

Case study for Heritage Counts 2015

Theme demonstrated by case study:	Supply of stone roof slates
Name of project/group:	Reroofing of Apethorpe Palace and other projects
Location:	North Northamptonshire and surrounding area
Duration (if applicable):	2013 onwards

Short description of project:

Collyweston slates, originally from a distinctive limestone deposit in the parish of that name, were traditionally used to roof buildings in north Northamptonshire and neighbouring counties. Production traditionally involved exposing the stone 'log' to winter frosts so that it could be 'clived' by hand into slates. Production peaked in the late 1800s, but stopped altogether in the 1970s, when it became commercially unviable, and cheaper, albeit less sympathetic, materials became available. Now efforts over many years to rejuvenate production are at last bearing fruit.

In the late 1990s, English Heritage (now Historic England) teamed up with the Burghley Estate in Lincolnshire and Sheffield Hallam University to develop an artificial system to reproduce the frosting necessary for production of the slates.

In 2012, when new slates were needed to reroof parts of Apethorpe Palace, further testing was commissioned by English Heritage to refine the artificial frosting method and slates have been produced. Other buildings have also now benefitted. As a result of this synchronised revival of supply and demand, it is hoped that a new market has been kick-started for this distinctive local material.



New Collyweston slates awaiting laying at Apethorpe Palace (Nick Hill, Historic England).

What would have happened without this project/group?

The chronic lack of a supply of new slates has had a number of knock-on effects, which together made the prospects for Collyweston-roofed buildings look bleak.

Those owners who wished to use genuine Collywestons to repair their roof had little alternative but to use slates reclaimed from other historic buildings. This was hardly a sustainable supply: every replacement slate had to be taken off a historic roof elsewhere. Reclaimed slates became so lucrative that many farmers and others were paid by contractors to strip Collyweston roofs and replace them with corrugated iron, modern tiles, or artificial products or imported materials, which are out of character. Local authorities have taken enforcement action to prevent Collyweston roofs being lost, and some roofs have been stolen.

There was also a growing risk that the craft skills and know-how required to split, prepare and lay Collyweston slates would be lost.

Hopes of priming a new supply faced one further hurdle. Production of slates by the traditional method of frosting out in the fields relied on the vagaries of local weather conditions. It is now virtually impossible to guarantee supply of slates within a reasonable period by this method, especially given the mild winters of recent years.

How did the project achieve its objectives?

In 2011, English Heritage completed its survey of the stone buildings and quarries in Northamptonshire, as part of its Strategic Stone study. The results were published on the BGS UK Minerals website and the work included a County Atlas which identified a deposit of 'log' (the distinctive limestone deposit which yields Collyweston slates) at nearby Duddington.

Traditionally, when both demand and supply were steady, log was watered and exposed to frost for one or two winters to enable them to split naturally. The stones were then clived (split by hand tools into smaller pieces), dressed to shape and size, parted (drilled for fixing and sorted by size) and then supplied for roofing buildings in the area. This production line served the local population well until the 20th century.

When new slate was needed to re-roof Apethorpe Hall (now Palace) in 2012, the opportunity presented itself to put the protocols developed at Sheffield Hallam University into practice. Historic England paid for further tests to be carried out at Apethorpe, hiring a large freezer unit and adapting it to produce a consistent freeze-thaw cycle that successfully split the stone. David Jefferson and the university guided and oversaw the testing which was carried out by Messengers Construction, who were the on-site contractors at Apethorpe. Various freeze-thaw cycles were trialled, and it took two years to finally develop the method. During this time Historic England also commissioned David Ellis (a local slater with

over 50 years experience) to show the contractors traditional methods of cliving and dressing Collyweston slates.

What difference has it made? Main outcomes and outputs.

As a result, 96 square metres at Apethorpe Palace have been successfully reroofed, and the new slates are performing well.

Apethorpe was not the only site where the new technique has been successfully deployed. The Churches Conservation Trust have re-roofed part of Ufford Church, Cambridgeshire with the new slates. Wycombe District Council turned to Messenger for Collyweston slates for a successful repair scheme to the former Town Hall at High Wycombe, requiring 135 square metres of new slate.



Left - St Andrew's Church, Ufford, near Stamford, during re-roofing.

(Photo: Churches' Conservation Trust). Right - Former Town Hall, High Wycombe (Photo: Oxley Conservation).

The re-roofing at Apethorpe provided the stimulus for the trial of the new freeze-thaw process, and enabled it to be perfected. Demand from the subsequent projects at High Wycombe's former Town Hall and Ufford Church have further helped to refine the technique and prime the pump of new supply.

What is the future for the case study?

Protocols for the freeze-thaw technique pioneered by Sheffield Hallam University are to be publicly documented, so that others can replicate it. However, the greatest challenge for the future is maintaining a sustainable equation of supply and demand.

The signs for supply are promising. So far, it has been dependent on locating suitable stone in an existing roadstone quarry. Supplies will be more secure if a dedicated new Collyweston mine or stone-pit can be opened up. There have been positive signs: the existing quarry is due to be extended, and a planning application has now been approved to mine log from a second source in Collyweston.

A challenge still remains to promote demand among owners for the new slates. The main projects so far have been publicly-funded, but for a healthy cycle of production to be sustained more orders are required from private owners. Local authorities can help by advising householders on sourcing new slates for works to buildings roofed in Collyweston stone. Production costs of new slates are becoming competitive with second-hand slates, particularly as the supply of reclaimed slates decreases.

Architects and roofing contractors will readily admit to being sceptical of new building technologies and reluctance to be an 'early adopter'. It will take time for the 'new' Collyweston slates to win the confidence of owners and architects. This is perhaps ironic for a traditional material, and illustrates another dimension of the challenges which grow when the supply of a traditional product dries up.

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