Mould Store: Exploring the Preservation of the former Spode Factory’s Post-Industrial Heritage through Digital Technologies

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Ruins of an Ancient Temple near Corinth
© Victoria and Albert Museum
Pattern number 1979, c.1814
Spode Museum Trust

Pattern number 2573, c.1817
Spode Museum Trust

Copeland and Garrett period Pattern Numbers 6057, 6058 and 6059, c.1834
Spode Museum Trust
Sprig moulds
Spode Museum
Trust
Stoke-on-Trent
Mould stores, Spode Works
Stoke-on-Trent
Digital surrogate: a possible solution?

- Documents and preserves vital information for the future.
- Allows for wider access and (re)use of digital content.
Challenges

• Huge number of moulds.
• Choices as to how comprehensive the digital surrogate needs to be.
• IPR of the moulds.
Feasibility study

Access to a core sample of moulds selected for retention.
Aim was to determine the most appropriate tools and workflow for digitisation to minimise cost and time.
4 days of digitisation July 2018.
Equipment

• 3D scanners
• Canon 5D digital camera for photogrammetry
• Other included: generator, laptops, turntables and lights.
Workflow

1. Selection of mould from shelf
2. Separating mould in individual pieces
3. Photography of the piece within the context of its mould.
4. Digitisation of the piece
5. Documenting each piece along with basic metadata.
Moulds selection

Moulds in shelves were visually inspected before being selected.
3D scanning
Digital photography

• All pieces were photographed:
  • Individually for photogrammetry
  • Within their mould context
• Visual documentation was important for the later post-processing of the data.
Digital outcomes

• ~18 hours of digitisation
• 25 digital mould pieces
• 8 moulds
• Photogrammetry was faster on site than 3D scanning, but required more time of post-processing.
Digital models

Example of 3D model of mould acquired using photogrammetry

Examples of 3D models of mould acquired using 3D scanning
Reconstruction of shapes

• Digital and physical
• 3D shape of the ceramic artefact can be created when enough information is available.
Ongoing experimentation

- Desktop stereolithography using FormLab2.
- Process based on binding molecules of resin by light.
- Ceramic resin material.
- Workflow involves printing, cleaning and firing in a kiln.
Cleaning 3D print

Print is washed in isopropyl alcohol

Support material is removed
Firing

3D printed shape at the kiln, University of Brighton
Initial fired objects

- Complexity of the process and material is high.
- More experiments on firing timings are required.
Further work

• Prioritisation of moulds to focus further effort.

• Exploration of re-use of digital surrogates. Currently exploring the British Ceramics Biennial.
Acknowledgments