

A Complex of Warehouses and Granaries uncovered in Caesarea Maritima

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Caesarea - a maritime city with an elaborate harbor was the provincial capital of Judaea / Palaestina. Storage facilities occupied no doubt large areas of the city. A large complex of warehouses and granaries uncovered in recent excavations in Caesarea Maritima enables to distinguish several different types of storage facilities, and to evaluate their significance in the economy and administration of Caesarea.

The storage facilities uncovered in the recent excavations cover ca. 25% of the excavated area, a most significant percentage. In fact, area KK - an entire insula of the Byzantine city consists almost entirely of warehouses. As for the location of the warehouses on the city plan, except for those of the Inner Harbor *Horrea*, all are located at some distance from the harbor area. This does not mean, however, that ships docked at the opposite shore. At Ostia, for example, the warehouses (*horrea*) are distributed throughout the city, not necessarily in the immediate vicinity of the Tiber. Besides, warehouses were required not only for import-export trade through the harbor, but for storing the local food supply of the city's residents.

This study concerns large warehouses and storage facilities, rather than the small storage spaces of retail shops. Large warehouses were used to store every type of merchandise. The containers used - mainly jars and amphoras found at the site - help to suggest the type of goods that were stored within them. It is reasonable to assume that for purposes of the import-export trade, when a warehouse served as a relatively short-term storage area, the merchandise remained in its original containers (perishable sacks and basketry, or longer-lasting jars and amphoras), whereas for long-term storage purposes, the merchandise was transferred from the smaller, space-consuming amphoras, to larger containers, such as underground granaries and large dolia.

The commercial structure par excellence for the Greeks was the stoa, which could be adapted to a multitude of uses and was so suitable for flanking the sides of an agora or a harbor, as in the case of the harbor stoa at Miletos. The porticus was the Roman transformation of the Greek stoa for storage purposes. In Republican Rome, the Porticus Aemilia, constructed in 193 B.C., served as the first emporium; later the Porticus Minucia became the great storage and distribution center. *Horrea*, that is, warehouses for commercial storage, first occurred in Rome by the end of the second century B.C.E. Their basic ground plan included a row of deep, narrow rooms. The same is true at Ostia and in the provinces. In both Rome and Ostia the rows of rooms are arranged mainly in two ways, defining two types of *horrea*: the corridor type and the courtyard or quadrangle type. The concept of the courtyard *horrea* in Rome was derived from an Eastern, Hellenistic influence. At Portus (the harbor of Ostia) and sometimes in Rome, the courtyard design was abandoned, and the rows of rooms were arranged back to back. This arrangement fits well mole *horrea*, as in the case of the harbor *horrea* of Portus and of Leptis Magna.

In the provinces of Asia Minor and Africa and in Judaea/Palaestina, the *horrea* consisted of only one row of very deep rooms, all opening into the same side. Such *horrea* reflect a Middle Eastern tradition, their origin being in the great palaces and temple ensembles of that region, although such storage rooms are also well known in Minoan Crete, for example, in the Great Palace at Knossos and in Phaestos.

The roofs of the various types of Roman *horrea* could be either vaulted or gabled, built of beams and tiles, or flat, built of beams and mortar, as in the warehouses of the Northern and Western Palaces at Masada.

Types of *Horrea* at Caesarea Maritima

In Josephus' description of the Herodian harbor (BJ 1.408-14; AJ 15.331-41), there is no reference to any storage buildings along the moles, only to vaulted chambers for lodging sailors. Nor have underwater surveys and excavations along the submerged moles revealed the existence of any mole *horrea*.

On land, four types of *horrea* can be distinguished: (1) Vaulted; (2) Courtyard; (3) Corridor; and (4) Composite *horrea*. Whereas vaulted *horrea* have been known for some time in the antiquities of Caesarea, the other three types have been uncovered and identified only in more recent excavations. In chronology, the first type is the earliest, appearing already in the Late Roman and Early Byzantine periods; The other three types are Byzantine structures. Their components and features indicate that they served a variety of storage purposes.

The six warehouses in Area KK, located to the south of the Byzantine *praetorium* [WuW 3 (2001), p. 76], are of types 2, 3 and 4 above. Courtyard *horrea* (Buildings I, IV, V and VI) consists of several rooms and halls surrounding a courtyard paved with flagstones or beaten earth, and surrounded by porticos on several sides. Building II is a corridor warehouse. The corridor is 15.5 m. long and 1.8-1.9 m. wide. Jambs with trapezoidal bases flank the entrance, which is 1.2 m. wide. Building III is a composite warehouse. On its west there is a corridor 17 m. long and 3.95 m. wide. Three openings lead east to the storage rooms and halls. The storage halls consist of a very long ward (19 x 5 m.) with an opening 1.85 m. wide and a shorter one (9.15 x 4.90 m.) with an opening 1.95 m. wide, both of the ancient Palestinian tradition, a *dolia* hall (see below) with a single *dolium* under its floor, and three underground granaries.

Characteristic features and installations in these store buildings are:

(a) Simple storerooms 3-6 m. long, paved with flagstones, plaster floor, beaten earth or mosaic floors. (b) Transverse *dolia* halls (in warehouses I, II, III, and VI). The walls are white plastered, and the paving is crude white mosaic. Large *dolia* were standing on the mosaic floor, and one or two *dolia* were inserted under the floor, on the longitudinal axis of the hall, to collect the contents of an entire vessel in case of breakage. These arrangements indicate that liquids, rather than grains, were stored in the freestanding *dolia*. A somewhat similar arrangement for draining a warehouse where liquids were stored was found in two of the Masada storage halls. This arrangement may be considered equivalent to the *dolia defossa* type of *horrea*, encountered at Ostia and Boscoreale¹.

A *dolium* (Latin; *pithos* in Greek), is a large storage jar for wine, oil, grain, and so on. In the literary sources there are references to *dolium vinarium* and *dolium olearium*. The wine *dolium* was lined with pitch, and oil storage containers were steeped in oil- lees (*amurca*) for a week. In our finds, no resins are observed on the sherds, so it is likely that these were oil *dolia*. At Sepphoris, a hall with eight free standing *dolia* containing lentils was found; no vessel was inserted there under the floor. *Dolia* or *dolia* sherds were found in many coastal sites, from Yavneh Yam in the south to Ramat Ha-Nadiv on the Carmel, not far from Caesarea. In Yavneh Yam, a vessel was found sunken under a mosaic floor. Noteworthy is the transverse arrangement of a *dolia* hall in a store building, whether on a wing of a courtyard *horreum* or as a wing of a corridor *horreum*, which facilitated movement and activities inside the hall between the *dolia*.

Other installations encountered in the warehouses are underground granaries (in Buildings I, III, and V). They appearing singly or in a group. Each unit is rectangular in shape, revetted from the inside by ashlar embedded in a thick layer of oily white lime and marble mortar. Such oily mortar was known as *amurca*. It was recommended by Pliny, being known as an insect repellent. The bins were paved by a mosaic floor or by flagstones with a cavity in the middle. In Building III the mosaic floor of the room overlying the underground granaries was preserved - a quite exceptional state of preservation. They underground bins

were roofed by lateral thick wooden beams set into depressions in the inner revetting walls. They supported the mosaic floor of the upper, ground floor rooms. The fill opening of each silo was presumably in the middle of the upper room, that is, in the middle of the silo's ceiling. Since the walls are not plastered, the containers were not used for the storage of oil, but rather for grain storage. In fact, in the process of sifting and flotation of the fill above the floor in the three silos in Areas KK9 and KK29, a significant amount of carbonized kernels of grain were retrieved.

The region of Caesarea, the Sharon, was known as a land of grain and was praised as such as early in the Eshmunezer inscription, dated to the late Persian or early Ptolemaic period. Many centuries later, the tenth-century author Al-Mukaddasi praised the white bread of Caesarea. Grain must be kept dry when stored.

Another installation encountered in the warehouses are wells (in Buildings I, II, III, and IV). The wells were constructed in or near the courtyard or the corridor of the warehouse. Warehouses I and V were also provided with tabuns, for the baking of bread.

Some of the warehouses, noteworthy no. I, was provided with a room that served as an office. Such rooms were distinguished from the simple storage rooms by having colorful mosaic floors, more elaborate architecture, and sometimes even stone benches and alcove niches in the walls.

Discussion

The greatest part of maritime commerce in ancient times involved the transport of food products. In a Roman-Byzantine city, warehouses for a long-term storage were constructed primarily to collect the *annona* and to insure a regular supply of grain and of other foodstuffs, at reasonable prices, to the inhabitants. These responsibilities belonged to the authorities - imperial, municipal, or ecclesiastical. Such was the case at Rome already in Republican times, as well as in other cities. The larger the city and its population, the larger the extent of its warehouses and granaries.

Who owned and who operated the storage facilities in area KK? These warehouses are separated by just a corridor from a vast mansion extending to its south, both occupying together an entire urban *insula*. I suggest that the warehouses were the property of the owner of this mansion - one of the wealthy landlords of Caesarea. Although being composed of six units, a careful inspection indicates the existence of means of communications between them by ladders and corridors, suggesting one owner rather than different owners. There are also no grounds to associate them with a municipal or provincial agency.

The Roman and Byzantine emperors also issued statutes and edicts to regulate the price of grain and other food products and to control their orderly supply. Many of them are preserved in the Codex Theodosianus.

One of the municipal officials in each city was the "grain buyer", or *sitones*, who was in charge of supplying grain for the city. In the Late Roman and Byzantine administrative system, which was bureaucratic and centralized, the proper supply of grain and other food for the citizens was the concern of the imperial government, not only of the municipal authorities, especially in a case of a provincial capital such as Caesarea. The *mesites* is known from Greek papyri in Egypt as the official in charge of the government granaries and of weighing the grain. A *mesites* is mentioned in one of the Caesarean inscriptions, but it is not certain whether his function was similar to that in Egypt. But the fact that each one of the six buildings could store various commodities at one and the same time: grain, wine and oil,

rather than a single product, suggests that they were not constructed and operated by the city or imperial authorities, but rather than by a private entrepreneur.

Taken together, the storage facilities of Caesarea shed light on the city's economic, administrative and social life.

Farther recommended reading

G. Rickman, *Roman Granaries and Store Buildings*. Cambridge 1971.

J. Patrich, "Warehouses and Granaries in Caesarea Maritima," in: A. Raban & K. G. Holum (eds.), *Caesarea Maritima - Retrospective After two Millennia*, Leiden 1996, pp. 146-76.