

PHASING THE KASTRO: ABANDONMENT AND THE ARCHAEOLOGICAL RECORD: *Margaret S. Mook*, Iowa State University

While the processes of settlement abandonment have been a topic of long-standing interest to anthropologists and archaeologists working in the American Southwest, their implications are seldom acknowledged by Aegeanists. On the Kastro in East Crete, a settlement inhabited from Late Minoan IIIc into the Archaic period, variations in artifact type, size, and distribution across the site have not been adequately explained, but may now be reassessed with respect to abandonment processes. Recognition of these processes affects the interpretation of remains associated with both abandonment and deposition resulting from non-abandonment behavior, and also provides criteria for phasing.

Superimposed house floors yielded meager amounts of primary refuse, while a high density of *de facto* refuse, including numerous pots, was found on the floors of rooms used at the time of final site abandonment. Rooms with little or no material directly on the floor surface, but large quantities of artifactual and non-artifactual material in the fill directly above them, may have been abandoned when other areas of the site were still inhabited. The material in the fill can be interpreted as secondary refuse, which is unlikely to be related to the use patterns of the room before it was abandoned. A range of human behavioral activities may have produced these depositional patterns. Additionally, the deliberate blocking of internal doorways provides further evidence for the successive abandonment of rooms in certain houses. Thus, phasing on the Kastro can be closely associated with abandonment and post-abandonment processes, which permit, and indeed require, the reassessment of assumptions often brought to bear on the interpretation of certain features of the archaeological record.

BURNING PATROCLUS: MARINE REMAINS FROM CREMATION BURIALS IN EARLY IRON AGE TORONE: *Deborah Ruscillo*, University College London

Excavations at Torone in Chalkidike, Greece, have produced 118 cremation burials dating from the Protogeometric period. Through regular excavation methods and wet-sieving techniques, over 2 kg of shell and other marine remains were recovered from within ash urns and associated burial trenches on Terrace V. Close study of the marine remains has revealed information concerning cremation customs in the Protogeometric period.

Thirty-three species of molluscs, as well as urchin, crab, and fish remains, are represented in the sample. All attest to a wide variety of seafood exploited during the PG period, and its regular usage in burial contexts. Edible species comprise the vast majority of the sample, though there is some debate about whether seafood was deposited as grave offerings, or eaten by mourners at a funeral banquet. There is little evidence, however, that the shells themselves were offered as grave gifts. Important, also, is the lack of marine remains in infant burials.

Analysis of the sieved material revealed burnt and worn pieces of seashells and tiny marine gastropods, items that are probably unintentional burial inclusions. They suggest that at least some cremations occurred on the seashore, and beach materials found their way into the burials on the terrace through the gathering of the ash after the funeral pyre collapsed. Cremation on the shore is reminiscent of the funeral of Patroclus described by Homer (*Il.* 23), and is also plausible given that large fires are more easily controlled on sand and gravel near the water.

THE AQUINCUM HYDRAULIS (A.D. 228): ITS PRESENT STATUS AND THE ROLE OF ARCHAOMETRY: *Eugene L. Szonntag*, University of South Florida

The "Aquincum hydraulis," a Roman pipe organ hastily excavated 64 years ago near Budapest, Hungary, is poorly documented, with no stratigraphic records, section drawings, site photographs, or field measurements. Excessive cleaning, the loss of components, and a 1950s effort to force pieces into a "working" model have all contributed to the serious degradation of this unique find. Today, after restoration and conservation, the 300 surviving metal parts are coated with acrylic resin and are unsuitable for sophisticated techniques of analysis. With the charred tuning stoppers now missing and many pieces separated, altered, or mixed up, it is nearly impossible to determine the length and sequence of 52 pipes. Actuating and winding are also enigmatic, and scientists must rely on freely arranged indoor photographs and "post res" laboratory measurements in Lajos Nagy's book *Az Aquincumi orgona* (Budapest 1934).

Fortunately, archaeometric techniques can be used to retrieve some of the information. In 1976, I first reported the existence of a fragmentary "pnigeus" (water-filled, upside-down container for air pressure control) among the Aquincum organ parts. Simulated corrosion tests followed, and shape refinements commenced recently. Preliminary statistical treatment of Nagy's dimensional data has improved our understanding of the pipe sequence and tuned-length formulation. This research in turn has led to establishing the pipes' tone color. Finally, by expeditiously tabulating Gegus's instrumental analysis data of the organ components, I have discovered the principles by which the Romans selected alloys for different hydraulis components.

VITRUVIUS ON ACOUSTICAL VASES IN GREEK AND ROMAN THEATERS: *Jean M. Davison*, University of Vermont

The Roman architect Vitruvius dedicated to Augustus a treatise on architecture in 10 books, written perhaps between 35 and 25 B.C. In Book 5 (5.1-8) he assumes the use of bronze or terracotta vases for acoustical purposes in Greek and Roman theaters and gives instructions for the tuning of the vases and their disposition among the seats according to various musical modes. My colleague Robert G. Arns of the Physics Department of the University of Vermont points out that such a system, no matter how tuned or disposed, would never have been effective in an open-air theater.