

Masterclass: Problems and planning part 2

Sean Adcock. All photos © the author.

Last time I stated that “*Inevitably a wall has faults, being a better waller involves reducing these faults, and not compounding those that are made...*” a philosophy I shall now add to...

When building a wall you are presented with a series of problems to solve. The nature and severity of these will vary depending on stone and how you put them together. One of the keys to walling is, I think, to chose a solution that does not create a larger problem than the one you’ve just solved. In trying to solve a problem if you create another, then larger the reduction in the problem the better. If you have a severe problem then a small improvement can still leave a big problem, you risk having a group of problems and, hence, a much weaker section of wall. The need for planning and thinking ahead should be obvious. The ability to recognise and understand where something is leading becomes priceless.

Last time we ended with ... “*Let’s assume we compromise and put two of our 4 large stones next to each other, and manage to get one of the other two in a little way along. Being human we end up leaving the fourth stone out of this layer as we can’t be bothered to move it far, what then?*”

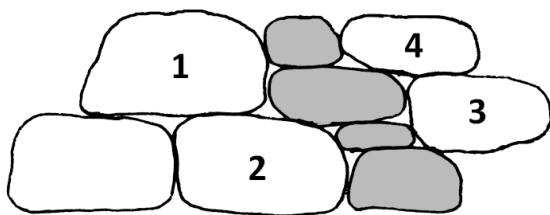


Fig.1.

stone compared to good grading. Stones 3 and 4 in Fig.1 are likely to be representative of the size of graded stone for that height in the wall. This means the shaded stones are relatively undersized, and grouped, and likely to create a relatively (compared to a wall built without this element) poor structure – all other things being equal. ‘All other things being equal’ (*ceteris paribus*) is an important qualifying phrase which I shall try to explain before this mini-series ends, for now I’ll treat it as a tangent I’m not going off on. Given that you are going to have to use 2 (more should be avoided if physically possible) stones to match the height, it might be better to try and use stones of similar (to each other) thickness, as alongside ‘2’ in Fig.1), rather than with one much thicker, and one thinner leveller (alongside 1). Not everyone is going to agree, but to my mind it might not be a structural weakness to have thinner levellers lower in the wall. This of course depends on ‘thin-ness’ which in this respect is relative and means 2, or more likely 3 or 4, inches thick rather than 1. It also depends on their being used as a ‘sneck’ (see Masterclass: Random Walling part 2 in “*Stonechat 18*”, Summer 2009, on line at www.dswales.org.uk) rather than as part of a run – something we will return to at a later date. I do however think that in terms of overall grading, having slightly undersized stones lower down looks better than very undersized stone, again, especially if you end up with several of these next to each other.

Alternatively we can try to place the oversized stone on top of smaller stones, by now it ought to go without saying that this too can create a problem, albeit a different one. In particular it generally leads to jointing issues as the stone, ‘b’ in Fig.2, is likely to sit close to the end of one, or both, of the stones ‘a’ it is sitting upon, leaving only enough room for a limited crossing of the joint (‘c’). Figure 3 shows something similar in practice.

The ideal is not only to sit one on two, but also half on half. This is of course nigh on impossible, but it is something which should always be born in mind with each stone you place and achieved more often than not. The more you stray from this tenet, the more likely you are to have jointing issues. Essentially you should aim not to stray out of the central $\frac{1}{2}$ of the stone (Fig.4), if you sit on the outer $\frac{1}{4}$ then you could be

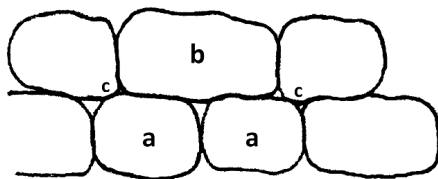


Fig.2.



Fig.3. However you shuffle the oversized stones along there will be jointing issues

have done, it can easily lead to stepped, diagonal, or zig-zag/zipped joints. The more rounded the stone the greater the problem is likely to be. Rounded ends tend not to sit well below and if the internal edges are rounded away from the face, whilst there might be good internal contact, the bases are effectively further away from each other and likely to barely (if at all) physically cross the joint. As can be seen with stones b and c in Fig.3.

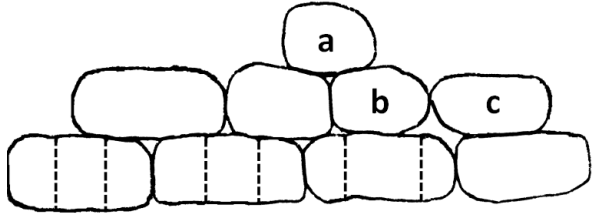


Fig.4.

In part one (to slightly re-phrase), I mentioned spreading the large stones, but not leaving small gaps requiring stacks to fill them; and that in practice, what exactly will, or should, happen depends upon the individual situation and the stone. If you are going to avoid the problems of having over-sized stones to use higher up in the wall you need to get them in before it's too late. Lines are not only for straightness they are useful in helping to achieve this. Every time you set the line if you ensure it is the same height above ground at both ends (be careful not to set stones parallel to the line on slopes – another subject!) then you should have the largest stones installed before you move it up – you will have presumably set it relative to, and above, the height of the larger of your remaining stone (if you haven't then you will be continually setting stone partly above the line). Then the next time relative to the next largest, etc. It's not a crime in a random wall if you do not achieve this, it is random after all but you do need to know where it might lead. The less you grade the stone the more the problems outlined here are likely to occur, and the more problems you are likely to have with jointing.

In addition very poor grading leads to seating problems when placing larger stones. In Fig.5 we have a large stone sitting high up with contact and jointing issues. This is very similar to that seen in Fig.3, with similar 'shuffling' issues. It is rare that large stones high up sat on much smaller stone will not create this problem. Placing undersized stones low in a wall is in effect the same problem. In this example we have 1 stone sitting on 4 – although it does provide a good base for another oversized stone! It also illustrates some of the issues/problems associated with building around it. Next time we should amongst other things finally get to grips with the '1 on 3' issue.



Fig.5.

For now I have tried to show that poor grading tends to lead to poorer jointing. Part of the theme that problems and faults are often inter-related. I started off last time by opining along the lines that all walls have faults, just different ones in different combinations. Even the best waller's wall will almost inevitably contain a fault or faults, however, these are dealt with and not compounded. An occasional poorly graded stone is not a cardinal sin, neither are occasional limited overlaps. However consistent poor jointing, or letting over-sized stones create additional problems, should all be avoided in the first place and when present usually indicate poor practice and/or a lack of thought.

headed for trouble, almost certainly will be if you do it on a regular basis. Running joints in particular tend to indicate a lack of, technique, fore-thought and planning, and (very possibly) understanding of the overall picture of what's going on. If you decide that such a small overlap is appropriate or necessary then you should ensure that this joint is very well crossed on the next layer (Fig.4, stone 'a'). If you do not plan ahead, or realise what you