

**THE EXCAVATION AND RESTORATION
OF THE HIPPODROME AT JERASH
A SYNOPSIS**

by
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A summary account of the excavation of the hippodrome in the period 1982-1987 has been published in 1989 (Ostrasz 1989a. Cf. also: Borkowski 1989; Kehrberg 1989; Ostrasz 1989b). The following is a brief report on the excavation and clearance of the monument from 1988 to 1990 and on its restoration from 1985 to 1990.¹ The field work from 1988 to 1990 concentrated mainly on the restoration of the building but a proportion of time and labour force was continuously employed to excavate and clear various sections of the monument and its immediate surroundings. Not surprisingly, the work produced important new evidence for both the architecture and the history of the hippodrome.

Excavation and Clearance

The excavation focused on the north part of the building and on the barrier (*euripus*) and the clearance on the arena and the area east of the building. The excavation of the chambers of the substructure of the *cavea* brought to light two more *vomitoria* in the east half of the building (Fig. 1). One was found in chambers EO1/E1.² It is the type of the *vomitorium* which led up to the median level of the *cavea* (type B, cf. Ostrasz 1989a: 63 and Fig. 3). A *vomitorium* symmetrically located on the other side of the main entrance gate was expected to be found in chamber W2 but the excavation proved that it never existed there. Another *vomitorium* type B was found in chambers E11/E12. The position of these two *vomitoria* being found, the

search for the distribution of all the *vomitoria* in the east half of the *cavea* is now almost completed (cf. jointly Fig. 1 here and Fig. 3 in Ostrasz 1989a); only one more *vomitorium* (no other than type B) can be expected here, in chambers E5/E6 or E6/E7 presently under excavation.

Structural features pointing to the existence of another *vomitorium* type B in the west half of the *cavea* were discovered in chamber W7; chamber W8, currently under excavation, probably houses the other part of this *vomitorium*. Three more *vomitoria* type B in the west half of the building can be expected to exist in chambers W3/W4, W12/W13, and in chambers W21/W22 or W22/W23, not yet excavated.

The excavation of the structure of which the outline was revealed in 1982 in the middle of the north part of the arena (Ostrasz 1989a: 62 and Fig. 3) confirmed that what has survived of the structure is the underground part of the barrier (*euripus*). Its preserved section is 35m long and consists of three basins different in shape and size and oddly irregular in plan (Figs. 1, 2). Basin 3 has four niche-like recesses two of which being roughly trapezium-like and the other two roughly rectangular in plan. At the north side of the basin there is a flight of five steep steps leading down to the basin from the track level. Half of basin 2 was excavated to its very bottom. The walls of the basin are set at a level of 2.5m below the surface of the arena. The level of the highest extant top of the walls is 0.2m below this surface. No evidence for

1. Sponsored, as before, by the Department of Antiquities of Jordan and directed on behalf of the Department by the writer, Warsaw University.

2. The reader will notice a discrepancy in numbering the chambers of the east half of the *cavea* in the plan presented here and in the one published previously (Ostrasz 1989a: Fig. 3). The plan of the north-east part of the substructure of the *cavea* was

based previously on the plan of E.B. Müller and A.H. Detweiler recorded in 1933 (Kraeling 1938: Plan VI). The recent recording of the whole east half of the building proved that the plan was inaccurate - there are 56 and not 55 chambers in this half of the *cavea*. The correction introduced in the present plan affects the numbering of chambers E01(E1) - E9(E10) only; the numbering of all other chambers remains unchanged.

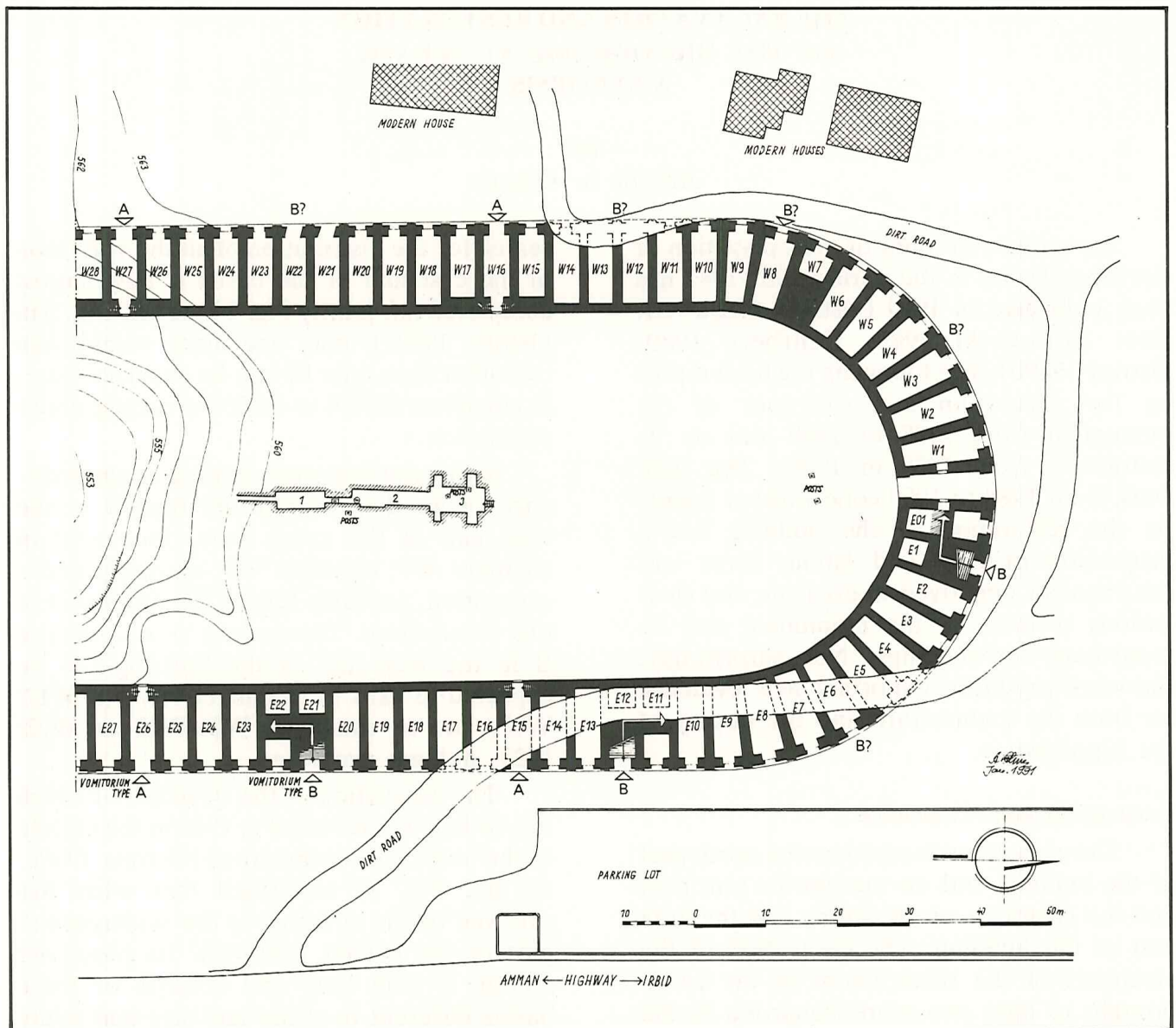


Fig. 1. Hippodrome. Plan of north part.

the architecture of the overground part of the structure was found. There was not found, either, any trace of the structure of the *meta prima* in a series of trenches dug north of basin 3.

The walls of the basins are built of roughly dressed stones, irregular in shape and varying in size, set on red clayish earth and stone chips (Pl. I,1 and 2). Three large carved stones of a frieze manifestly belonging to an earlier building were reused in the stonework of basin 3 (Pl. I,2). Most walls of the basins are bulging inward and the upper parts of the walls of basins 1 and 2 are slanted outward. The bulging apparently resulted from the pressure of earth outside the stonework of the basins. The slant may indicate the existence

of vaults covering the basins but this is only a tentative suggestion as not a single voussoir was found in the fill of the basins. Both phenomena may have been enhanced by an earthquake. There was no flooring of the basins; the bottom of basin 2 is just the surface of earth. Due to the irregularities of the plan of the structure, an exceptionally slipshod workmanship, and a relatively short section preserved it is impossible to assess whether the barrier was or was not oblique to the longitudinal axis of the arena.

The design of the preserved part of the structure is unique in that there is nothing similar to basin 3 in any of the known barriers. However, what is more significantly unusual is its position in the arena. In the

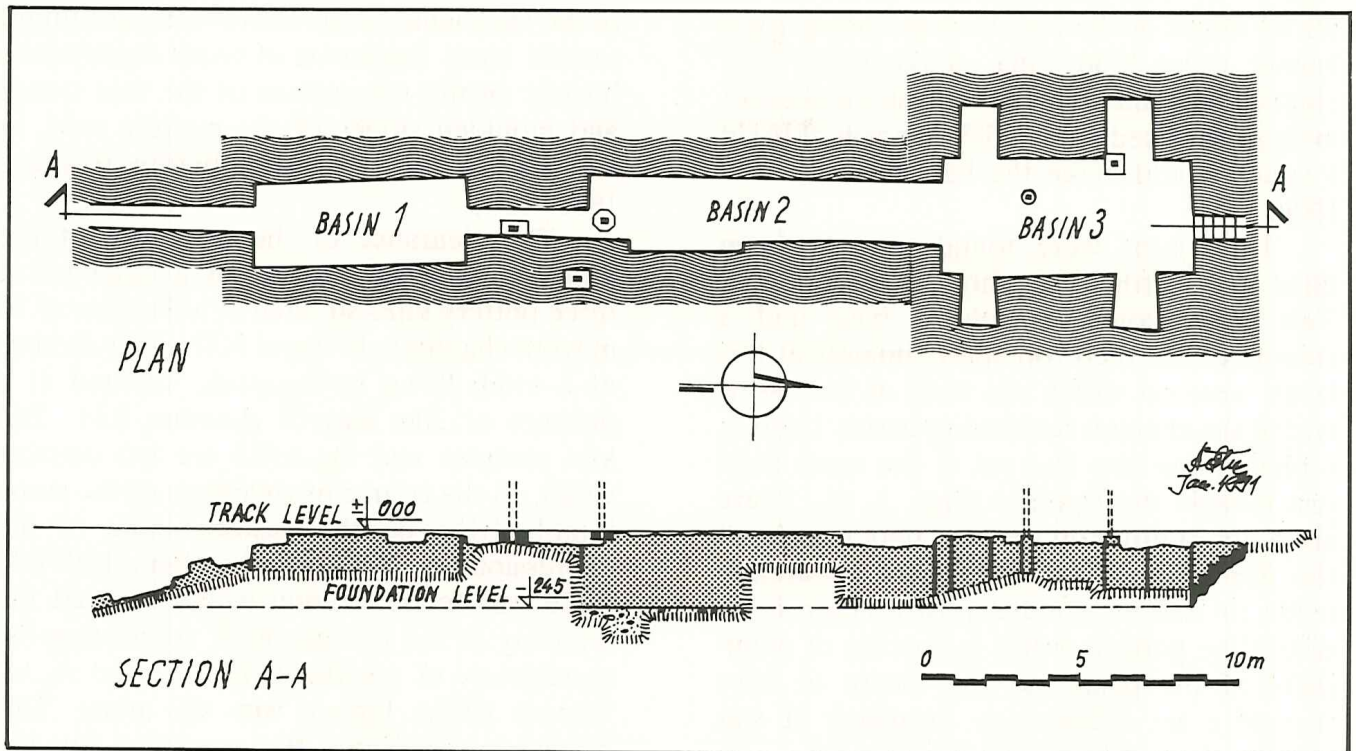


Fig. 2. Barrier. Plan and section.

absence of the *meta prima*, it has to be assumed that basin 3 terminated the barrier and the distance from this basin to the apex of the half-circular side of the arena is as much as 58m. It is 24 per cent of the length of the arena (245m) while in twelve other circuses where the respective data are known this proportion varies from 7 to 14 per cent.³ The length of the barrier itself in the twelve circuses fluctuates around 60 per cent, and the distance from the *carceres* to the *meta secunda* around 30 per cent of the entire length of the arena. If similar proportions were to be applied in the hippodrome the length of the barrier would have been about 150m - less than the shortest barrier known (Dougga: 180m) but close to it. However, the end of basin 3 being where it is, the distance from the *carceres* to the *meta secunda* would have to have been only 40m, a distance defying any analogy with other circuses (the shortest, Dougga: ca.80m; the longest, Lepcis

Magna: 160m).⁴

In this situation there arises the question of why the architect of the hippodrome did not bother to extend the barrier about 30m further northward, which was easily feasible. An explanation can be sought in another unusual trait of the relationship between the barrier and the arena and this is the width of the right-hand track between the niches of basin 3 and the podium wall. The width is only 22m, therefore insufficient for ten racing *quadrigae* abreast. This confirms the view advanced previously on other evidence that although the *carceres* contain ten stalls, not more than five *quadrigae* starting from the five eastern stalls competed in races held in the hippodrome (Ostrasz 1989a: 70). In consequence, a relatively great distance between the *carceres* and the *meta secunda* — necessary in other circuses for the initial stage of the race — was redundant in this particular case; a distance of about 30m would suffice

3. There are three circuses (Lepcis Magna, Tyre, Antioch) where the distance from this end of the barrier (*meta prima*) to the half-circular side of the arena is similar to that in Gerasa's hippodrome (60m, 64m and 68m, respectively) but the arena of those circuses is about twice as long as the arena of

this hippodrome and there the proportion is 13, 14 and 13 per cent, respectively. In the nine other circuses that distance varies from 32m to 45m and the proportion from 7 to 11.5 per cent.

4. For the significance of this trait cf. Humphrey 1986: 18-23.

for all stages of the race thus providing for a barrier about 160m long. A possibility may also be entertained that there was a makeshift *meta prima* fixed about 25/30m north of basin 3 which would make the barrier about 185/190m long.

The basins were found to have been filled with earth to roughly the track level.⁵ Two plain stones, a column base and a column drum, their top approximately at this level, were set within the walls of the basins and of the channel connecting basins 1 and 2; a plain stone was also set at the same level just outside the channel (Figs. 1, 2). There are holes of different size and depth cut in all the five pieces. The holes were apparently made to receive wooden posts. There is no distinctive pattern either in spacing or alignment of the posts but they seem to have formed a set deliberately arranged. It was suggested on other evidence that the north part of the arena served as a venue of a limited programme of games after the hippodrome ceased to be used for chariot racing (Ostrasz 1989a: 73-74); it is tempting to connect the posts with this later stage of use of the building.⁶

The clearance of the north part of the arena of stones amassed there in 1982, followed by the classification of the stones, proved that there were amongst them 450 seat stones, 84 moulded stones of the top course of the podium wall, 18 column drums of various diameters, 6 moulded stones which probably topped the pilasters of the outer wall, 2 corinthian capitals, 2 archivolts which probably belonged to the arches of the main entrance gate, and — surprisingly — 6 stones

of the Hadrianic Arch. There were also found several more fragments of crude inscriptions incised on the top surface of the seat stones and moulded stones of the podium wall, in addition to the ones seen before (Ostrasz 1989a: 54).

The clearance of the area east of the building revealed remains of a complex of three pottery kilns situated at a distance of 10 m from chambers E36 and E37 and a *dromos* of a tomb hewn in the rock, situated at a distance of 20m east of chamber E41. The kiln complex and the tomb are left unexcavated. In the course of clearance of the stone tumble lying on the eastern slope of the depression in front of chambers E25-E36 there was found a lintel which covered the doorway in the podium wall, connecting the passageway of *vomitorium* E26 (type A, cf. Ostrasz 1989a: Fig. 3) with the arena. This discovery completes the evidence for the architecture of the podium wall (Fig. 3).

New evidence for dating the construction of the hippodrome was discovered in the earth fill with which the builders formed the arena (Ostrasz 1989a: 61-62; also Kraeling 1938: 98-99, 101). This is a coin found in the undisturbed layer of the fill, 30cm below the original track level in the north part of the arena. The coin is a posthumous issue of coinage of either Faustina I or Faustina II (identified: THEA FAUSTEINA) struck in Bostra. The advanced stage of corrosion does not allow for a tighter identification. The attribution of the coin to Faustina I (140/141 AD or later) is more probable for the obverse does not seem to bear the name of THEA FAUSTEINA EUSEBE commonly used in

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5. An altar was found in the earth fill of basin 3, in its north-east corner, 1m below the track level. One face of the altar bears faint traces of a crudely incised inscription in Greek, in three lines. Only a few letters are decipherable.
 6. Two reused stones with holes for wooden posts were found in the arena in 1933, 11m south of the main entrance gate (Kraeling 1938: 97 and Plate XVIIb). The one bearing an inscription was still in place in 1989 and its position was recorded then; the other one was not found in 1989 but its position could be reconstructed from Müller's description and photograph. The two stones were set at the

same level and were placed roughly in the zone of the longitudinal axis of the arena, as are the five stones found in/beside the *euripus* (Fig. 1). Although the two stones are about 50m distant from the *euripus*, all the seven stones (seven posts) seem to have formed a common set. On the strength of the position of the stones for the two posts Müller advanced and Horsfield supported a theory of the north part of the arena having been used for polo in the Persian period (Kraeling 1938: 86, 97, 101). With the discovery of the five other stones for five other posts in the arena that theory can be safely buried.

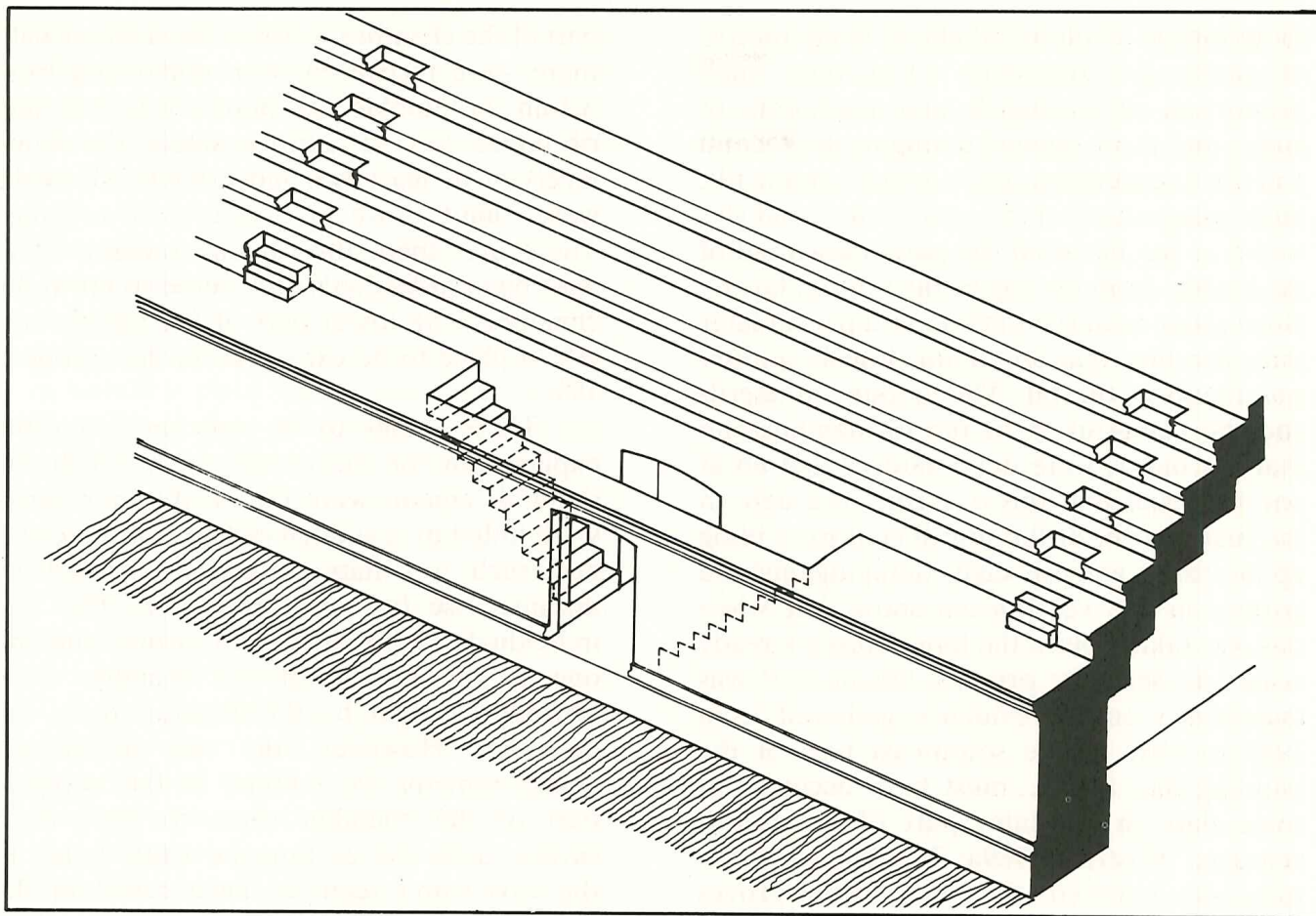


Fig. 3. Podium wall, doorway of *vomitorium* type A and seating tiers.

the posthumous coins of Faustina II (175/176 AD or later).⁷ The coin may have been dropped while the arena was being formed of earth or it may have been brought to the building site in the earth obviously collected somewhere outside the site and therefore it may have been dropped there some time before it was brought to the hippodrome. Whichever case it may be, the evidence of the coin shows that this part of the arena was formed not earlier than in 140/141 AD. This evidence tallies well with other evidence pointing to the construction of the hippodrome in a period within the second half of the second century (Kehrberg 1989: 87; Ostrasz 1989a: 71).

New evidence for the later history of the monument was brought to light in chambers

E1 and W2 and in the basins of the barrier. The staircase of *vomitorium* E1 was found to be filled with a dump of misfired pottery. Two small hoards of coins were discovered in the dump. A hoard of six coins of Licinius I was found at the level of the fifth step of the staircase and another hoard of five coins of Constantine (one coin minted in Siscia in or shortly after 307/308 AD)⁸ was found at the level of the next higher step. The coins firmly date the dump to the first quarter of the fourth century and possibly to a date as early as the first decade of that century.

Potsherds of the same type and ware as those with which the *vomitorium* was filled were found in the earth fill of the basins of the barrier.⁹ The amount of sherds collected from the fill is exceptionally great — several

7. As previously, for recording and identification of the coins I am indebted, with gratitude, to Ch. Augé, CRNS.

8. The coins were identified after only a preliminary cleaning; a tighter dating may be hoped for after the

final cleaning.

9. As previously, the recording and identification as well as the study of the ceramic material from the hippodrome is being taken care of by I. Kehrberg; to her I owe all the information presented here on the subject.

thousands in a volume of about 70 cu. metres of earth. An admixture of a very small proportion of potsherds and fragments of lamps and *terra sigillata* dating to the second and third centuries was also present in the fill. Such composition of the ceramic material was found in the fill of all the parts excavated of the basins, from the top to the bottom layers. No ceramic material datable to a period later than the first quarter of the fourth century was found in the fill. The amount of sherds and the composition of the fill demonstrate that the basins were deliberately filled up at one time and that this occurred at a date in the first quarter of the fourth century. Filling up the basins and especially dumping misfired pottery in the *vomitorium* show that when this was taking place the hippodrome already ceased to serve its primary function. It was maintained on the evidence gathered from 1985 to 1987 in the south-east part of the building that this "...must have occurred at some date in the later part of the fourth century;" (Ostrasz 1989a: 73). This view has to be now recanted - the new evidence proves that the hippodrome ceased to function in the first quarter of that century at the latest.¹⁰

An unexpected, and to say the least, dramatic discovery was made in the course of excavation of chamber W2. The upper part of the chamber was (and its lower part still is) filled with tumbled stones of the *cavea* (mainly the seat stones and voussoirs of the stepped arches). Human skeletal remains were found under the removed upper part of the tumble and within the tumble. This is not the case of a burial. In the north-east corner of the chamber, in an area 1.5m by 1m large and at approximately the same level, were found five skulls, all cracked, with parts missing. Directly over the skulls there were hand and arm-bones, even rib-bones and at the level of the skulls lay some vertebrae. In this area and at this level no pelvis or leg-bones were found. In the middle of the chamber there are remains (left in place) of another skeleton. In the extreme opposite

part of the chamber, close to the podium wall, there were recovered from under and from within the tumble the pelvis, leg, arm and rib-bones (all at approximately the same level) of at least two individuals. No skulls were found above or beside these remains. There are, then, the skeletal remains of at least eight individuals discovered so far in the chamber. The lower part of the tumble was left in place to be excavated in the spring of 1991.

There seems to be only one plausible explanation for the condition in which the skeletal remains were found: the individuals were killed by a sudden collapse of the *cavea* and such a collapse could be caused by nothing else but an earthquake. The five individuals in the north-east corner and the one in the middle of the chamber were obviously caught by the disaster inside the chamber. However, the two individuals whose remains were found in the opposite part of the chamber seem to have been surprised by the earthquake while being in the *cavea* and seem to have caved in the chamber together with the tumble; their skulls may be found in the lower layer of the tumble.

So far, there is no evidence for dating the occurrence. It is expected to be found when the occupation level of the chamber is reached. However, some tentative suggestions may be advanced already at this stage.

The earthquake occurred in the period of reoccupation of the hippodrome. This is evidenced by a well preserved intrusive doorway built within the original doorway of the chamber — a feature found in most excavated chambers of the building (Ostrasz 1989a: 55 and Fig. 2). The *terminus post quem* for the reoccupation is a date in the first quarter of the fourth century or, possibly, even slightly earlier (*supra*) and this is the *terminus post quem* for the disaster. However, a much later date should be considered. In 748(747) AD an earthquake destroyed the south-east part of the hippodrome (Ostrasz 1989a: 75) but

10. The pottery of the types and ware that was found in *vomitorium* E1 and in the *euripus* has been dated on the stratigraphical evidence at other sites to a

period from the end of the third throughout the early decades of the fourth century.

considering the situation found in chamber W2 it seems rather dubious that this earthquake was responsible for the collapse of the masonry of the chamber. The fact that the bodies of the people killed in this disaster were not recovered from the rubble for burial bespeaks a period of a great decline of the Gerasene community in every respect. What is presently known of the history of Gerasa in the last decades of the Umayyad period is not compatible with such a degree of decline.¹¹ The date of this earthquake may, therefore, be as late as a date in the Late Abbassid or even the Early Mamluk periods.¹²

Restoration

The idea of restoring the hippodrome originated in 1982 in the Department of Antiquities. The task of working out a general programme of the restoration was entrusted to the Polish Team of the Jerash Project for Excavation and Restoration. The programme, elaborated by the leader of the team, M. Gawlikowski, and the writer was presented to the Department in January, 1983 (unpublished, archives of the Department). The programme laid out the following three main operations:

- exposition, consolidation and display of the extant stonework of the building by way of clearing its immediate surroundings and excavation of its structural remains;
- initial restoration of selected parts of the monument, relevant for the perception of the general architectural form and function of the hippodrome;
- depending on the results of the complete excavation of the monument and on evidence and the original building material available, a reasonably extensive restoration of the whole building within the frame

of the generally accepted principles of restoration of the monuments of architecture.

The programme anticipated a possibility of preparing the south part of the arena for modern use (sports and/or public entertainment activities) and of providing respective facilities for the spectators in the place of the south-west part of the *cavea*, destroyed here to the foundations. The programme accepted, the restoration work started in the last weeks of 1984 and has been carried out since then without interruption and according to plan.

The parts of the building being restored are the south-east section of the *cavea* (chambers E44 - E55), the east half of the *carceres* and the arena. The restoration work was done first in the south-east section of the *cavea*. This choice was dictated by the fact that by the end of 1984 this section, relatively well preserved, was excavated more extensively than any other part of the monument and therefore provided sufficient evidence for rebuilding partly or completely all constituents of the structure of the *cavea*. The evidence allowed for planning the rebuilding of the outer wall up to a height of 3.5m (six courses of masonry) and parts of the transverse walls to approximately the same height, a complete rebuilding of a stretch of the podium wall and the flight of steps of *vomitorium* E44. It also allowed for a limited restoration of a part of the *cavea* proper (four pairs of the stepped arches and two rows of the seating tiers over them). The restoration of this section of the building is almost completed (Pls. II and III); there are still to be restored the arches over the doorways and the sixth masonry course of the outer wall.

The principle applied in the restoration of this section of the building can be termed

11. The recent students of the history of Gerasa tend to view Gerasa of the Umayyad period as an important urban centre. A tendency of overstressing the importance of Gerasa in that period is detectable but there can be no doubt that Gerasa of the Umayyad times was still a centre of some substance. For an early view on the subject cf. Kraeling 1938: 68-69. Of the recent studies cf. in the first place Gawlikowski (in press and 1986: 120-121). Also: Bitti (1986: 191-192); Schaefer (1986: 411-450); Zayadine (1986: 18-20); Naghawi (1989:

219-222).

12. A sedentary community at the site of ancient Gerasa is attested to have occupied, perhaps intermittently, the North Theatre in the Late Abbassid and Mamluk periods. cf. Bowsher, Clark in F. Zayadine (ed.), *Jerash Archaeological Project 1981-1983, I*. Amman:237, 240-241, 243, 247, 315. The situation found in chamber W2 fits a picture of such an occupation rather than that in the earlier periods.

as 'pseudo-anastylosis'. Most of the stones used to rebuild the masonry are the original stones recovered from the tumble (Ostrasz 1989a: 54) but they are not set in their exact original position for lack of this kind of evidence. Understandably, a number of the stones used are newly cut ones.

After the completion of excavation of the *carceres* in 1986 the restoration work focused on this structure. The unexpectedly complete evidence for the architecture of the *carceres* and an equally unexpected large amount of the original stones of the structure found in the tumble (Ostrasz 1989a: 54, 67 and Fig. 4), provided a solid basis for a complete restoration of the north façade of the whole east half of the *carceres* and for a partial restoration of its west half. A graphic anastylosis of the façade of the east half of the *carceres* was published in 1989 (Ostrasz 1989a: Fig. 5). The working project for the actual anastylosis follows the graphic anastylosis with insignificant changes and few completions (compare for example Fig. 5 in Ostrasz 1989a and Fig. 4 here). The restoration of this half of the *carceres* started in 1987 and is presently nearing completion (Pl. IV, 1).

The restoration of the arena (in other words filling up the deep depression extending over about two-thirds of the original track level, cf. Ostrasz 1989a: Fig. 3) was a project considered tentatively and with some reservation till 1985. Before that date it could be argued that the depression was only a late and not an original feature of the site but there was no definite evidence for this.¹³ Such evidence lacking, the restoration of the entire track level was likely to run a risk of being a restoration of a feature obviously planned but possibly not realized by the builder of the hippodrome — a risk which many a restorer would hesitate to take. Fortunately, the discovery in 1985 of the altars of which four bear inscriptions (Borkowski 1989: 79-83) and

which once stood on top of the *carceres*, provided the unequivocal proof that the hippodrome had functioned and, what follows, that the track level had been fully formed. This established, the operation of refilling the depression started in 1986. About 25000 cu. metres of earth were necessary to fill it up. The refilling progressed at an intermittent pace but presently it is nearing completion (Pl. IV, 2 and 3).

Summary

When the excavation started in 1982 only generalities and a few disparate details of the architecture of the hippodrome were known and only conjectural views on its history could be referred to. The recent eight years of work brought about a decisive progress in both respects.

The plan of the building has been arrived at in almost every detail; what remains to be found in this respect is the exact position of four *vomitoria* out of the twenty which existed in the building. Very little remains to be looked for in order to complete the evidence for the third dimension of the lower half of the structure of the *cavea*. There still remains to explore the chance of finding evidence for the architecture of the upper half of the outer wall by excavating the area outside and along the north-west part of the building, which was so far not possible.¹⁴ There are only minor *lacunae* in the knowledge of the architecture of the *carceres*. The existence of the barrier is firmly attested. On the whole, there is solid architectural evidence for the study of how the sport of chariot racing functioned in this circus and of how the building catered for the requirements of the spectators.¹⁵

The history of the building has been unfolded and evidence for dating its main successive phases was found. It made possible to place the period of construction between

13. For the discussion on the subject cf. Kraeling 1938: 98-99, 101-102 and Ostrasz 1989a: 60-62.

14. There are three modern houses in this area and there is a dirt road passing along and partly over the remains of the outer wall of chambers W5 - W14

and used by the inhabitants of the housing quarter which spreads immediately west of this part of the monument (Fig. 1).

15. This subject will be discussed in detail in Chapter VII of the monograph "The Hippodrome of Gerasa. A Provincial Roman Circus", in preparation.

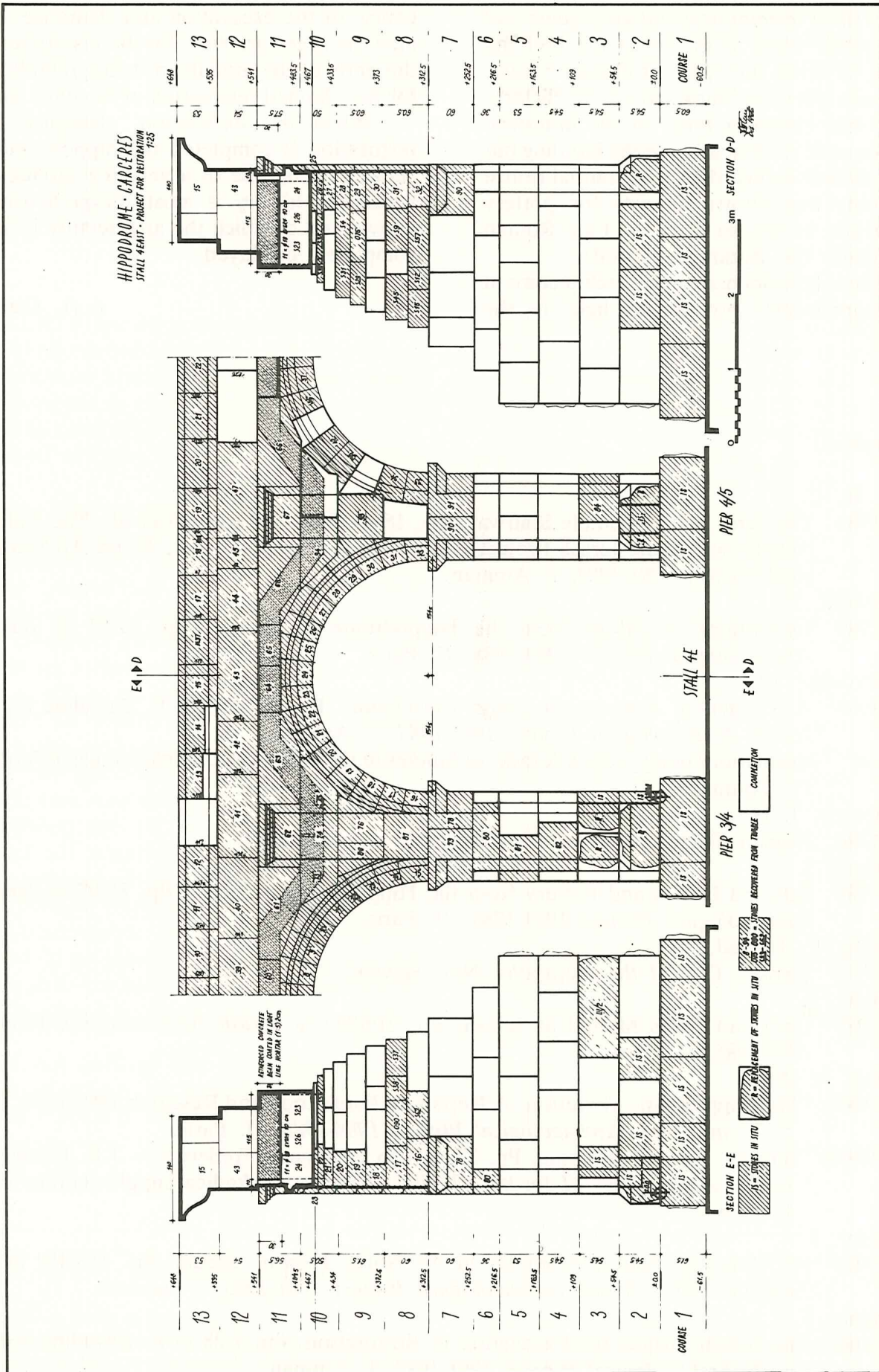


Fig. 4. Carceres. Stall 4E. Working project for restoration.

strictly fixed *termini post* and *ante quem* and to establish when at the latest the building ceased to serve the sport of chariot racing. There are still a few blank spots in the history, about four centuries long, of the industrial and domestic reoccupation of the building but it has already emerged as a substantial centre (the only one known as yet) for pottery production in Gerasa from the Late Roman throughout the Byzantine periods.

The solid evidence for the architecture of the hippodrome, brought to light in the

course of the excavation and clearance, created the necessary basis for the restoration of the parts of the monument being rebuilt and for the planned restoration of its other parts.

When the excavation, clearance and restoration is completed the hippodrome at Jerash will be one of a very few circuses of which the history is most comprehensively known and of which the architecture is most completely displayed.

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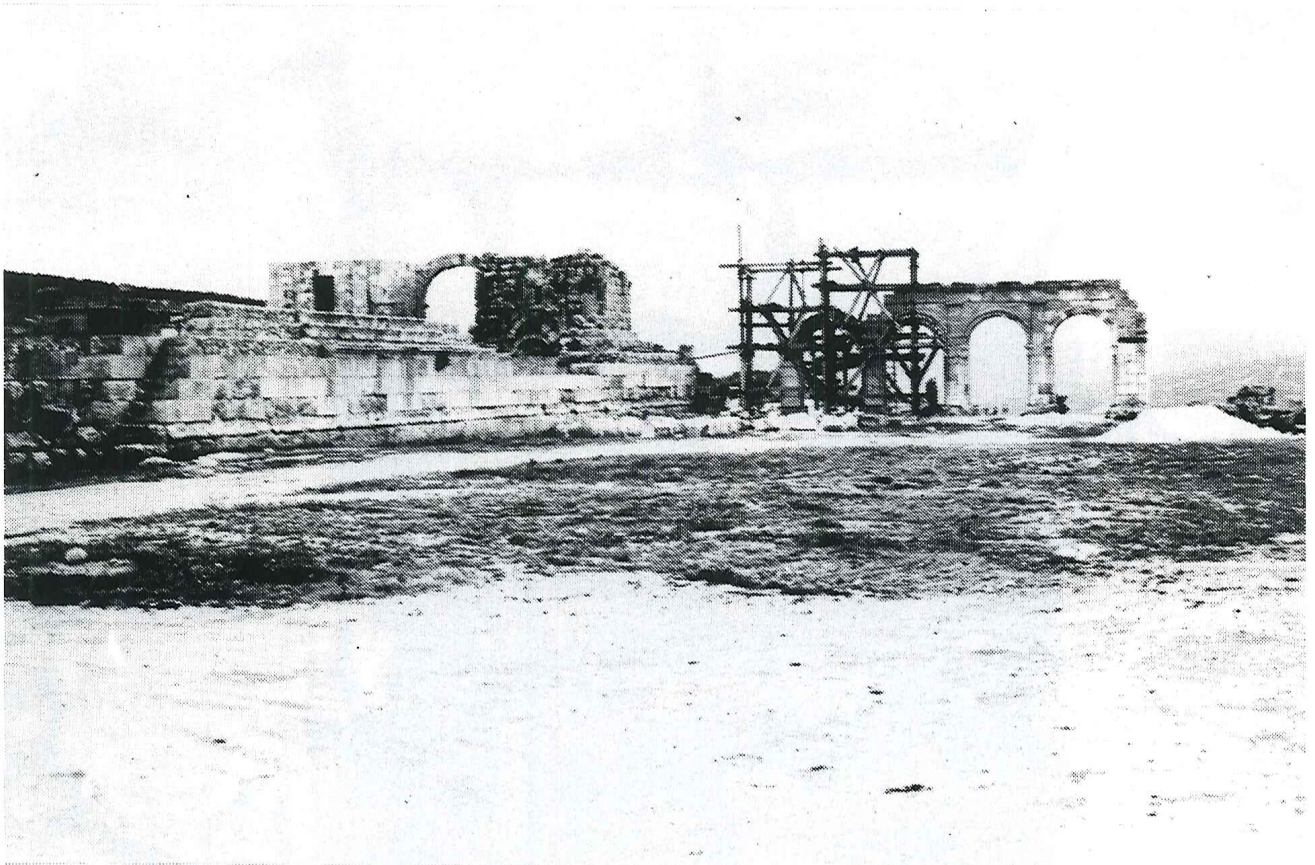
1. Barrier. Wall of basin 2.



2. Barrier. Niche of basin 3.



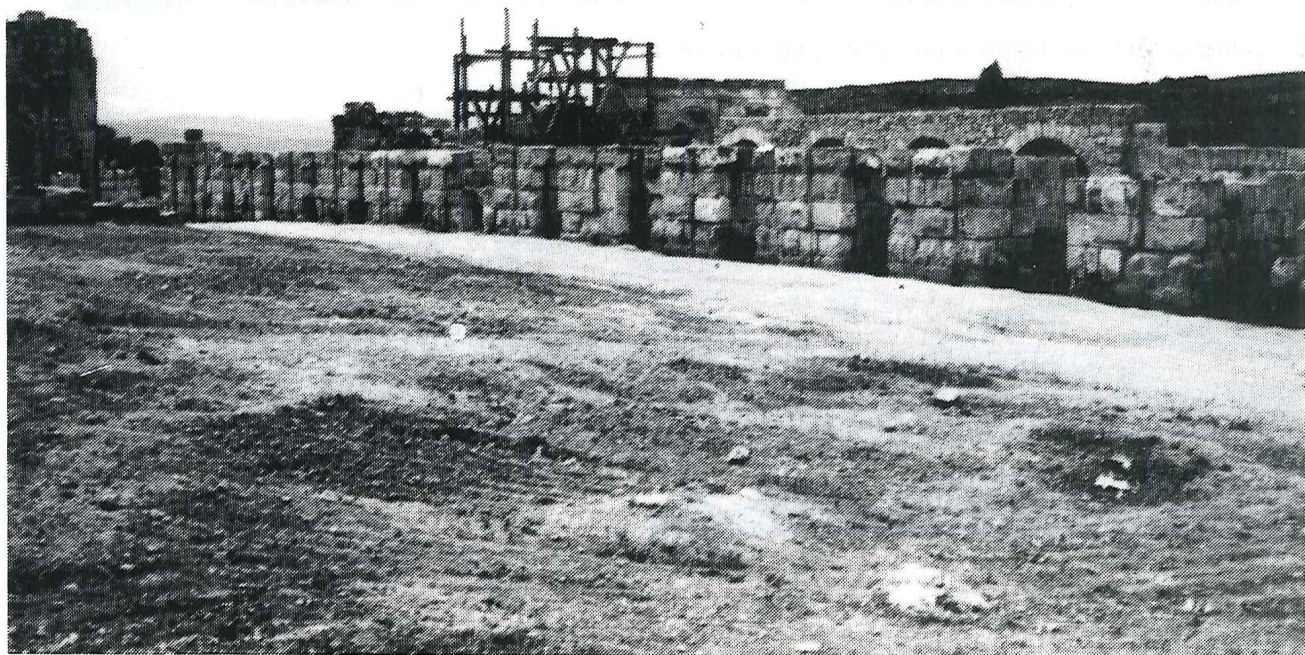
1. Podium wall and *carceres* in 1984.



2. Podium wall, part of *cavea* and *carceres* in 1990.



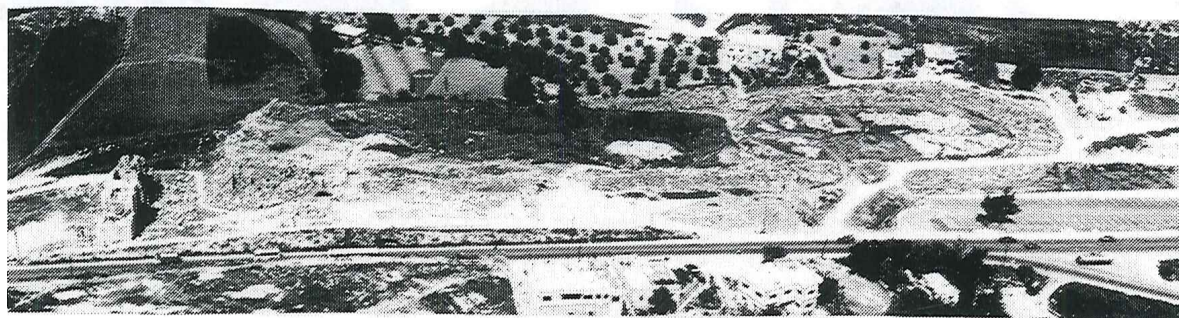
1. South-east section of the outer wall in 1984.



2. South-east section of the outer wall in 1990.



1. East half of *carceres* in 1990.



2. General view of hippodrome from the east in 1984.



3. General view of hippodrome from the north in 1990.