

## Abstracts

### Technical Aspects of the Mosaic Craft

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This paper discusses the technical aspects of mosaics and focuses on the evidence observed in floor and wall mosaics in Israel. The most common technique is *opus tessellatum*, but there are several examples of other forms of mosaic paving. A mosaic at Tel Anafa and one at Dor were made in *opus vermiculatum*. Another mosaic at Tel Anafa was produced through the technique of *opus signinum*. Fragments of a mosaic formed from irregular stone chips and dating to the 1st century BCE have been found in Caesarea Maritima. Another mosaic from Caesarea, dating to the 3rd century CE, combines two techniques, *opus tessellatum* and *opus sectile*.

The study traces preliminary guidelines incised or painted on the nucleus and colored preparatory drawings on the setting bed in Roman and Byzantine mosaics. The use of polychromatic preparatory paintings on the setting bed was apparently very common, since traces of colors on the upper layer were noted in at least six floors.

The range of materials for the *tesserae* and their sources are also examined. Although very few petrographic analyses have been carried out, we have observed some regional features.

### Workshops for Bone Tools in Caesarea

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Among the finds discovered in excavations carried out at Caesarea by teams from the Israel Antiquities Authority and the University of Haifa in recent years were remains of the bone-tools industry. The workshops themselves were not found, and the working tools, which were mostly metal, have disappeared. The existence of this industry is inferred from two types of finds: Ca) unfinished objects whose preparation was incomplete owing to mishaps, poor raw materials, inexperience, etc.; Cb) production waste material - bits and pieces of bone that had been removed and thrown away during the production process and pieces of raw material left over when the work was completed.

Closer inspection of these finds with a magnifying glass and a microscope revealed scratches and other marks left by various working tools (saw, knife, file, drill, lathe, etc.). We can thus reconstruct the methods and stages of work of the craftsmen.

An initial examination of the finds showed that there had been active bone (and ivory) workshops in Caesarea for hundreds of years, from the Roman period to the Early Arab period. The workshops produced pins, rings, dice, handles, carved pieces, inlays, and other items. This article presents incompleting objects and industrial waste connected with the production of pins, rings, and dice. It should be noted that finds of this kind are rare; similar finds in Israel have been unearthed only at Ashkelon.

## **Wood Industry in the Second Temple Period as Reflected in 'En Gedi Finds**

Gideon Hadas

Most of the wooden finds from the Second Temple period consist of small vessels and wooden coffins and a few remains of household furniture. From them, we can learn about the technology of their production and the carpenter's tools. Some of the finds survived in Judean Desert caves, mostly them in burial caves in 'En Gedi.

About 40 coffins have been found in 'En Gedi, and some in Jericho. Among them, two are outstanding in shape, dimensions, decorations, the kind of wood used, and locking devices. They were richly decorated chests, reused as coffins.

The common 'En Gedi coffin stood on four legs and had a gabled lid. It was made of sycamore wood planks, joined only by wooden pegs. Only two coffins from 'En Gedi were decorated with black stripes; some of the Jericho coffins have black and red squares.

Thirty-five wooden vessels, the majority being small bowls and the remainder toilet articles were found in 'En Gedi graves. Most were made on a lathe, except for the combs. Marks of other tools can be seen: hatchet, chisel, and saw. In this period, the lathe led an industrial revolution in the wood, stone, and metal industries.

Wood identification, such as sycamore, tamarisk, and acacia, revealed that half of the wood of the vessels came from the Dead Sea area, and some from the Judean Hills. The wood used for Kohl tubes, combs, and some coffin planks was imported from northern countries.

It seems that products of the local wood industry of this period were as common as pottery and existed in Jericho and perhaps also in 'En Gedi. This industry was capable of producing furniture, coffins, and tableware.

The industrial use of a lathe is also testimony that Eretz-Israel was part of the Hellenistic-Roman culture, whose ideas, technology, and products spread even to the Dead Sea region.

## **Lime Kilns on the Carmel**

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This paper tries to show the operation of one of the fundamental crafts in the building industry in this region throughout the ages, and how it fit into and utilized the surrounding region. As seen in other regions of the country, the craft of lime-burning also operated according to an environmental model affected by various geographical considerations. This paper does not focus on any particular period, since historical and archaeological evidence is sparse relative to the large number of relics and surviving remains. Nonetheless, we show that this scarcity does not adversely affect a geographical and environmental analysis of this craft.

A total of 137 lime kilns have been registered within an area of 232 square kilometers on the Carmel mountain range. Most were built in the western Carmel, and several in the east and north. The average density of kilns on the Carmel is 0.5 per kilometer; in other words, one lime kiln every two square kilometers.

Manufacturers of lime sought the optimal type of rock - chalkstone; and when this was unavailable, another

type - for its production. When a site containing the ideal variety of rock was located, other geographical and topographical factors were examined that might expedite the various stages of production; e.g., a mild slope on which to build the kiln and from which it would be convenient to transport the finished product. The direction of the wind was another factor, as it determined the location of the vents in the firing oven.

Lime manufacturers preferred to build their kilns east of an inhabited area, several hundred away, and on a lower plane, in order to prevent ecological pollution. A group of kilns was built by water installation, such as pools and aqueducts, which required large quantities of lime for construction.

## **A Columbarium Complex at I: Iorvat Parod: A Case Study for the Chronology of Columbaria in the Galilee?**

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I: Iorvat Parod (Map Ref. 2596 1903) is located on the topographical border between the Lower Galilee, east of Beth HaKerem valley. Excavations on the northwestern slope of the site revealed two rock-cut columbaria complexes for raising pigeons which were rendered useless when caves were cut through them. In both cases, the columbaria were used as entrance chambers for burial caves.

The northern columbarium, which is better preserved than the southern one, is rectangular in shape and has two levels, separated by a ledge. Niches were hewn into each of its four sides. The opening in the north served as the entrance to the burial cave. It seems that during the hewing of this cave, niches in the lower level were closed with plastered stone slabs. Some of the closed niches contained unidentified metapodia of domestic mammals. A miniature glass bottle, dating from the 1st to mid-3rd centuries CE, was found in another niche that had been remained sealed. As it represents an Early Roman date for the hewing of the burial cave, a date that is supported by other finds within this tomb.

Since the sealed niche represents a *terminus ante quem* for the end of the use of the columbarium (after the First Jewish War?), it may be regarded as a case study of the chronology of columbaria in Galilee. Our investigations have yielded columbaria in several Galilean sites. Among them are Khirbet el Yahud, Khirbet Shema', Khirbet Kefar I: Iananya, Khirbet Beer-Sheba (Go Rama ez-Zeita, Deir Banna, Kh. Qana, and Kh. Mashkhana. Our observation of these complex dovecotes, located in close proximity to Jewish settlements during the late Second Temple period, is supported by other excavated columbaria in Eretz-Israel.

## **'Imperial', 'local', and 'provincial' - Their Definition and Reflection in Roman Sculpture Uncovered in Eretz-Israel**

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Students make regular use of the terms 'imperial', 'local', and 'provincial' to describe figural sculpture. The inconsistencies, however, in using these terms are due to insufficient definitions, the subjectivity of scholars dealing with works of art, and especially the often merely artistic focus of discussion, which does not take into consideration the context of discovery.

Although a general definition can be given to the terms 'provincial' and 'local', the definition of the term

'imperial' depends upon the type of information available (e.g., patron's identity and status, function of object, etc.) and its interpretation.

'Imperial' is a product ordered and financed by an imperial authority - military, civilian, or both - and expresses contemporary official technical and stylistic tendencies.

'Local' refers to sculpture produced within the imperial geographical range (under the *imperium* of the Roman people), usually of local stones and by local artists or craftsmen, who either were unfamiliar with or purposely ignored Graeco-Roman artistic traditions. Local products differ from those produced in Greek and Roman centers in all respects - thematic, technical, and stylistic.

'Provincial' refers to sculpture produced in the provinces, mostly by local artists or craftsmen; it has both local and Roman artistic characteristics and substances. A common error is to interpret an inferior piece of Roman sculpture uncovered in a province as provincial; a similar depiction from Italy would have been defined as private or anti-classic.

Presuming that the suggested definitions are adequate, this paper examines their validity with the help of several examples found in Israel. Local figural examples are rare in Israel for two main reasons: the site being situated on a crossroads and the attitude that the Jewish population displayed toward visual images. Local, therefore, is used here to make a distinction between imported and locally made Roman sculpture.

In spite of the definitions, several pieces can hardly be classified because of their fragmentary state of preservation and the lack of information concerning patrons, artists, contexts, and functions (Figs. 6, 8). The Beit Shean and Samaria-Sebaste busts, carved in local stones, can certainly be defined as provincial for their presenting a combination of local craftsmanship and the Roman idea

of portraiture (Figs. 1-2). Other statues, made of marble, basalt, or bronze, can be defined as either Roman or imperial (Fig. 3-5, 9-14), depending on the supplementary information available.

It became obvious that the terms 'imperial', 'local', and 'provincial' should be used carefully to clarify the difference between provincial sculpture and sculpture carved in the province; between local sculpture and sculpture locally made; and between Roman as a term referring to sculpture generally produced in the Empire (including the local and provincial) and as a term referring to products that are distinct from the provincial.