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On the use of deep concave-dished containers in fossil invertebrate macrophotography

Stephen K. Donovan* and David N. Lewis**

*Taxonomy and Systematics Group, Naturalis Biodiversity Center, Postbus 9517, 2300RA Leiden, the Netherlands
<Steve.Donovan@naturalis.nl>
**Department of Earth Sciences, The Natural History Museum, London SW7 5BD, England
<dnl@nhm.ac.uk>

Abstract

We present a simple, inexpensive technique for macrophotography of globular fossils. The concave base of the plastic 42.5 or 71 gm containers of 'Patum Peperium, the Gentleman's Relish', makes excellent stands in and on which specimens can be accurately oriented as required for macrophotography. A suitable background is easily introduced, such as a small sheet of black velvet or a gentleman's white handkerchief. A similar stand could be made by cutting a tennis ball in half and mounting it in a low container such as a coffee cup. This is illustrated with a flint *Steinkern* of the Late Cretaceous spatangoid echinoid *Micraster*. Results obtained are easily manipulated in photoshop and are eminently publishable.

Key words: palaeotechniques, Patum Peperium, photoshop, Upper Cretaceous, *Micraster*

Introduction

A feature of all areas of study in palaeontology is the range of standard techniques employed by most, commonly all practitioners. These range from the intensive use of technology, such as the correct way to sequence the ancient DNA of bone of Neanderthal Man (Papagianni and Morse, 2015, pp. 165, 168–172), to the commonplace, such as the use of a hand lens or a geological hammer in the field (Tucker, 2011, chapter 1), and the arcane, such as the preferred methodologies employed to measure a section (Stow, 2005, pp. 18–23; Tucker, 2011, pp. 13–19). Between these extremes is one of the most widely applicable suites of techniques, that is, photography in its myriad forms. Certainly, most geological investigations involve some form of micro- and/or macrophotography (Rasetti, 1965; Whittington, 1965). In particular, the techniques of macrophotography of hand specimens are widely practised in the geological sciences, particularly by museum curators and researchers at a time when many catalogues are appearing online with supporting digital imagery.

Techniques may be widely practised, but, like an experienced chef, each of us has our secret 'recipes' and methods that we find expedient, perhaps essential to successful photography. Herein, we describe a simple and cheap method developed by one of us (D.N.L.) many years ago, and used successfully during macrophotography by both of us of museum specimens. In particular, we have found it an excellent way to remove some of the clumsiness inherent in orienting globular invertebrate macrofossils, particularly echinoids, under the camera. Although applicable to only a limited size range, this corresponds to that of many common taxa including, in our experience and apart from echinoids (Fig. 1D–F), thecae of Palaeozoic crinoids, benthic molluscs, oysters and bored substrates. There are many other possibilities, including vertebrate palaeontology, palaeobotany, mineralogy and lithology.

The figured specimen (Fig. 1D–F) was presented to the Naturalis Biodiversity Center, Leiden, the Netherlands (prefix RGM), by James Isted ('Jurassic Jim') of Sandown, Isle of Wight. The specimen was identified by reference to Smith and Wright (2002).

Material and methods

The essential piece of equipment for this method is the plastic container (42.5 or 71 gm) in which the anchovy paste Patum Peperium, the Gentleman's Relish is sold (Fig. 1A). Enjoy the relish on toast and wash the container thoroughly. Alternately, a similar device may be constructed using half a tennis ball wedged into a small coffee mug. There are two halves to the Patum Peperium

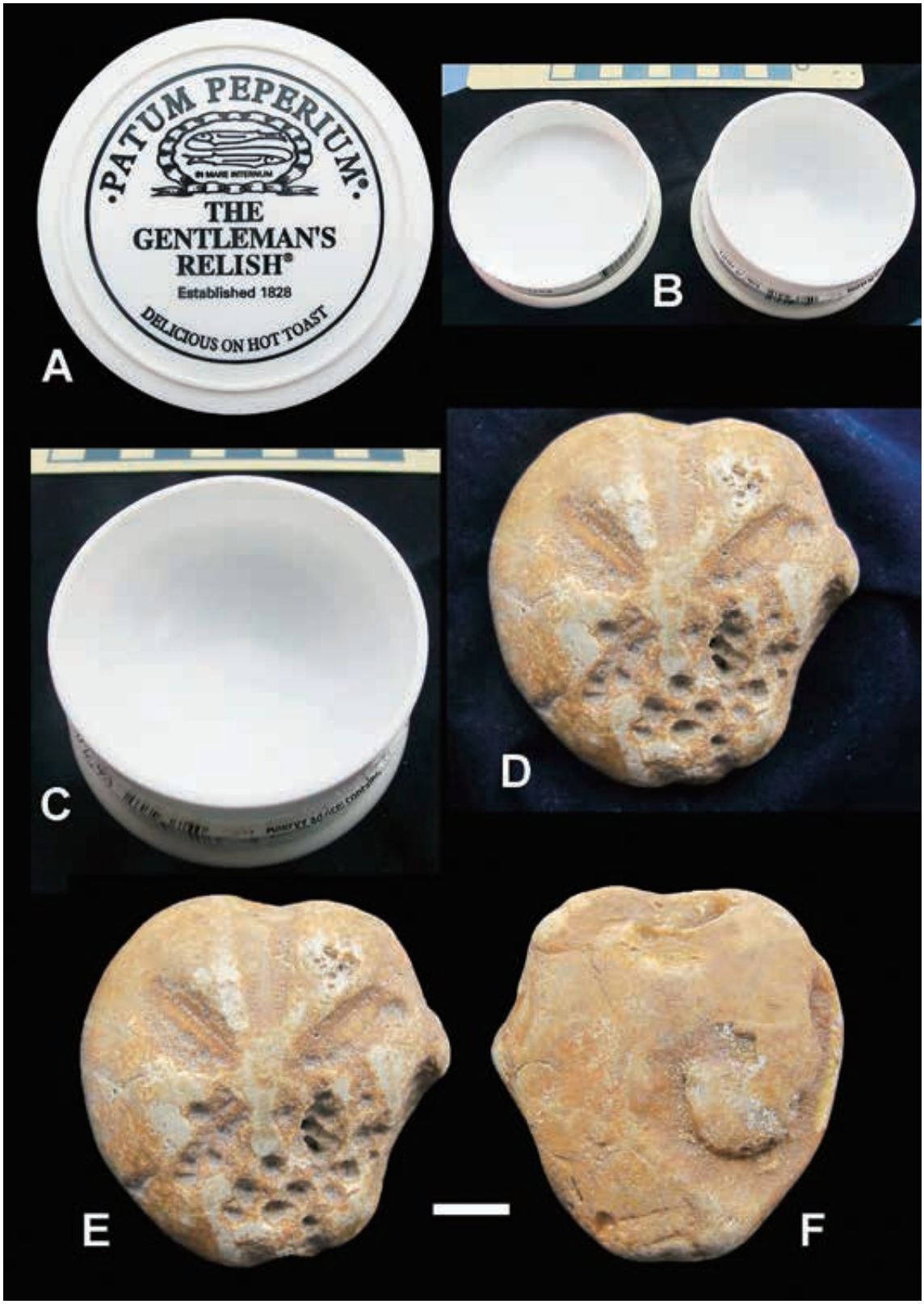


Fig. 1. (A–C) Clean Patum Peperium container (71 gm) suitable for macrophotography. (A). Lid, width 76 mm. (B) Inner surfaces of lid (left) and base; scale in cm. Although we have used both of these for macrophotography, draped over with a piece of black velvet, it is the dished base (right) that provides the greatest control for orienting specimens. (C) Enlargement of inner surface of base; scale in cm. (D–E) Steinkern of *Micraster* sp. cf. *M. cortestudinarium* (Goldfuss), RGM 792 290, photographed on a Patum Peperium base with a black velvet drape and using a Canon G11 digital camera. (D) Apical surface of test, mounted for photography on a square of black velvet on a Patum Peperium base. (E, F) Apical (E) and oral surfaces (F) photographed using the method advocated herein and with the backgrounds blacked out using photoshop. As shown here, these images are entirely adequate for publication in a paper on, for example, echinoid systematics. Specimen not whitened. Scale bar represents 10 mm.

container, the lid and the base (Fig. 1B). While the lid has potentially analogous uses to the base, we focus on the latter. Most particularly, the hemispherical dished container of the centre of the base is a versatile device for positioning many fossil specimens in required orientations for macrophotography (Fig. 1B, C). Because it is shiny white and thus not ideal for photography, we recommend draping a small square of black velvet, say 20 x 20 cm, over the aperture (dish) of the container. This has the double advantage of providing a dark, non-reflective background and also a 'non-slip' surface on which specimens can be oriented. The latter is a great advantage, enabling easy positioning of specimens (Fig. 1D). The dark background is also an advantage when dealing with pale-coloured specimens, providing a strong contrast which can be further enhanced by photoshop or similar program used for compiling photographic plates (Fig. 1E, F). Dark-coloured specimens would obviously benefit from a pale and matt background, such as provided by a gentleman's clean handkerchief.

The under surface of the base is a dome. This can be used for those specimens that might fit over the dome, for example, the inner surface of bivalves, again using a suitable background.

Results and discussion

We present the Patum Peperium base as a cheap and efficient adjunct to the macrophotography of, mainly, 'medium-sized' invertebrate macrofossils and vertebrate bones, among others. In addition to the example chosen herein, *Micraster* sp. cf. *M. cortestudinarium* (Goldfuss) (Fig. 1D), we have used this photographic method in illustrating specimens in many of our research papers (such as Donovan and Lewis, 2010, fig. 1; Donovan and Lewis, 2011, figs 1b, d, 2b, d, 3b; Donovan, 2014, figs 1, 2; Donovan *et al*., 2014, figs 2, 3). With careful blocking out of the background using a computer program such as photoshop, and sympathetic adjustment of brightness and contrast, the results obtained are of a high quality and are eminently publishable (Fig. 1E, F).

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