

Καισάρεια ἡ πρὸς Σεβαστῶ λιμένι: two harbours for two entities?

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The royal port of Caesarea was the 'greatest and most laborious work of all'.¹ Since 1960 when its submerged breakwaters were first surveyed by divers of the Link expedition,² and after more than 12 seasons of work by the Harbour Project, a large quantity of data has been gathered about the engineering, architecture, and history of that harbour.³ This data in conjunction with historical and numismatic evidence permits a reconsideration of the status and condition of Sebastos during its functioning life.

The historical sources

According to Josephus, the city was for 'the people of the province' (of Judaea, or Palestine) while the harbour was given 'to the sailors'.⁴ Sebastos was the name of the harbour⁵ which had 'double stations in front of the city'. Once Philo calls the city 'Caesarea Sebaste'.⁶ The whole project to build the harbour and city took either ten⁷ or twelve⁸ years; the inauguration took place in 13 B.C.⁹ or, as most now think, in 10 B.C.¹⁰ Yet as early as 15 B.C. Herod hosted Marcus Agrippa in his kingdom and showed him 'the harbour he built in Caesarea'.¹¹ After Herod's death, the city with its revenues was granted by the Roman Senate to Herod's son Archelaus. Josephus reports the reason for the grant of revenues from Sebastia, Joppa, Jerusalem, and Straton's Tower (*sic*) to Archelaus on the ground that those cities were mostly Jewish.¹² One might think that the use of the place name 'Straton's Tower' over 'Caesarea' is just another example of inconsistency in Josephus' use of terminology, yet, as the Jewish context here reminds us, Straton's Tower and its walls continued to be a prominent landmark in the view of later Rabbinic texts.¹³

Another possible explanation might be connected with the supposed reconstruction of the pre-Herodian walls of Straton's Tower to form a dividing line between the royal harbour of Sebastos inside those walls and the municipal territory of Caesarea outside.¹⁴ In that case the Jewish suburb lay inside the walls, inside the royal territory granted to Archelaus.

Even before its completion, Sebastos was used by Herod and his family as a port of call and as the point of embarkation for various royal voyages.¹⁵ Later the Roman procurators who resided in Caesarea used the local harbour for their voyages. Paul the Apostle took his first voyage abroad, to Tarsus, from Caesarea, and returned there from Ephesus (A.D. 43). He was sent to Rome from Caesarea 17 years later.¹⁶

- 1 Jos., *AntJ* 15.334.
- 2 E. A. Link, *Survey trip to Israel: (a) The Port of Caesarea* (New York 1956); C. T. Fritsch and I. Ben-Dor, "The Link Expedition to Israel, 1960," *Bibl Arch* 24 (1961) 50-59.
- 3 Raban, *Harbours* 1, 271-96.
- 4 *BJ* 1.414.
- 5 *AntJ* 17.87; *BJ* 1.613.
- 6 Philo, *Leg. ad Gaium* 38. 299 ff.
- 7 *AntJ* 16.136.
- 8 *AntJ* 15.341.
- 9 M. Avi-Yonah, *IEJ* 1 (1950-51) 169; C. U. Wolf, *Bibl Arch* 27 (1964) 71.
- 10 Cf. Kadman 19; Ringel, *Césarée* 81-83.
- 11 *AntJ* 16.12-13.
- 12 *AntJ* 17.228.
- 13 See discussion in Raban, "City walls".
- 14 I owe this suggestion to Prof. B. Mazar.
- 15 J. Ringel, "Literary sources and numismatic evidence of maritime activity in Caesarea during the Roman period," in I. Malkin and R. L. Hohlfelder (edd.), *Mediterranean cities: historical perspectives* (London 1988) 63-73.
- 16 *Ibid.* 64.

There are many references to seaborne voyages to and from Caesarea up to the time of the Jewish revolt, but almost none of that kind in the subsequent centuries. The chief source for maritime activities at Caesarea in the 3rd-4th c. is the rabbinical literature. Yet none of those Talmudic entries refers to the harbour itself, apart from an indirect indication that the rabbinical school may have been near the harbour.¹⁷ Another legal discussion in the Talmud concerning a bill of divorce, probably of the second half of the 3rd c., refers to a 'departing (or under sail) ship within the port (*lemina*, the Greek λιμήν) of Caesarea', although technically it is unlikely that a sea-going ship was moving under sail within a closed harbour with a rather narrow and confined entrance.¹⁸ Seaborne voyages and other maritime activities continued at Caesarea into the 5th c., as we learn from church sources, yet at the end of the 5th c. Procopius of Gaza praises the emperor Anastasius I saying '... the port of the city named after Caesar had fallen into bad condition in the course of time, and was open to every threat of the sea and no longer deserved to be classed as a port, but retained of its former fortune merely its name ... and ships which frequently, in escaping the sea, were wrecked in the harbour...'¹⁹

The numismatic sources

Coins minted at Caesarea during the time of Herod, his children, and the Roman procurators, make almost no reference to the port or to the supposed importance of maritime activities for the city. Maritime symbols on the reverses of Caesarean coin-types do occur in the 2nd-3rd c., but, with the frequent appearance of Tyche, the city-goddess, accompanied by a genius in the form of a small seated human figure holding a rope attached to an anchor. This genius is probably the harbour-god or the genius of harbour activities, standing for the municipal life of Caesarea.²⁰

The epithets of Caesarea on the coins are more important for studying the relationship between the city and the port. On the coins of Agrippa I, the city's title is Καισάρεια ἡ πρὸς Σεβαστῶ λιμένι ('Caesarea which is next to the harbour Sebastos'). During the last regnal year of Nero, the same title appears for the last time. Though the name of Caesarea Maritima remained the form used to tell her apart from other Caesareas in the empire, the harbour is mentioned only once more on coins, when the epithet *portus Augusti* with a ship appears on the reverse of a coin of 243-44 (Trajan Decius). This type may have been issued for the planned visit of that emperor, which never took place; perhaps it was an attempt by municipal authorities to remind their imperial guest of the imperial origin of their port, and of their desire for imperial support to maintain or restore it.²¹ By that date, it is not plausible to suppose that Sebastos was still functioning as a royal or imperial entity.²²

The archaeological evidence

The underwater work at Caesarea has mostly concerned the Herodian harbour installations and the earlier anchorages of Straton's Tower. Several pieces of architectural and stratigraphic data are relevant to an understanding of the relationship between the city and her port through time (fig.1).

Josephus mentions that Straton's Tower was still a well-defined entity after Herod's death and had a majority Jewish population. The walls of Straton's Tower are known from Jewish rabbinical texts as a landmark in defining the boundaries of the Holy Land.²³ They might imply that those walls were still a distinguishing landmark within the urban area of Caesarea as late as the 3rd-4th c. I believe that these

- 17 Rabbi Hagai said: "When I left the ship (in Caesarea) I heard the voice of Rabbi Jacob bar Akha, explaining our *Mishna* about ..." (J Orlah 83.1).
- 18 L. Casson, *Ships and seamanship in the ancient world* (Princeton 1971) 369.
- 19 *Patrologia Graeca* 87.3, col.2817-18.
- 20 J. Ringel, "The harbour god of Caesarea Maritima," *Sefunim* 4 (1972-75) 22-27; *Herod's dream* 11-14.
- 21 Kadman 67.
- 22 Cf. R. L. Hohlfelder, "Procopius, *De Aedificiis* 1,11,18-20: Caesarea Maritima and the building of harbours in late antiquity," *Mediterranean historical review* 3.1 (1988) 58-62.
- 23 J. Shevi't 6.4; Tosefta Shevi't 4.11.

are the same walls which are visible today, from the north section exposed by the Italian team near the shore, to the south section reused as the south wall of the southern Herodian vault of the temple platform.²⁴ The suggested line of the wall would embrace two pre-Herodian anchorages, one in the lee of the offshore reefs at the north, adjacent to the later Jewish synagogue,²⁵ the other in front of the later Herodian temple platform, where a rock-cut basin is aligned with the suggested course of the south section of the wall (fig.2).²⁶

The breakwaters of Sebastos, now mostly submerged,²⁷ were attached to headlands within the boundaries of the walls of Straton's Tower. Thus Sebastos can be defined as three protected basins of water, one within the other. The innermost was the rock-cut basin of the south port.²⁸ It also included the series of great vaults at the base of the temple platform, used as storerooms for the royal port, and the area north of the platform, as far as the Jewish quarter excavated by Avi-Yonah and Negev.²⁹ This had previously been the walled area of Straton's Tower on land, with the addition of the artificial moles with associated walls, towers, quays and storage vaults.

Another series of *horrea* lies in the South Bay, uncovered by the Joint Expedition.³⁰ They were used for storage of seaborne goods from the 1st c., but at least one was turned into a mithraeum some 100-150 years later. These *horrea* were outside the confines of Sebastos, and supplemental to the much larger vaults of the temple platform and those built on the moles. One could think of two harbours that operated next to one another, one the royal harbour of Sebastos, the other (of lesser quality and lacking protecting moles) in the bay to the south, extending from the south mole of Sebastos to the *piscina* which was either a fish-pond of Herod's palace³¹ or the municipal fish-market of the town (fig.3).³²

The Harbour Project looked for stratigraphic evidence for the decay and submergence of the great breakwaters of Sebastos. The data collected indicate that the surge from the open sea had flooded these protecting features well before the mid 3rd c.³³ The remains of cargoes of wrecked ships on top of the higher sections of the subsiding and collapsing main moles were found in many places; the earliest datable one is no later than the end of the 3rd c.³⁴ Scattered ballast and other fragments of a wrecked ship within the main basin of Sebastos, at the lee of its moles, datable to c.250 on numismatic grounds, was found settled on a layer of coarse sand and sea shells, with a layer of finer sand and compact fine clay below. Sedimentologically it is clear that the coarser layer represents a phase of considerable wave energy at that point, waves that reached the lee of the moles when the moles were already at least partly submerged.³⁵ The same type of coarse deposits, characteristic of a beach that is exposed to strong waves, was found at the base of the late 3rd- or early 4th-c. structures on the north side of the intermediate basin of Sebastos (area S on fig.1), on the west edge of the excavations by Levine and Net-

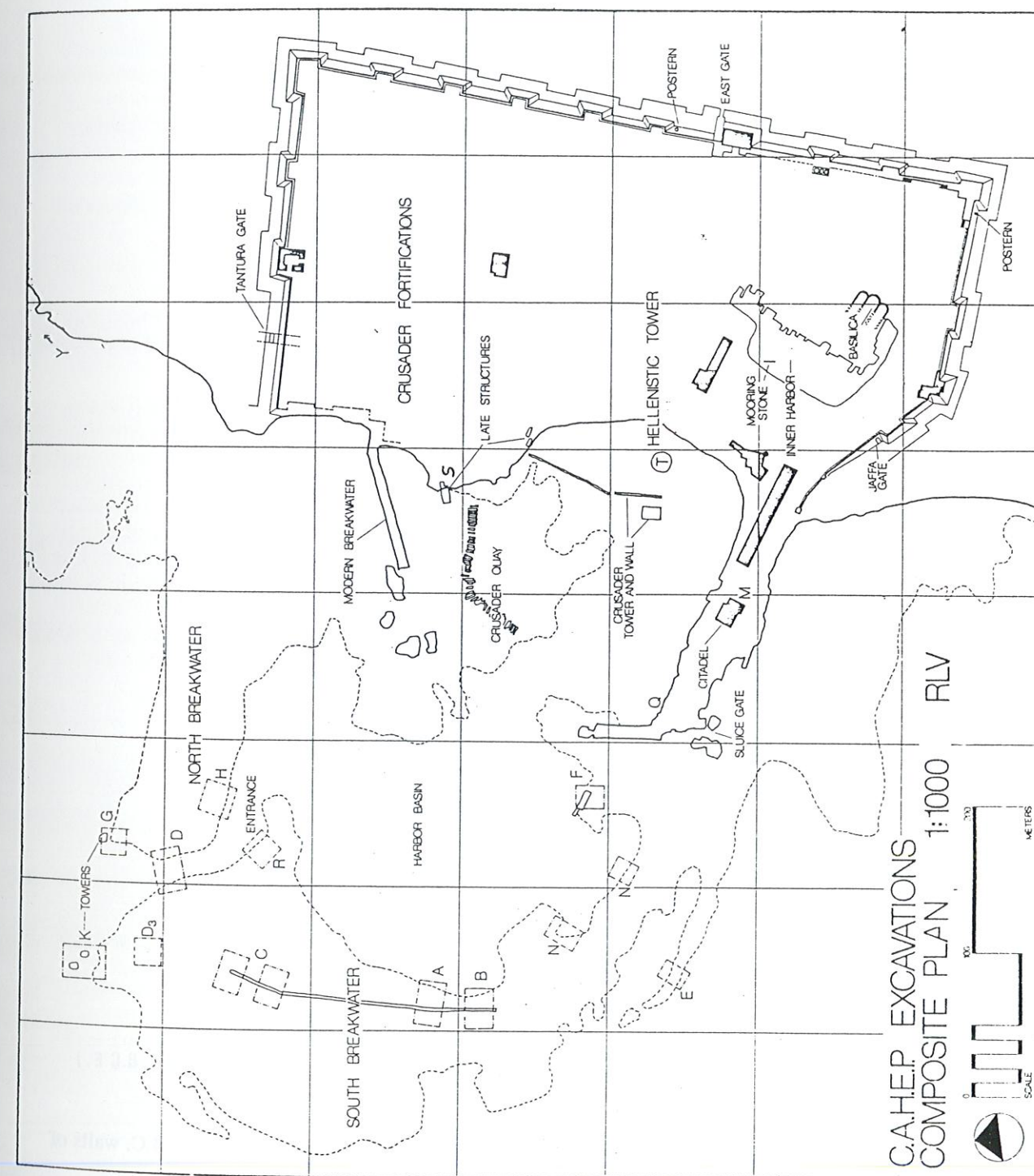


Fig.1. General map of Caesarea with excavated areas.

24 A. Negev in *ILN* no.6482 (1963) 684-86.

25 Raban, *Harbours* 1, 143-48.

26 Raban, "City walls" 86-87.

27 A. Raban, "Josephus and the Herodian harbour of Caesarea," in U. Rappaport (ed.), *Josephus Flavius, historian of Eretz-Israel in the Hellenistic-Roman period* (Jerusalem 1982) 165-84 (in Hebrew).

28 K. G. Holum and A. Raban, "Caesarea Maritima 1989, a preliminary report," *IEJ* in press; *Hadashot Arkheologiot* 94 (1989) 32-34.

29 *IEJ* 6 (1956) 260-61; *ibid.* 13 (1963) 146-48.

30 Cf. R. J. Bull, "The mithraeum of Caesarea Maritima," *Textes et mémoires* 4 (1978) 75-98; *Herod's dream* 134-36; Blakely, *Vault* 1.

31 Levine and Netzer, *Qedem* 21, 149-77.

32 A. Flinder, "A piscina at Caesarea: a preliminary survey," *IEJ* 26 (1976) 77-80.

33 A. Raban, "Sebastos: the royal harbour at Caesarea Maritima — a short living giant," *IJNA* 1992; "The subsidence of Sebastos: when the Herodian breakwaters in Caesarea were flooded" *Thracia Pontica* 4 (1990) 339-60.

34 Raban, *Harbours* 1, 87.

35 *Ibid.* 233.

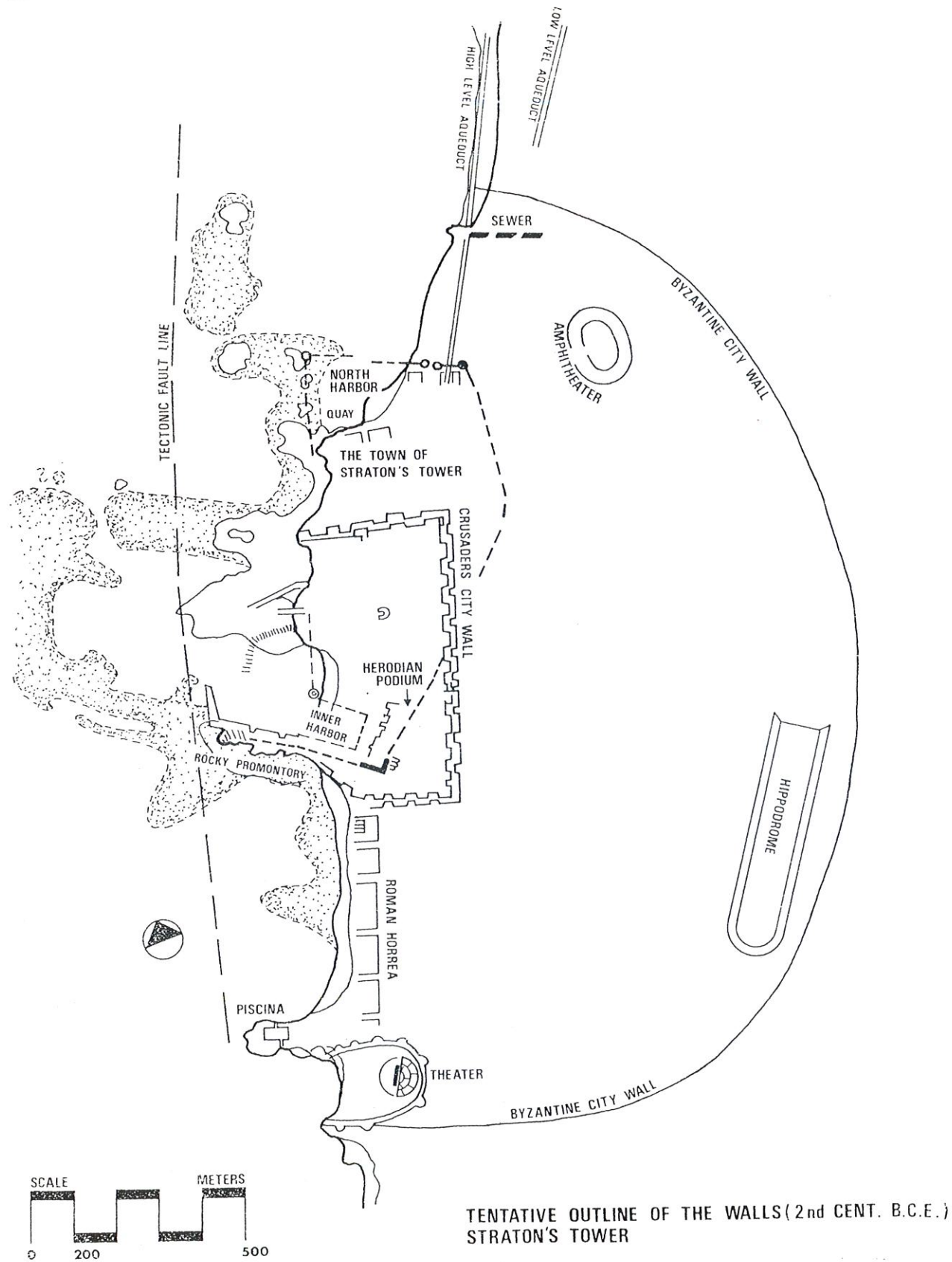


Fig.2. The walls of Caesarea in various periods, including tentative suggested course of the late 2nd-c. B.C. walls of Straton's Tower.

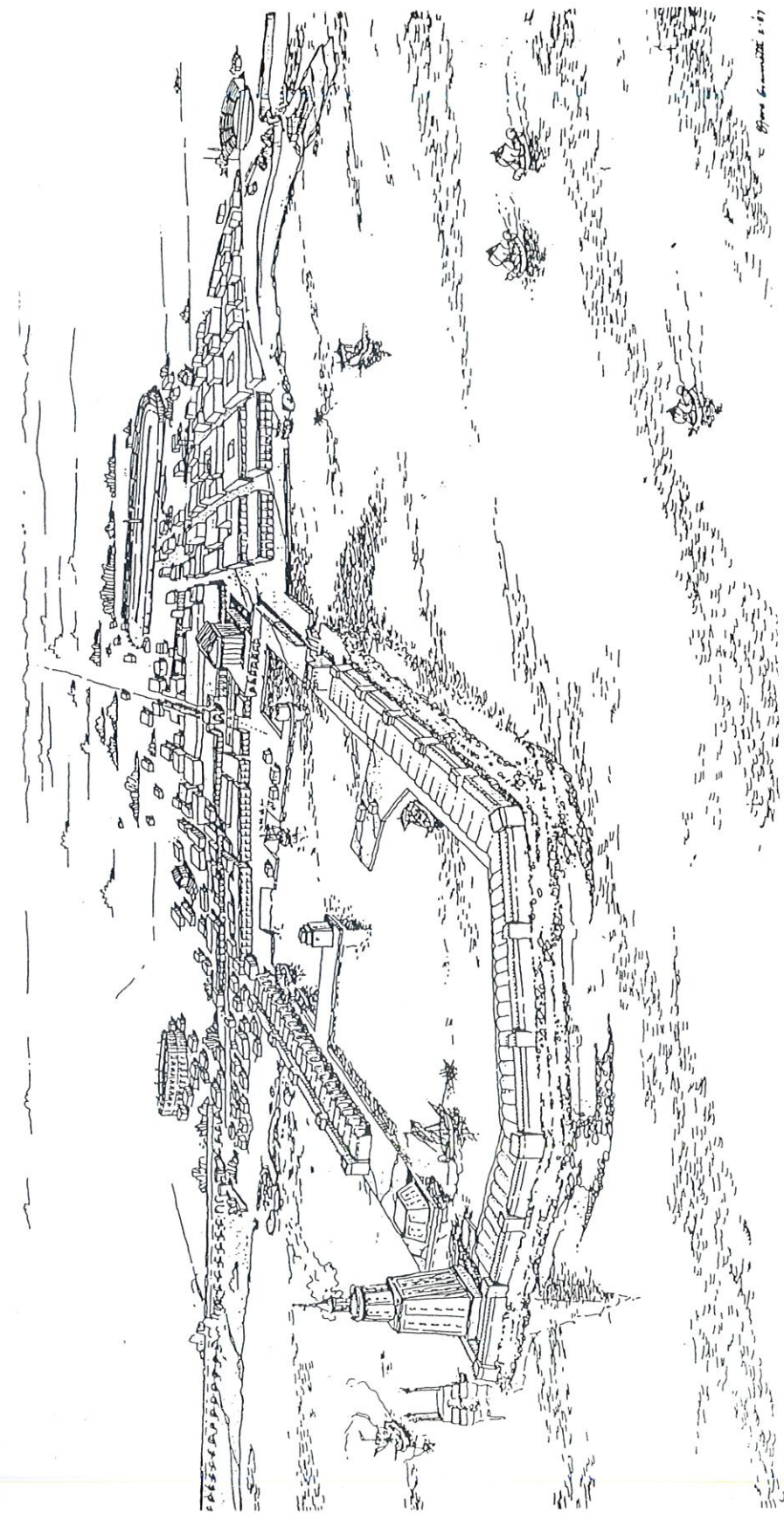


Fig.3. An artist's rendering of the harbours of Caesarea in the first half of the 1st c. A.D. (S. Giannetti).

zer).³⁶ Those deposits covered a floor of the 1st c., so they were fixed there some time later when the great moles to the west no longer kept the stormy waves from flooding the formerly protected basins of Sebastos.

Conclusions

I believe that Sebastos, the royal harbour built by Herod at the location of Straton's Tower, was meant to be a royal administrative entity that was physically delineated by the existing (and repaired) walls of Zoilos.³⁷ Revenues from the transit trade passing through this harbour would have gone to Herod's treasury. That trade could have been extensive, particularly after Herod's victory over the Nabataeans, which gave him some control over one leg of their trade to the Red Sea, with goods from Arabia and even the Indian Ocean. To these Herod would have added goods from his own monopoly in salt from the Dead Sea, and balsam and other products from the royal estates at Jericho and Ein Gedi. By building a port large and secure enough for great fleets to berth safely year round, he ensured that merchantmen would set sail to the west earlier than from any other port in the Levant, in the first week of the sailing season, and thereby achieve better prices for their cargoes.³⁸ Though not completed until 10 B.C., the port might have begun to be used as early as the visit of Agrippa in 15.

Work by the Harbour Project (see p.49 f.) has shown that the harbour was built in part of materials brought from abroad. The bulk carriers which brought wooden beams, thousands of tons of tuff and volcanic ash from Italy could have been loaded for their return voyage with some of the highly profitable goods just mentioned. The wreck of such a bulk carrier was found in shallow waters just north of Sebastos, in the lee of the off-shore reefs of the north haven of Straton's Tower.³⁹

Whereas Sebastos was dedicated for the seamen who could share in these profitable activities, Caesarea 'next to the harbour Sebastos' was a semi-autonomous *polis*, with her own municipal administration and own harbour, less elaborate and smaller than the royal harbour. Free of royal taxation and customs, it probably operated only during calmer seas in late spring and early fall when the dozens of ships required to meet annual municipal needs would have moored offshore. That kind of offshore open anchorage was similar to those possessed by other coastal cities such as Gaza and Ashkelon. Perhaps these independent entities were merged in 70 when Vespasian granted Caesarea the title *Colonia Prima Flavia Augusta Caesarea*. From then on, the huge harbour of Sebastos, costly to maintain, would have been operated by the colony's municipal administration. The city had no real need for such an oversized harbour, and probably the revenues were insufficient to cover proper maintenance. Then began its slow deterioration, followed by subsidence due to tectonic faults⁴⁰ (fig.4). When Trajan Decius was due to visit, the people reminded him of the condition of their *Portus Augusti* in the hope that he would provide help, but the presence of a wreck only a decade later⁴¹ shows that the royal harbour no longer deserved that name.

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³⁶ Ibid. 254.

³⁷ Raban, "City walls".

³⁸ Cf. K. Hopkins, *JRS* 70 (1980) 101-25.

³⁹ Raban 1988, 191-92, 199-203.

⁴⁰ D. Neev *et al.*, "The young (Post Pliocene) geological history of Caesarea structure," *Israel Journal of Earth Sciences* 27 (1978) 43-64.

⁴¹ This wreck will be published in detail in volume 2 of *Harbours*.

The changing fortunes of Caesarea's harbours in the Roman period

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The focus of this paper is the use of Caesarea's harbours over the three centuries when Caesarea was a major Roman emporium in the eastern Mediterranean. Before turning to that subject, an introduction to the construction of the port city and its builder is needed. It was built by Herod and dedicated to his patron Caesar Augustus. The keystone of a domestic and foreign building program rarely equalled in the ancient world, his metropolis represented both a personal bid for immortality and a step in his plans to gain greater international standing in the Mediterranean world.¹ Just as Caesarea was the apogee of his massive building efforts, Sebastos (as the harbour complex was called) was the most impressive achievement of Caesarea.² The construction and configuration of the main anchorage, now known as the Outer Basin,³ of the vast harbour complex, is described in unusual detail by Josephus (*BJ* 1.410-12; the passages in *AntJ* give similar information):

410. But the king through a great outlay of money and sustained by his ambition conquered nature and built a harbour larger than the Piraeus, encompassing deep-water subsidiary anchorages within it.

411. Although the location was generally unfavorable, he contended with the difficulties so well that the strength of the construction could not be overcome by the sea, and its beauty seemed finished off without impediment. Having calculated the relative size of the harbour as we have stated, he let down stone blocks into the sea to a depth of 20 fathoms.⁴ Most of them were 50 feet long, 9 high, and 10 wide, some even larger.

412. When the submarine foundation was finished, he then laid out the mole above sea-level, 200 feet across. Of this a 100-foot portion was built out to break the force of the waves, and consequently was called the breakwater. The rest supported the stone wall that encircled the harbour. At intervals along it were great towers, the tallest and most magnificent of which was named Drusion, after the stepson of Augustus.⁵

The underwater investigators have found that Josephus' observations are remarkably accurate (except for the water depth), and in many ways surprisingly understated.⁶

Two points in Josephus' account are relevant to our topic. The first concerns the extent of the facilities. Josephus reports that the Outer Basin was not the only harbour; secondary anchorages served the city's needs too, though he does not say how many there were, what particular functions they may have had, or describe their relationship to the main harbour. The Harbour Project has identified some additional anchorages. Three, and possibly a fourth, are known in addition to the Outer Basin.

1. A landlocked facility belonging to the Hellenistic Straton's Tower has been found at the base of the artificial platform for Herod's temple to Roma and Augustus.⁷ We refer to it as the Inner Basin. At some

¹ *Herod's dream* 70 ff.

² Ibid. 90 ff.

³ Raban, *Harbours* 1.

⁴ The actual depth in the harbour probably did not exceed 6 m in any one location, and in most places was considerably less.

⁵ Transl. J. P. Oleson in Raban, *Harbours* 1, 51-52.

⁶ Raban, *Harbours* 1, passim; R. L. Hohlfelder, "King Herod's city on the sea: Caesarea Maritima," *National Geographic Magazine* 171.2 (1987) 261-79. In passing it may be mentioned that in 1990 another example of the extraordinary technology employed by Herod's harbour engineers was found: a huge wooden crib (c.14.6 m E-W) had been floated to a previously prepared and designated location, and submerged more than 300 m from the shore on an almost perfect E-W/N-S alignment; liquid concrete had been poured into the form and had hardened underwater. The resultant block had served as a component of an artificial island (perhaps one of many) used as a workstation while building on the south breakwater was in progress. When construction of the breakwater was completed, the concrete island(s) at its terminus served as a pierhead for the mole and probably as a foundation for Caesarea's lighthouse (perhaps the tower known as the Drusion: see *Herod's dream* 98). For further details, see Vann, "Drusion".

⁷ *Herod's dream* 46.

point it had been carved from the coastal sand dunes and flooded by opening it to the sea.⁸ But in the decades before Herod's accession it had decayed (Jos., *BJ* 1.408) and may have been abandoned. Herod rehabilitated it to serve as a harbour for ceremonial purposes and linked it to the adjacent temple (for example, for the reception of distinguished visitors), and perhaps also used it as a naval station for his fledgling fleet. He reopened or cut a channel, now leading to the Outer Basin.

2. A large natural roadstead, which we call the South Bay, existed seaward of warehouses stretching along the coast to the south. It served as a secondary, fair-weather anchorage, and perhaps as a depot for local coastal trade.⁹

3. Another anchorage may have lain farther south c.1.5 km from the Outer Basin. It lay in the lee of the remnants of submerged off-shore islets composed of *kurkar* (carbonate-cemented quartz sandstone). Traces of a possible Byzantine pier, miscellaneous items from ships (chiefly lead sheeting), and other artefacts have been uncovered by storms in recent years. The area may at some time have been a roadstead beyond the city's walls, and will be examined through systematic survey in the near future.

4. North of the center, an anchorage has been found in the area we call the North Bay adjacent to Hellenistic structures belonging to Straton's Tower. Though again earlier, it appears to have been renovated by Herod. Preliminary exploration of this area has begun.¹⁰

The second point in Josephus is his statement comparing Sebastos to Piraeus — that the former's harbour facilities were larger than Piraeus. This may well be credible if all the secondary anchorages are included. But whether larger than Piraeus (*BJ* 1.410), equal (*AntJ* 15.332) or smaller than Athens' three harbours, it remains clear that Herod's city had a facility far too vast for its own economic needs or even for those of its hinterland. What was the reason for that?

Why Herod's harbours were so vast, and the end of Herod's dream

I have previously argued that Sebastos' size and scale was a result of Herod's political and economic dreams to enhance his standing and influence in the international arena.¹¹ When he began work in 22 B.C., Egypt's special rôle in the Augustan order had not been fixed. Herod may have thought (perhaps with encouragement from Agrippa, his principal patron in Rome) that by providing an alternative to Alexandria he might significantly shift trans-shipment trade from a region and harbour tainted by association with Antony and Cleopatra. If his port could replace Alexandria as Rome's major emporium in the eastern Mediterranean, his wealth, influence and status would be enhanced, perhaps to achieve the heights enjoyed by Cleopatra before 31. Secondly, the construction of a new port provided a dramatic way to announce his loyalty to the new regime through the appellations he chose to use. Caesarea and Sebastos acknowledged the new geopolitical realities of Herod's world. Rome's client king ruled at the pleasure of the new Caesar, and the names he assigned to his new city and its harbour installations confirmed this dependency. Though we cannot judge the immediate effects of his eponymic actions, his long-range hopes of supplanting Alexandria were never realised. The archaeological evidence from the harbour in the Roman period is far too limited to point to a successful economic 'coup', given the theoretical volume of commerce that Sebastos would have enjoyed as a new 'Alexandria'.¹² And it never did displace Alexandria as the dominant entrepôt in the eastern Mediterranean.

This massive, elegant, and technologically wondrous harbour never achieved more importance than it had at its moment of inception in (I believe) 15 B.C.¹³ Events did not unfold to Herod's benefit. Augustus did not find a compelling reason to restrict Alexandria's prominence; rather, with his decision to treat Egypt

⁸ Ibid. 49.

⁹ Hohlfelder in Raban, *Harbours* 1, 206-9.

¹⁰ T. W. Hillard, "A Hellenistic quay in Caesarea's North Bay?" *Mediterranean Archaeology* 2 (1989) 143-46.

¹¹ *Herod's dream* 73.

¹² Of course, the failure of the underwater projects to find substantial remains of early Roman material culture in the sea can be attributed to many possible causes.

¹³ I prefer to date the dedication to 15 B.C. when Agrippa visited Herod's kingdom (Philo, *Leg. ad Gaium* 37. 297). Contrast Raban p.68 above.

as a personal fiefdom, its importance increased. Whatever Herod himself may have attempted, Sebastos' commercial *raison d'être* remained unfulfilled. The death of Agrippa in 12 B.C. changed Herod's fortunes and sealed the fate of his hopes for the port. Herod's relations with Augustus now deteriorated. Augustus tired of the intrigue and violence in his royal court and of the instability in his kingdom. Agrippa, who had probably viewed Herod as a more valuable ally than Augustus ever did, was no longer there to argue his case at Rome. During this period Augustus reportedly commented that he would rather have been Herod's pig than his son.¹⁴ The meaning of this taunting witticism is that at least the king kept Jewish dietary laws, ensuring the safety of any porcine possessions; but his sons were fair game for an aging king who saw plots behind every hill. Caesar's remark cannot be seen as an endorsement of his client king, and probably presaged Herod's removal, an event that was precluded only by his death in 4 B.C. Finally, in A.D. 6, after Augustus had endured another decade of incompetency and confusion in Judaea under Herod's son Archelaus, he ended the clientage and absorbed the kingdom into the empire. This dramatically altered Caesarea's destiny, for it lost its unique status as a royal city and symbol of Herod's ambition, and became just another provincial capital.

The use and fortunes of Caesarea's harbours (1st-3rd c.)

Following this important geopolitical shift, Caesarea's multiple harbours became irrelevant or at least excessive. They had been intended to serve an economic situation that never materialized. Further, the structures built on breakwaters and the moles themselves required frequent, costly maintenance. The harbour complex was too grand, too costly to maintain, and too overbuilt for the needs of the provincial capital in Palestine. Roman Caesarea required only an all-weather harbour: it did not need warehouses, towers, and support facilities on the very breakwaters, for those duplicated what existed on shore where maintenance was much easier. Nor did it need the sophisticated engineering that had permitted Herod to extend his city out into the sea. It needed only two rubble moles high enough to protect a basin. Repairs were doubtless made to the south and north breakwaters in the next centuries, but the upkeep of the structures built on the arms probably began to decline and over time much of the original elegance of the harbour would have succumbed to the ravages of the sea. This probably did not happen during Josephus' lifetime or some hint of it might have entered his writings. Later in the 1st or early in the 2nd c. the grandiose character of the Outer Basin probably began to suffer. The history of the Inner Basin during this period is less clear. If the Herodian shipyard was located there, it was probably maintained; if not, it may have been filled in after the war of 66-70 and used for other purposes, for Roman Caesarea did not need a royal harbour. In any event, that was its ultimate fate. The North and South Bays, being largely natural, fair-weather roadsteads, probably continued to function as needed; maintenance was not a problem.

It probably took decades, or even longer, for Sebastos to change from an architectural and engineering wonder to a traditional Mediterranean harbour defined by rubble breakwaters, but it still continued to function. Its rôle in the war of 66-70, as the logistical center for Rome's military operations, was critical. During the war of 132-35 her harbours were less important due to the proximity of hostilities, but they still functioned. Fritsch and Ben-Dor argued that the Outer Basin had already fallen victim to an earthquake in 130,¹⁵ but this view is not tenable.¹⁶ And even if cumulative damage from the elements or sudden damage from an earthquake had occurred, Hadrian at the time of his visit would surely have provided imperial largesse and patronage. His generosity to the city was considerable, including a new aqueduct system and a massive temple bearing his name.¹⁷ Caesarea's own mint proclaimed Hadrian to be a 'founder' of the city.¹⁸ Such a commemorative series honored major construction or renovation projects by

¹⁴ *Herod's dream* 55; this quip is also cited by Gaalya Cornfeld (ed.), *Josephus, the Jewish Wars* (Grand Rapids, MI 1982) 107, n.536 (d). Its source is Nicolas of Damascus.

¹⁵ C. T. Fritsch and I. Ben-Dor, "The Link expedition to Israel, 1960," *Bibl Arch* 24 (1961) 50-59, followed by A. Raban, *Guide to Sebastos: the ancient harbours of Caesarea Maritima* (Tel Aviv 1983) 11.

¹⁶ As I have argued in Raban, *Harbours* 1, 69-70.

¹⁷ *Herod's dream* 129.

¹⁸ Ibid. 124, fig. 81.

an emperor and was often associated with an imperial visit. It is difficult to believe that Hadrian would have ignored the one major harbour of Palestine if it had been seriously damaged and not functioning properly. Six more emperors (Antoninus Pius,¹⁹ Marcus Aurelius, Septimius, Caracalla, and Macrinus) issued 'founder' coins, probably in connection with acts of imperial beneficence.²⁰ At least one of them would probably have ensured repairs to keep the port operating if such were required.²¹ And local patronage could also have helped to maintain the harbour — a worthy recipient of aristocratic generosity — if normal fees collected from commercial activities proved insufficient. Like all artificial harbours ever constructed, Caesarea's Outer Basin was built and maintained to meet specific economic and political needs of its society. This man-made installation depended upon human imperatives to survive.²² It survived as long as Rome required it and had the resources and technology to sustain it, and the engineering skills needed to maintain harbours persisted well into the Byzantine period.²³

In the middle of the 3rd c., the situation may have begun to change. New geopolitical realities and human factors alluded to above began to impinge upon the harbour. Troubles far away from Caesarea — political chaos, barbarian incursions, and economic depression — may have adversely affected the life of the port. Yet Levine has argued for prosperity at Caesarea throughout the 3rd and into the early 4th c.²⁴ Eusebius, a native of Caesarea, who wrote in 311, certainly gives the impression that it had been a thriving metropolis.²⁵

Thus, it seems likely that for the first two centuries of Roman rule the Outer Basin remained in service in some fashion to meet the maritime needs of the capital and the province. And although the Outer Basin would have been the first casualty of sustained neglect, it probably survived at least until 249-51, when Trajan Decius issued municipal coins commemorating *Portus Augusti*, as Sebastos was then called.²⁶ The harbour cannot have been submerged or destroyed at that date. It was perhaps in the second half of the 3rd c. that the installations were most vulnerable, and imperial benefaction then is certainly unlikely. Yet the rise of Constantine surely reversed any such decline: Caesarea's fortunes soared as the empire slowly became Christian and the new religion of Byzantium placed cardinal importance on Palestine. As the major port and political capital of the Holy Land, Caesarea's prosperity increased accordingly. Tourism, an extensive building program, a revived local economy and increased trans-shipment trade all added to her stature, so that she outgrew her old Roman urban boundaries and acquired new walls, a supplementary aqueduct system, and many other new public and private structures.²⁷ Caesarea acquired a new imperial mission in the unfolding world of Byzantium. The emergence of a new Byzantine urbanism²⁸ and the rôle played by her harbour²⁹ still require further detailed archaeological investigation.

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¹⁹ Hadrian and Antoninus Pius evidently engaged in harbour repairs or embellishments at Kenchreai, the eastern harbour of Corinth (R. L. Hohlfelder in *Hesperia* 39 [1970] 328 and in *Harbour Archaeology* 85).

²⁰ Kadman 62.

²¹ *Contra* Raban in *Harbours* 1, 289, who argues that Herodian Sebastos went out of use "possibly as early as the third century".

²² G. E. Rickman, "Towards a study of Roman ports" in *Harbour Archaeology* 106, quoting C. D. Smith, *Western Mediterranean Europe* (London 1979) 368.

²³ R. L. Hohlfelder, "Procopius, *De aedificiis* 1,11,18-20: Caesarea Maritima and the building of Byzantine harbors," in I. Malkin and R. L. Hohlfelder (edd.), *Mediterranean cities, historical perspectives* (London 1988) 54-62; see also Zos.2.22 on Constantine's construction of a harbour at Thessalonica in 322; *contra* A. Raban in *Harbours* 1, 290, who suggests that the technology for harbour construction may have been lost early in the Roman period, and see also Raban in this volume.

²⁴ Levine 46-47, 136, *passim*.

²⁵ *De Mart. Pal.* 6.1-2, *passim*; *Herod's dream* 161.

²⁶ Kadman 76 and 128, no.151.

²⁷ *Herod's dream* 174, *contra* Levine 136.

²⁸ K. G. Holum, "The end of classical urbanism at Caesarea Maritima, Israel" in R. I. Curtis (ed.), *Studia classica in honor of Wilhelmina F. Jashemski* (New Rochelle, NY 1989) 87-102.

²⁹ Cf. R. L. Hohlfelder, "Byzantine coin finds from the sea: a glimpse of Caesarea Maritima's later history," in *Harbour Archaeology* 179-83 and the work cited *supra* n.23.

Preliminary report on the 1989-1990 seasons

Kenneth G. Holum, Avner Raban, Clayton Miles Lehmann,
Diane le Berrurier, Robin Ziek, & Stephen F. Sachs

A new project, the Combined Caesarea Expeditions, began work at Caesarea in the summers of 1989 and 1990.¹ While committed to giving equal attention to all periods of the site's history, the project has two particular goals: to study the original design of Herod's city and harbours and the relationship of Herod's design to Straton's Tower; and to study the transformation of the classical city and its harbours in late antiquity, from the 4th c. to the Muslim conquest, and compare that city with the Roman of the 2nd-3rd c.

Work was conducted in 12 areas (7 underwater, 5 on land, fig.1). In addition, survey work on land was done in areas NC and FZ, and underwater survey in area SC. This report is preliminary. For most loci only preliminary pottery readings in the field have been made; select loci have, however, been studied in detail (see the separate contributions by A. Berlin, J. Magness and A. Boas below).

WORK UNDERWATER

Hellenistic tower (Area T/1, subdivided into TN and TE)

This submerged circular tower lies in shallow water (-0.5 to -1.5 m below MSL) on the shoreward side of the modern fishing harbour near the public beach (figs.2-5). It has been examined previously and is thought to belong to the fortifications of Straton's Tower.² We wished to study the structure and uncover adjacent walls connecting it to fortifications on the N and E.

In 1989, using a dredge³ (cf. fig.7) on the N side (area TN), we found large tumbled rectangular blocks, apparently earthquake destruction of the higher courses. Some had been fixed by iron clamps secured with molten lead, a technique known at Caesarea only in Hellenistic and Herodian structures. In 2 adjacent blocks were matching pierced holes probably for a bolt; they may derive from door jambs whose

¹ The project is sponsored by the University of Maryland, College Park, and the Center for Maritime Studies at Haifa University, and directed by A. Raban and K. G. Holum. Operating under the auspices of the American Schools of Oriental Research, this project continues the work of the Harbour Project and plans to collaborate with other teams working at the site, including the Joint Expedition which is now concentrating on publication. Thus in 1990 R. Bull, director of the Joint Expedition, collaborated with our surveyors to map remains of streets. In 1989 51 volunteers and 22 staff, in 1990 over 150 volunteers and 42 staff worked on the project. The staff comprised: R. Hohlfelder, R. L. Vann and R. Stieglitz (co-directors); C. Lehmann, R. Ziek, D. Syon, D. le Berrurier, D. Strong (area supervisors); L. M. Vann, J. Chase, K. Sheeler, P. Lampinen, A. Shaffer, J. Stabler, C. O'Reilly, L. Kahn, D. Everman, F. Stanley (trench supervisors); S. Sachs (chief surveyor), T. Wilkinson (assistant surveyor); M. Little, Z. Friedmann, C. Vess (photographers); K. Jones, U.-H. Chang, C. Brandon, Z. Friedmann, M. Kaminsky, S. Coscia, B. Rivolta (draughtsmen); L. Roussin (architectural sculpture and mosaics); J. Nesbitt (small finds); Y. Mart, Y. Nir (consulting geologists); P. Smith (physical anthropologist) assisted by S. Siegel, P. Sabari, S. Fox; J. Magness, A. Berlin, A. Boas (pottery, see their contributions below; A. Boas drew the profiles on pp 114 ff.); M. Niamir (registrar), assisted by M. de Young, K. Gay, R. Maltese; K. Gay, D. Strong (flotation of soil samples); S. Breitstein, Y. Tur-Caspa (dive officers), assisted by J. Miklovich and Z. Friedman; M. Horton, K. Gay, J. Macey (project administrators). In 1990 J. Adovasio of the Mercyhurst Archaeological Institute, Erie, PA, evaluated research opportunities and suggested procedures for processing cultural resources; they will perform laboratory analyses and conservation of artefacts. The project was supported by contributions by volunteers and other individuals, and by research grants from the Universities of Maryland, Haifa, Colorado, South Dakota, Rutgers, and Carleton. Private grants were made by the Baron Edmund de Rothschild's Caesarea Foundation and by the Rebecca Meyerhoff Foundation (for post-seasons analysis). Surveying equipment was provided by Wedge Innovations, Sunnyvale, CA.

² Raban, *Harbours* 1, 77-84, ill. 174-181; Raban, "City walls" 73-76.

³ Cf. S. Breitstein in Raban, *Harbours* 1, 262-63.

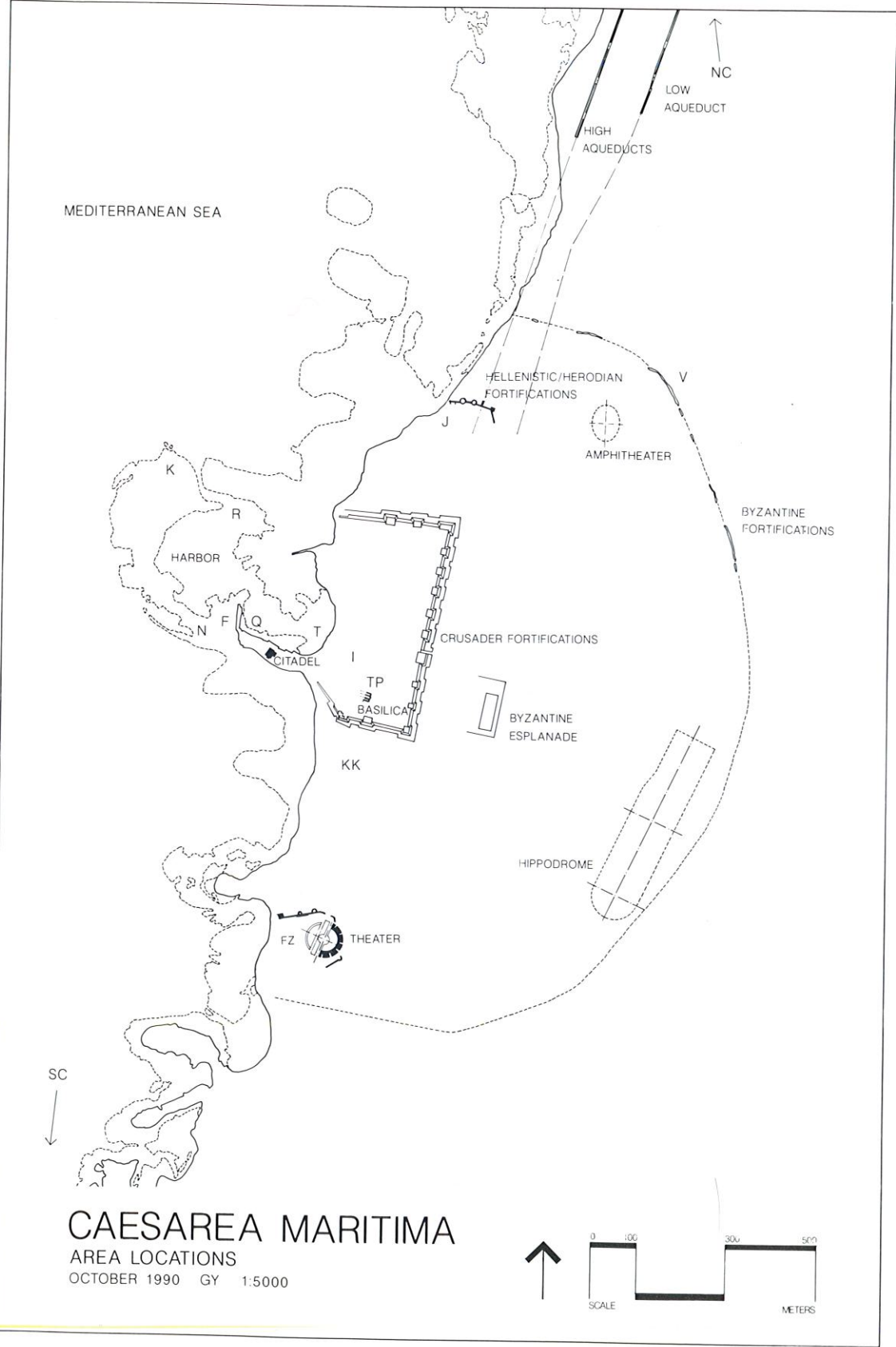


Fig.1. Map of Combined Caesarea Expeditions' excavation areas 1989-90.

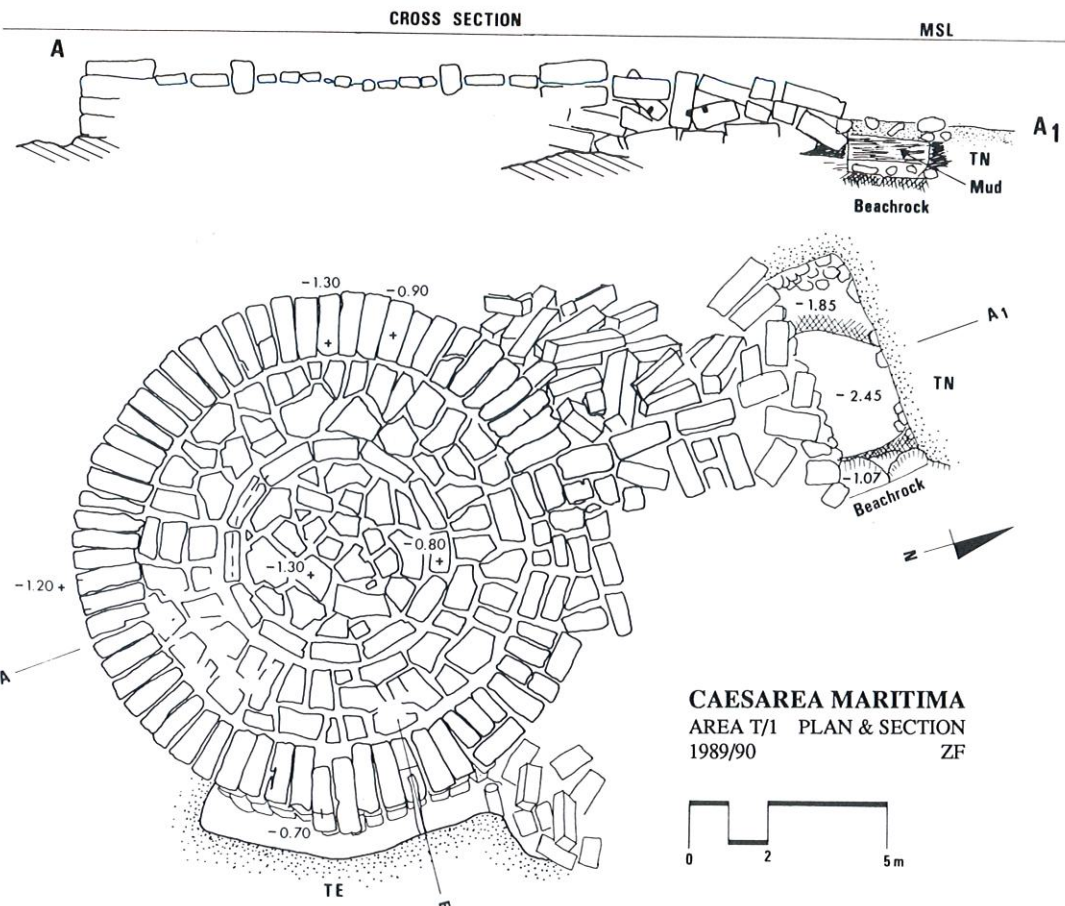


Fig.2. Area T/1 (with TE and TN), plan and N-S section.

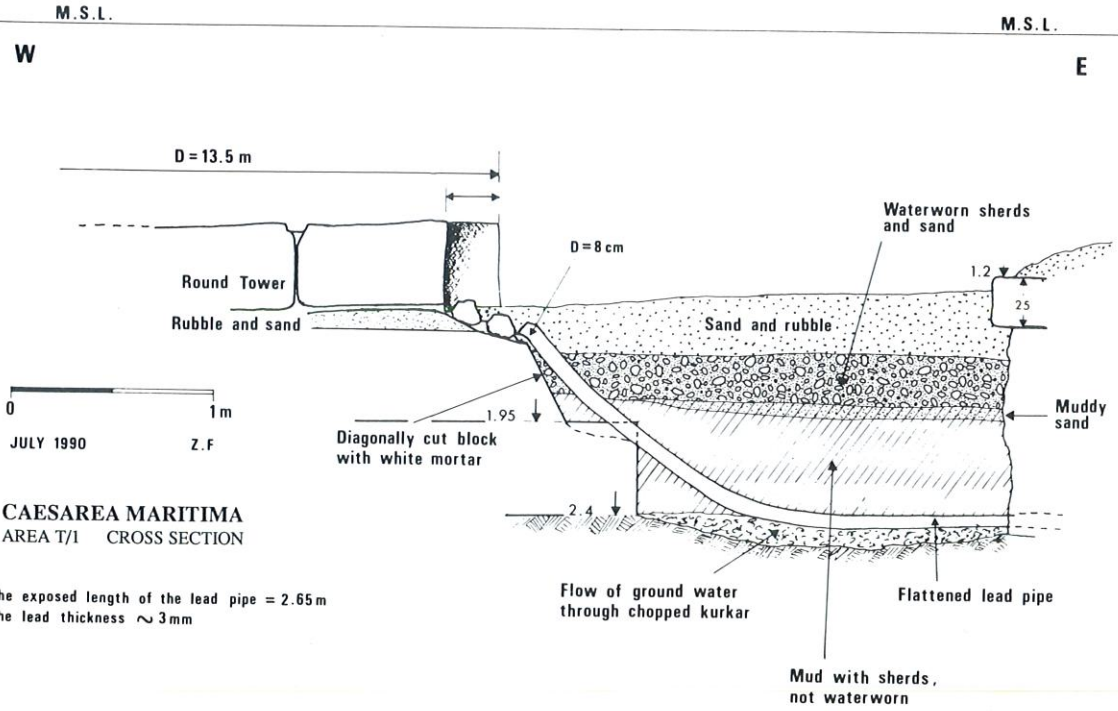


Fig.3. Area T/1, E-W section (1990).

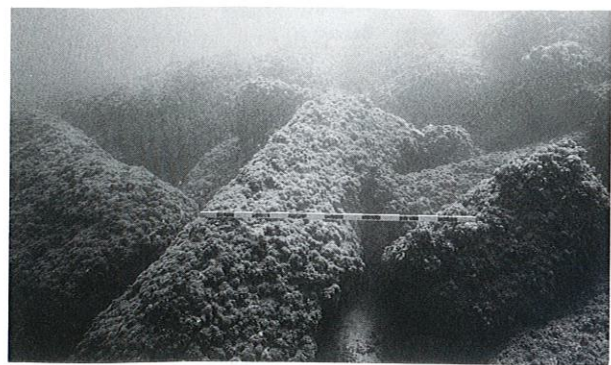


Fig. 4. Area T/1, tilted blocks on the N side of tower, to SE (ph: Mark Little).



Fig. 6. Excavation using a dredge within the metal caisson in Area R/3 (ph: Mark Little).



Fig. 5. Area TE, lead pipe on sea floor to round tower, to W (ph: Danny Syon).

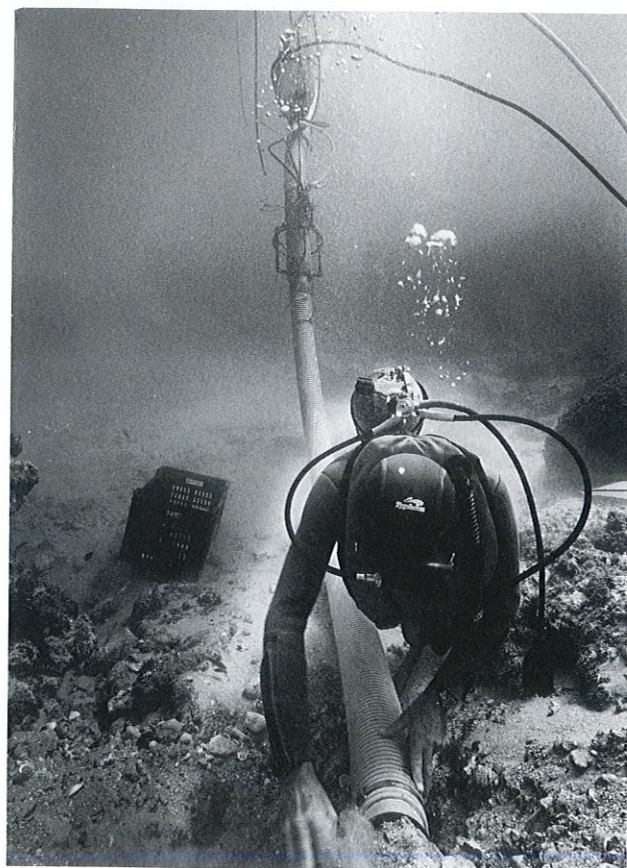


Fig. 7. Excavation using a dredge, Area NE (ph: M. Little).

threshold would lie at -1.8 m. Above the tumbled blocks and on the adjacent seabed were eroded pottery, glass, and marble of many periods. Below, in the cavities between the blocks, were large amphorae and household pottery fragments of the 6th-8th c., when wave energy seems to have been minimal; the chief amphora type was Yassi Ada 2⁴ (see p.150). Under the tumbled blocks was a layer of wave-deposited sand containing earlier pottery.

In 1990, this trench N of the tower was widened to 2×10 m. A layer of gray mud, up to 60 cm thick, appeared at -1.85 m; it also appeared in area TE, a trench 1×8 m placed along the E edge of the tower, at -2.21 m (figs.2-3). This mud layer contained much Byzantine and early Islamic pottery without evidence for erosion; some sherds were covered with ostreae. The same amphorae were present, and jars and household vessels of the early Umayyad period (1005, see further p.150). Coins of the 6th-early 8th c. were present (see pp.171-72 cat. nos. 99, 101-4, 106, 117, 123, 127, 136-39). There was also a marble statuette of a nude male (fig.8). The mud layer suggests that in the late Byzantine period to the 8th c. this was a well protected basin with sufficient circulation of seawater for ostreae to exist. The large quantity of broken pottery and other finds suggests that it served as a dump, perhaps following the attested renovation of the harbour by Anastasius but continuing into the early Islamic period.

Three intact courses of the tower were exposed in area TE, well-dressed headers of local *kurkar*, 40-45 cm high, 40-50 cm wide, and 1.05-1.22 m long (figs.2-3). Still fixed on the rocky floor was a lead water-pipe (figs.3 and 5) leading from the E, then sloping up across a block (with a diagonal cut) belonging to the second course of the tower, to which it was fixed with mortar. It had formerly continued into the tower through a gap between two headers of the third course. The pipe was 8 cm across (ext.) and had a continuous seam on top.



Fig. 8. Marble statuette of nude male figure from Area TE (from pierced screen, or sarcophagus?) (ph: Mark Little)

The Herodian harbour (Areas NE, FE, Q, R/3, K/2)

Area NE lies c.60 m W of the modern jetty, in the middle of the S breakwater. It is a sand-filled hollow, and we attempted to show that Herod's engineers permitted this hollow, contained within the masonry of the breakwater, to fill by natural wave action during construction.

Area FE lies E of a floor paved with ashlar (-5.1 m).⁵ Three masonry walls were found, but none can yet be associated with the floor.⁶

Area Q is part of the ancient quay on the inner (N) edge of the modern jetty. A trench was dug to -5 m; the harbour floor was not reached, but data was gathered on the quay's ashlar and bedrock foundations.

⁴ G. F. Bass in G. F. Bass and F. H. van Doorninck Jr. (edd.), *Yassi Ada 1* (College Station, TX 1982) 155-59.

⁵ It was first examined in the early 1980s, see Raban, *Harbours* 1, 124-27.

⁶ Rough seas and poor visibility underwater brought a premature end to this work. In the spring of 1990 the Caesarea Development Corporation dumped large quantities of soil on the beach S of the Crusader city for a parking lot, but heavy seas in the early summer eroded it and the north current carried it over the shoreward parts of the submerged breakwaters.

At area R/3, a Roman spill within the main basin, an experimental probe was conducted within a round metal caisson (2 m diameter) (fig.6), to avoid the problem of contamination of layers by inflow from the edges. Work continued with the caissons in 1991 and the results of the two seasons will be reported together at a later date.

At area K/2 at the N tip of the S breakwater and just S of the twin towers mentioned by Josephus (see p.50), a huge tumble of blocks was surveyed one by one (figs.1, 11) by a team from the School of Architecture at the University of Maryland to create a three-dimensional computerized image of the structure; it may have been the tower known as the Drusion, perhaps the Herodian lighthouse.⁷ Blocks are scattered over an area of 25 x 35 m at depths of -8 m to -1.5 m. Some blocks are cemented together to create entities several meters on a side, and some ashlar measure 1.5 x 2 x 7 m. The tumbled mass was founded on a platform of hydraulic concrete mixed with rubble that had been laid in wooden formwork (figs. 9-10, 12-14). The N side of this platform was examined in 1990. The wooden caisson survived to over 2 m in height. It had internal and external walls (figs. 12, 14) and a wooden floor of 2 layers of cross-planks. The external wall was 14.6 m long E-W and built of horizontal planks fastened by mortice and tenon joints. The external planking had been stabilized by vertical uprights, some square in section but most round conifer logs trimmed on the side facing the wall. These uprights had been added to the structure after the shell was built (the 'shell-first' technique common in Roman nautical engineering), being fastened with iron nails and bolts. A wooden wall traced for c.20 m to the S in a narrow gap at the base of the tumbled blocks of concrete, at -8.4 m, probably formed the S side of this platform.

Inside the wooden caisson the fill was composed of large pebbles and rubble in a matrix of lime, volcanic ash, and tufa. Between the inner and outer caisson walls the composition was more than 80% rubble, but inside the inner caisson wall was the matrix alone (chiefly ash and tufa). That concrete had been introduced in liquid form was evident from the smooth face where planks are missing. The main mass of the fill inside had been introduced in two layers, with an intermediate surface at 1.7 m above the floor of the caisson. The lower fill is almost intact but tilted down to the E (base at W -8.74 m, base at E -9.16 m, see fig.12); the upper fill is broken into large chunks tilted from their original position. How the forms were constructed and moved into position will be studied in future.



Fig.9. Area K/2, external wooden form along N side of concrete platform, to SW (ph: Avner Raban).

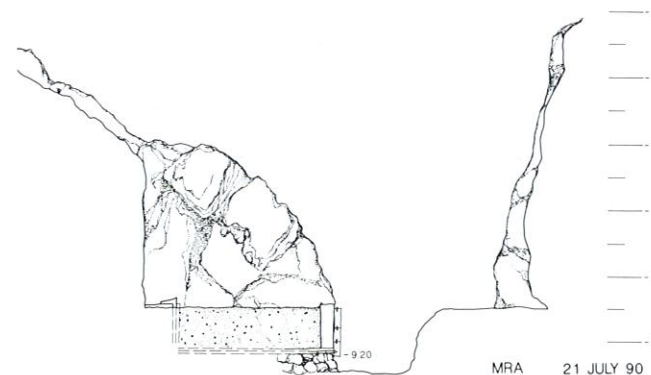


Fig.10. Area K/2, N-S section of N face of platform.

⁷ Vann, "Drusion". The work in K/2 has been previously summarized in *Archaeological News* 16 (1991) 61-70 with figs. 1-12, and *Old World Archaeology Newsletter* 15.1 (1991) 14-21.



Fig.11. Aerial view of submerged features, to SE. Areas Q, FE and NE lie along the submerged S breakwater (upper right), upon part of which a modern jetty rests. In left foreground, tumbled building stones to the right (W) of the harbour entrance mark Area K/2 (ph: Bill Curtzinger).

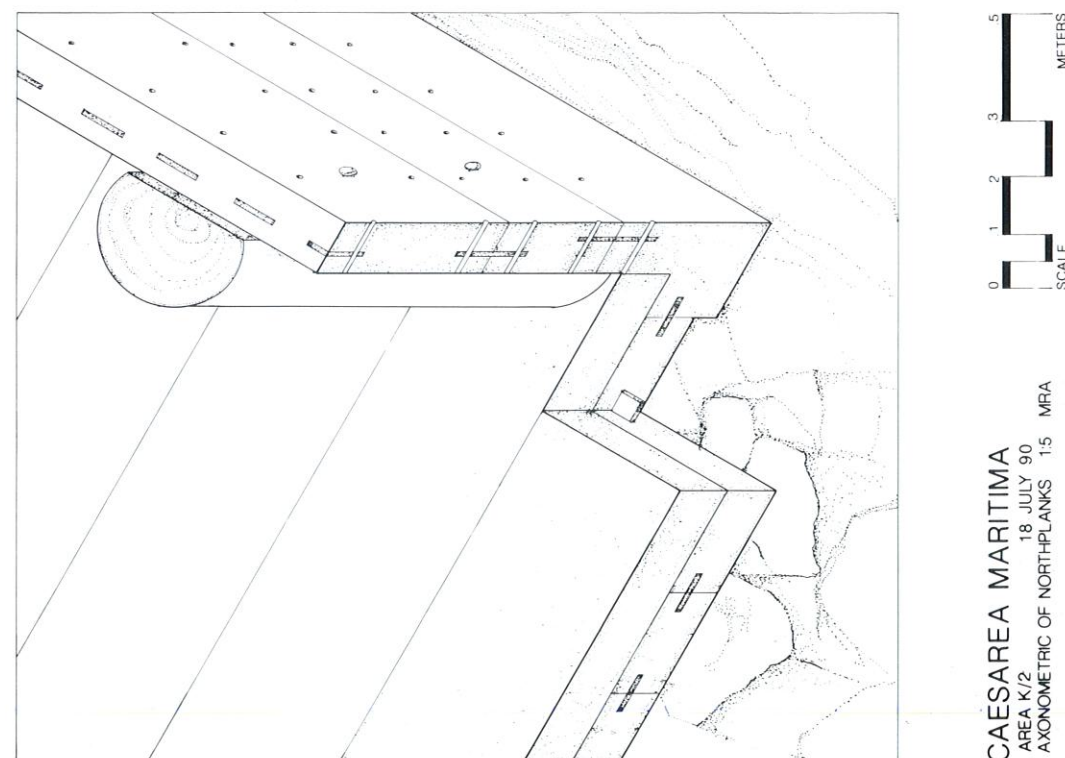
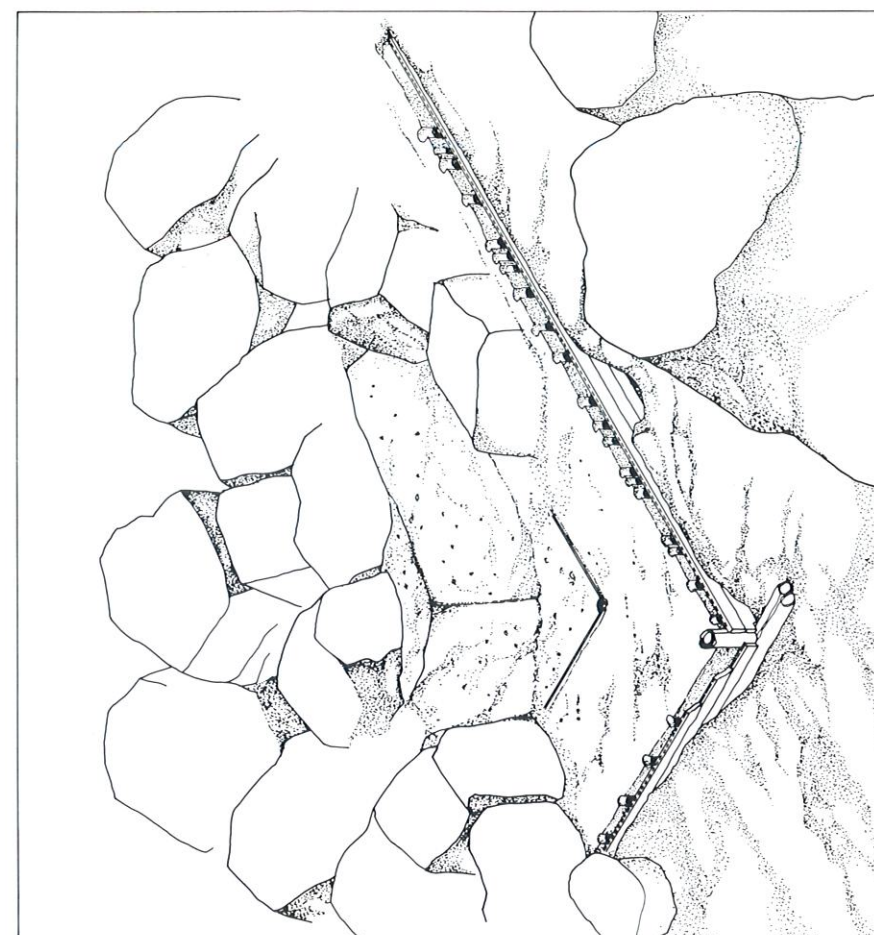
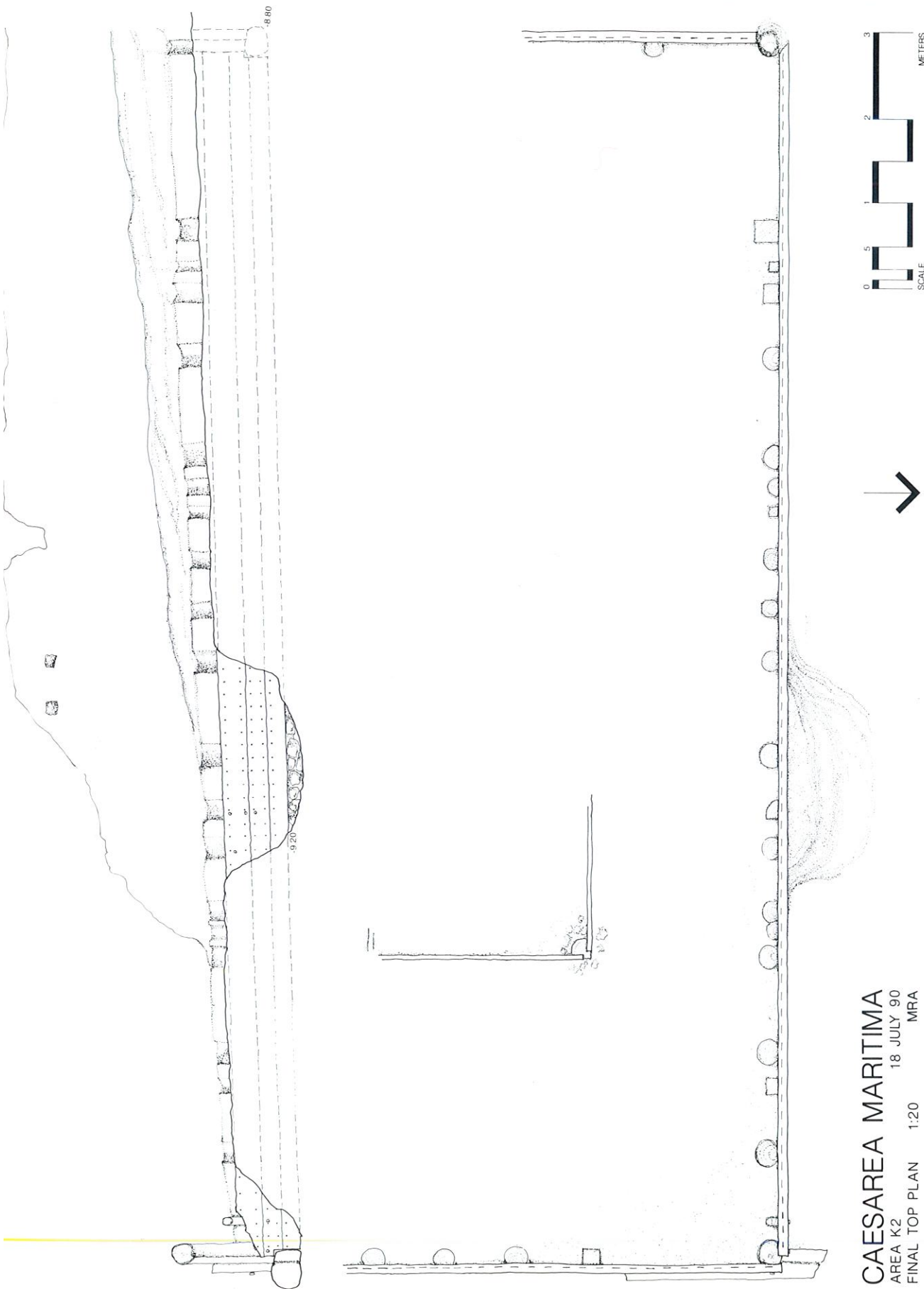




Fig.15. Aerial view of Areas I (Inner Harbour) and TP (Temple platform), before 1989 season, to SE. Area I/1 is to lower right, I/4 and I/5 to S of it at extreme middle right. To the left (E) of Area I are the vaulted substructures of the Temple platform; on the platform in the background are the ruins of the three-apsed Crusader basilica. To the NE (left) of the basilica lie the foundations of the octagonal martyrium (ph: Aaron Levin).

WORK ON LAND

Inner harbour (Area I)

Here our intent is to study the design and engineering of the inner harbour and its predecessor, the rock-cut harbour of Straton's Tower (fig.15). In area I/1 the E quay and bedrock floor of the Herodian phase had come to light,⁸ and we are trying to locate more of the quay and the NE and SE corners of the basin. The SE corner probably lies at I/5, but in 1990 we did not excavate below a group of 14 burials of relatively recent date, which lie directly over Crusader structures exposed in I/4 just to the N. These burials will be reported after further excavation has taken place.

At I/4 we exposed more of a massive ashlar structure oriented N-S (figs.16-18)⁹ which should be part of the E quay already exposed in I/1 to the N. It had been laid next to a vertical cut in the bedrock (+0.6 top to -1.2 m bottom) and showed two distinct phases. Large ashlar, presumably Herodian, lay above 3 courses of rubble and a base course of ashlar on bedrock. W of this presumed quay were marine deposits (sand, shells and water-worn late Roman and Byzantine pottery) above a mud layer at -1.4 to 1.8 m containing Hellenistic and Herodian pottery. The W balk was reexamined in 1990 and showed beach deposits typical of exposure to wave action, whereas the E balk lacked marine deposits. Thus, it would seem that the E quay wall of the Hellenistic and Herodian inner harbour lay somewhere between these two balks, aligned with the extant quay wall in I/1; it was partly dismantled in the Byzantine period, when some stones were perhaps used to construct an ashlar pavement at the bottom of I/1.

Area I/1 (figs.19-23) marks the NE corner of the inner basin, part of which was exposed in 1976 and excavated in 1983-84.¹⁰ We opened an area of 15 x 20 m to the W of the E quay wall (figs.19, 21). The western two-thirds of this area contained remains of paved floors and ashlar walls from at least 6 different phases. Below recent fill and modern (Bosnian) and Crusader structures was a large rectangular complex of rooms surrounding a paved court (1011). Above crude *opus sectile* floors was pottery probably of the 11th c. (Fatimid). Beneath the ashlar pavement were two successive mosaics, dated by pottery to the late Abbasid or early Fatimid period (late 9th-10th c.). The upper mosaic incorporated a ceramic pipe leading SW into a vaulted cistern (1059); the lower mosaic incorporated another ceramic pipe leading E towards a probable fresh-water reservoir or pool (Byzantine) paved with slabs lying next to the E quay wall (figs. 19, 20).¹¹ Originally, 1059 was a vaulted channel that drained this pool to the W. Later, probably prior to the Abbasid period, a N-S wall 11 (figs. 19, 21 center) blocked this channel at its E end. The channel was then blocked off at both E and W by ashlar walls to create a vaulted cistern 2 x 3 m in plan. Its interior walls and floor were covered with plaster; glazed ceramics dated the end of the use of the cistern to about the 13th c. To the E of the channel/cistern 1059 was a series of ashlar walls and floors of beaten earth and shells and containing some Umayyad and early Abbasid pottery; they postdated the original vaulted channel but predated the two coarse mosaics.

Just to the E, a probe begun in 1984¹² was continued and produced a refuse pit with encrusted and nearly complete pottery of the late Fatimid period. It lay just above the slabs paving the probable fresh-water pool (Byzantine). Beneath some of the large slabs was part of the rock-cut basin of the original inner harbour. At the bottom was a thick encrustation of ostreae on bedrock, representing the harbour floor (cf. fig.20), and containing late Hellenistic and early Roman amphoras, as well as Herodian oil lamps and a 2nd c. B.C. cup, bowls and oil lamp, showing that the rock-cut inner basin first functioned in the Hellenistic period, probably as the protected harbour basin of Straton's Tower under Zoilus (late 2nd c.); above were layers of rubble and mud, and then sediments deposited by the fresh water of the basin.

⁸ Raban, *Harbours* 1, 132-37, ill. 68-78.

⁹ Partly excavated in 1988 (Raban *et al.*, "Caesarea and its harbours: a preliminary report on the 1988 season," *IEJ* 40 [1990] 248-49).

¹⁰ Raban, *Harbours* 1, 80-81, 132-37.

¹¹ Cf. Raban, *Harbours* 1, 135-37.

¹² Cf. Raban, *Harbours* 1, 134-35.



Fig.16. Area I/4, to W (1989): large ashlars of the inner harbour quay in center, beyond is part of the W balk with beach deposits (ph: Avner Raban).

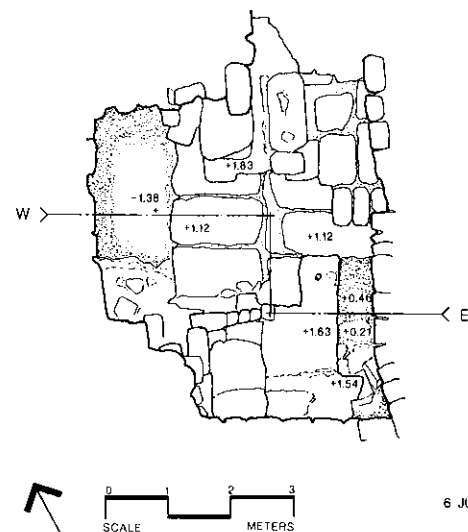
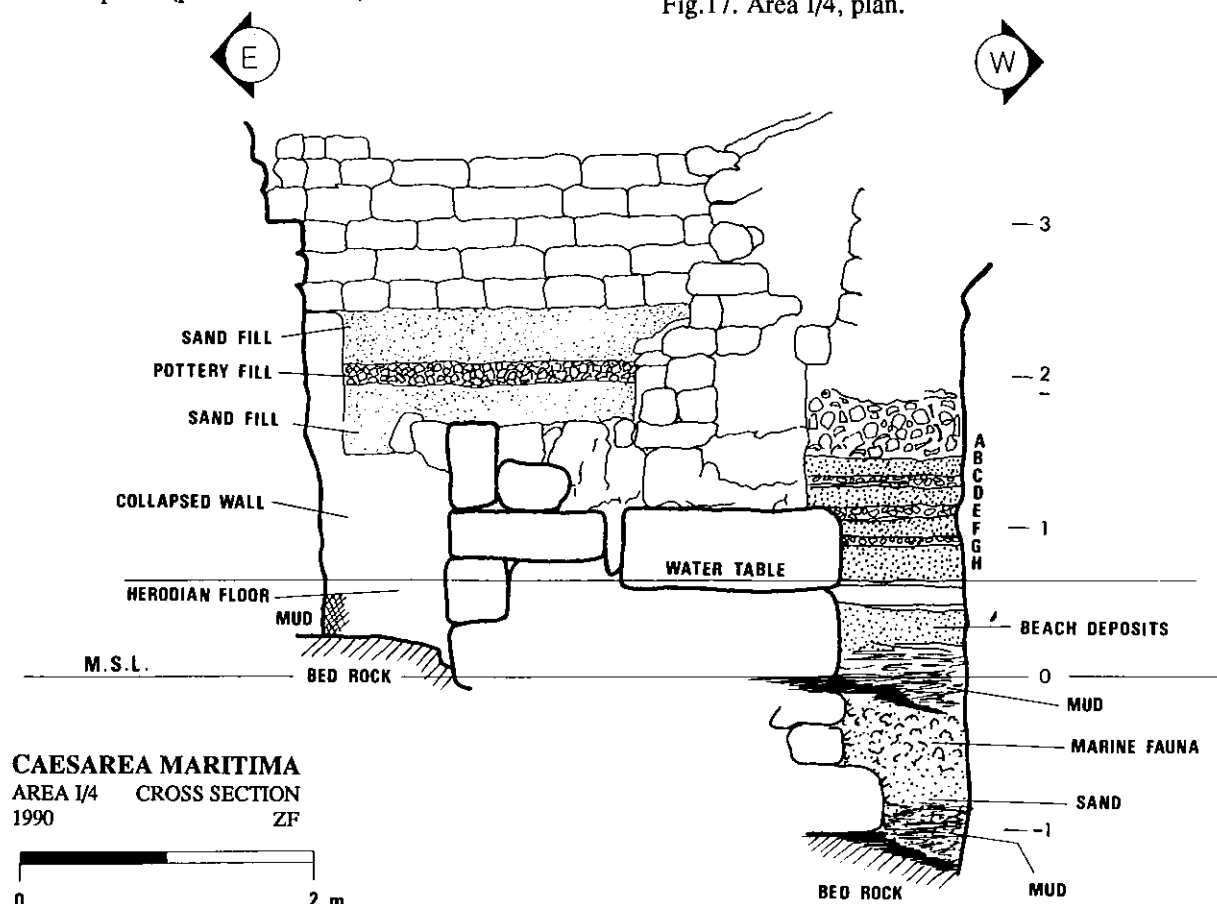


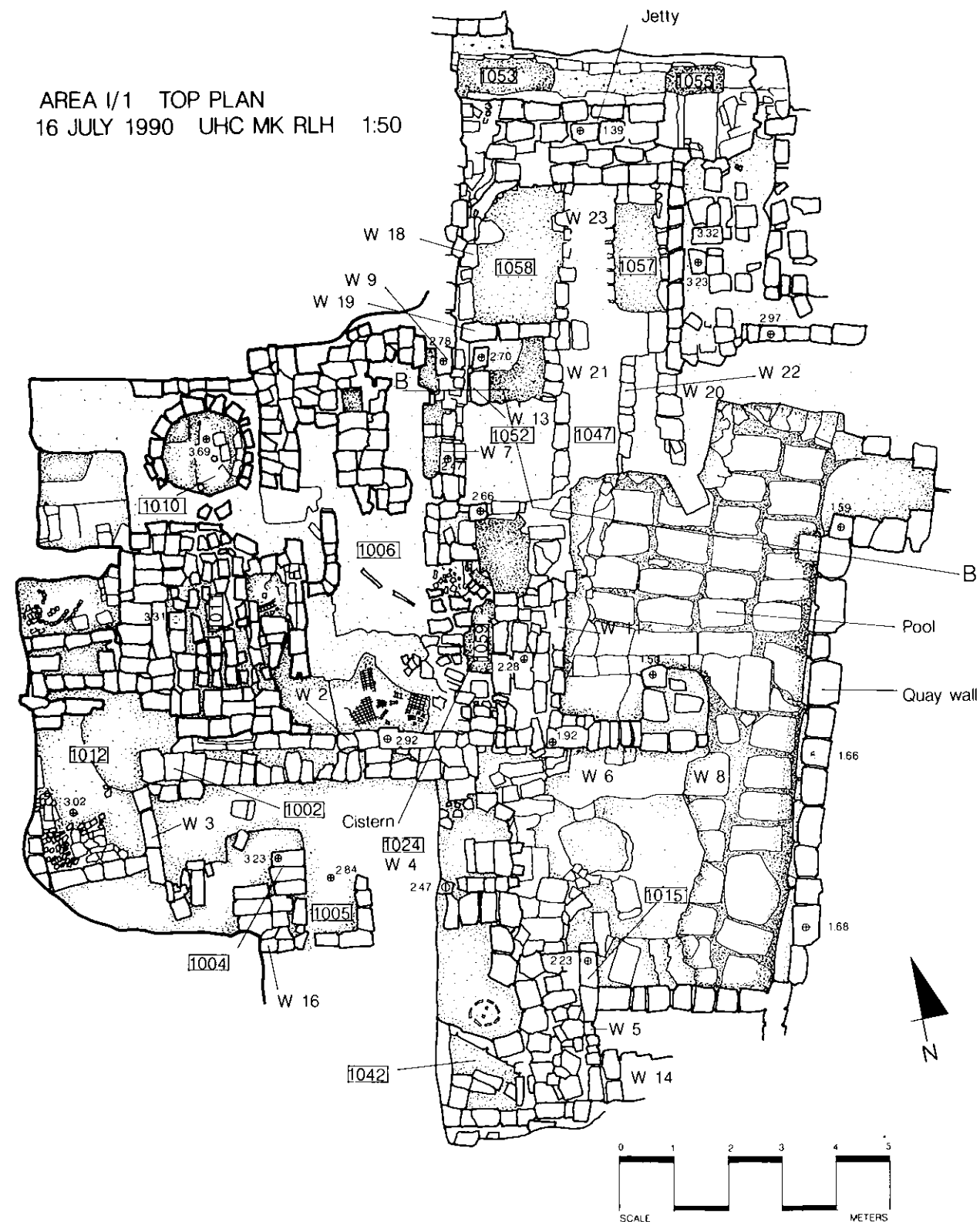
Fig.17. Area I/4, plan.



CAESAREA MARITIMA
AREA I/4 CROSS SECTION
1990 ZF

Fig.18. Area I/4, E-W section (1990).

AREA I/1 TOP PLAN
16 JULY 1990 UHC MK RLH 1:50



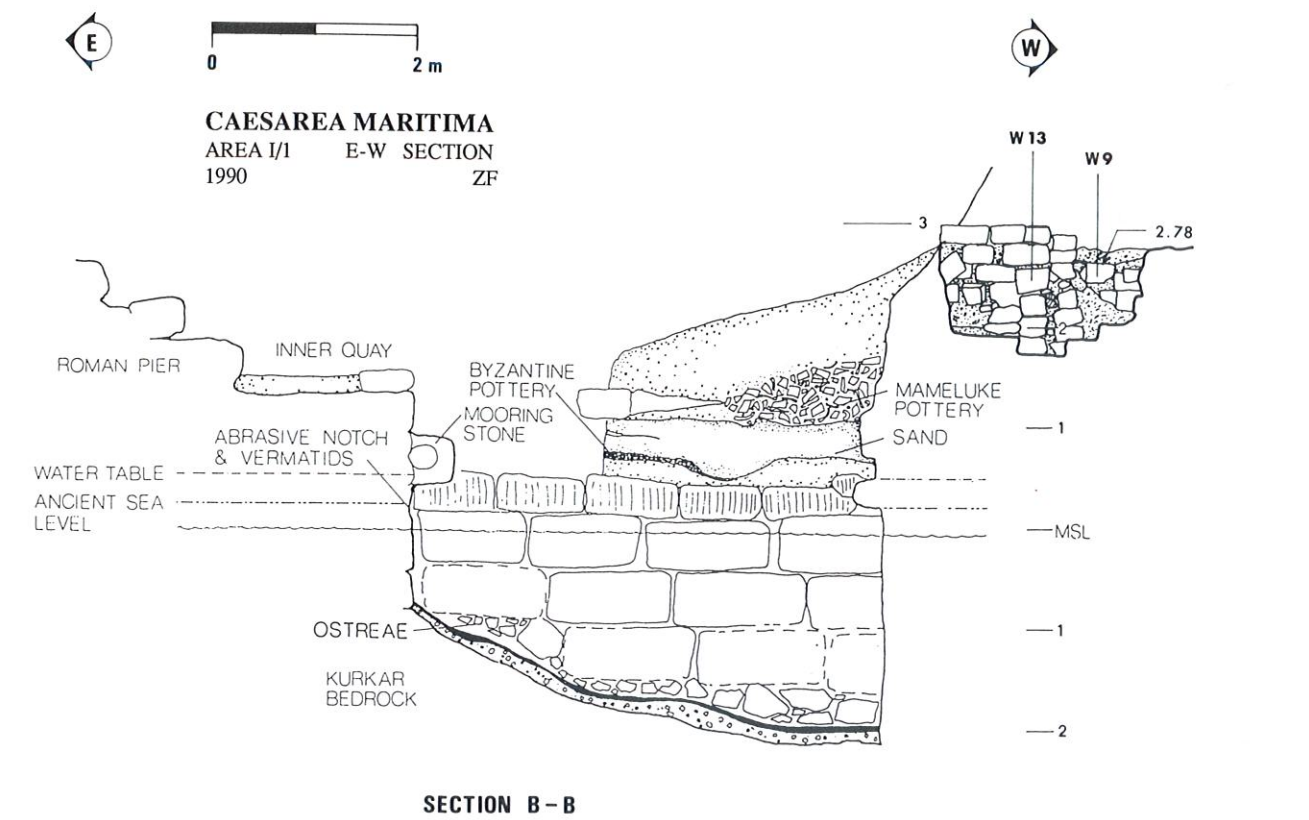


Fig.20. Area I/1, E-W section.



Fig.21. Area I/1, general view to W (1989). In center (just above scale) is vault of a drainage channel 1059, later blocked for use as cistern. In foreground is E quay of inner harbour; just below it is part of a Byzantine reservoir or pool paved with ashlar (ph: Mark Little).

In area I/1 where the NE corner of the inner basin was being sought, an ashlar jetty was found projecting from the E quay about 8 m to the W (fig.22). It was 2.3 m wide, and, like the E quay, was built of alternating courses of medium-size squared rubble and of ashlar blocks 40 cm high. A probe dug along its N face (1055) exposed 6 courses, the top at +1.39 m, covered by a Byzantine (?) ashlar pavement; the lowest course reached thus far lies at -1.0 m. Marine fauna (vermitids) covered its N face up to +0.3 m (fig.23), suggesting that in the final period of its use mean sea level was a little higher than today. Although bedrock was not reached, we exposed a heavy carbonate encrustation on top of a stretch of wall that ran parallel to the W half of the pier and 1.1 m N of it. This wall was of squared, medium-size rubble, and had been laid on sand at -0.65 m. In between this wall and the E quay in waterlogged mud was a fill of broken pottery of late Byzantine and Umayyad date, indicating that this space served for dumping refuse at that time. At the same period the S face of the quay served as the N wall of the presumed reservoir of fresh water and the E quay served as another wall of the same (figs. 19-21). The W wall of the reservoir may lie c.5 m W of the E quay, on a slightly different orientation (wall 23), giving the reservoir a trapezoidal shape.¹³ Whereas the S part of this pool remained open and in use during much of the Islamic period, the N part was built over and paved in early Abbasid times by about 900. To the W of the pool were found domestic mediaeval structures belonging to 5 distinct phases that corresponded to those identified in I/1. These mediaeval structures included walls 18 and 19 (fig.19) and an associated plaster floor (+2.28 m). They will be studied further in future seasons.



Fig.22. Area I/1, NE sector, to E (1990). In foreground is stone pier of inner harbour; to left is 1055, and beyond the pier are unidentified Byzantine and early Islamic structures (ph: Claudia Vess).



Fig.23. Area I/1, vertical view of stone pier with marine fauna adhering to a lower course (ph: Claudia Vess).

Inner fortification wall (Area J/6)

The goal is to secure better evidence for dating the segment of fortification wall with two round towers and one polygonal tower that was found by the Italians. It is disputed whether they belong to Straton's Tower¹⁴ or to Herod,¹⁵ and their date directly affects the question of the scale and originality of Herod's city. At J/6 we wished to date the western of two large rectangular structures (each c.35 m E-W) lying just

¹³ Cf. Raban, *Harbours* 1, 135-37.
¹⁴ Raban, "City walls"; *BASOR* 273 (1989) 83, and in this volume.
¹⁵ Blakely, "Date"; *BASOR* 273 (1989) 79-82, and in this volume.

inside the wall and evidently contemporary with it.¹⁶ Our trench (8 x 9.5 m, see fig.24) revealed 8 phases of walls and floors (from 2nd c. B.C. [?] to the 6th c. A.D.). The earliest was a long ashlar wall (6457), running E-W, which formed part of the N wall of the western rectangular structure. It was 2 m S of the fortification wall itself. To the S again were parts of several rectangular rooms (e.g. 6443, 6452), which, like the E-W ashlar wall, went through at least two pre-Herodian phases. In the third (Herodian?) phase 6457 was widened (to c.2.1 m) by large ashlars added to its S side (6429, 6469), and the area to the S was subdivided into smaller rooms paved with irregular flat slabs (e.g. 6460). Pottery on top of these floors included much imported Eastern Sigillata A, suggesting the Herodian period. Also Herodian or pre-Herodian is a hearth (fig.25) lying just S of 6429; it suggests a domestic context. During the 2nd c. radical architectural changes occurred, although the layout of the phase remains unclear. In the 3rd c. even greater changes occurred, when J/6 became a rectangular open court with plastered basin 6450 at its center and a plaster floor. Around the court were rooms with floors of beaten hamra over a fill of packed kurkar chips (6405, 6424, 6445, 6472). Earlier walls had been removed to the level of the new floors. The next phase, perhaps late Roman, contained similar floors (6461). In the Byzantine period 2 different wall types were found, the earlier consisting of vertical stone slabs, the later of alternating headers and

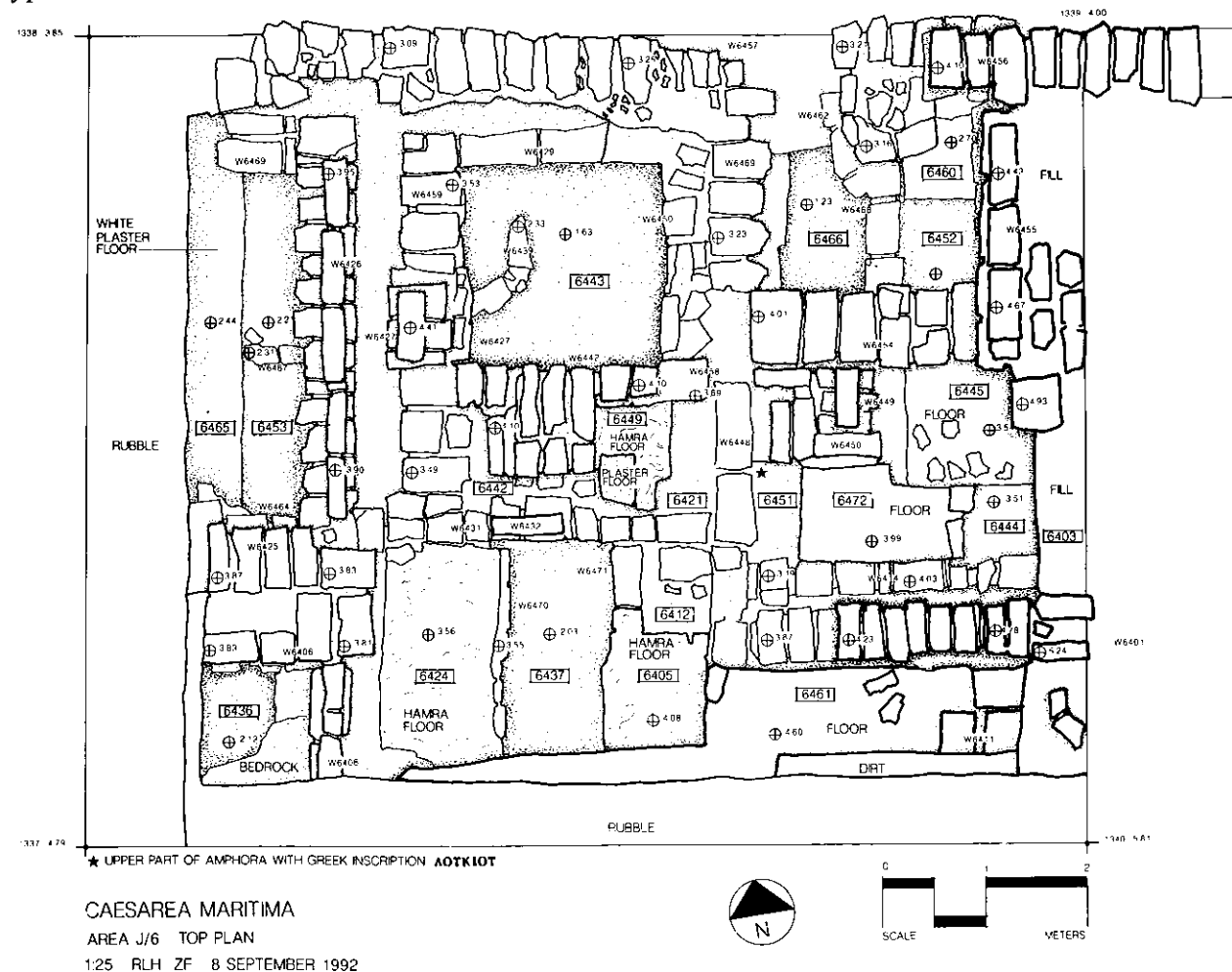


Fig.24. Area J/6, plan.

16 For a plan see Levine, *Qedem* 2, 10, fig. 1, drawn after Frova 1965.

double stretchers, the stretchers enclosing a rubble fill. Both construction types are preserved in 6401, the vertical slabs to the W, the header and stretchers to the E, founded on top of the vertical slabs. The walls were founded well below the level of the Byzantine street pavement on the SW, so the latest structures in J/6 have probably not survived.

Byzantine fortifications (Area V)

The course of this wall, a broad semicircle enclosing c.80 ha (218 acres), its N end arriving at the coast some 220 m N of the Hellenistic or Herodian wall, was traced by the Survey of Western Palestine and assumed to be Roman.¹⁷ The Italian mission under A. Frova excavated a segment of the wall and a rectangular tower on the NW side of the city (fig.26) and found them to be Byzantine.¹⁸ Near the hippodrome the Joint Expedition exposed the inner face of the wall¹⁹ and recently a south gate accidentally exposed during construction of an industrial building was investigated.²⁰

A sondage was opened in 1988 some 30 m SSE of the rectangular tower studied by the Italian mission at area V/4, where the wall projected from the surface.²¹ In 1989 this sondage was expanded (10 x 10 m) across the wall (figs. 27-29) to secure more information on its con-



Fig.25. Area J/6, hearth of Hellenistic or Herodian period (W 6439), to W (ph: Avner Raban).

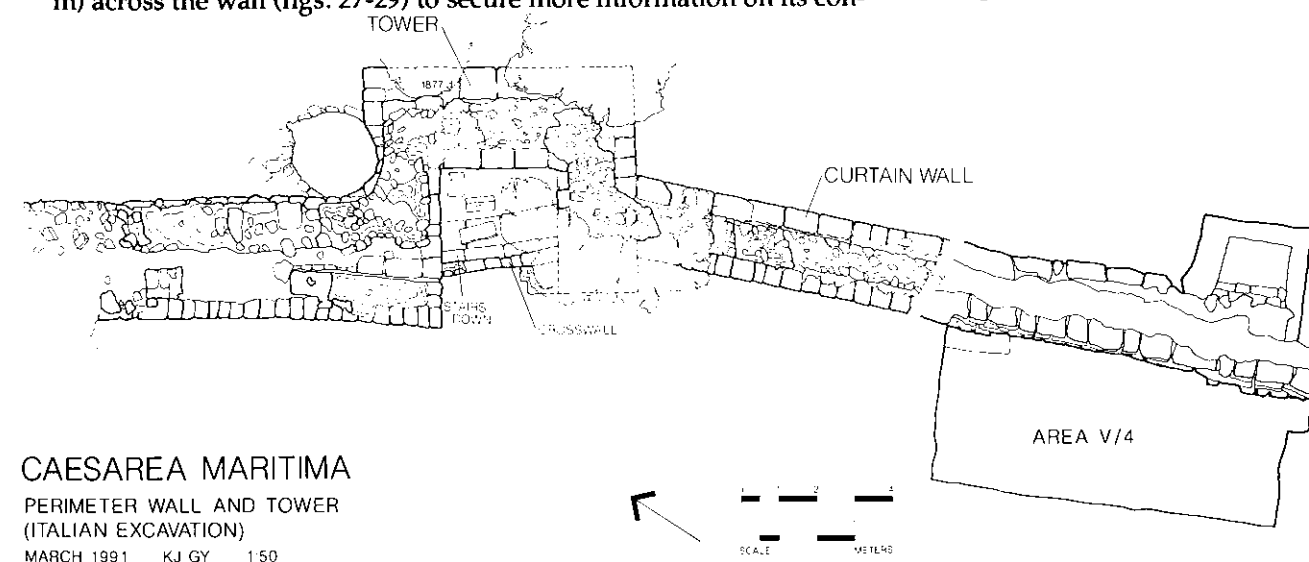


Fig.26. Area V, Tower excavated by Italian Mission, and trench V/4, plan.

struction and chronology.²² Lengths of nearly 10 m of its inner face and 2 m of its outer face were exposed to the full preserved height. The inner and outer facings of large ashlars enclosed a core of mortared rubble;

- 17 Conder and Kitchener, *Survey of western Palestine 2: Samaria* (London 1882) 14-15; cf. *Herod's dream* 18.
- 18 A. Frova, *Caesarea Maritima (Israele), rapporto preliminare della prima campagna di scavo della Missione Archeologica italiana* (Milano 1959) 14-21.
- 19 J. H. Humphrey, "A summary of the 1974 excavations in the Caesarea hippodrome," *BASOR* 218 (1975) 9-14.
- 20 M. Peleg and R. Reich, "Excavations of a segment of the southern Byzantine city wall at Caesarea," *Atiqot Eng. ser.* 21 (1992) 137-70.
- 21 Raban *et al.* (supra n.9) 252-54.
- 22 This excavation and its pottery will be published separately and in more detail by C. Lehmann and J. Magness.

of the W face 8 courses (2.8 m high) survived above the footings (figs. 28-29). The footings on this side are large field stones and 1 or 2 courses of small ashlar without mortar laid on a bedding of sand and cobbles (15.02 at the N, 14.50 at the S). Next come two courses of ashlar of irregular size without mortar; then up to 6 courses of much larger stones of different sizes but usually longer than they are high, except in the fourth and fifth courses near the S end. The facing stones in the upper courses appear to be dry laid and chinked, with mortar inserted into the joints. Above the third or fourth course the mortar is fine, pure white, porous and chalky, with very fine sand. Below the fourth course is found in places a gray mortar, not very hard, with many charcoal inclusions. On the S exposed face are remains of the rectilinear incisions in the plaster also noted behind the hippodrome.²³ The E face survives to 17.20 m, the W to 17.45 m, where wind-blown sand protected the facing stones; on the E the wall is badly eroded since soil accumulated more slowly and the fill was more acidic, thereby facilitating the leaching out of minerals and consequent decay of the stone. On the E face the footings were exposed at 13.75 m (figs. 27, 29); there, as on the W, a bedding of cobbles and sand supported 2 courses of footings, above which 6-7 courses of ashlar survive, but there is no trace of plastering on the E face. The ashlar was mortared together with the same fine mortar described above, and their dimensions were similar. Facing ashlar was cut from the local *kurkar* and finished by use of the *drove*. The core of fieldstones and gravel is set in a light gray cement containing pebbles, sand, crushed pottery, and charcoal pieces (1-2 cm). The core is c.70 cm wide; the wall as a whole is over 2 m wide, and the footings almost 2.5 m. The foundation trench was cut into unstable sand on the W side of the wall (4056, 4060, 4063, 4069). A possible profile of this trench is shown in fig.29 (4060), although later burials inside the wall have modified its appearance, and movement of the sand²⁴ has introduced material from early Roman to the Crusader periods. When first built, the level was probably just over 15.0 m, sloping down to the E. It appears that the builders positioned the wall near the top of a hill on the outer side of the crest, for optimal strategic value.

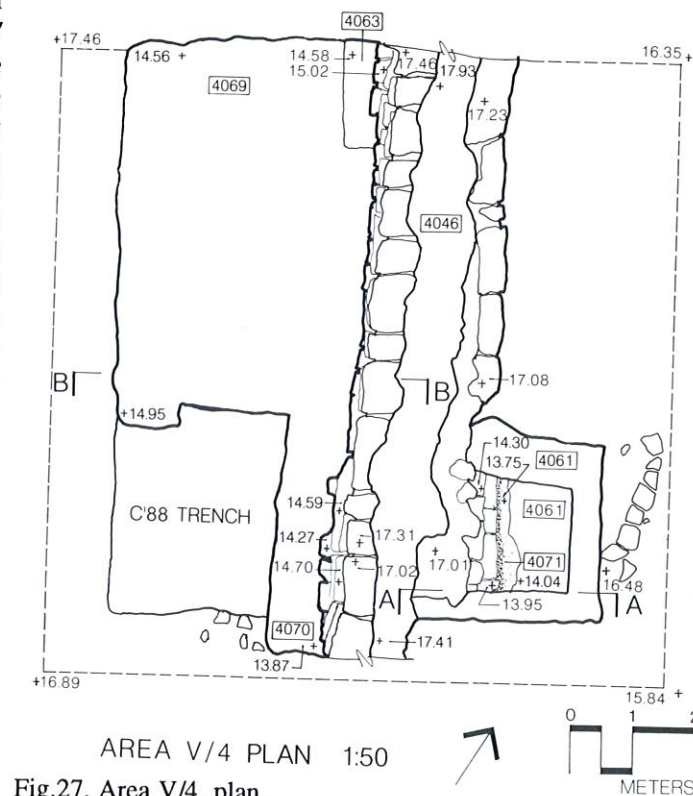


Fig. 27. Area V/4, plan.

Just to the E, a line of stones running parallel to the wall may represent a retaining wall holding fill against the eastern footings of the fortification wall. A layer of debris (4061, 4071), over 1.25 m deep, containing much broken pottery and glass, was excavated between the two walls; it may have served to stabilize the sand and footings up to the finished grade, and should provide reliable evidence for the construction date. In 5 out of the 30 buckets from 4061 pottery of the 8th-9th c. was present, but all of the pottery in the lower part of the deposit was considerably earlier, and in 4071, next to the footings, the pottery again seems to be consistent with the view that the construction of the wall took place in the late 4th or early 5th c.²⁵ No secure evidence for the abandonment of the wall was recovered (the wind-blown sand does not permit careful stratigraphic dating²⁶) but presumably this fortification wall was abandon-

ed not long after the Muslim conquest of c.640, when deterioration and stone-robbing would have set in.

In the area of V/4, the only subsequent activity was for burials, presumably in the post-Byzantine period. Five or six burials were found in pits dug into the sand, with no associated artifacts. They could date to any period after the foundation of the wall, but would have come before much of the 2-m thick deposit of wind-blown sand had formed against the W face. Two or three skeletons were laid against the wall's footings (c.14.5 m), others some 2-3 m from the wall and at a slightly higher elevation. Their orientation and arrangement of the body were not uniform. Burial 1 (4066) may have been an adolescent female; 2 (4065) an adult female; 3 (4064) an adult male; 5 (4068) an adult; and 6 (4070) an adult male. Burial 4 (4067) was very disturbed, and could belong to burial 6.



Fig. 28. Area V/4, Byzantine perimeter wall, to E (ph: Mark Little).

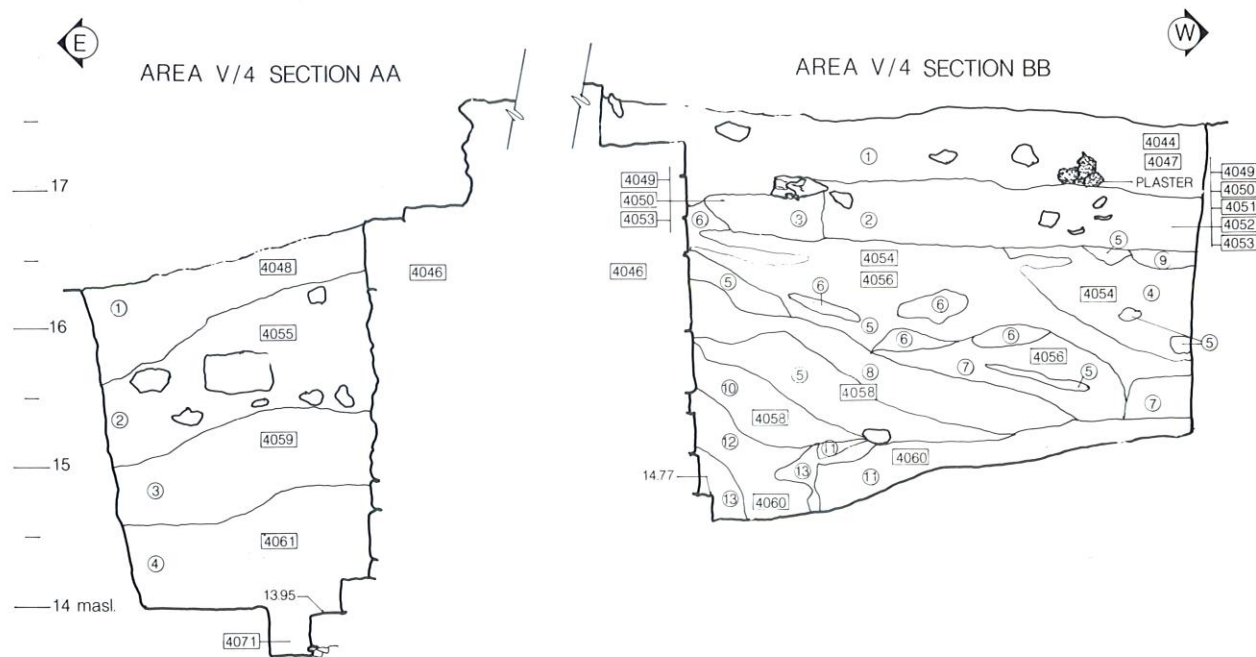


Fig. 29. Area V/4, sections A-A and B-B.

²³ Cf. Humphrey (supra n.19) 13, fig.8.
²⁴ Evident from layers blown up against the wall.
²⁵ Cf. Humphrey (supra n.19) 9; Riley, "Hippodrome pottery" 25; Peleg and Reich (supra n.20).
²⁶ Cf. M. Rim, "Sand and soil in the coastal plain of Israel," *IEJ* 1 (1950-51) 44.

The second insula S of the Crusader city (Area KK)

An excavation was opened in the second insula S of the Crusader fortifications (fig.1), which lies next to the coast, adjacent to the previously excavated Field C²⁷ and separated from it by an ancient E-W street (fig.30). The insula measures c.80 E-W x 110 m N-S. In 1979 3 trenches had been dug in the SE corner of this insula.²⁸ We wished to examine the development of the city plan, including land use, building design and construction, and the relationship between domestic and commercial/industrial units, from Herod to the Muslim conquest. We also wished to study the mediaeval and modern cemetery known to lie just S of the

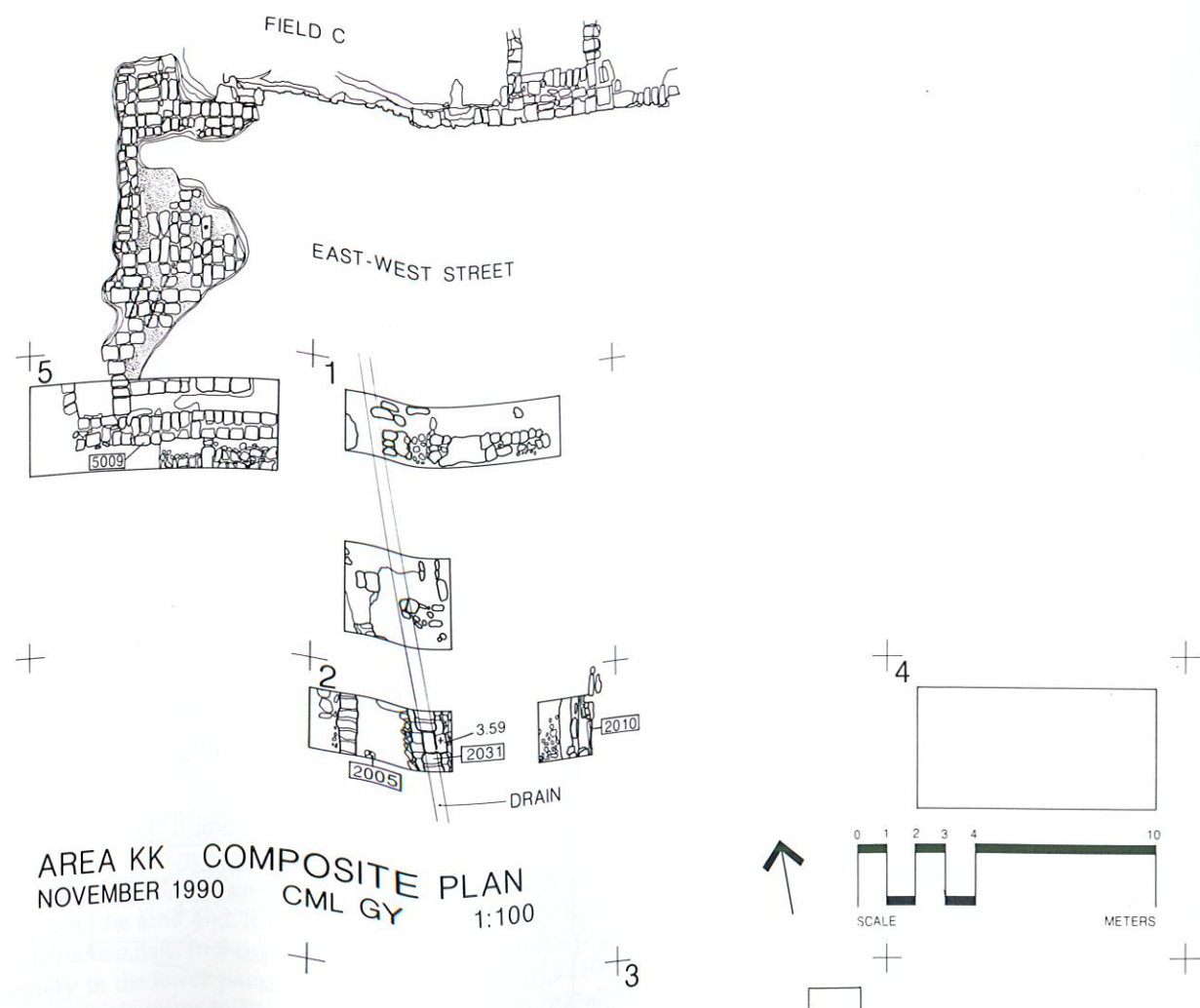


Fig.30. Area KK, plan.

- ²⁷ R. J. Bull, E. Krentz and O. J. Storvick, "The Joint Expedition to Caesarea Maritima: ninth season, 1980," *BASOR* suppl.24 (1986) 31-44; R. J. Bull, E. Krentz, O. J. Storvick, and M. Spiro, "The Joint Expedition to Caesarea Maritima: tenth season, 1982," *BASOR* suppl. 27 (1990) 75-82.
- ²⁸ R. Wiemken & K. Holum, "The Joint Expedition to Caesarea Maritima: eighth season," *BASOR* 244 (1981) 27-52.

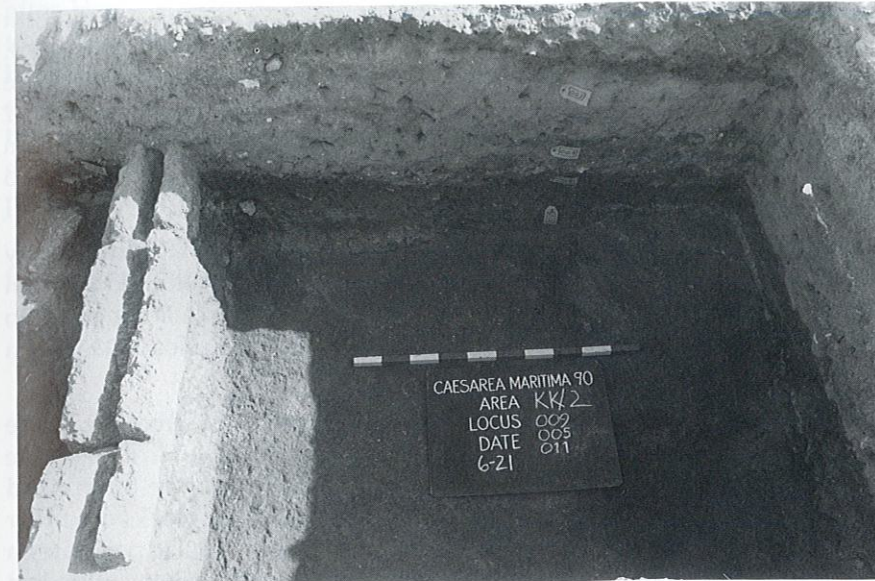


Fig.31. Area KK/2, water channel 2005, to N (ph: Claudia Vess).

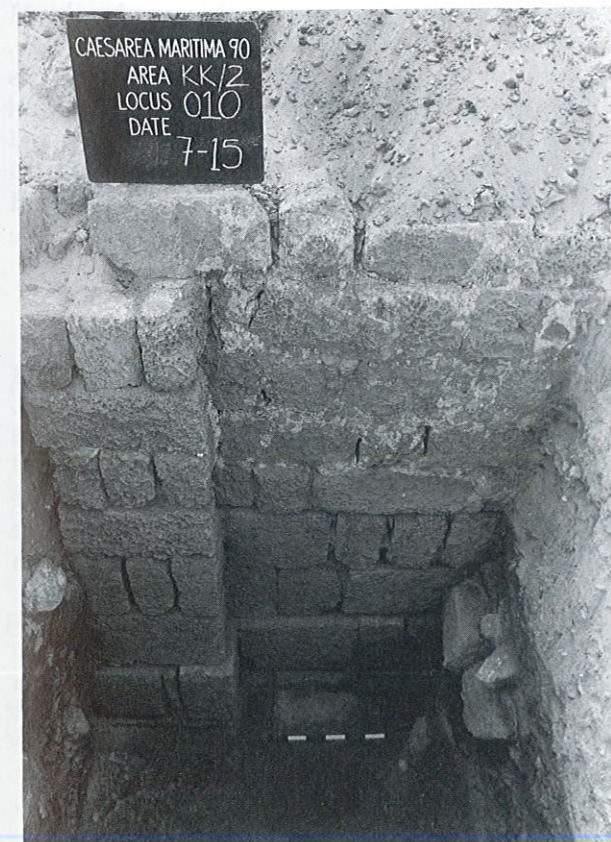


Fig.32. Area KK/2, wall 2010, to E (ph: Claudia Vess).

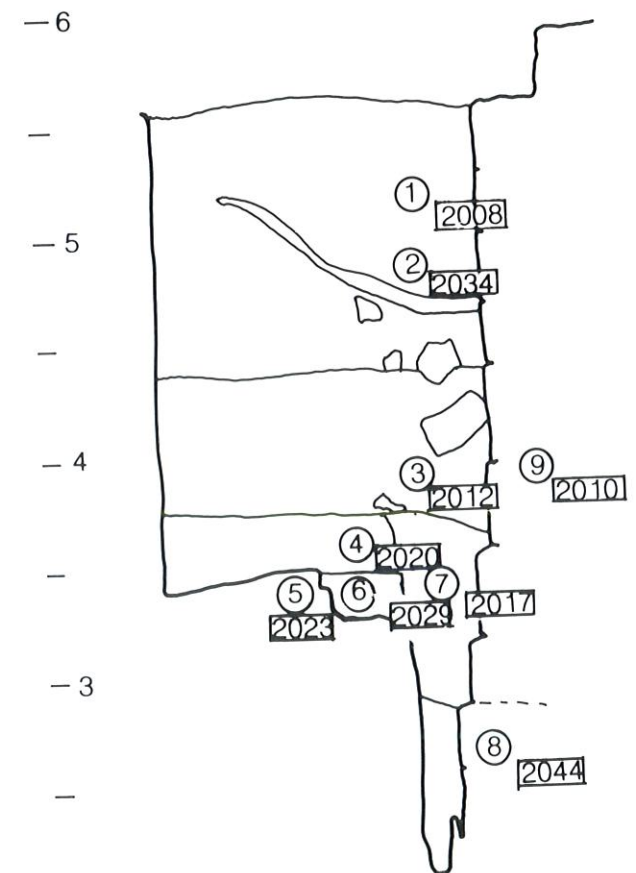


Fig.33. Area KK/2, E probe, N balk.

The second insula S of the Crusader city (Area KK)

An excavation was opened in the second insula S of the Crusader fortifications (fig.1), which lies next to the coast, adjacent to the previously excavated Field C²⁷ and separated from it by an ancient E-W street (fig.30). The insula measures c.80 E-W x 110 m N-S. In 1979 3 trenches had been dug in the SE corner of this insula.²⁸ We wished to examine the development of the city plan, including land use, building design and construction, and the relationship between domestic and commercial/industrial units, from Herod to the Muslim conquest. We also wished to study the mediaeval and modern cemetery known to lie just S of the

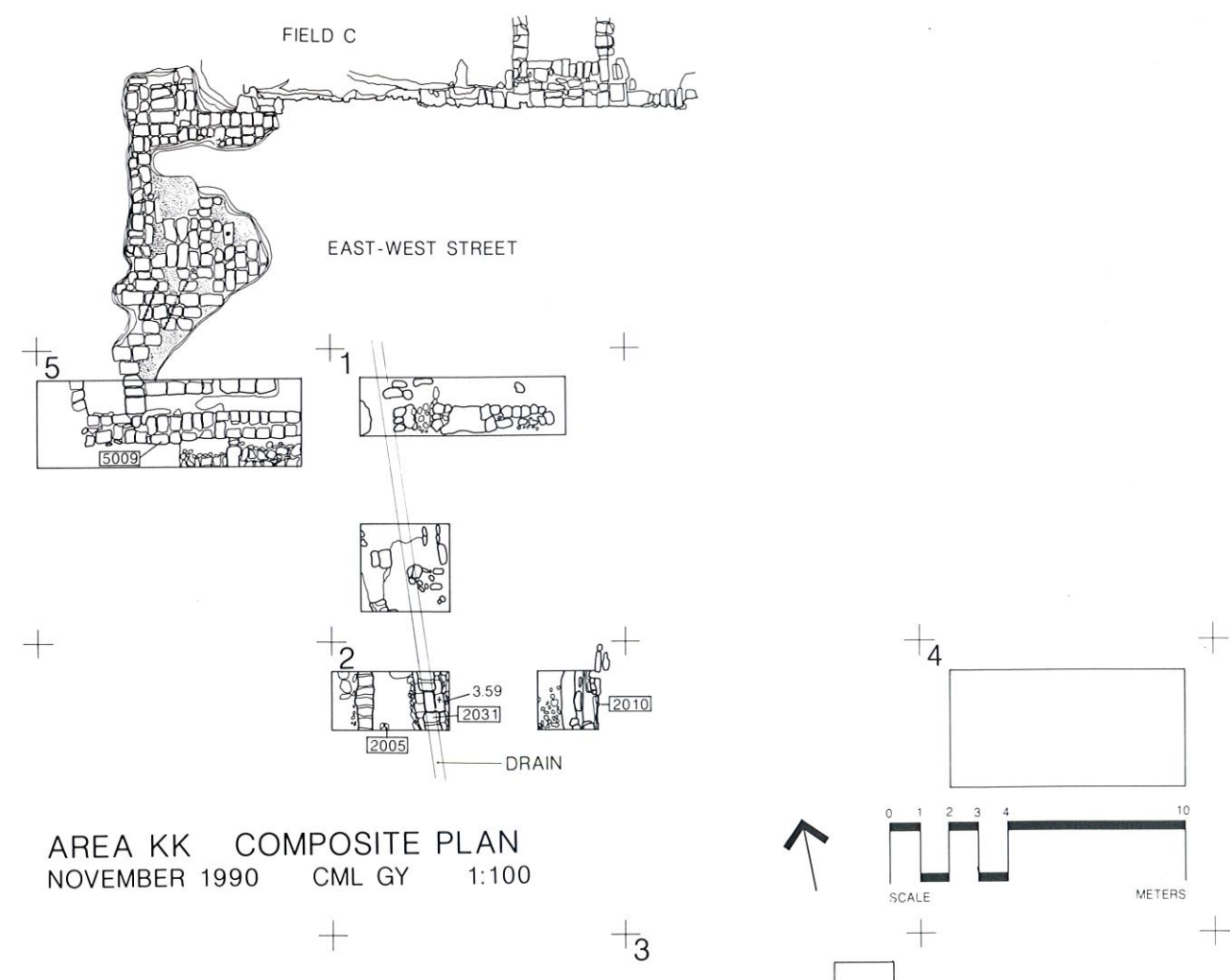


Fig.30. Area KK, plan.

²⁷ R. J. Bull, E. Krentz and O. J. Storvick, "The Joint Expedition to Caesarea Maritima: ninth season, 1980," *BASOR* suppl.24 (1986) 31-44; R. J. Bull, E. Krentz, O. J. Storvick, and M. Spiro, "The Joint Expedition to Caesarea Maritima: tenth season, 1982," *BASOR* suppl. 27 (1990) 75-82.

²⁸ R. Wiemken & K. Holum, "The Joint Expedition to Caesarea Maritima: eighth season," *BASOR* 244 (1981) 27-52.

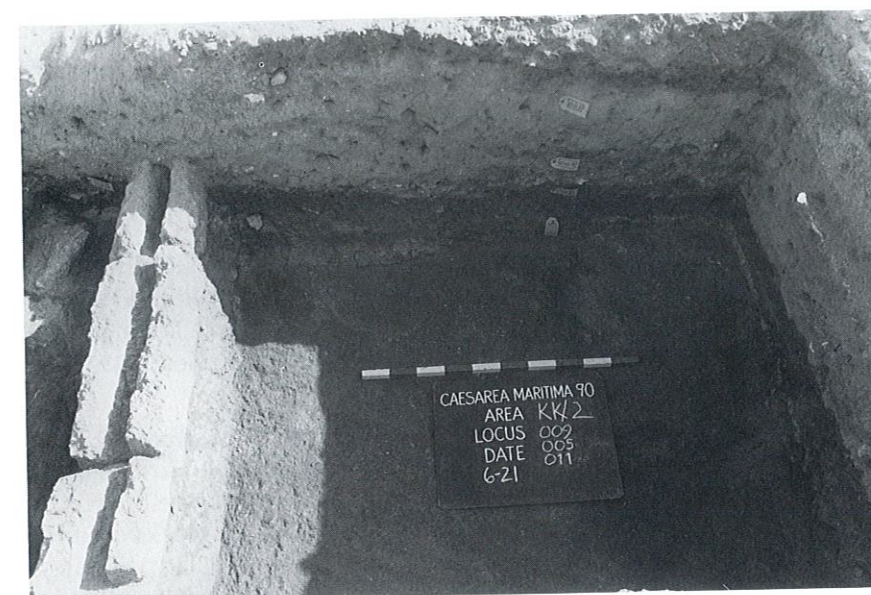


Fig.31. Area KK/2, water channel 2005, to N (ph: Claudia Vess).

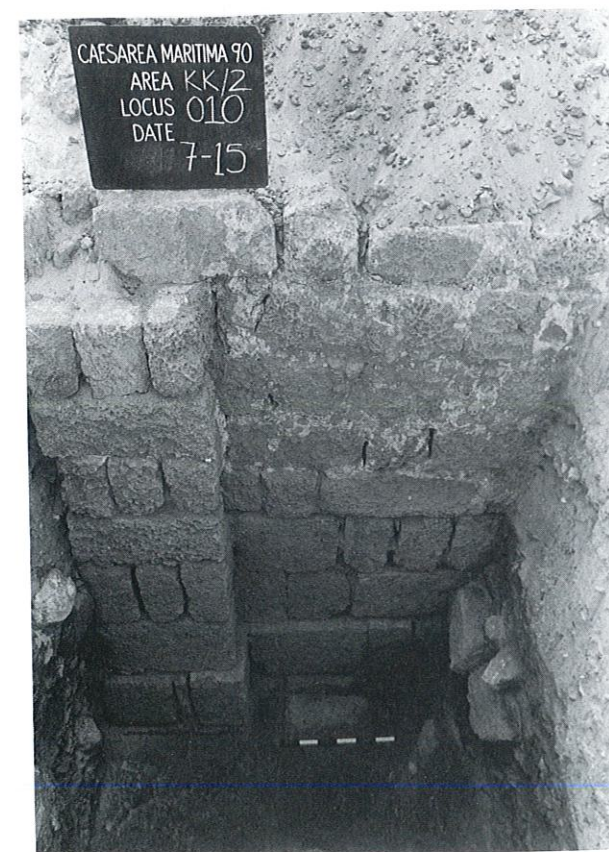


Fig.32. Area KK/2, wall 2010, to E (ph: Claudia Vess).

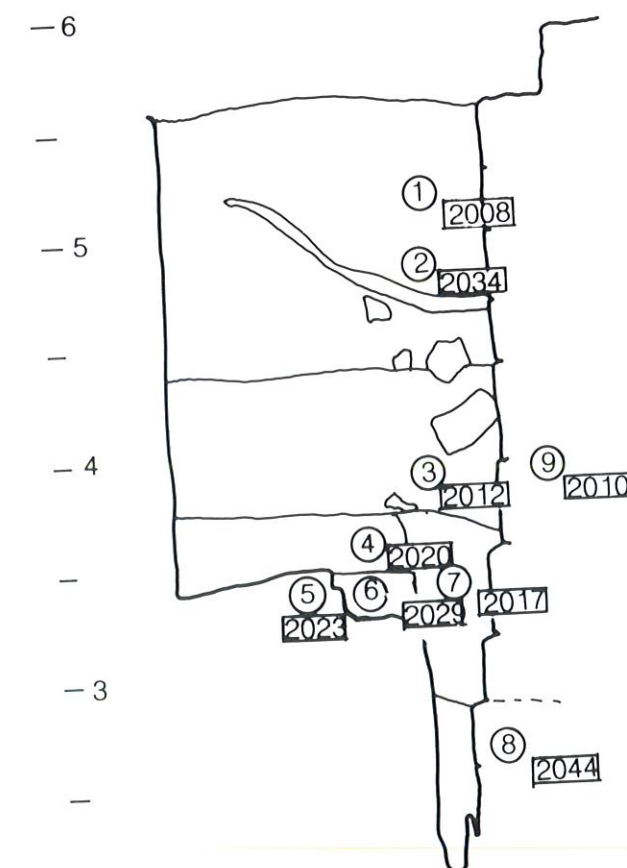


Fig.33. Area KK/2, E probe, N balk.

Crusader wall.²⁹ We began work on the W side of this insula (fig.30) where a massive sand dune, thought to cover structures like the warehouses found just to the N,³⁰ fronts the entire insula (height to 15.0 m). Five 10 x 10 m units were opened (Fig.30). At the top of the dune, some 30 poorly preserved burials from the mediaeval or modern cemetery came to light (see p.177 and figs.87-89) (areas KK/3 and KK/4). The W or windward slope of the dune, W of the cemetery, contained only wind-deposited sand, of which some 8 m was removed mechanically, below which in KK/1, KK/2 and KK/5 were found structures of Herodian to Byzantine period.

Early Roman remains were very slight: in KK/2 layer 2044 (fig.33) yielded sherds no later than early Roman (see p.122). This layer may be associated with a stone foundation or wall (2.70 m) exposed beneath the foundations of later wall 2010 (see below) and should point to occupation of the 1st c. A.D. Adjacent to wall 2010 and cut by its foundation trench (fig.33) was layer 2029, make-up for a stone surface 2023, which also contained early Roman pottery (see p.124).

The remaining structures were all 5th c. or later. The *kurkar* paving stones of the E-W street lay above a dark soil with pieces of charcoal 5006, dated by pottery to the 5th c. or later (p.148). Parallel to the street a foundation wall 5009 c.0.9 m wide ran E-W across KK/5 and KK/1 (fig.30). It may be interpreted as the robbed remains of a stylobate or building flanking the street; 2 to 6 courses of ashlar blocks of *kurkar* mortared together survived. Against its inner side were fragments of a mosaic. Wall 5009 postdates a plaster surface 5016 also of the 5th c. or later (for pottery see p.149). South of that wall the structures had been mostly robbed except for some drains which emptied into a major sewer beneath the street. Drain 2031 (fig.30) in KK/2, for example, had side walls of *kurkar* set on edge, capstones of irregularly cut *kurkar*, and a channel 40 cm wide by c.50 cm deep. It had been cut through a plaster floor 2027 put down not before the mid 6th c. (see p.147). Nearly a meter higher in elevation was a small N-S channel 2005 that may have had an industrial or agricultural purpose (fig.31); it was built of *kurkar* blocks (c.70 x 27 x 25 cm), a channel 10 cm wide and deep being cut into them. Only one major wall survived to any height: 11 courses of wall 2010 were exposed in the E balk of KK/2 where the dune had been cut back (figs. 30, 32, 33). It had a two-step footing above the earlier wall, 3 courses of foundation, and then *kurkar* ashlar laid as headers and stretchers with a core of mortared cobbles. The upper 5 courses were plastered. The wall incorporated a buttress 60 cm wide and projecting 30 cm. It must have formed the W wall of a large and well preserved building running under the dune to the E. It probably dates to the 6th c. For the associated pottery see p.143. Above these features in KK/1, 2 and 5 was a layer of brown organic soil marking the end of the occupation. Then came dune sand containing a few shells and some worn pottery of mixed dates. The extreme rarity of mediaeval pottery suggests little or no occupation after the 7th c.

The octagonal building on the temple platform (Area TP)

Exploiting a natural ridge of *kurkar* that runs N-S some 75 m inland from the quay of the inner harbour (fig.15), and having extended it artificially to the W by a series of 6 or more barrel-vaulted substructures, Herod constructed his monumental temple to Roma and Augustus. Those seemingly identical substructures were parallel, oriented E-W (118° magnetic), 5 m wide, c.7 m high from floor to keystone, and 35 m long.³¹ On the *kurkar* bedrock and the vaulted substructures would have been placed the foundations of the temple. A thick levelling fill of sand and *kurkar* chips had been laid beneath the stone pavement of the temple's temenos (see further below). The vaults, serviceable also as warehouses, would have created an imposing façade at their W end, rising perhaps 10-12 m above the quay of the inner harbour.³² Long

after Herod's temple had disappeared, the Crusaders built a triple-apsed basilica on the SW corner of this eminence; it was oriented E-W (118°) like the vaults below (fig.15). In the early 1960s, A. Negev on behalf of the National Parks Authority cleared modern Turkish buildings from the basilica and N and E of it, and reached mediaeval and even ancient structures in places.³³ In 1986 K. Holum observed parts of two octagonal foundations, one inscribed inside the other, exposed NE of the Crusader basilica and suggested that they belonged to a *martyrium* of the Byzantine period. This must have been one of the principal Christian buildings of Caesarea.

We laid out a grid (10 x 10 m) on the temple platform, based upon the E-W diameter of the octagonal foundations, also oriented at 118° (fig.34).³⁴ The survey revealed that much more of the octagon survives

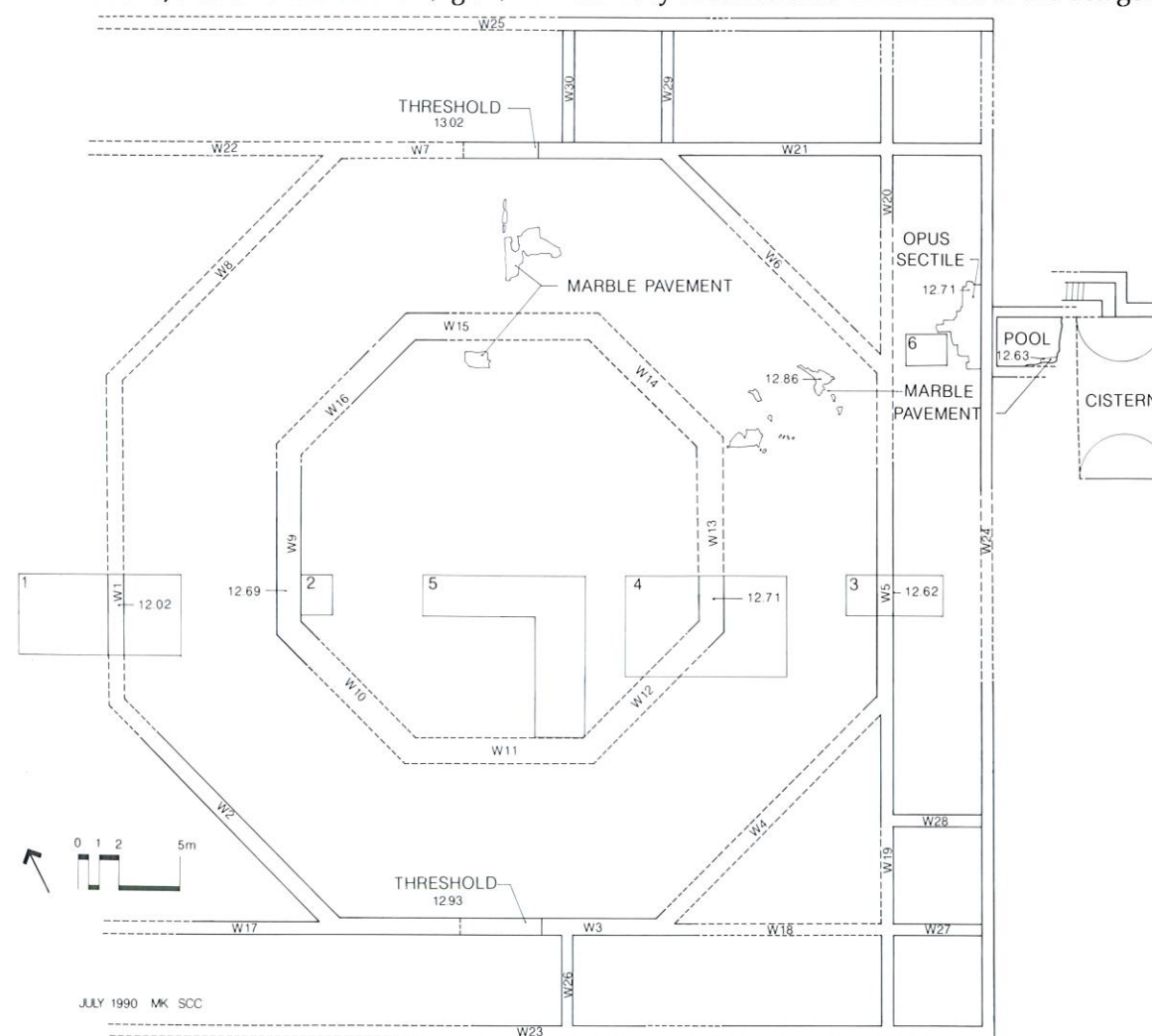


Fig.34. Area TP, early Christian *martyrium*, block plan showing trenches excavated 1989-90.

³³ Few details of this work were ever published: see for example Negev, *ILN* Nov.2 1963, 728-30.

³⁴ Conder and Kitchener (supra n.17, 27) had observed that the orientation of the Crusader basilica was 118° instead of a bearing closer to true east. Herod's architects apparently adopted the orientation of an earlier monumental building and perhaps of the Hellenistic rock-cut basin of the inner harbor for the vaulted substructures and the temple above, and for at least the S breakwater of Sebastos. This orientation differs by about 25° from that of the street grid. The same orientation was used in the Byzantine octagon and for the Crusader basilica.

²⁹ Bull, Krentz & Storvick (supra n.27) 42-44; Bull, Krentz, Storvick & Spiro (supra n.27) 78-82; Wiemken & Holum (supra n.28) 40.

³⁰ Cf. Bull, Krentz & Storvick (supra n.27) 41, fig.13.

³¹ Only the southernmost vault has been examined archaeologically: see Raban, *Harbours* 1, 60, 138-42, but the dimensions given there are incorrect. The remaining 5 or more vaults seem to have been identical in height, width, and construction techniques.

³² Cf. *Herod's dream* 88, fig.44; 99 fig. 62.



Fig. 35. Area TP, *martyrium* foundation walls 2 (R foreground), 3 (L center) and 17 (R center), to S (ph: Mark Little).



Fig. 36. Area TP, *martyrium* foundation walls 9 (L) and 16 (background), to N (ph: Mark Little).

than originally suspected (fig. 34). Of the outer octagonal foundations, 6 of the 8 sides are visible at present ground level, as left by Negev (fig. 35). The foundations are c. 80 cm wide, each side is c. 15.6 m long (inside), and the E-W dimension of the outer octagon is c. 39 m. Of the inner octagonal foundations (presumably to support columns and piers for a drum and pyramidal roof or dome) 4 sides are visible (fig. 36). The foundations are c. 1.4 m wide, and each side is c. 8 m. The thresholds of 2 doorways survive, centered on the N and S sides of the octagon at +13.02 and +12.93 m, and a number of patches of gray marble paving at +12.77-12.92 give the original floor level.

Remains of the superstructure include several large *kurkar* blocks *in situ* or displaced. They have clamp holes on both faces to hold marble revetment (fig. 37). Many architectural fragments which may derive from the superstructure were also recorded: they include Attic bases, column shafts, and Corinthian capitals, all in gray marble, which seem to belong to the same order (fig. 38). Negev found 8 capitals while clearing the foundations in the early 1960s (ILN Nov. 2 1963, 728). A number of capitals were decorated with the Christian cross. The capitals are studied below (p. 173 with figs. 80-83, 85-86). The capitals were apparently reused in the building since they were carved earlier.

Other foundations of the same phase join the foundations of the outer octagon. The octagon seems to have been inscribed within a square, and that square within a larger square c. 50 m on a side which enclosed rectangular rooms that flanked the octagon to N, E, S and perhaps W (fig. 34). One rectangular room on the E had an *opus sectile* floor of red, gray and white marble (figs. 34, 39). A large vaulted cistern further to the E and an adjacent pool with a floor of marble slabs (figs. 34, 40) may also have belonged.

Our initial plan was to create a section extending E-W across the diameter of the octagon (TP/1, 2 and 3). In 1990 we widened the trenches to the S (TP/1, 4 and 5). In TP/1 to 5 we exposed for the first time the natural ridge of *kurkar* sandstone (figs. 41-46) and recovered evidence for 4 distinct phases, from Hellenistic through Crusader:

Phase 1 (Hellenistic)

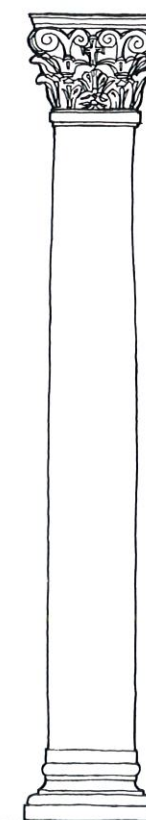
In a deep probe in TP/5 (fig. 45) there appeared 4 crude foundation courses of a N-S wall 5057; they were contained within a fill layer of Herodian date (5030, see below) and presumably predated that fill. Of a more impressive wall 1080, a N-S foundation course for a monumental building that had stood in TP/1 and had the same orientation as the later buildings on the platform (figs. 41-42), only one broken *kurkar* block remained (+11.37 m), but the imprints left on the bedrock to the N showed that the foundation course had blocks 80 cm high and 1.32 m wide, set in a hard gray mortar. Most of wall 1080 also lay beneath Herodian fill (1078, see below), and it may be Hellenistic (see below).

Phase 2 (Herodian)

A fill layer (referred to as Fill A), up to 1 m thick and consisting of yellow brown sand, appeared in TP/1, 3 and 5. The latest datable pottery was of the last quarter of the 1st c. B.C. (1078, 5030, 5055, probably also 3027, figs. 43 and 46) (the pottery is published on p. 112).



Fig. 37. Area TP, superstructure block *in situ* at junction of walls 4, 5 and 19, to W; clamp holes for fixing marble revetment visible on exterior face (ph: Mark Little).



1990 GY
0 .5 1 1.5 2 M

Fig. 38. Area TP, order reconstructed from elements found on site which may represent the colonnade supported by the inner octagonal foundation.

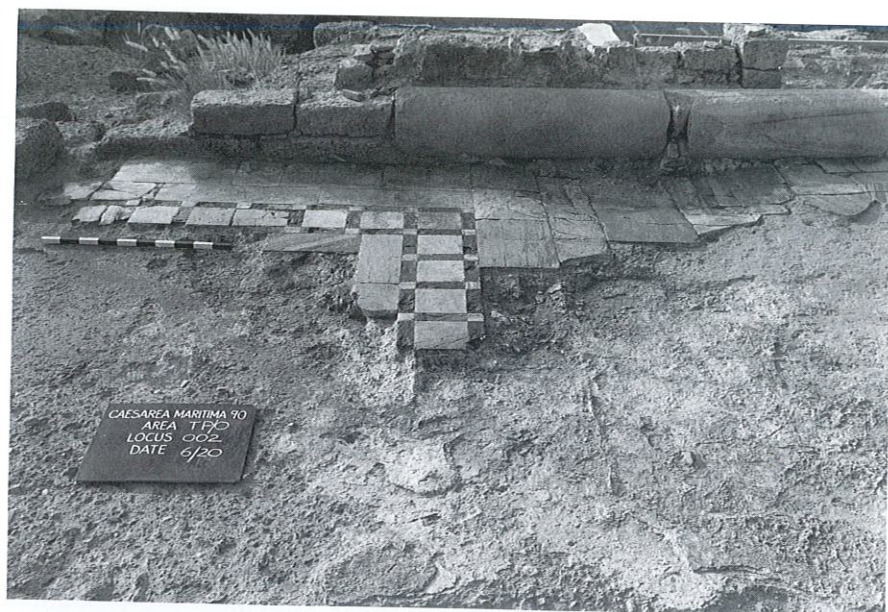


Fig.39. Area TP/6, *opus sectile* pavement, to E: line of wall 24 in background (ph: Claudia Vess).



Fig.40. Area TP, remains of vaulted cistern (L) and pool (R) on E side of site, to S (ph: Mark Little).

Overlying parts of this fill were deposits of crushed *kurkar* (1072, 5024, probably also 1075, 1081) referred to as Fill B, which appear to be contemporary with Fill A. Both are believed to be fill for the Herodian platform, to level and pave the *temenos* around the temple.³⁵ The excavators currently disagree on whether the fill layer B originally lay over N-S wall 1080, or whether the wall and the fill for the pavement for the *temenos* could have been contemporary. In the latter case wall 1080 would be Herodian, and could then belong to the temple.

Phase 3 (Byzantine)

No structures of the 2nd-3rd c. have been found in area TP and pottery of that period was also lacking. The next identifiable phase is that marked by the octagon discussed above. Work in TP/2 and 3 (figs. 34, 36) showed that its foundations had been laid on the *kurkar* bedrock. In TP/1 more of the outer octagonal

³⁵ Josephus (*AntJ* 15. 341, 16. 136, and *BJ* 1. 415) dates the construction of Caesarea, including the temple, to 22-10/9 B.C.: cf. Levine, *Caesarea* 149-50, n.53.

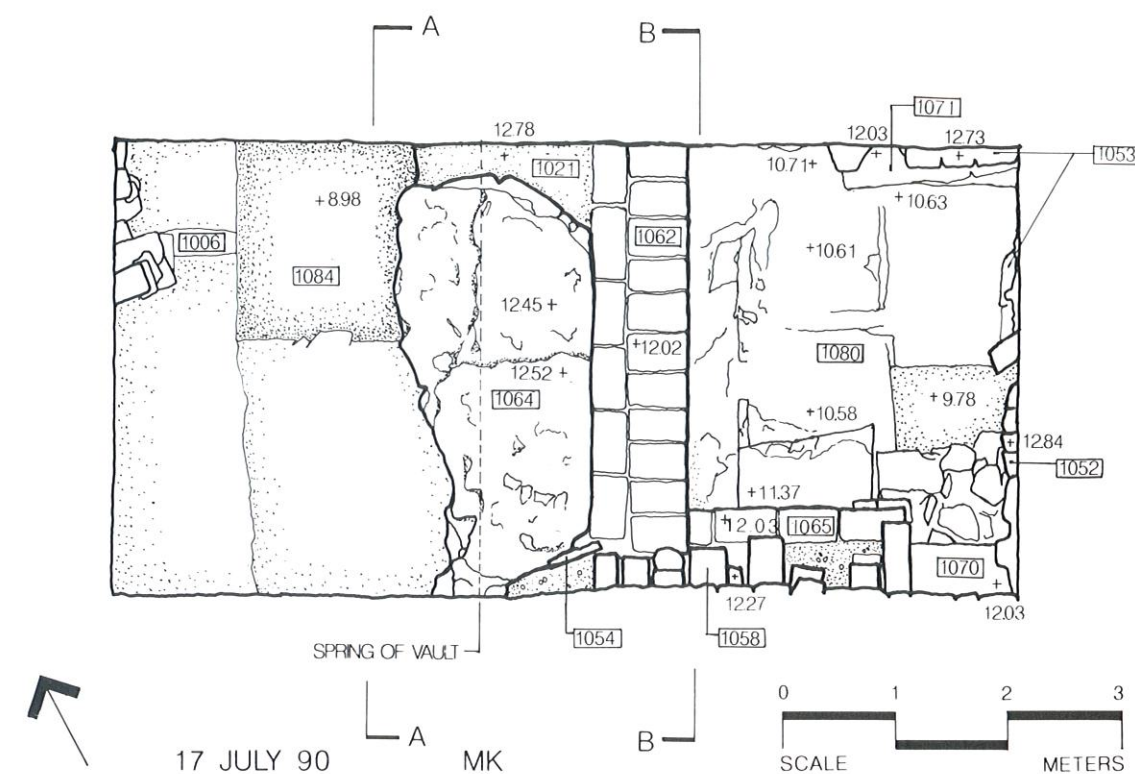
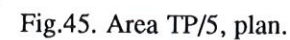
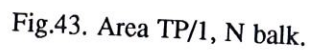


Fig.41. Area TP/1, plan.



Fig.42. Area TP/1, to W (ph: Claudia Vess).



foundation was exposed (wall 1048/1062, figs. 41-43), a mass of mortared rubble laid against it on the W (1016/1064), and a partially preserved barrel vault 1041 below the concrete mass. Both barrel vault and the concrete mass dated to the construction phase of the octagon; the concrete may have served as a foundation for the narthex, while the barrel-vaulted structure was a cistern. To the E of wall 1048/1062 its foundation trench 1076, 1079 was identified cutting through 1072, 1075, 1081 and 1078 to bedrock.

Abutting wall 1048/1062 and apparently contemporary with it were 3-6 courses of wall 1065 running E-W (fig.41-42); it too had a clear foundation trench 1075 cutting through 1077 and 1078. In TP/4 part of the inner octagonal foundation 4032 came to light at +12.71 m (fig.44). East of 4032 we excavated a foundation trench 4039, 4047, 4051 cut into bedrock down to +9.52 m for wall 4032. Above this trench and laid directly upon wall 4032, a small patch of light gray mortar containing impressions of marble slabs survived over a thin layer of sand. The elevation at +12.84 m corresponds with the surviving floor slabs nearby, so it is probably the bedding for the floor just W of the bema in the octagon. In TP/6 a small probe (1.5 x 2 m) was dug through the foundations of an *opus sectile* floor that seemed to belong to the construction of the octagon (figs. 34, 39). It cut the hard gray mortar setting-bed 6001 (impressions of marble slabs 40 x 50 and 38 x 80 cm survived) and through 3 foundation levels beneath (6002, 6003, 6004). Much pottery (published below, p.129 and 142) came from beneath the intact mortar surfaces in 4031 and 6001-4 and from sharply defined foundation trenches (1075, 1076, 4039, 4047). It shows that the octagon, the presumed *martyrium*, was built around the middle of the 6th c. At least some of the Corinthian capitals seem therefore to have been reused (see p.175).

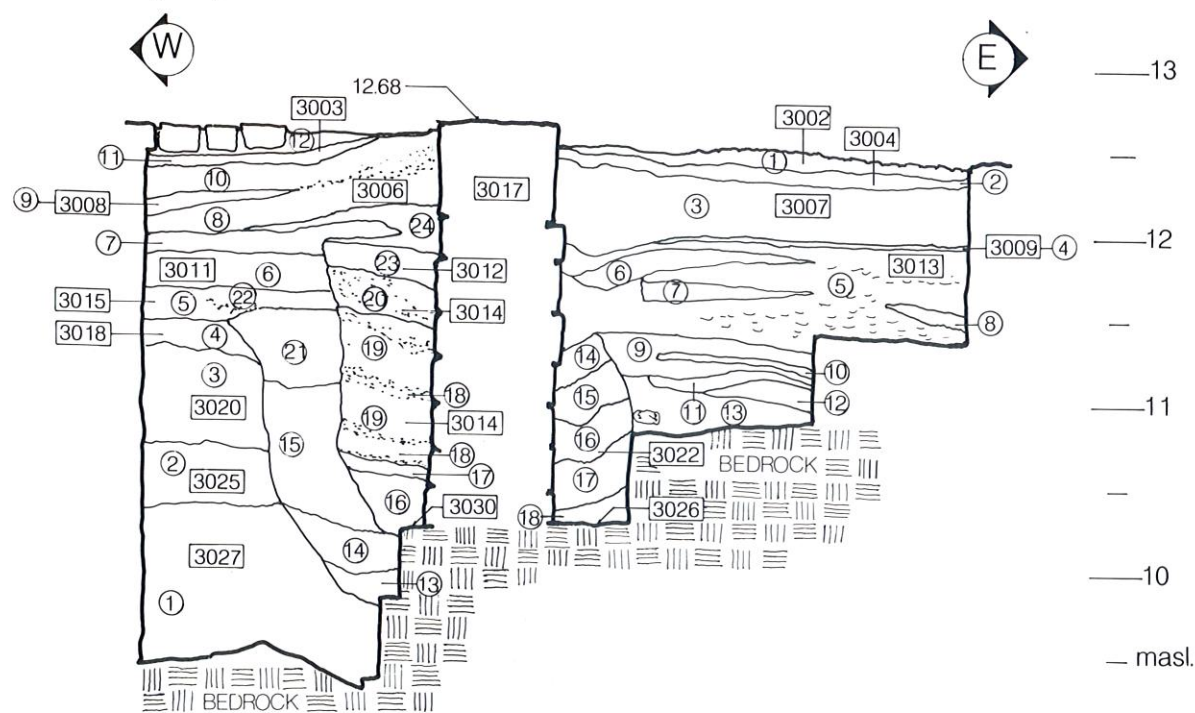


Fig.46. Area TP/3, N balk.

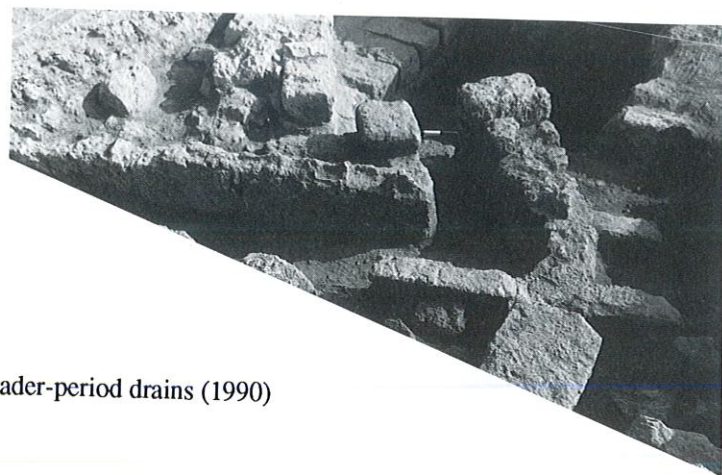


Fig.47. Area TP/1, to W, Crusader-period drains (1990) (ph: Claudia Vess).

Phase 4 (Crusader)

No clear evidence was recovered for the fate of the octagon until the Crusader period (12th-13th c.). By the 13th c. the octagon had given way to domestic and possibly commercial/industrial occupation. A street c.3.5 m wide, paved with *kurkar* blocks c.30 x 40 cm on their upper sides, bisected the former site of the octagon, crossing the temple platform from N to S (elevation +13.71 m). A deeply founded wall 1.0 m wide (top elevation 13.81 m) formed the E curb of this street, and a similar structure flanked it on the W (fig.45). In TP/5 we recovered evidence from beneath the street and several courses of the E curb wall for a 12th or 13th c. date for them. Domestic and commercial/industrial buildings occupied the sector E of this street during at least part of the Crusader period: in TP/5 we excavated a cistern or refuse pit (fig.45) with fragments of possible domestic architecture over it. In TP/4 (fig.44) a cistern with vaulted ceiling (4018) made use of the E face of octagon wall 4032 for its W wall. The date of the cistern is uncertain, but its fill included domestic mediaeval pottery down to the 13th c., so it probably continued to function for at least part of the Crusader period (for the pottery see p.158 f.). Nearby was a N-S wall, 4027, against which had been laid a terracotta pipe, 4042, 12 cm in diameter and encased in mortar, that carried rainwater from the roof above to another vaulted cistern 4013 in the NW sector of the trench. The mortar encasing the ceramic pipe also appears to integrate into the same construction phase an E-W wall foundation 4037 and a pavement of *kurkar* slabs 4038 that abutted it to the S at 13.30 m. The excavators found too little evidence to date the building in question, but whatever the date it probably remained in service into the Crusader period. The cistern, pavement (part of a courtyard?), and relatively modest construction all point to a house, similar to those in area I/1 but later in date.

Above cistern 4018 and the house was a pavement of *kurkar* slabs (4003, 4004, 4015, 4020, 4033, 4050) that covered the whole of our trench TP/4. Pottery in fills below this pavement (published below p.154 f.) dated it to the 13th c. This pavement sealed the earlier domestic structures and cisterns. No walls were found associated with this pavement.

Crusader architecture, less clearly of a domestic nature, was also found in TP/1. Drains built of *kurkar* blocks (c.40 x 30 x 15 cm) were set on edge to form a channel c.34 cm wide (figs. 41, 43, 47). The drains began as one at the E end of TP/1; channel 1054 sloped SW, channel 1021 sloped NW through a probable catch-basin; both passed over the outer wall of the Byzantine octagon (1048/1062) and cut the concrete mass 1016/1064 W of it. Both channels probably emptied into the vaulted Byzantine cistern beneath the concrete mass, which was evidently still in use in the Crusader period. The drains lay in part beneath a pavement of *kurkar* blocks 1053 (figs. 41, 43), which with its lower fill succeeded them. Pottery from two soil loci 1056, 1067, dated this pavement to the Crusader period.

We intend to continue work in this area on the levels of all four phases.

SURVEYS

Survey work along the coast N of the city is described by D. Everman (p.181).³⁶ In 1989 portions of the low-level aqueduct were surveyed with the laser theodolite and added to a plan which is being developed.



Fig.48. Area FZ, tentative plan showing seaside basions and incorporation of Byzantine fortress into façade of Roman theater (cf. fig.1) (Z. Friedmann).

³⁶ Cf. Raban (supra n.9) 255-56; for the aqueducts see Y. Olami and Y. Peleg, "The water supply system of Caesarea Maritima," *IEJ* 27 (1977), Y. Peleg, "The water system of Caesarea" in D. Amit, Y. Hirschfeld and J. Patrich (edd.),



Fig.49. Area FZ, SW bastion, to E. From L foreground to R center are remains of (earlier?) Byzantine perimeter wall approaching the shore (ph: Mark Little).

Byzantine fortress surrounding the theater

This intramural Byzantine fortress previously cleared by the Italian Mission³⁷ was surveyed in 1990 with particular attention paid to construction techniques and to the manner in which the Roman theater was incorporated on its E flank (fig.48). The features included not only a NW bastion above the shore but an analogous one to the SW (figs. 48-49).

Survey along the coast S of the city

A body of shallow water lies in the lee of an offshore *kurkar* reef opposite Kibbutz Sdot Yam (fig.50). In previous years remains of vessels and other relics of nautical activity, from the late Bronze age (inscribed lead and tin ingots) to Hellenistic, Roman, and Byzantine periods (bronze statuettes, metal ship's fittings, and many coins) had been exposed here. Members of the Kibbutz, including A. Angert, and E. Galili of the Antiquities Authority, had recovered coins and artefacts from this stretch of seabed. Winter storms have recently exposed Byzantine structures in shallow water and on the beach for a distance of 700 m. An ashlar wall 100 m in length extends below water level from the modern beach to the lee side of the reef, and in 1989 we surveyed the blocks of this wall visible above the sandy bottom. Hundreds of blocks measuring roughly 1.2 x 0.7 x 0.5 m lie in close proximity, many with holes pierced through the centers of their faces (fig.50). At its W end this fragmentary wall met what appears to be a

³⁷ The aqueducts of Ancient Palestine (Jerusalem 1989, in Hebrew) 115-22; Y. Porath, "Pipelines of the Caesarea water supply system," *Atiqot* 10 (1990) 101-10 (in Hebrew).

37 Frova 1965, 67-79, 159-64.

tumbled retaining structure or quay which extends S for about 40 m along the lee side of the reef. Sherds collected in its immediate vicinity were mainly Byzantine amphoras. The long E-W wall may have been a supporting structure for a wooden jetty that led to a quay. Further work in this area is planned.

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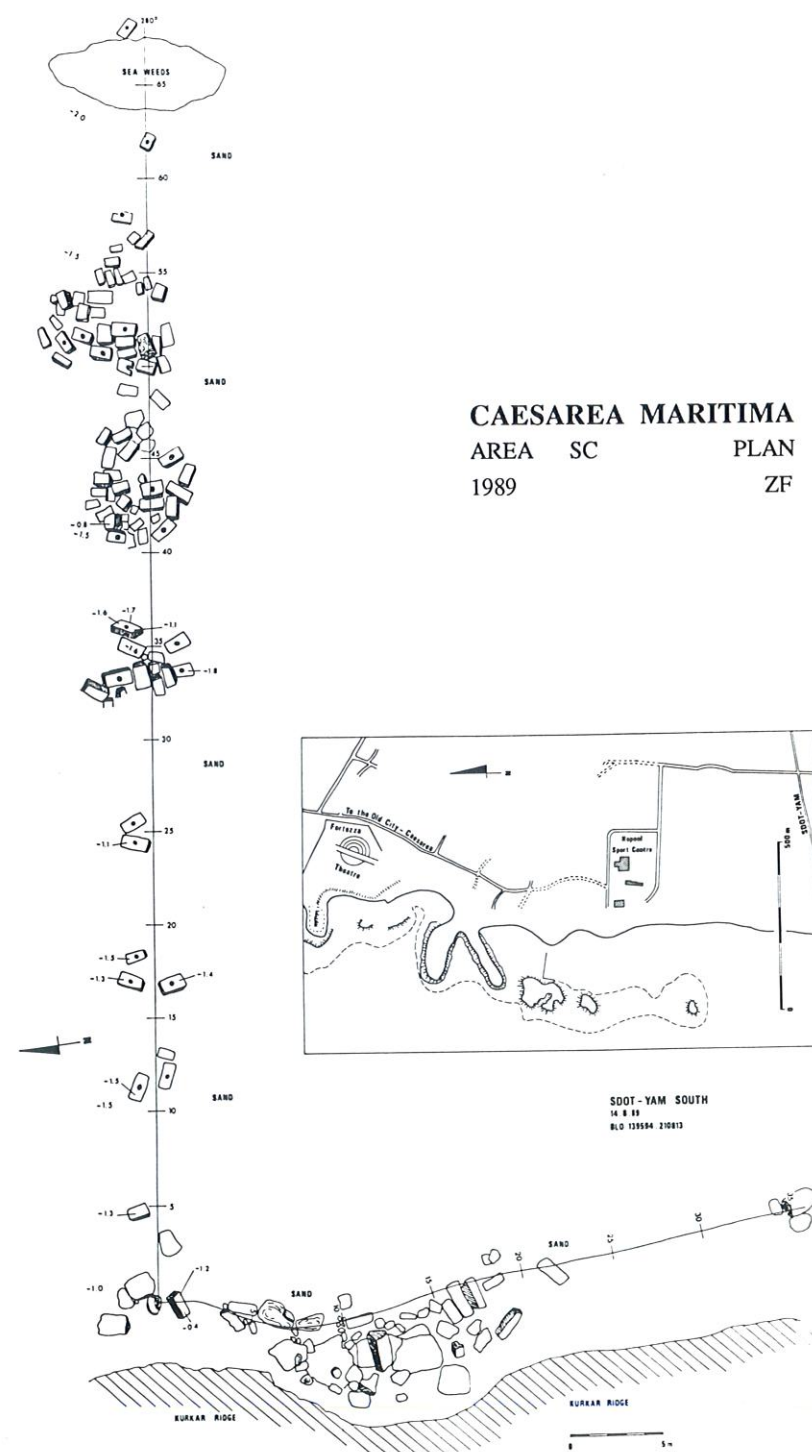


Fig.50. Area SC, plan.

Early travelers and the first archaeologists

Robert L. Vann

Caesarea was never forgotten despite centuries of abandonment. Its Arab name (Kaisariyyah) was the same as its ancient name, and the modern Hebrew name is a transliteration of the same. This paper intends to trace selected visitors to Caesarea and summarize archaeological discoveries prior to the recent work. It begins with religious pilgrims of late antiquity, includes a few references in Arab sources and a selection of the mediaeval accounts, before ending with modern European descriptions from the 18th c. onwards and the early excavations.¹

In the 4th c., Caesarea, the provincial capital and chief port for Palestine, was the natural point of departure for an extended visit through Samaria to visit Christian sites. Early maps like that of Ptolemy (fig.1) and the Peutinger Table (fig.2) show Caesarea. Pilgrims focused their attention upon monuments associated with early Christianity, including the house of Philip and his 4 daughters, and buildings (a bath or a house?) associated with the conversion of the centurion Cornelius (*Acts* 21.8-9). We hear too of the library of Eusebius (see p.267). Caesarea remained the chief ecclesiastical center of the province until 451 when the Council of Chalcedon granted that status to Jerusalem. Among the early pilgrims was the Pilgrim of Bordeaux, arriving in 333.² His itinerary took him from Tyre via Akko to Caesarea. At Caesarea he saw the location (known as the 'bath') where Cornelius was baptized. After leaving the city his party paused at the spring of Shuni ('Syna' in the Latin text)³ before turning east to Scythopolis. Some 50 years later, in 385, St Paula and her daughter Eustochium traveled overland from Serapta to Caesarea⁴ and the house or church of Cornelius and the 'huts' of Philip and the 4 virgins are mentioned.⁵ Jerome (*Ep.* 108.8) also mentions the House of Cornelius which he probably saw on the same visit with Paula. In the early 6th c., Theodosius visited Caesarea and recorded the tradition of Cornelius' martyrdom and of his tomb.⁶ A Christian convert from the Persian cavalry, later to become St Anastasius, came to Caesarea in 627. He became involved in an argument with Persian soldiers and was incarcerated in the *kastron* or fortress at Caesarea; later he was taken before a judge, tried, and sent back to Persia. In 628 the remains of St Anastasius were brought back to Caesarea on their way to Jerusalem, and during their brief stay a chapel was built in his honor in the city center near the tetrapylon. Several other buildings are mentioned including the fortress, praetorium, tetrapylon, a nearby Campus Martius, and churches dedicated to St Euphemia and St Mary the Younger. Caesarea evidently continued to be the center of provincial government during the brief period of Persian control.

When in the Arab period the province of Syria-Palaestina was divided into northern and southern zones, Caesarea belonged to the southern (al-Filastin). Mu'awiya destroyed it in 640 but supposedly re-

- 1 Previous summaries of early travelers and the work by early scholars may be found in Levine, *Caesarea*, Ringel, *Césarée*, and Levine and Netzer, *Qedem* 21, 6-14. For a more complete history of the site since the 18th c., see E. Schiler, "Caesarea and its sites," *Qardom* 18 (1981) (in Hebrew). For more general studies of pilgrims and travelers in the Holy Land, see Z. Vilnay, *The Holy Land in old prints and maps* (2nd ed. Jerusalem 1965); H. V. Hilprecht, *Explorations in Bible Lands during the 19th century* (Edinburgh 1903), and R. Fedden, *English travellers in the Near East* (London 1958).
- 2 P. Geyer, *Itinera Hierosolymitana* (CSEL XXXVIII); J. Wilkinson, *Egeria's travels* (London 1971) 153-54; T. B. Jones, *In the twilight of antiquity: the R. S. Hoyt Memorial Lectures 1973* (Minneapolis 1978) 21-31.
- 3 Avi-Yonah places the spring northwest of Caesarea on the road from Haifa, rather than on the road to Legio (M. Avi-Yonah, "Map of Palestine," *IEJ* 1 [1950] 54 ff).
- 4 T. Tobler (ed.), *Itinera Hierosolymitana et descriptiones Terrae Sanctae* (Geneva 1887) I, 31.
- 5 Her visit was recorded 19 years later by Jerome for her eulogy. J. Wilkinson, *Jerusalem pilgrims before the Crusades* (Warminster 1977) 1-2; Jones (supra n.2) 35.
- 6 *Topography of the Holy Land. Theodosius on the Holy Land*, J. H. Bernard (ed.), (Palestine Pilgrim's Text Society II, London 1893) 25. For 7th-c. sources, see W. E. Kaegi, Jr., "Some seventh-century sources on Caesarea," *IEJ* 28 (1978) 177-81. See also Y. Tsafir, "The maps used by Theodosius: on the pilgrim maps of the Holy Land and Jerusalem in the 6th c. C.E.," *DOP* 40 (1986) 129-45.



Fig.1. Map of Levant after Claudius Ptolemy (c.90-168): *Tabula Asiae IV* from Cilicia to territory of Gaza. Shaded areas (e.g. above Dor) represent mountain ranges (Mt. Carmel). Straight lines provide divisions between Roman provinces (Syria, Syria Coele, Arabia) and dotted lines between regions (Samarita, Galilee) (Yang after Nebenzahl, *Maps of the Holy Land* 16-17).

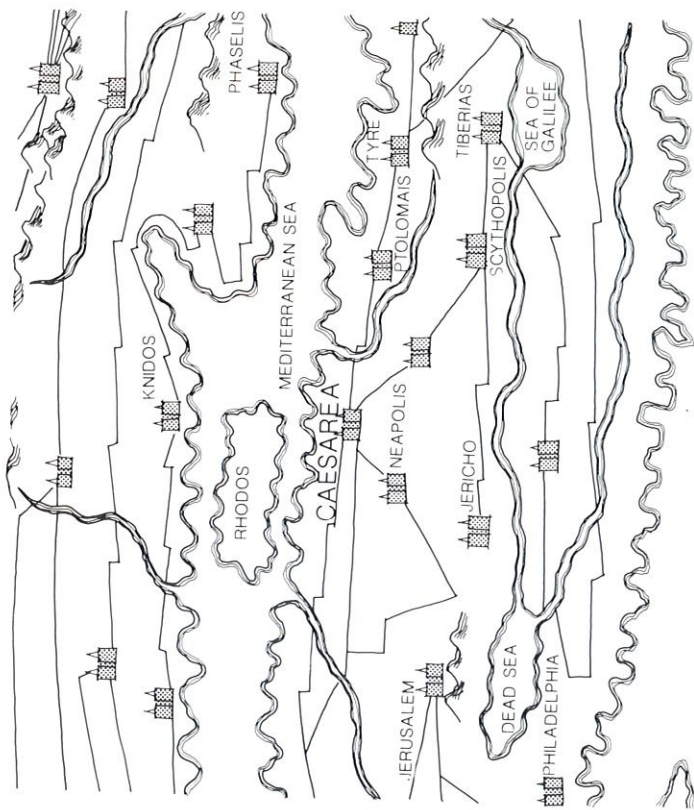


Fig.2. Peutingar Table, detail of Levant, 5th c. A.D. W and S coasts of Asia Minor at top from Miletos to Phaselis (Lycia); coast of Palestine below, with sea of Galilee, Jordan river and Dead Sea. N is to left (Yang after Nebenzahl, *Maps* 23).

built it. From the Arab period comes the late 10th-c. geographer Mukaddasi. He was a native of Palestine and grandson of the Syrian architect who rebuilt the walls of Cairo and did work in nearby Akko. He wrote:⁷

There is no city more beautiful. ... Its lands are excellent, and its fruits delicious; the town is also famous for its buffalo milk and its white bread. To guard the city there is an impregnable fortress, and without lies the well-populated suburb which the fort protects. The drinking water of the inhabitants is drawn from wells and cisterns.

In the mid 11th c. the Persian traveler Nasir-i-Khusrau, in response to a vision suggesting a pilgrimage to Mecca, set out with his brother on a 7-year journey that took him to Caesarea in 1047. He wrote:⁸

Caesarea is a fine city, with running waters and palm-gardens and orange and citron trees. Its walls are strong and it has an iron gate. There are fountains that gush out within the city; also a beautiful Friday Mosque, so situated that in its court you may sit and enjoy the view of all that is passing on the sea.

Caesarea also appeared on maps such as al-Istakhri's schematic chart of Syria and Palestine (fig.3).⁹

In 1101 the crusader Baldwin I conquered Caesarea. Although the last Christian fortress (Akko) fell in 1291, pilgrims continued to live and travel in the Holy Land.¹⁰ From this period come personal journals and guidebooks. The former include a description in 1180 by Jacques de Vitry:¹¹

[Caesarea] stands by the seaside, but has not a convenient harbour, but it abounds in gardens, pastures, and running waters. It is the chief city of Palestina Secunda. Here St. Paul the Apostle was long detained in prison, and made his appeal that he might go to Rome.

The mediaeval historian William of Tyre, bishop of Tyre during the reigns of Amaury and Baldwin IV (1163-85), wrote a history of the Latin kingdom from its foundation in 1095 until 1184. He provides a description of Caesarea that specifies the absence of an anchorage there at that time (he is of course incorrect about Herod's efforts at building a harbour):¹²

Caesarea lies on the seacoast and was in earlier times known as the Tower of Straton. ... This city has great advantages in the way of running streams and well-watered gardens, but it is without a port. We read, indeed, that the same Herod, at great expense and effort, endeavored without success to construct a harbour there which might offer secure anchorage to ships.

Theoderich the German, travelling in the Holy Land from 1171-73, based his account both on personal observations and descriptions by others. He is clear and lucid when describing his personal experiences but confused when copying others; he bypassed Caesarea, which he describes as a fortified town in a pleasant and beautiful plain.¹³ From the late 12th c. comes also the account of the Jewish traveler Benjamin of Tudela, who described the city as 'fair and beautiful and lying by the sea'.¹⁴ He reported 200 Jews and 200 Samaritans remaining in the city.¹⁵

7 G. Le Strange, *Mukaddasi, Description of Syria including Palestine* (London 1892) 55.
8 G. Le Strange, *Nasir-i-Khusrau, Diary of a Journey through Syria and Palestine* (London 1893) 20.
9 Published in his atlas, *Book of roads and countries*, of 952 (Abu Ishak Ibrahim B. Muhammad Al-Farisi Al-Istakhri, manuscript on vellum, 20 x 12.5 cm). See K. Nebenzahl, *Maps of the Holy Land: images of "Terra Sancta" through two millennia* (New York 1986) pl.VII. To ensure an elevated position for Mecca, south is at the top of the map. The territory shown includes the eastern Mediterranean from Tarsus to Gaza; major cities like Caesarea have red symbols with their names in black.
10 For the crusader period see W. H. Hazard, "Caesarea and the Crusades," in *Studies History* 79-114; J. Prawer, *The history of the Crusader kingdom in Palestine* (Jerusalem 1973, in Hebrew); M. Benvenisti, *The Crusaders in the Holy Land* (Jerusalem 1970). On travelers, see A. Grabois, "Medieval pilgrims, the Holy Land and its image in European civilization," in M. Sharon (ed.), *The Holy Land in history and thought* (Leiden 1988) 65-79.
11 A. Stewart, *Jacques de Vitry, The history of Jerusalem A.D. 1180* (London 1986) 4-5.
12 E. A. Babcock and A. C. Krey (transl.), *William of Tyre. A history of deeds done beyond the sea* (New York 1943) 435.
13 A. Stewart, *Theoderich's description of the Holy Places* (London 1891) 58-59.
14 E. N. Adler (ed.), *Jewish travellers* (London 1930) 38-63.
15 Rabbi Ishak Chelo visited the city in 1334 and reported that a few Jews remained but no Samaritans (I. Chelo, "Les chemins de Jérusalem" in E. Carmoly [ed.], *Itinéraires de la Terre Sainte des XIIIe-XIVe siècles* [Bruxelles 1847] 252-54).

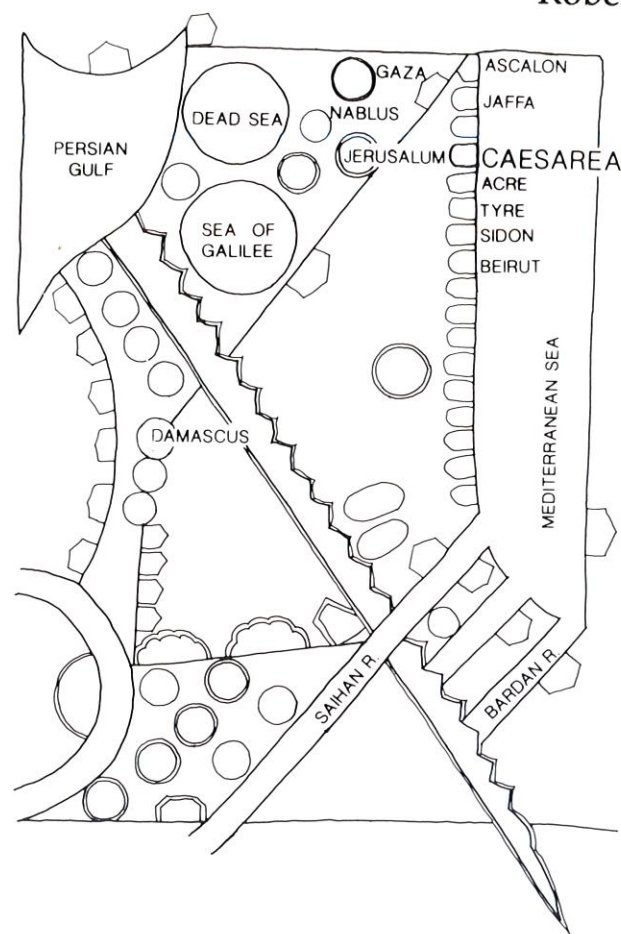


Fig. 3. Map of Syria/Palestine by Abu Ishak Ibrahim B. Muhammad al-Farisi Al-Istakhri, published in *Book of roads and countries* in 952. In original, bodies of water were green, rivers were blue. Lebanese mountains represented as jagged diagonal line are misplaced; Jordan river is omitted. Major cities are shown sequentially but without accuracy of scale. N at bottom (Yang after Nebenzahl, *Maps* 29).

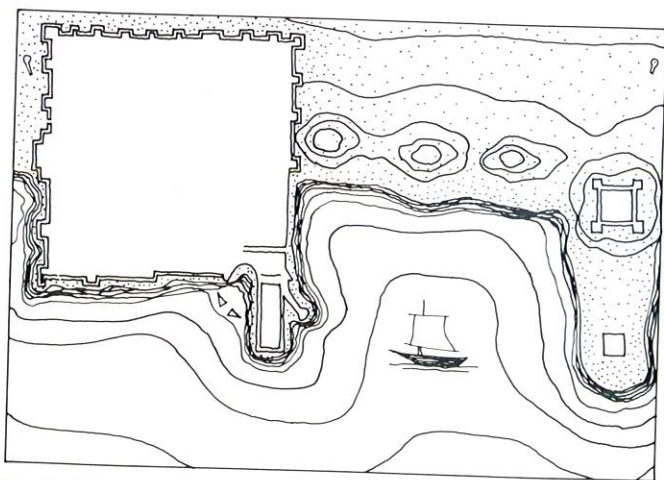


Fig. 5. First modern European map of Caesarea, by Richard Pococke. Ship is in S bay, mistakenly identified as Herod's harbour. Ancient harbour lies to left, beyond (right of) promontory dominated by Crusader citadel. Smaller fortification with 4 corner towers at right is Byzantine. Promontory at lower right is site of *piscina* (Herod's palace?) (Yang after R. Pococke, *A description of the east and some other countries*, 1745).

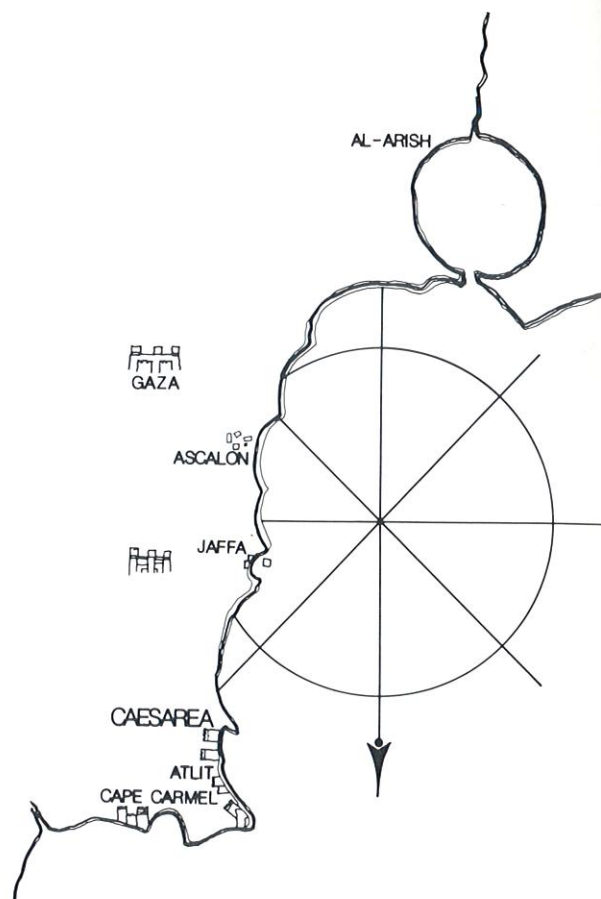


Fig. 4. Piri Reis map of Palestine (16th c. Ottoman map). N at bottom (Yang after Heyd).

In 1285, several years after the fall of Caesarea to Baybars and his Egyptian army, Burchard of Mount Zion described the city:¹⁶

Five leagues from Pilgrim's Castle is Caesarea, the metropolis of Palestine, which once was an Archbishop's see. ... It is bounded on the west by the Mediterranean sea, and on the east by a deep freshwater marsh wherein is a multitude of crocodiles. At this place I fell into very great danger, but the Lord of His mercy saved me. The city has a strong position, but at this day is altogether ruined. Philip and his daughters had a mansion here. Here likewise was the first Bishop of Caesarea. Moreover, it was here that Paul disputed with such eloquence against the orator Tertullus, in the presence of King Agrippa and Felix.

It is not clear whether his 'great danger' came from crocodiles in the marsh or from the local inhabitants.

In 1421 Johannes Poloner said that the city was deserted yet still had gardens:¹⁷

It was the capital of the seashore of Palestine. Josephus wrote much concerning it. Toward the east it has a wide and deep lake of sweet water, wherein are many crocodiles. The city itself is utterly destroyed. In it the Apostle Peter baptized Cornelius, and Paul was kept in prison there for a long time when on his way to Rome. It has an inconvenient harbour, but great abundance of gardens, meadows, and running streams even to Lydda and towards the land of Sharon.

Palestine was subsequently controlled by the Ottoman Turks, who produced maps of the coastline; portolans or nautical charts described coastal features and gave instructions for navigators. The most important of these charts was that by Piri Re'is, author of *Kitabi bahriye* (*Book of nautical matters*), printed in 1521.¹⁸ Two sheets cover the shore, both with references to "Kaysariye harab" or ruined Caesarea (fig. 4).

A new group of European travelers came to the eastern Mediterranean in the 18th c., looking not only for biblical and Christian sites but also for the roots of western culture as a whole. Travelers described ancient sites, copied inscriptions, and noted the flora and fauna. They included artists whose works would be engraved on wood blocks or metal plates for publication.

Richard Pococke was the most prominent European traveler to visit the site. In his *A description of the east and some other countries* (London 1745) he was the first to make detailed observations on the remains, including the position of the outer circuit of fortification walls and the high- and low-level aqueducts. His plan of the site (fig. 5) clearly defined the outline of the ruined Crusader fortification walls which he dated to Louis IX. Although he located the Crusader anchorage (by placing a small craft inside it), he erroneously placed the Herodian harbour in the south bay. In other errors, he identified the small promontory adjacent to the theater as Herod's southern breakwater,¹⁹ interpreted the huge Byzantine walls on that promontory as the Drusion, the largest of the towers in the harbour, and identified the central of three sand dunes opposite the south bay at the site of the Temple of Roma and Augustus; on the other dunes he placed the forum (to the north) and the theater (south), while the correct site of the theater was labeled the amphitheater.

¹⁶ A. Stewart, *Burchard of Mount Zion, A.D. 1280* (London 1896).

¹⁷ Johannes Poloner, *Descriptiones Terrae Sanctae* (T. Tobler [ed.], Leipzig 1874); A. Stewart, *John Poloner's description of the Holy Land* (London 1894) 29.

¹⁸ U. Heyd, "A Turkish description of the coast of Palestine in the early sixteenth century," *IEJ* 6 (1958) 201-16. The first draft appeared in 1521, a corrected and enlarged version in 1525. A German translation of the first edition is incomplete (P. Kahle, transl., *Piri Re'is Bahariye, Das türkische Segelhandbuch für das Mittelländische Meer vom Jahre 1521*, Band I, Text 1 (Berlin and Leipzig 1926). The Turkish Historical Society published a facsimile of the longer 1525 edition: Piri Reis, *Kitabi bahriye* (Türk Tarihi Araştırma Kurumu yayınlarından no. 2, İstanbul 1935).

¹⁹ E. Netzer has identified this location as an ornamental pool within Herod's palace (Levine and Netzer, *Qedem* 21, 149-60. There is a shallow rock-cut pool with channels, perhaps later in date, connecting it to the open sea; the basin is surrounded by a colonnade, and mosaic-paved rooms on the east overlook it. A. Flinder, "A piscina at Caesarea — a preliminary survey," *IEJ* 26 (1976) 77-80, and Oleson in Raban, *Harbours* 1, 160-67, identify the rock-cut basins as a *piscina*.

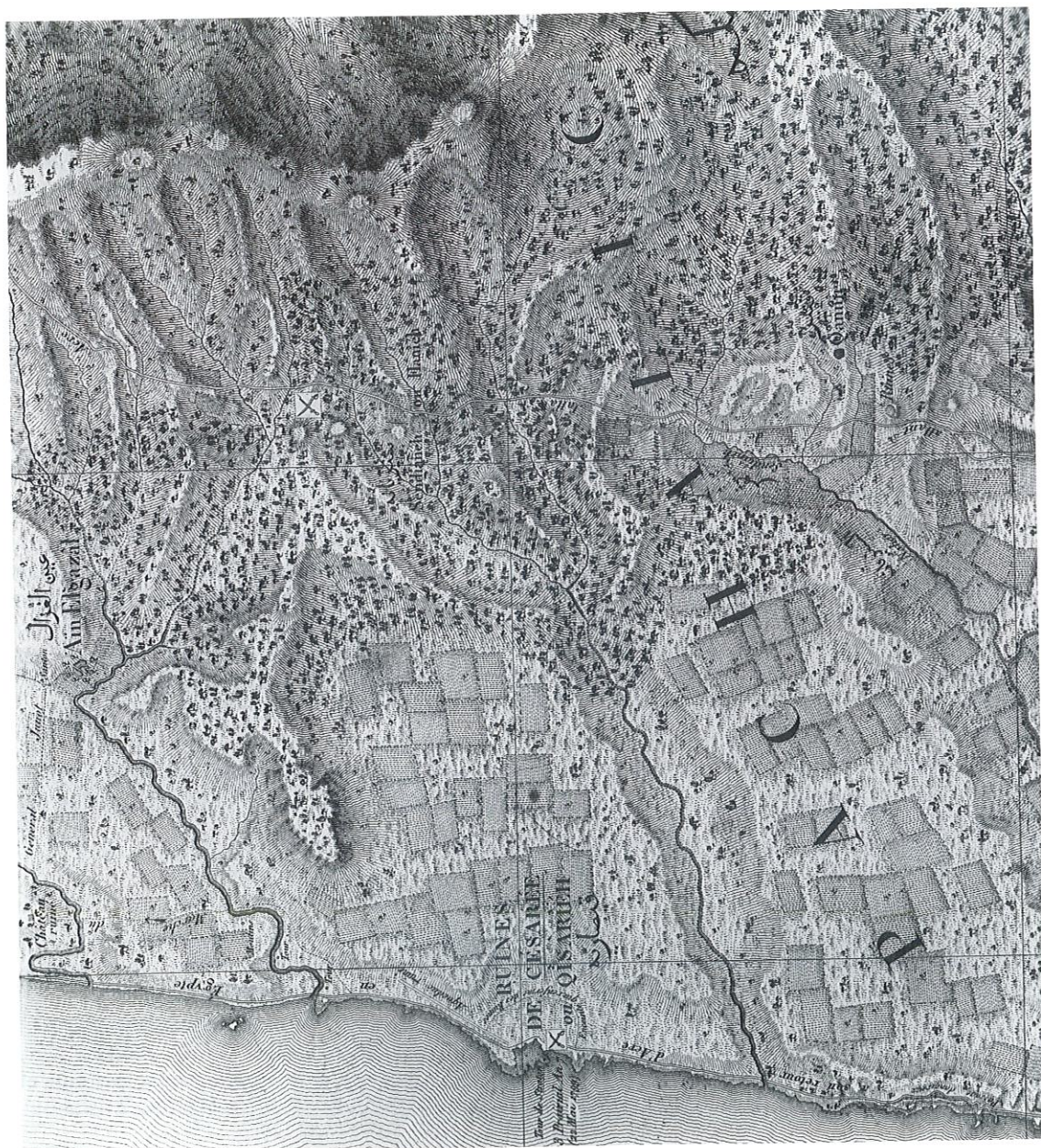


Fig.6. Detail of large series of maps produced by Napoleon's troops during campaigns in late 18th-early 19th c. Symbol of crossed swords indicates sites used as French camp (in case of Caesarea, on 23 May 1799 during retreat after battle of Akko), (M. Jacotin, *Mémoire sur la construction de la Carte d'Egypte* II.2, folio 45, 1882) (reproduced courtesy Library of Congress).

The first major mapping project in the Levant was done by Napoleon's engineers under Colonel Pierre Jacotin during the abortive campaign of 1799 when his armies headed north along the Levantine coast before being defeated by British naval units and land forces of the Ottoman governor of Akko. Maps were limited primarily to the coastal plain through which the army marched, were produced rapidly and contained many lacunae, but they gave the first detailed topographic maps of the area and remained the best for almost 50 years. One of the six folios of Palestine focused on the district of Caesarea (fig.6).²⁰

Combatants from the opposing side also contributed to the recording of antiquities: Dr. J. B. Spilsbury from the English ship 'Tiger' was in Akko during the siege of that city, and after the French retreat (1803) he travelled through the surrounding countryside recording scenes of daily life, including a view entitled 'Caesarea ruins' (fig.7).

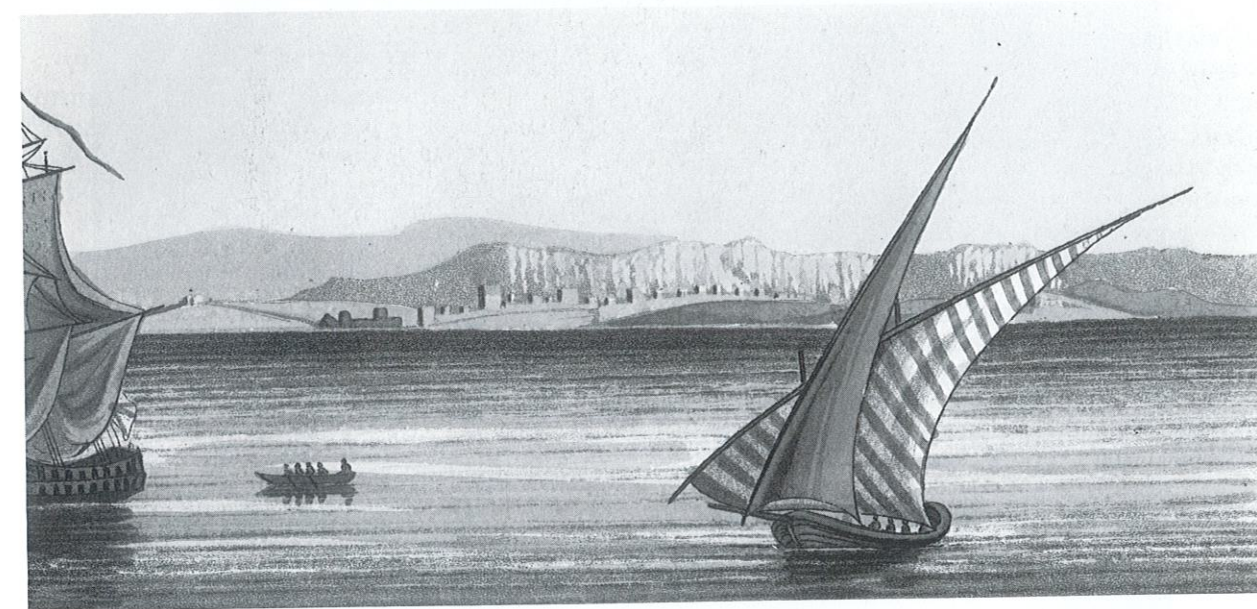


Fig.7. View of Caesarea from sea by Spilsbury (*Picturesque scenery*, 1823, opp. 51) (reproduced courtesy Library of Congress). The towers of the Crusader fortifications and Mount Carmel are exaggerated in size.

An important early explorer was a German, J. Seetzen, whose diaries were later edited and became very influential for later explorers.²¹ To the first quarter of the same century belongs a lithograph by Thiénon (fig.8), engraved by George Dobler and included in Forbin's accounts of a voyage to the Levant.²² Although he could not stay long, he sketched 10 views of the church, fortress and surroundings. This fanciful rendering was taken across the inner harbour to the southwest towards the Crusader citadel. In 1842 there appeared another view, by William Henry Bartlett (fig.9),²³ taken from a similar position,

²⁰ M. Jacotin, *Mémoire sur la construction de la Carte d'Egypte, des observations et des recherches qui ont été fait en Egypte pendant l'expédition de l'armée française: état moderne* II.2, Folio 45, Césarée (Paris 1882) p.91; D. H. Amiran (Kallner), "Jacotin's map of Palestine," *PEQ* 76 (1944) 157-63; Y. Karmon, "An analysis of Jacotin's map of Palestine," *IEJ* 10 (1960) 157-73, 241-54.

²¹ F. Kruse and H. L. Fleischer (edd.), *Commentaire zu Ulrich Jasper Seetzen's Reisen durch Syrien, Palästina, Phönicien, die Transjordan-Länder, Arabia Petraea und Unter-Aegypten* (Berlin 1859).

²² Comte de Forbin, *Voyage dans le Levant en 1817 et 1818* (2nd ed., Paris 1819) pl.12.

²³ W. H. Bartlett, *Walks about the city of Jerusalem* (London 1844; repr. Jerusalem 1974) 7.



Fig. 8. Fanciful view of inner harbour looking SW beyond ruins of Crusader fortifications to right. Lively imagination gives round and square mediaeval towers and a pair of enormous Corinthian columns bearing entablature. Other pieces of collapsed buildings are more authentic, especially tumbled cubes of masonry at center. Columns embedded in masonry there and the adjacent wall fragment should be part of the Crusader fortifications; both are visible today along the N side of the present breakwater (Comte de Forbin, *Voyage dans le Levant en 1817 et 1818*, 2nd ed. 1819) reproduced courtesy British Library).



Fig. 9. Another view 23 years later by Bartlett, more accurate than that by Forbin, again looking SW. Ashlar wall is still visible along N face of present breakwater, but the highest standing walls are now replaced by later 19th-c. Ottoman buildings (visible in figs. 15-16). Tall fragment to right stands on remains of Herod's breakwater. Much of this material was removed in the 1950s when the fishermen's breakwater was added (W. H. Bartlett, *Walks about the city and environs of Jerusalem*, 1844) (reproduced courtesy Dumbarton Oaks).

towards the Crusader citadel and the southern Herodian breakwater. On the left is the Crusader keep, correctly identified as mediaeval but mistaken for a church (see below); in the foreground is the row of columns said to belong to the harbour used by Paul. Bartlett was a talented English landscape painter whose interest in Biblical lands led him to travel extensively. His style is more realistic than renderings by many 19th-c. contemporaries, lacking the inaccuracies that plague many. He described his stop at Caesarea thus:

... as the moon was fading in the sky, and the dawn appearing over the distant mountains of Samaria, we ran abreast of the shapeless ruins of the once famous seaport of Herod. The sailors lowered a small boat, and we rowed ashore. A long pier of solid workmanship projects into the sea, of Roman construction, — perhaps the mole mentioned by Josephus, — and on this, ruin upon ruin, are the remains of a structure of the middle ages, once apparently a church; at some distance north, in a parallel line with the mole, a great number of broken columns lie scattered on a reef of rock. Here was probably the port, where St Paul, sailing for Italy, took leave for ever of Palestine. Gaining an elevated spot we cast our eyes around, to see if there were further vestiges, but could discover nothing, except a few fragments of the wall of the Gothic city rising above its fosse, half buried in the wild herbage which spreads over the desolate plain.

Victor Guérin visited Caesarea in the 1850s and 1860s.²⁴ Like Pococke he recognized the outer fortification walls but mistakenly called them Herodian. He spent more time than Pococke analyzing Crusader remains, and suggested that they belonged to two phases, the first dated to the earlier Muslim period. He mistook the jetty of columns as a Roman platform, but he correctly located the Herodian harbour and he suggested that the earlier settlement of Straton's Tower might be sought in that part of the ancient city. He identified the hippodrome and discussed the monuments remaining on its central barrier. He erroneously placed the theater just south of the Crusader fortifications, but he correctly recognized the later fortifications at the proper site of the then-buried theater.

Throughout the 19th c. the remaining structures had been gradually disappearing. Of course, reuse of stone had happened in antiquity, too, and had been vigorously pursued by the Crusaders. The governor of Akko who had fought Napoleon had transported hundreds of barges of building stone from Caesarea to his city to repair fortifications, renovate khans or commercial buildings, and build new markets and a huge mosque. Throughout the 19th and into the 20th c. building materials continued to be shipped from Caesarea to Jaffa, Haifa, and even Alexandria.²⁵

The first accurate navigational map of the coast from el-Arish to Rosh Hanikra (1:250,000) was produced by Mansell,²⁶ with detailed maps for anchorages including Caesarea (fig. 10). Engravings of coastal views were included in the margins.

After the founding of the Palestine Exploration Fund in 1865 one of its first objectives was the exploration and mapping of the Holy Land. A team of surveyors under the direction of Lt Conder visited Caesarea on 1 April 1873 and returned again on April 5-6. Conder's written account in a letter of August 27 remains of great importance.²⁷

On crossing the Zerka we enter another region. The precipitous inland cliffs which mark the shoreline of a former geological period recede suddenly, and form the north boundary of the great Plain of Sharon. ... It was here that Herod the Great chose the seat of his capital, and built upon a barren coast, of white stones brought from a distance, the Caesarea Palestinae which was to form the connecting seaport between Jaffa and the northern harbours. Hidden by rolling sand-hills, it stands low on the seashore, and exhibits in April long expanses of a yellow composite flower, with thin patches of weed-strangled corn from which the brown ruins stand out contrasted. The period was unfavourable for excavations, and we were content with survey alone.

Their brief stay was very productive. They discovered the outer fortification walls and assigned a Roman date (but presumably they had in mind a Roman date earlier than that currently accepted). Their

²⁴ V. Guérin, *Description géographique, historique et archéologique de la Palestine* II.2 (Paris 1875).

²⁵ Schiler (supra n.1) 69-72; see also A. Wegman in *The harbours of Caesarea Maritima* vol.3 (forthcoming).

²⁶ A. L. Mansell, "Carte de Césarée" (Dépôt des cartes et plans de la Marine Française, Paris 1863); Y. Ben-Arieh, *The rediscovery of the Holy Land in the nineteenth century* (Jerusalem and Detroit 1979) 190.

²⁷ C. R. Conder, "The Survey of Palestine, Report XVI," *PEQ* 6 (1874) 13-15.

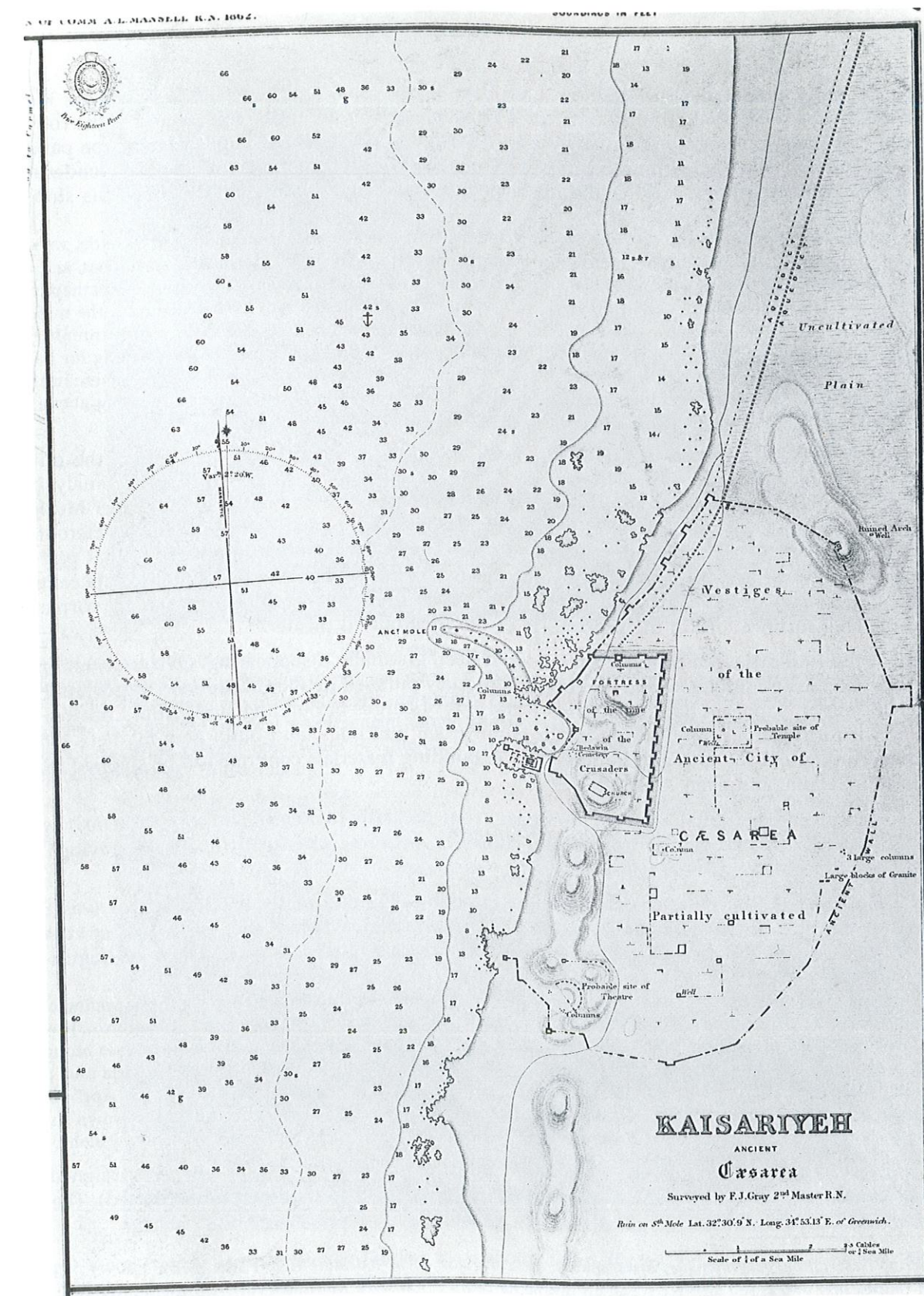


Fig. 10. Detail of first systematic coastal survey of Israel (A. L. Mansell, "Carte de Césarée" (Dépôt des cartes et plans de la Marine Française 1863) (reproduced courtesy Library of Congress).

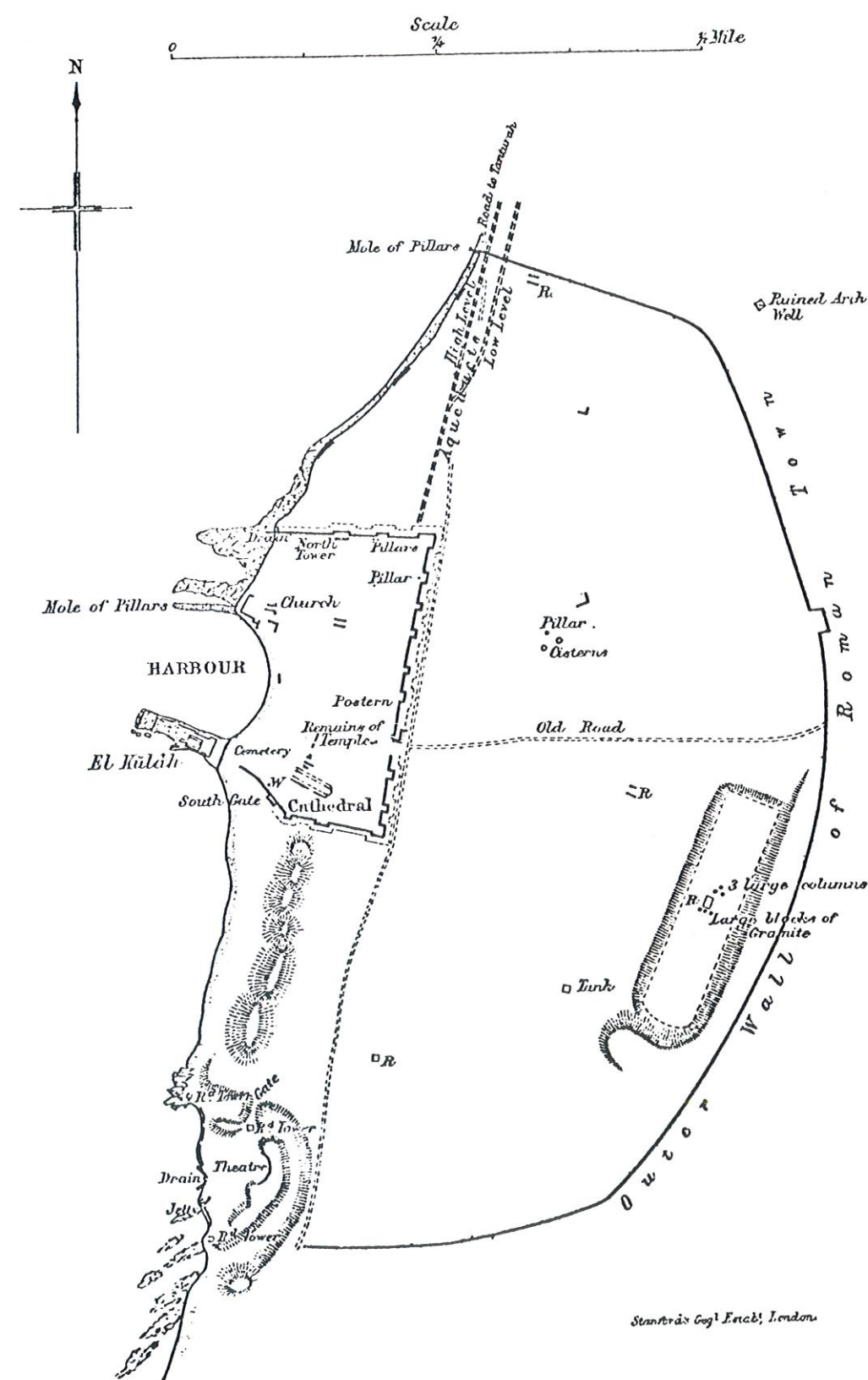


Fig. 11. Plan of site published by Palestine Exploration Fund (Conder and Kitchener, *Survey of Western Palestine II*, 1882).

plan (fig.11) included the whole wall circuit, although the text stated that "the line of walls is traceable, except towards the southwest end; in other parts it is represented by a mound raised above the ground level".²⁸ Conder described the sea walls, traced from the northwest corner of the city south to the Crusader fortifications, but they were not included on the plan. South of the harbour the team noted a series of sand dunes "probably formed by the accumulation of sand blown over the buildings",²⁹ now known to be warehouses.³⁰ Farther south they correctly identified the theater and recognized the later fortifications surrounding it.³¹

The diameter of this construction was chained 850 links (561 feet) at the mound top. ... The building in the mound is apparently a theatre, and has a diameter of 285 links (188 feet). ... The whole is much overgrown, and requires excavation. In the hollow which represents the arena are some fallen column-shafts of granite. A fragment of limestone cornice, with two or three letters in bold Roman characters, was found lying in the ditch on the south side of the mound near the beach.

Conder was also the first to mention the rock-cut basins in the promontory near the theater (see n.19).³²

Either side of the mound (theatre) is marked by a ruined tower. ... Between these towers there is another low projecting reef, showing that a small building, about 30 feet wide, here projected into the sea. ... The enclosure ... is almost entirely artificial in character but the site is carefully chosen between two projections of the coast.

The hippodrome was located just inside the fortification wall in the southeast quadrant. No surviving masonry was apparent, but the granite blocks were identified as monuments deriving from the barrier.³³

They made the first study of the harbour, including the south breakwater:

The harbour of Caesarea measures 180 yards across, and on the south a long reef runs into the sea for 160 yards from the shore. This appears to be the mole mentioned by Josephus — the general plan, half breakwater (*prokumia*) half occupied by a tower (on the site probably of the ancient Drusus), still maintained. Under the present tower (el Kulah) two columns of red granite lie fallen. ... These are possibly remains of the *stelae* which stood on the mole.³⁴

They identified a small structure near the inner harbour as the "remains of a temple" but mistakenly associated it with that built by Herod to Rome and Augustus. The Herodian temple was probably on the elevated platform overlooking the harbour and not below and west of the platform at the very edge of the inner basin (see p.100 above). Conder also correctly identified the two principal phases of Crusader fortifications as early and mid 13th c. A second plan published focused upon the Crusader fortifications and buildings within, including the Church of St Lorenzo and the Basilica of St Peter (fig.12). Conder carried out a major survey of the water systems, tracing the sources of both high- and low-level aqueducts back to springs of the Carmel and the dammed Zerka river.

In 1884 a new chapter began with the arrival of Muslim refugees from Bosnia.³⁵ A government plan was drawn (fig.13) to settle property disputes among the 20 families relocated on the orders of the Ottoman Sultan Abdul-Hamid II. Schumacher, one of the surveyors, records several architectural fragments among which were blocks from the hippodrome, the Crusader church, and 'marble steps' on the remains of the Herodian S breakwater (fig.14). Some of the new residents made a living by selling and exporting building materials on a large scale. During these years the church of St Lorenzo completely disappeared, and the Crusader keep, a favorite subject of earlier artists, was substantially removed. Schumacher commented on the explosives needed to destroy its 4m-thick walls.

C. R. Conder and H. H. Kitchener, *Survey of Western Palestine II* (London 1882) pp.13-29, sheets VII-XVI. Ibid.15.

Blakely, *Vault 1*, with references. The southern end of this stretch of dunes was excavated in 1992 and revealed a Byzantine bath and a building with stadium-type seats.

Conder and Kitchener (supra n.28) 16.

Ibid.

These blocks had been called by visitors in the Crusader period the "Candlesticks of our Lord" and the "Table of Jesus Christ".

Conder and Kitchener (supra n.29) 17-18.

G. Schumacher, "Recent discoveries at Caesarea, Umm el Jemal, and Haifa," *PEFQ* 20 (1888) 134-41.

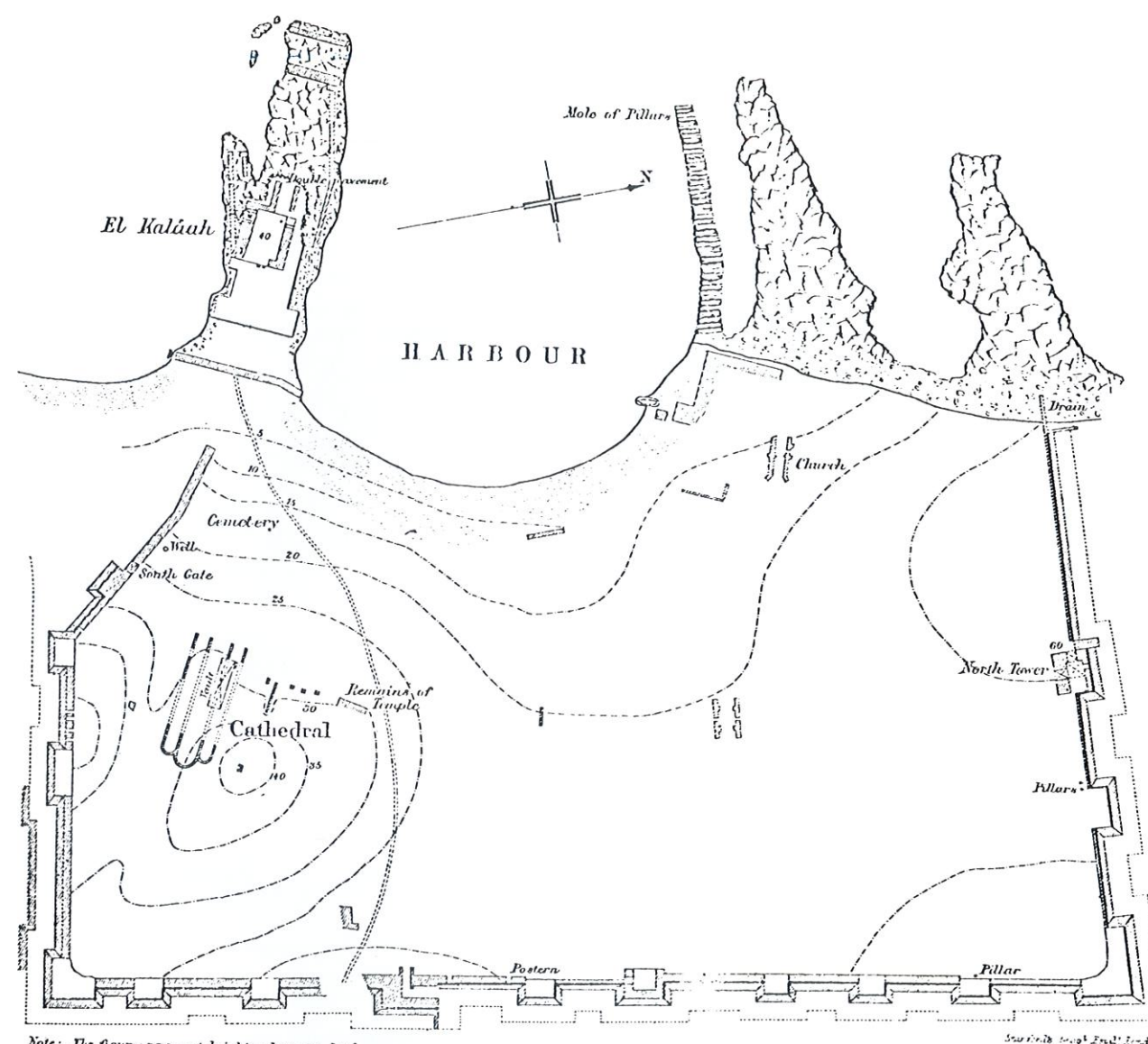


Fig.12. Plan of mediaeval city published by Palestine Exploration Fund (see fig.11).

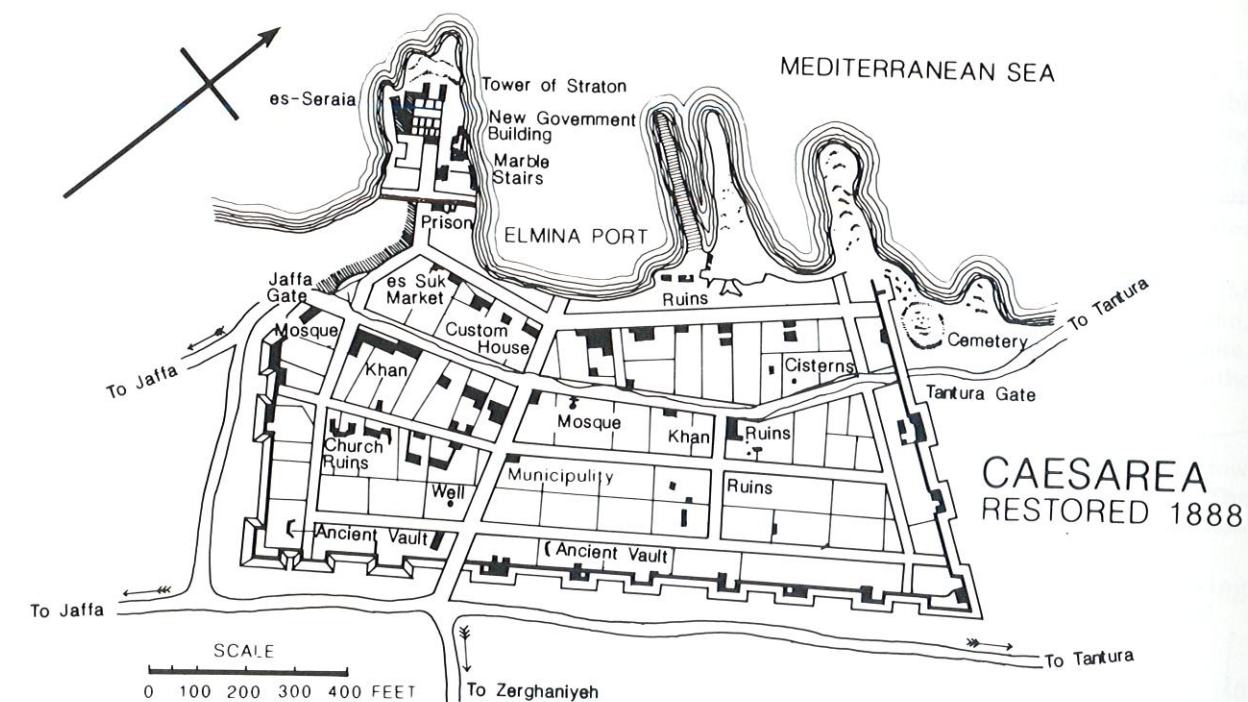
From the same period came the first photographs (figs.15-16), including a group from the Bonfils collection at the Semitic Museum, Harvard.³⁶ The last decade of the 19th c. saw increased visits from scholars, particularly to copy inscriptions.³⁷

After World War I when the British Mandate set up a new Department of Antiquities, older biblical sites received more attention than did Caesarea. The German monk Haefeli who visited the site in the early 1920s published the first book on Caesarea in 1923.³⁸ He continued to locate the Herodian harbour in the South bay. Most of his discussion of the monuments depended upon Josephus.

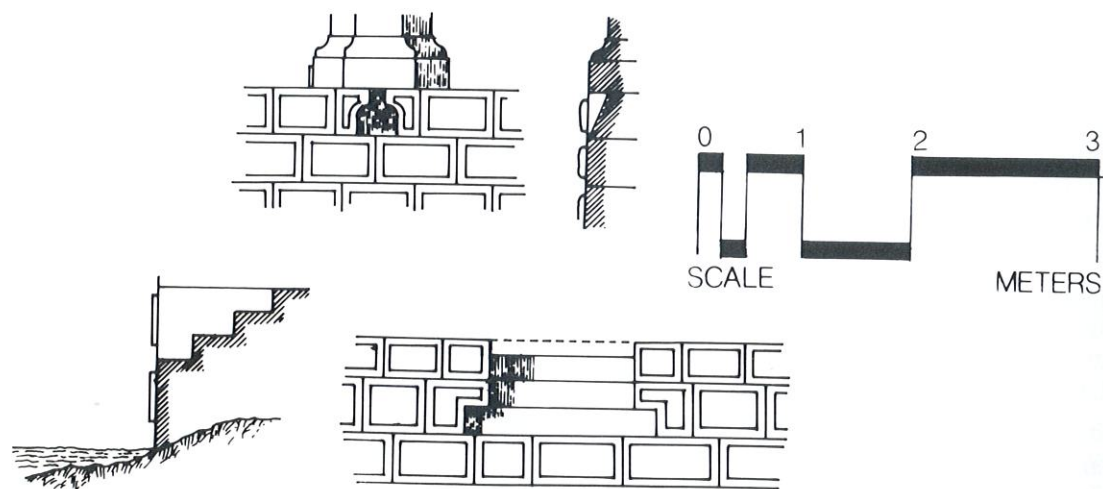
³⁶ Felix Bonfils and his son Adrien were French photographers based in Beirut and active in the eastern Mediterranean during the late 19th c.

³⁷ E.g. K. Zangemeister, "Inscription der vespasianischen Colonie Caesarea in Palästina," *ZDPV* 8 (1890) 25-30; see also J. Germer-Durand, "Inscriptions romaines et byzantines de Palestine," *RBibl* 4 (1895) 75-76 on a 6th-c. inscription mentioning a basilica and its mosaics, and the steps of a temple dedicated to Hadrian.

³⁸ L. Haefeli, *Cæsarea am Meer. Topographie und Geschichte der Stadt nach Josephus und Apostelgeschichte* (Münster).



13. Plan of late 19th-c. Bosnian settlement within Crusader fortifications (Monaldo after Schumacher).



14. Details of ashlar base beneath Crusader fortifications, labelled 'marble stairs' on Schumacher plan fig.13 (new after Schumacher).

In 1940 a new group of 20 young settlers established Kibbutz Sdot Yam ('Fields of the sea') as a new farming community. A few months later the settlement moved south to the sand dunes beyond the theater. Agriculture soon supplemented the fishing industry, and as land was developed for farming and construction many more antiquities were discovered. Professor Schwabe from Hebrew University was at the site, assisting A. Wegman to save as much as possible. In 1951 these two men established a museum.³⁹ The first notable finds by the kibbutzim were mosaic inscriptions and marble screen fragments, leading to excavations in 1945 by J. Ory for the Mandate's department of antiquities. This pro-

³⁹ Wegman (supra n.27).



Fig.15. View by Bonfils looking W in direction of remains of Herod's S breakwater. New structure to left standing on remains of Crusader bastion is now a restaurant; two buildings to right no longer exist. Long line of stone shops is not yet constructed (reproduced courtesy Harvard Semitic Museum).



Fig.16. View by Bonfils of Caesarea looking N, with fields marked out by stone fences, and remains of N gate of Crusader walls on horizon (reproduced courtesy Harvard Semitic Museum).

ject was reopened in 1956 by Avi-Yonah,⁴⁰ and important finds included an inscription of priestly courses,⁴¹ but the excavation of this synagogue was never completed nor published. Ploughing elsewhere uncovered a colossal porphyry statue, prompting in turn the excavation in 1951 (under Yeivin for the new state of Israel) of a paved court flanked by a pair of seated figures.⁴² The statues were not in their original positions and had probably been set up there in a reconstruction of the 4th c. In the same year Yeivin uncovered a very well preserved medallion mosaic (see p.250 above). A valuable study by Reifenberg, based upon aerial photographs taken while working for the British Army in Egypt during the Second War, reaffirmed the existence of several monuments and suggested for the first time the existence and location of an amphitheater. He also dealt with geomorphic questions including the nature of the sand dunes south of the city and the changing coastline.⁴³

From 1959 an Italian Mission under A. Frova organized the first systematic excavations. The team sought a theater of Herodian date, since it would be one of the earliest Roman-type theaters in the eastern Mediterranean, and exposed the complicated building history of the Caesarea theater beginning with Herod. They also produced the Pontius Pilate inscription, mentioning him and a building dedicated to Tiberius, reused in a later stair.⁴⁴ The Italian team dated the outer fortification walls to the early Byzantine period, and discovered and partially excavated the inner circuit of walls (a pair of round towers and a nearby polygonal tower) (see pp.9, 27, etc.). Outside the walls they began to clear a structure then identified as a chapel but now as a late-antique bath building.⁴⁵

A massive program to clear the crusader moat was initiated by the department for landscaping and the preservation of historic sites. Negev directed excavations (1960-61) and reconstructed the east gate, the crusader church, and portions of a crusader street and associated structures inside the citadel.⁴⁶ He suggested that the large platform supporting the mediaeval church was Herodian and once held the Temple of Roma and Augustus. Other trenches west of that platform produced late Byzantine and Arabic structures. In 1960, Link directed the first underwater exploration and one of the earliest projects to use SCUBA divers.⁴⁷ Despite poor sea conditions and the absence of full publication by trained archaeologists, the project produced the first measured drawing of the submerged breakwater.⁴⁸ Later work by Israeli divers from the Israel Undersea Exploration Society and the Center for Maritime Studies of Haifa has been summarized by Raban and Hohlfelder.⁴⁹ Lastly, work in 1975-79 by Levine and Netzer focused on a large rectangular structure north of the harbour and investigated the so-called Promontory palace (supra n.19). With this we come to the intensive work of the last 20 years by the Joint Expedition, the Harbour project, and now the Combined Caesarea Expeditions, whose publications are continuing to appear and whose work was briefly summarized in *Herod's dream*.

40 IEJ 6 (1956) 260-61; "The excavations at Caesarea in 1956," *Israel Exploration Society* 20 (1956) 194-95 (in Hebrew); "The synagogue at Caesarea," *Louis M. Rabinowitz Fund for the Exploration of Ancient Synagogues, Bulletin* 3 (1960) 44-48.
41 M. Avi-Yonah, "The Caesarea inscription of the twenty-four priestly courses," in E. J. Vardaman and J. L. Garrett (edd.), *The teacher's yoke: studies in memory of Henry Trantham* (Waco, TX 1964) 46-57.
42 S. Yeivin in *Archaeology* magazine 8 (1955) 122-29 and M. Avi-Yonah, *IEJ* 20 (1970) 203-8.
43 Reifenberg, "Decline".
44 A. Calderini, "L'inscription de Ponce Pilate à Césarée," *Bible et Terre Sainte* 57 (1963) 8-18; A. Degrassi, "Sull'iscrizione di Ponzio Pilato," *RendLinc* 19 (1964) 59-65.
45 This small bath in Field E was excavated by the Joint Expedition during the 1970s but never published. A partial plan and section appears in *Herod's dream* 183-84.
46 A. Negev in *Christian News from Israel* 9.4 (1960) 17-22, pls.i-iv and 11, 50-59; id., *IEJ* 11 (1961) 81-83.
47 At Sidon and Tyre hard-hat divers had been used.
48 C. T. Fritsch, "Underwater excavation of the sunken harbor of Caesarea Maritima, Israel," *Yearbook of the American Philosophical Society* 1961, 541-45; I. Ben-Dor, "A marine expedition to the Holy Land, summer 1960," *AJA* 65 (1961) 186; E. Link, *Survey trip to Israel: (a) The port of Caesarea* (New York 1956); K. MacLeisch, "Sea search into history at Caesarea," *Life* 50.18 (5 May 1961) 72-82; R. Hohlfelder in Raban, *Harbours* 1, 65-71.
49 Raban, *Harbours* 1, 71-96 and Hohlfelder *infra* p.292.

The first three decades of marine explorations

Robert L. Hohlfelder

After Caesarea was systematically destroyed by the Mamluks in 1291 to eliminate its value to future western Crusades, nature quickly covered the record of human habitation.¹ Sand dunes formed rapidly over parts of the city, though they never masked completely the earlier grandeur:² massive ruins punctured the changing contours of the sand's surface and defined the coastal interface. Beneath the sea, shadowy forms beckoned: enigmatic, dark concentrations of rocks stretched from shore to the open sea, and storm seas and siltation constantly changed their profiles. Man also contributed to the degradation of the ancient remains, exploiting the cut stones littering the site and the sea³ and removing them in quantity even as recently as the early 20th c. (see p.286 above).

Were the vast, submerged irregular rocky formations extending seaward all along the city's coast, the massive spills of rubble, and the huge blocks dimly visible on the seabed testimonia to Josephus' account of Herod's harbour, or were they merely natural reefs or battered remnants of submerged ridges of *kurkar*? Over the centuries fishermen and swimmers must have recovered many artifacts from the sea.⁴

In the late 1950s archaeology under the sea evolved from treasure-hunting to science and an opportunity to test Josephus' veracity was at hand. Scientific marine exploration began in 1956 when Edwin A. Link was invited by Israeli authorities to visit the site.⁵ He made several dives using SCUBA gear to investigate the rock formations on the floor. His equipment dramatically increased the time that could be spent beneath the surface from a few minutes to an hour or more on each dive.⁶ His imagination was fired by the massive worked stones he saw, larger even than Josephus claimed. This was to be the first large-scale underwater excavation of a major ancient harbour. Four years later he was ready: his new vessel, *Sea Diver*, a state-of-the-art research station, designed and constructed by him specifically for the explorations in Israel, set out in the late spring of 1960. Link's misadventures with weather, equipment and personnel in the summer and early autumn of 1960 have been recounted elsewhere.⁷ Despite the problems, the expedition, under the direction of C. T. Fritsch and I. Ben-Dor, located precisely Josephus' harbour (often previously placed in the South Bay) and, with the help of aerial photographs, made the first attempt at a detailed map of the submerged structures.⁸ In under 2 weeks of SCUBA diving, they established the general accuracy of Josephus' descriptions.⁹ It was not Josephus who had exaggerated: the ancient harbour demanded hyperbolic description,¹⁰ and, if anything, Josephus had understated the scope and scale of Herod's accomplishment. But beset by numerous logistical, personal and personnel problems, and perhaps frustrated by a discipline that features routine, incremental advances rather than daily dramatic discoveries, Link decided not to continue his work at Caesarea. He had not found the statues of Josephus or other priceless artifacts, and ended his work with a gloomy prophecy to his associates and

1 Reifenberg, "Decline".
2 Nir in Raban, *Harbours* 1, 21-25.
3 A. Flinder, *Secrets of the Bible seas: an underwater archaeologist in the Holy Land* (London 1985) 109-10.
4 Even in recent decades noteworthy artifacts have been uncovered, including a cache of Roman imperial gold coins (A. Kindler, "A hoard of Roman coins in the 1st-2nd centuries A.D. from the sea bottom in Caesarea," *Alon [Bulletin of the Israel Numismatic Society]* 3.3 [1969] 69-101 (in Hebrew)).
5 For a fuller account see Hohlfelder in Raban, *Harbours* 1, 65-71.
6 Link had become interested in underwater archaeology at Port Royal, Jamaica, a much more tranquil setting than Caesarea. There he used a converted fishing boat, inadequate for the conditions at Caesarea.
7 Supra n.5.
8 C. T. Fritsch and I. Ben-Dor, "The Link expedition to Israel, 1960," *Biblical Archaeologist* 24 (1961) 50-59.
9 Josephus' estimate of depth within the harbour, 20 fathoms, was, however, greatly exaggerated; Link's divers nowhere descended below 12-13 m in the harbour. Heavy seas limited the actual diving time even though the expedition was in Israel for the entire summer of 1960.
10 See Oleson (supra p.51).

sponsors that projected his own sense of failure: nature would defeat future efforts to unravel the city's watery secrets.

The impetus then shifted to Israeli scholars and amateur divers.¹¹ Elisha Linder, the founder of the discipline of marine archaeology in Israel, and several Israeli sport and ex-military divers who formed the Israel Undersea Exploration Society worked on weekends and holidays under Linder's direction.¹² Linder also encouraged other foreign interest. In the 1960s and early 1970s Joseph Shaw, T. Hall, Harold Edgerton, Alex Flinder, and Olivier Leendhart joined forces with Linder and Raban (then a doctoral student at Hebrew University) for various projects at Caesarea and elsewhere. In 1972 Linder created the Center for Maritime Studies at Haifa, thereby providing an institutional base and an educational center to train the next generation of marine archaeologists.

In 1976 Raban and N. C. Flemming of the Institute of Oceanographic Science (U.K.) conducted the most comprehensive underwater archaeological and geological survey of Caesarea to date. The Israel Electric Company, which was considering the construction of a nuclear power station south of the city, commissioned the Haifa Center to study the submerged ruins from all perspectives. Why had these structures subsided since antiquity? Was the coastline tectonically unstable, was the cause liquefaction from the weight of the breakwaters themselves, or had the sea merely reclaimed an installation that had fallen into disrepair. Their rapid and efficient survey demonstrated the importance of a multidisciplinary approach.¹³ Thereafter in 1978-80 field workshops were conducted by the Haifa Center to augment, refine, and expand the data recovered by the survey and attempt to resolve archaeological anomalies. In 1978 a short exploration was undertaken by J. P. Oleson and this writer,¹⁴ and during that season a comprehensive plan was developed by them with Linder and Raban.

Thus in 1979 the Caesarea Ancient Harbour Excavation Project was formed as an international consortium of universities and scholars that would employ volunteer divers and excavators. Its purpose was to provide an administrative and logistical umbrella for all those interested in Caesarea's maritime history. It would expand and complete earlier work, and formulate a master research design for the complete exploration of all Caesarea's maritime structures.¹⁵ Because their full understanding also required land excavations, primarily in structures lying at the coastal interface, the Harbour Project was conceived as a marine archaeological project, not simply as underwater excavation. The first season (1980) was conducted concurrently with the last independent workshop of the Haifa Center and fieldwork continued each year to 1985 (a study season).¹⁶ A second 5-year plan began in 1986.¹⁷ Major underwater excavations were conducted in 1986, 1988 and 1990.

The chief results of the Harbour Project are known from other publications¹⁸ and from Oleson and Raban's chapters above. Caesarea represented the first attempt by western man to build a completely artificial harbour into the open sea from an exposed coastline. Italian pozzolana was employed in the outer basin and huge blocks of concrete at critical points such as a pierhead or anchor for the north breakwater and along the outer face of the *prokumia* of the south breakwater where storm waves struck with

greatest intensity, or again for the towers built to hold the colossal statues (see p.55 above). Sections of the wooden forms to hold the concrete while it set were found. Before construction of the two huge breakwaters had begun, the sandy ocean floor was prepared with a rubble foundation course wider than the breakwaters themselves, perhaps to minimize compaction of these massive structures under their own weight and to lessen the dangers of undercutting by the waves. Rubble was dumped and positioned by ancient divers, who smoothed it, removed larger stones, and then directed the placing of the wooden construction frames upon the rubble platform. A foundation course can greatly reduce subsidence of superstructures built upon it and thereby minimize subsequent maintenance, and this principle seems to have been known to Herod's engineers. A channel found cut through the massive south breakwater from the open sea was evidently intended to permit the silt-free crests of waves to flow into the enclosed basin in a controlled manner. Many such channels equipped with gates to collect and hold the water probably existed; at certain times the gates could have been opened to move water into the outer basin. The current would have flushed flotsam and jetsam through the harbour's mouth to the open sea, and the concentration of artifacts found at the mouth suggest that the system worked. The flushing current may also have been intended to minimize siltation in the harbour itself by creating a current that helped to block sand deposition from the open sea. It is clear that siltation was not a serious problem for the harbour in antiquity. Also significant is the secondary or subsidiary breakwater (barely breaching the surface) constructed parallel to the south breakwater along a section of that structure most exposed to winter storms from the SSW. It served as the first line of defence against winter storms. Against it waves lost considerable energy before they struck the main breakwater; the spray too was reduced, which was necessary if the outer basin were to serve as a wintering roadstead where ships could be loaded safely from warehouses built on the very breakwaters, for certain cargoes had to be protected from excessive moisture. Defence in depth was provided by the combination of this subsidiary breakwater, the *prokumia* or rubble berm built against the concrete-block core, and a seawall (perhaps 10 m high) on top of the breakwater at its central axis. We have also uncovered circumstantial evidence to suggest that portions of the core of both breakwaters were left empty during initial construction.¹⁹ Hollows in the concrete spine of the breakwaters, above the rubble foundations, may have been left deliberately to be filled in by waves bearing sand; construction could have continued on other parts, before the builders returned to cap the sand-filled cells with rubble and pavers.

More remains to be learned of the construction of the breakwaters themselves, of the massive structure at the very tip of the south breakwater (lighthouse?),²⁰ of the width of the entrance channel, and whether a shipyard existed within the anchorage. Further work must address the questions of when and why the breakwaters of the outer basin subsided.²¹ An earlier harbour of Straton's Tower well to the north needs further work: how was it rehabilitated in the Herodian period and what rôle did it play? Work must also be done to the south: did the South Bay ever serve as the main harbour (cf. Raban p.68 supra), perhaps in the Byzantine period when the main Herodian facilities were in ruins? Did this south harbour always serve only the local needs of Caesarea?²² About 1 km farther south, next to the Sports Center on the kibbutz, the coastline and shallow waters adjacent have produced various chance finds in recent winters. Severe storms, coupled with a receding coastline (linked apparently to the construction of a loading pier by the Israel Electric Company for their installation at Hadera), have revealed lead sheeting from an ancient hull, statuettes, a large ashlar wall containing blocks with circular cuts in the horizontal surfaces, and much pottery. This material suggests that the area was used as an anchorage in antiquity, perhaps during the Byzantine period when the city had expanded well beyond its walls.

¹⁹ Raban, *Harbours* 1, 288.

²⁰ Vann, "Drusion".

²¹ Cf. D. Neev and K. O. Emory in Raban, *Harbours* 1, 3-13.

²² Cf. A. Raban, *Guide to Sebastos: the ancient harbours of Caesarea Maritima* (Tel Aviv 1983) 27, and R. Hohlfelder in *National Geographic Magazine* 171.2 (1987) 261-79 and id., "Procopius, *De Aedificiis* 1, 11, 18-20: Caesarea Maritima and the building of Byzantine harbors," in I. Malkin and R. L. Hohlfelder (edd.), *Mediterranean cities, historical perspectives* (London 1988) 54-62.

Raban in *Harbours* 1, 71-74 and id., "Marine archaeology in Israel," *Oceanus* 28.1 (1985) 59-65.

Harbours 1, 71-74.

N. C. Flemming, A. Raban and C. Goetschel, "Tectonic and eustatic changes of the Mediterranean coast of Israel in the last 9000 years," in *Progress in underwater science* (London 1978) 33-93; N. C. Flemming, "Tectonics and sea levels" in Raban, *Harbours* 1, 13-21 and Raban *ibid.* 74-89.

R. L. Hohlfelder and J. P. Oleson, "Sebastos, the harbor complex of Caesarea Maritima, Israel," in Mary Sears, D. Merriman (edd.), *Oceanography: the Past* (New York 1980) 765-79; Hohlfelder in Raban, *Harbours* 1, 65-71.

Raban *ibid.* 101-4.

J. P. Oleson became co-director for the first major season in 1981; R. L. Vann became co-director in 1982. The first volume appeared in 1989 (Raban, *Harbours* 1); the second, in press, covers the finds of material culture.

R. R. Stieglitz became co-director, responsible for land excavations in 1986-88. K. G. Holum assumed responsibilities for land excavations in 1988.

E.g. J. P. Oleson in *Harbour Archaeology* 165-72; "The technology of Roman harbours," *IJNA* 7 (1988) 147-57; id. in Raban, *Harbours* 1, 51-54 and 127-30.

Most recently in 1989, an initiative taken by the Israeli Department of Antiquities and Museums has charged all scholarly parties to prepare a comprehensive archaeological plan for Caesarea in order to provide direction for future development by various interested groups. This is needed if Caesarea is to resist careless exploitation by commercial interests²³ (although present Israeli law guarantees that future development must accommodate the state's desire to preserve its ancient heritage). An organizational meeting was held in Jerusalem in June 1989 under the guidance of the director Amir Drori. A new land team was formed under the direction of K. Holum, and for 1990 the Harbour Project and the land team joined to become the Combined Caesarea Expeditions. All future work on land and in the water will be closely coordinated and integrated. More discoveries, perhaps the best, lie ahead.

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- 23 R. L. Hohlfelder, "Caesarea Maritima, Israel: a national park and an international archaeological monument under siege," in *International perspective on cultural parks, Proceedings of the first world conference* (Mesa Verde 1989) 132-36.

Urbanism at Caesarea, and the future

Kenneth G. Holum

Josephus emphasized that from the beginning Herod's project at the site was an urban one: Herod selected this particular place on the coast because it was most suitable to receive a *polis*; he built the harbor, royal palace, and public buildings to ornament the city (*AntJ* 15.331). Most archaeologists working at the site have set out to study major features of the ancient city — the Italian team studied the theater, fortifications, and high-level aqueduct (Frova 1965), the Joint Expedition worked on some streets, sewers, and monumental colonnades,¹ while Levine and Netzer gathered much information on urbanism in the late Byzantine, Islamic and Crusader city. The Harbour Project, too, has placed the harbor in the context of Caesarea's overall development.

One priority now should be the recovery of Herod's original design for the city — what Josephus calls a *διαγραφή* (*AntJ* 15.331). Herod built the city essentially *de novo*, and his design would have given expression to current principles of urban planning. Our knowledge of Herod's city is still limited chiefly to the theater and the harbor. Evidence of streets (mostly in their late-antique phase) recovered by the Joint Expedition must be properly published, and extrapolations made about the Herodian street-plan.²

A second problem concerns the date of the North Fortification wall and towers (first uncovered by the Italian team), debated in this volume between Raban and Blakely. Renewed excavations in 1978 and 1980 produced ceramic evidence which Blakely believes supports a Herodian date for the fortifications.³

Urbanism at Caesarea, and the future

Raban, meanwhile, developed a hypothetical plan for Straton's Tower that linked the 'Italian' wall and towers to another wall of similar masonry some 600 m to the southwest as part of the same circuit of the 2nd c. B.C.⁴ In my view, Raban's intriguing hypothesis still lacks a proper basis in the form of stratified ceramic evidence, but Blakely's ceramics have not convinced all that the 'Italian' fortifications belong to Herod.⁵ Until this debate is settled, we will not know the scale and level of originality of Herod's project for a *polis*: we are currently faced with two very different interpretations of the Herodian building program. A street belonging to the grid plan of the city passes through the twin towers in the North fortification wall, indicating that at least part of the grid plan should be pre-Herodian if that wall is indeed pre-Herodian. And if Raban's pre-Herodian dating is correct, no candidate for a *Herodian* fortification wall remains. One course of action now would be to follow the line of the North Fortification wall to the south, by means of ground-penetrating radar, to see if it actually joins to the wall segment 600 m distant.⁶

A third critical area is Herod's temple to Roma and Augustus, which Josephus reports was built on an 'earthen hill' or 'mound' (γῆλοφον, *BJ* 1.414; κολωνός, *AntJ* 5.339). This is presumably the eminence lying just east of the Herodian inner harbor, fronted on its west side by a series of vaults. In the southern vault the masonry of the S and E walls resembles that of the Fortification wall to the north.⁷ Above the vaults on what we now call the Herodian temple platform (area TP) a probable 5th-6th c. *martyrium* has been identified, whose foundations stood on a ridge of the local *kurkar*.⁸ Herod evidently selected a natural elevation for the city's chief temple, and extended it artificially, as he did also with the Temple Mount in Jerusalem. The organic relationship of this temple with the harbor is now clear. Further work is needed to establish how the temple was integrated in the city plan.

Work is also needed in the city's territory. A city was not simply a built-up urban center; it included the *chora*, and its prosperity depended in large part on the efficient exploitation of that agricultural land. Caesarea's was an unusually fertile one; it extended over the northern Plain of Sharon to the north, east, and south.⁹ We need a study of the relative densities of occupied sites in different periods.¹⁰ The recent excavation by Hirschfeld of a rich agricultural villa at Ramat ha-Nadiv on the southwest flank of Mt Carmel, where a fortified villa flourished in the 1st c. A.D., followed by a villa specializing in wine production in the 5th-6th c., illustrates well the importance of the territory to the city.¹¹

The long duration of a city at this site, from the Hellenistic to the Crusader period, permits diachronic study of the factors that brought the city into being, contributed to its prosperity, and at times led to atrophy or severe decline. Debate continues on the later history of the harbor Sebastos: Raban believes that tectonic action and other factors had rendered Sebastos virtually useless by the 3rd c. and that there was no attempt to restore it to its original form,¹² whereas Hohlfelder believes that coins found in the harbor's outer basin indicate that Anastasius put Sebastos back into service in the early 6th c.¹³ The resolution of this question will help resolve whether the prosperity of this city (which, to judge from evidence both within the town and from the *chora*, continued into the late-antique period) depended to

4 A. Raban, *IJNA* 14 (1985) 169-73.

5 The debate has continued: see Raban, *BASOR* 268 (1987); Blakely, *BASOR* 273 (1989); Raban *ibid.*, and the contributions in this volume by Raban, Roller, Blakely and Hillard.

6 D. P. Cole, "Ground penetrating radar — new technology won't make the pick and trowel obsolete," *Biblical Archaeology Review* 14 (1988) 38-40, offers a brief explanation of this new technique.

7 It is this wall that Raban (*supra* p.15) sees as belonging to the fortification walls of Straton's Tower.

8 See p.100 above.

9 See map in *Herod's dream* 76 and M. Avi-Yonah, *The Holy Land from the Persian to the Arab conquest* (536 B.C.-A.D.640): a historical commentary (Grand Rapids 1977) 143-45.

10 Raw data for the Caesarea *chora* are at hand in *Archaeological survey of Israel: Daliya Map* (31) 15-22 (Jerusalem 1981) by Y. Olami, and *Map of Ma'anit* (54) 15-20 (Jerusalem 1990) by Y. Ne'eman.

11 Y. Hirschfeld and R. Birger-Calderon, "Early Roman and Byzantine estates near Caesarea," *IEJ* 41 (1991) 81-111.

12 Raban in Raban, *Harbours* 1, 113, 154, 289-91.

13 Hohlfelder in *Harbour Archaeology*.

1 R. D. Wiemken and K. G. Holum, *BASOR* 244 (1981) 27-52; R. J. Bull *et al.*, *BASOR* Suppl.24 (1986) 31-55.

2 A new project has been developed by the University of Maryland's School of Architecture to create a site plan and architectural data-base, integrating the work of all projects. A laser theodolite and computer-assisted design system will help locate accurately on a plan the known fragments of streets and structures.

3 Blakely, "Date".

ABBREVIATIONS USED FREQUENTLY IN THIS VOLUME

Blakely, "Date"	= J. A. Blakely, "A stratigraphically determined date for the inner fortification wall at Caesarea Maritima," H. O. Thompson (ed.), <i>The answers lie below: essays in honor of Lawrence Edmund Toombs</i> (Lanham, MD 1984) 3-38
Blakely, Vault 1	= J. Blakely, <i>Caesarea Maritima IV. The pottery and dating of vault 1: horreum, mithraeum, and later uses</i> (The Joint Expedition to Caesarea Maritima, Excavation Reports vol.4, ed. R. J. Bull, E. Krentz and O. Storvick, New York 1987)
Frova 1965	= A. Frova et al., <i>Scavi di Caesarea Maritima</i> (Milano)
Gersht 1987	= The sculpture of Caesarea Maritima (Ph.D. thesis, Tel Aviv University)
Raban Archaeology	= A. Raban (ed.), <i>Harbour Archaeology: Proceedings of the first international workshop on ancient Mediterranean harbours</i> (BAR S257, Oxford 1985)
Studies history	= C. T. Fritsch, <i>Studies in the history of Caesarea Maritima</i> (BASOR Suppl.19, Missoula 1975)
Jones	A. H. M. Jones, <i>The cities of the eastern Roman provinces</i> (Oxford 1971)
Herod's dream	= K. G. Holum et al., <i>King Herod's dream: Caesarea on the sea</i> (New York and London 1988)
Kadman	= L. Kadman, <i>The coins of Caesarea Maritima</i> (Corpus Nummorum Palaestinensium vol.2, Tel Aviv 1957)
Levine, Caesarea	= Lee I. Levine, <i>Caesarea under Roman rule</i> (Leiden 1975)
Levine, Qedem 2	= Lee I. Levine, <i>Roman Caesarea: an archaeological-topographical study</i> (Qedem: Monographs of the Institute of Archaeology, The Hebrew University, no.2, Jerusalem 1975)
Levine & Netzer, Qedem 21	= L. I. Levine and E. Netzer, <i>Excavations at Caesarea Maritima 1975, 1976, 1979, final report</i> (Qedem: Monographs of the Institute of Archaeology, The Hebrew University, no.21, Jerusalem 1986)
Raban, "City walls"	A. Raban, "The city walls of Straton's Tower: some new archaeological data," <i>BASOR</i> 268 (1987) 71-88
Raban, Harbours 1	= A. Raban et al., <i>The harbours of Caesarea Maritima 1: The site and the excavations</i> . Results of the Caesarea Ancient Harbour Excavation Project, 1980-1985 (ed. J. P. Oleson) (BAR S491, Oxford 1989)
Reifenberg, "Decline"	= A. Reifenberg, "Caesarea: a study in the decline of a town," <i>IEJ</i> 1 (1950-51) 20-32
Riley, "Hippodrome pottery"	= J. A. Riley, "The pottery from the first session of excavation in the Caesarea hippodrome," <i>BASOR</i> 218 (1975) 25-54
Ringel, Césarée	= J. Ringel, <i>Césarée de Palestine: étude historique et archéologique</i> (Paris 1975)
R. L. Vann, "Drusion"	= R. L. Vann, "The Drusion: a candidate for Herod's lighthouse at Caesarea Maritima," <i>IJNA</i> 20 (1991) 123-39
Caesarea Project	Caesarea Ancient Harbour Excavation Project (elsewhere abbreviated as CAHEP)

Notes to the reader:

We have followed the spelling 'harbour' throughout regardless of the nationality of the authors.

We have followed the spelling 'Straton's Tower' throughout.

For the contributions relating to pottery, the system of references has been used; for other contributions, additional footnotes are employed. References for the pottery contributions are found on pp.125-128.

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