

ARCHAEOLOGICAL RESEARCH ON MEDIEVAL PETRA: A PRELIMINARY REPORT

By
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Petra in the Territorial Fortification System of Crusader Transjordan

1.1. The inquiry conducted by the inter-university archaeological project of the Universities of Florence, Urbino, and Salerno since 1987 has started with a precise historical purpose, a specific archaeological motive and methodological approach.¹

The historical purpose of the project has been to define the characteristics of European settlements in the region of Transjordan during the 12th century - the 'first generation' of the Crusader presence in the Holy Land,² - with particular regard to the manner in which this presence took root in the territory and to its relationship with the local culture. A very unic environ-

mental situation, the original characteristics of which are probably more evident than those of any other area in the Latin Kingdom of Jerusalem.³

The intention of the archaeological inquiry, conducted with these objectives in mind, has been to offer an original contribution to the history of Transjordan based on the material evidence and on stratigraphic methodology: a way for reconstructing the characteristics, chronology, and dynamics of the settlement, with special consideration to the profound changes introduced by the Europeans. Crusader sites in Transjordan, which in the majority of cases involve 'lost villages', are usually preceded and then followed by cultures that are radically different and, therefore, have easily recogniz-

1. The excavation, directed by the author (G. Vannini), has been fortunate in receiving the support of the Ministry of Foreign Affairs and the Ministry of the University, as well as that of private sponsors. The research projects were carried out thanks to the cooperation of the Department of Antiquities of Jordan, in particular the Director-Generals Drs. Ghazi Bisheh and Safwan Tell, and of Deputy Director Dr. Fawzi Zayadine. We are particularly indebted to Suleiman Farajat for his valuable assistance in the field. A special thanks goes to the staff of the Italian Embassy in Amman for their courteous and efficient assistance, in particular His Excellencies, the Ambassadors Francesco de Courten, Luigi Amaduzzi, and Romualdo Bettini, the First Secretary Dr. Guido Cerboni, and Dr. Giovanni Benenati. Andrea Vanni Desideri collaborated in writing this report, especially the sections on the surface survey methodology (2.3) and the artifacts (3.3). The maps were drawn by Riccardo Berretti (Figs. 5, 8, and 9) and Andrea Vanni Desideri, and the photos are by Anna Marx Vannini. The translation into English is by Anna Moore Valeri.

2. In this regard, see the brief but lucid pages describing the Crusader fortresses during the first century of the Latin Kingdom of Jerusalem by Pringle 1989; 1991. The area described there however, refers almost exclusively to Palestine.

3. The historical-archaeological study of the Crusader period settlements in Transjordan was started in 1985 with our friend Franco Cardini who, in collaboration with Massimo Papi, still directs the historical-documentary study of Transjordan in the 13th century (Cardini 1987). Brief scientific communications and preliminary reports have been given (Vannini 1987; 1988; 1990a; Marino (ed.) 1988-1989; Vannini and Vanni Desideri 1991). Among the publications of a less specialized nature, we wish to mention Marino 1991, and Vannini 1990b. Besides several students from the University of Florence, archaeologists Paolo Peduto (University of Salerno) and Diletta Romei, architects Riccardo Berretti, Mohammad 'Ali al-Khatib, and Roberto Sabelli participated in the various archaeological projects, as well as Anna Marx Vannini for the photographic survey.

able material remains. Those archaeological conditions provide excellent potential for offering specific and precisely dated archaeological material.⁴

This historical-archaeological project was started with a systematic investigation of the written sources and of the topographical evidence of the period. It includes two other directions of inquiry: an archaeological study involving issues of construction and restoration,⁵ and a mineralogical study that aims first at defining the geological formations and then concentrates on conservation efforts, and technological studies of the building materials and ceramics.⁶

1.2. In accordance with this plan, a rapid but systematic survey was conducted of the entire defensive system of Cru-

sader Transjordan, with particular regard to major sites of the 12th century, some sites of the ancient Roman-Byzantine *limes arabicus* and sites ascribed to the territorial organization of the Umayyad and Ayyubid dynasties.⁷ The purpose of this survey was to define the topographical characteristics and the dynamics of settlement by the Europeans in the region in relation to the local cultural traditions and environmental conditions. In particular, the methods and the phases of arrival of the Europeans had to be re-examined in order to better understand the dynamics and the criteria for the appearance and growth of the imposing network of castles and fortifications built to protect the King's Highway which, in fact, represent the easternmost defensive apparatus in the Kingdom.⁸

4. History and archaeology are often parallel. Even when they deal with analogous problems, situations, or even documents, they often end up having approaches that while similar, do not offer any real possibility of matching the synthetic data typical of historical research (and documents) with the analytical data typical of archaeological research. On the other hand, in those rare cases where this occurs, historical research can be carried out in particularly favorable conditions. This is the case in our exploration, where we have both a stratigraphic exploration carried out in optimal conditions and an unusually complete historical record of the period regarding the 'origins' of the Western presence in the Holy Land. In this regard, see the discussion on some of the historical and environmental characteristics and their influences on the archaeological aspects in Vannini 1987.

5. See the contribution by L. Marino Pp 91-98 in *SHAJ*. Since 1992 the scientific direction of this section, greatly amplified and renewed, has been entrusted to Marco Bini (University of Florence) and Pietro Ruschi (University of Udine).

6. The petrographic contribution is by Roberto Franchi of the University of Urbino. In its early phase this project attempted *inter-disciplinary* col-

laboration with a *multi-disciplinary* approach. In other words, along with the specific fundamental archaeological contribution, we tried to include differentiated programs that could proceed independently in dealing with specific problems, so as to enrich and sustain the data supplied by the excavation.

7. Regarding some of the characteristics of the fortified settlements of Late Antiquity along the *Via Nova Traiana* or King's Highway, see Hart 1986; a defense that must have been virtually abandoned by the Byzantines from the middle of the sixth century (Dounceel-Voute 1991).

8. These structures represent an aspect of the intense building activity that, as has been often observed (most recently by Prawer 1972 and Cardini 1987: 93), cannot be considered as planned. According to what now seems to be appearing in Transjordan, at least along the arteries of communication between the major potentates of the region, Syria and Egypt, the building activity is distinguished by a kind of progressive 'rationalization' in the location of the settlements within the territory and an adaption to its historical and environmental 'vocation'. We believe this aspect is emerging quite clearly for Petra.

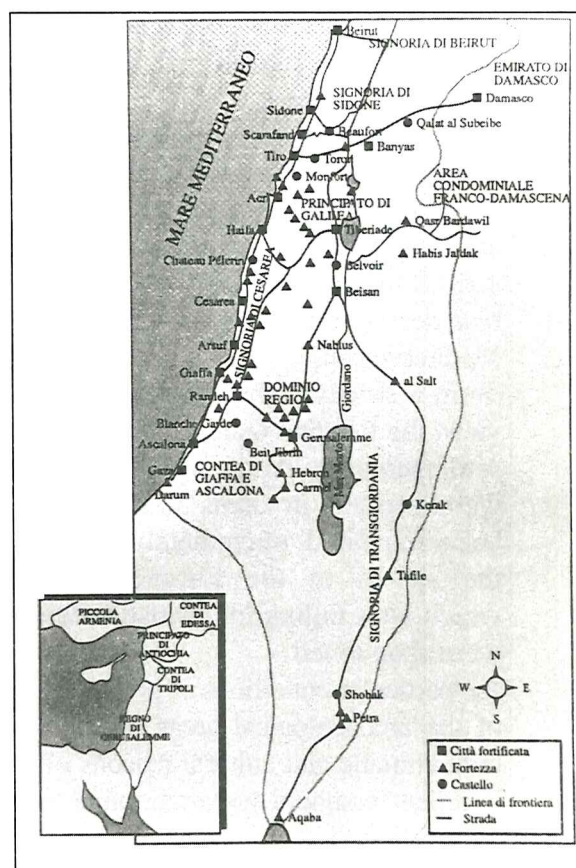
It is significant that among the first acts of European intervention in this area - all of which can be dated to the first fifteen years of the 12th century - were the conquest of the ancient strategic position at Karak, the construction of the Castle of Montreal (ash-Shawbak) by Baldwin I and, perhaps even more important, a coordinated project of fortification in the region of Petra. This construction program was completed in a quarter of a century and involved the entire pre-desert fertile area between the Yarmūk River and the Red Sea. The political geography of the region was rapidly redrawn, as far as its internal organization was concerned, by the newcomers from the West, and the external balance of power was redistributed among the Muslim potentates in Damascus and Cairo (Fig. 1).

The funding of the Transjordan Lordship, which brought about the establishment of al-Karak as its capital in 1142,⁹ represented an unexpected success for the region. This was true not only from a military point of view, as it assured the boundaries of the Latin kingdom - the purpose of the first phase of royal intervention - but also in a broader sense, since the kingdom took on a new role that showed all the signs of a resurgence of its ancient identity. The growing autonomy and the spirit of independence of the lords of Transjordan - for example the remarkable and emblematic figure of Reynaud de Chatillon - can safely be attributed to the beginning of a reaffirmation of an autonomous and original (though ancient) broad territorial role. A function that the regional 'state' had taken on, rather than a generic spirit of feudal anarchy

(which was, to be sure, wide spread, but no more here than among the rest of the aristocracy of the Kingdom).

What could this role be if not a historical one, as has so often been demonstrated in the past, in different contexts and different periods in this crucial region of the Near East, a boundary between two cultures and civilizations different and yet complementary to each other, and a bridge between the vast routes of the ocean and the desert and the great emporia of the Mediterranean?

- 1.3. The choice of the area around Petra as the object of this inquiry is, therefore, due to the fact that in this region the



1. Locations of the Crusader states and the main fortified sites in Palestine and Transjordan including the eastern border line.

9. See Runcimann 1951-1954, vol. II: 230-232.

first survey results showed particular characteristics that seemed to represent the range of the entire settlement system in Transjordan, as well as indicate a central role for Petra that would appear to have influenced the entire territory.

It is possible to identify four basic historical and archaeological characteristics that make Crusader Petra a site of prime importance for understanding not only its role in the territorial system of 12th century Outre Jordan, but, above all, the nature of the Western presence in this region:

- the clustering of settlement of the area in the Crusader period, which would lead one to believe that the newcomers from the West consciously attributed a major importance to Petra in the new territorial government of the entire Transjordan region;
- a significant similarity in the historical-territorial role, the extent of which is yet to be determined, between ancient Petra and Sela' and what has already been described for the region between the Arabian deserts and the coastal cities of the Mediterranean;
- from a strictly archaeological point of view, the fact that many of the fortified settlements built by the Crusaders were erected in areas that had not been inhabited immediately prior to the arrival of the Europeans, and which after falling into Muslim hands were abandoned;
- the particular conditions of preservation of the archaeological areas, which for both climatic and cultural reasons offer excellent potential for stratigraphic interpretation.¹⁰

As the archaeological inquiry proceeded, it became clear that the Cru-

sader settlement in Petra played (though only briefly) a specific territorial role, which required that we extend our systematic research to the entire valley and the surrounding area. This research would help define the main events - in particular the various phases and the manner in which the ancient caravan city was abandoned in the early Middle Age - and the environmental characteristics of the 12th century at the appearance of the Westerners on the traditional and apparently consolidated local scene.

For this reason we began a specific study in order to determine the causes, the characteristics, and the period of abandonment of the valley, and in order to evaluate the new territorial function that the Crusaders seem to have attributed to Petra. Without going into specific details of the research itinerary, it is possible to make a few general observations, in the form of working hypotheses on the basis of the information already available.

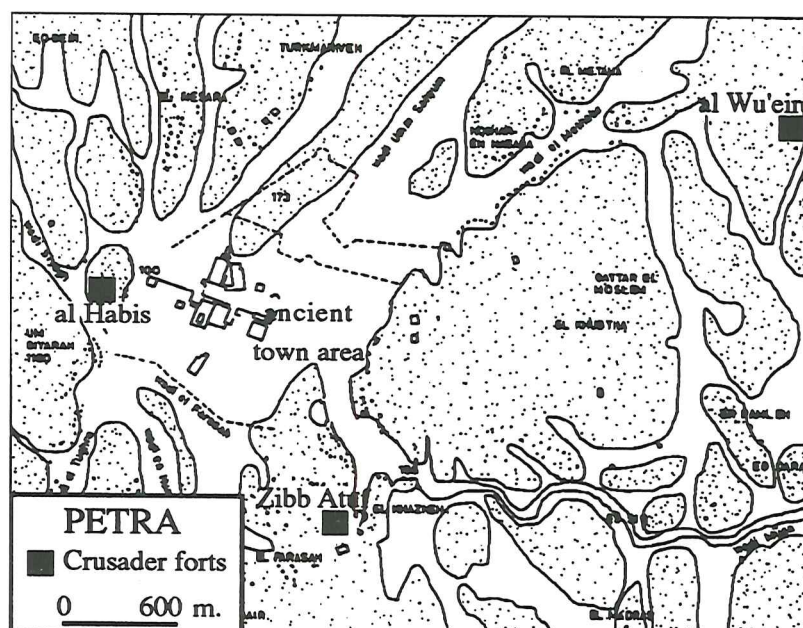
The planned nature of the Crusader settlement at Petra is apparent, for example, from the distribution of the fortified sites built almost simultaneously in the valley. The building program must have begun in the first decade of the 12th century. The objective behind the construction of the major fortress of al-Wu'ayra, which controlled all main access roads, and of the internal fortifications of the heights at al-Habis and (probably) at Jabal Atuff, was to gain control of the bottom of valley and to make Petra a safe and strategically well located town by taking advantage of its favorable environmental conditions (Fig. 2).¹¹

The series of castles, protected ar-

10. See Vannini 1987: 14.

11. See the accurate survey conducted in the area of the fortress of al-Habis by Hammond (1970),

whose observations concerning the organizational characteristics of the Crusader site may still be considered valid both from a strategic (military)=



2. Crusader forts around the ancient Petra area.

eas, billets and strongholds were all part of a planned system, in order to control the valley (al-Ḥabis and Jabal Atuff), the entrances (al-Wu'ayra) and the access roads (Bayḍa and Shawbak). This fortification network made Jabal ash-Sharā the strategic center of all southern Transjordan; it is therefore not surprising that this area was later set up as a lordship.¹² Numerous factors tend to indicate that this fortified network should be considered strategic and territorial rather than tactical and military. In other words, this latter role should be considered as due to the creation of a center for wide range logistic and regional control. For example, the lack of maintenance ser-

vices inside the Crusader fortresses of Petra - at al-Ḥabis,¹³ but also at al-Wu'ayra - can be interpreted as an indication that the headquarters of the European newcomers were located elsewhere, and specifically, within the carefully guarded bottom of valley.

This program was carried out with energy and determination within a period of a few years; the fundamental structures, part of a vast regional project, were completed by the second decade of the 12th century. The program laid the foundations for the rapid though ephemeral re-emergence of the historical conditions that had already constituted twice in the past the basis of the fortunes of Petra.

=point of view and from a territorial (political) point of view, as far as what we propose here is concerned

12. Although the schematic nature of his classifications needs to be attenuated, all the conditions that Runcimann (1951-1954, vol. III: 370) distinguished as the distinctive ones in fortified Crusader settlements can be recognized at Crusader Petra, at least as it has been interpreted here: a strong natural position; particular attention paid to the static defenses (thickness and

width of the walls, for example), considering the lack of human resources; reciprocal visibility between the forts for quick mutual defense; defended space for supplies, food, herds, and logistic support. If we consider the control of the valley of Petra as the real objective of the fortifications located here, all of these conditions are present and to the highest degree.

13. Hammond 1970: 27, was puzzled by the absence of storage spaces, cisterns, etc

However, the defeat at the Horns of Hittin in 1187 caused the Crusaders to quickly abandon all of Transjordan; the different traditions of settlement culture and the strategic requirements for territorial defense made this departure, on the whole, both total and final for all the strongholds and castles controlled by the Crusaders, and above all, for the 'system' of the Crusader presence in the territory, which, planned or not, had constituted the basis of European settlement in the region.

What we are dealing with here is, therefore, a series of highly productive and historically special archaeological conditions, with both optimal conditions for stratigraphic exploration and a particularly complete picture of the period of the origins of the Western presence in Transjordan, and its relation to both local and regional cultures.

Al-Wu'ayra, the Key to Petra: Outline for a Topographic Reading

2.1. The fortress of al-Wu'ayra (*the Frankish Li Vaux Moises*) was first selected for systematic exploration during the archaeological survey in 1988. The field archaeological survey revealed a structure within the city walls that had a much more complex topographical organization than any other observed up to that time.¹⁴ The interior of the settlement itself presented strategic objectives that must have been also those of the Nabateans, as can be deduced from many indications concerning the use of the the grounds (walkways, cisterns, various types of traces of rock

work, sporadic artifacts), and that made it possible to visually control the two main accesses to the valley of Petra.

2.2. An exhaustive and systematic survey conducted on the field revealed that the protected area included within the site's line of defense was much more extensive than just the castle and the area immediately within the surrounding walls that are now visible. In fact, it was possible to distinguish faint but significant traces of occupation, dwellings, internal passages, and defenses that made the extent of the entire Crusader complex (organized as a planned system and protected by a series of walls supported by towers) both remarkably consistent and efficiently organized, spreading north-south along the valley of Petra for about one km, and with an average width of 200 m (Fig. 3).

This system at a certain point began to assume an extent and complexity that was original and up to now unexpected, with specific topographic and architectural solutions comparable to those found in better preserved Transjordanian fortresses like al-Karak. At the same time it began to take on a strategic role of prime importance.

In fact, the castle was clearly located in order to occupy entirely a complex, rugged rock formation made up of a network of projections, crevices and ledges, naturally defended by deep wadis on all sides. In other words, the obvious intense building efforts dedicated to the great fortress of *Li Vaux Moises*, as well as its expensive top-

14. After the superficial exploration by Savignac (1903: 115), which, however, were of great documentary importance for indicating the presence of some of the monumental characteristics (like the apse of the church), which are no longer pre-

served - the planimetric drawing (which is both schematic and inaccurate) by Musil (1907: 64) continues to be used in recent studies (Hammond 1970: pl. V; Brown 1987: 270).



3. View of the protected area in the northern portion of the castle of Wu'ayra. In the background, the *cassero* (see Figs. 5,I; 8-9), with the corner tower (B), limit tower (H) and the church (G).

ographical location, make it clear that its strategic function gave the Crusader settlement at Petra an importance of the first order. The castle controlled the King's Highway along the segment that came from ash-Shawbak (*Montreal*), making the reoccupation of the ancient Nabataean capital - after a period of abandonment lasting almost half a millennium - the focal point (together with al-Karak, and probably even more so than ash-Shawbak) of the entire system of defense and colonization of the lordship of Transjordan.

Another aspect that became clear from the series of archaeological traces that emerged from this survey, and which had not been previously documented, is the fact that the site had

been widely inhabited in the Nabataean period. The nature and the organization of this occupation is, for now, completely unknown to us, but it is highly probable that one of the main reasons why it occurred was the impelling necessity (the same as that of the Crusaders fifteen centuries later) to defend their monumental capital. In fact, the traces of long and intense habitation of the site prior to the European reoccupation are very apparent.

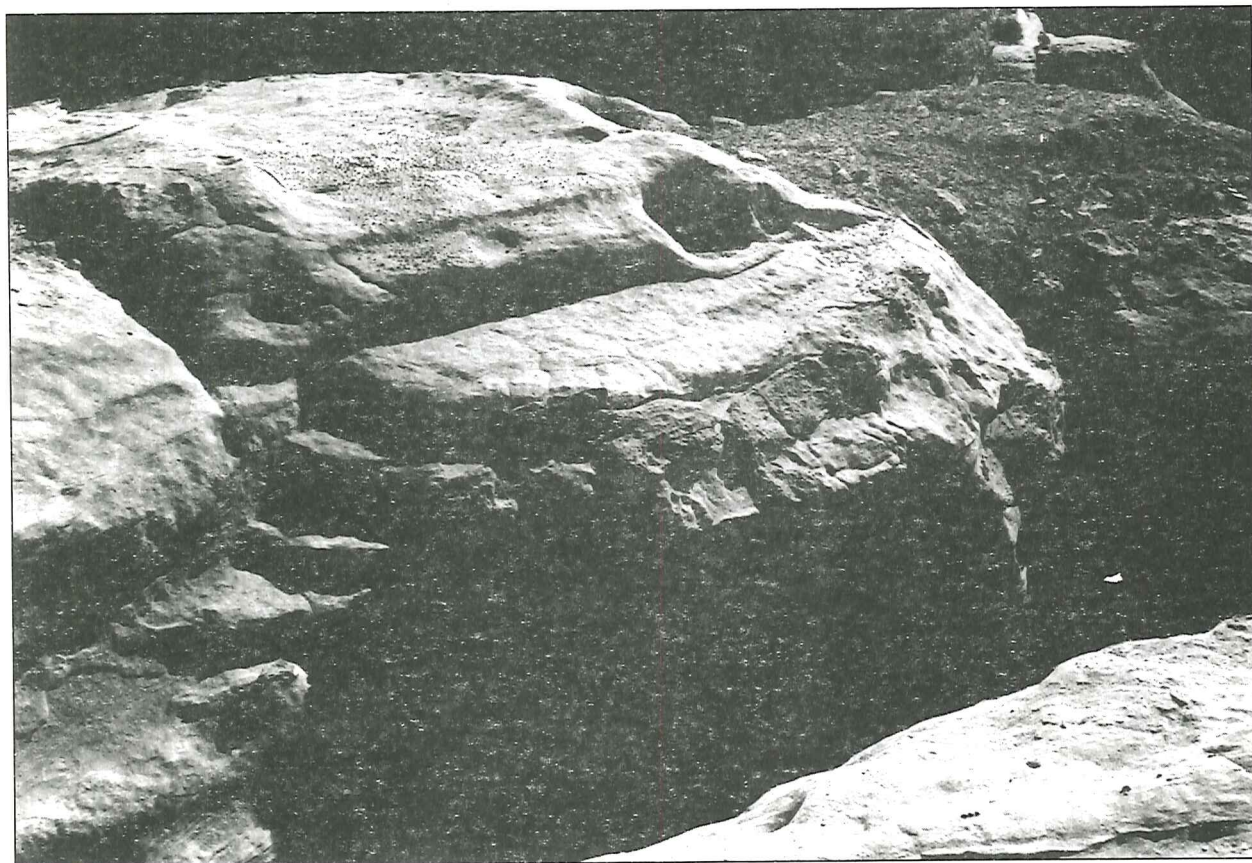
The entire Crusader settlement clearly reutilized and included in the overall plan some of the pre-existing structures. Among those that were reused, integrated into the system, and sometimes modified, were underground chambers that were at times extended vertically (as in the case of the original

solution used at al-Karak), the free spaces within the *cassero* and the ancient pathways carved into the rock as communication trenches for the sentinels (particularly evident in the southern and western area of the Crusader fortress) or internal communication passages. At al-Wu'ayra this system became a fundamental network that assured rapid and covered connections between the various zones of the settlement (Fig. 4).

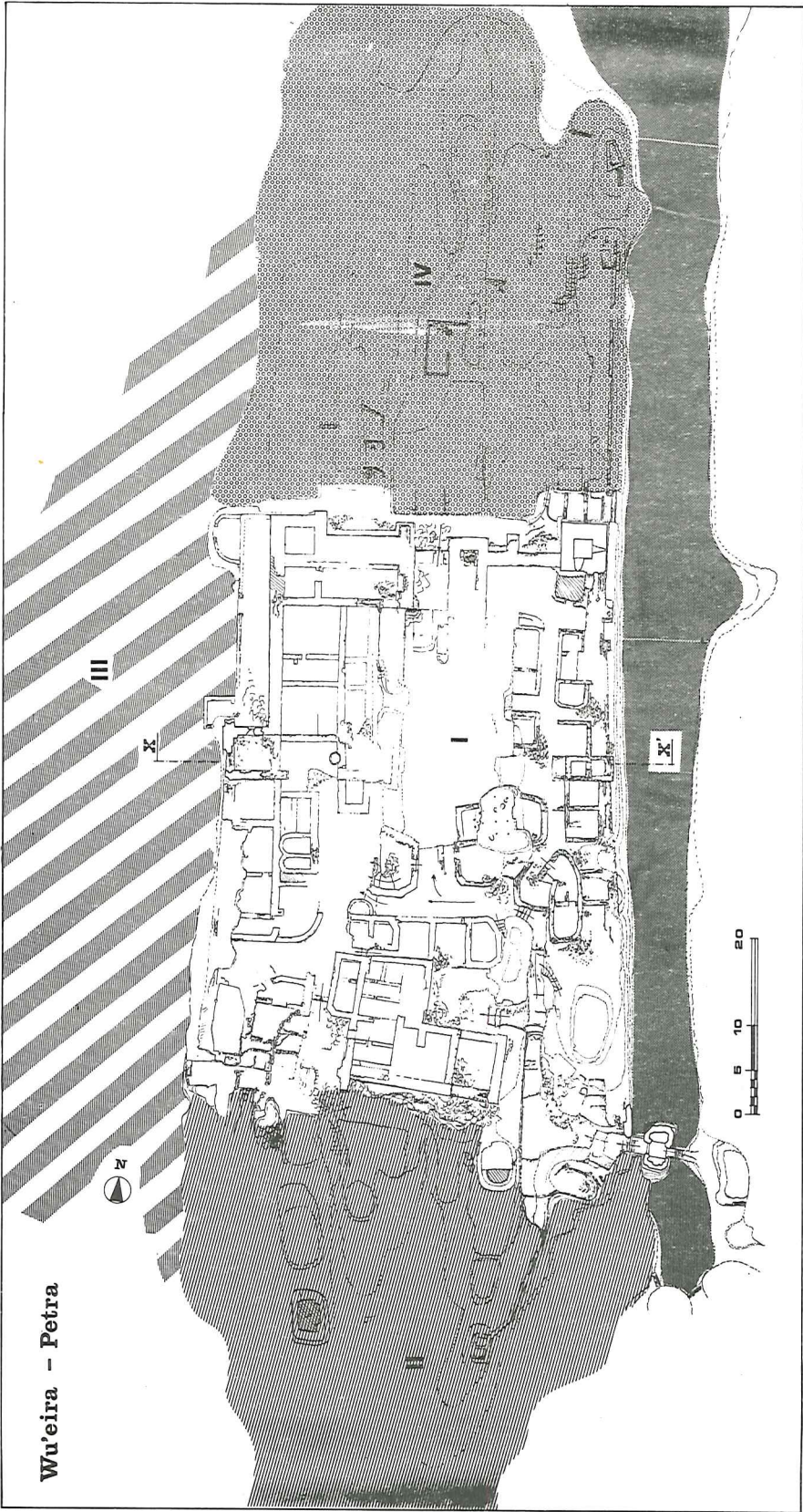
In fact, the topographical organization of the great Crusader fortress at al-Wu'ayra, erected near the ancient Arab village of Wādi Mūsā, was based not only on the requirements of its special function and the various solutions allowed by the natural environment, but also on its own pattern internally organized as a European settlement. In

fact, the site - which, on the basis of the first surveys conducted by Savignac and Musil at the beginning of this century, has always been considered a castle - is in reality only the *cassero* of the fortification. This was nevertheless the most important inhabited nucleus and certainly one of the best defended. Within its limits were located all the residential buildings, some of which even had monumental characteristics (Fig. 5:I).

This nucleus, which is better preserved in some portions of the upper parts of the structure, naturally had the main defense role as the military support for the entire settlement and, judging from the close-packed complexity of the structures, toward the southern extremity it included a *burgus*, (Fig. 5:II). This *burgus* is one of the most



4. Detail of one of the sentinel routes used in the defense of the access (see Fig. 8,a).



5. The castle of Wu'ayra and its topographical organization: I - *cassero* ; II - village; III-IV - protected area.

interesting archaeological areas of the site. It was defended by a vanguard of three towers situated in lofty positions and connected by a series of walls and protected communication trenches with a narrow strip of land located at the foot of the western extremity of the *cassero* (Fig. 6). This zone is defined topographically by the interior of the most extended defense line and formed by a series of protected areas usually of limited extension, and with obvious traces of human presence, such as minor residences, cultivated areas, pasture land, and reservoirs, the nature of which can be determined only after a series of specific archaeological studies (Fig. 5:III).

The characteristics of this area change as it spreads for several hundred meters toward the northern front

on the outside of the *cassero* until it reaches a point from which it dominates the northern access to the valley of Petra. The area includes fortifications and redoubts built on all the promontories rising along the edges of the internal gulleys, enclosed by walls and reached by internal access routes consisting of pathways, openings, and stairways often cut directly out of the rock - often reusing ancient trails - all of which are directed to the entrances of the *cassero*, worn away by centuries of human passage (Fig. 5:IV).

The water system at this site is of particular interest and consists of a series of channels and reservoirs of different dimensions lined with waterproof plaster and cut directly into the rock. They are distributed throughout the settlement together with a few



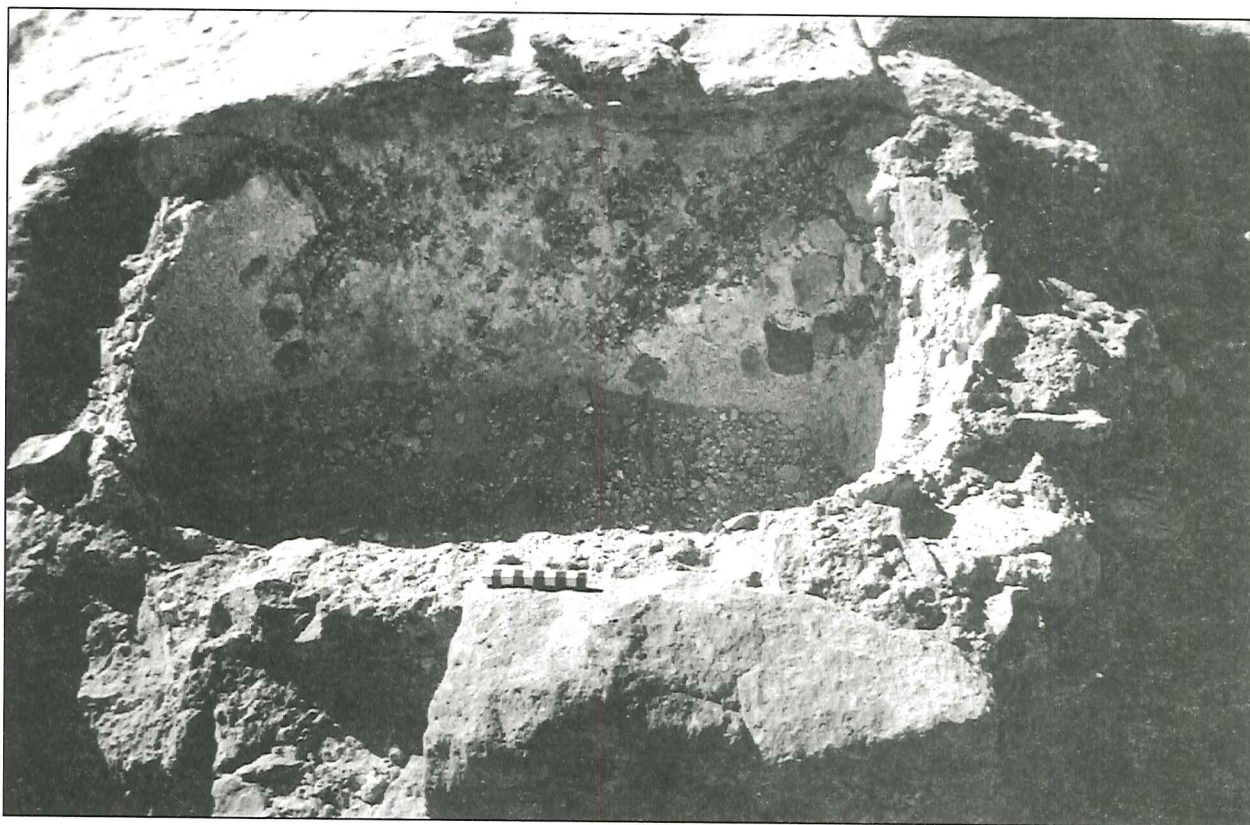
6. View of the southern "borgo" or residential quarter as seen from the citadel (see Fig. 3,II); the Nabataean tower and part of the external defense system of the area are visible in the background (see Fig. 4,L).

large cisterns that are either cut out of the rock or built of masonry. These water installations reveal not only the water management system used for collecting, storing, and distributing the water supply to the entire settlement, but also the organization and positioning of the various functions within the site, and, to a certain extent, its transformation and reuse over the years (Fig. 7).

During this survey 51 distinct homogeneous topographical areas covering the entire interior of the cassero were catalogued and described.¹⁵ This area could be subdivided into two large zones gravitating around two large open central spaces, one of which is located in the middle of the eastern zone and which was used as a service

area, while the other is higher in elevation and connected to the first by means of a system of both open and covered fortified ramps, around which most of the monumental buildings and residences were located, especially in the western portion of the fortress (Fig. 8:c).

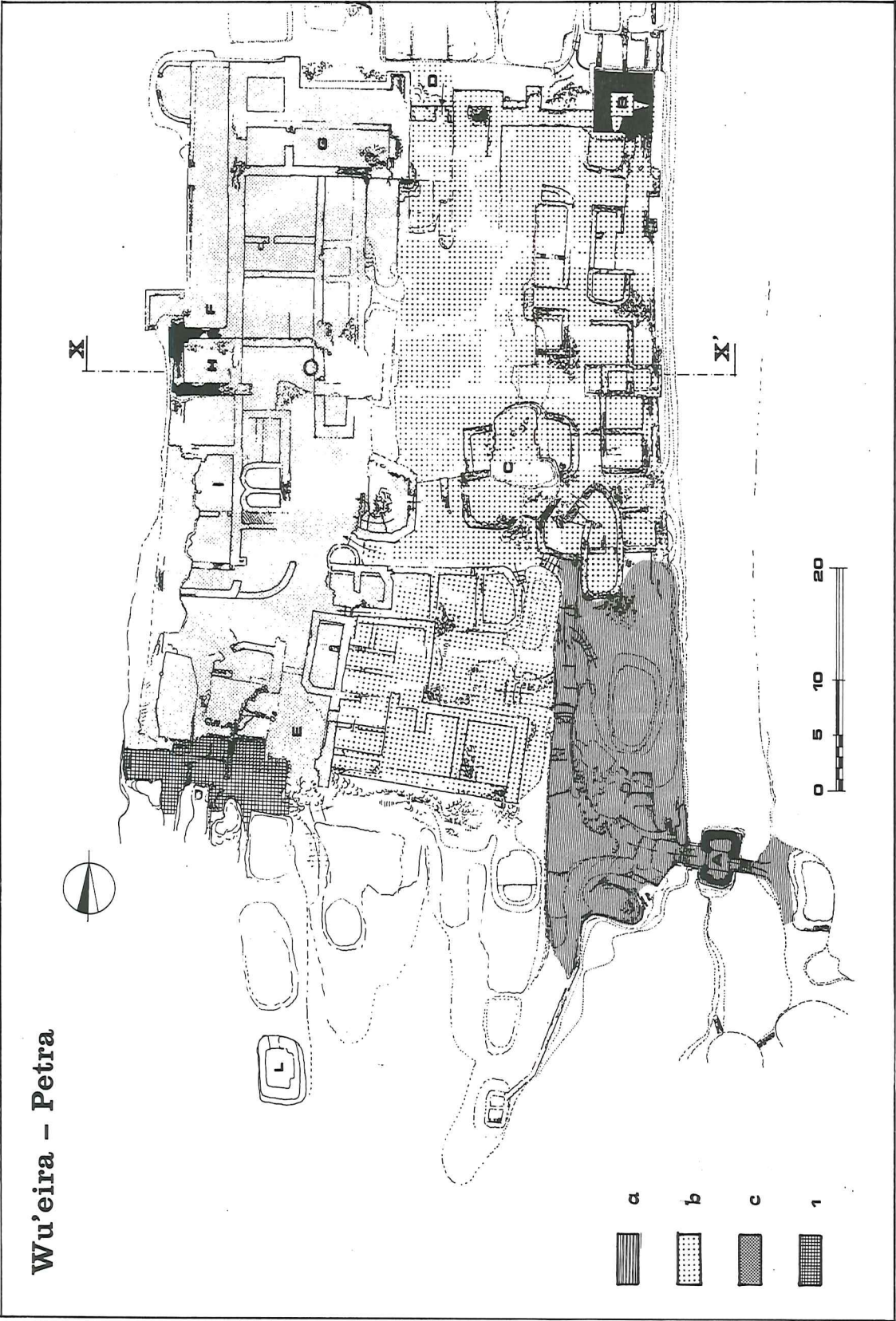
The main access system to the castle to the southeast is an integral part of the structural and thus a topographically defined functional subdivision (Fig. 8:a). This system involves two strong points and their related organizing elements. The first is focused on the *antiporta* (Fig. 5:A) and consists in the fortification of a high rocky promontory over the deep Wādī al-Wu'ayra that probably was excavated on the inside already in the Nabataean



7. A small cistern excavated in the rock and lined with crockery plaster, with traces of restoration which can be attributed to the Crusader phase of the castle; it was used as a water reservoir for one of the limit towers.

15. This represents an essential first interpretative base of the focal point of the settlement that

now allows us to plan the archaeological excavations.



8. Plan of el-Wu'eira castle after the 1988-1989 surface survey, including the 1989 excavation area southwest: a - access system; b - tower courtyard; c - citadel.

period; the second, later system of internal defense is situated around what appears to be an imposing access ramp for carries cut into the rock inside the *cassero*.¹⁶

The eastern zone directly opposite the lower courtyard appears to be made up of a series of warehouses mostly of a military nature. In most cases, only their foundations remain. The warehouses are arranged next to each other and are placed against the mighty external wall to the point where it reaches the corner tower (Figs. 8 and 9:B). In this area, moreover, near the central portion of the *cassero*, a series of rooms was identified. These had perhaps been used as dwellings, and some were built with upper stories and basements, one of which was carved out of the rock (Fig. 8:C).

The entire zone was equipped with a network of roadways and public areas connected both to the main road and to the court; to the north, beyond the farthest ramparts is an access that was partially excavated or at least deepened and that probably was reached by means of a draw bridge (Figs. 8 and 9:D). This access put the lower area in communication with the vast protected area that extended to the main entrance wadi at Petra (Fig. 8:b).¹⁷

What would appear to be the true residential quarter of the settlement, however, occupies the entire western portion of the *cassero*. Like the storage areas, it abutted directly to the outer wall against a high rocky projection

that had been appropriately reshaped for the purpose. Beyond this zone are the areas included within the outermost defensive circle (Fig. 9). Moving onward in the same direction toward these areas, which certainly must have played a vital strategic role for the entire site, we were able to identify one, or perhaps two accesses: the first and primary one is directly connected with the southern burgus by an enormous access ramp (Fig. 8:E); the other possible access to the west is partially composed of mobile structures with a system of ramps ascending from the lower external area (Fig. 8:F).¹⁸

Some of these areas include structures of particular significance that are very promising for stratigraphic exploration. Among them are: the church (Figs. 8 and 9:G) the perfectly oriented apse of which is still recognizable, like the one seen by Savignac; an architecturally significant structure with a defensive function but apparently also residential, with archways, capitals, and other partially buried elements, whose level of abandonment (as in several other cases) would appear to be preserved in situ to a considerable depth (Figs. 8 and 9:H; Fig.10); and the stables partially dug out of the rock-wall that supported the western curtain (Fig. 8:I).

The southern part of the elevated area of the *cassero* would appear to be characterized by an autonomous function. Here, a system of towers and strongholds with robust, well constructed wall structures with 'filaretto' (double row) facing, parts of which

16. The zone is divided into eleven areas delimited by surface structures that are either rooms or external areas which were observed and registered in the field.

17. This part of the *cassero* was divided into 14 areas that constitute a tight network of rooms, on

several different levels and passageways that delimit and identify the spaces involved.

18. The survey conducted in the monumental 'citadel' induced us to divide the zone into 26 archaeological areas that include both service areas and residential quarters.

were made by excavating into the rock base, were apparently used for the active defense of the *burgus*. They are covered on the outside by the 'Nabataean' tower (Figs. 8:L and 10),¹⁹ and were probably intended to house troops. The structures are all included in the stratigraphic exploration program just begun (Rooms a, b, c, e).

The entire zone must have had an imposing appearance, judging from the types of structural remains still visible. It appears totally separate from the western, lower part of the *cassero*, which is directly opposite the courtyard and which could be reached from the lower area through a complex communication system that crosses over a natural rock incline cut to form an almost vertical drop. This organization makes it clear that the zone was intended to be a sort of citadel or acropolis, higher up than the other structures, autonomously equipped for final defense (Fig. 9).

- 2.3. The excavations were preceded by a surface collecting survey. This type of operation, which is more typical of wide-range open-area prospection, was required in order to obtain a detailed appraisal of the site features. The aim was to document the site in order to select the most appropriate research strategy. Since it was impossible to divide the whole castle area into abstract geometric units because of the rugged nature of the site, we had to rely on individual rooms for information, since the aim of the archaeological inquiry was not to investigate an indistinct open area but a site filled with structures. At present the survey has been completed merely in that part of the

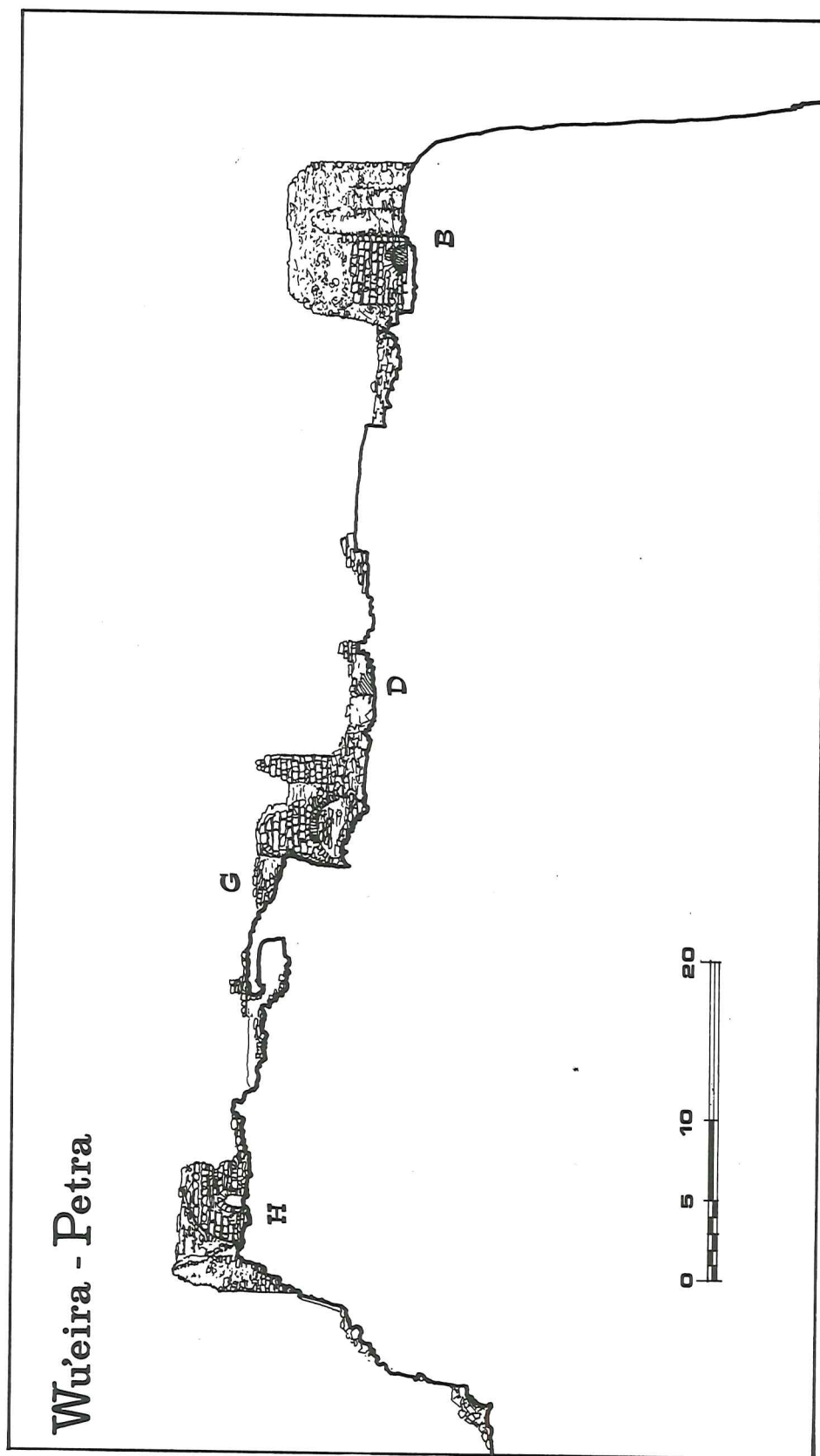
castle corresponding to the upper area of the western half of the fortified settlement, presumably the 'citadel'.

The survey procedure included observations regarding the terrain and structures recorded on a type of catalogue card used in surveys of Central Italy,²⁰ and chosen as the most suitable for our purposes. First, each room was identified by a letter referring to the area where the room was located, followed by a number. Then a description of the terrain (percentage of collapse-free surface, trend and direction of possible *colluvium* or *eluvium*) formed the basis for the critical evaluation of the finds. The structures and their relative chronology were described for each room and the survey was concluded with surface collection. Particular attention was paid to light conditions during this procedure, as it was found to be much more useful to conduct the survey during the early morning or late afternoon hours, when the sun was oblique rather than to work under the direct sunlight of mid-day. During this survey nearly 1000 artifacts were collected, the great majority of which were ceramic fragments.

During the examination of the structures several indications of reuse were clarified. In some instances, the secondary works could have been repairs rather than reuse; for example, in the stables, a thin wall seems to replace the lost edge of a manger. However, walls built up with stones recovered from buildings and the division of large rooms into smaller ones suggest true modifications of the structures in order to adapt them for a totally new function. We may reasonably conclude that some of these

19. A limited survey was conducted here recently (Brown 1987).

20. Ricci 1983.



9. Cross section (x-x) of el-Wu'eira castle between the citadel and the service area (E-W).



10. The western limit tower (see Figs. 4-5,H). In the foreground the rock foundations of the wall of the *castrum* are visible.

latter adaptations are related to occasional post-Crusader use of the site.

Stratigraphic Exploration and Archaeological Finds

3.1. On the basis of the data gathered during the surface survey we located a stratigraphic trial trench at the point where the *cassero* is connected to what might have been the *burgus*. This area represents a crucial point for understanding the structure of the entire fortified complex of al-Wu'ayra since its location represents the connecting point between the 'residential' citadel and the lower 'service court'. Its excavation should clarify the organization of the access system from the protected area on the south that was in direct contact with the only entrance and equipped with a powerful and complex defense system (Fig. 8).

The systematic surface survey was conducted in order to correlate the vertical stratigraphic data acquired by means of the trial trench and the interpretation of the vertical structures (where they were still preserved) with the horizontal stratigraphic connections and the urban topographic order, starting with the exploration of the visible structures within the contiguous defense area of the *cassero*: the so-called 'citadel'.

3.2. The complex of structures that emerged was probably part of a fortified access that shows signs of at least three phases of construction and reconstruction that are clearly recognizable, even in the stratigraphy of the buried walls, and for which we have, at least for now, only a relative chronological sequence. Among the buried walls only

the most recent, with its careful arrangement - although of very modest technical level - can be attributed to the reuse and/or adaption of the ruins of the Crusader castle. However, many signs tend to indicate that this reuse of the castle was ephemeral and very close to the period of abandonment.²¹

The main part of the site - the stratigraphic connections of which have been documented only for limited segments - appears to be a major reconstruction of a preexisting version, probably the original one, in order to transform it into a decidedly improved and more efficient form. It is too early to attempt a conclusive interpretation in

the light of the various vicissitudes of war that al-Wu'ayra faced; it is mentioned as a *castrum* as early as 1108 and was besieged and briefly captured by Syrian troops around 1144.²²

However, the repairs and reconstructions, in many cases of the installation itself, that are visible in several areas within the citadel (the stables, for example, Fig. 8:I) and in the wall structures discovered during the excavation (for example USM 10 and 64 as a reuse of 74 and 68, with the subsequent enlargement of 57) represent traces connected with the change, and in at least one case, an increase in the role of the castle (Fig. 11).



11. Excavation area with stratigraphic sequence of the walls which can be assigned to three distinct phases: first plant (USM 74), development (68), collapse and restoration (64,10).

21. See below, for example, the observations regarding the substantial similarity in typology and proportions between the surface finds and those coming from the deep stratigraphic formations, relating to phases of habitation that perhaps were not original but that certainly are ascribable to the period of Crusader occupation of

the site (see 3.3). Hammond (1970) arrives at the same conclusion for the fort of al-Habis.

22. For details on the political and military events that are alluded to here and in the following pages, see Hammond 1970: 34-35 and the Arab and Western sources quoted by that author.

In any case, the attention that was given to the area and, when necessary, the measures taken to defend it, with increasing determination and notwithstanding the vicissitudes of war, were great. This is demonstrated first by the interventions of the royal authority (in 1115-16 and 1127), and later (in 1142, 1144, and 1158) by the newly formed lordship up until its fall in 1188. This suggests a growth of territorial role, military function and strategic importance, not so much so of al-Wu'ayra itself (which was not, after all, of enormous dimensions) but of Petra and its valley.

The contiguous zone outside the *cassero*, like the open area previously explored where virgin soil was not reached even after excavating to a

depth of 3 m, revealed under at least three stratigraphically recognizable phases of collapse of the Crusader castle, a succession of levels of habitation pertaining to a building that had a distinct functional importance.

This building was partially constructed in masonry and partially cut out of the rock and was equipped with a simple but ingenious system for collecting water in an excavated, plaster-lined cistern (US 37) equipped with channels leading to two different rooms. These rooms had little pools with plastered surfaces cut out in the rock wall (US 19, 60) and, in an intermediate phase, had been the site of intense metallurgical activity, which would explain the complexity and perfection of the water system (Fig. 12).

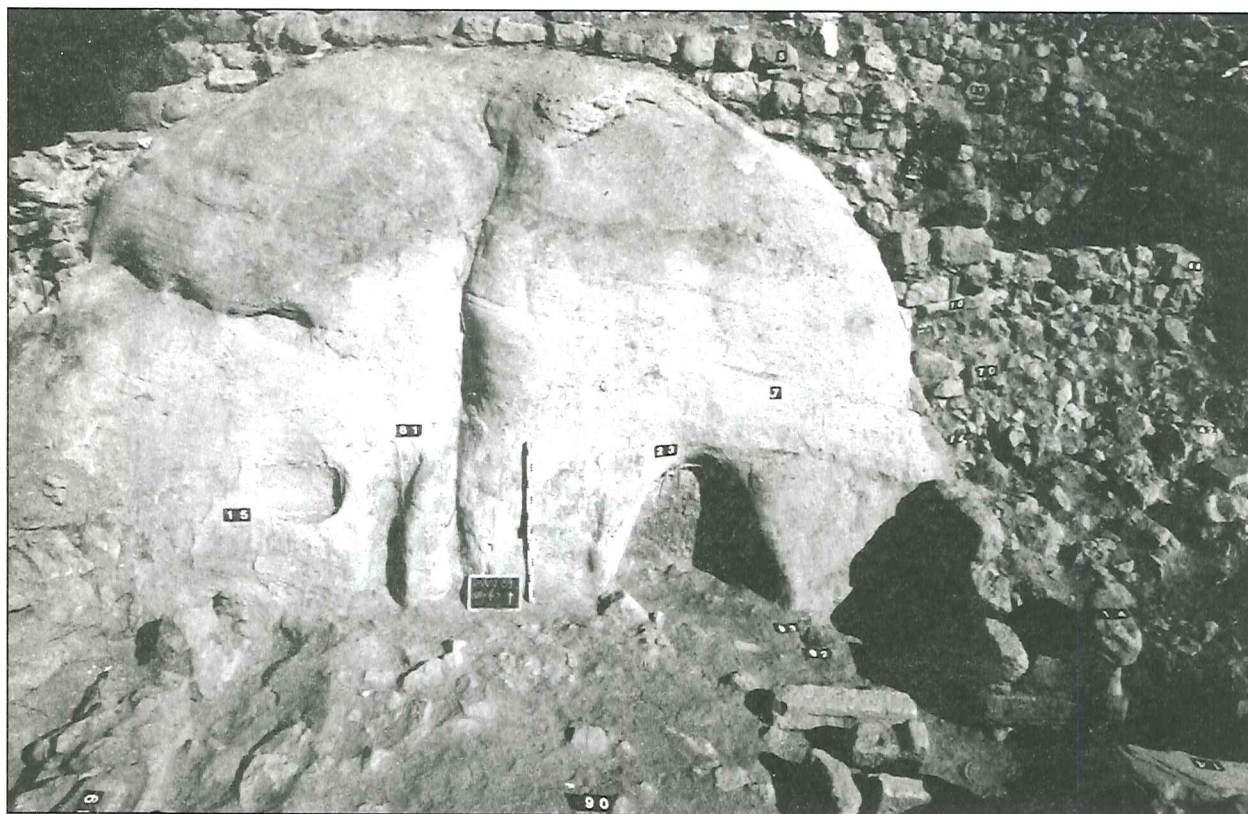


12. View of the southern part of the iron foundry. Part of the water system serving this area is visible (cistern 37, niche laboratory 80 limit wall 39 relating to the last phase of use)

The metal workshop appears to have gone through two distinct production phases during a period of practically continual use. The most recent of the two phases (habitation level US 66) appears to have been the site of an activity less intense than the other. The earlier level (US 90) must have been surrounded by wooden stakes (US 92, 93) and was used with a certain continuity; it yielded a large quantity of metal slag and various types of iron artifacts (Fig. 13).

The collapse levels seem to have different causes: the upper accumulation (US 4), which is disturbed even in depth (Fig. 14), dates to the period after the abandonment of the castle when the ruins were frequented sporadically over a long period of time. On the other

hand, at least one of the lower layers (US 67) can be attributed to the effects of an earthquake (perhaps that recorded in 1201-1202) shortly after the abandonment of the castle, as has already been suggested for al-Habis.²³ This same natural disaster probably accounts for the condition of some of the walls of the cassero. It is also interesting to note that there are reconstructions located on top of the earlier collapse material (US 69 on top of US 60). Because of elements such as these, a certain amount of caution is necessary when referring to traumatic phases directly involving the castle during the Crusader occupation. We can not yet say whether they were due to natural disasters or military events, due to lack of archaeological data (Fig. 15).



13. View of the northern (the oldest) portion of the foundry. Niches and service structures (US 15, 81, 23) excavated in the rock (7), and a working surface built over the collapse level of the original phase (90), remains of wooden stake structure (92,93), access to east limit wall (14).

23. Hammond 1970: 35, 36.



14. level of Collapse which can be assigned to a period after the abandonment of the site (US4) and which is now being excavated.



15. Collapse (US60) which can be assigned to the period during which the Crusader site was being abandoned.

3.3. Owing to the fact that the excavation, the interpretation of the stratigraphic units and study of all of the artifacts are still in process, we can at this time only present a preliminary report of the principal data; detailed descriptions will be given in the final publication.²⁴

As Table I shows, a large number of fragments of different materials belonging to at least 8323 different objects were collected during the 1989 excavation and surface survey. In all probability, the excavated levels belong to at least two phases that we can clearly recognize as the last settlement and the abandonment of the site, including a small edifice built inside the

southern ditch of the castle, that during excavation was identified as an iron foundry.

However, the surface area that was explored, which for now is only the western half of the fortification (the citadel), has provided some evidence for post-Crusader occupation, and many pottery sherds obviously connected with the last occupation of the site were collected on the surface there. The two groups show remarkable analogies both in the pottery classes and their percentages. This almost certainly indicates that the two phases are contemporary, but they will still have to be analyzed in detail. For

Table 1: Comparison between Stratified and Surface Finds.

| | Stratigraphic Units* | | Topographic Units** | |
|-------------------------|----------------------|-------|---------------------|-------|
| | n*** | % | n° | % |
| Hand-made coarse ware | 5585 | 75.35 | 678 | 74.42 |
| Hand-made painted ware | 253 | 3.41 | 39 | 4.28 |
| Glazed ware | 57 | 0.76 | 3 | 0.32 |
| Lustre ware | 1 | 0.01 | 0 | 0.00 |
| Nabataean pottery | 120 | 1.61 | 3 | 0.32 |
| Roman-Byzantine pottery | 495 | 6.67 | 94 | 10.31 |
| Fine ware | 589 | 7.94 | 35 | 3.84 |
| Amphorae | 122 | 1.64 | 23 | 2.52 |
| Tiles | 165 | 2.22 | 16 | 1.75 |
| Glass | 4 | 0.05 | 3 | 0.32 |
| Metals | 19 | 0.25 | 9 | 0.98 |
| Coins | 1 | 0.01 | 0 | 0.00 |
| Stone | 1 | 0.01 | 8 | 0.87 |
| TOTAL | 7412 | | 911 | |

* Including all excavated levels belonging to the final settlement of the iron smelting workshop (for example, US 78 and 89) and abandonment of the site (for example, US 4, 8, 12, 16, 41, 65, 66, 72, 75, 79).

** At present the surface-surveyed area does not include the eastern half of the castle.

*** Minimum form number.

24. The entire inventory of the finds was produced by Paolo Saporito. The drawings of the finds are by A. Vanni Desideri, except for those of the

hand-made painted coarse ware, which are by P. Saporito (FIG. 20 nn. 1-14).

the present we can provide a concise total review of the whole context.

Among the approximately 7500 fragments of pottery found during the excavation about 1000 were from the surface collection. Of all the artifacts gathered, pottery was, of course, the most numerous. This material can be divided into twelve main types, some of which can be divided into sub-groups.

More than 70 percent of all the pottery collected belongs to the category called *coarse ware*, a type with no evidence of wheel-turning, with rough inner and outer surfaces and with evident lithic inclusions of small and medium dimensions and straw. It is highly porous and has an outer surface that ranges in colour from light to dark brown and even reddish; the inside layer is black. In some cases traces of burnt organic material are present, indicating low kiln temperatures and probably loss of oxygen.

Nearly all the recognizable forms belong to the *coarse ware* group. The largest vessels appear to be hole-mouth jars (Fig. 16), some of which have a barely perceptible enlargement at the rim (Fig. 16:1) and applied finger-stamped ridges (Fig. 16:2-3). No loop handles were present in this class of vessels. They have lug handles, most of which are upturned (Fig. 16:4) or horizontal and fork-ended (Fig. 16:5). There is also a smaller kind (Fig. 17:1-7) embellished with vertical pierced knobs (Fig. 17:7) as well as lug handles (Fig. 17:6). The tall necked jars sometimes have loop handles on either side (Fig. 18:3-4).

Among the smaller, necked forms (Fig. 18:5-8) there are some strainer jugs that have a pierced diaphragm placed where the funnel-shaped neck is

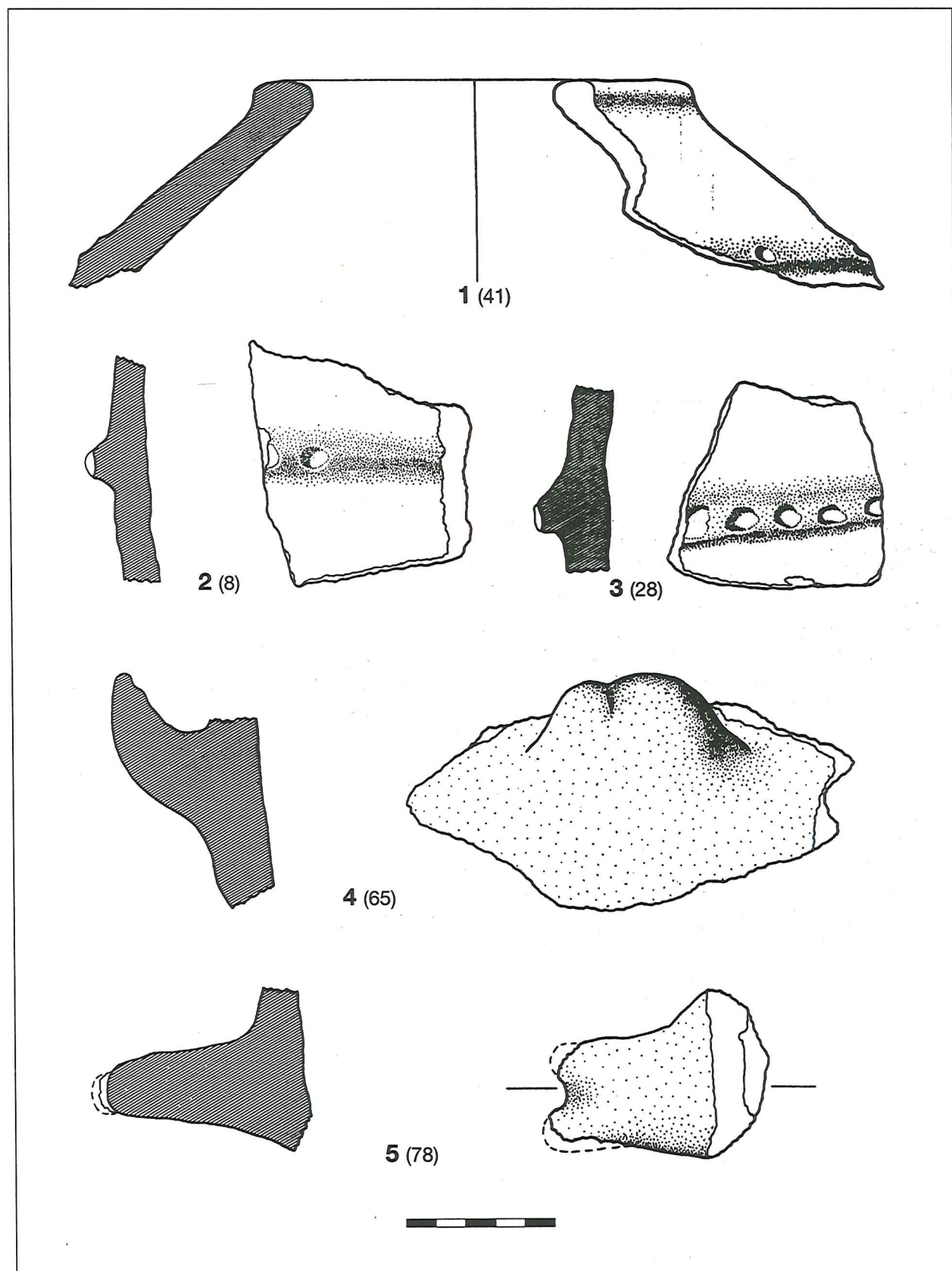
joined to the body. This filter is positioned in the neck of the jug when it is assembled from pre-modelled parts. One funnel-neck jug that was found lacks the strainer but probably belongs to this group.

A less numerous group of sherds can be ascribed to open form vessels such as cups, bowls, and basins, almost all of which are hemispherical, though some of them have straight, outward slanting walls. The thin-walled cups have loop handles and slightly out-curved rims (Fig. 19:7,9). The thicker-walled bowls have both hemispherical and conical forms with upturned lug handles (Fig. 19:1) or pierced knobs (Fig. 19:5-6). One of the most unusual kind of pottery is a funnel-shaped strainer with what seems to be a support rather than a handle, perhaps to be placed upon the mouth of another vessel (Fig. 19:2). Two of the pots have a spout (Fig. 19:8-9).

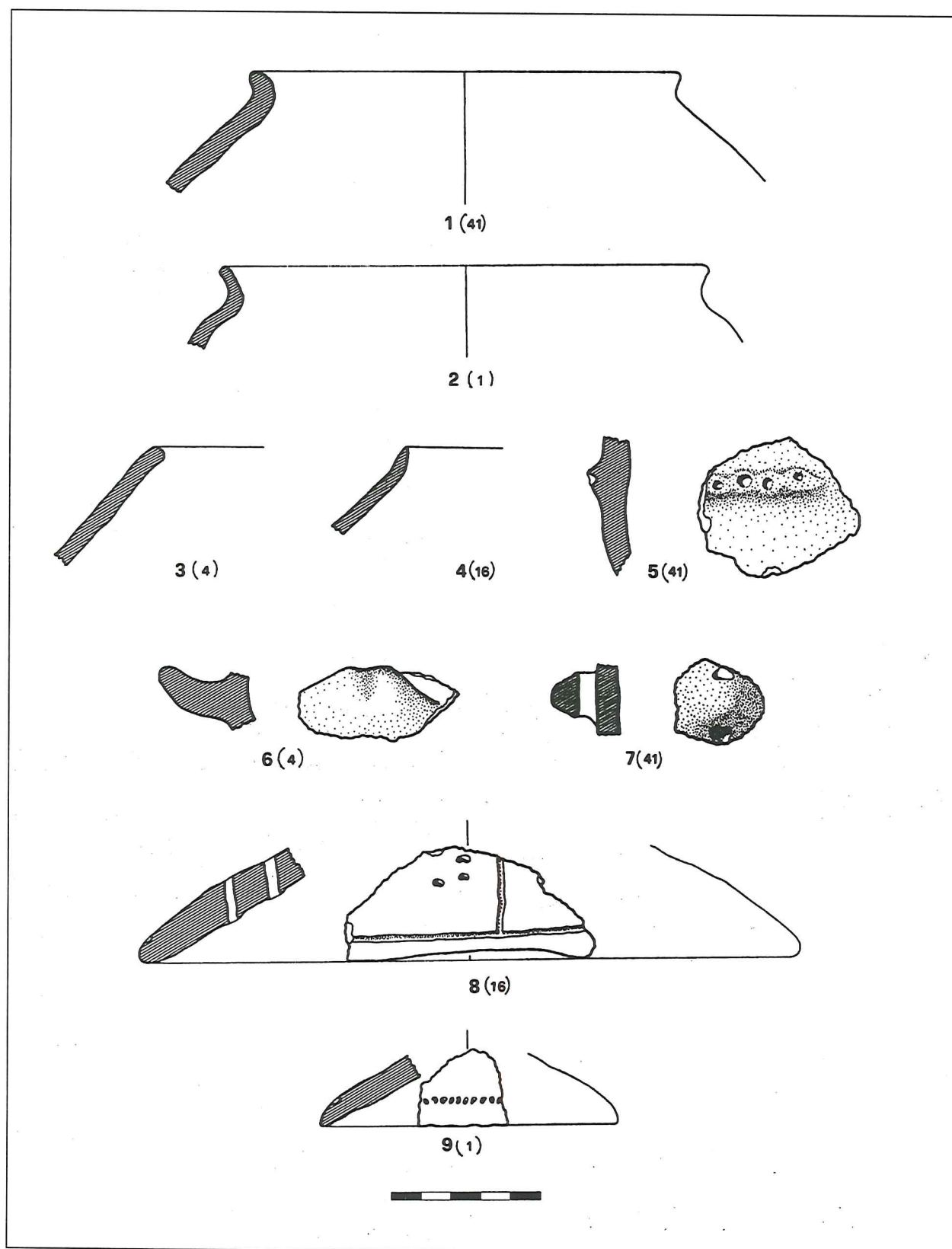
The *coarse ware* also includes low conical lids often provided with blow-holes and sometimes decorated with a simple groove or impressed dot motif (Fig. 17:8-9).

Within the *coarse ware*, we noted a technological variant that is probably due to the use of a different source of raw material. This pottery has inclusions consisting of thick limestone fragments that are always visible on the outer surface. We prefer to consider it separately so as not to risk losing track of what might represent an interesting aspect of this type of production.

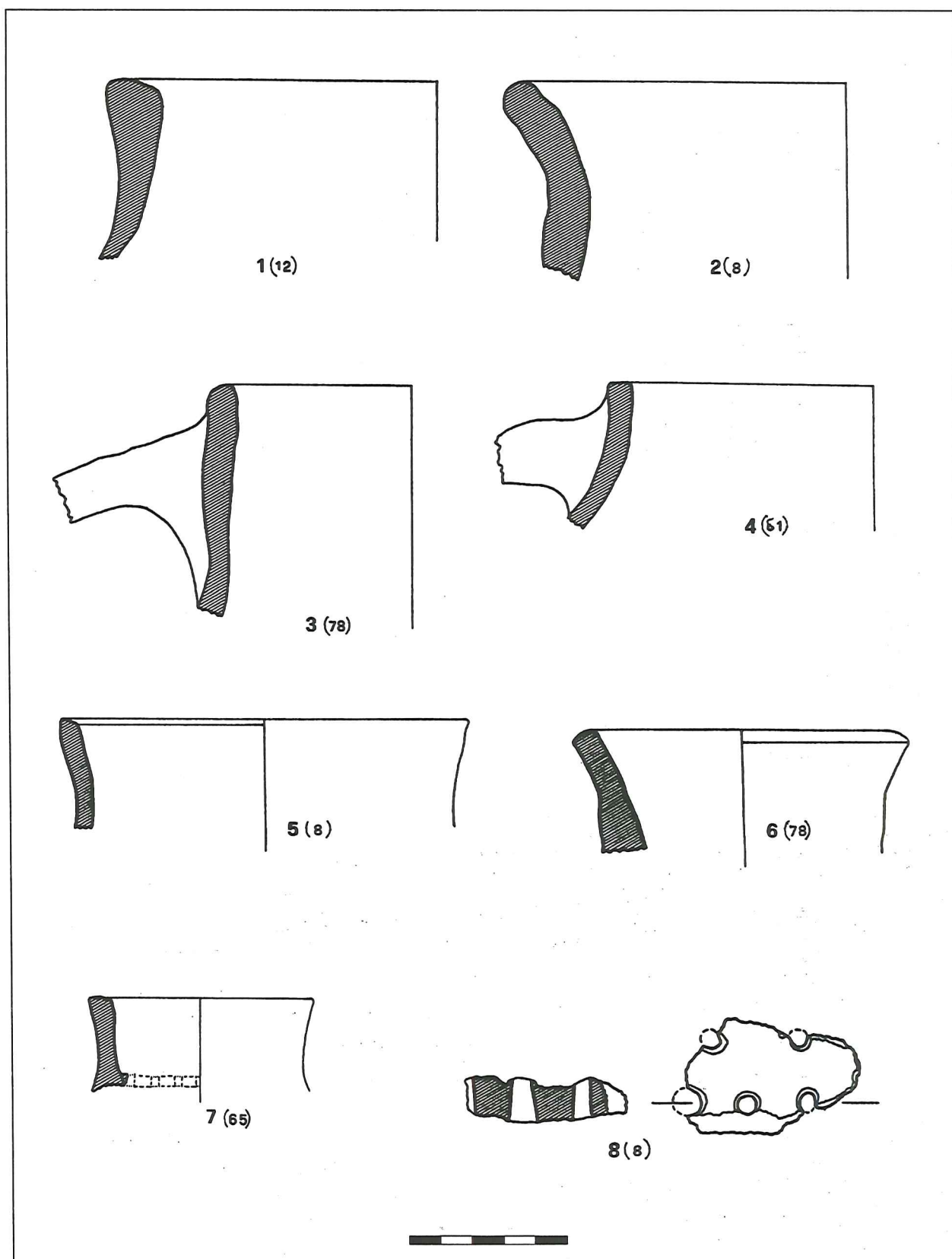
A small quantity of *hand-made coarse ware* sherds are made of a peculiar yellowish clay; another small group of hand-made pottery sherds appears to be sun-dried and has a characteristic light buff colour and a brittle



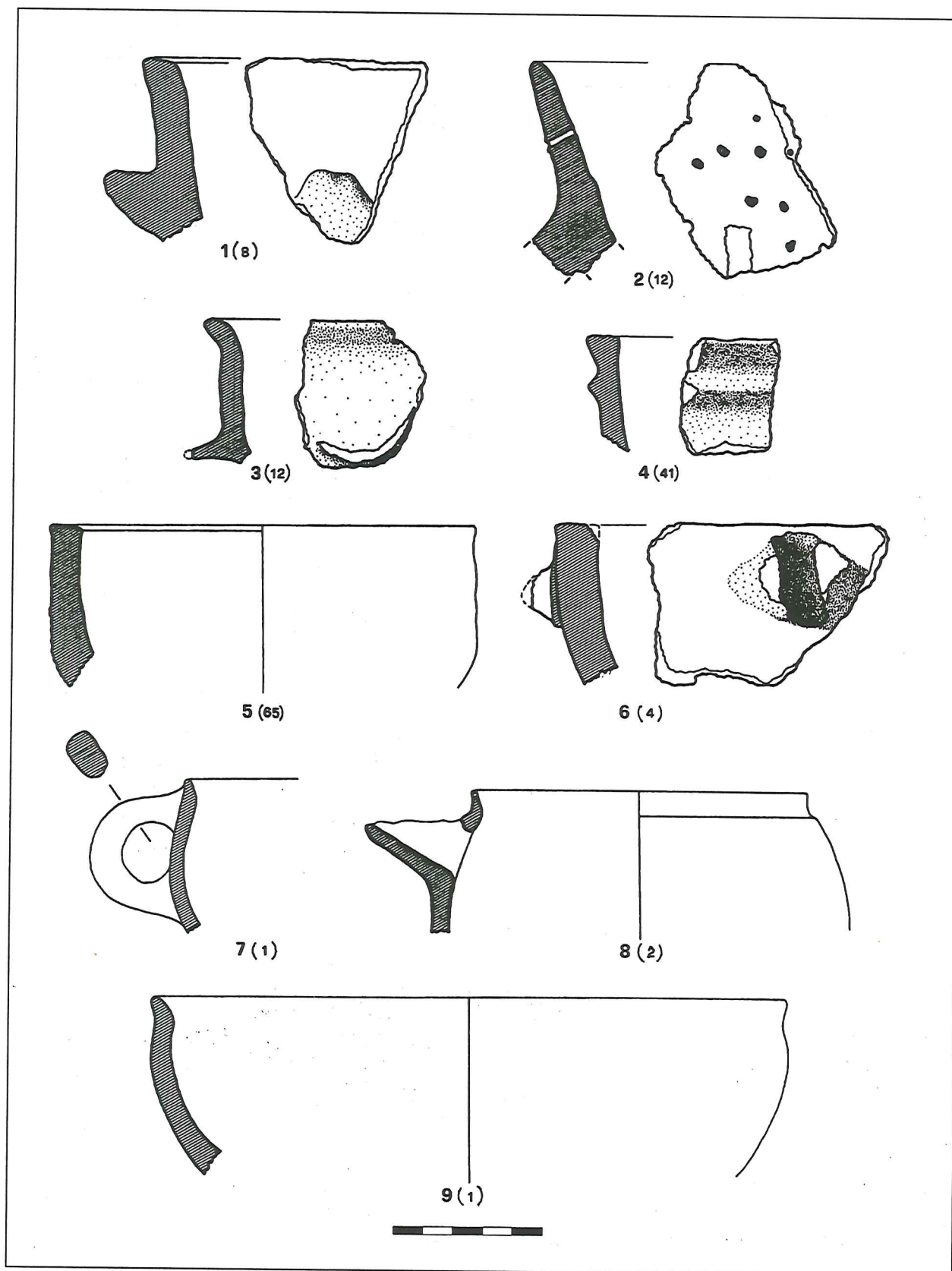
16. *Hand-made coarse ware: Jars.* bracket numbers indicate stratigraphic unit. greek letters indicate topographical unit.



17. Hand-made coarse ware : small jars 1-7; lids 8-9.



18. *Hand-made coarse ware : necked forms.*



19. Hand-made coarse ware : open forms.

texture with several straw inclusions. These are certainly brick or tile fragments and not vessels.

The *painted coarse ware* is the most distinctive group of the later, locally made pottery. It has the same technological features as the coarse ware (hand-made technique, chunky inclusions, high porosity, black inner layer) and like can be divided into two groups.

The simpler type of the two which, according to R. Brown,²⁵ is also the oldest, has the so-called 'linear painted' decoration, which consists of broad brown or reddish lines that form simple designs of vertical, diagonal, or horizontal bands (Fig. 20:1-3). A peculiar feature of this decoration is the fact that the two colours are never used together on the same vessel and that they are applied directly to the clay surface of the pot.

The second type of *painted coarse ware*, called 'geometric painted', appears during the 12th century and seems to be the result of a slight but distinct improvement in technology. The surface of the pottery was prepared by applying a rather thick light brown or buff-coloured slip. The decoration, which is more complex on the whole than the older variety, consists of geometric figures filled in with colour or with dots and grids, in brown, or reddish, which was often used for details (Fig. 20:4-14).

A few examples of *glazed ware* were found. The most common was the type with a green glaze. A few sherds of *Raqqa ware*²⁶ and one badly preserved fragment of lustre ware

probably from Fatimid Egypt,²⁷ demonstrate that some luxury pottery was imported.

Graffito ware is represented by one fragment of an out-turned rim probably belonging to a thin-walled bowl (Fig. 20:15). The decoration consists of a series of upside-down triangles drawn on the white slip with a broad-tipped stick.

Nabataean pottery can be identified by the improved technological features such as the thin walls, excellent firing, and red-painted decoration. Under the general classification of Roman-Byzantine pottery we have included here thin-walled Roman pottery, lamps, and grooved jars with white or cream-coloured slip.

The fine ware group includes wheel-thrown, thin-walled, carefully finished pottery. No visible inclusions are present and all examples have undergone 'industrial' type firing, which are indications of highly sophisticated manufacturing procedures. No pot forms have been identified owing to the excessively small dimensions of the sherds which lack all the diagnostic elements, such as rims, handles and bases. It may be inferred that the group comprises residual sherds of Nabataean and Roman-Byzantine vessels as the percentage analogy of clearly identified classical ceramics shows. In addition, a few sherds seem to belong to transport vessels (*amphorae*) from Classical times.

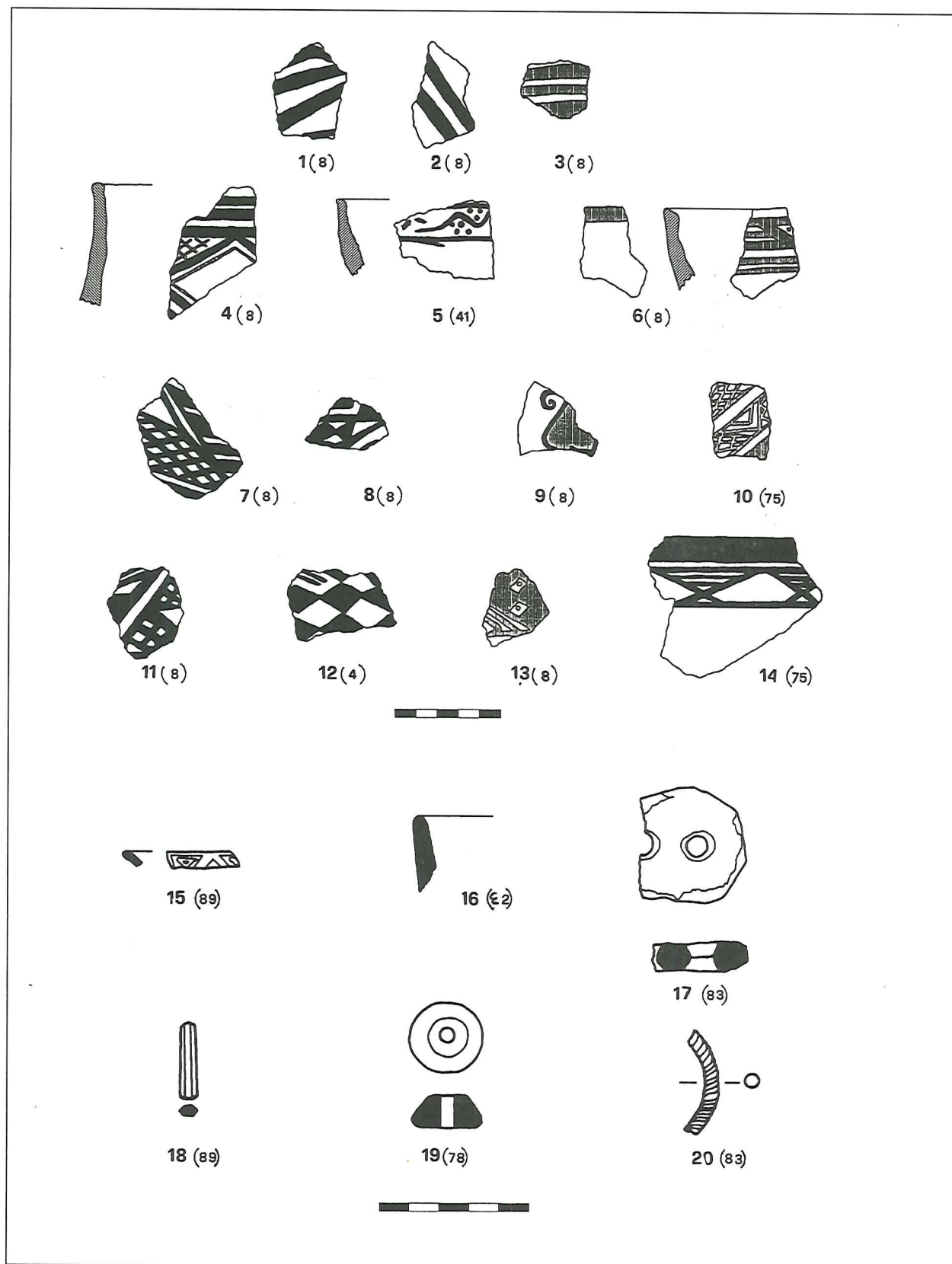
Stone vessels are represented by a single fragment of a vertical rim of steatite, probably belonging to an open conical form (Fig. 20:16), the only

25. Brown 1987, Brown 1988.

26. See French, Moore, and Russell 1982; Pringle 1985: 193-196. The Raqqa factories are traditionally said to have been damaged by early

13th century wars, and by that time, in any case, decreasing their production.

27. Pringle 1985; French, Moore, and Russell 1982.



20. *Hand-made linear painted ware* (red is graphically represented as grey, brown is graphically represented as black): 1-3 *Hand-made geometric painted ware*: 4-14. *Graffito ware*: 15. Stone objects: vessel (16), button (17), beads (18,19). Glass bracelet: 20.

form that can be produced using the turning technique.²⁸ Among the stone objects that were found is a conical bead (Fig. 20:19), an elongated bead (Fig. 20:18) and a roughly-made pierced button (Fig. 20:17).

Besides a few unidentifiable sherds, the only glass that was found was a twisted bracelet (FIG. 20:20).²⁹ A large amount of iron smelting slag, including a probable crucible stamp and raw minerals, mainly muscovite and hematite, were collected in the smelting workshop. Sea shells, mainly oysters and *gasteropoda*, were widely scattered throughout the entire stratigraphic series.

Conclusions

4. At present the data gathered from the finds and from the buildings have confirmed the 'lost village' character of al-Wu'ayra even more clearly than Brown's excavation did.

Nearly all the excavated deposits are characterized by the earthy fill and collapsed structures of a building almost certainly located in the inner part of the castle's southern ditch, which may be assigned to the period of later occupation and abandonment of the site. The series of archaeological finds are too close to others of the 12th century to permit us to consider a date much after the capture of al-Wu'ayra, but in any case, a period when the castle itself was no longer em-

ployed for military purposes.

Another remarkable feature that emerged during the exploration is the practically identical composition of the material gathered on the surface and that from stratified archaeological contexts. This fact leads us to infer that no further occupation took place at al-Wu'ayra, or if it did, it was of such a transitory nature as to leave no significant archaeological traces, or at least none that can be distinguished from those of the Crusader period. We may establish a possible connection between such deposits and Brown's phase II, including the construction of secondary enclosures, all dated by her to the period between the late 12th and the early 13th century.³⁰

The contemporary presence of both hand-made *coarse* ware and painted ware has been documented in several places in Jordan and Syria dated from the 12th century.³¹ Starting in this period the 'linear painted style' begins to be joined by the 'geometric painted style', at first with simple patterns and later with more complex ones. The same development occurs at al-Wu'ayra. Contrary to Brown's findings, the final documented occupation (Brown's phase II), according to the archaeological evidence from our excavation, shows a constant presence of glazed ware.

The wide range of shapes of coarse ware, compared to the very narrow range for other pottery classes leads us to be-

28. Steatite lamps and vessels are well represented in Abbasid and Fatimid 'Aqaba (Whitcomb 1991: 128, fig. 4).

29. Glass bracelets are quite common in the Near East from Roman times through the Ayyubid period at least. For pre-Islamic examples see Spaer 1988, for Byzantine types see Gualandi 1978 and Baramki 1932; Islamic types are shown by Whitcomb 1983: fig. 5 and Steiner 1992.

30. Brown 1987.

31. As stated by Pringle 1985: 176, hand-made

coarse or painted ware is rarely found in urban sites, and only after Crusader occupation, while it is common in rural settlements dating from the end of the 12th century. For recent archaeological finds see Pringle 1984, Brown 1987, Whitcomb 1988, Johns et al. 1989 and Johns forthcoming. An excellent status quaestionis of this ubiquitous but still scarcely known pottery including a complete bibliography, is Johns' forthcoming work. We are indebted to J. Johns whose kindness enabled us to appreciate and to quote his work.

lieve that *coarse* ware represented the main element in the domestic equipment of al-Wu'ayra. The factory for these products may have been at Wādī Mūsā itself, as Brown has pointed out.³² On the basis of this data, we may infer the presence of barely specialized craftsmen and rather primitive kilns for producing pottery for everyday use in the neighbourhood of al-Wu'ayra.

Moreover, considering the overwhelming presence of cheap local products compared with the scarcity of imported pottery in this particular area of the Near East - which since ancient times has been frequented and enriched by merchant traffic carrying excellent quality goods including luxury pottery - we must conclude that al-Wu'ayra was an area that was in some way cut off from the regular trade routes, a fact that can probably be ascribed to the shifting Western Border line caused by the Hittin defeat in 1187.

The prosperity of the Petra area has always depended on its location on a border that greatly facilitated its function of cultural liaison between north and south and east and west. This function was lost every time the area became the inner region of a greater dominion. After the primary role played in the Classical times by the Nabataean kingdom, a new strategic role was assigned to Petra by King Baldwin, and it became virtually independent after the institution of the Transjordan Lordship, which probably brought about a short period of relative prosperity. Afterwards, the fall of the

Latin Kingdom caused Petra to become again merely the internal region of a vast dominion and to lose its strategic importance. For this reason the area was deserted and the same phenomenon of decadence that had been caused by the Roman (and later Arab) conquest occurred all over again.

In this manner Petra suddenly became a site of minor importance without a lasting settlement, as the Crusader forts destroyed by Ṣalāḥ al-dīn demonstrate, and as we can deduce from the way in which the structures collapsed (for example, the external wall towers). In fact, just a few decades later the buildings appeared crumbled and completely abandoned to Europeans, such as the pilgrim Thetmar in 1217, and to Arab travellers such as Sultan Baybars during his 1276 journey; only the monks of Jabal Hārūn remained to watch over the deserted site.³³

In conclusion, 'Medieval' Petra seems to have played a more important role than merely one of control of communications envisioned by the Europeans,³⁴ at first in the Latin Kingdom and later in the Transjordan Lordship. This hypothesis becomes more likely as research proceeds, but it will need to be more clearly defined by archaeological evidence and written sources.

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32. Brown 1987.

33. See the interesting observations concerning this

episode by Zayadine 1985.

34. Hammond 1970: 39; Brown 1989: 629-630.

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