Reflections On A 'Marble' Toothbrush Holder

Andrew Nelson

The sticker on the bottom states: "Lucca Marble, Toothbrush Holder" and 'Made in China, $24.95'. The eye is immediately drawn to the fault across the face of the object (Figure 1) displaying, in exquisite detail, offset and plastic deformation of the fine bedding. But marble, one wonders, the mind groping for facts learned many years ago. That's a metamorphic rock affected by heat and/or pressure. This rock retains all of it's fine depositional detail, with the suggestion of varves.

Lucca is close to the great marble quarrying area of Italy. But would rock, destined to become a toothbrush holder, really be shipped from Italy to be cut, polished and assembled in China and reshipped to be sold in my local David Jones store in Chatswood? While my brain was intrigued by the geometry of the fault, the statements on the label did not ring true. I replaced it on the shop shelf and walked away.

The image of the fault and deformed bedding would not leave my mind. Like Keats and his Grecian urn, the story told on the face of this bathroom accessory fascinated me. Four days later I returned to the store, confident in the belief that other shoppers would have spurned the piece, perceiving the stone to be flawed.

Closer examination and measurement of the fault shows that it relays with an offset of about 2.5 mm, a displacement along the fault of about 2 cm and an apparent angle of dip to the bedding of about 28° (Figure 2). Adjacent to the relay, on the leading edge, beds are rotated by movement around the relay by almost 90° to their original orientation. The ends of the relaying fault cuts wrap around a disc shaped fragment of rock with rotated bedding. Cutting and pasting the image of

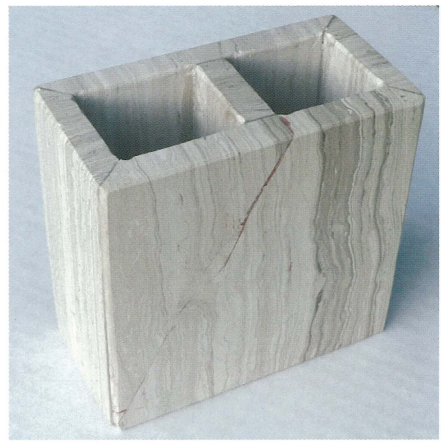

Fig. 1. 'Marble' toothbrush holder.

the opposite sides of the fault, as one does in seismic interpretation with a correlation polygon, shows a close correlation of the beds on either side of the displacement (Figure 3) – confirming that no fault movement occurred during deposition.

Attempted restoration of the fault (Figure 4) reveals a lack of rock volume. Does this point to some plastic flowage? Maybe my interpreter's instincts have got the better of me, as I realise that the fault movement vector was not necessarily in the plane of the face. And does the dark infilling material adjacent to the fault on its lower right imply dilation along that section? Mechanically that looks plausible. In determining the original attitude of the rock other details become useful – an apparent cut and fill surface, and a possible dropstone (Figure 2). One is amazed that so much information and detail is captured on the face of a simple toothbrush holder, scaled so perfectly to the space available. And no, the vinegar test did not produce any fizzing.

$24.95? Worth every cent of it! ■

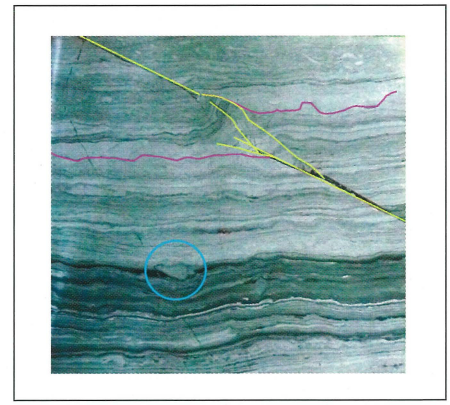

Fig 2. Rotated and marked up face. Fault in yellow, possible cut and fill surface in magenta, possible drop stone circled.

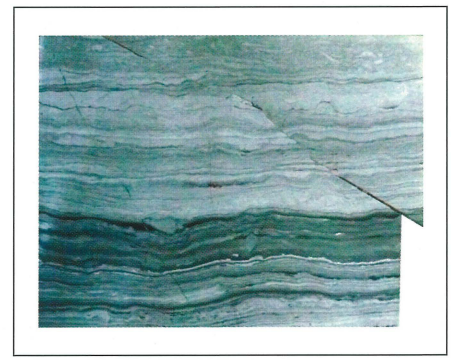

Fig 3. Correlation polygon match across fault. Beds match up well.

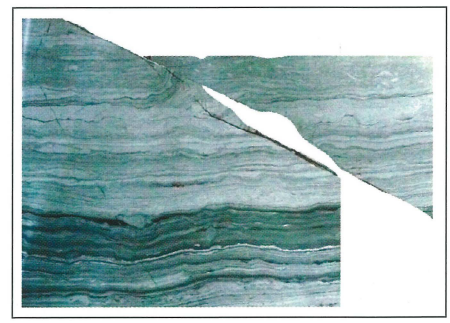

Fig 4. Fault restoration. A significant area is missing adjacent to the relay.

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