range 50%. At the same time, accelerated deterioration tests under lab conditions proved that a further deterioration of this weathered and porous material gave reason for an entire decomposition of structure to irregular rubble chips.

As determined in further tests, the reason for travertine deterioration was mainly the structure weakening due to the leaching of carbonate compounds, organic fragments in particular. Located in the voids created that way, the secondary material was removed at a later time by eolian action or by infiltration. This process developed dynamically because travertine featuring a low resistance to varying temperatures in both climatic environments was exposed to temperature imact. The frost action caused a strength reduction by approx. 20% of the fresh materials, and in case of advanced weathering (HA), material is decomposed very soon. Similarly, above-zero temperatures reduced the fresh material strength by range 20% and even more than 60% for advanced weathering (HA). In those case for the weathered material integrity factor I_{Rc} = 0.12% for the weathered material. Laboratory tests of deterioration processes with application of ultrasonic methods and strength tests indicated that thermal changes were the major factor for a slow destabilisation of travertine structure in both climate zones. Sunlight operating at daytime combined with cooling down at night for surfaces of ancient structures over centuries - that was the reason for a significant loosening of inter-grain bonds and the strong eolian erosion, which was made even more serious by biological weathering, and which led to falling apart to irregular pieces due to absence of any maintenance work.

Travertine rocks feature a relatively significant resistance to salt solutions. In highly porous materials, salt can freely crystallize inside voids without any damage to the structure. This positive feature is significant, in particular under moderate climate conditions where travertine used as an elevation material is exposed to adverse winter weather factors.

K/Ar mineral geochronology of the northern part of the Sithonia Plutonic Complex (Chalkidiki, Greece) and implications for its thermal history

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The Sithonia plutonic complex (Chalkidiki, Greece) occupies the greater part of the Sithonia Peninsula intruding the Circum Rhodope Massif to the west and the Serbomacedonian Massif to the east. It comprises an Eocene pluton and so far, its origin and evolution has been studied by many researchers. The subject of the present study is the K/Ar mineral geochronology of the northern part of the pluton which consists of three main bodies, the Two-mica Granite (TMG), the Porphyry Leucogranite (PLG) and the Leucogranite (LG).

The systematic K/Ar study of the pluton along with existing Rb/Sr mica and U/Pb zircon ages are used to investigate the thermal history of the pluton and shed light on the process that affected it and resulted in discordant Rb/Sr and K/Ar mineral ages. Thirty-nine samples of muscovite biotite and K-feldspar samples were selected according to the lithological characteristics and spatial distribution. These samples yielded K/Ar ages ranging from 38 to 49 Ma for muscovites, 32 to 47 Ma for biotites and 37 to 43 Ma for K-feldspars respectively.

The K/Ar geochronological results indicate that the mineral ages of TMG and PLG are in accordance with the principles of the isotopic closure temperatures of the K/Ar isotopic system, but the geochronological results of the LG indicate disturbed behaviour.

The processing of the geochronological data with the K/Ar isochron method, in association with the Rb/Sr data, indicates that a reheating event took place and disturbed the isotopic systems of biotite and K-feldspar but did not manage to disturb the isotopic system of muscovite. Regarding the thermal evolution of the LG, it is considered that the voluminous

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pegmatite intrusions in the LG area disturbed the isotopic systems of the two minerals but the simultaneous or imminent reheating mentioned above caused the resetting of the K-feldspar isotopic system and partly the biotite isotopic system.

The reheating event, which is probably associated with a tectonic event, that disturbed the mineral isotopic systems exceeded the closure temperature of biotite for the Rb/Sr isotopic system (350 ± 50°C), but did not exceed the closure temperature of muscovite for the K/Ar isotopic system (375 ± 25°C).

The comparison of the K/Ar mineral ages of the present study, the existing Rb/Sr and U/Pb mineral ages and the closure temperatures of the different isotopic systems for the different minerals indicate a high cooling rate for the TMG of the Sithonia pluton which reaches 60 ± 12 °C per million years, received as minimum due to thermal event that caused slightly younger biotite and K-feldspar resultant ages. This is in agreement with the aspect that the extensional collapse of the Hellenides where the Sithonia pluton intrudes started during Eocene.

Upper Triassic platform, slope and basin facies of the Pilis Mountains (Transdanubian Range, Hungary)

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The Pilis Mountains is located in the NE part of the Transdanubian Range. It is a narrow fault-bounded range of NW–SE strike, 30 km NW of Budapest that consists of Triassic platform carbonates and coeval slope and basin facies. Due to the NW general dip of the succession the oldest formations crop out at the southwestern end of the range. Here the Norian Main Dolomite is overlain by bedded Dachstein Limestone of Middle to Late Norian age. Further NW, along the steep northeastern slope of the range Norian slope and basin facies are exposed (Feketehegy Formation). The slope facies are characterised by redeposited platform-derived carbonates and mollusc coquinas. Above the coquina beds of the Feketehegy Formation near-reef facies was encountered in the north-westernmost Triassic blocks of the Pilis Mountains. Based on investigation of the bio- and lithofacies, palaeographic setting and evolution of a Late Triassic intraplatform basin (Feketehegy Basin) could be outlined.

The NE part of the Transdanubian Range was relatively close to the edge of the passive margin of the Neotethys Ocean. The extensional regime due to the continuing ocean opening led to development of smaller or larger intraplatform basins in the outer platform belt during the Late Triassic. The Feketehegy Basin was one of them, which formed in the Middle to Late Norian. Low-angle slopes developed between the platform and the basin, site of deposition of large amount of platform-derived sediments. Patch reefs and ooid shoals came into being along the margin of the newly formed basin. Bivalves *Pseudomyoconcha* and *Pteria* inhabited the platform margin and the upper slope from where large amount of shells redeposited by storm currents and accumulated on the low-angle slope in the form of storm coquinas. Reworked ooids, strongly abraded bioclasts and locally reef-derived bioclasts and lithoclasts of various origins were deposited in the deeper part of the slope, above the storm wave base. Further basinward fine-grained tempestites were deposited below the storm wave base in a restricted, oxygen-depleted basin. The basin evolution came to an end probably in the latest Norian to Rhaetian when the prograding platform reoccupied the former basin.

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