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A cost-effective and safe method for storing small lithic artefacts

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Over 150 years of research into Indian prehistory has resulted in a wealth of information, based primarily on the analysis of lithic artefacts. R.B. Foote was, perhaps, the first in India to prepare a catalogue of prehistoric artefacts, forming part of his research, and to facilitate their proper storage (Foote 1916). There have been relatively few attempts, however, to resolve issues of storage and conservation and to facilitate ease of access to archaeological collections, particularly for lithics (Johnson & Hogan 1979; Heneman 1995). Prevalent methods—such as the storage of groups of artefacts in bags, cardboard or wooden boxes or crates—can result in problems of slow retrieval, artefact abrasion or breakage, and the loss of labels and contextual information.

Although published solutions to these issues are few, some museums and cultural centres in India have addressed this issue, following global recommendations on cost, safety, accessibility and conservation, amongst other factors (Lambert 2011). The focus of active research on the prehistory of India, however, lies in universities and research institutes, and so it is here that systems for cost-effective storage and rapid accessibility need to be developed. For an archaeology department, commercial storage systems are expensive, locally available metal racks do not serve specific research needs unless used with other containers, and cheaper varieties of wooden cabinets are susceptible to damage from termites and other factors. Virtual museums (Pescarin 2014) are not, at present, financially viable for such research institutes.

In this context, the lithic collections from our own excavations and surveys along the south-east coast of India have been obliged to address this issue. Here, we discuss one of the methods devised by the first author for storing small quartzite lithic artefacts (up to 5cm), from excavations at Attirampakkam (ATM), India. This site is significant, with evidence of an Early Pleistocene date for the Acheulian levels—currently the oldest in South Asia (mean estimated age of 1.51±0.07 Ma)—and which also has a long succession of Middle Palaeolithic cultures (Pappu *et al*. 2011). This cost-effective, space-saving, safe storage method provides protection from abrasion for each artefact and enables rapid retrieval for ongoing research (Figure 1).

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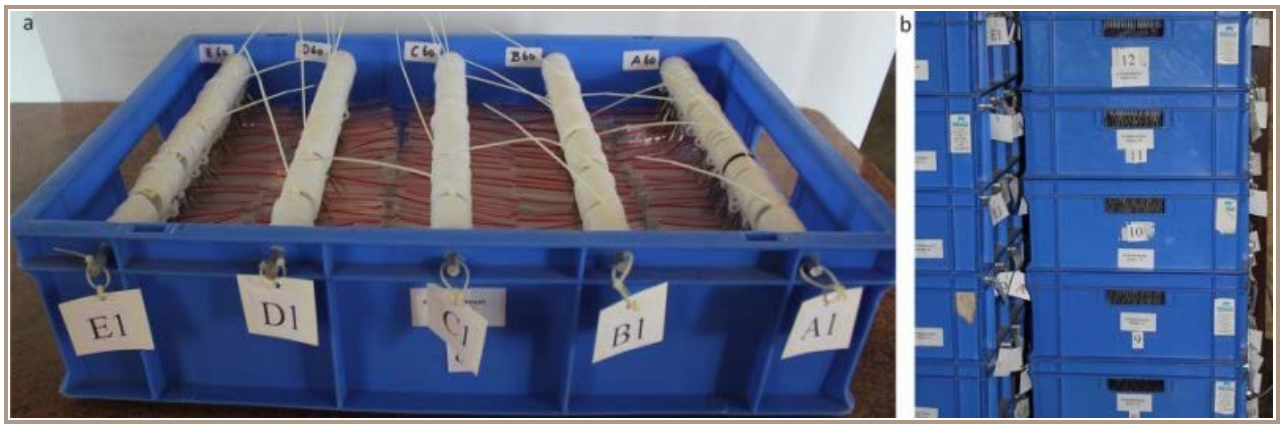

Figure 1. a) View of an individual crate, showing grids, aluminium rods and rows with artefacts; b) one approach towards storing multiple crates.

We use a set of plastic crates (600 × 400 × 120mm) that are each given a unique identification number. Each crate is further divided into 5 sections (A–E), using solid aluminium rods (6mm diameter × 400mm length) (Figures 1 & 2). Each artefact is sealed in a ziplock bag, on which its number/code is recorded. A small steel hook is inserted into a hole punched in each bag, avoiding damage to the bag and artefact. These are hooked onto small plastic rings. A maximum of 60 such prepared bags can be slipped onto the

rods, divided into groups of 10 by thin plastic separators. An alphanumeric code specifies the position of each artefact on the rod, from A1 to A60 and so forth. Once the bags are arranged, the rods are inserted into holes drilled in the crate and sealed with plastic strips that are ease to remove (Figures 2 & 3). At no point does the plastic bag containing the artefact come into contact with either the sides or base of the crate, thus protecting fragile artefact edges. Highly weathered artefacts or delicate pieces may also be wrapped in cotton, foam or bubble wrap for greater protection.

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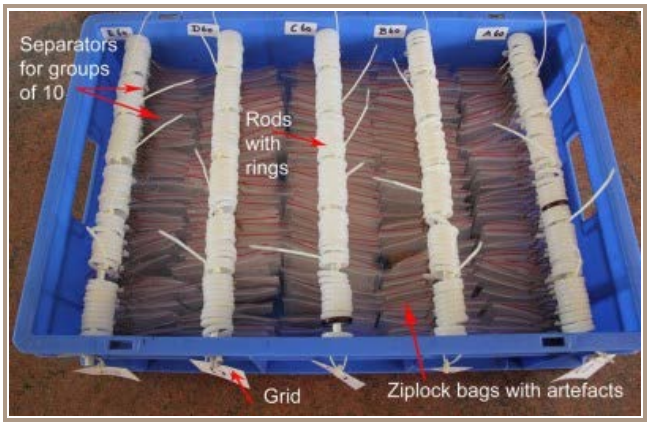

Figure 2. Close-up of a crate, showing details of the arrangement of artefacts and components used in this method.

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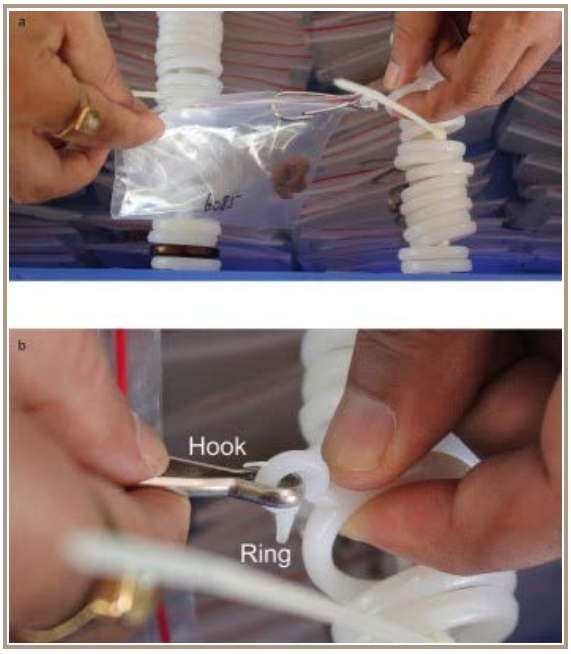

Figure 3. Details of the hook-and-ring system for hanging ziplock bags containing artefacts, with: a) plastic bag attached; b) close-up of the hook-and-ring attachment, showing one method of removal of individual artefacts.

Artefacts can be grouped by trench, layer, spatial co-ordinates or type as required. The precise location of any artefact is listed in a database (e.g. A.No. 3000, Box 1, C15 (row C, position 15)). Individual artefacts can be retrieved by removal of the hook from the ring (Figure 3b). This method also allows a quick check as to the possible absence of any artefact. Alternatively, artefacts can be removed in a group by detaching the rings or the entire aluminium rod (Figure 4). Records are maintained for the removal and replacement of any artefact(s). The database provides information on the analysis of artefacts, hyperlinks to images, maps and other information. Crates are either stacked on top of each other or on shelves (Figure 1); simple modification permits the addition of wheels or sliders. The total cost for organising one crate storing *c*. 300 small artefacts is less than 10 euros. Larger lithic artefacts are packed within individual ziplock bags (often with cotton), followed by a packing of bubble wrap and stored in individual trays, in accordance with a similar cataloguing system.

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Figure 4. Two ways of removing artefacts: a) in groups by removal of the rod; b) individually, with rings.

The system is cheap, protects artefacts and enables quick retrieval for research purposes, making it of great value to departments starved of funds and/or space. We are unaware of exact parallels to this system in the published literature (see Singley 1981). In the future, the method could be easily linked to the use of RFID (radio-frequency identification) tags or other electronic systems of recording, virtual museums and online databases. This method is particularly useful for ensuring safe storage and reliable access to lithics, either for long-term solutions or prior to transfer to commercial storage systems. In our study region, as is elsewhere in India,

infrastructure development is resulting in the rapid destruction of prehistoric sites (Pappu *et al*. 2010). In this context, collections of lithics may eventually be the only record left of India's rich prehistoric heritage, and suitable conservation and storage methods are of vital importance.

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