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## THE STONE OF DESTINY A REVIEW OF NEW IMAGING



# THE STONE OF DESTINY: A REVIEW OF NEW IMAGING

Peter Hill

## INTRODUCTION

This re-evaluation of the Stone of Destiny was carried out as a desktop exercise based on low-resolution images of the Stone provided by Historic Environment Scotland, at the request of Mr Steve Farrar, Interpretation Officer, HES in 2015/16. The new imaging was produced through a combination of Reflectance Transformation Imaging (which is a photographic technique) and high-resolution Structured Light Scanning.

The study follows on from the author's original assessment of the Stone on the occasion of its transfer from Westminster Abbey to Scotland in 1996. That was carried out in the Conservation Laboratory of Historic Scotland on 21 and 27 November 1996 for no more than three or four hours on each day; the taking of photographs was not permitted.

With minor revisions and reordering, the report was published in the Society of Antiquaries of Scotland Monograph 22 in 2003, and it is to this version of the report that reference is made in the following pages as Hill 2003. Further comment is made only where there is new insight to be gained.

Each of the six sides of the Stone will be reviewed in turn, based on the nomenclature used in the original report, that is: front face, left-hand face, right-hand face, back face, top surface, underside, all of which refer to its orientation in the Westminster Abbey chair. Reference to right and left when discussing a particular surface are as seen by the viewer.

Illustrations in this report are from the new low-resolution imaging unless otherwise noted. Figure 3 is taken from Breeze and Munro 1997; permission was not sought.

In the intervening years others, especially Dr Warwick Rodwell, have reconsidered the history of the Stone, and relevant theories will be taken into account in this review.

## THE FRONT FACE

The scan reveals tool marks with considerable clarity. The upper edge is significantly more neatly worked than the remainder, yet still carries a number of visible random punch marks in both pecks and short furrows.

At the upper left hand the clear marks of a 55mm wide blade are angled slightly down from the horizontal, dipping to the right (arrowed in Figure 1). The full width of all marks is not visible as some stone has been lost immediately above the plain arrow. This is an unusual way in which to work a surface with a chisel; it would be normal to work along the stone from right to left (vice versa for a left-handed

mason) along the long axis while standing in front of the stone (see Figure 2). A chisel of about half the width would be more usual.

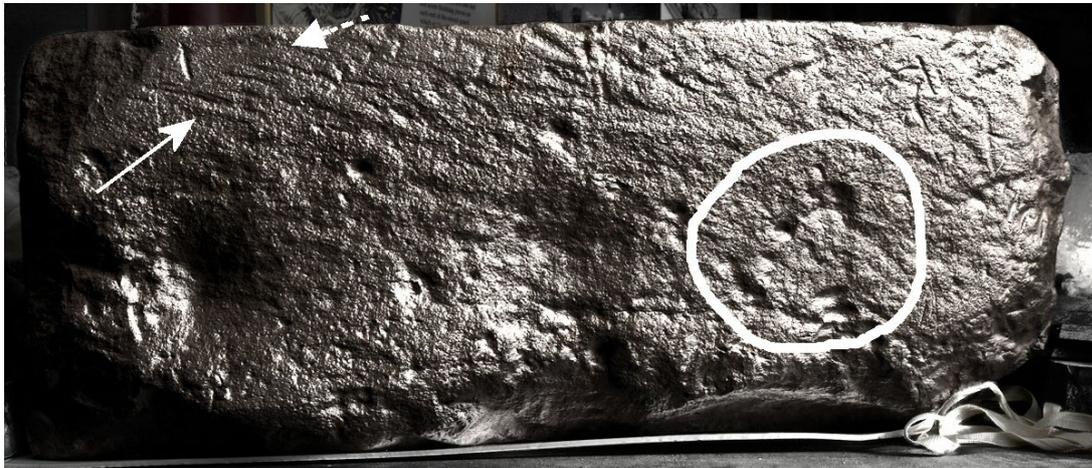


Figure 1 The face. © Historic Environment Scotland.

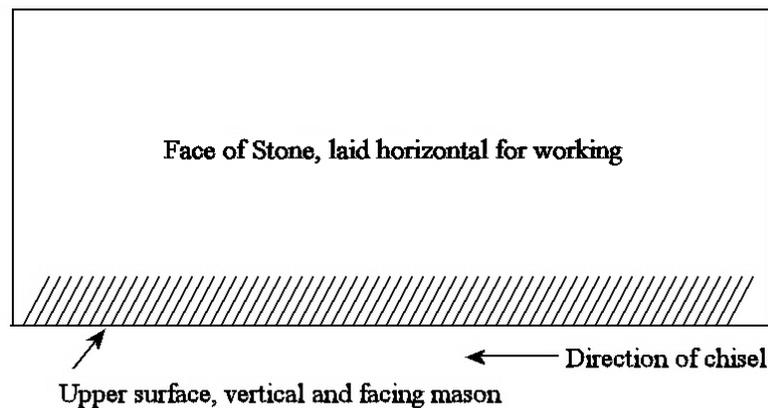


Figure 2 The normal way to work a margin. © Peter Hill

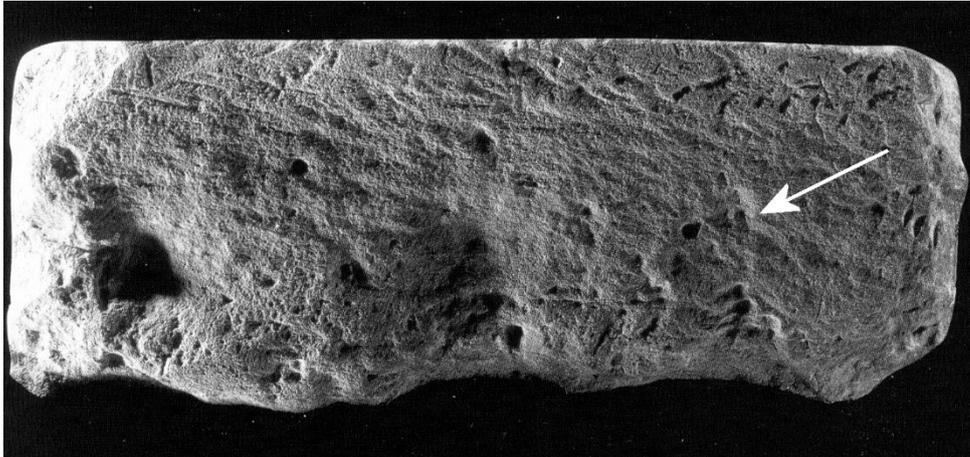
The chisel marks also come very close to the edge of the Stone (dashed arrow in Figure 1), which carries a high risk of the edge of the upper surface being damaged. It is for this reason that margins are always worked as shown in Figure 2. It is not impossible that the blade could have been an axe used in a downward direction with the front face vertical. This might carry a little less risk of damage, but the indications are that the blade was held at quite a steep angle, which would not be safe.

There are two explanations for these unusual blade marks. First is that the Stone was cut down from a larger stone by cutting down to what is now the upper surface. This would have no effect at all on the front face, leaving any tool marks from the original working of that face. However, this would have to have been very early in the Stone's existence, long before it left Scone.

Secondly, the mason was unable to get at the surface easily, perhaps when it was part way into the chair, and so worked a little of the stone off in the only way

possible and managed to get away without damage. It is also not impossible that the mason just did not care, and was simply lucky not to damage the stone.

At the left-hand side and more or less in the centre of the face are two depressions. These have variously been put down to Bronze Age cup marks, and carelessness in working. They are so marked that the latter is most unlikely, and the former has been dismissed by Dr Warwick Rodwell in his reconsideration of the Stone. He comments (Rodwell 2013: 175) that the present author also dismissed them as cup marks, but this is inaccurate: possible, but incapable of



proof either way would be more accurate (Hill 2003: 23-4).

Rodwell's preference is for them to be the result of vandalism, visitors rubbing and scraping of the Stone through two of the three quatrefoils which originally formed decoration to the now missing front panel of the chair. He adds that a faint third depression is also visible, and suggests that this relates to the third, right-hand, quatrefoil.

Figure 3 A clear view of the right-hand depression and the band across the top of the Stone. © Historic Environment Scotland.

This depression does show up on the new image, bounded in part by a series of five or six punch marks. This area is circled in Figure 1 and arrowed in Figure 3. However, it is significantly closer to the centre depression than is the left-hand one, and thus is most unlikely to relate to the quatrefoils.

On the whole, Rodwell's suggestion that general wear and damage to the front of the Stone (apart from the visible band across the top protected by the front rail of the chair) was at least in part caused by souvenir hunters is probably correct. But the unequal spacing of the depressions must cast doubt on this as a reason for their existence. Furthermore, they show clear signs of being made by pointed objects similar to a punch used in a conventional way, especially the right-hand one, rather than being cut or scraped by the penknives of visitors. Cup marks cannot be ruled out any more than they can be proved.

What is brought out by the scans is that the front of the Stone was never worked to be a visible face. The best surviving tool marks, at the upper edge, show a number of punch pecks and furrows which would always have been visible. The damage to the lower edge was almost certainly caused deliberately, probably with a hammer.

## THE BACK FACE

The vertical crack is approximately in the centre of the face, with each half of the Stone treated in a totally different manner. The left-hand side is set 2-3mm below the right, as a result of the very poor repair carried out by Robert Gray in 1951.

The right-hand side is largely worked with a broad chisel, in strokes set about 10 degrees from the vertical (A on Figure 4), apart from the upper right-hand end where they become less steep. In places there are tool marks which slope in the opposite direction, down from top right to bottom left, at about 45 degrees to the vertical. These are referred to below.

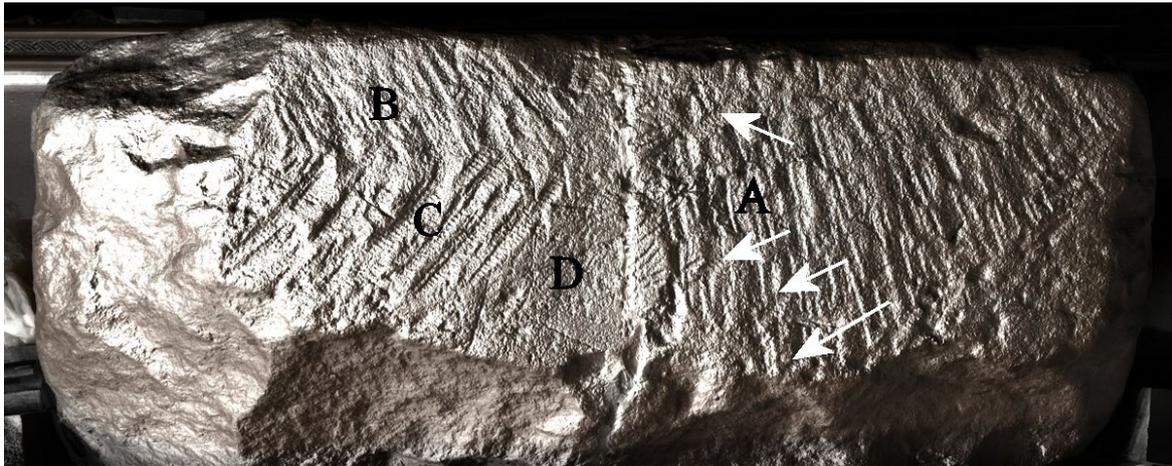


Figure 4 The back of the Stone. © Historic Environment Scotland.

The upper part of the right-hand side is also worked with a plain blade, but at a quite different angle and somewhat more neatly (B on Figure 4). Below this area the Stone is worked irregularly and heavily with a claw blade forged from a plain chisel, in up to a dozen strokes (C on Figure 4). The heaviness of this work shows more clearly on Figure 5, although with less detail.

There are also claw marks from the same tool, set at 45 degrees, visible on the right-hand side, indicated by four light arrows on Figure 4. There may be a few more of these, but the scan does not give a clear indication.

All these claw marks are comparatively new, and could date from the 1951 repair work or could be somewhat earlier. There is no obvious reason for this work.

To the immediate right of the crack is a series of irregular, short blade marks, circled on Figure 5, which may be an attempt by Robert Gray to level up the two surfaces.

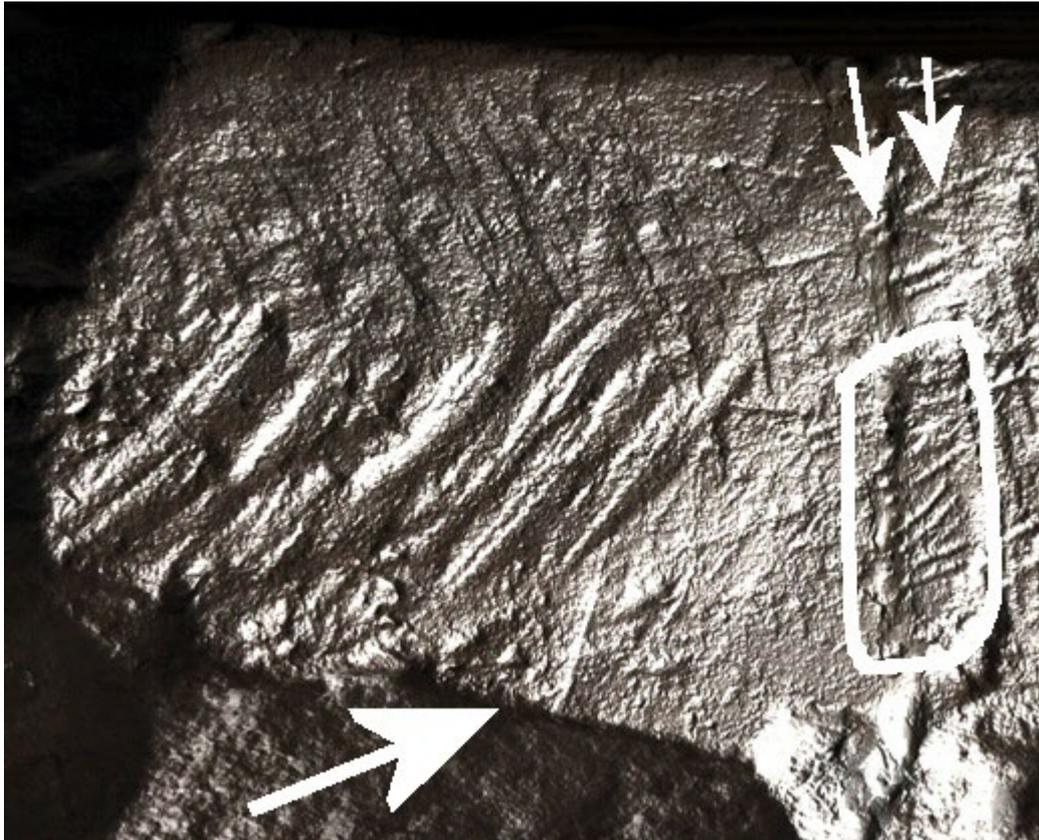


Figure 5 The left-hand side of the back face. © Historic Environment Scotland.

Rather oddly, there is a band of stone immediately left of the crack which was anciently rubbed quite smooth, and widening from top to bottom (D on Figure 4). There is no obvious reason for this.

The most peculiar aspect of this face is that the work to the Stone on either side of the crack is, and was always, quite different. There is only a single instance of a tool mark appearing to cross the line of the crack, and even that is uncertain from the scans. Only a fresh look at the actual Stone would confirm this. The mark is from a plain chisel, double arrowed on Figure 5.

The lower edge of the Stone is very badly damaged, most probably the result of heavy hammer blows, some perhaps as the result of being dropped. The straightness of part of the break on the right-hand side may indicate the use of a pitching tool (single heavy arrow on Figure 5).

## THE LEFT- AND RIGHT-HAND ENDS

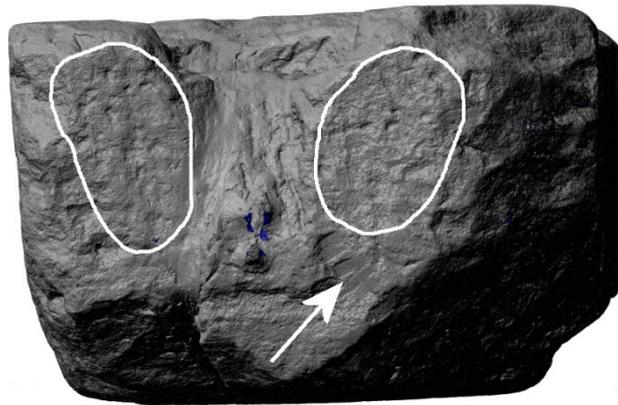


Figure 6  
Scotland.

The right-hand end of the Stone. © Historic Environment

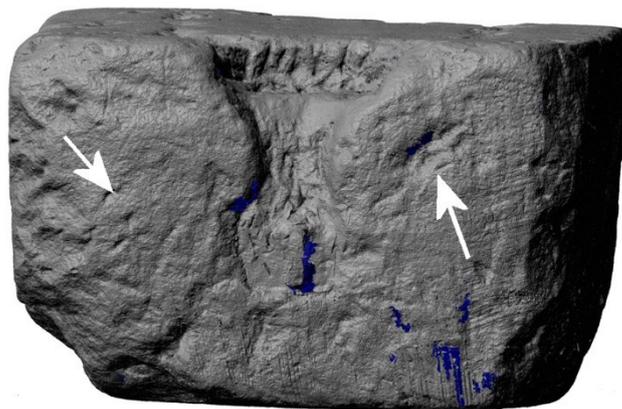


Figure 7  
Scotland.

The left-hand end of the Stone. © Historic Environment

There is little to be added here to the original report. The only point to be made again is that the right-hand end is more crudely worked than the left. The damage caused to the former during the 1950 theft does not help, but the left appears general rather smoother, and with many fewer obvious punch marks, circled on the right-hand end and arrowed on the left.

## THE UNDERSIDE

No further comment can be made on the underside.

## THE UPPER SURFACE

This is by far the most difficult surface to be considered. It has been mostly worn smooth, there are recesses cut for the two lifting rings, an attempt has been made to cut a rectangular sinking in the centre, and the back edge is considerably worn on the right-hand side as viewed from the front. First, the smoothed area will be examined.

This begins about 75mm from the front edge, at about the point where the sinking was begun, and continues to the back of the Stone. On the centre line of the Stone the wear is greater in an area of around 70mm × 250mm, depressing the surface by 4-5mm along the long axis (arrowed on Figure 8). This has been suggested as possibly due to the insertion of a bar through the rings, although the original report by the present author was unhappy about this. Furthermore, Rodwell (2013: 112) points out that the left-hand staple to which the ring is attached is set forward of the centre line, which makes the insertion of a bar even less likely as the cause. The reason for this depression, strongly interpreted by Rodwell (2013: 116) as no more than a shadow but showing clearly on the new image, is not known.

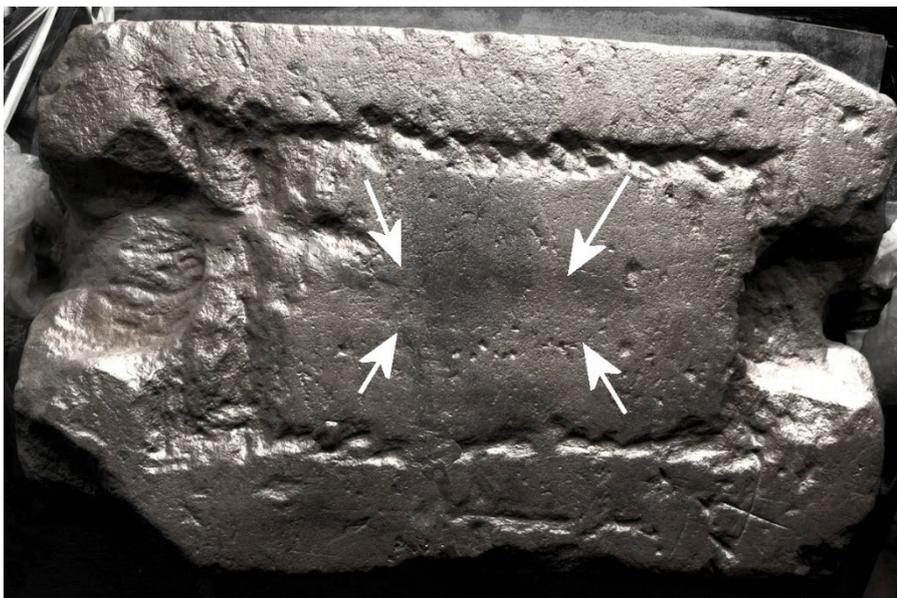


Figure 8 Hollow area on the centre line indicated by arrows. © Historic Environment Scotland.

It is worth mentioning that putting a bar through the rings is not a likely or efficient way to carry such a weight. In order to lift the Stone from the chair, a bar cannot have been used, owing to the arms being in the way. Four people would be needed to lift the 152kg (336lb) Stone and the simplest way would be to use four short rope slings, as shown in Figure 9. This gives much more control than hanging from a bar, especially when setting the Stone down. An iron bar of 30mm diameter would have added 22kg (49lb) to a not inconsiderable weight.



Figure 9 The use of rope slings to lift and move the Stone. © Peter Hill.

The most significant area of wear shows clearly on the scan (circled in Figure 10), at the right-hand end of the back as viewed from the front of the Stone. It covers an area of around 130mm × 55mm, with a depth of 4-5mm. As given in the previous report, this is explicable only if the Stone were used as a step at some point before 1296. If the Stone were used with the present back as the riser, it is exactly the pattern of wear to be seen if pedestrians had generally approached from the left to ascend the step or steps. The whole of the back edge is worn, although to a lesser extent, with a marked radius to the arris.



Figure 10 Wear on the back edge following use as a step. © Historic Environment Scotland.

Rodwell (2013: 174) attributes wear over the surface largely to the hands of visitors wanting to touch the Stone. However, this does not explain how the area most difficult of access for a right-handed person is right at the back on the right-hand side. Rodwell confirms that the Stone has always been placed in its current orientation in the chair. Equally, the front of the upper surface, a band about 75mm wide, can very clearly be seen on the scan to be significantly less worn than the remainder (arrowed, Figure 11). Surely, if handling by visitors were the major cause of wear, then the front would have suffered at least as much as the rest. The marked difference between the front and back can also be seen on Figure 13.



Figure 11 Comparative lack of wear on the front of the upper surface. © Historic Environment Scotland.

Use for a period of time as a step would explain the lack of wear to the present front of the surface, as it would be usual for the next step up to overlap, as shown in Figure 12. It would also explain the general roundness of the back aris, and the greater damage to that part (Figure 13). It is difficult to see how the patterns of wear on the upper surface can be explained other than use as a step prior to its transfer to Westminster. It was most certainly not all caused by handling.

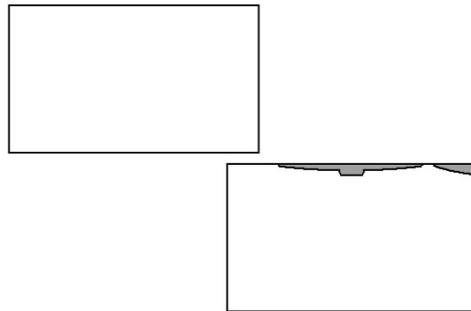


Figure 12 Schematic representation of the wear on the Stone, showing it as the second step down in a flight. © Peter Hill

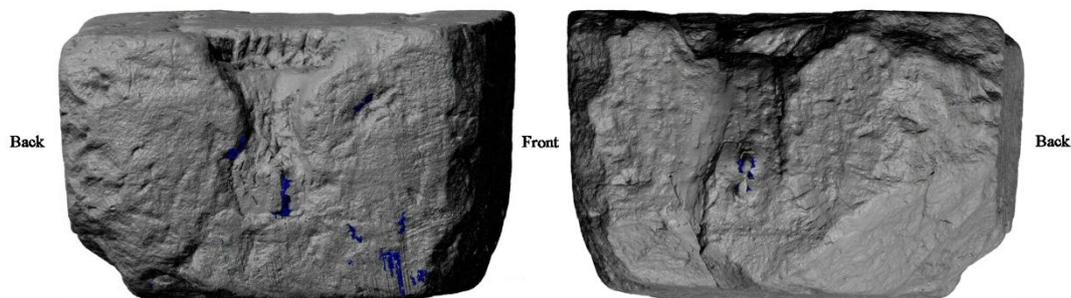


Figure 13 Right- and left-hand ends of the Stone, showing the more worn appearance of the back edge. © Historic Environment Scotland.

At 70–75mm from the front edge a start was made on cutting-in as though to form a sinking. This is easily explicable, as Rodwell (2013: 121–3) suggests, as a setting for an inscription in either brass or some other material. However, its

abandonment and subsequent continuation in roughly punched lines cannot be so easily explained. The start of work at the left-hand side, parallel to the face and neatly done with a chisel (between the two arrows on Figure 14), was abandoned and the work continued in very poor fashion, mostly carried out with a punch used to give a very irregular line. By no standard does it form a straight line. This line is mirrored on the back of the Stone by a rough groove made with half a dozen pecks with a punch: execrable work by any standard. The 'best fit' that can be obtained along the two lines shows that they were not even parallel (Figure 15). This may be due to the fact that the front and back of the Stone are not parallel, being wider at the right-hand end. The very rough marking out of a trapezium cannot realistically be seen as a sinking for a tablet. That may have been the intention with the first few chisel cuts, but the idea was soon abandoned, and perhaps some other hand very crudely continued the idea.



Figure 14 The neat start of cutting in for a sinking. © Historic Environment Scotland.



Figure 15 Roughly punched lines out of parallel. © Historic Environment Scotland.

These two 'grooves' are joined by others at each end, single on the left and now mostly lost in the sinking for the ring, and two on the right, the outer of which is also largely lost. The surface of the small area between the two right-hand grooves has been roughly reduced with a punch for some unknown reason. It is

just possible that a start was made on reducing the centre area (circled on Figure 15), but this is much more likely to be due to damage when the Stone was cracked or repaired.

It is not impossible that the much better work with a chisel was in fact an attempt to clean up the rough start, but the scans do not show the area clearly enough to be able to make a serious judgement. The purpose for the double grooves and the dressing down of the surface between them is inexplicable; it is certainly not how any stonemason would begin to work a sinking (contra Rodwell 2013: 122).

Apart from a lesser effect on the fillet between the 'groove' and the arris at the front, the whole of the upper surface has been subjected to considerable abrasion, especially the back edge. This wear extends onto the edges of all the work carried out, including the 'grooves' and the sinkings.

As discussed in the original report, the sinkings for the rings are again just about as crude as one could imagine: they serve their purpose and no more can be said about them, except that they were clearly cut after the rectangular grooves and indeed are about of the same quality.

## SUMMARY

This report has perhaps added little to the author's original report, but it has served to emphasise and expand a few points.

The new image shows very clearly the third small depression towards the right on the front of the Stone. This is closer to the large centre depression than is the left-hand one and must cast some doubt on the origin of these as caused by visitors. It also shows what appear to be punch marks, implying deliberate use of a tool when the Stone was not in the chair. The other two depressions also show marks of what appears to be the same tool. Their true origin remains uncertain.

One point emphasised by the scans is the wear and abrasion over almost all of the upper surface, including to the edges of the grooves and the sinkings for the rings. Rodwell (2013: 125) believes that the sinkings for the rings were cut at the time that a second seat board was fitted to the chair, probably in 1727. But if this were so, there is no explanation for the wear on the edges of the sinkings as the top surface was then unavailable for touching by visitors. They must have been cut long before the first seat board was introduced, by or before 1685. Rodwell may well be correct in suggesting that the rings date from the 1320s and relate to the chaining down of the Stone, but the sinkings would appear to date from much earlier than 1685.

The wear on the right-hand side back of the top surface is very difficult to explain as anything but the use of the Stone as a step at some point in its life before it reached Westminster. There is no reason to imagine use as a step as related to its time at Westminster, which Rodwell rightly dismisses. The pattern of wear is just that which is found on a step, and explains the comparatively unworn front edge, which is inexplicable if all or even most of the wear was caused by the hands of visitors. Rodwell (2013: 174) in fact sees the major areas of wear in the centre and at the front, whereas in reality the back is much more worn. This is borne out by Rodwell's figure 143, page 108. However, he accepts that the wear at the back was

caused by a previous use at Scone, which is precisely when this author suggested that was used as a step.

The fact that this wear pattern has survived suggests that little stone was cut away at the back before it was fitted into the chair. If this is the reason put forward for the relatively unworn strip along the front of the top edge (tucked under the next step up), then little was cut from the front, either. It may be that its description as a 'great stone' was related more to its length, but this is no more than speculation.

Re-examination of the attempt to form a sinking in the upper surface confirms that the only serious work to it – the short length of chiselling – represents no more than a couple of minutes' work. It may have been abandoned following discovery of the crack, which need not have been visible but made itself known by the distinctive sound. On the other hand, as Rodwell points out, the sinking for the rings came later and was more likely to split the Stone along any crack.

Why the original plan was then continued, almost certainly by another hand, remains a mystery. The work is rough and not aligned with the initial work, and was clearly not a serious attempt to form a sinking. It may be noted that the first few chisel strokes will have been within no more than a millimetre or so of the finished line, and the punch marks to the front of the surface are well outside that. Working with a punch is not the way to begin a sinking, as stone is liable to break away beyond the desired line. Sharp, deep cuts with a chisel are the only way to approach such work. The line at the back is so awful that it is beyond comment. It is as though someone has just been idly playing.

The initial sinking may have been designed to extend to the outer groove cut on the right-hand side; Rodwell (2013: 122) points out that this would have been more or less centrally placed on the Stone. However, at the right-hand end both grooves swing outwards towards the edges of the Stone, especially at the front, and is so roughly done that it appears that someone was merely using the Stone to practice the use of tools. Why a second groove was cut on the right inside the first one, and stone between the two cut away, is not known. Again, it has the feel of someone at play. Rodwell's analogy with carpenters' work is not appropriate at all to the work of the stonemason and does not explain this feature.

In summary, this review of the Stone may have illuminated some aspects of its history, but a great deal remains uncertain. Much more intensive study of the actual object may possibly reveal more, but most of its history will still remain uncertain.

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