Cave and Karst Science

ISSN 1356–191X

Transactions of the British Cave Research Association

Volume 40, Number 3

Contents

Papers‡ and Reports†

Front cover photograph: Scalloping in Far from Home Series, Clearwater Cave, Mulu National Park, Sarawak. Features in the photograph tie into the paper by Trevor Faulkner in this Issue; on the basis of the ideas presented Trevor speculates: *"These large scallops were formed in fully turbulent phreatic conditions by water flowing away from the camera at a mean speed of c. 7cm s^{-1}, if at 10°C. From the Darcy-Weisbach Equation, the applicable hydraulic gradient was c. 1.8x10^{-6} and the volumetric flow rate was 880 litres s^{-1}, if the radius approximates to 200cm and the friction factor was 0.0291. Such a conduit would have previously reached transitional then fully turbulent flows at radii of c. 10 and c. 50 cm at mean speeds of c. 1.7 and c. 3.5 cm s^{-1} and at flow rates of 0.5 and 27.5 litres s^{-1}. At the onset of fully turbulent flow, the mean scallop length was also c. 50 cm. If the passage remained under hydraulic control, mean scallop length reduced to c. 40cm as its size and the flow speed increased, before the passage was suddenly drained with no significant vadose entrenchment. If this high-level conduit had a sink to resurgence length of 10 km, chemical breakthrough occurred at a radius, mean speed and flow rate greater than 25 cm, 2.5 cm s^{-1} and 4.9 litres s^{-1}. It might then have taken less than 1750 years for the passage to reach its present size, before becoming relict by evaporation, when recharge into it ceased and the mud seen on the floor was perhaps deposited." [Photo: Jerry Wooldridge.]*

Back cover photographs: *images of some of the myriad rock bridges or arches that feature among many different types of landscape around the world, especially within hard-rock coastlines. Inevitably some have formed in limestones and other soluble rocks, and their origins might or might not relate to broadly karstic processes. Equally, whereas it is clear that almost all arches develop by enlargement and isolation of fissures and caves (sensu lato), even where their origins* ***are*** *karstic, most of them reach their typical, isolated remnant, form because of modification by marine, fluvial or aeolian erosion, rather than purely due to karstification. Many such features, particularly where readily accessible or (in more recent times) spectacular enough to justify the cost of a helicoptor tour), have become major "tourist attractions". Considering not only their potential instability but also the windy, wave-lashed and exposed situations that they commonly offer, it is perhaps surprising that so few tales of tourist misadventures relate to them.* [See also the paper by Donovan *et al.* in this Issue.]

a Part of the spectacular "Great Ocean Road" coastline west of Melbourne in Victoria, Australia. The landscape, including 50m-high cliffs, is cut into a Miocene succession comprising weak, granular, impure, chalky limestones that are eroded rapidly by the wave action of the frequently violent Southern Ocean. Retreat rates of 20mm/year at the foot of the cliffs have been quoted, with old stacks collapsing and new arches, etc, forming within centuries timescales. Taken during a helicopter fly-over, the photograph encapsulates landscape features that cover the entire evolutionary sequence from deep embayments and intervening headlands, to caves to arches to residual stacks (see also photos c and e). *(Photo: Jerry Wooldridge.)*

b Lying within the UK's *"Jurassic Coast UNESCO World Heritage Site"*, part of the Durdle Door is an arch formed through a narrow rib of near-vertical Portland Limestone, folded complexly by the fringe effects of the "Alpine Orogeny" (Miocene) as part of the "Lulworth Crumple" zone. This spectacular setting has formed the backdrop for scenes in several feature films, including the 1967 version of Thomas Hardy's *"Far from the Madding Crowd",* and for various "pop" videos by performers such as Cliff Richard and Tears for Fears. *(Photo: Tony Waltham)*

c Again photographed from a helicopter, this image shows the detailed setting of just one of the many spectacular arches (and related features) along Australia's Great Ocean Road (see also photos a and e). *(Photo: Jerry Wooldridge.)*

d Reflecting the friable nature of its caprock, the Azure Window, one of the major tourist attractions along the rugged coastline of the Maltese island of Gozo, is disintegrating rapidly; visits to the rock above the arch are strongly discouraged! As at Durdle Door (photo b) this occasionally spray-lashed and atmospheric location has appeared in many television productions and films, including the 2002 version of *"The Count of Monte Cristo". (Photo: Dave Lowe.)*

e Another view, this time photographed from ground level, of one of the many fine arches along The Great Ocean Road coastline (see also photos a and c), penetrating a narrow headland comprising a rib of rock between two strong and well-marked joint planes. (*Photo: Tony Waltham.)*

f Massive slabs of fallen limestone left after the collapse (in 2005) of the long, low and wide Natural Bridge on the north coast of the Caribbean island of Aruba in the former Netherlands Antilles. *(Photo: Tony Waltham.)*

g This wide sea-stack (containing its own small arch) in southern Australia was left after the 1990 collapse of the wide arch known as "London Bridge", which previously joined it to the mainland. The double-arched headland was formerly accessible by footpath, and the collapse left two tourists marooned on the newly formed stack until they were lifted off by helicopter. *(Photo: Jerry Wooldridge.)*

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Cave and Karst Science (ISSN 1356–191X) is published three times a year and issued free to all appropriately paid-up members of the Association. As BCRA's science journal, it has been published continuously since BCRA's foundation in 1973, firstly as the *Transactions of the British Cave Research Associatio*n (ISSN 0305–859X) then, from 1982 to 1993, as *Cave Science* (ISSN 0263–760X).

Annual subscriptions are available to non-members at a rate of £24. For destinations outside the UK. extra postage of £3 (Western Europe) and £6 (outside Western Europe) applies. A special discounted subscription rate is available to *bona fide* students. For more information about BCRA publications and publication sales, please refer to the details on Page 140.

Publisher: The British Cave Research Association, The Old Methodist Chapel, Great Hucklow, Buxton, SK17 8RG, UK. (enquiries@bcra.org.uk). The BCRA is a UK registered charity, number 267828. It is a constituent body of the British Caving Association, undertaking charitable activities on behalf of the BCA.

First edition printed by Pagefast Print & Publishing Ltd, Lancaster, UK. [Subsequent digital reprints by BCRA.]