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# Not all it is cracked up to be: The disparity between specifications and performance for oolitic limestones used in construction

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The built heritage of many historic cities is characterized by the use of a limited number of stone types, due to their local availability and/or an historic tradition of knowledge of their performance. The stone types used may have changed over time for several reasons, such as quarry exhaustion, loss of stone quality, the availability of new materials and changes in construction needs. The evolution of the type of stone used can lead to different performances of the stone in buildings constructed during different historic periods. In addition to this, stone replacement is a very common practice. In some cases, two stone types that are apparently similar can perform very differently, generating disparate patterns of decay in a building. This is specially noticeable in stone types that exhibit an intrinsic spatial petrological variability related to the depositional environments responsible for their formation.

This is the case of Oxford where under the label of "oolitic limestone" there is a complex, hidden history of the use of different materials, sometimes apparently similar, but with different performances in terms of durability and pattern of decay. Oolitic limestone presents significant petrological variability due to its specific deposition environment. This presentation explores the controls that petrological variability of oolitic limestones in Oxford exerts in their performance as a building material.