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FINGERPRINTS ON EARLY MINOAN POTTERY: A PILOT STUDY

FINGERPRINTS impressed in the clay body of pottery vessels at the time of manufacture and subsequently preserved during firing are a neglected area of archaeological evidence.[1] Although the presence of fingerprints is occasionally noted in pottery reports and mentioned in conversations between archaeologists, there have been few attempts to record and analyse them. The first archaeologist to notice and record fingerprints was W. F. Badè during his excavations at Tell en-Nasbeh in 1927.[2] Professor Paul Åström identified and recorded fingerprints on pottery from various sites in Cyprus and the Aegean, and employed a Swedish fingerprint expert to analyse them.[3] In recent years Julie Hruby of Cincinnati has continued work in the Aegean.[4]

WHY FINGERPRINTS?

Potentially, the identification of fingerprints on ancient pottery is a valuable source of evidence for the organization of pottery-producing sites, for short- and long-distance trade, and for chronological matching. For example, if fingerprints can be identified and matched on pottery vessels and wasters at a production site it may be possible to recognize on-site specialization, some potters being associated with the production of certain specific shapes and vessels. It may also be possible to suggest the minimum number of potters at work at that production centre, and also to recognize cases where two or more individuals are involved in the production of a single vessel. If matching fingerprints are found on vessels from a production site and on those from settlements or cemeteries elsewhere then the exchange of products can be recognized. Alternatively, a combination of petrography and fingerprint studies might reveal the movement of individual potters. Thirdly, if matching fingerprints are found on sherds or vessels in two or more settlements and contexts, then their broad contemporaneity (i.e. to a working lifetime) can be established. Such advances could only be made as a result of systematic work over a long period of time, although studies of single production site assemblages could be carried out in a much shorter time frame. However, before substantial amounts of time and resources are devoted to the search for fingerprints and the subsequent attempt to match them, it seemed appropriate to carry out a pilot study. The purpose of this would be primarily to establish the frequency with which fingerprints survive on pottery, to establish whether there were particular types of vessels and particular parts of vessels which were especially prone to fingerprinting, and to see if fingerprints on pottery were sufficiently well preserved to allow matching of characteristics.

[1] The project was carried out with the permission of the Greek Ministry of Culture; we are grateful to the Directors of the Iraklion and Ayios Nikolaos museums for enabling us to study the material, and to the staff of the British School in Athens and at Knossos for their support. We are grateful to INSTAP for providing a grant to undertake this project, and to the Sheffield Centre for Aegean Archaeology for financial support.

[2] W. F. Badè, *A Manual of Excavation in the Near East* (Berkeley, 1934), 34.

[3] P. Åström, *Excavations at Kalopsidha and Ayios Iakovos in Cyprus* (SIMA 2: Lund, 1966), 127–8, 142; id., 'Finger-prints on Cypriote Bronze Age pottery', *Proc 1st International Cyprological Congress* (Nicosia, 1972), 1–3; id. and S. A. Ericsson, *Fingerprints and Archaeology* (SIMA 28, Göteborg, 1980).

[4] Pers. comm. We are grateful to Julie Hruby for discussing her work with us: her work is focussed rather more on the study of populations than individuals.

The Assemblages and their Study

With the aid of a grant from INSTAP, the authors carried out an examination of the pottery corpus from the Early Minoan tholos cemetery at Ayia Kyriaki in the Asterousia, southern Crete,[5] and that from the Early Minoan settlement at Fournou Korifi,[6] just west of Ierapetra, southern Crete. For the limited objectives of this pilot project, these assemblages were chosen because they were easily accessible for study, they were both fully published, they had been excavated under controlled conditions, and they represented two different types of assemblage, funerary and domestic.

The Ayia Kyriaki assemblage consisted of 16,000 sherds, mostly recovered from the environs of the tomb chamber, rather than the chamber itself. The pottery covers the period from EM I to MM I B, the majority falling in the EM I–MM I A phases. Being a tomb assemblage it consists of a considerable quantity of fine wares, for cups, small jugs, and bowls. There were some coarser wares used mostly for large bowls, but also for pithoi and cooking vessels. The most common vessel shapes were cups (54% of total), jugs (19%) and bowls (10%). Large bowls, pithoi, and cooking pots together made up 5% of the assemblage.

The Myrtos group consisted of 690 complete and restored pots, and about 3,000 sherds. They were mostly recovered from within the many rooms of the EM II settlement, and date from EM II A to the very end of EM II; the majority belong in EM II B. This is a domestic assemblage and coarser wares therefore make up a larger part of the total, perhaps around 45%, with cooking vessels, large storage jars, and pithoi far more prevalent than at Ayia Kyriaki. Jugs, cups, and bowls are nevertheless all well represented.

In advance of the study of the pottery, a pro-forma was prepared on which the individual sherds/pots and their fingerprints were to be recorded. A camera was prepared to take photographs of finger-prints which could be produced as contact-prints at 1:1 scale. The Ayia Kyriaki assemblage was examined in June 1998, and the Fournou Korifi material in September of the same year. All the sherds and all the complete pots (including the Goddess of Myrtos) were examined to see if fingerprints could be found. Sherds and vessels with prints were put on one side and then examined more closely to see if the prints were sufficiently well preserved to merit recording and photography.

Results

In the Ayia Kyriaki assemblage a total of 97 fingerprints were found on 30 sherds (that is approximately one sherd in 500 revealed prints). However, most of the prints were insufficiently complete or clear to be useful, and only 13 fingerprints (from eight sherds) were photographed and entered on a recording form.

Of the eight sherds, seven were from closed shapes and one from a handled bowl. Seven of the closed shapes were probably jugs, the eighth being from a carinated jar (FIG. 1 *a–b*). In every case the fingerprint was on the inside of the vessel, a result partly of the nature of the pot-forming processes and partly from finishing processes having obliterated prints on the exterior surface. Of the eight sherds/vessels with finger-prints six were in Dark-on-Light (Ayios Onouphrios) ware, and two were Red-Slipped Ware.

[5] D. J. Blackman and K. Branigan, 'The excavation of an Early Bronze Age tholos tomb at Ayia Kyriaki, Ayiofarango, Southern Crete', *BSA* 77 (1982), 1–57.

[6] P. Warren, *Myrtos: An Early Bronze Age Settlement in Crete* (BSA Supp. 7; London, 1972).

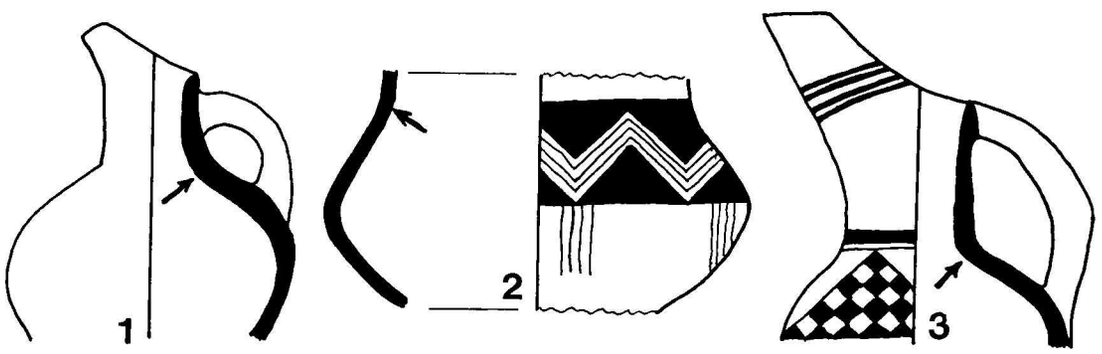

FIG. 1 Diagram showing location of fingerprints on a jug from Fournou Korifi (*a*) and a carinated bowl and jug from Ayia Kyriaki (*b–c*).

In the Fournou Korifi assemblage some potentially fingerprint-bearing vases (jugs, closed jars, etc.) were too well preserved to be able to examine and photograph any prints on the underside of the shoulder (a common location for prints we found), so the incidence of fingerprints may well have been higher than that we recorded. A total of 57 fingerprints were found on 18 vases (about one vase/sherd in 200 carried prints), but only 17 were considered good enough to record. These 17 prints were found on only four vases, however, with one vase yielding ten of them (FIG. 1 *c*). All the shapes were closed, comprising three jugs and one jar. Three vessels were in a Red/Black Slipped Ware and one was Vasiliki ware. Three of the vases with prints were from the South Coast tradition as identified by Whitelaw *et al.*;[7] so they were made either at Myrtos or a production site in the vicinity.

The analysis and comparison of the prints obtained at each site failed to discover any matches, but with so few prints this is unsurprising though disappointing. Impressions came from both fingertips and phalanges. No thumb or palm prints were noted. One encouraging aspect of the print analysis, however, was the number of ridge characteristics that survived in many cases. In a British court-of-law eight characteristics need to be matched for proof of identity to be established. For archaeological purposes, it is suggested that five ridge characteristics should be enough confidently to assert a matching identity, bearing in mind that the prints must come from a very small segment of the population, namely the potters. At Ayia Kyriaki five of the thirteen prints had five or more characteristics, whilst at Fournou Korifi nine of the seventeen fingerprints met this criterion (PLATES 1 *a–b*). One of the Fournou Korifi prints had as many as twelve ridge characteristics surviving, and two others had eight.

COMMENT

The number of surviving fingerprints on handmade pottery proved disappointingly small, particularly when unsatisfactory prints were excluded. Survival of fingerprints is subject to a number of variables, which include not only the potters' handling and finishing techniques, but also the coarseness of the fabric, the plasticity of the clay, and the drying time (itself

[7] T. Whitelaw, P. Day, E. Kiriatzi, V. Kilikoglou and D. Wilson, 'Ceramic traditions at EM.IIB Myrtos, Fournou Korifi', in R. Laffineur and P. P. Betancourt (eds), *TEXNH: Craftsmen, Craftswomen, and Craftmanship in the Aegean Bronze Age* (Aegaeum 16; Liège and Austin, 1997), 265–74.

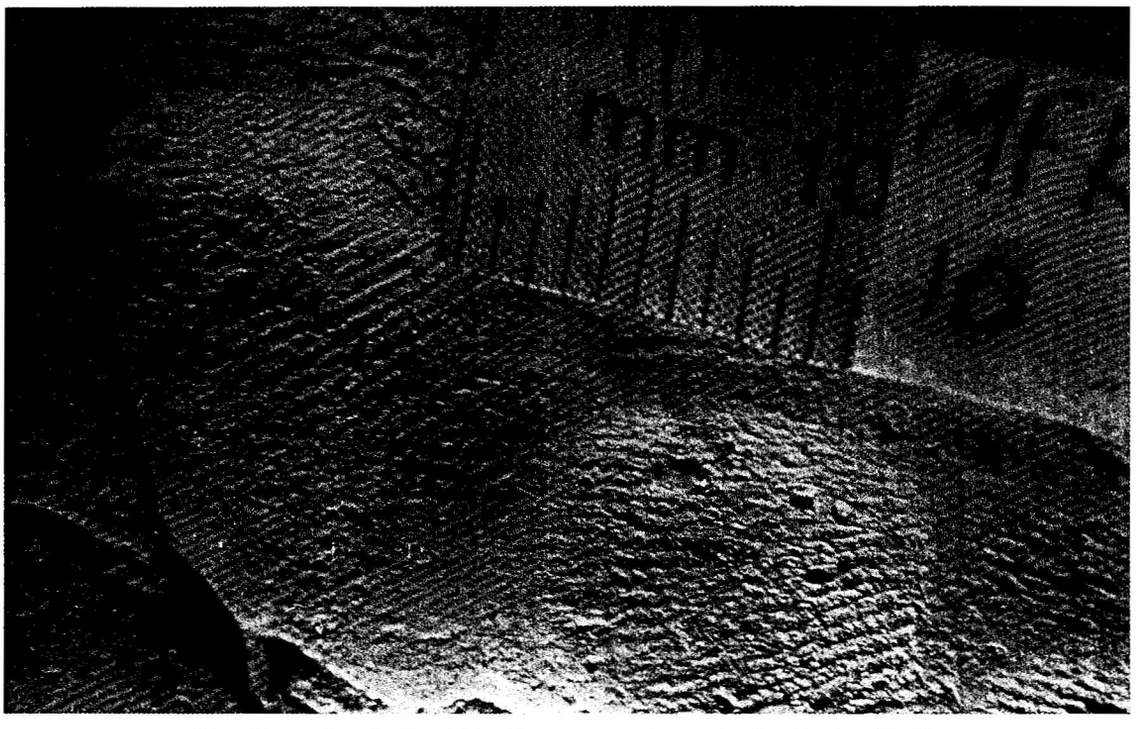

FIG. 2 Fingerprint with five visible ridge characteristics on a jug from Fournou Korifi.

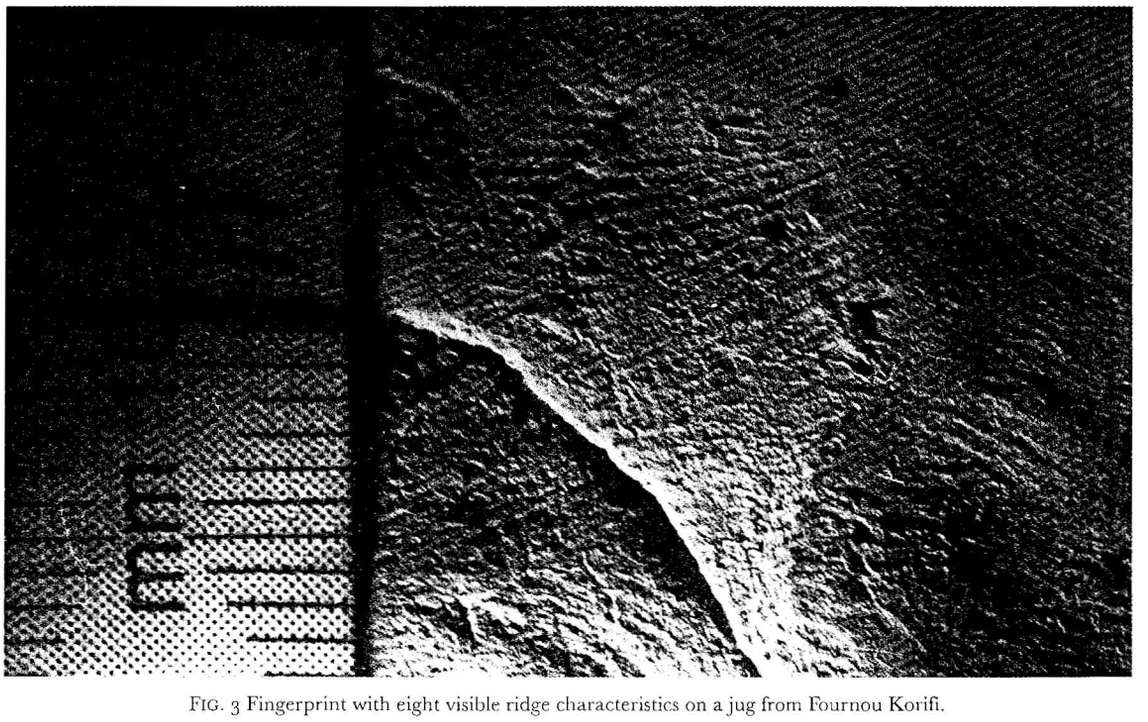

FIG. 3 Fingerprint with eight visible ridge characteristics on a jug from Fournou Korifi.

dependent on small changes in temperature and wind velocity). We have to recognize therefore that some kilns and some pottery making regions, may produce few, if any, fingerprints on their products.

Fingerprints appear to occur most, and survive best, on the inside of closed shapes such as jugs and jars, and in our two assemblages were more prolific on the harder fabrics than the soft ones. Fingerprints with sufficient ridge characteristics for positive matching do survive, in some cases with as many as eight or more characteristics. If pottery specialists could be encouraged to set aside sherds with fingerprints for recording, then the establishment of a database could in time begin to yield matches and therefore potential chronological links between assemblages. But this is a long-term prospect for the future. More immediately, we believe the examination of a sherd assemblage from a kiln site (and examination of kiln debris such as firebars) might produce a greater frequency of usable prints, since the material will include a high proportion of unfinished vessels on which prints may be better preserved.

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