



Possible causes of decay of Požáry granite on St. Wenceslaus monument in Prague, Czech Republic

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Požáry granite from Central Bohemian Pluton (Variscan part of the Bohemian Massif, Czech Republic) became one of the most widely used types of polishable igneous rocks in Bohemia (Czech Republic) about 150 years ago. It was used for numerous iconic monuments at the turn of 19th/20th c., including base of St. Wenceslaus bronze sculpture placed on St. Wenceslaus sq. in the centre of Prague. After 100 years of service, the monumental polished base shows serious signs of decay of still not fully resolved nature. The decay is manifested macroscopically by pitting and flaking of the polished surface and granular disintegration in some places, together with soiling at horizontal planes. On a microscopic scale, degradation of granite is pronounced by numerous microfractures and formation of salts rich in Cu, bound to clay mineral clusters in plagioclases. In terms of physical properties changes, the ongoing decay is marked with extreme increase in porosity from about 1.5 to more than 10 vol. % as measured by mercury intrusion porosimetry. The reasons for decay can be manifold including use of slightly unsound rock from the surficial layers of the quarry, impact from highly polluted atmosphere, attack of decay products and chemical agents used for cleaning and conservation of above-placed bronze statues, use of previous conservation treatments of the stone base, and/or other effects which need more detailed research.