STONEBUILT Ireland: an inventory of stone use in the built environment

Ireland has a rich built environment that dates back to the construction of Neolithic passage tombs over 4,000 years ago. The use of stone is often indicative of the period in which it was used. Georgian Dublin, for example, is characterised by the prominent use of Leinster Granite and Portland Stone and the lesser application of Calp limestone from Co. Dublin and Scrabo sandstone from Co. Down.

Later, during the Victorian period, a more diverse suite of dimension and decorative stones can be seen in high street banks and churches, while modern buildings often incorporate a thin veneer of Irish or imported stone.

These materials contribute significantly to the distinctive identity of Irish urban landscapes.

PROJECT BACKGROUND, AIMS AND OBJECTIVES

STONEBUILT Ireland is a research collaboration between Trinity College Dublin, Geological Survey Ireland and the Office of Public Works, which aims to enhance the understanding and conservation of Ireland's architectural and geological heritage. These goals are achieved through the identification and documentation of Irish stone resources - including dimension stone, decorative stone and aggregates - and by promoting and building awareness of these resources through a publicly accessible database, hands-on displays, publications, training sessions and events.

Commencing in 2019 with funding provided by the COALESCE scheme of the Irish Research Council (now part of Research Ireland), the first phase (2019-20) saw the design of a database and the development of research protocols required to populate it. Phases two and three (2020-27), funded by Geological Survey Ireland and the Office of Public Works (OPW), are building upon and extending this foundational work.

This involves, in part, documenting the stone used in historic buildings and monuments under the care of the OPW, assisting in the identification of matching stone for conservation works where replacement material is required. The project is also investigating the status of historic quarries and the potential for their reopening where necessary to supply specific lithologies for the conservation and restoration of properties, as demonstrated by the OPW extraction of Edenderry oolitic limestone for works at Castletown House approximately 20 years ago. The sourcing of correct materials maintains the durability, authenticity and character of our towns and villages. The decline of local stone quarrying, as well as lack of information and awareness within rural communities, has led to significant degradation of fabric.

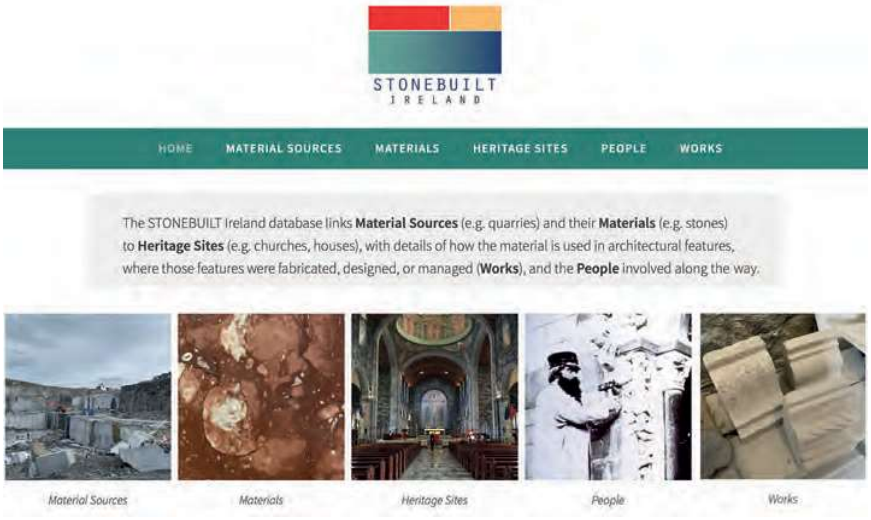


Figure 1. Home page of the STONEBUILT Ireland website.

The comprehensive geological data suite (https://dcenr.maps.arcgis.com) maintained by Geological Survey Ireland is being enhanced through the addition of documentation on historic quarries and, where appropriate, the augmentation of Geological County Heritage Site information. The project also supports the implementation of EU climate action plans on raw materials facilitated by Geological Survey Ireland. Data on Irish natural stone – its provenance, utilisation and sustainability performance – is essential to understand its role in meeting national climate targets, to provide baseline datasets for policymakers and to secure sustainable domestic supply chains.

In revealing the hidden journey of stone from quarry to building, the wider communities involved in the 'making' of buildings are recognised. The well documented history of architectural design and patronage can be balanced, and built upon, by alternative chronicles of materials, workmanship and craftsmanship. STONEBUILT Ireland is recognising the stone prospectors, the quarry owners and the various categories of stone workers and bringing their



Figure 2. Specimen of Barnesmore Gap granite, Co. Donegal, in the Trinity College Dublin Geological Museum.

identities to wider notice. By diversifying the narratives surrounding buildings, this project invites new ways for people to identify with their heritage. Stone has a visceral quality to which people – of any background – can respond, and stories of stone anchor structures in the surrounding geological landscape.

DATABASE

The project's primary means of dissemination is the relational database, which links historical building and decorative stones to their source quarries, the stone-works where they were fabricated, the buildings and monuments in which they were used, and the people involved. The database is accessible through the project website (www.stonebuiltireland.com), where users can explore these connections through maps, linked records, and flexible search and filtering tools. The STONEBUILT Ireland database complements databases already established in Northern Ireland, England and Scotland.

For inclusion in the database, buildings and monuments are selected to represent the country-wide utilisation of diverse stone lithologies. Research into the stone types and their quarrying and fabrication history is undertaken in a stepwise manner. First, Geological Survey and Ordnance Survey Ireland maps, together with archival sources such as building journals, quantity surveying papers, historical newspapers, Geological Survey Ireland memoirs, Board of Works records and so on, are interrogated. Published volumes, including architect George Wilkinson's Practical Geology and Ancient Architecture of Ireland (1845) and geologist George Henry Kinahan's Economic Geology of Ireland (1889), are also valuable as they provide geological autopsies of contemporary and historical buildings, document the distribution of quarries in Ireland and record the physical properties of many stone types that had been tested. Following desk-based research, built structures are surveyed directly to record the stone types used and the finishes applied to them. Where feasible, quarry sites are also visited and documented, and samples are retrieved where possible.



Figure 3. Castletown House, Celbridge, Co. Kildare showing Edenderry Oolite on upper front façade and Calp Limestone at front basement and side elevation.

OTHER OUTPUTS

Public engagement on the use of stone is an important aspect of the project, supported through engagement with media outlets, academic conferences and industry events that broaden outreach and foster knowledge exchange across heritage, architectural, extractive and stone working sectors.

Three large display stands were constructed to exhibit specimens reflecting the wide range and diversity of Ireland's building and decorative stones. Many of these were generously provided by quarry owners across the country. The stands are currently located at the Connemara National Park Visitor Centre, OPW headquarters and the Museum Building at Trinity College Dublin. Designed to be portable, they will in time be relocated in other sites, where local stone types will be highlighted.

Recently, STONEBUILT Ireland published the book The Decorative and Building Stones of Dublin: a walking guide that documents over 170 stone types encountered on 10 walks through the city. The publication also forms the basis for regular guided walks delivered by the team.

The project has been central in the recent designation of Connemara Marble and Valentia Slate as International Union of Geological Sciences (IUGS) Heritage Stones, currently two of only 55 such designated globally (https://iugs-geoheritage.org), and it hosted the 4th International Heritage Stone Workshop of IUGS in Dublin in 2025. This research has also fed into the EuroLithos database (www.eurolithos.org) of European dimension and decorative stone. These two initiatives have broadened appreciation of the diversity and richness of Ireland's dimension and decorative stones.

A citizen science element recording the use of stone in walls has been launched. This is based on the innovative scheme developed by the late Eric Robinson in England, and it is hoped that stone used in walls will be identified and the information submitted to the STONEBUILT Ireland team. The construction of stone walls across the country exhibits great regional variety: the Carlow Fence is a unique boundary of long scantlings of granite whereas the limestone dry stone walls of the Burren are constructed to allow wind to pass through but livestock not.

CONCLUSION

STONEBUILT Ireland is enhancing understanding of Ireland's stone-built heritage through the documentation of historic stone use, quarrying traditions, material provenance, and the development of a national stone database. Combining research, public engagement, and cross-sector collaboration, the project supports conservation, promotes the sustainable use of Irish natural stone, and contributes valuable resources for heritage and climate action initiatives.

STONEBUILT IRELAND

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