PROFESSIONAL COLUMN *Waller & Dyker. Winter 2010/3*

Pillars

It seemed sensible when I was planning this series within a series to include square pillars as American 'stonework', writer Charles McRaven has observed *"a pillar is a simple stone wall, not very long, with a lot of corners."*[1] However as I come to put finger(s) to keyboard, I'm not so sure. Coming as I do from a land where stones have more in common with eggs than sensible quoins my personal experience of pillars has tended towards those stuck together with some form of lime based adhesive (trying to avoid using the 'm' word in these erstwhile pages). Of course many dry stone and masonry techniques are inter-related so there is value to be gained from the experience in one. There is also the question as to whether or not it is an experience many readers are likely to come across and so of limited value in that respect. Finally where one article follows another as I write one I make notes on aspects of the next. When it comes to the actual writing my first port of call is always the BTCV's *"Dry Stone Walling"* just to make sure that I'm not just repeating material that already exists, rather trying to fill gaps or refine rough edges or add 'another' perspective. In this instance I discovered that all bar one of my notes and deep insights were actually covered in depth in *"DSW"* (just to remind readers who don't actually have a copy it's on-line the relevant bit being at http://handbooks.btcv.org.uk/handbooks/content/section/1640). So I had thought this would prove to be a refreshingly short instalment. I was wrong.

Perhaps the biggest problem with pillars is maintaining the shape, they have a nasty tendency to skew or twist. "DSW" deals with the essential methods of maintaining shape, although I have always wondered about the practicalities of the "box frame". The method outlined in *"DSW"* is a variation on the method shown but not really explained in the Association's own *"Dry Stone Walling Techniques & Traditions"* (2004, p.42-43) the text and diagrams being a re-rendering and extension from the DSWA's original *"Building Special Features in Dry Stone" (1997 revised edition pp18-19).* I have found a detailed explanation of this method in the 1979 publication *"DIY guide to Natural Stonework"*(JAC Harrison, David & Charles, pp100-103). 'His' box is 18" deep so it fits over the top of the portion of the pillar already built, and you then lay the next course/layer within the box, raising the box on a series of stilts/battens. I have always wondered about the limitations this places on your being able to see exactly what you're doing, and Harrison has similar concerns and whilst he's more concerned with mortared work he comments *"I object to this method of construction on the grounds that you cannot see the facework…"*[2] Here Here! I think we should probably confine this method to the bin… I understand that the author of *"DSW"* was passing on a method related to him rather than experienced – fair enough- with similar reservations. Richard Tufnell relates that he now prefers a development of the box frame method…

He still uses a box but the corners are extended by a foot or so, Richard describes it as looking like a stretcher, and the box is set up on legs attached to the ends of these extensions above the finished height of the pillar (they are usually at least 7 feet in the air to give headroom). Sometimes diagonal braces are needed to give added rigidity. Plumb lines are then dropped from each corner of the actual box (rather than the extensions) checked for verticality and attached to eyes screwed into the concrete plinth that the pillar sits on. Richard explains that this method is "much less likely to allow the pillars to 'drift' out of square." Richard assures me it is not really cat's cradle-ish with supports and lines in abundance, whatever the case it cannot be any worse than the problems noted last time in this respect with regard to corners, except you have more corners in a confined space. Given the drifting/skewing problem which I have suggested from my personal experience suggests is the biggest problem however assiduously you set the base, check the diagonals, and use your level (more in a mo) it is certainly a method I will try out the next time I get the opportunity.

As to other methods such as ensuring the base is square. As described in *"DSW"* you try to ensure a square base and then keep measuring diagonals and checking verticals. A couple of tips here… a roofers/rafter square (sometimes called a framing square) is useful, these are cheap and simple `L` shaped squares available from most builders merchants, the longest side of the square is usually around 24"/60cm long, the shorter arm being around 16"/40cm. keep checking with a level, this is where I suspect skewing and mis-shape slips in. Cheaper levels are less accurate (the bubble is smaller than the distance between the lines), even more expensive levels have a small leeway, you need to be really spot on and measuring exactly the same point(s) each time. Small changes tend to lead to small discrepancies and if you follow these greater inaccuracies occur. Be aware and don't let it get out of hand, is about all the advice I can offer. For most pillars you don't need to be 100% accurate, a small twist probably doesn't matter but once it starts going wrong you risk going very wrong (the more so the wider or taller the pillar), just be aware. Harrison does suggest a method which might (or might not - never having tried it and having some reservations…) help here. He suggests a single upright batten set against one face. This in effect acts as a datum point from which all measurements are taken from which Harrison says you can "*Maintain correct size and perpendicularilty of the faces"*[3]. Harrison does not really expand on the practicalities, it seems to me that it could conceivably work presumably you would set the batten in a mortared base and get it set perfectly upright, then lots of measuring, you'd actually have to measure each corner from two sides of the batten, just measuring from one could describe an arc. I'd have huge problems remembering the 'co-ordinates' of each corner, but there's always pen and paper. Seems a bit of a faff, but then in reality any really accurate method to maintain the shape is going to be.



These three pillars on a site in Northamptonshire, are built of a brown limestone from near Banbury. The quoins are hand dressed and rarely more than twice as long as high often little more than cubes, hence by necessity the pillars have a mortar core.

The tallest pillar (left) and shortest (right) have a very similar footprint, however they demonstrate different uses of quoins. Smaller quoins have been used in the shorter pillar which has allowed stones to be run into any given face and course in the same direction as a single building stone could still be fitted between them. This is not possible on narrow pillars if the quoins have any length as the quoins either, get in each others' way, leave small gaps, or have to fit exactly. This clashing of quoins can be seen in the photo left (courtesy of John Shaw-Rimmington, DSWAC) not a pillar – part of a dry stone building, but dry stone and illustrating the same point. The problem has been 'solved' by using shims/plates around half way up and there are a couple of vertical building stones (a.k.a. "soldiers" or "bookends"). Whilst it would be easy to criticise these it is always likely to be a problem with random pillars, and here perceived faults are at least partly mitigated by very tight good fit of quoin on quoin. It's as well to consider when analysing stonework that if you have tight fits and the stone really has nowhere to move then is there really a problem?

This clashing is less of an issue with coursed quoins, although it is usually best to rotate the quoins on a level so that only one runs into a face on any level, with the other quoin running into the adjacent face.

In the taller Northants pillar the quoins are slightly longer and running a pair into the same face on the same course would have led to smaller gaps which would have necessitated 'soldiers', maintaining coursing has proved a little problematic but has been competently dealt with (perfect coursing would have necessitated perfectly cut stones to fill the gaps and a random appearance was requested by the client). The middle of the 3 pillars is a similar height to the left hand one, but is almost as wide as it is tall. As a result there is no 'conflict` between the quoins and the corners have been built completely independently of each other, with any form of coursing/layering completely unnecessary. Basically the narrower the pillar and/or the longer the quoins the more problems you will face, and in this respect Harrison makes a very astute observation on the nature of pillars and the fact that you have so many corners and hence quoins in close proximity.. *"A shed has four right-angled corners and so does each pillar but, whereas a few poor quoins in different walls of the shed are not all that important they all come together in a pillar."*[4] Essentially a poor quoin stone, or a badly set one, will stick out like a sore thumb.

As this series began with a Shakespearian quote, I thought it appropriate to end the series in a similar vein. The bard however seems to have little of relevance to say on the subject of corners, so it's over to 20th century American architect and furniture designer Charles Eames…

"Choose your corner, pick away at it carefully, intensely and to the best of your ability and that way you might change the world."

Craig Arbennigol

[1] McRaven.C. *"Stonework: Techniques and Projects"* Stanley Books, Vermont. 1997. p.97
[2] Harrison. JAC. *"D-I-Y Guide to Natural Stonework"*. David & Charles, Devon. p.100
[3] Harrison *op cit.* p.103 [4] Harrison *op cit.* pp. 98-99