

# of Wellington Arch

Like an early Christmas present, Wellington Arch at Hyde Park Corner, London, was 'unwrapped' in November and given a spectacular dawn display of lights and music.

For more than a year the famous Neoclassical Portland limestone Arch designed by Decimus Burton in 1825 to celebrate Wellington's victory over Napoleon had been hidden behind English Heritage screens.

Behind those screens Croydon stone and conservation specialists Stonewest and other contractors have been bringing the Arch back to a state of what English Heritage described after a survey in 1997 as 'perilous decay'.

Many of the problems stemmed from rusting metal supports cracking stonework and causing major structural problems, although the extent of the problem was difficult to assess without removing some of the stonework due to a lack of information about how the monument was originally built.

It was clear, however, that there was an increasing danger of stone on the entablature

overhanging the entrances eventually falling off.

To begin with the stonework was cleaned using a variety of methods appropriate to the types of soiling, which covered most of the spectrum of stone cleaning – water, Joss, Doff, dry abrasives, chemical poultices – in order to identify any further faults.

The cleaning allowed a full structural survey to be carried out, with Stonewest available to give expert advice and guidance where required on the most suitable repair techniques for each problem.

At a series of meetings, English Heritage and Stonewest discussed the preferred restoration and conservation solutions. A number of sensitive issues were discussed, including the cutting out of joints for re-pointing, stone repair and replacement, mortar mixes and pointing techniques. Trials were set up to demonstrate the various techniques and control samples used throughout the project.

To establish the condition of the cast and wrought ironwork of the structure, 24 stone blocks, some weighing more than 2½ tonnes, had to be

lifted down to the ground.

The dismantling of the stonework was made more difficult than it might have been because when the Arch was rebuilt in its current position in 1883 to allow traffic to flow more freely around Hyde Park Corner, a cement-rich mortar was used. To free the stone, special equipment had to be brought in to prize the stones from the bed joints after first diamond sawing through the mortar.

Once the stones were free they were carefully lowered to the ground from the upper cornice using a 35 tonne crane.

It had originally been intended to remove the whole of the east and west entablatures, but as much of the steelwork was found to be in good condition after the partial dismantling of the west entablature, Stonewest advised the client that smaller pockets could be opened up in the stone for examination purposes.

These holes at frieze level were later filled with matching stonework, leaving no visible evidence of major intervention.

Stainless steel brackets were required to support the corroded architrave spanning the portico on the east and west elevations. This required an innovative solution. A special rig was set up to drill vertical holes 3m long into the stonework from the soffit side and stainless steel hanging brackets were installed to support the architrave.

During the course of the work English Heritage's structural engineer spotted a crack in one of the four fluted columns on the west face of the Arch.

A natural fault line in the stone cut through 60% of the column, which English Heritage felt significantly weakened a key supporting element of the arch.

To remedy the fault, a pioneering repair technique was developed involving cutting out stone from the column and inserting specially designed stone pins grouted into position.

At cornice level, much of the egg and dart enrichment and several lion masks were extremely badly weathered and loss of detail was also discovered on large sections of the cyma recta moulding in the upper cornice section, the modillion scroll brackets and parts of the fascia.

Replacement carving was produced for seven modillion brackets, five lion masks, 22m of egg and dart and some large cornice sections. Moulds, templates and carving samples all had to be approved by English Heritage before work progressed.

Much of the carving was produced on site by Stonewest's craftsmen and women in a temporary mason's workshop set up for the purpose.

The upper half of a Corinthian capital on a pillar on the south-east elevation had to be completely replaced, ensuring the one tonne replacement stone was of high enough quality to take the ornate and heavily enriched carving required.

One of Stonewest's carvers, Dave Baker, spent 10 weeks producing the capital and



Stonewest carver Dave Baker carving a one tonne piece of Portland stone that has replaced the top part of a Corinthian capital on a pillar on the south-east elevation.



Some of the carving was too badly weathered to be saved and was replaced.