



ST ODULPH'S CHURCH, CORNWALL: STRUCK BY LIGHTNING



INTRODUCTION

In the hour before midnight on Monday January 21, 2013, the tower of St Odulph's Church in the village of Pillaton in Cornwall, was struck by lightning during a violent snow-storm. The blast caused devastating damage; the north-east tower pinnacle was completely destroyed, blocks of stone smashed through the church roof. Five-inch deep oak rafters had been snapped in half by falling masonry and had been left hanging down from the trusses above.

The south porch door had to be forced open after being wedged shut by a huge block of fallen stone. When the tower was accessed, it was realised that not only had the stones fallen through the centre of the roof, but that they had also been scattered 360 degrees from the tower and propelled around 100 feet into the surrounding northern graveyard. Some smaller fragments had landed on the neighbouring pub, completely destroying a

bench at one of the tables outside and causing minor damage to the roof. When one man attempted to pick up what he thought was a small stone by the hedge, he found that only the small tip could be seen of what was a much larger stone; it required four men to extract it from where the force of its landing had embedded it into the soil.

Expert advice from English Heritage has suggested that the tower may have been struck by a rare form of ball lightning. The lightning could have been attracted to the stonework by the historic brass fittings pinning the masonry together. The lightning superheated moisture within the lime pointing of the granite and immediately turned this moisture to steam, and it is thought that the sudden appearance of high-temperature water-vapour blew the stone apart in a steam-propelled explosion.

Le Page Architects have kept a journal of the restoration process.

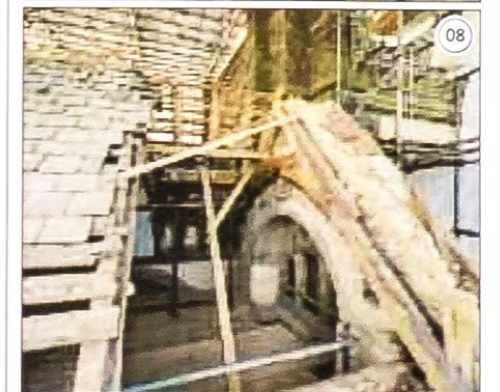
January 2013

- Le Page Architects and the churchwardens of St Odulph's assess the damage and begin the initial investigation. Site meetings take place involving English Heritage, the Archdeacon and local conservation officers. Two days after the strike the Bishop of Truro visits. >



PROJECT

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- Full extent of the damage now realised; shattered Medieval oak rafters, damage to tracery windows and interior plasterwork. One window head requires immediate propping to arrest any potential collapse.
- Emergency stabilisation work begins, with the approval of Truro DAC and the Archdeacon.

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- A.D. Williams, Health & Safety Associates and Westcountry Stonemasons are appointed by loss adjusters Quadra, and advise on damage to the masonry. The first of the on-site scaffolding is erected by Neil Stoneman scaffolding. Site meetings take place to discuss protection, repair, construction design and project management.

February 2013 (images 01, 02 & 03)

- Full survey of the tower roof and oak structures undertaken by Le Page Architects, and a measured survey undertaken by Preston Engineering.
- Erection of internal and external scaffolding continues, including crash-deck scaffolding to protect the bells and bell frame. Heavy masonry lying on the broken tower roof structure directly above the bells makes this a priority.

- Loose Medieval roof components recovered, recorded and taken down to a protected area within the church for safekeeping.

March 2013

- Site scaffolding completed – external and internal.
- After discounting other options (including cranes and helicopters) steel beams, together with specialist heavy joist and hoisting kit, arrive on-site and enable the complete removal of fallen stones from the tower and nave roof and interior.
- Close inspection of the tower parapet and pinnacles by architects and structural engineer. The south-eastern tower pinnacle had been struck by flying debris which had caused its upper section to move. Scorching and cracking to the pinnacle

- cross now becomes apparent, and the extent of the damage to the lead tower roof coverings can now be seen clearly.
- Damage to the medieval timber within the north aisle is closely inspected, and cracking to the historical barrel vaulted ceilings also noted.

April 2013

- Contract documents and drawings now complete.
- Emergency Faculty petition submitted to the DAC, and subsequently accepted by all members. Site-visit by specialist DAC specialist architect.
- A.C. Archaeology appointed.
- Lead coverings on the tower roof stripped to expose the oak framework below and repairs to the timber rafters within the tower roof are now underway. >

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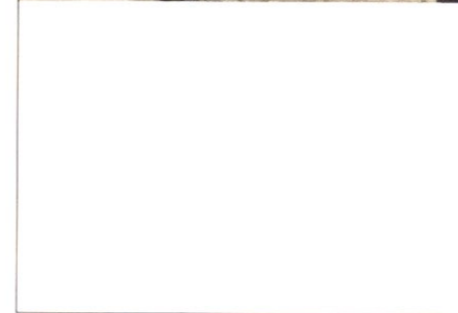
- Westcountry Stonemasons dismantle the top two-thirds of the shifted south-east pinnacle in-situ, before rebuilding and repairing.
- Masonry from the destroyed north-east pinnacle is put together in the stonemason's yard, enabling a full ground-level assessment of the required restoration and remedial works. No mortar is used at this stage, instead it is dry-built in sections; a four-and-a-half foot high 3D jigsaw.

May 2013 (images 04 & 05)

- Detailed damage survey undertaken, revealing the full extent of the damage to the timbers and masonry (plus large areas of historic infestation by timber beetle).
- It was observed that the internal slate wallplate end had split from the impact of falling pinnacle stonework, and damage to the slate roof and vertical parapet of gutter were confirmed.

- The stonemasons begin to dismantle the western gable wall, revealing that less remedial work is necessary than originally scheduled.
- The affected parts of the western gable window head are dismantled and rebuilt; the head and jamb stones from the northern window are re-positioned and structurally pinned together.
- Timber repairs to the tower roof bays are now complete.
- The first of the reassembled pinnacle stonework returned to the church. The surviving tower pinnacles are repointed.
- Extensive repairs to the north aisle trusses and carpentry work to the north-east bay of the tower are now underway.
- A full Faculty application for external fabric repairs was submitted to Truro DAC, and subsequently approved.
- The Parochial Church Council accepted and approved all costs for liable items within the church, which was proposed to be managed and undertaken by Le Page Architects.

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June 2013 (images 06-11)

- Roof and stonemasonry work continues. New oak laths are formed using the damaged old oak from the north aisle roof hole, and laid ready for plastering and slating.
- Further historic rot and beetle damage discovered, and repaired.
- Re-building of destroyed pinnacle completed.
- Weathervane restored, and improved lightning conductor system installed.

July 2013 (images 12-16)

- Tower scaffolding begins to come down, but scaffolding over main church body to remain whilst roof repairs completed.
- Internal works begin in earnest; re-plastering of walls and ceilings, woodwork re-made and electrics reinstated. The lime plaster mortar which is being used throughout the church has a long drying period and must be left undisturbed for several months in order to set properly.
- Destroyed ceiling bosses being replaced by an expert plaster craftsman in Plymouth.



- Damaged pews removed and taken to a joinery shop for repair.
- Discussions for a commemorative plaque in the floor, where the largest piece of masonry landed just inside the south door have begun.

Project Costs to Date

Total project costs currently stand at £256,000 excluding VAT and fees, most of which is being funded by the insurers.

Total parish fundraising through the village initiative "The Pillaton Church Disaster Fund" to date: £8,277. ■

