

# REFURBISHMENT CASE STUDY 32

## CRUCK COTTAGE TORTHORWALD

THATCH AND CLAY REPAIRS  
TO A TRADITIONAL COTTAGE



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HISTORIC ENVIRONMENT SCOTLAND REFURBISHMENT CASE STUDY 32

# CRUCK COTTAGE, TORTHORWALD

## THATCH AND CLAY REPAIRS TO A TRADITIONAL COTTAGE

STEPHANIE WEINRAUB

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## I. INTRODUCTION

This Refurbishment Case Study describes work to a small vernacular building in Torthorwald, Dumfries and Galloway. The Torthorwald Cruck Cottage is Category A-listed and currently in the possession of Solway Heritage. It is managed by a community association who have restored it as a museum of traditional life. The most recent repairs were carried out in 2017, including a new limewash and renewal of the thatched roof. Regrettably, in January 2018, an incident of arson damaged the west gable, necessitating further repairs to the roof and clay chimney. This Case Study explains the factors involved in both sets of work, with a focus on the rethatching materials and process.

## 2. LOCATION AND HISTORY OF THE BUILDING

Geographically, the cottage sits on a raised ridge along the road which runs northward out of the village of Torthorwald (Figure 1), overlooking the Lochar Moss to the west. As with any vernacular building, the form and materials of the cottage derive from its surrounding geography. The vast expanse of the Lochar Moss would have provided much of the building material, such as the turves, clay, and structural crucks, which traditional practice often sourced from the peat.<sup>1</sup> The local thatching style uses scobs (slim hazel rods twisted and used to fix the thatch into the turf underlay) and horizontally-laid ropes secured to fastening hooks on the gables.

The building is the last remaining cruck frame cottage in a village where these houses were once common. Maps and photographs of nearby villages, such as Mouswald and Bankhead, indicate a traditional settlement pattern with thatched roofs and hanging lums predominant.<sup>2</sup> The cottage's significance became increasingly recognised during the mid-20th century, following the demolition of nearby Paton Cottage which left it the only thatched building in the region.<sup>3</sup>

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<sup>1</sup> John Sinclair, *The Statistical Account of Scotland, Vol. II.* (Edinburgh: William Creech, 1792), 3.

<sup>2</sup> Michael Leybourne, Solway Heritage, pers. comm., 23 May 2018.

<sup>3</sup> Society for the Protection of Ancient Buildings (SPAB) Scotland, *A Survey of Thatched Buildings in Scotland* (Historic Environment Scotland: 2016), 93-96.



Figure 1. Location of Cruck Cottage within the village of Torthorwald. Ordnance Survey sheet from 1861. Image source: National Library of Scotland, 'Dumfriesshire, Sheet L (includes: Dalton; Lochmaben; Mouswald; Tinwald; Torthorwald)'. <https://maps.nls.uk/view/74426681>

### 3. OWNERSHIP AND CURRENT STATUS

The cruck cottage was occupied until the mid-20th century, and has been maintained as a museum and educational centre since 1993. The cottage is owned by Solway Heritage, and cared for by the Cruck Cottage Heritage Association, a community group formed in 2003. The group carries out day-to-day upkeep, arranges public access to the building, organises events, fundraises, and maintains a website and Flickr page about the cottage. Although the rethatch and chimney repair were carried out by professional craftsmen, the Cruck Cottage Heritage Association engage with the community in the upkeep of the cottage including tasks such as limewashing and basic roof maintenance.

#### 4. PREVIOUS RESTORATION WORK

The Cruck Cottage was first restored through a community effort in 1963, and no evidence exists of its pre-restoration state. A survey by the Royal Commission on Ancient and Historical Monuments (now Historic Environment Scotland) in 1971 generated its earliest detailed plan and section of what must presumably be the original (or mostly original) cruck framing (Figure 2). The thatched roof would at that point have been less than a decade old, dating from the 1960s restoration.<sup>4</sup> It is not known on what evidence the 1960s thatching was based, but it was carried out by Jimmy Robison, whose family were builders local to the area.

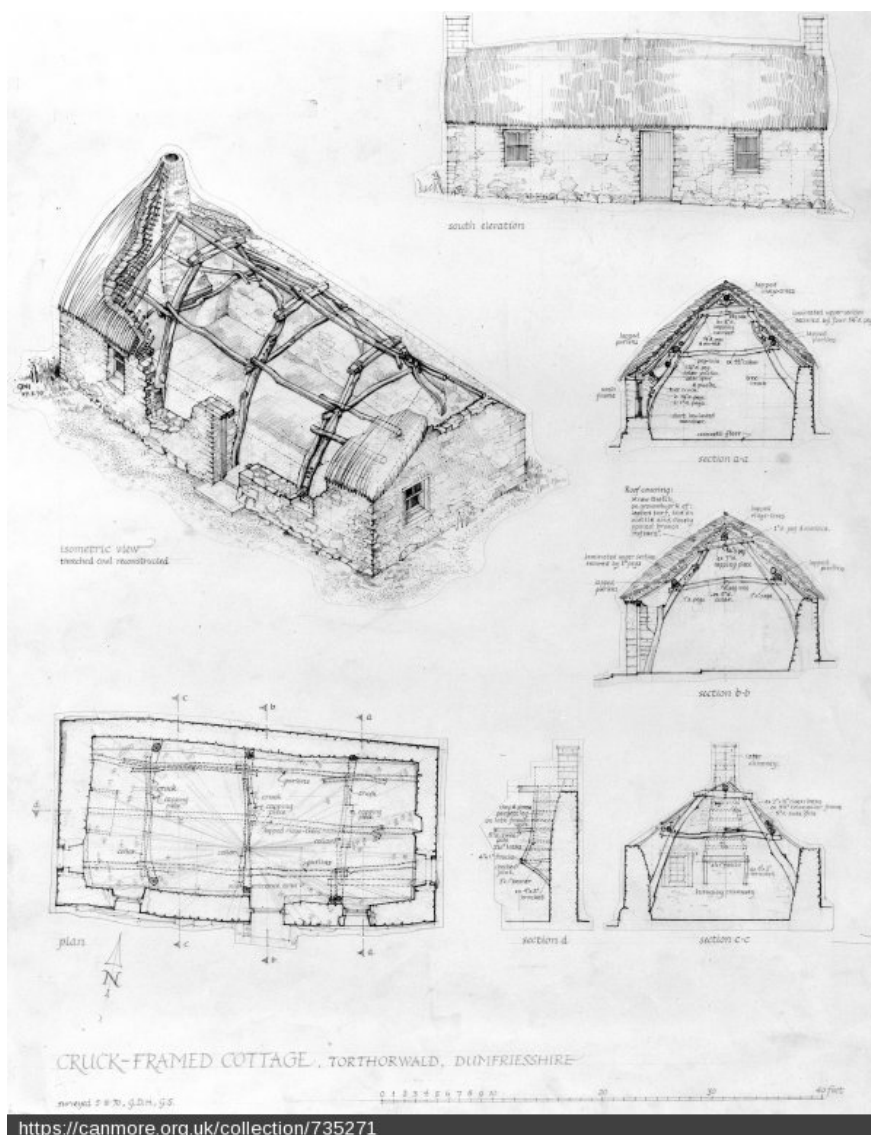


Figure 2. 1971 RCAHMS survey drawings.

<sup>4</sup> 'Torthorwald, Cruck-framed Cottage,' Canmore, <https://canmore.org.uk/site/74206/torthorwald-cruck-framed-cottage>.



By 1970 the cottage had been bought by the Greiner family, who lived there until 1976, making some changes to the house (such as the addition of a second door), and maintaining and improving the timber framing. A subsequent owner, Ian Mills, gifted the cottage to Solway Heritage in 1990, for restoration into a museum. Judging by photographic evidence, this restoration removed the masonry chimney on the east gable, while heightening the clay chimney on the west gable. The rethatching (by Jeremy Cox of Castle Douglas) changed the form and fixings of the roof to a tidier wheat straw over turf, with concealed fixings and a continuous ridge overlaid with evenly spaced horizontal ropes (Figure 3).



Figure 3. Photograph on the completion of the 1963 restoration (Image courtesy of Dumfries Museum).

Since 1990, Solway Heritage's guardianship has ensured regular maintenance of the building, including rethatching approximately every ten years. The form and detailing of the roof changed periodically as a result of this upkeep.

## 5. 2017 PROGRAMME OF WORKS

In 2017 an extensive refurbishment was undertaken which involved complete rethatching, as well as various internal and external repairs. This work was well documented through photographs, articles, and documentary videos by the Cruck Cottage Heritage Association (Figure 4). The work was supported by the South West Environmental Trust, Solway Heritage and Historic Environment Scotland (HES).



Figure 4. Appearance of the cottage following refurbishment in 2017. Image courtesy Cruck Cottage Heritage Association.

### 5.1 Consents

The Cruck Cottage is a Category 'A' listed building, but as rethatching and subsequent repairs were on a like-for-like basis in terms of style, method and materials, the local authority advised that Listed Building Consent was not required in this case.

### 5.2 Materials

Previous known phases, along with historic and anecdotal evidence, indicated that the thatching material was straw, although the particular varieties used have differed over successive thatching schemes. The *Old and New Statistical Accounts* for Torthorwald, and the surrounding parishes from the 18th and 19th centuries, list the primary cereal crops as



oat and barley, suggesting that oat and/or barley straw would have been the most likely thatching material.<sup>5</sup>

Straw grown today, of any variety, is generally unusable for thatching because modern fertilisers make the fibres brittle, and because the straw has been developed to produce shorter stalks and bulkier heads in order to reduce wind damage to crops and increase yield. Modern mechanised harvesting techniques break up long stalks, making them unsuitable for thatching.<sup>6</sup> Consequently, there was no appropriate source of local straw for thatching. Instead, wheat 'long straw' was sourced from Huddersfield where it is grown as a historically sympathetic substitute, mostly to supply the thatching trade in Northern England.

### 5.3 The rethatching works

The rethatching began in the summer of 2017 under the supervision of thatcher Jonathan Botterell. Photographs indicate that the roof covering, most of which dated from 2004, was somewhat decayed and supporting moss growth (Figure 5). Rather than stripping the roof completely, the thatcher cleaned off the plant growth and the outermost decayed layer, and applied a new layer of straw thatch on top of the old one.



Figure 5. Cruck Cottage in 2017 prior to rethatching. The moderate decay of the thatch was likely being exacerbated by vegetation growth. Image courtesy Cruck Cottage Heritage Association.

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<sup>5</sup> John Sinclair, *The Statistical Account of Scotland, Vol. II.* (Edinburgh: William Creech, 1792), 4.

<sup>6</sup> Alex Gibbons, *Stick in the Mud Conservation*, pers. comm., 22 October 2018.

In 2004 a thatching repair had altered the detailing of the roof slightly, adding a raised heather ridge and a chimney wrapped in heather thatch. The 2017 rethatch returned the roof to its previously restored state, of evenly-trimmed wheat straw with a continuous ridge and hidden fixings, fastened down externally by ropes. The rethatching process was well documented by the Heritage Association, who shared photographs, videos, and insights throughout the process via social media.

Straw was delivered to site in bales already arranged longways, with the heads of corn along the same side. Having them pre-arranged in this way saves labour since thatching practice generally places either the stems or heads out, depending on the thatcher's preference. However, a great deal of preparatory work was still necessary in 'yealming' the straw, a vernacular term for arranging it into small bundles (Figure 6). Each of these bundles was laid out on the ground before being passed up to the roof, arranged and 'combed' by hand either by the thatcher or his apprentices. Combing not only tidies the appearance of the straw, but compacts the bundle by removing the more irregular and straggly strands. These strands can be discarded or placed where the thatcher thinks best.



Figure 6. Yealming the straw - arranging it into bundles on the ground before combing it by hand. Image courtesy Cruck Cottage Heritage Association.

While the straw was being prepared, hazel rods were placed in a tub of water in order to saturate and soften them. These were then split and twisted by hand into scobs.

Thatch was laid on the roof in horizontal courses, and fixed down using sways made of straw and hazel. The sways were made by taking a small



segment of the thatching bundle, folding and twisting it over the previously laid bundle, then stapling this 'stitch' with a hazel scob (Figure 7). The work moved in courses from the bottom to the top, so that each course of thatch concealed the fixings, giving the characteristic uniform appearance. This method means that the topmost course has its fixings exposed, which perhaps explains the decorative designs incorporated into the ridge detail in some regional traditions.



Figure 7. Fixing hazel scobs over sways formed from the thatching straw.

The treatment for the ridge differed slightly from the lower courses, and consisted of a single course of thatch dressed over the top, spanning it evenly. This gave the ridge a shallow pitch. To counteract this and help the roof shed water properly, the thatcher accentuated the pitch by using a row of straw bundles or 'dollies' laid along the ridge beneath the crowning course of straw (Figure 8).





Figure 8. Long straw 'dollies' were added underneath the thatch at the ridge to raise the apex.

After the thatch was laid, it was combed with a thatch comb and trimmed to leave a tidy appearance. In keeping with details from the 1990s rethatch, the eaves were given a long overhang slightly profiled above the windows and doors to cast water away from the building. The eaves detailing was replicated to match what already existed, namely a rolled overhang at the gables, which was tied down with ropes fastened into hooks embedded in the masonry (Figure 9).





Figure 9. The east gable following the 2017 rethatch, showing the rolled overhang and rope fasteners. The 'eyebrow' profile over the back door is also visible. Image courtesy Cruck Cottage Heritage Association.

## 6. FIRE RAISING INCIDENT AND REPAIRS

### 6.1 The fire

In the early morning of 9 January 2018, only a few months after the 2017 refurbishment and rethatching had been completed, an act of arson set fire to the cottage roof. Fortunately, an easterly wind prevented the fire from progressing quickly, and only a two metre wide section of the western portion of the thatch was damaged (Figure 10). The turves (turf slabs laid under the thatch) provided a firebreak which slowed the progress of the fire and kept the interior, including all cruck timber and cabers, undamaged. The clay chimney also required repair due to the fire and water damage.



Figure 10. The damage from the 2018 fire. A great deal of thatch was rendered unusable and the wooden framework of the chimney was compromised, but the roof frame and historic crucks were essentially undamaged. Image courtesy Cruck Cottage Heritage Association.

## 6.2 Fire aftercare

Repair work began four months later in April 2018, during which time the damaged portion of the roof was covered with a tarpaulin to keep the interior of the house dry. However, doors and windows were kept open through the winter whenever possible to allow adequate ventilation of the damp caused by the firefighting measures.

## 6.3 Clay chimney repair

Before the roof could be rethatched, it was necessary to repair the lath-and-clay chimney. This was undertaken by Alex Gibbons, a Solway-based craftsman experienced in traditional earth construction.

The fireplace and chimney at Cruck Cottage are a typical example of what is known as a 'hanging lum' or 'hingin' lum.' This type of chimney hangs off the gable wall and projects into the interior space, rather than having the flue integrated within the masonry. It consists of a framework of wooden laths (in the case of Cruck Cottage, riven oak) plastered over with clay and lime, which insulates the timber skeleton from fire. Externally, the chimney is set in from the gable end along the ridge, and projects upward in a



roughly square column between one and two metres from the apex or ridgepole.

At Cruck Cottage, the fire had penetrated the protective clay, damaging the timber frame enough to render it unstable and unable to take a clay repair. To address this issue, work began by consolidating and rebuilding the timber frame according to its pre-fire shape, which was still evident. When the frame was stable, it was coated inside and out with the fire-resistant clay mix, consisting of clay, chopped straw, and quicklime, which was then smoothed and coated in limewash (Figure 11). The clay was sourced and dug as near to the site as possible, producing a material that was both practical to work with and authentic. It was mixed by foot with chopped straw, which acts as a matrix helping to bind the clay together, and a small addition of quicklime, which helps stabilise the earth and improves moisture resistance.



Figure 11. Clay daubing being laid over the repaired timber frame. Image courtesy Cruck Cottage Heritage Association.

### 6.3 Thatch repairs

The 2017 thatching and 2018 post-fire rethatch differed somewhat in their processes and techniques. In 2017 the topmost, decayed layer of thatch was stripped off and a new layer added on top. At no point during this process was the cottage roofless to the elements. The underlying layers, including the turf underlay (laid down in 1993) became a matrix into which the new layer could be thatched. The 2018 fire, however, compromised all the layers on the west end of the building, and even those that weren't compromised were hastily stripped off in the firefighting efforts. Therefore,

the thatch repairs needed to start from scratch before being knitted into the undamaged section. The process for thatching from scratch on a bare roof differs somewhat from top dressing, so although done within a year, by the same craftsman and using the same materials, the nature of the jobs was not identical.



Figure 12. New turves laid out to dry. Each turf was approximately 10cm thick and 25cm roughly square. In the background, thatching straw is kept dry under a tarpaulin.

After the chimney was repaired, the same thatcher finished repairing the thatch. The thatching began from scratch by layering turves over the roof cabers. Cut turves were set out in the work yard to dry (Figure 12). For the 2018 repair, heather turves were cut from nearby Lochar Moss, which is rich in peat and the probable local historical source for any building turf.

A thin scattering of random straw was spread over the turf layer beginning at the bottom, and thatching began in courses moving upward (Figure 13). Because it was necessary to bulk up the thickness of the new thatch in order to bring it in line with the existing roof – roughly three layers thick – the thatcher laid each course twice, one on top of the other. For the first course, 50cm steel rod sways were used, and were tied to the cabers with wire threaded through the turves. This was because the turf underlay alone was not thick enough to take hazel scobs, and because the location of the hanging lum left an unusually large gap to be spanned, for which the steel rods were well suited. The second layer of each course was fixed with hazel



scobs and straw sways, as previously. After everything was laid, it was combed and trimmed and the skews rolled under to match the existing thatch.



Figure 13. Layers of the 2018 thatch repair. Turves have been laid like tiles, and the bottom row of thatch bundles has been fixed down with steel rod sways, stitched through the underlay with wire. Image courtesy Cruck Cottage Heritage Association.

## 7. CONCLUSION

The Cruck Cottage in Torthorwald is one of the few surviving examples of a building type that would once have been common in rural Scotland. Following its initial restoration in 1963 and a languishing period until the 1990s, its upkeep by Solway Heritage and the Cruck Cottage Heritage Association has been diligent. Regular rethatching schemes have not only kept the building in good repair, but have also fostered continuity in its thatching tradition, as subsequent schemes faithfully mimic or replicate what was done before, with successive work often being carried out by the same craftspeople.

A regrettable incident that had the potential to destroy the remaining historic fabric of the Cruck Cottage, particularly the timber crucks, the fire raising episode actually spurred a regeneration of interest in the building. While the cottage is diligently cared for by a group of dedicated volunteers, the audacity of the malicious fire raising in the middle of the village, and on a building so very recently restored, generated an outcry and publicity for the museum. A reopening event was held in July 2018 which celebrated the history and culture of the region.

## 8. FURTHER READING

INFORM: Thatched Roofs, Historic Environment Scotland

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