

Capital investment

Jasper Swann explains the City of Sydney's decision to replace all ten of the Corinthian capitals in the belfry of the Sydney Town Hall as part of the current clock tower restoration project, and talks to Traditional Stonemasonry's Nicola Ashurst and Jacek Luszczczyk about the benefits and joys of carving by hand.

When the City of Sydney asked me in late 2009 to look at the condition of the stonework in the belfry of the iconic Sydney Town Hall – high above the ever-busy George Street below – one thing was immediately apparent. One of the ten Corinthian capitals supporting the dome had a significant vertical crack extending over half of its height, right down its centre. Further inspection revealed a number of equally disturbing horizontal cracks in this and other capitals. Clearly, destructive forces were at work, and my immediate thoughts were that a rusting ferrous pin in the top bed of the capitals was the cause of the major fracture. The expansion of ferrous fixings as they rust is a highly destructive force when such fixings are embedded in sandstone. The



Figure 3. The belfry and dome.



Figure 1. Severe vertical cracking in a capital due to rusting ferrous fixings.



Figure 2. High above Sydney's busy George St, the ten Corinthian capitals take the load of the dome above.

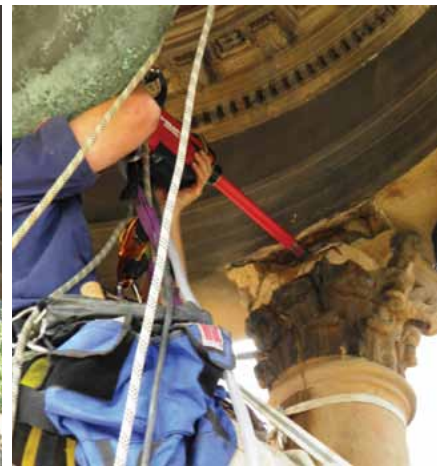


Figure 4. Investigative coring is used to determine the cause of decay.

consequences of this decay mechanism can have structural implications, as the force can be sufficient to compromise the structural integrity of a stone. Whilst it became clear on close inspection that no immediate risk existed of the damaged capital splitting into two pieces with either portion becoming dislodged such that it might fall, the potential existed for this to occur in the event of a seismic tremor. The City of Sydney was concerned about the potentially disastrous

effects of this unlikely but not inconceivable eventuality, so ensuring the seismic stability of the belfry was a priority from the outset. This had clear implications for the ten columns and their capitals that directly bear the load of the sandstone dome above.

To sensibly determine how to rectify a decay problem you must first understand its cause. Investigative action was therefore required. Using rope access, investigative coring was undertaken on the capitals and columns.

With the aid of a borescope, it was determined that a 25mm diameter iron rod approximately 5m in length passed directly through the centre of each of the sandstone columns, continuing through the capitals and terminating in a 150mm square iron plate of approximately 20mm thickness embedded in the top bed. It was this top plate that had so badly corroded in one of the capitals, causing the significant cracking of the stone.

If this had occurred in one, why had it not occurred in the others? Was it just a matter of time? Making a predictive rather than actual analysis of historic fabric may not always equate to sound conservation practice, but it was a question that needed to be considered in the context of the need to seismically stabilise the belfry and the City's proposed 50-year conservation cycle. Ordinarily, a typical conservation cycle might be 25-30 years, but in this situation, where stonework rises to more than 60m in height and the expenditure of millions of dollars is required simply to access it, the desire for a longer period in which it would be hoped not to have to return to the facades was understandable. Equally, if the seismic stability was to be assured, then any potential weakness in the structure needed to be removed. In that context, leaving what was a known cause of failure of one capital to run its course in the remaining nine could not be considered sensible. Clearly, the ferrous plate embedded in the middle of the top bed of each capital needed to be removed. Regrettable as it undoubtedly was, this could only be done by breaking into each capital.

A similar problem existed in the stone courses in the dome above the belfry, with rusting ferrous cramps causing failure of the stonework. In that instance, it was possible to cut into the stone as far as necessary to extract the ferrous cramp, and then repair the void with a hairline indent. In the case of the capitals, however, it soon became

on a number of levels. But the seismic strengthening that this will allow, ensuring the longevity of the Sydney Town Hall belfry, and the opportunity consequently created for Sydney siders to engage with this landmark building more intimately than at any time since its construction is the significant gain.

And engage they have. Just ask **Jacek Luszczzyk**. For the last 5 months, Jacek has stood in a small booth in Town Hall Square, plying his trade behind perspex windows under the watchful eye of a captivated public. Passionate about stone - "I could eat it!" he says, with a fire in his eyes that makes me think he's about to bite off a corner to prove it - I spoke with Jacek to find out more about his love of carving and his approach to replicating the original Sydney Town Hall capitals.

JS: "How long is each of these capitals taking you to carve?"

JL: "About eight days."

JS: "That seems remarkably quick."

JL: "The first one took me two weeks. I had to learn the form, practice, use different tools, find those that worked best for me. But once I found my way around them, I have become much quicker."

JS: "How much of the original have you had at hand to copy?"

JL: "I have everything I need in this small piece of the original. I use it as a kind of template."

A small section of the original substantially cracked capital sits on a shelf above Jacek's banker. Since the carving is a series of forms and motifs that repeat, it contains most of the information that



Figure 5. A rusted ferrous plate in the top bed – the cause of significant cracking in the capital.



Figure 6. Master carver, Jacek Luszczzyk.



Figure 7. Nicola Ashurst keeps a watchful eye on progress.

apparent that the same approach would fail to satisfy the structural requirements at a point bearing such a direct and substantial load. To cut into more than half of the top bed was to seriously undermine the structural stability of each capital, and a subsequent installation of a carved indent by way of repair would fail to satisfy the structural requirements of these critical elements.

One man's loss is another man's gain, and none more so than here. The loss of all ten of the original Corinthian capitals that had been carved by a small and talented band of our forebears more than 140 years ago is significant

be needs to replicate the original whole. Photographs on the walls provide the remainder.

JS: "Do you break it down into a series of forms? Are you using any templates at all?"

JL: "I don't need any physical templates. I just use my eye. I am a master carver. This is very different to a mason. As a mason, you're not creative, you're re-creative, and you need to use templates to copy the stone exactly, but in carving I'm creating something new, and each one is slightly different. There are no rules, so I can make my own."



Figure 8. The early stages of a Corinthian capital.



Figure 9. Window on an almost lost world. Jacek Luszczuk completes the last of the ten new capitals.



Figure 10. Onlookers get a rare view a master craftsman at work.

JS: “Are you working in your own variations in style and detail to each of the capitals, or are you making them essentially all the same?”

JL: “I change the design a little on each one to make them more like the originals. When you look at the ones in the belfry, you see that they’re all a bit different. And I am doing the same. These are all a little different to one another.”

JS: “So that part of the carving process you must find particularly enjoyable, being able to do your own thing, to be creative? That’s what really differentiates it from masonry?”

JL: “That’s right. I enjoy that creativity. It’s my job. My life. Masonry has given me my bread and butter at times, particularly when I needed to support my family. But carving is my love.”

JS: “So how long have you been carving?”

JL: “Always. As long as I can remember. I started as a boy, in Poland, particularly in the fine arts, and after I studied in the academy of fine arts, I did a diploma in carving and sculpture. Altogether I did ten years after my diploma in a training period, travelling around.”

JS: “Ten years? That’s a far longer training period than anyone would expect to have to complete today in any discipline.”

JL: “That’s right. No one would do it these days. For me it was normal.”

JS: “An artist I knew once pointed out to me that all children draw; it’s those that don’t stop drawing that become artists. I guess you must always have been a drawer?”

JL: “Yes, always. And I think that’s true. My grandmother was a painter and I used to watch her draw and paint, and I loved to read her art books – all the Old Masters – and afterwards I started drawing myself, as a kid. So that was a big influence on my life. My father wanted me to become an engineer, or something like that.”

JS: “So you had to resist your father’s plans for you?”

JL: “Yes. Very much. It was not what I wanted to do with my life.”

JS: “A lot of this kind of carving is produced these days on CNC 6-axis cutting machines. What are your thoughts about that?”

JL: “Well, of course this kind of thing produces perfect copies all the time, which means mass production and sometimes it produces boring results. I have nothing against it. Sometimes you need that kind of mass production.”

JS: “If you’re a good enough carver then it’s still economical to produce this sort of work by hand?”

JL: “Yes, that’s true.”

JS: “I suppose the difficulty is that there aren’t enough ‘good-enough’ carvers.”

JL: “I think that’s true, too.”

JS: “Are you passing your skills on to anybody?”

JL: “I try. I can show someone how to do it. I can give them a seed for something that hopefully they will start doing and have enough confidence to do it. Getting the confidence is the hard thing. You need to practice a lot to get it.”

JS: “I guess the difficulty is that this sort of work doesn’t come along often enough to provide the opportunities for younger people to learn.”

JL: “That’s right.”

Jacek has been marking up the block of Pyrmont stone that sits on his banker as we speak. It’s the last of the ten new capitals that he is about to carve. He has already carved eight of them. He applies a lacquer to his pencil lines so as not to lose them, preferring this technique to scribing a line. The overspray drifts beneath his nose.. “Hmmm, it smells good too!” he says, with a schoolboy grin.

JS: “What does carving stone mean to you personally?”

JL: “To me? It’s my life. It’s my joy.”

JS: “Have you passed this on to any of your children?”

JL: “No. They have not so much interest in it. I knew always as a kid what I wanted to do and that was carving. I always told my children, find something that you really love for your job.”

JS: “Do you have a mason’s mark that you cut into the top or bottom bed. It’s something of a mason’s tradition.”

JL: “No. The idea of the mark was how to count the exact number of stones that each mason had cut. It was all about payment for the work they had done.”

JS: “So there’s nothing symbolic in it for you?”

JL: “Not really. It was a practical thing from the beginning. I don’t use a mark. Some mason’s like to do that, but it’s not important to me.”

A middle-aged couple in peaked caps with cameras slung around their necks stand at the window peering in. The latest in a continuous procession of fascinated passer’s-by.

JS: "How do you find being on show here every day?"

JL: "It's strange. Very strange. People stand for a long time and look at me, but you know, it's interesting: If I look at them and catch their eye, they move on!"

JS: "So they're happy to look at you, but not happy to have you look at them?"

JL: "So it seems!"

JS: "I notice you don't have a radio or anything like that while you work?"

JL: "A radio? No. I concentrate on my job. I don't need anything to distract me. My work absorbs me. A lot of people like to have music on all day, and mobile phones – especially the apprentices. Personally, I believe this is a disaster. It distracts them. They're somewhere else all the time."

Being somewhere else, it occurs to me, has become the norm. Being in the moment, like Jacek Luszczuk, is the rarer state. And it is that rarer quality that has enabled him to impart something special to the Sydney Town Hall's new Corinthian capitals. Something special that may in a few short years may no longer be around. If the capitals ever need replacement again – perhaps in the 24th century – who will have the skills to carve them? My heart sinks. The answer, probably, is robots.

Nicola Ashurst is Traditional Stonemasonry's project manager on the Sydney Town Hall Clock Tower restoration project. Carving the new capitals has been one of the first tasks on the construction program and she has had a direct hand in the decision to carve them in-house and in the

traditional way. I caught up with her to discuss the threat of CNC 6-axis and robotic-arm machinery to the traditional skills base. I also want to better understand the value of carving by hand, and to find out whether it is really still possible to compete economically with this increasingly prevalent technology.

JS: "Tell me what carving by hand means to your organisation."

NA: "Traditional Stonemasonry has always valued having an in-house traditional skills-base, and we're one of the few companies in Australia that still does that. Stone carving is one of the cherries on the cake."

JS: "The opportunities for carving are few and far between. I guess this is the difficulty in training apprentices in this kind of work."

NA: "It is. And I think also there's a dedication required if you're going to train people in carving. All the good carvers have a passion for art and creation. When you watch a mason work a piece of carving, he breaks it down into a series of parts and works methodically through each one. A good carver doesn't work that way. He sees it as a natural process. It's completely un-natural for most of us. It's a highly skilled thing, and we want to retain those skills. We're not relying on laser scanning and 6-axis machinery to produce these capitals. We're doing them all by hand, from scratch."

JS: "What do you think is the difference in the end product between the CNC 6-axis cutting machine-produced article and these that you're carving here by hand?"

NA: "I think what we're getting is all the nuances, all the

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Figure 11. Under wraps. The restoration commences.

character, and all the personality imparted to the stone in carving them by hand. We're also getting the skills of the individual carver embodied in each one. When you look at them, they're all different, but the differences are very subtle. It's exactly what you've got in the existing capitals. They present, on first inspection, as the same, but they're not. So we're going to have this wonderful fine variation in each of the carvings."

JS: "One of the things driving the move toward the robotic arm and 6-axis CNC machines is the economics of it. How does this work out for you, doing all these by hand as opposed to producing them on that kind of machinery?"

NA: "With a good, fast carver, it's actually cheaper to do it by hand."

JS: "If I were carving one of these myself, I'd probably need three or four weeks to finish each one. Jacek is turning them out in 7 or 8 days."

NA: "Jacek is exceptional."

JS: "So if you have good carvers and you can keep the supply of carving work coming, then there's no reason why this skill should die out?"

NA: "That's right. It's not economics that is driving this development away from hand carving. Even if the economics is important, sometimes you have to contribute to the situation to keep the skills alive. In my last 30 years in the UK, working with English Heritage, Historic Scotland, and other independent organisations, they were spending tremendous amounts of money to keep these crafts going, and those organisations see it as part of everybody's heritage to do that."

JS: "So it's something that needs to be invested in?"

NA: "I think it is, very much so. I think that it's good that we can do this here at the Sydney Town Hall, but I think Australia has got to work out some way of subsidising stone carvers, because we're going to need them."

JS: "Do you think we need to start building in some stone carving into modern building design?"

NA: "Absolutely. And not on the CNC machines. They need to be lovely one-off pieces, something the client can be really excited about. It can be a prestige thing to have on their building. And it doesn't just have to be a company logo."

JS: "So you think the corporate world can have a role in maintaining a skills-base in the carving of stone?"

NA: "I think so. We see a lot of public art, a lot of corporate art, but it's not stone carving. Here at the Sydney Town Hall, we have a great example of a client being so keen for the public to see the stone carving in process. The people here are very proud of these capitals. We've got three of the new ones on public display. They're loving that, and they're very proud of that."

The conservation of the Sydney Town Hall clock tower will be complete in August 2013. The new hand-carved capitals set high in the belfry will be the cherry on this iconic cake. The City of Sydney has much to be proud of. ²⁵

Jasper Swann is the stonemasonry consultant on the Sydney Town Hall restoration project. (All photos by Jasper Swann)