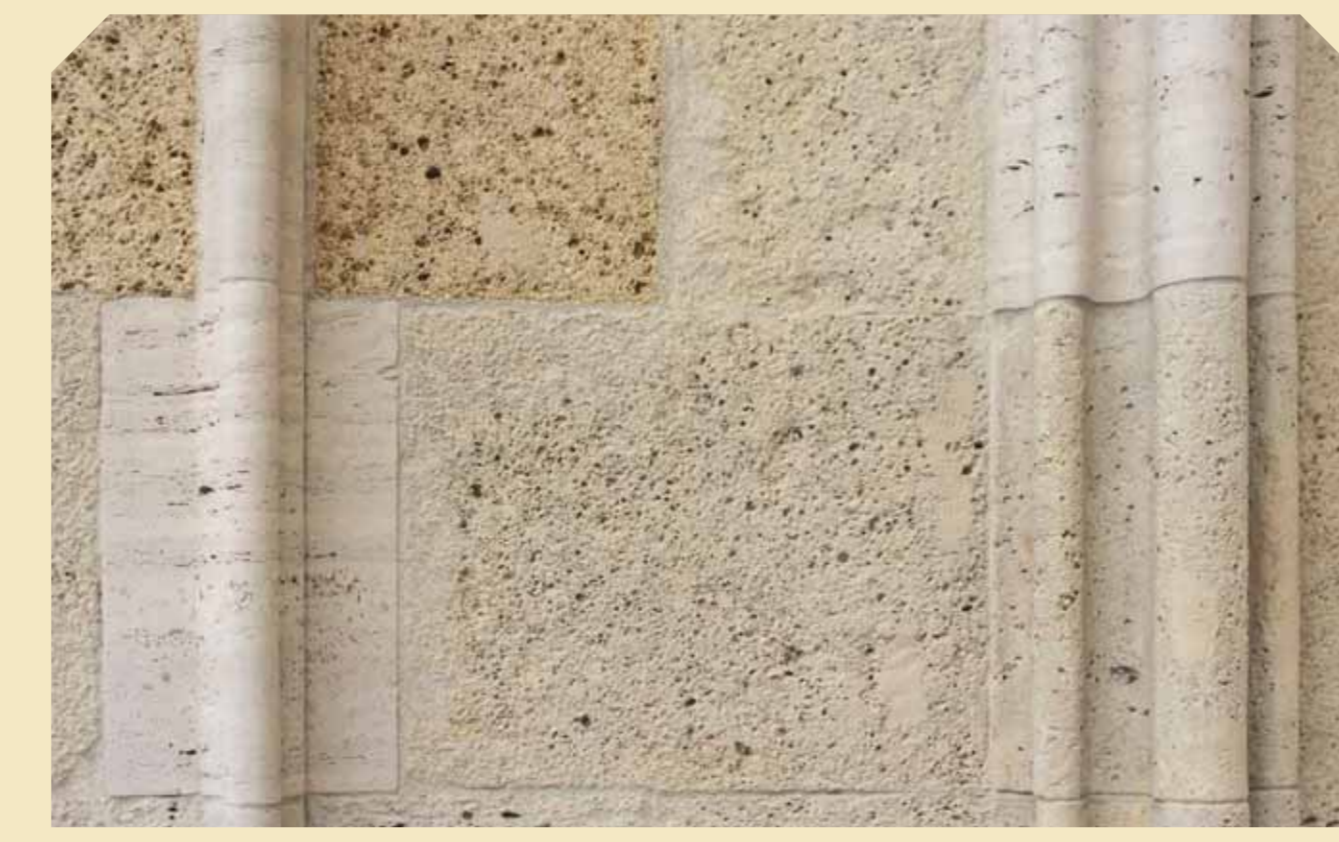
Variety: *Lithothamnium* limestone
Age: Middle Miocene/Badenian

Petrography:
Lithothamnium limestone – packstone/grainstone/floatstone/rudstone – biomicrite/biosparite/biomicrudite/biosparite; (sometimes also named biocalcarene and biocalcrudite). *Lithothamnium* limestone variety dominantly consists of medium to coarse grained bioclastic detritus dispersed in micritic matrix or cemented with sparry calcitic cement. The dominant bioclastic component is represented by fragments of coralline algae (mostly *Lithothamnium*) and subordinate presence of bryozoan fragments, bivalves, echinoderms and foraminifera. Varying amount of siliciclastic component is usually present.

Properties:
Composition and high porosity makes *Lithothamnium* limestone prone to chemical weathering and mechanical damage.

Monuments:
- The Zagreb Cathedral
- St. Mark's Church

Interesting facts:
During the restoration of Zagreb Cathedral, blocks made of *Lithothamnium* limestone are commonly replaced with travertine replicas.



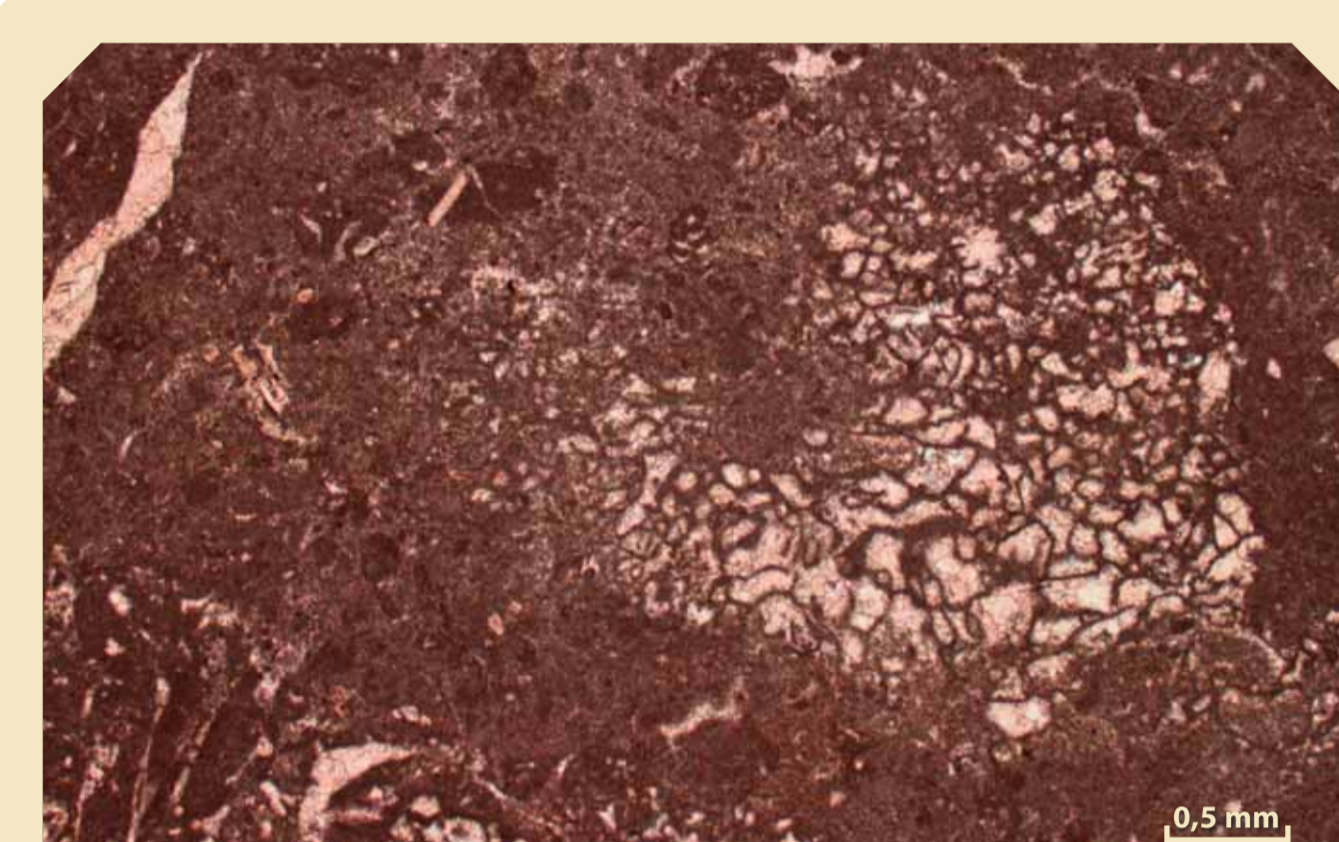
Variety: Romanovac
Age: Early Cretaceous

Petrography:
Clastic sedimentary rock – red to greyish limestone breccia. Clasts are whitish to greyish whereas the matrix is reddish to brownish. This monomictic breccia is composed of poorly sorted angular limestone/dolostone fragments (light coloured) and lime matrix (reddish to brown). Within the fragments there are numerous micro-cracks, possibly formed as a consequence of brecciation and subsequently filled with white calcitic cement.

Properties:
The Romanovac breccia is recommended for interior vertical and horizontal surfaces while horizontal corridors may be exposed only to moderate pedestrian traffic.

Monuments:
- Ventilated facade of Hrvatska poštanska banka (HPB) in Jurišićeva Street, Zagreb

Interesting facts:
Very decorative stone variety because of its colour and structure.



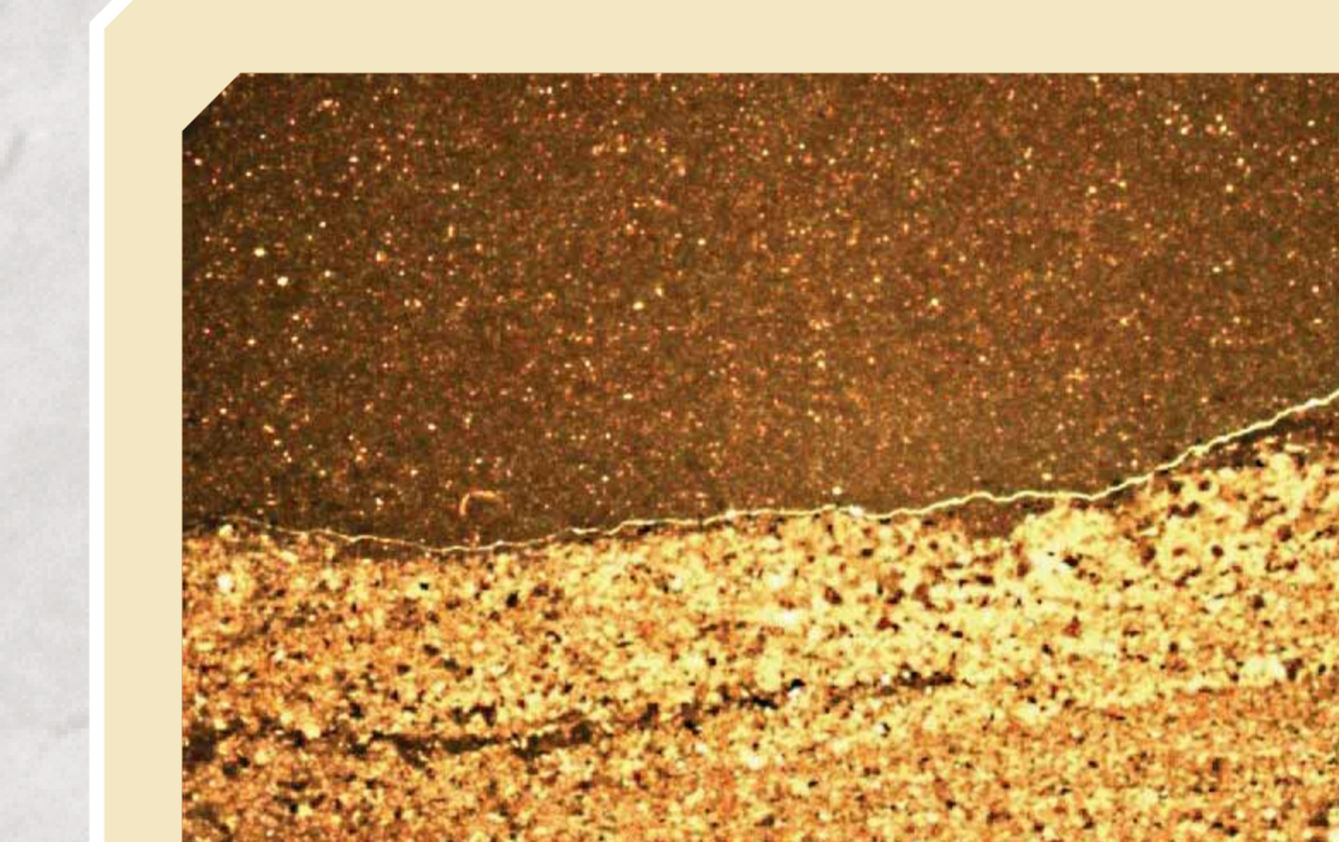
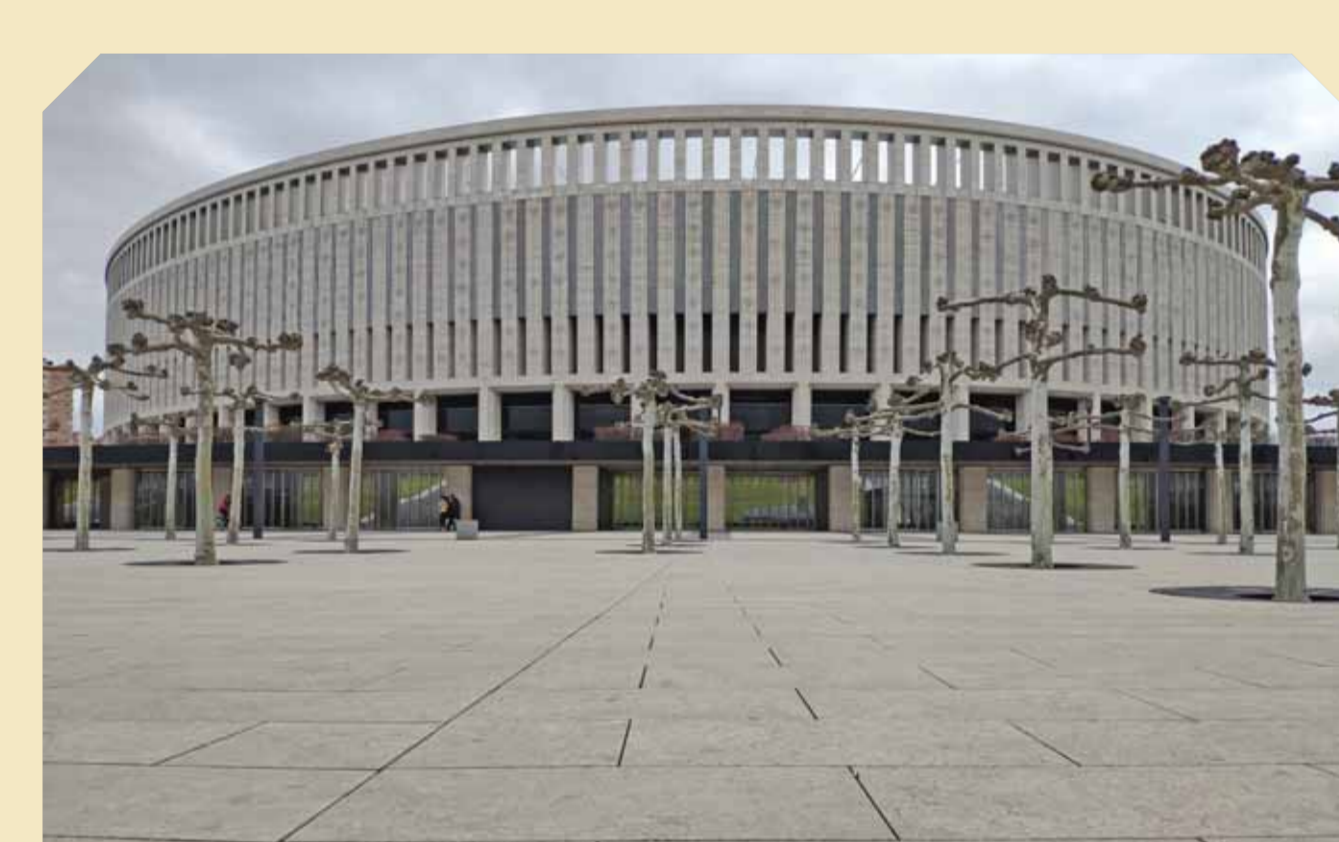
Variety: Istrian Yellow / Giallo d'Istria
Sub-varieties: Kanfanar, Selina, Korenčić
Age: Early Cretaceous (Early Aptian)

Petrography:
Brownish-yellow oncolytic limestone (oncolite floatstone) with large (mm- to cm-size) oncolites in a micritic matrix. Significant is the presence of *Bacinella irregularis* (RADOIČIĆ) microproblematica forming oncolites slightly darker in colour related to the matrix. Lime mud rich interlayers (mudstone) often alternate with oncolites. Late diagenetic stylolitic seams of small amplitudes occur along the oncolites' edges, or at the border between the oncolitic and mudstone interlayers.

Properties:
Properties of the stone are influenced by stylolites which are well bounded and could present water passage.

Monuments:
- Interior of Vienna Parliament (Austria) (new project from 2020)
- Park Krasnodar, Krasnodar (Russia)
- Europa-park Colosseo, Freiburg (Germany)
- Szt. Istvan Szobor Square, Budapest (Hungary).

Interesting facts:
Exploitation of this very decorative stone dates to the 15th century when, under the management of Juraj Dalmatinac, it was transported from the Brijuni Islands (St. Jerolim Island) to the City of Ancona in central Italy. Today in the Kanfanar quarry this stone variety is exploited by underground excavation method.



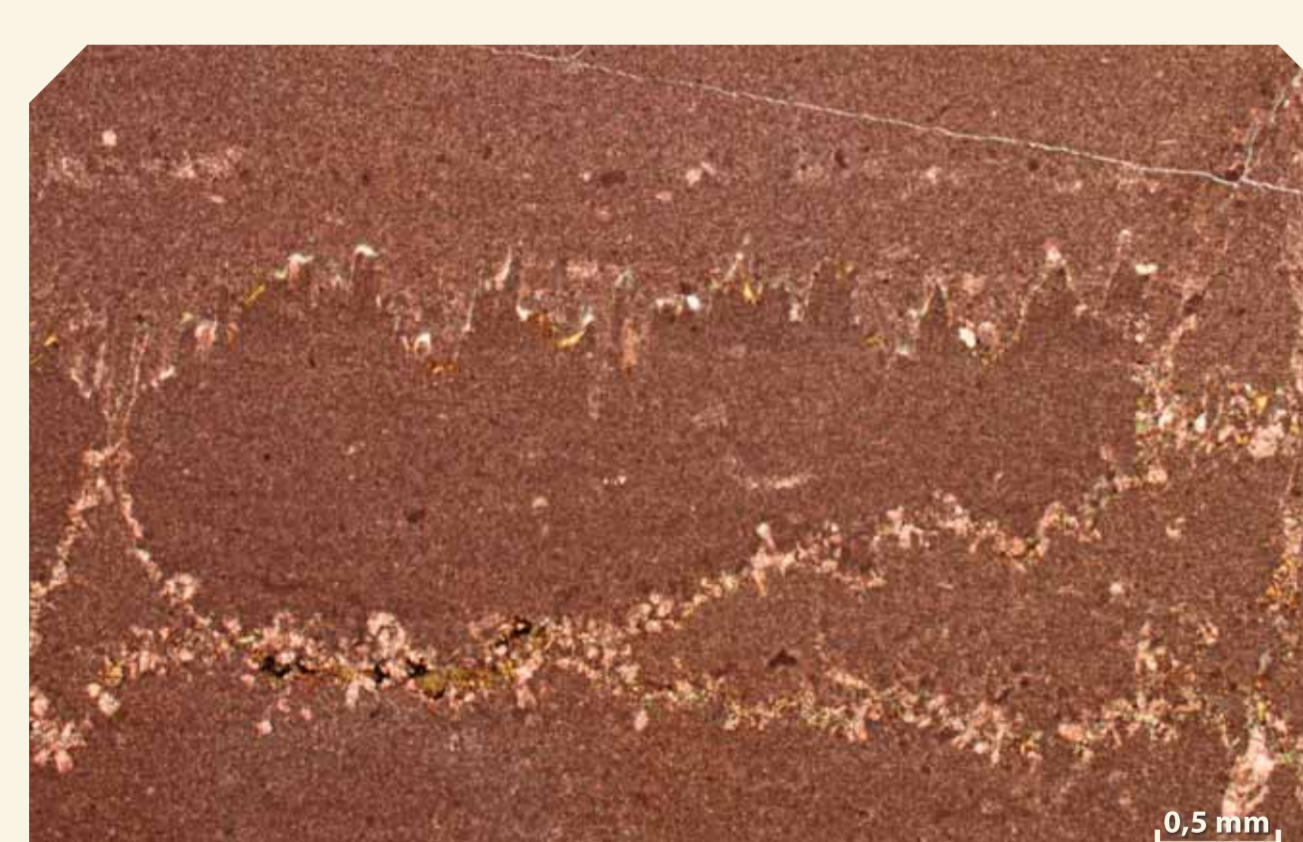
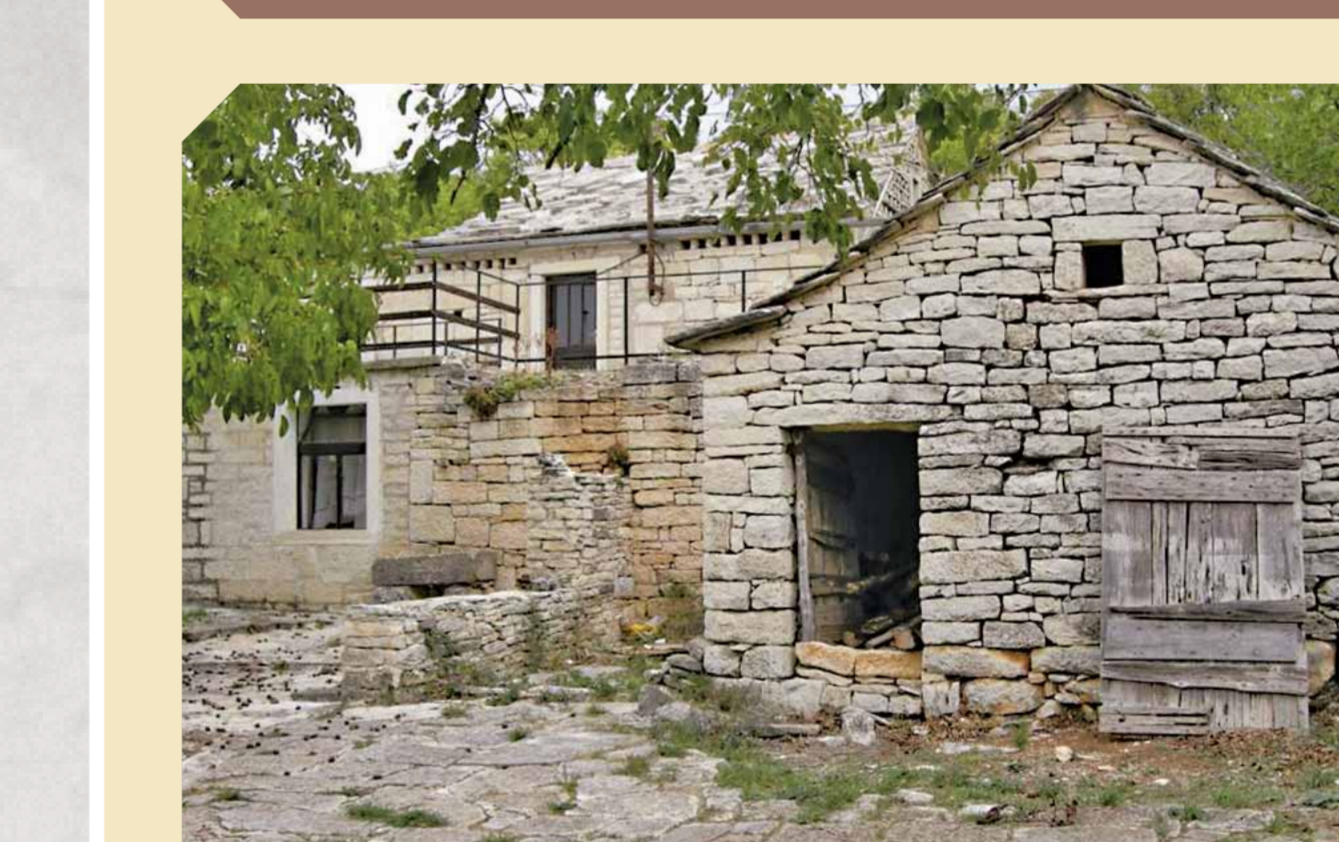
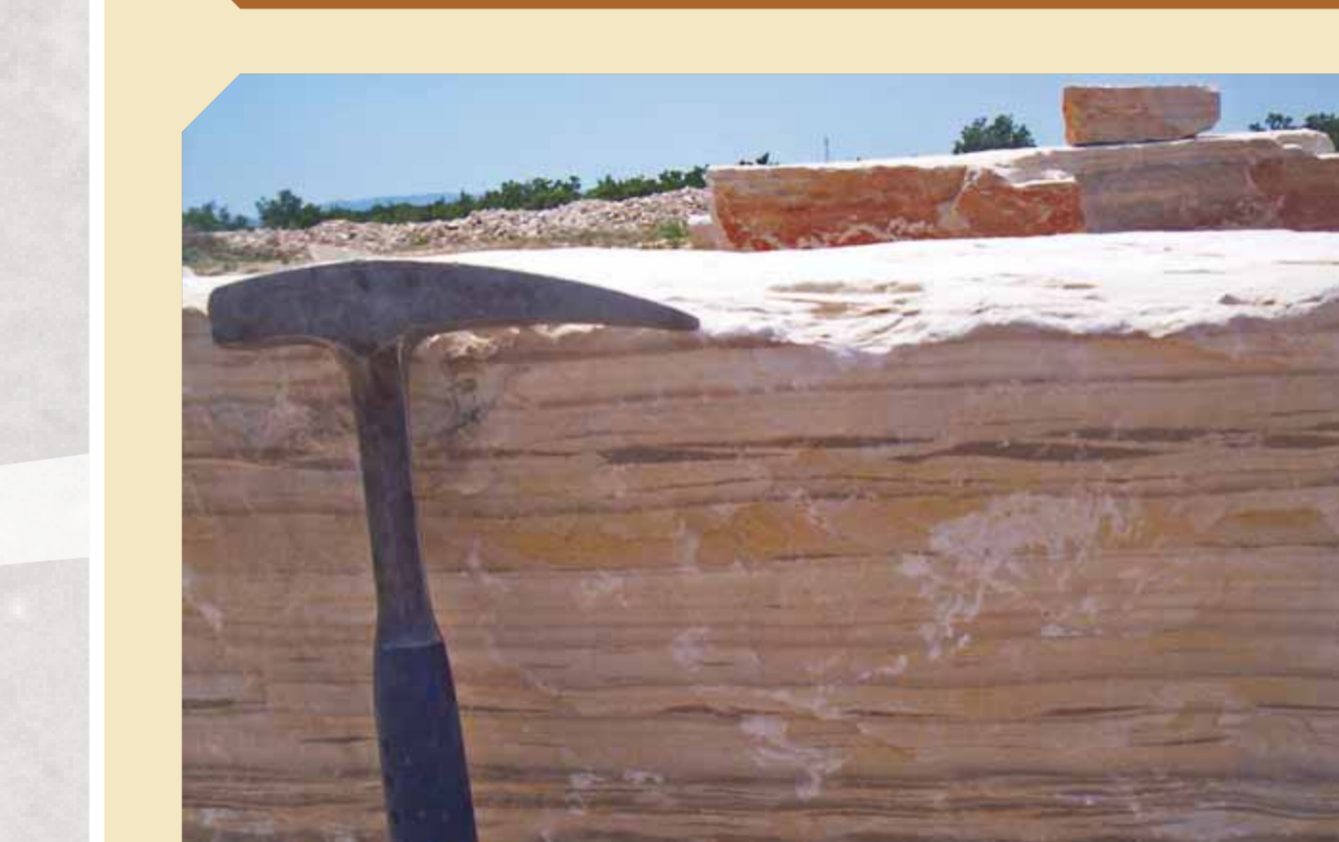
Variety: Benkovac stone / Benkovački pločasti
Age: Upper Eocene

Petrography:
Yellowish platy limestone deposited as part of Promina beds. Two different lithotypes are distinguished as tabular interlayers/laminae:
- grainy (predominantly made of carbonate grains),
- micritic (consists of thick micritic layers).

Properties:
Decorative features, durability and easy processing enable wide application e.g. as roof tiles, for horizontal and vertical application on external or internal surfaces, for wall masonry etc.

Monuments:
- many old houses and buildings in Benkovac surroundings
- parts of pedestrian zone in the Zagreb ZOO

Interesting facts:
Stone is used traditionally and nowadays is recognized as a "brand" in the stone industry.



Variety: Kirmenjak / Avorio / Pietra d'Istria / Orsera
Sub-varieties: Kirmenjak dark, Kirmenjak light
Age: Late Jurassic

Petrography:
Stylolitic limestone – dense mudstone with stylolites – micritic limestone with pronounced stylolites.

Properties:
High quality construction material due to its homogenous micritic composition and extremely low porosity. High density lime mud and closed stylolites with clayey residue accumulated within contribute to low porosity and low capillary water absorption of this stone variety.

Monuments:
- can be found in Venice (e.g. the Ducal palace and Ponte di Rialto, Ponte della Costituzione)
- Basilica in Poreč
- the Theodoric Mausoleum in Ravenna
- the bell tower in Ferrara
- the bridge in Rimini
- the basilica in Bologna

Interesting facts:
Stone with horizontally oriented stylolites have been used exclusively for basal zones of buildings, between wooden piles and brick walls, in Venice due to its low porosity and resistance to constant exposure to sea salt, tidal wetting and drying cycles.



Variety: Veselje
Sub-varieties: Unito and Fiorito
Age: Late Cretaceous

Petrography:
White rudist limestone – rudist packstone/floatstone – biomicrite/biomicrudite. Sub-variety "Unito" is a packstone/biomicrite that dominantly consists of small (1-2 mm) fragments of rudist shells homogeneously distributed in micritic matrix. Sub-variety "Fiorito" represent a floatstone/biomicrudite containing rudist size (> 2 mm) biotritus (dominantly rudists) in lime matrix.

Properties:
Favourable for indoor use. Relatively big porosity, water absorption and lesser abrasion resistance imply that this stone variety should not be used in wet areas and areas with increased traffic.

Monuments:
- Croatian Association of Artists and Croatian National Bank in Zagreb
- Diocletian Palace and Meštrović Gallery in Split
- Cathedral in Šibenik
- Budapest Parliament
- Stonemasons' school in Pučišća, etc. Front wall of our Faculty is sheathed with "Veselje unito".

Interesting facts:
This stone variety is excellent for carving. Sub-variety "Veselje unito" is often missnamed "Brač marble".



Variety: Rasotica
Age: Late Cretaceous

Petrography:
Dark brown rudist limestone – rudist boundstone/floatstone – biolithite/ biomicrudite with abundant, coarse-grained, poorly sorted rudist fragments in dark, organic-rich matrix (floatstone/biomicrudite) or large rudists in life-growing position (boundstone/biolithite).

Properties:
Stone is suitable for interior decoration. Exterior application leads to discoloration of dark matrix due to oxidation of organic component.

Monuments:
- Wall decoration in NAMA department store, Zagreb
- decoration of exterior and interior of Vatroslav Lisinski Concert Hall in Zagreb

Interesting facts:
The stone is very decorative due to "dynamic" in various sizes and crosscuts of rudist (usually light coloured) and dark matrix rich in organic component.

