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QAL'AT JA'BAR POTTERY

A study of a Syrian fortified site of the late 11th–14th centuries

Cristina Tonghini



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To the memory of Michael Meinecke

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by
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with contributions by
H.J. Franken, H.J. de Haas, J. Kalsbeek and A. Zaqzūq



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ABSTRACT

Translated by Abdul Karim Dahmash

The present research aims to investigate the history of Qal'at Ja'bar, a fortified site of the Middle Euphrates valley. The sources of information used in this study consist of historical records and material evidence from archaeology. A study of the historical records contributes a basic chronological and functional framework, while the excavation of two small sondages by the author provides a chronological sequence for the finds. The core of this research consists of a detailed study of the pottery from Qal'at Ja'bar, aiming at a better understanding of ceramic production in Syria in the 11th to 14th centuries in general, in terms of ceramic classification and chronological assessments; secondly, focusing on pottery, it combines the information from it with data on the history and function of Qal'at Ja'bar derived from texts and archaeology, to provide a better understanding of the history of the site in its context.

Qal'at Ja'bar was excavated by the Syrian Directorate of Antiquities from the late 1960s. A series of difficulties prevented the completion of the excavation, and all records were lost and the results remain unpublished. However, the pottery assemblage from these excavations can be considered as a very rich source of data for establishing a pottery typology. The excavation of the two new sondages by the present writer made it possible to establish a chronological sequence for these Syrian wares and to detect major changes in pottery production. With a chronology established and a systematic comparison made with data from the literature on contemporary Islamic ceramics, this study makes it possible to draw a preliminary picture of the distribution and function of the various pottery types of the 11th to 14th centuries in northern Syria. Employing pottery as an interpretative key, and combining the results of this analysis with data derived from more general considerations of pottery occurrence, proportion and distribution, this study contributes to an evaluation of the economic evolution of the site. Data derived from the study of the pottery, combined with the archaeological evidence from the new sondages and the study of historical records, provide a new means of interpreting and reconstructing aspects of the history of Qal'at Ja'bar, and a far clearer picture of the site in connection with the neighbouring regions over a long period of time emerges.

ملخص

يهدف هذا البحث الى دراسةتاريخ "قلعة جعبر" وهو موقع محصّن في حوض الفرات المتوسط. تتألف مصادر معلومات هذا البحث من الوثائق التاريخية والدلائل المادية الناتجة عن التنقيب الأثري. تساهم دراسة الوثائق التاريخية في تحديد الاطار الزمني الاساسي والوظيفي، بينما نستطيع التوصل الى تحديد التعاقب الزمني للمكتشفات بحفر نقطتين اختباريتين.

جوهر هذا البحث هو القيام بدراسة تفصيلية للفخّار من قلعة جعبر من اجل التوصل اولا الى فهم اعمق للانتاج الخزفي في سوريا في القرنين الحادي عشر والثاني عشر بشكل عام ومن حيث تصنيف الخزف وتثبيت التعاقب الزمني له، وثانيا بالتركيز على الفخار يقوم البحث بمزج المعلومات المتأتية عنه مع المعطيات عن تاريخ قلعة جعبر ووظيفتها، تلك المعطيات الناجمة عن النصوص التاريخية وعن الحفريات الاثرية، وذلك من اجل التوصل الى فهم افضل لتاريخ الموقع ضمن محيطه التاريخي.

بدأت ادارة الاثار السورية الحفر في الموقع في نهاية الأعوام الستين لكن بمجموعة من العقبات حالت دون اتمام العمل وأدت الى ضياع السجلات وبقيت النتائج دون نشر. ومهما كان الامر فان جمع الفخاريات الناجمة عن هذه الحفريات يشكل مصدرا هاما غنيا بالمعطيات التي تساعدنا على تحديد انواع الفخار.

ولقد أدى حفر النقطتين الاختباريتين الجديدتين الذي قامت به كاتبة هذه السطور الى تحديد التعاقب الزمني للأواني الفخارية السورية هذه والى التحري عن اهم التغيرات في انتاج الفخار. بعد تحديد التعاقب الزمني وبعد المقارنة المنهجية مع المعطيات الناجمة عن الكتابات التاريخية المتعلقة بالخزف الاسلامي يمكن ان يودي هذا البحث الى رسم صورة أولية للانتشار الجغرافي لانواع الفخار المختلفة ولوظائفه من القرن الحادي عشر حتى القرن الرابع عشر في شمال سوريا. ان استعمال الفخار كوسيلة تحليلية ومزج نتائج هذا التحليل بالمعطيات المتأتية عن الملاحظات العامة حول تواجد الفخار وحجمه وانتشاره يوديان بهذه الدراسة الى المساهمة في تقييم التطور الاقتصادي لهذا الموقع. ان جمع المعطيات المتأتية من دراسة الفخار مع الادلة الناجمة عن الحفريات الاختبارية الجديدة بالاضافة الى دراسة السجلات التاريخية يعطي بعدا جديدا لمحاولة فهم بعض الجوانب في تاريخ قلعة جعبر، كما يودي الى توضيح صورة الموقع بالعلاقة مع المناطق المحيطة خلال فترة زمنية طويلة.

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NOTES ON CONVENTIONS

Dates

Dates associated with Islamic history are given in *hijrī* and Gregorian terms where of particular significance. In this case, the *hijrī* date precedes the Gregorian. Otherwise, only the Gregorian equivalent is used.

Transliteration

The *Encyclopaedia of Islam* system of transliteration is used with the following amendments: "q" replaces "k̲", "j" replaces "dj̲", and underlining of letters such as "sh̲" and "kh̲" is not used. Long vowels are represented as "ā", "ī", and "ū". Where a word or a place name has entered common practice (e.g., wadi, Damascus, Deyr ez-Zor etc.), these spellings are used. The common use of site names in the archaeological literature is maintained when there is a lack of further information on the correct Arabic spelling (e.g., Tell Ḥrīm), to aid reference.

Chronological periodisation

The long-established practice of dividing chronology according to ruling dynasties has been maintained in this study. While this does not represent a systematic and precise periodisation of Islamic cultural history, it is still a very useful approximate division of the absolute chronology. Dynasties are also a useful tool for archaeological description, even if they lack the subtlety to reflect the archaeological evidence in a refined sense.

In general, our understanding of the detailed history of much of the Islamic world is still rather limited and lacking in detailed precision. In the future, it will probably be possible to understand the Islamic past much better, and to be able to relate major changes to chronology, if division by dynastic periods is dropped. In the meantime, the customary system at least has the virtue of familiarity.

Use of geographical terms

Terms such as "western Mesopotamia" and its Arabic equivalent "Jazīra" are used throughout this text for the area which is now divided between Turkey, Syria and Iraq. Northern Syria is used in the traditional way, indicating the area west and south of the Syrian Euphrates. The term Syria is used to denote the rest of the modern country, rather than "Greater Syria" (i.e., the Arabic "Bilād al-Shām"). The terms Palestine and Transjordan are used to described the areas now divided between Israel, Jordan and the Palestinian Territories.

CHAPTER 1
AIMS AND METHODOLOGY

In the course of this century, and in particular in the past thirty years, northern Syria and the Jazīra have been the objects of a series of field studies which have led to a better understanding of the history of the Euphrates valley. However, recent surveys have demonstrated how much more research is needed to achieve a coherent understanding of the area in the past, and of its material evidence in particular. While pottery has proved to be a useful means of interpreting the surviving evidence, it is clear that the study of pottery must be pursued much further, for in spite of an increasing number of studies devoted to the Euphrates area, its pottery production is still only partly understood and several major issues remain to be explored; this situation partly derives from a basic inconsistency in the classification of the pottery itself and a lack of adequately documented, published evidence. A better understanding of pottery production and its changes may contribute significantly to a better understanding of the Euphrates area in general. Although political events are unlikely to have a direct impact on the ceramic repertoire of a given site or region, major changes in ceramic production and distribution may often be related to socio-economic transformations in a broad sense, and to this extent, at least, they should be seen in conjunction with political changes. The disintegration of a central government, the recession of agriculture, or military invasions, for instance, all obviously have an impact on the economy of an area, and thus also on ceramic production and consumption.

Research on pottery production, therefore, can be pursued at two different levels: a detailed analysis of the pottery contributes a precise and well-documented classification, which is the first step towards an assessment of major ceramic production changes. Employing pottery as an interpretative key, and combining the results of this analysis with data derived from more general considerations of pottery occurrence, proportion and distribution, contributes to a general picture of a socio-economic evolution. A contribution to the history of the area can be based on a working hypothesis that derives from this archaeology-based picture.

The development of Syrian pottery production seems to have attained its zenith in the late 11th, 12th and 13th centuries, reaching the level of what seems to have been a well organised, highly specialised industry, whose products were widely traded. For studying pottery production of this period, a site like Qal'at Ja'bar is of major interest, because it reflects the emergence of this industry, its development, and also its decline. Furthermore, Qal'at Ja'bar is one of the few settlements of the Jazīra to have enjoyed an efflorescence in the aftermath of the Mongol invasion, and this is reflected in the pottery found at the site.

Moreover, Qal'at Ja'bar reflects the late 11th- to 13th-century political situation of northern Syria and the Jazīra: the area was divided into a number of small localised principalities, associated in most cases with an important town or a fortified settlement, such as Qal'at Ja'bar. Officially under the control of the central government, these principalities enjoyed a high degree of autonomy. Their link to a common central government has some echo in the pottery assemblages, which in the Euphrates area are quite homogeneous; at the same time, the presence of a pottery industry at a number of sites may reflect their status as politically and economically autonomous entities.

To summarise, the present research is based on archaeological evidence, focusing on pottery, and it aims to investigate the history of a site in the middle Euphrates valley, Qal'at Ja'bar, in that part of the Jazīra known as Diyār Muḍar (see p.17). The sources of information used in this research consist of historical records, excavations and archaeological finds, mainly pottery.

Historical sources, some of them contemporary with the events considered, will provide first of all a broad chronological framework into which to fit the archaeological evidence from fieldwork at Qal'at Ja'bar, i.e., the span of time which may be expected to be represented by material retrieved from survey and excavation. Historical records will also offer essential evidence to assess the nature of this settlement and its function over time. It is well established that an accurate perception of the nature and function of a site is essential for a correct interpretation of the archaeological evidence, whether in the form of architectural remains or of finds.

The new sondages excavated by the present writer will provide a limited (because of their size) but basic framework for the occupation history of the site. Results will provide a relative chronological sequence for the finds and data on the incidence of the various finds. The present writer is aware that results based on the excavation of sondages of such limited size should be treated with extreme caution and cannot be considered in any way as an exhaustive sampling of the various phases to be expected at the site. Thus, throughout this study, these results will be dealt with as merely establishing a working hypothesis rather than as a definitive statement.

The core of the research consists of a detailed study of the pottery. Because the aim of the present research is ultimately the understanding of the site in a well defined context, the typology will be established by focusing on some general characteristics of the pottery which would allow comparison between the pottery horizon identified at Qal'at Ja'bar and that of sites in the region. A preliminary general chronological framework for the various wares will be offered, comparing data based on relative chronology from the new sondages at Qal'at Ja'bar with a review of the absolute chronology offered in the ceramic and archaeological literature; this will be combined in turn with the chronological framework provided for Qal'at Ja'bar by historical records.

It is hoped that the study of the pottery will provide new means for interpreting the site: for instance, the presence of pottery wasters and of imports allows us to infer the nature and function of the settlement.

CHAPTER 2
GEOGRAPHICAL AND HISTORICAL INTRODUCTION

Geographical introduction

General description

Qal'at Ja'bar is located in that part of continental Syria generally referred to as the Jazīra.[1] The site is situated between the river Euphrates and its left-bank tributary, the River Balīkh; this area in the south-west part of the Jazīra is part of the Diyār Muḍar district.[2] Qal'at Ja'bar lies 42 km. east of the village of Meskene (ancient Bālis), on the right bank, and 45 km. west of al-Raqqa. It is located on a limestone plateau on a cliff standing 347 m. above sea level. This cliff measures 320 m. from south to north and 170 m. from east to west. The area is characterised by a fairly low chalky plateau (see below), bordered by the Euphrates and its flood plain to the south and the west. The region is marked by low, stony hills and plains; as with Syrian steppe regions, it is generally bare of vegetation except in spring when the wadis are full after rain.

The landscape has significantly changed in the last twenty years as a consequence of the building of a dam on the Euphrates. A very large portion of the Euphrates valley has been flooded, forming al-Asad artificial lake, about 80 km. long. The centre of this lake is roughly located in the area where the Euphrates, flowing south from the Turkish border, makes an eastward turn at Bālis. Qal'at Ja'bar is now located at the eastern end of al-Asad lake (see fig. 1).

During the building of the dam, the whole area was extensively investigated geologically (below) and archaeologically (p.25). Since then, new agricultural development projects have significantly changed the appearance of this part of the Euphrates valley.

Geology

Extensive geological surveys have been conducted in Syria since the 1970s, in particular as a part of a programme of agricultural land development.[3] More recently, the discovery of oil fields has increased the number of surveys in the Jazīra, especially in the east, near the Iraqi border. However, maps based on this work are not yet available for academic purposes.[4]

According to the Ponikarof geological map, an alluvial plain and the Quaternary I fluvial terrace characterise the Euphrates valley; in this area, the flood-plain can be up to 10 km. broad. The alluvial plain and the Quaternary I terrace are characterised by deposits of sands, pebble beds, looms, clays, and sandy looms. The terraces of the Quaternary along the Euphrates plain have been extensively studied in the course of the R.C.P. 438 survey.[5]

The area in the neighbourhood of Qal'at Ja'bar is part of the vast chalk and limestone plateau which slopes down to the east in the Jazīra. It is marked by chalky limestone and marls from the Middle and Upper Eocene and by sandstone and limestone from the Oligocene. In the area of Qal'at Ja'bar, the presence of organogenous-detrital limestone from the Helvetian is also indicated.[6]

Climate and vegetation

The Qal'at Ja'bar region is located between the steppe regions and the desert areas of Syria. According to the classic division of Syria into climatic zones, it is part of the inland steppe.[7] The region is characterised by low rainfall (0–250 mm.), spread more or less evenly from December to February. Winter is cold (average temperature is 5–10° C.) and summer is long and hot (average medium temperature is 29–33° C.).

Before the construction of the al-Asad dam, the fertile belt along the River Euphrates was used for the dry farming of cereals (wheat and barley in particular).[8] The area of Qal'at Ja'bar, however, was not as fertile as the Balīkh and the Khabūr delta, and crops tended to give way to grazing land, with the area especially used for pasture; the plateau is particularly rich in wells.

However, as already noted, the area has entirely changed since the building of the Euphrates dam. Now that it is well supplied with water, the area of Qal'at Ja'bar has been extensively used for plantations of pine trees. The agricultural programme is trying to develop pine tree forests around lake al-Asad in the area near Qal'at Ja'bar.

Historical introduction

Qal'at Ja'bar until the Saljūq conquest

The initial foundation date of Qal'at Ja'bar cannot be established in the light of the evidence available at present. Mediaeval Arabic sources indicate that the site was already known in the pre-Islamic period under the name Dawsar or Dawsara.[9] This toponym was maintained until the late 11th century, when it became Qal'at Ja'bar (see below); however, in some 12th and 13th-century sources, the site was still referred to as "Qal'at Dawsar or Ja'bar".[10] The whole area had been extensively surveyed before the construction of the Euphrates dam (p.25): no other site which could be associated with the pre-Islamic and early Islamic Dawsar of the sources was identified in the course of this survey. As a consequence, there is no evidence to reject the classic identification of Qal'at Ja'bar as ancient Dawsar.

According to the mediaeval Arabic sources, this pre-Islamic name derived from Dawsar, a *ghulām* of the Lakhmid king of al-Ḥīra Nu'mān ibn Mundhir, who is reported to have settled a military camp in this area. It is difficult to identify to which al-Nu'mān ibn Mundhir of al-Ḥīra the sources refer, since various rulers were known by this name between the 5th and 6th centuries.[11] However, it appears likely that the origins of settlement at the site of Qal'at Ja'bar took place long before the time of the various kings named Nu'mān ibn Mundhir: Fronto, writing in AD 163, mentions the fact that the emperor Verus conquered the towns of Dawsara and Nicephorium during his eastern campaign.[12] However, the name Dawsar/Dawsara is not included in the 1st-century BC list of halting places between Syria and the east preserved by Isidore of Charax, nor does it appear in the list of Euphrates towns given by Ptolemy (*c.* 90–168 AD).[13]

It emerges once again as a place known to Procopius who reports that the fort of Dawsaron was restored by Justinian I (527–565)[14] and about 600 AD, Stephan of Byzantium mentions a town of Dawsara, indicating that it was located near Edessa; his use of the word "town" (*polis*) is particularly interesting, but unfortunately he provides no further details.[15]

The name Dawsar re-emerges in the work of Islamic geographers and is repeated in a number of sources. Ibn Khurradādhbih, writing in the first half of the 9th century, describes Dawsar as a town of the Khabūr district, and includes it in the list of stations on the road from al-Raqqa to Qinnasrīn and again as a station on the road which connected western Mesopotamia to the Syrian coast.[16] It is impossible to assess the significance and role of the site in this period, or to what extent it enjoyed the economically prosperous period which characterised the Jazīra of the 9th and early 10th centuries.[17] The name is known to al-Bakrī (d. 1094), who noted that the town of Dawsar was close to Sinjār.[18] Al-Idrīsī (d. 1166) says that Dawsar was on the road from Aleppo to al-Raqqa, the capital of Diyār Muḍar (which he describes as full of markets and dealers).[19]

It is likely that Dawsar acquired its function as a Euphrates crossing point of major importance only in later times (see below), for ibn Khurradādhbih states that in his day, the river was crossed at Bālis.[20] Bālis seems to have been a site of major regional significance in the early Islamic period, as a commercial harbour on the Euphrates where goods brought overland from Egypt were transferred on to boats to continue their journey to Baghdad.[21]

Archaeological research conducted at Qal'at Ja'bar has failed to clarify the early history of the site, since the earliest excavated phase can only be ascribed to the second half of the late 11th century (pp.34–35). However, Mr 'Abd al-Razāq Zaqzūq, who directed the excavations at the site from the early 1970s (p.25), reports that a group of late Byzantine coins was discovered among the pottery recovered during clearance work at the fortifications by the Syrian Directorate of Antiquities in the late 1960s.[22] The possibility that the earliest settlement was not located where mediaeval Qal'at Ja'bar lies, on top of the chalky cliff, should also be taken into account. However, as mentioned above, extensive survey conducted in the area prior to the construction of the dam provided no evidence in this respect (see note 141); moreover, as a consequence of the construction of the dam, the water now surrounds the castle and it would be impossible to investigate this point further on the basis of field work.

By the first half of the 11th century, Qal'at Ja'bar emerges as a place with a considerable regional strategic role, in a period when the situation in northern Syria and Jazīra had changed entirely from that prevailing in earlier times. At some point in the mid-10th century, the peaceful and prosperous period that had characterised the area since the early 'Abbāsid caliphate came to an end.[23] The authority of the once highly centralised 'Abbāsid caliphate had begun to decline in Syria at the beginning of the 10th century, and other regional dynasties, such as the Ṭulūnids, the Ikhshīdids and the Ḥamdānids, gained power in various parts of the country.[24] For the Jazīra in particular, the pressure of Bedouin migration from northern Arabia had become a major cause of turbulence from the beginning of the 10th century.[25] During their initial influx, these nomadic tribes were not easily absorbed into the economic and administrative system of Syria; their pressure on the settled communities for possession of the cultivated land and the fighting that resulted led to the deterioration of the established agricultural regime based on irrigation and canals, and economic decline set in across the region. Fighting over land and raids on caravans, combined with the dynastic rivalry which the tribes brought with them from Arabia, all contributed to a period of marked insecurity and commercial decline.[26] A policy of isolating the tribes was promoted by the Ḥamdānid ruler, Sayf al-Dawla 'Alī (d. 356/967), who managed to keep them under control during his rule, but the situation decisively worsened after his death.[27]

The successful Byzantine campaigns in northern Syria and Jazīra of the second half of the 10th century were also of fundamental importance in weakening still further the notional 'Abbāsid control over the area, increasing general insecurity.[28] By the end of the 10th century a number of the towns of northern Syria and of the Jazīra had passed directly under Byzantine rule and the area remained exposed to nomad raids while the Byzantines continued to make major incursions into the territory remaining under the Muslims. Meanwhile, from the south, the Fāṭimids attempted to secure their influence in Syria and in 404/1015, for the first time, they took Aleppo.

In the face of this atmosphere of chronic warfare and insecurity between the Byzantines, the 'Abbāsids, the Fāṭimids, their allies and surrogates, a new phenomenon of establishing fortifications developed in the second half of the 10th century and in the 11th century in northern Syria and the Jazīra.[29] Local rulers, often themselves Bedouin chiefs, would fortify significant positions to protect their own appanages from Byzantine incursions and from nomad raids. Fortifications began to multiply, not only to protect major towns and commercial centres, but also places in the rural areas. A type of fortification close in character to the European castle emerged, consisting of an isolated residential fortification from which it would be possible to control commercial roads and strategic points, such as passes and river crossings; at the same time, these fortresses provided protection for the settled people of the neighbourhood in case of attack.[30]

The various Fāṭimid attempts[31] to gain control of the northern area of Syria never succeeded in establishing stable power in the area. As a consequence, like the Byzantines and the 'Abbāsids, the Fāṭimids were unable to guarantee any real protection, and north Syria acquired the character of a frontier region between the Byzantines and the Fāṭimids, an area where neither power could establish stability and control and where they mutually neutralised each other's influence. This situation contributed in great part to the emergence of autonomous local dynasties, encouraged by both the Fāṭimids and the Byzantines, who used these proxies to extend their protectorates over various towns as a means of maintaining their interests in the area and of preventing their opponents from enlarging their own area of influence.[32]

After the first decades of the 11th century a degree of equilibrium set in between nomadic tribal pressure and Byzantine and Fāṭimid expansion. The tribes were increasingly absorbed as a part of a new political and economic system; in order to protect their revenues from the cultivated lands, they provided protection for the inhabitants of the area that they controlled. In this process, the tribes, in particular the Banū Kilāb, became a key factor in the politics of northern Syria and the Jazīra.[33]

In 414/1023, the Mirdāsids, a dynasty from the Banū Kilāb, established themselves as independent rulers of Aleppo, alternating in their alliances between Byzantium and Cairo, only to lose the city again in 1038 to the Fāṭimid governor of Syria, al-Dazbirī.[34] However, the Jazīra remained in the hands of Thimāl, one of the sons of Ṣāliḥ ibn Mirdās, the founder of the Mirdāsid dynasty.[35] To protect his newly acquired territory against the Mirdāsids who held al-Raqqa, al-Dazbirī acquired Qal'at Ja'bar from the tribe of Banū Numayr in 432/1040–1. There are no other precise indications as to the nature of the site at this time, in

particular whether it was already fortified. The fact that al-Dazbirī thought it useful as a stronghold to counterbalance the Mirdāsid threat probably implies that the place was recognised already as having strategic value.[36]

According to ibn Shaddād (613–684/1217–1285), the Banū Numayr regained control of the Qal'a after al-Dazbirī's time, and they also established themselves over the western part of Diyār Muḍar, along with Ḥarrān and al-Ruḥā and over part of Diyār Rabi'a. Yaḥyā of Antioch (d. 1058) confirms that the Banū Numayr acquired a number of castles in the Jazīra; these fortifications were ruled independently as small principalities, deriving their revenue mainly by taxing commerce on the roads through their territories.[37]

From the Banū Numayr, the site passed to an individual from the Banū Qushayr, Ja'bar ibn Sābiq al-Qushayrī, from whom the site takes its present name according to ibn Shaddād and other sources (note 9). Ja'bar, who died in 464/1071–2, is said to have restored several buildings and fortified the site, transforming it into an impregnable fortress. However, it is unclear whether Qal'at Ja'bar was already at least partly fortified prior to Ja'bar's intervention, and to what degree he incorporated earlier defences.[38]

As we have seen, contemporary sources like al-Bakrī (d. 1094) and later sources like al-Idrīsī (d. 1166) both still use the name Dawsar for the site (notes 9–10, 18–19).

When Nāṣir-i Khusraw visited the Jazīra at the beginning of 438/1047, he described a peaceful and rich land, extensively cultivated, where trading continued during the winter. He did not visit Qal'at Ja'bar, but travelled from Ḥarrān to Aleppo via Manbij.[39] This felicitous period came to a close two decades later when the Saljūqs and the Turkish tribes started to invade the Jazīra and southern Anatolia. The first significant raid into Syria by the Saljūqs took place in 459/1067,[40] marking the beginning of a new phase of extreme insecurity, in which the local fortresses once again were of fundamental importance for the defence of the local people against the Turkish raids.

Qal'at Ja'bar in the late 11th–12th centuries

From the time of Ja'bar and the Saljūq conquest onwards, the account by ibn Shaddād becomes very precise with regard to Qal'at Ja'bar. After extending Saljūq territory in Asia Minor at the expense of the Byzantines, Malikshāh marched from Edessa to Qal'at Ja'bar, seizing it from Sābiq, the son of Ja'bar; the sons of Ja'bar were reported to have been highway robbers, and for their immorality were killed by Malikshāh.[41] Malikshāh also took possession of Aleppo in 479/1086 from the 'Uqaylids[42] and assigned Qal'at Ja'bar as an *iqtā'* to Sālim ibn Mālik ibn Badrān al-'Uqaylī and his heirs in compensation for the loss of Aleppo, together with al-Raqqa.[43]

This exchange indicates that Qal'at Ja'bar must have acquired sufficient importance to have been regarded as reasonable compensation to the 'Uqaylids for the loss of Aleppo. Thereafter, Sālim ibn Mālik ruled Qal'at Ja'bar for many years, and, at his death in 519/1125, it passed to his son, Shihāb al-Dīn Najm al-Dawla Mālik.[44]

The Saljūq conquest did not substantially change the fundamental political structure of northern Syria and the Jazīra, and the system of the *iqtā'* continued to be maintained as the basis of the relationship between the government and the local *amīrs*. Local governors were assigned a specific land-holding from the Sultan, for whose administration and defence they were responsible. For this *iqtā'*, they were required to pay a tribute to the sultan on the basis of its revenues.[45] This administrative system had the effect of maintaining the division of the territory into a number of more or less autonomous principalities, an arrangement which was to have the effect of facilitating the infiltration of the Franks with the onslaught of the Crusades.[46]

Ibn Shaddād, who provides in general the most complete account of the history of Qal'at Ja'bar, does not mention the period from the end of the 11th century through the 12th, when the lords of Qal'at Ja'bar began to play a significant role as allies of the newly created Crusader states to the west. The best source for this period is ibn al-Athīr and the various chroniclers of the Crusades. Ibn Shaddād merely mentions the fact that Shihāb al-Dīn ibn Sālim married a Christian lady; after his death, this lady was regent for their son, Badrān. This may well have partly influenced the alliance of Qal'at Ja'bar with the Franks at the beginning of the 12th century.[47]

In 497/1103 Joscelin de Courtenay (cousin of Baldwin II of Le Bourg, Count of Edessa), at the time lord of Tell Bāshir,[48] raided the region around Qal'at Ja'bar and al-Raqqa, taking livestock and seizing as prisoners all the Muslims whom he encountered.[49] However, this seems to have been an isolated episode, since the 'Uqaylid lord of Qal'at Ja'bar, Sālim ibn Mālik, was already a friend of Joscelin and obtained back all the booty and the prisoners.[50]

After the siege of Ḥarrān, Baldwin II and Joscelin were taken prisoner during a battle on the river Balīkh in 496/1104. Joscelin was released in 1107, while Baldwin II remained in the hands of Jerkemish, the *amīr* of Mosul. When Jerkemish died, the prisoner was inherited by al-Jāwalī, a Turkish adventurer appointed by the sultan Maḥmūd as new governor of Mosul and lord of the Jazīra and Diyār Bakr. Al-Jāwalī soon had to leave Iraq as a consequence of a quarrel with the Saljūq sultan Maḥmūd, and fled to Syria to set himself up autonomously. He initially made an alliance with Rudwān of Aleppo against the Franks. His relation with the *muqta'* of Qal'at Ja'bar is not clear, but it seems that the castle became his headquarters in 1107. It was to Qal'at Ja'bar that he took his prisoner Baldwin II of Le Bourg; al-Jāwalī, who was attempting to establish himself in the area, offered Baldwin his freedom in exchange for a ransom and an alliance. Joscelin de Courtney offered himself as a hostage in place of Baldwin at Qal'at Ja'bar, and took his place as prisoner while Baldwin was freed to seek the ransom to pay al-Jāwalī for Joscelin's release; soon afterward, Joscelin was also allowed to leave, on his word that the ransom would be paid.[51]

The alliance between al-Jāwalī and Baldwin II seems to have been fairly stable, and the two parties are reported personally to have been on friendly terms.[52] Al-Jāwalī joined Baldwin II and Joscelin against Tancred, the regent of Antioch, who had made an alliance with the Saljūq prince of Aleppo, Rudwān ibn Tutush.[53] Tancred and Rudwān defeated Baldwin and his allies near Tell Bāshir in 1108, and al-Jāwalī, forgiven by the Saljūq sultan, left for Iraq.[54]

Subsequently, Qal'at Ja'bar passed under the control of Aleppo, and was ruled by Sālim ibn Mālik until his death in 519/1125.[55] At the death of Rudwān ibn Tutush in 1113, power at Aleppo passed to his son Alp Arslān al-Akhras, reported to have been mad and given to murder. Sālim ibn Mālik is reported to have been in Aleppo with all the other

important *amīrs* of the region whom Alp Arslān ibn Rudwān had summoned, intending to execute them: however, Sālim managed to escape.[56] Alp Arslān was murdered in 1114 on the orders of his eunuch Lu'lu' who appointed Alp Arslān's young brother Sulṭān Shāh as a cipher, with Lu'lu' and the general Shams al-Shawās ruling Aleppo in his name. However, Lu'lu' was murdered on his way to Qal'at Ja'bar in 1117.[57]

Qal'at Ja'bar provided a refuge for the Turkish *amīr* Dubays ibn Ṣadaqa ibn Mazyad, former lord of al-Ḥilla, escaping from the Saljūq sultan Mughith al-Dīn Maḥmūd II (511/1118–525/1131), ruler of western Iran and Iraq.[58] In 514/1121 it seems that Shihāb al-Dīn welcomed Dubays with presents and honour, probably because of a marriage link between them.[59] Established at Qal'at Ja'bar, Dubays made an alliance in 1124 with the Franks and in particular with Baldwin of Le Bourg, now King Baldwin II of Jerusalem, against the Artūqids; and he joined the Franks besieging Aleppo in the same year (517/1124).[60] However, the siege was unsuccessful and the Franks and Dubays were defeated by the Turkish *amīr* Aq Sunqur Bursuqī, *atabeg* of Mosul, who acknowledged the Saljūq sultan Maḥmūd II.[61] On his way back to Mosul, Bursuqī is reported to have stopped at Qal'at Ja'bar to deposit two hostages, the son and eventual successor of Joscelin of Edessa, the future Joscelin II, and Yvette, the daughter of Baldwin II, the king of Jerusalem.[62]

Qal'at Ja'bar now passed back under the influence of Aleppo, controlled by Bursuqī on behalf of the Saljūqs.[63] However, there is an interesting suggestion of a continuing connection with Christianity for in 518/1124 the orthodox bishop of Aleppo, Gregory or Samson of Edessa, took refuge in Qal'at Ja'bar.[64]

Ibn al-Qalānisī reports that an extraordinary flood submerged Qal'at Ja'bar in 517/1122–1123; a horse was lifted up to the walls, and 800 houses were destroyed.[65] No evidence of this event has so far come to light in the course of the excavations at the site (pp.25–29). However, this episode may suggest that the area around the castle itself was settled: it seems in fact unlikely that a flood could have reached the top of the cliff. Because of the artificial lake which surrounds the castle it is at present impossible to elucidate this point; no evidence in this respect was provided by previous surveys (see above and p.25).

Shortly afterwards, in 518/1124, a severe drought caused the death of a large number of people in al-Raḥba, Mosul, and Qal'at Ja'bar.[66]

The 'Uqaylid lord of Qal'at Ja'bar during these years, Sālim ibn Mālik, died in 519/1125 and Qal'at Ja'bar passed to his son, Shihāb al-Dīn.[67] As mentioned above, Shihāb married a Christian lady whose presence at the castle may partly explain the sympathy of the Qal'at Ja'bar rulers of this period for the Franks. Their son, Badrān, in his turn ruled Qal'at Ja'bar after his father, but was killed in 533/1138–9 by his brother 'Izz al-Dīn Sayf al-Dawla.[68] Ibn Shaddād reports that Badrān's mother, after the death of her son, fled to Sarūj and married a shoe-maker.[69] Meanwhile, 'Izz al-Dīn, Badrān's brother, ruled Qal'at Ja'bar until it was attacked in 541/1146 by 'Imād al-Dīn al-Zangī, *atabeg* of Mosul.

The Zangid and Ayyūbid period

Qal'at Ja'bar is best known in connection with the Zangid conquest of the Jazīra, for it was at the fortress that the *atabeg* 'Imād al-Dīn al-Zangī was murdered, ending a career in which he had initiated the reversal of the Crusaders' advance when he seized Edessa from Joscelin II in 539/1144. In 541/1146, 'Imād al-Dīn laid siege to 'Izz al-Dīn at Qal'at Ja'bar, in a bid to extend Zangid power over the smaller Muslim principalities of the region. He raided the villages and their populations were deported. In spite of the fact that a large tribute was paid by 'Izz al-Dīn at the beginning of the summer, 'Imād al-Dīn did not go away.[70] 'Izz al-Dīn became increasingly desperate, and it seemed only a matter of time before Qal'at Ja'bar itself would fall, but at the end of that same summer, on 6 *Rabi'a* 541/14 September 1146, a Frankish slave murdered 'Imād al-Dīn.[71] According to ibn al-Qalānisī, the murderer sought refuge in Qal'at Ja'bar, but fled to Damascus, where he was captured; from here he was sent to Aleppo and then to Mosul to be executed.[72] With 'Imād al-Dīn's abrupt and unexpected death, the Zangid lands were divided between Sayf al-Dīn Ghāzī (who held Mosul) and Nūr al-Dīn, who inherited Aleppo, and prosecuted his father's campaigns in the west.

As to 'Izz al-Dīn al-'Uqaylī, spared at Qal'at Ja'bar by the fortuitous demise of 'Imād al-Dīn al-Zangī, he was to die in 546/1151 in an ambush in the Raqqa region, and his son Shihāb al-Dīn Mālik became the lord of Qal'at Ja'bar in his place.[73] Here Shihāb al-Dīn maintained his independence until 564/1168–1169 when he was captured while hunting by a band of Banū Kalb tribesmen, who immediately sold him to the Zangid sultan, Nūr al-Dīn. As a ransom, Shihāb al-Dīn was forced to deliver Qal'at Ja'bar to Nūr al-Dīn in exchange for Sarūj and its district, the saltpans of Aleppo, Bāb Bazā'ā[74] and a cash payment of 20,000 *dinars*.[75] Military and political events in northern Syria had made Qal'at Ja'bar a key place for controlling the middle Euphrates, and it is a good measure of its strategic significance to Nūr al-Dīn that he was prepared to exchange it for the much richer *iqtā'* of Sarūj. When Shihāb al-Dīn was asked whether he was happy about his forced exchange, his answer was that with Sarūj he had something more valuable, but he had lost prestige with the loss of Qal'at Ja'bar.[76] Shihāb al-Dīn was the last 'Uqaylid ruler of Qal'at Ja'bar; according to ibn Shaddād, 'Uqaylid rule over Qal'at Ja'bar had lasted 88 (*hijrī*) years, i.e. from 458/1065–6.[77] This encompasses the period when the Crusaders enjoyed access to Qal'at Ja'bar through their good relations with the 'Uqaylids.

Nūr al-Dīn gave his new possession of Qal'at Ja'bar as an *iqtā'* to his milk-brother, Majd al-Dīn ibn al-Dāya and Majd al-Dīn's brother Shams al-Dīn was appointed governor of the fortress.[78] Ibn al-Athīr describes Qal'at Ja'bar at the time of Nūr al-Dīn's conquest as an impregnable fortification.[79] As part of Nūr al-Dīn's general programme of restoration of fortifications as a consequence of the earthquakes of 552/1157 and 565/1170,[80] new buildings were added to the fortress, in particular a minaret and a mosque.[81] Ibn Shaddād reports that Shams al-Dīn removed a group of Baṭiniyya from Qal'at Ja'bar. These were Ismā'īlī Shī'a who had resided there under the 'Uqaylids, themselves well known for their Shi'a tendencies.[82] The Qal'at Ja'bar area, as well as northern Syria and Aleppo, was inclined towards Shi'ism at this time: in the case of Qal'at Ja'bar this is not surprising, since the battlefield of Ṣiffīn, an important Shī'a pilgrimage centre, is located on the right bank of the Euphrates, immediately in front of Qal'at Ja'bar.[83]

In 569/1174, at the death of Nūr al-Dīn, his son Malik al-Ṣāliḥ Ismā'īl took possession of Aleppo, although the governor Nūr al-Dīn had appointed at Mosul in 566/1171, Sa'd al-Dīn Gumushtukin, effectively controlled Aleppo as *atabeg* for the young Ismā'īl.[84] On the orders of Malik al-Ṣāliḥ Ismā'īl the entire al-Dāya family was arrested in

570/1175.[85] The al-Dāya brothers — Shams al-Dīn 'Alī, Badr al-Dīn Ḥasan and Sābiq al-Dīn Uthmān — had been very powerful until the death of Nūr al-Dīn, as we have seen. They controlled part of the administration in Aleppo and held many *iqtā'at*, including Tell Bāshir, Ḥārim, Shayzar, 'Ayntāb, Azāz, and Qal'at Ja'bar itself. Their power had become such that they were a potential threat to the Zangid regime. Ibn Shaddād reports that Shams al-Dīn and his brothers were stripped of all of their lands by al-Malik al-Ṣāliḥ Ismā'īl, including the fortresses.[86] However, in 572/1176 the release of the al-Dāya brothers was one of the conditions of a treaty between Aleppo and Ṣalāḥ al-Dīn, the new Ayyūbid ruler of southern Syria and Egypt. A large part of al-Dāya property was returned to them as a result, although their former glory was never fully restored.[87] As a result, Shams al-Dīn al-Dāya returned to rule Qal'at Ja'bar until his death in 573/1177, and he passed it on to his son 'Alā al-Dīn Yusūf.[88]

These changes in mastery of Qal'at Ja'bar reflect the strategic importance of the Qal'a which, in this period, had significantly increased as it had become the principal Euphrates crossing point in the area. It was also an important point for river trade and a key point for communications between Aleppo and Mosul.[89] Ownership of Qal'at Ja'bar not only meant control of the crossing itself but also intelligence of movement in the region. For example, in 554/1159–60 Nūr al-Dīn was at some point informed by the *amīr* of Qal'at Ja'bar that his brother Nusrat al-Dīn had crossed the Euphrates, presumably at Qal'at Ja'bar, and was moving against him.[90] Nūr al-Dīn himself is also reported to have crossed the Euphrates at Qal'at Ja'bar on several occasions, including when he marched to take al-Raqqa in 566/1170[91] and on his way from Tell Bāshir to Mosul at the death of his brother Quṭb al-Dīn.[92]

Heidemann has noted that possession of Qal'at Ja'bar seems to have been related to the government in Aleppo, and, in general, follows the change of rulers in Aleppo.[93] The events under the 'Uqaylids and Zangids seem to confirm this view. Qal'at Ja'bar, like Manbij and al-Bīra, was among the key points for the defence of the Aleppo district, since the above mentioned sites controlled the roads giving access from the east and north-east. In its relationship to Aleppo in this period, Qal'at Ja'bar functions as a northern Syrian castle. However, under the Ayyūbids its connections were to shift eastwards to the Jazīra.

Apart from changes of rulers, very little is known about the economy and life at Qal'at Ja'bar, and in general in the area. For the year 546/1151, when the 'Uqaylid 'Izz al-Dīn was killed in the Raqqa area, ibn al-Qalānisī mentions a terrible winter, and he reports as an exceptional event the fact that it snowed at Qal'at Ja'bar.[94]

Between 1159 and 1171 Benjamin of Tudela visited Qal'at Ja'bar. He reports the fact that 2000 Jews lived there; the number is remarkable, especially compared with the 5000 Jews at Aleppo, and the ten in the neighbourhood of Bālis. The presence of such a large community at Qal'at Ja'bar is surprising: further historical research may contribute to elucidating this issue by assessing these figures in relation to better known communities.[95]

The rising power of the Ayyūbids in the south at the expense of the Zangids now brought northern Syria into the ambit of the sultan Ṣalāḥ al-Dīn al-Ayyūbī. In 586/1190 or 587/1191, Qal'at Ja'bar passed to the son of Ṣalāḥ al-Dīn, al-Malik al-Ẓāhir Ghāzī,[96] to whom Aleppo had been assigned by the sultan.[97] The Qal'a was ruled for Malik al-Ẓāhir Ghāzī by a *ghulām*, Badr al-Dīn. Thus, once again we see Qal'at Ja'bar attached to the Aleppo district rather than to the Jazīra, presumably because it controlled access to Aleppo.

However, shortly afterwards Qal'at Ja'bar was removed from the princes of Aleppo to the rulers of the Jazīra, for during the summer of 588/1192 Ṣalāḥ al-Dīn re-assigned Qal'at Ja'bar, asking his son al-Ẓāhir Ghāzī to relinquish it to Ṣalāḥ al-Dīn's brother al-'Ādil, who controlled the Jazīra — the so-called Eastern Territories — on behalf of the Ayyūbid Sultanate. Al-Ẓāhir was reluctant to conform with this, and his reluctance to surrender so significant a fortress confirms how important Qal'at Ja'bar was felt to be for Aleppo. In the event, Qal'at Ja'bar only passed officially to al-'Ādil on the day of Ṣalāḥ al-Dīn's death, 27 Ṣafar, 589/3 March, 1193.[98] However, from this date, Qal'at Ja'bar became a Jazīra oriented fortress, and one of the major positions of al-'Ādil's Eastern Territories. As a result of these arrangements, a certain degree of hostility was to persist between al-Ẓāhir and his uncle al-'Ādil, in particular around 1200.[99] At the same time, as Humphreys has noted, the Eastern Territories were an isolated frontier province in relation to the Ayyūbid lands as a whole, and they could not provide al-'Ādil with an adequate power base to dominate his nephews.[100]

Nevertheless, the Eastern Territories constituted a key area of the Ayyūbid state, exposed as they were to the Zangids of Mosul and their revanchism, hence the need to assign them to a singularly competent figure such as al-'Ādil. With his capital established in Ḥarrān, the region became the basis of al-'Ādil's expansionist policy. In effect, al-'Ādil had inherited the heartlands of Nūr al-Dīn's sultanate, whatever the limits on his power within the Ayyūbid lands as a whole may have been.[101]

Qal'at Ja'bar seems to have remained quite important to al-'Ādil and his family in the Jazīra. Al-Afḍal, Ṣalāḥ al-Dīn's son who held Damascus, met his uncle al-'Ādil in Qal'at Ja'bar in 591/1195 to seek his help against his brother, al-'Azīz, who was ruling Egypt.[102] Qal'at Ja'bar, along with Karak, seems to have been the depository for al-'Ādil's treasury. Al-'Ādil was appointed to govern Damascus as *na'ib* of al-'Azīz, in 592/1196: subsequently, he was besieged in 1198 by al-Malik al-Afḍal (*atabeg* of al-Manṣūr Muḥammad, the son of al-'Azīz, and his successor in Egypt)[103] and he called upon his son al-Kāmil (who ruled the Eastern Territories after al-'Ādil had gone to Damascus[104]) to bring his treasury from Qal'at Ja'bar where it had been held hitherto.[105]

Qal'at Ja'bar continued to be ruled by governors appointed by al-'Ādil until 615/1217–8 when he died, at which point Qal'at Ja'bar passed to his son al-Malik al-Ḥāfiẓ, along with Bālis,[106] while al-Ashraf Mūsā held the rest of the Eastern Territories, including the Diyār Muḍar and Diyār Bakr.[107] Al-Ashraf, reckoned an outstanding general, continued a policy of expansion in the Jazīra, and was considered one of the most powerful princes of the Ayyūbid dynasty.[108]

Al-Malik al-Ḥāfiẓ, as lord of Qal'at Ja'bar, was among the Ayyūbid princes who took part in one of al-Ashraf's campaigns in the north, together with al-Kāmil. Al-Kāmil was appointed to rule the Eastern Territories in 626/1229, in exchange for his former appointment of Damascus.[109] Al-Malik al-Ḥāfiẓ remained in charge of Qal'at Ja'bar when the Diyār Muḍar region passed to al-Ṣāliḥ Najm al-Dīn Ayyūb on the death of al-Kāmil, in 635/1238. However, in 638/1240–1, al-Malik al-Ḥāfiẓ passed Qal'at Ja'bar to his sister, Dayfa Khatūn, who, since the death of al-Ẓāhir

Ghāzī in 634/1236, had acted as regent in Aleppo on behalf of his son, al-Malik al-Nāṣir II Ṣalāḥ al-Dīn Yūsūf. Al-Malik al-Ḥāfiẓ received Azāz in exchange, and held these new territories until his death in 639/1241–1242. This exchange was prompted by the threat to al-Ḥāfiẓ's Euphrates lands presented by the assault of the Khwārazmians in 637/1239–40. However, he managed to save his position by payment of a ransom. Despite this, in 638/1240–1 the Khwārazmians concluded an alliance with al-Malik al-Ḥāfiẓ's son, Taqī al-Dīn al-Mas'udī, who had quarrelled with his father, and who was trying to obtain from his father the revenues of Bālis. At this point, al-Malik al-Ḥāfiẓ sought the protection of Aleppo, handing over both Qal'at Ja'bar and Bālis.[110]

The Khwārazmians crossed the Euphrates once again, now in alliance with al-Ṣāliḥ Najm al-Dīn Ayyūb and advanced on Aleppo. However, as a consequence of a victory by Malik al-Nāṣir II of Aleppo over the Khwārazmians in 1241, he took back all the territories of Diyār Muḍar.[111] Along with Diyār Muḍar, Qal'at Ja'bar remained under Malik al-Nāṣir II.

The Jazīra did not significantly change in the early Ayyūbid period from what it had been in Zangid times. The Ayyūbid state in its early years can still be considered a confederation of local principalities, each ruled relatively autonomously by a prince of the Ayyūbid house. The administrative device of the *iqtā'* continued to be the basis of administration, as it had been under the Zangids.[112] However, in the course of the Ayyūbid period, a gradual tendency emerged to diminish the power of autonomous principalities in favour of a more centralised government system. Moreover, the numerous civil wars between principalities had a debilitating effect on their power. As a consequence, by the time of the Mongol invasions, none of the Ayyūbid princes and governors in Syria had the ability to put up any serious resistance to the Mongols.[113]

As early as 1253 all the Ayyūbid princes of Syria paid homage to Mongke, the Mongol Great Khān (1251–1260).[114] Ibn Shaddād reports that the governor of Qal'at Ja'bar, 'Imād al-Dīn Aḥmad ibn Abī'l-Qāsim, also went to pay homage to Hülagü.[115] Indeed, several diplomatic missions to the Mongols are reported to have taken place in this period.[116] In spite of 'Imād al-Dīn Aḥmad's submission, Qal'at Ja'bar was attacked and destroyed by the Mongols, very likely in the year 656/1258–9 or 657/1259. Yoshmut, the son of Hülagü, who had established himself in al-Ruḥā, crossed the Euphrates in 657/1259 and took Bālis.[117] Ibn Shaddād says that Qal'at Ja'bar was destroyed and that there were no inhabitants left.[118] According to Ilisch, however, part of the population of the area had fled before the arrival of the Mongols, and returned shortly afterwards.[119]

Hülagü's invasion marked the end of a very flourishing period in northern Syria and in the Jazīra. A large number of settlements related to this period have been identified in the course of archaeological surveys carried out in the region.[120] At Qal'at Ja'bar this period is very richly represented in terms of finds and architectural remains (see pp.25–26, and 30–36). Under the Ayyūbids, a mint had been established at Qal'at Ja'bar and rather crude copper coins were issued in the year 601/1204–5 and 602/1205–6 under al-'Ādil; they are very similar to a contemporary issue from al-Ruḥā and Ḥarrān. A second issue of similar coins occurred in the years 629/1231–2 and 631/1233–4 under al-Kāmil Muḥammad; a simultaneous issue is reported from Ḥarrān, Nisībīn, Damascus and Cairo.[121] The striking of unsophisticated copper coinage in the region is particularly interesting. On the one hand it suggests the need for small change, typical of urban societies to satisfy the needs of everyday life;[122] on the other hand, this underlines the fact that the role of Qal'at Ja'bar was politically of a certain importance and it implies that the area was commercially active.

The Mamlūk period

The period after the Mongol invasion of 1258–9 is not particularly well known. Ibn Shaddād ends his account of Qal'at Ja'bar with the Mongol attack and the destruction of the fortress, in spite of the fact that he wrote some years later, presumably between 671/1272 and 680/1280. Furthermore, like many of his contemporaries, he fled to Cairo in 659/1261.[123] It is therefore very unlikely that the description he provides of Qal'at Ja'bar relates to the years that follow the Mongol invasion. Thus, some caution must be expressed when ibn Shaddād describes Qal'at Ja'bar as a fortified town provided with a number of markets and very wealthy;[124] ibn Shaddād also states that a governor was appointed in the area in this period.[125] Is he referring to Qal'at Ja'bar as it had been before the coming of the Mongols or after some putative recovery in the aftermath of the invasion? It may be significant in this respect that the author does not describe Bālis in these terms, a town which was definitely abandoned after the Mongol invasion.[126]

In fact, reconquered by the Mamlūks, the area became the frontier with Mongol Iran and Iraq and, later, with the Turkoman dynasties which succeeded the Mongols at the end of the 14th century. It was also the base for the inconclusive Mamlūk attempt to expand in the east. The repeated invasions and insecurity caused the decline of the region in this period.[127] The commercial road from Damascus to northern Syria and the Jazīra via al-Raqqa fell out of use as a consequence of the destruction of the major crossing points by the Mongols (Qal'at Najm, Qal'at Ja'bar, al-Raqqa, and Qarqīsiyya).[128]

Abū'l-Fidā', who died in 1338, visited Qal'at Ja'bar and reports the fact that in his days it was in ruins and that there were no houses there.[129] The sultan Nāṣir Muḥammad ordered the governor of Damascus, Tankiz, to restore the site in 736/1333–4. Tankiz went personally to Qal'at Ja'bar to organise the work; a garrison was installed there and a governor was appointed.[130]

Al-Ẓāhirī (d. 1468) in his account of the reign of the Mamlūks from the 13th to the 15th centuries, mentions Qal'at Ja'bar as a part of the district of Aleppo, together with Antioch, al-Raḥba, and Sinjār. He uses the term "*madīna*" to describe Qal'at Ja'bar, as he does for al-Raḥba, describing it as a pleasant town with a good fortress, part of a large district with many villages. The impression conveyed is that by his day, the site must have become fairly important once again.[131]

Sauvaget notes that by 1335, Qal'at Ja'bar was one of the stations of the mail service system on the road to Ra's al-'Ayn; he also observes that its role as a mail station must post-date the restoration of Tankiz.[132] The fortress must have been particularly significant in this period as the area remained for a long time a frontier province involved in defence against invaders. Archaeological surveys have provided very little evidence of a Mamlūk occupation in the region as a whole (but see pp.51–55 and 57–63).

Further excavations at Qal'at Ja'bar will probably better clarify the characteristics of the site in relation to the Mamlūk period. This period is not well represented in the

new sondages conducted at the site by the present writer (pp.29–30 and 33–36). However, the abundance of finds which can be ascribed to the post-Ayyūbid period is remarkable in the unstratified pottery assemblage (pp.51–55, 57–63 and fig. 151). The quantity of the finds related to the Mamlūk period, together with the information provided by mediaeval sources, allows the conclusion that Qal'at Ja'bar remained a strategically important fortification on the Euphrates frontier, although, very likely, it was not as densely settled as it had been in the previous period.

The Ottoman period and later travellers

When Qal'at Ja'bar was finally deserted is not known. The archaeological evidence suggests it is likely to have been abandoned at some point in the Mamlūk period. The decline of the region and its population is generally well attested.[133] Qal'at Ja'bar was often visited in the second half of the 16th century by European travellers coming from Aleppo on their way to the Persian Gulf and to India. From their accounts, however, the nature of Qal'at Ja'bar settlement does not appear clear; it is possible that a small village related to the castle was still inhabited at this point.[134]

The site is mentioned in the 17th century by Ḥajjī Khalīfa as "Gjair, or Duseria" and it is described as a castle on the Euphrates, between Bālis and al-Raqqa. However, he gives no indication whether the site was still inhabited.[135] Indeed, one gains the impression from the use of the ancient name Duseria that he is basing his comments on early texts rather than contemporary knowledge.

Since it was believed that an ancestor of the Ottomans, Sulaymān, had drowned at Qal'at Ja'bar while crossing the Euphrates by horse in 1231, the Ottomans placed a guard of honour at his tomb. It is probably to the Turkish garrison that the late Ottoman smokers' pipes found at the site should be assigned (pp.67–68).[136] The Turkish government was still allowed to guard the place under the Versailles Treaty of 1919. Qal'at Ja'bar was visited in 1912 by Alois Musil, who summarises the ancient history of the site.[137] Gertrude Bell also visited the castle in 1909 and made a photographic record.[138] Of great interest is her photograph of the minaret prior to the restoration undertaken in 1929–1932 under the French Mandate. It was presumably at this time that Salles and de Lorey dug sondages at Qal'at Ja'bar.[139]

CHAPTER 3
INTRODUCTION TO THE SITE

The progress of archaeological research at Qal'at Ja'bar

This chapter provides a short survey of previous archaeological investigations carried out at Qal'at Ja'bar, together with an overview of its topographic features, with the aim of placing the present research in context. The description of the standing structures, some of which were exposed in the course of the excavations by the Syrian Directorate of Antiquities, does not pretend to offer a definitive architectural analysis, and does not attempt to interpret the various building phases or the stratigraphy of the whole site. It aims only to show the complexity of the site's archaeology and to illustrate the topography of the site and its visible structures on the basis of the available literature and of general visual observations. A more specific analysis of some of the structures at Qal'at Ja'bar is offered in Appendix H by A. Zaqzūq, director of the Museum of Ḥamā and of the Syrian Directorate of Antiquities for the Department of Ḥamā, who is responsible for archaeological investigations at Qal'at Ja'bar and who undertook a number of archaeological campaigns at the site. In Appendix H, Zaqzūq also provides a short report on the excavations of a number of the structures he managed to expose. In this short report, Zaqzūq not only summarises the results of his past work, making it accessible to non-Arabic readers, but also provides information on the most recent and still unpublished season of excavations.

Archaeological investigations at Qal'at Ja'bar began during the French Mandate (1920–1946): R. Dussaud reports that E. de Lorey and F. Salles, of the Institut Français at Damascus, undertook the excavation of sondages, probably when they were excavating the neighbouring site of Bālis, in 1929. On this occasion, the square base of the minaret at Qal'at Ja'bar was also restored. The excavation results, however, were never published.[140]

In 1963, the construction of a hydro-electric dam on the middle Euphrates valley was planned by the Syrian government. The artificial lake, al-Asad, that was envisaged behind the dam threatened to cover numerous archaeological sites: from antiquity, the Euphrates region had been the point of intersection of major trading routes and numerous settlements covering a wide range of periods were concentrated in this area. Aware of the historical importance of these sites, the Syrian Directorate of Antiquities initiated an ambitious programme of rescue excavations in the entire area, the Euphrates Dam Project. Supported by UNESCO, an international cooperation programme was launched, and this allowed a considerable number of excavations and surveys to investigate the region.[141] As a part of this project, investigations were begun at Qal'at Ja'bar in 1967, under the direction of R. Dahman and Y. Jabali. The activities at the site in these early seasons are not very well documented, but it seems that they consisted of clearance along the fortification walls.[142] A systematic programme of archaeological excavations started in 1970 and continued irregularly until 1983 under the direction of Mr 'Abd al-Razāq Zaqzūq.[143] Along with the excavations, more general clearance and restoration were also planned. The restoration of the walls that threaten collapse is still in progress, under the supervision of the Directorate of Antiquities offices at al-Raqqa.

The excavations carried out at the site under the direction of Mr Zaqzūq included exploration of various areas of the citadel, in particular the area around the minaret, the mosque, and the south-western complex. Mr Zaqzūq also began the systematic classification of the fortifications, a work still in progress. Collection of surface material has also been undertaken. Unfortunately, as a consequence of the Ḥamā events of 1982, most of the excavation record documents were lost. Most of the finds recovered in the course of the excavation and of the survey were kept in the excavation house built in the Qal'at Ja'bar citadel. This house has been vandalised in recent years, as a result of which the finds, which had been labelled and arranged in plastic and paper bags, lost their identification numbers and were reduced to a mound of unstratified material of unknown provenance from the Qal'at Ja'bar site. The unstratified pottery that the present writer has studied and which constitutes a conspicuous part of this publication was a part of this material. This body of material is referred to as "unstratified material from earlier excavations" in this study.

Description of the site: the standing architecture and the excavated structures

Key letters for the identification of the various structures are provided in the plan (see fig. 2 and Appendix H).

The fortification walls

The most conspicuous of the visible architectural remains are the fortifications. They consisted of two curtain walls, although at present it is not clear whether a double curtain surrounded the citadel on all sides (see fig. 2, A); further architectural analysis and excavation will probably clarify this point. The walls are built in courses of baked bricks, most of which seem to measure 30 x 30 x 6 cm. approximately, bonded with grey gypsum mortar. However, limestone is also used, particularly for the lower courses of the towers which surround the summit. Most of the towers are decorated with patterns created by the laying of the bricks (pls 5–7 and 10–12 and Appendix H). At present, it is very hard to assess the date of these walls; historical records report that major restorations at the site were undertaken in 1170 by Nūr al-Dīn (p.20) and by Tankiz in 1333–4 (pp.22–23). Comments by scholars visiting the site are contradictory: Dussaud assures us that the walls look Zangid,[144] while Sauvaget is convinced that they are of the Mamlūk period.[145]

The limestone cliff on which the site is built was faced with baked bricks. Most of this facing is now lost, and the exposed areas are fast deteriorating as a consequence of atmospheric erosion (see pls 4, 5, 7). The brick facing may have served as a fortification, creating a glacis, but it was also a protection for the friable limestone of the cliff.

The entrance to the castle is guarded by two towers (pls 4–7; see also fig. 2, B). The access ramp to the gate is a modern addition; according to A. Zaqzūq,[146] the original ramp from the gate followed a south-west direction, whereas now it is aligned from the north-west (pl. 4). It

was rebuilt in the course of the Euphrates dam work, when several parts of the citadel were reinforced as future banks of the artificial lake (pl. 2).

From the outer gate, a long and narrow passage excavated through the natural rock leads to the upper part of the fortification (fig. 2, C). The access to this passage has also been rebuilt, and there is no record of the original form of this entrance (pl. 8). At the same level as the entrance to the passage is one of the better preserved and largest salient towers of the southern outer curtain wall; it has been restored and is the site of a Museum. The ramp leading from the gate to this building is also the result of recent restoration.

A series of salient towers reinforces both the outer and inner curtain walls. A. Zaqzūq has studied at least thirty-five of these, but the architectural analysis is still in progress (Appendix H). They have either a semi-circular, semi-octagonal, or a rectangular ground plan[147] (see fig. 2, A). In the course of the clearance operations carried out along the walls in the late 1960s as a part of the Euphrates Dam Project, it seems that Byzantine burials were recovered on the western slope of the hill; Zaqzūq also reports the discovery of Byzantine coins dated to the 6th century among the finds recovered in the course of these operations.[148]

The south-west vaulted building
A large building is located immediately above the gate to the south-west; it is built in baked bricks, in the same manner as the rest of the fortifications and it is integrated into the south-western curtain wall (fig. 2, B). The brick pattern decoration (*haẓārbāf*) on the exterior is particularly well preserved (pl. 6). Part of the internal vaulting structure of this building still survives (pl. 7). It seems that major collapse has taken place in the course of the present century, since the building appears to have been in far better condition in the photographs by Gertrude Bell taken in 1909.[149] This building has not been archaeologically investigated as yet and its function remains unclear.

The minaret
A minaret, visible from far off, rises from the middle of the citadel. It is a cylindrical minaret, built on a square base (fig. 2, E, pls 15–16 and Appendix H). It was this base that was restored during the French Mandate.[150] Bell's photographs provide documentation of this minaret before the recent restoration.[151] The minaret is very similar to that at al-Raqqa.[152] The inscription on the Qal'at Ja'bar minaret ascribes it to Nūr al-Dīn; no date is provided, but the minaret is reported in the sources to have been constructed in the course of the building programme undertaken by Nūr al-Dīn in 1170 (p.20).[153] A 569/1174 date has also been suggested.[154] The open ground between the minaret and the mosque has not been investigated so far.

The mosque
Zaqzūq devoted several seasons of excavations to the large building complex located due east of the minaret (fig. 2, F and Appendix H). He interpreted this building complex as a mosque erected by Nūr al-Dīn and destroyed in 568/1259 by Hülagü. His excavations were concentrated inside the building.[155] According to his stratigraphic analysis, after its destruction by the Mongols, the building was re-used. Zaqzūq isolated three distinct Mamlūk phases.[156] No evidence of these Mamlūk phases was reflected outside the mosque, in the area where the present writer excavated two sondages. It thus seems that the Mamlūk phase at the site is not well represented everywhere. Zaqzūq also identified a building phase related to the Ottoman period in the mosque (above the Mamlūk phases), of which again there was no reflection in the new sondages excavated by the present writer (pp.28–29 and pp.34–36). No *miḥrāb* related to the mosque has been found.[157]

Several walls of the mosque were exposed in the course of the excavation by Zaqzūq. They are built directly on the natural bedrock, and they consist of courses of squared limestone blocks alternating with courses of baked bricks (pls 17–19). Evidence of gypsum plaster still survives coating certain areas of these walls. Inside Nūr al-Dīn's mosque, Zaqzūq reports a lime kiln of the Mamlūk period.[158]

The workshop
The northern part of the mosque complex seems to have been transformed into a workshop in later times, possibly in the Mamlūk period (fig. 2, G and Appendix H). The building was divided into small rooms by brick walls; seven rooms have been identified so far. In each room was a semi-circular structure, rising approximately 50 cm. above the floor level (pl. 20). A large number of basalt moulds (for grinding cereals) were also found. The function of this late building is unclear, but it can be tentatively interpreted as a working area.

The cistern
A cistern is visible in the northern part of the mosque complex (fig. 2, H, pl. 16 and Appendix H). Zaqzūq investigated this area and described the complex system of canalisation related to the mosque; a series of water channels are reported to have been found, excavated into the natural rock and lined with baked bricks.[159]

The south-western complex
A series of buildings in the south-western area of the citadel was exposed during the excavations by Zaqzūq and are described in his reports (fig. 2, I and Appendix H).[160] These structures had been interpreted as houses or a residential palace (pls 21–22). The walls are built in courses of baked bricks (approximately 30 x 30 x 6 cm.), bonded with grey mortar. On some of these walls, a coating of whitish gypsum plaster (*juṣṣ*) still survives. These walls are associated with tiled floors, made of the same kind of brick tiles as are used for the walls. Some of the floors have octagonal tiles and are laid in a more sophisticated geometric pattern. A Mamlūk date (14th century) is probably to be assigned to the buildings exposed so far, on the basis of the similarity of the floors to the floors excavated in the area of the mosque and which Zaqzūq has ascribed to the Mamlūk period. The same Mamlūk date has also been suggested for a similar floor found in sondage S1 (floor 6, see p.28). Stone was also occasionally used for paving some areas of these buildings.

The tank
In the course of the excavations, a large tank was found (*c.* 6 x 9 m.) carved into the rock and filled with discarded pottery (fig. 2, J).[161] Zaqzūq began to investigate this structure and recovered some of the material in it: however, this pit was affected by the rising water level of lake al-Asad and the contents and the floor of the basin vanished through vast erosion.[162] Ceramics were recovered in this basin's fill, which are at present on display in the Aleppo Museum, including a notable fritware dish of remarkable size (diameter 41 cm.) with lustre decoration.[163]

CHAPTER 4
THE NEW SONDAGES

Aims and methodology of the excavation

This chapter deals with the results from the excavation of two sondages carried out by the present writer in October 1992. The excavation set out to sample deposits representing the occupational history of the site, and, in particular, to establish a ceramic sequence to be related to the material (mainly unstratified) found during previous campaigns at Qal'at Ja'bar (p.25). This work was intended to be limited in scope, and to be completed in one season.

Two small sondages were dug, the first (S1) measuring 4 x 4.5 m. and the second (S2) measuring 2.7 x 1.7 m. (see fig. 2, NS; see also pls 23–31); sondage S2 was excavated to check the results obtained from sondage S1 particularly relating to the latest phases in the occupation sequence.

The area where the sondages were excavated was selected on the basis of its proximity to already excavated areas; they were set out in relation to the orientation of the grid set out by the Syrian Directorate of Antiquities, against the southern extremity of the east wall of the Zangid mosque (p.26). The selected area was covered by a considerable amount of stone rubble and tile fragments, but no structures were visible at the surface level, apart from the mosque wall already mentioned.

Presentation of the excavation

Every 'Stratigraphic Unit'[164] is described in the tabulated figures in Appendix A, arranged in a numerical sequence regardless of stratigraphy and phasing. Every entry represents a short version of a 'Stratigraphic Unit Recording Sheet':[165] a short description of the unit is provided, together with basic stratigraphic correlations. No measurements are given for the stratigraphic units, with the sole exception of wall widths, since wall width can be particularly useful for ready comparison with similar structures at the site. References to sections, plans and photographs are indicated for every unit in Appendix A (pp.77–81).

An interpretation of the various features encountered, grouped by phases, is presented in the section 'The occupation sequence' (pp.27–29), which is essentially a discussion of the matrix. Given the limited size of the sondages, and the consequent difficulty of interpreting the various features encountered and making a correlation between the two sondages, each phase is discussed separately for each sondage.

The finds are discussed separately according to the phase sequence (pp.29–34).

Annotations concerning finds quantities and proportions are provided in Appendix B, Appendix C (pp.83–87) and with graphics 1–6 (figs 13–18). The methodology of processing and presenting the finds is explained in a specific section (pp.29–30). A possible framework for absolute dating is determined, based on glazed wares (p.30). The following sections (pp.30–34) are devoted to the pottery and glass finds: the results from both sondages are discussed and compared, phase by phase. Quantities and changes in the pottery production are described in detail, in an attempt to interpret the evolution of the process. Finds from the two sondages are separated in the plates and in the appendices. The identification of the various pottery types is based on the descriptions provided in Chapter 5. As the finds sections provide the basis for the final discussion on pottery in Chapter 5, these sections have been kept as part of the stratigraphic discussion for ready cross-reference.

Finally, an attempt to interpret the various phases and to relate them to absolute chronology is made in the last section (pp.34–36). The absolute and relative dating evidence provided by the stratigraphic units and by the finds is combined with the study of the historical sources presented in Chapter 2. In this last section, an attempt to interpret the function of the excavated area is also made.

The occupation sequence

The phases were numbered from the lowest level upwards, with the lowest number as the earliest phase and the highest number referring to the latest phase. Given the small size of the sondages, it was often very difficult to assess the significance and the function of the various features encountered.

Sondage S1
The deposits were excavated down to the natural bedrock, at a depth of approximately 2.4 m. from the present surface. Six phases were distinguished as described below (see figs 7–9, 11 and pls 23–29, 31):

S1. PHASE I:
This is the earliest phase corresponding to the deposit (40) lying directly on the natural bedrock, sealed by floor 39. Rather than a naturally formed deposit, this layer 40 can be interpreted as a dumped layer serving to level up the uneven bedrock surface, which is higher in the northern part of the trench. This levelling process allowed floor 39 to be laid. The presence in layer 40 of a large quantity of very small pottery fragments and the general similarity of the finds with those of the layers immediately above supports this interpretation.

S1. PHASE II:
This phase was sub-divided into IIa and IIb. The most important features in sub-phase IIb were a wall (30), running N–S, and a floor (34 and 42) related to it. Wall 30 consisted of two parts: the superstructure which was built of mud-bricks had entirely collapsed, very likely as a consequence of human intervention or of an earthquake (see below and pp.34–36; pl. 27); the base of the wall was set in a foundation trench and consisted of three courses of squared and roughly hewn blocks of limestone, bonded with mud-mortar. The upper course of the foundation wall was visible above floor 34, but its foundation trench was barely visible, and was probably cut down from layer 38. Layer 38 is interpreted as the working surface during the building of wall 30.

A plaster floor is associated with wall 30 against which it runs, and it extended both east (floor 42) and west (floor 34) of wall 30.

A packed-mud structure (36) was built against wall 30, running E–W. This structure, probably a wall, could be slightly later in origin than wall 30, but it was destroyed

at the same time, since it was covered by a similar kind of collapse.[166] In the area north of wall 36, limestone rubble and a large number of tile fragments were retrieved, indicating the presence of yet another structure not far from this area.

The various deposits sealed by floor 34 may correspond to a working stage in the adaptation of the surface for the building of this floor. The very little pottery retrieved from level 33, the presence of a sterile deposit (38), consisting of strongly cemented pebbles and sandy silt — probably the ground level during the various building phases — and the small size of the pottery sherds in fill 45, all seem to point in this direction.

Unit 32 is the deposit below collapse 31 and partly below 30A. It seems to correspond to the abandonment of floor 34. As the south section suggests (pl. 29), unit 32 is to be distinguished from fill 29, but the nature of the deposit and the finds in fill 29 are such that it is impossible to be sure that 32 is in fact different in origin from fill 29. In reality, 32 and 29 may be one and the same.

In general, a slight variation occurs between the finds of phase IIb and those of phase IIa, which may correspond to the chronological gap between the construction of the wall and its destruction (pp.31–32). The layer comprising stratigraphic units 29, 31 and 32 does not represent an occupation deposit and the accumulated material is to be associated with collapse. The nature of the collapse suggests that it may have been the consequence of a deliberate demolition or of an earthquake; it involved the demolition or collapse of the superstructure of walls 30 and 36. This demolition or collapse probably occurred shortly before the building of the Zangid mosque (pp.34–36). A layer corresponding to the occupation of phase II could not be identified separately, as the deposit above floor 34 seemed to be related to its abandonment. However, the deposits sealed by floor 34 are chronologically very close to the occupation of phase II, since they have been interpreted as the building of phase II.

S1. PHASE III:
Phase III consists of three burnt layers (12, 25, 27), the latest of which runs directly below walls 10, 23, and 101, all which belong to phase IV. A large quantity of pottery and animal bones was recovered in phase III deposits, suggesting that the area was used as a dump in this period; both pottery and animal bones showed evidence of burning. The sequence of burnt layers (12, 25, 27) and the finds in them suggest that dumped material was burned intermittently over a period of time.

S1. PHASE IV:
This phase was divided into sub-phases IVa and IVb. Of phase IVb, only part of a foundation wall has survived (23), made of squared blocks of limestone bonded with mud mortar and running on an E–W alignment. It abuts the east wall of the Zangid mosque. Remains of similar foundation walls were also found elsewhere in the sondage (10 and 101).

No floor was identified which could be safely related to these structures; it is very likely that this was because of destruction during the building of the subsequent sub-phase in which these foundations fell out of use. Laid up against wall 23, and east of wall 101, was structure 15, consisting of three large, flat unfired brick tiles (approximately 40 x 40 x 6 cm.), in three courses. Its significance could not be assessed, but the upper course displayed traces of erosion, and was probably relevelled when 14, the floor of the next sub-phase, was laid.

The new sub-phase, IVa, consisted of a packed mud floor (14) which covered and sealed all of the foundation walls just described; a few tiles (108) had survived in the southern part of the sondage, indicating that unit 14 was partly tiled. In the S-W corner, the floor was covered with plaster and large limestone tiles (106 and 107 respectively).

A layer of packed mud (18) surrounded and covered the foundation walls of the previous sub-phase (23, 10, and 101). It was also found below floor 106/107. Associated with 106 was a large jar, missing its base and neck, placed in a cut dug down through earlier layers (21). Although a conclusive explanation cannot be given, it seems probable that this feature was connected with building operations, and specifically with the making of plaster floor 106, as it was filled with crushed limestone granules, possibly prepared for use in plaster (113). It was still functioning during phase IV, as the plaster floor 106 ran up against the broken edge of jar 21. Above the limestone granules (fill 113) in jar 21, a cooking pot, with its base missing, was placed.

No walls relating to these floors were found, probably as a consequence of the limited size of the sondage.

S1. PHASE V:
This phase included various walls and a floor of baked brick tiles (6), each measuring approximately 29 x 29 x 6 cm., and bonded with silty sand and white plaster.

Deposit 7 below this brick floor (6) has been interpreted as the destruction layer of phase IV, given the presence of a quantity of limestone rubble and tile fragments; the finds in 7 are compatible for the greater part with the finds in phase IV. However, the presence of a few later pottery sherds (Mamlūk) must be taken into account and may provide dating evidence for the laying of floor 6, i.e., the date of phase V (pp.33, 35). It is true that floor 6 shows several repairs, and it is possible that later pottery sherds "percolated" down into phase V during these repairs; however, this interpretation is undermined by the presence of similar Mamlūk pottery sherds below floor 58. Floor 58 is a plaster floor in sondage S2 which seems to correspond to floor 6 in sondage S1; no visible signs of repair were identified in floor 58, which suggests that the theory of "percolation" of the Mamlūk sherds through the repairs lacks weight. A floor similar to 6, much better preserved and with a N–S alignment in the laying of its brick tiles, can still be seen in the unexcavated areas of the mosque. Future excavation of these areas may provide an answer to the problem of the dating of floors 6 and 58.

Floor 6 is associated with walls 103 and 104, which run on a N–S alignment, built with roughly hewn blocks of limestone. Occasionally, traces of what could have been a mud and plaster bonding were detected; this easily deteriorates into dusty, greyish soil.

Phase V was sealed by modern deposits, and the assemblage of finds recovered above floor 6 was not homogeneous but included material from every occupational phase of the site (pp.33, 35). In fact, the only homogeneous assemblage of finds was in pit 13, and these point to a Mamlūk date. However, given the small quantity of the pottery found in the pit, this evidence should be treated with extreme caution and, in any case, may not be particularly significant.

S1. PHASE VI:
Phase VI is composed of surface debris, limestone tumble and a large number of baked brick tiles, measuring approximately 29 x 29 x 6 cm. (unit 0).

The remains of a tiled floor, approximately at the level of the modern surface, were identified (1). No structures which could be clearly related to this floor were found in the sondage. The significance of the arrangement of tiles on the surface is not clear, but they are very likely the result of recent, sporadic activities at the site.

Finally, a pit (5) was dug; it was later filled with a large number of tiles, rubble and a few very large blocks of limestone. It may have been a robber trench, dug at a fairly recent date.

Surface finds include Ottoman tobacco pipes, which indicates that this part of the site was probably only frequented in the later Ottoman period.

Sondage S2
In order to check the results from the latest phases of sondage S1, a second sondage (S2) was opened east of sondage S1. The deposits were not excavated down to the natural bedrock, but only to a depth of approximately 1.2 m. The main aim of sondage S2 was to ascertain the presence of a phase which could safely be considered Mamlūk, as had been clearly detected in other areas of the site.

Four different phases were distinguished (see figs 10, 12 and pls 30–31). An attempt to relate them to those of sondage S1 was made on the basis of floor 6, which is interpreted as the same as floor 58 in sondage S2, and the foundation wall 23; wall 23 was also found in sondage S2 (76). Phases have been numbered in relation to the sondage S1 phases, since sondage S2 was not excavated down to natural geological levels.

Phase IV was much better represented in terms of finds in sondage S2. As in the case of sondage S1, it was not possible to identify an occupation phase related to the foundation wall 76, which corresponds to sondage S1 wall 23.

S2. PHASE III:
This phase was not entirely excavated and corresponds to the deposits sealed by floor 74.

S2. PHASE IV:
This phase was sealed by a grey deposit (67A), interpreted as a floor made of a not very hard mix of clayey silt and ash. In this phase the remains of two walls were found: wall 76, reduced to foundations, running approximately N–S, was built of rubble and mud, and abutted a second wall (75), with an E–W alignment, made of squared blocks of local limestone. Wall 76 was the continuation of wall 23 in sondage S1, likewise reduced to foundations; the black layers typical of sondage S1 and above which wall 23 was laid, were not visible in sondage S2. Wall 76 was clearly built above and on floor 74. However, the functional relationship of floor 74 and wall 76 is not clear, as this area could not be sufficiently investigated. The foundations of wall 76, running E–W, had been partly destroyed by wall 75, built on an approximately N–S alignment. Both walls were definitely destroyed by the time floor 67A was laid, as it seals them. The finds in 67 and in 59 are very similar, indicating a limited span of time between the end of the previous phase and the beginning of the next (p.33). Floor 67A should correspond to floor 14 in sondage S1, since they both seem to have been associated with the destruction of sub-phase IV b of wall 23/76.

S2. PHASE V:
As already noted with regard to sondage S1, phase V was not stratigraphically discrete and the finds recovered were not homogeneous. In phase V, a wall was built, running N–S, made of squared blocks of limestone, bonded with grey mortar (56). Only one course has survived and it probably functioned as a plinth. Floor 58 lapped up against this wall: floor 58 was made of hard, grey mortar in the southern excavated area. In the northern part it was partly paved with large blocks of limestone, while a smaller area of floor 58 consisted of a mixture of mortar and mud. The excavation did not continue in the northern part of the sondage because of resource constraints. This northern area deserves further investigation.

The deposits below floor 58 are interpreted as marking the abandonment or destruction of phase IV, since the finds are fairly similar to those of the previous phase III (pp.32–34). The presence of a few Mamlūk sherds may suggest a post-Ayyūbid occupation, indicated by the deposits below floor 58 which contain a mixture of Ayyūbid and Mamlūk sherds, which may date from the levelling of the surface for the installation of the floor 58. This operation is presumed to have taken place in the Mamlūk period (p.35). Floor 58 seals the deposits below it; there are no signs of contamination, in contrast with floor 6 and its repairs in sondage S1. The obvious explanation for the recovery of Mamlūk pottery sherds sealed by floor 58 is that this floor was laid in the Mamlūk period.

S2. PHASE VI:
Phase VI consists of surface debris (50) deposited above floor 58; finds represent various occupation phases; smokers' clay pipes indicate that the site was frequented during the Ottoman period (pp.35–36).

The finds: methodology and presentation

The corpus of finds is presented in the tabulated figures in Appendix B (pp.83–84) and illustrated in figs 19–41 and pls 32–33.

The system of processing the various types of finds attempts to be as homogeneous as possible, but eventually it had to be adapted to logistical problems. The recording system was conceived for a database. Every find — or group of finds with similar characteristics, see below — is assigned an individual identification number from a running series. Each find is described in detail in the finds register, arranged in a numerical sequence, regardless of the type of find and stratigraphic unit. The database subsequently provides the 'Find Recording Sheet' for every stratigraphic unit, to be attached to every 'Stratigraphic Unit Recording Sheet'. Every horizontal compartment in Appendix B is a short version of the 'Finds Recording Sheet', in which are reported all the finds in that particular unit, their identification number and their quantities. The absence of electronic equipment at the site forced the system to be modified, and the processing of the various types of find was not as homogeneous as intended.

Pottery
Pottery, as well as glass, was treated according to the original system: an individual number was given to every diagnostic sherd or to a group of body sherds of similar ware. Every number provides an entry in the database, where the sherd or sherd group is described in detail.

Every diagnostic sherd was drawn or photographed; an attempt at non-selectivity was made at this stage to build a reference corpus as large as possible to relate to the unstratified pottery from the earlier Syrian excavations at the site (pp.25 and 37–38); very small rim fragments, whose diameters could not be calculated, were also drawn.

As far as quantity is concerned, two different figures are provided in the tables. The first represents the number of sherds retrieved; where a number of sherds with fresh breaks undoubtedly fit each other, they are counted as one. The second figure, generally in squared brackets, represents the count of minimum forms. This is relatively easy to calculate in the case of glazed pottery, since the colour of the glaze as well as the decoration provide very precise criteria. By contrast, the extreme homogeneity of unglazed wares made the count of minimum forms less reliable. It was almost entirely based on the number of rims or other significant diagnostic sherds. This dissimilarity in the process of assessing the minimum form number between glazed and unglazed pottery may affect the comparison between the two. Nevertheless, both figures — the number of fragments and the minimum form number — are provided for the reader, as they might together give a more complete picture of the relation between the various pottery wares.

Glass
Glass finds have been treated in the same manner as pottery finds, and have been given an individual number. The quantity[167] indicates the number of fragments and also corresponds to the minimum form number; as with pottery, fragments with fresh/recent breaks clearly fitting to each other were counted as a single piece.

Metal and coins
For recording metal and coins,[168] the classic "small find" individual number system was retained (a number in a triangle). In the absence of a data-base which can easily provide a list arranged by material type, it was felt necessary to keep metal and coins separate from the rest of the finds. A separate numbering and listing proved to be particularly useful for isolating material for conservation.

Bone
Bone was simply listed in the "Finds Recording Sheet", with an indication of quantity. It all consisted of animal bone. Quantity was calculated on the basis of 2.5 litre plastic bags. Aware of the fact that volume, like weight, is not particularly accurate for assessing the number of possible individuals, this system seems to be the solution for a preliminary assessment, until more detailed information is provided by the study of this assemblage. The discovery of a large quantity of bones from the same individual would have been noted separately.

Figures illustrating the finds are arranged according to phases and not by class of material; this system has been chosen to provide a total picture of a phase. Since the excavated finds provide the framework for the study of the unstratified pottery, ready access to assess the various incidences is felt to be essential. All material illustrated is described in the captions.

Pottery alone has also been analysed in Appendix C (pp. 85–87) and discussed in detail (pp.30–34). The bulk of the finds consisted of pottery, but this is not the only reason for dealing with the pottery in further detail. Pottery provides dating elements for the excavation. Although good reference collections of Syrian pottery from well stratified excavations are not yet available, some wares are relatively well known and studied, and finally can provide a fairly reliable chronological framework (see Chapter 5).

Glass is also discussed separately (p.34); an attempt to identify production changes within a chronological framework has been made.

An attempt at absolute chronology

Chronology has been based on glazed wares throughout this discussion. In general, glazed wares seem to be more sensitive to the passage of time and are easily defined. By contrast, changes within unglazed pottery production are often very difficult to identify. For example, certain unglazed wares discussed here seem to have been in use from the end of the 10th century or from the 11th century (see pp.63–66). Unglazed wares are often characterised by strong local connotations, which makes more difficult comparison among the finds from various sites. Moreover, Islamic-period unglazed wares have not been as extensively studied as glazed wares. In spite of the fact that very few excavations of the Islamic period in Syria have been published, major changes in the production of glazed wares have been identified and related to a basic chronological sequence in a preliminary sense (pp.37–38).[169] In the case of Qal'at Ja'bar, the chronological sequence has been mainly based on fritware (for a definition of fritware: p.38). Fritware represents the bulk of glazed wares at the site. It is well represented in every phase, providing a good means of comparison for all phases; at the same time, changes in the production of fritware can be isolated and can provide a model of change defining the relative chronological sequence for the excavation as a whole.

A tentative, absolute chronological framework has been constructed in the course of this research to combine the results of other archaeological investigations in Syria, Iraq and Palestine with the relative chronology provided by the stratigraphy and the finds of sondages S1 and S2 in Qal'at Ja'bar, concentrating on comparisons of fritware and other glazed wares (see Chapter 5).

The presence of residual sherds from a pre-fritware phase, the incised *early glazed slip-ware*, suggests a second half of the 11th century date for the earliest phase (phase I). This *early glazed slip-ware* has been attributed to the 11th century on the evidence of an excavation conducted at Tell Shahīn, a site characterised by a continuous occupation from the early 'Abbāsid period to the end of the Ayyūbid period, i.e. 8th to the mid-13th century (pp.66–67).[170] Such a chronology has been confirmed by other archaeological work conducted in the area.

Graffita ware in the latest sealed phase in Qal'at Ja'bar sondages S1 and S2 also provides a good chronological indication: it can be attributed to the Mamlūk period, which, at this site, probably started in the second quarter of the 14th century.[171] In the middle phase (phase IV), the major change consists of the introduction of underglaze-painted fritware, traditionally attributed to the Ayyūbid period (pp.46–51). In Qal'at Ja'bar sondage S1, this phase proved to be later than the building of the mosque, which, on the basis of historical sources, should probably be ascribed to the third quarter of the 12th century (pp.34–36).

Dating is discussed in detail for each ceramic type in Chapter 5, on the basis of the literature and of the results of the excavation at Qal'at Ja'bar.

The pottery corpus

In studying the pottery of a site with a nearly continuous occupation history for at least three centuries as we have at Qal'at Ja'bar, one of the main difficulties is that of identifying pottery in secondary deposition. Sites with stone construction are particularly sensitive with regard to this

problem, since earlier deposits may have been disturbed because of stone re-use in later building construction. As a consequence, earlier pottery may often be found in later phases. In fact, the number of sherds found from the earliest phase is relatively small: quantity is taken to be the most reliable criterion to isolate residual sherds.[172] A certain caution must be adopted in dealing with such a small assemblage of pottery, as too many variables have a role in determining the quantity of a given type. These variables include area function. On the other hand, the large unstratified assemblage from previous seasons of excavations by the Syrian Directorate of Antiquities provided a vast typology, which has helped in the identification of residual sherds. Thus, residual sherds have been identified on the basis of typological data provided by the unstratified pottery assemblage (Chapter 5). Conclusions would obviously be much more reliable if drawn on the basis of a much larger assemblage, from a much larger excavated area and from different functional areas within the site. This remains, however, one of the few stratified assemblages of north Syrian wares of the period.

The problem of later sherds "percolating" down into earlier deposits does not seem to have affected the assemblage discussed below.[173]

Pottery is illustrated phase by phase in figs 19–41 and it is discussed in the following pages in terms of stratigraphic sequence, noting major production changes and quantitative variations as presented in Appendix C and illustrated in graphics 1–6 (figs 13–18). This section is not concerned with technical description. The subdivision of the pottery assemblage into wares and types is based on the pottery typology established in Chapter 5. Chronological assumptions related to wares are also based on Chapter 5, in which dating is discussed in detail for each ware.

S1. PHASE I:
The pottery in sondage S1 phase I comes from a single deposit, lying directly on the bedrock, sealed by a plaster floor. It constitutes the first phase of occupation in this area of the site. It has been interpreted as a fill to level up the surface prior to plastering the floor. The fill is characterised by the presence of very small pottery sherds.

Glazed pottery from phase I consists of *fritware 1* (0.7 [6.2] %) and of *turquoise-glazed ware* (2.0 [12.5] %). *Fritware 1* is represented by a single sherd — incised-decorated and covered with a turquoise glaze. Unglazed pottery is predominant (97.3 [81.2] %). Ware 5 constitutes one third of the unglazed pottery, while the rest consists of the more common Ware 1.

Unglazed pottery is basically represented by jar rims, variously articulated; rims such as fig. 19 (k–l) also appear in sondage S1 phase IIIb (fig. 25 k) and in sondage S2 phase III (fig. 31 s). They may be associated with *nā'ūra* jars, the water elevation system used in various parts of Syria (pp.64–65);[174] a *nā'ūra* jar rim may also be represented by fig. 19 (d), of which a similar example comes from sondage S1 phase VI (fig. 39 e). The only example of an unglazed open form is a large basin rim (fig. 19 f), which was also found in sondage S1 phase IIIb (fig. 26 a) and sondage S2 phase III (fig. 31 k).

S1. PHASE IIB:
The pottery in sondage S1 phase IIb comes from a series of deposits sealed by floor 34, and lying above floor 39. In layer 45 pottery sherds are extremely small in size, as if they had been broken on purpose to fill in the foundation of the building.

In phase IIb, the quantity of the glazed pottery group increases (14.7 [34.4] %). Fritware is still of the *fritware 1* type — plain monochrome glazed or incised-decorated; glaze can be colourless, occasionally with blue splashes, turquoise, or black; in terms of quantity, it still represents half of the *turquoise-glazed ware* (*fritware 1* 3.5 [12.5] %; *turquoise-glazed ware* 10.5 [18.7] %) (see graphics 1, 3, figs 13, 15).

Of great interest is the presence of the so-called *early glazed slip-ware* (fig. 19 r, s), incised-decorated and covered with a bright green glaze. This seems likely to be residual, since chronologically it may be the product of a pre-fritware phase (pp.66–67).

Half of the underglaze pottery group consists of Ware 5. Both Ware 1 and Ware 5 are associated with closed forms in phase IIb. The shape of rim fig. 20 (i) recalls a form in the *turquoise-glazed ware* group recovered at other Syrian sites, and it might therefore be from a vessel already fired and ready to be glazed (see, for example, BK5 — fig. 96 f–i — and AZ4 — fig. 100 c–e). The ware of rim fig. 20 (b) and base fig. 20 (f) is unusual; it consists of a white, well levigated body, with a very smooth surface; no other fragments of this ware were found. Unglazed handles and bases were numerous, but, as noted, they are not particularly diagnostic.

S1. PHASE IIA:
The pottery in phase IIa comes from the deposits corresponding to the destruction of phase II, sealed by the later black layer of phase III above.

The so-called *intermediate fritware* makes its appearance in phase IIa. *Fritware 1* constitutes the greater part of the glazed pottery (6.3 [14.5] %), followed in declining proportion by *turquoise-glazed ware* (2.7 [7.9] %) and by *intermediate fritware* (1.9 [2.6] %) (see graphics 1, 3, figs 13, 15). To be noted is the presence of unclassifiable fritware, *fritware ?* (pp.42–46), which corresponds to 2.4 [6.6] %. Both *fritware 1* and *intermediate fritware* may have a plain monochrome glaze, colourless, turquoise or black; decoration may consist of blue splashes or of carved or incised patterns. Lustre-decorated *fritware 1* also appears in this phase (fig. 21 d).[175] Lustre ware of the *intermediate fritware* group may be distinguished only with great difficulty from the *fritware 2* group; the only criteria for a distinction are shape, style and, possibly, the lustre colour (which is generally gold in the *fritware 1* and *intermediate fritware* group and a reddish-brown colour in the case of *fritware 2*). Ultimately, lustre ware cannot be considered as diagnostic as other varieties of fritware; only laboratory analysis can safely distinguish between the two (pp.38–51 and Appendix D).

In phase IIa fritware is 10.9 and [27.6] % of the total pottery assemblage, and markedly greater in quantity in the assemblage than *turquoise-glazed ware* (2.7 [7.9] %). *Turquoise-glazed ware* is better defined in this phase in terms of shape, for two rims (fig. 21 l–m) and one base (fig. 21 n) were retrieved.

Specimens of the so-called green splash-ware have also been found (fig. 21 s); this ware first appeared at some point in the 9th century, but remained in use over the next two centuries.[176]

In the unglazed pottery group, Ware 5 has decreased in quantity (14.4 [10.5] %); it gradually disappears in the later phase III, and it will be totally absent by phase IV.

There are a large number of bases, but, as already noticed, they do not seem to change a great deal in the various phases and they cannot be considered a reliable chronological indicator.

A series of rims belonging to closed forms were found. The similarity of certain shapes in phases I, IIb and IIa[177] suggests that we are dealing with a very similar chronological horizon, the major difference being the introduction of lustre-decorated *fritware 1* and of *intermediate fritware*. In phase IIa, unglazed open forms are represented by various basins and bowls. Most of them are characterised by an everted rim (fig. 22 d–g).

A single example of the so-called turban handle occurred in phase IIa (fig. 23 k); turban handles generally appear in early and middle 'Abbāsid contexts (mid-8th to 11th century) in Syria, Iraq and Iran,[178] but also occur in later times (p.65).

The decoration on unglazed pottery mainly consists of combed motifs, such as bands and wavy lines; this type of decoration is not particularly diagnostic, since it appears in every phase at the site. More characteristic of the early phases is another type of incised decoration: it consists of highly stylised branches and leaf motifs, combined with more abstract patterns (pls 32–33), and it is often associated with the very common incised motifs just described (p.64 and pls 63–64).

Mould-decorated pottery is well represented in phase IIa. The small size of the pieces does not allow a very systematic stylistic assessment of mould-decorated pottery in phase II; however, it has been noted that the decoration is characterised by the use of small relief dots and circles, which fill large compartments (fig. 23 l, n). A double-handle fragment is associated with one of the moulded pieces (fig. 23 i); double handles were produced in Syria from the early 'Abbāsid period (8th–9th century), but were still in use in the middle 'Abbāsid period (late 9th–11th century) (p.65).[179] At Qal'at Ja'bar, another double-handle fragment came from sondage S1 phase IIIc (fig. 24 l).

S1 AND S2. PHASE III :
This phase is represented in both sondages. In S1 it corresponds to various deposits in an area used for dumping. In S2 this phase was not entirely excavated, but enough was cleared to show that deposits were sealed by a grey floor above (74).

The assemblage from sondage S1 phase III is particularly rich in terms of wares and shapes, as is generally the case with dumping areas.

Fritware still represents the great majority of glazed wares in phase III, and its proportional presence has now considerably increased (sondage S1 phase III: 20.5 [36.8] % and sondage S2 phase III: 19.4 [30.0] %) (see graphics 1–4, figs 13–16).

In sondage S1, fritware is still represented by *fritware 1* and *intermediate fritware*, as in the previous phase. Glaze can be colourless, black, turquoise, or cobalt blue for both fritware types. *Intermediate fritware* is now more significant in terms of quantity (4.4 [9.2] %; unclassifiable fritware, which in this phase very likely corresponds to *intermediate fritware*, is now 11.7 [17.1] %), while *fritware 1* represents 4.4 [10.5] % of the total assemblage, a proportion which is lower than that noted in sondage S1 phase IIa. A *fritware 1* lustre-decorated rim also presents a blue-splashed decoration (fig. 24 o): cobalt blue added to lustre decoration has not been documented before in association with *fritware 1*, and it has generally been considered to be characteristic of a post-*fritware 1* phase.[180]

Quantities are not very dissimilar between sondage S1 and sondage S2; in sondage S2 *fritware 1* constitutes 5.6 [13.3] % of the pottery assemblage; *intermediate fritware* represents 6.9 [6.7] %, and unclassifiable fritware is 6.9 [10.0] %. *Intermediate fritware*, together with unclassifiable fritware, which, at this stage, corresponds very likely to *intermediate fritware*, represents the majority of fritware in this phase by a significant percentage (see graphics 1–4, figs 13–16).

Turquoise-glazed ware seems to have diminished compared to the previous phases in sondage S1, constituting 2.7 [5.3] % of the pottery assemblage. In sondage S2 *turquoise-glazed ware* is present in a higher percentage, 6.9 [13.3] %, but this is not truly comparable with earlier phases as the excavation of sondage S2 was interrupted at phase III.

In sondage S1, the presence of a single sherd of cream-glazed *early glazed slip-ware* (fig. 28 b), together with a green-splash decorated example (not illustrated; pp.66–67; note 176), most likely residual, probably indicates that, chronologically, phase III is still very close to the earliest phases, I and II.

In sondage S1, the proportion between glazed and unglazed wares varies considerably. In sondage S1 phase I unglazed pottery is 97.3 [81.2] %; in sondage S1 phase IIb unglazed pottery is 85.3 [37.5] %; in sondage S1 phase III unglazed ware is 76.3 [55.9] % of the pottery assemblage (see graphics 5–6, figs 17–18). The increasing proportion of glazed wares can be interpreted as a gradual technological evolution in pottery manufacturing technique: gradually glazed wares, and fritware in particular, ceased to be a luxury item and became more common. This change is particularly noticeable in the subsequent phase IV. Variables such as the function of the excavated area and the nature of the Qal'at Ja'bar settlement, as a significant fortress on one of the major Euphrates crossing points associated with trade routes, would also account for the increasing proportion of glazed wares (graphics 1–6, figs 13–18 and pp.70–74).

In both sondages, the majority of unglazed pottery consists of Ware 1; Ware 5 is still present, but its proportion has markedly decreased compared with previous phases, and it now represents only 2.2 [3.3] % in sondage S1 and 6.9 [6.7] % in sondage S2.

The repertoire of unglazed forms is particularly rich in phase III, especially in sondage S1. Closed forms are represented by a series of small necks, most likely from bottles (figs 25 h–j; 28 l; 31 g). Rims of jars of various form and size are also numerous (figs 28 m–p; 31 h–j). Jar rim fig. 25 (k) from sondage S1 phase IIIb may, as already noted, be related to a *nā'ūra* jar type, and was also found in sondage S1 phase I (fig. 19 k–l) and in sondage S2 phase III (fig. 31 s). Bases such as fig. 30 (j–k) from sondage S1 phase IIIa are also considered to belong to *nā'ūra* jars (pp.64–65 and note 174). Little club rims also seem to be a common type: a rim very similar to fig. 31 (r) in sondage S2 already occurred in sondage S1 phase IIa (fig. 21 t), but it is also found in sondage S1 phase V (fig. 34 e–f).

Open forms are also quite numerous in phase III. Basin rim fig. 26 (a) from sondage S1 and fig. 31 (k) from sondage S2 must have been a fairly common type, since it also occurred in sondage S1 phase I (fig. 19 f). A large repertoire of big basins was found in sondage S1 phase III; most of them are characterised by an everted rim and they are often incised-decorated (figs 25 l and 29 c–g).

The highly stylised incised decoration already described in the pottery assemblage of sondage S1 phase IIa also occurs (pls 32–33), in association with combed decoration in bands and wavy lines.

A turban handle very similar to fig. 23 (k) of sondage S1 phase IIa occurs in sondage S2 phase III (fig. 31 u; see above, p.32). Double handles such as fig. 24 (l) are generally attributed to the 'Abbāsid period, and should probably be considered an archaic element in this later period (p.65 and note 178).

Brittle ware (Ware 3) is also represented in this phase; the quality is particularly good, much closer to early 'Abbāsid types than to those of later date (Ware 4) (p.66). The body is brick-red and hard-fired. Forms include a pot with inward turning sides and thickened, rounded rim (fig. 25 s–t) and a rim possibly belonging to a flaring neck (fig. 25 u).

A single unglazed, red-painted body sherd was found in sondage S1 phase III (fig. 28 u). A piece of a similar ware was excavated at Tell Shahīn in a pre-fritware phase.[181]

S1 AND S2. PHASE IV:
In both sondages, this phase was very disturbed by destruction and reconstruction activities. In sondage S1, the presence of a significant percentage of pottery in secondary deposition has been noted; moreover, the pottery assemblage related to this phase is quantitatively rather limited. By contrast, in sondage S2, this phase is much better represented in terms of pottery finds.

The common characteristic of the two assemblages is the appearance of underglaze-painted *fritware 2*. The proportion of glazed ware seems to have been more significant than in earlier phases in sondage S1. In sondage S1 phase IV, unglazed pottery is 69.4 [52.9] %, while in sondage S2 phase IV, it is closer to earlier proportions at 81.8 [47.6] %. In sondage S1, as already noted, the major changes in glazed and unglazed proportions occurred in phase III; this proportion does not vary markedly in the subsequent phases IV and V. As sondage S2 was not entirely excavated, comparisons within the entire occupational sequence are not possible (graphics 5–6, figs 17–18).

Total fritware has quantitatively increased, representing now 28.2 [41.2] % of the pottery assemblage in sondage S1 phase IV and 18.2 [47.6] % in sondage S2 phase IV. By phase IV, *intermediate fritware*, unclassifiable fritware (*fritware ?*) and *fritware 2* have become notably more numerous than *fritware 1* (sondage S1 phase IV: *fritware 1*: 2.3 [5.9] %; *intermediate fritware*: 5.9 [5.9] %; unclassifiable fritware: 16.5 [20.6] %; *fritware 2*: 3.5 [8.8] %. Sondage S2 phase IV: *fritware 1*: 2.0 [9.5] %; *intermediate fritware*: 1.0 [4.8] %; unclassifiable fritware: 4.0 [9.6] %; *fritware 2*: 10.1 [23.8] %).

Turquoise-glazed ware does not occur in sondage S1 in phase IV, but it appears, albeit in a minute percentage, in sondage S2 phase IV (1.0 [4.8] %).

Unglazed pottery consists now only of Ware 1, and Ware 5 is no longer in use. Water-pipe fragments were found in sondage S2 phase IV (fig. 33 o). Open forms are represented by small basins with everted rims (fig. 32 e, n), very similar to a basin found in sondage S1 phase III (fig. 29 g).

The cooking pot fig. 32 (f) from sondage S1 phase IV was found in a larger jar lacking both a rim and a base, related to floor 106/107 (see p.28 and pls 25–26). Although the function of the two jars' arrangement is not clear, it is very interesting to notice that this type of cooking ware (Ware 4) is different from the cooking ware recovered in the previous phase III (fig. 25 s–u), possibly indicating a technological change in the cooking ware production from phase III to phase IV. This change is not only in terms of shapes, but also in terms of ware.[182] The body of pot fig. 32 (f) from sondage S1 phase IV is dark reddish brown in colour and not as hard fired as Ware 3 from phase III.

A single mould-decorated piece was found (fig. 32 m). It seems stylistically very similar to the mould-decorated sherds from sondage S1 phase IIa in the extensive use of relief dots and circles; however, there is no secure evidence that the piece is residual.

S1 AND S2. PHASE V:
Phase V is more safely sealed in sondage S2 than in sondage S1, where the presence of a number of robber trenches, together with the numerous repairs to floor 6, may have contaminated the finds.

Fritware as a whole represents 18.6 [28.2] % of the total pottery assemblage in sondage S1 phase V, and 17.9 [33.3] % in sondage S2 phase V. The incidence of fritware shows the same trend in both assemblages. Very likely *fritware 1* was no longer in production, for it is reduced to 1.8 [5.1] % in sondage S1 and to 0.6 [3.2] % in sondage S2, whereas formerly it represented a greater proportion (see graphics 1–2, figs 13–14). This may also be the case with *intermediate fritware,* which represents 0.6 [2.6] % in sondage S1, and 3.4 [3.2] % in sondage S2. Unclassifiable fritware (*fritware ?*) is now 13.8 [12.8] % in sondage S1 and 4.0 [12.7]; *fritware 2* is 2.4 [7.7] % of the pottery assemblage in sondage S1, and 10.0 [14.3] % in sondage S2.

There were a few specimens of *graffita ware* and monochrome glazed *slip-ware*. These wares do not occur in very large quantity (sondage S1: 3.6 [7.7] %, sondage S2: 0.9 [4.8] %), but their presence is very significant (graphics 3–4, figs 15–16). The presence of these wares could be explained in sondage S1 phase V by later repairs to floor 6 above, but in sondage S2 phase V the discovery of similar sherds below a sealing plaster floor (58) makes it possible to interpret these sherds in relation to the construction of the floor itself. The presence of a single specimen of *fritware 3* is also of particular value for dating purposes, and supports the Mamlūk date provided by the presence of *graffita ware* in this phase (pp.51–55 and 57–62).

Turquoise-glazed ware is still present as 3.0 [7.7] % of the pottery assemblage in sondage S1, and 2.0 [6.3] % in sondage S2.

Unglazed ware in sondage S1 phase V represents 74.2 [53.8] % of the pottery assemblage and in sondage S2 phase V it is 79.2 [57.1] %. The proportion between glazed and unglazed wares has not varied significantly since phase

III.[183] In both sondages, the majority of the unglazed pottery repertoire consists of closed forms, such as bottles and jars. Ware 1 is associated with the majority of unglazed pottery. Club rims such as fig. 34 (e–f) were already in use in earlier phases, such as sondage S1 phase I (fig. 19 c), phase IIb (fig. 20 d), phase IIa (fig. 21 t) and sondage S2 phase III (fig. 31 r). Several other types of rim occur in this phase for the first time (figs 34 g, h; 36 e–f). The base in fig. 34 (s), from sondage S1 phase V, and the two bases in fig. 36 (s–t) from sondage S2 phase V may be related to *nâ'ûra* jars. Similar pieces were also found in sondage S1 phase IIIa (fig. 30 j–k), indicating that this type of jar has not varied morphologically between phase III and phase V (pp.64–65; note 174). Open forms consist of basins (figs 34 i and 37 c); basins such as the one in fig. 34 (i), characterised by an everted rim, also occurred in sondage S1 phase IV (fig. 32 e) and sondage S1 phase IIIa (fig. 29 g).

The decoration of unglazed pottery is still of the incised and combed type described for previous phases; the highly stylised, incised pattern has, however, disappeared. A type which apparently has not been published hitherto also occurs in phase V; it is characterised by the use of barbotine decoration and by the application of fritware fragments (pls 70–72). This type of decoration may be related to the *fritware 2* period (Ayyūbid), since it occurs at sites which were abandoned after the Mongol invasion (p.64).

Cooking ware is also represented in sondage S2 phase V; it corresponds to the ware of the vessel recovered in sondage S1 phase IV (Ware 4, fig. 32 f), and, as noted above, it is markedly different from the cooking ware in use during phase III (Ware 3).

S1 AND S2. PHASE VI:
This phase consists of surface debris, and the finds represent all phases of occupation. Proportion is thus of no particular significance. Moreover, as already discussed (see above pp.25, 35 and note 188), extensive surface collection of the material by earlier investigators at Qal'at Ja'bar may well have affected this assemblage: thus, the lack of Mamlūk glazed wares which this writer notes should be treated with caution. Of particular interest is, undoubtedly, the presence of a kiln stilt (fig. 38 p). Given the presence of a number of fritware wasters found during earlier excavations at Qal'at Ja'bar, this confirms that the site had been a pottery production centre (pp.42, 50–51 and Chapter 6).

Smokers' pipes were retrieved from the surface deposit (figs 39 g; 41 l–m); they may be attributed to the 19th century and indicate that the site was frequented during the late Ottoman period. Ottoman pottery in this area is poorly understood, and it is virtually impossible to identify it in the mixed surface assemblage (pp.67–68).

No wares significantly different from those of the previous phase (phase V) were identified. Had there been an Ottoman phase, a distinctive ceramic assemblage might have been expected. As this does not seem to exist, it appears that during the Ottoman period the site was only frequented and not really occupied, for pottery would be expected to be markedly different from that of the previous phases.

The glass

The glass recovered in the course of the excavation was not quantitatively very significant and little can be said about glass production and its evolution over the period of the six phases identified at Qal'at Ja'bar in sondages S1 and S2.

Glass vessel fragments recovered were made of very thin blown glass; the glass is transparent in most cases, and may be light green, green, brown, dark yellow, and cobalt blue. The thick type of blown glass which was found during previous excavations in large quantities did not occur in these new sondages.[184] The majority of glass rims recovered belonged to necks of bottles or juglets (sondage S1 phase IIa [fig. 24 a–b], phase IIIb [fig. 26 k], phase IIIa [fig. 28 e–f], and phase VI [fig. 39 r–s]; sondage S2 phase III [fig. 31 o]).

A glass base was found in sondage S1 phase IIIa which very likely corresponds to a glass lamp type in use in the region, of which several examples have been found in the excavation at al-Raqqa (fig. 28 k).[185]

A number of glass bangles were also recovered; most of them were made of thick glass, often opaque, in different shades of blue or green (sondage S1, phase IIa [fig. 24 e–h], phase IIIc [fig. 24 m], phase IIIb [fig. 26 h–i], phase IIIa [fig. 28 j], and phase VI [fig. 39 l). The bangles may have a semi-circular or circular section; they are plain, twisted, or have an incised decoration (fig. 24 m, sondage S1, phase IIIc). One specimen presents a more articulated decoration: it was found in sondage S1 phase IIa, and it has a carved decoration at one edge, which might be interpreted as a snake head (fig. 24 e).

These bangles are significantly different from those recovered during previous investigations at Qal'at Ja'bar:[186] most are of a type of cane-making technique, and present a great variety of colours and decorations. The absence of pieces of this type in the excavated pre-Mamlūk phases of sondages S1 and S2 may support a Mamlūk or later dating.[187] A single sample of this type was found on the surface, in phase VI of sondage S1 (fig. 39 k). There is no evidence in the literature to justify attributing these pieces to the Ottoman period. The limited use of the site during the Ottoman period could not explain so numerous a presence of multicoloured glass bangles in the assemblage as has been noted by earlier investigations at Qal'at Ja'bar.

Summary of the occupation history

Very little evidence is available at present to relate the sequence of phases excavated at Qal'at Ja'bar to the chronological framework established on the basis of the historical record.

Taking into consideration data related to the historical sources and to the finds, only a series of preliminary and tentative interpretations can be offered at this stage for the relative stratigraphic sequence of phases in the new sondages.

In the stratigraphic sequence of the various phases discussed in this chapter, the only secure evidence available is that, in Sondage S1, phase IV is later than the building of the so-called mosque, since both floor 106 and wall 23 abut the east wall of this building. According to the historical sources examined so far, this mosque may have been built by Nūr al-Dīn Maḥmūd in the course of his general programme of restoration undertaken after the earthquakes of 552/1157 and 565/1170 (p.20); on this occasion, the fortification walls were restored and the minaret was built. As a consequence, the span of time between the occupation of the site by the Zangids (564/1168–9) and the death of Nūr al-Dīn Maḥmūd (569/1174)

— presumably corresponding to the construction of the mosque — may be considered the *terminus ante quem* for phases I–III and the *terminus post quem* for phases IV–VI.

To avoid any risk of collapse of the eastern wall of the mosque, already entirely exposed on its western side, it had not been possible to investigate the relationship between earlier (and deeper) phases I–III and this wall of the mosque; as a consequence, it is impossible to place more precisely the phase of construction of the mosque in the sequence of the phases excavated in the new sondages.

The laying of floor 39 of phase I may be related to the first major building phase recorded in the sources, that undertaken by Ja'bar ibn Sābiq before his death in 464/1071–2. This suggested chronology for phase I fits well with the dating offered in the literature for the finds, such as *fritware 1* and *early glazed slip-ware* (see below and p.30).

No absolute dating can be proposed for the construction of the subsequent phase II (IIb) and its destruction (IIa). The finds seem to indicate that the chronological horizon represented by these two subphases may be rather narrow, although significant changes were noted, such as the introduction of *intermediate fritware* and of lustre-painted fritware (pp.31–32). It had been suggested that the destruction of phase II may have been either deliberate or the consequence of an earthquake; this implies that its destruction may have occurred shortly before a period of major restoration and construction at the site. The only activity of this kind reported in the sources after that of Ja'bar ibn Sābiq (*terminus ante quem* 464/1071–2) is that undertaken by Nūr al-Dīn Maḥmūd presumably between 564/1168–9 and 569/1174, as part of a general programme of restoration in the entire region carried out after the earthquakes of 552/1157 and 565/1170, as noted above.

It is also very difficult to assess the function of the area in either of these phases: the quality of plastered floor 34 (phase IIb) may indicate that the area was roofed, since this kind of floor would very rapidly deteriorate were it an external surface. The study of the finds does not clarify the function of this area during phases I and II; for instance, it can be said that the low quantity of cooking wares may be of some significance, in the sense that such a quantity is hardly commensurate with a food-preparation area. The pottery assemblage related to the earliest phases I and IIb is characterised by the presence of *fritware 1* (only monochrome glazed or carved/incised decorated) and of the so-called *early glazed slip-ware*, which is probably residual. *Early glazed slip-ware* was already in production in a pre-fritware phase, very likely the 11th century (pp.66–67).

After the destruction of the buildings of phase II the excavated area was used for dumping (phase III). If phase IIa is related to the construction of the mosque as suggested above, this implies that the mosque and the dumping area were used simultaneously; this would have been possible in as much as this area is in effect on the exterior of the mosque, and far removed from its entrance. The pottery horizon represented in this phase is still very close in content to that of the previous phase IIb and may also correspond to the Zangid period (564/1168–69 – 572/1176). The fact that the area was use for dumping in this period explains why the excavated deposit is so rich in spite of the fact that it may have lasted for a short period of time.

It is not possible on the basis of the evidence available to estimate the extent of the chronological gap between phases I and III; it has been noted that it may not be very long, since the finds present a certain degree of homogeneity between phases I and III. Stratigraphic data also do not seem to suggest that this interval was very long; it is true that the intensive building activities noted in this part of the site may have removed traces of long use, which may have occurred, for instance, between phases I and IIb. However, it is impossible, for the time being, to establish whether the suggested timespan of nearly a century between phases I and III should be considered too long.

The change of rulers shortly after the advent of the Ayyūbid dynasty (from 572/1176 at Qal'at Ja'bar; pp.21–22) may correspond to new building works, and precisely to the foundation of wall 23 (phase IVb). As mentioned above, this wall abuts the eastern wall of the mosque, and can therefore be treated as later than the building of the mosque itself; floor 106/107 in sondage S1 also abuts the wall of the mosque; as a consequence, this phase IV has been assigned to a post-Nūrid period (post 569/1174). No material which could safely be associated with sondage S1 phase IVb was found, but the pottery finds of the succeeding sub-phase (sondage S1 phase IVa) also support a second half of the 12th-century date because of the appearance of underglaze-painted *fritware 2* (pp.46–51). There is no evidence to provide a clear picture of the function of the area during this phase or to indicate how and if its use relates to the use of the mosque.

No clear evidence of the Mongol destruction of Qal'at Ja'bar in 657/1259 was identified. However, the Mongol assault may correspond to the end of phase IV, and more precisely, to destruction layers 7 and 59; consequently, the first laying of floors 6 and 58 would then be ascribed to the Mamlūk period. These new building activities may correspond to the restoration by Tankiz of 736/1333–4 (pp.22–23). This interpretation fits well with the presence of a few Mamlūk sherds in the levelling fill sealed by floors 6 and 58, in an otherwise well defined Ayyūbid pottery assemblage. As to the repairs to floor 6, nothing was found by which they could be dated.

In the sondages excavated, there was very little evidence of the Mamlūk occupation of the site; the Mamlūk phase was far better represented in other parts of the site, as previous excavations by the Syrian Directorate of Antiquities have shown (Chapter 3 and pp.51–55 and 57–63). This may imply that the site was less densely settled in the Mamlūk period than in the previous periods and that certain areas, such as S1 and S2, had been little affected by the building activities which took place in this period.

The lack of highly diagnostic Mamlūk pottery such as *graffita ware* either from the surface of the excavated area, or from the surface of the site as a whole, can be very simply explained. Surface finds were systematically and repeatedly collected during earlier campaigns, to the point that nowadays there is hardly any pottery visible on the surface at all.[188] The large quantity of *graffita ware* among the unstratified finds from the Syrian excavations lends support to this interpretation (pp.58–62, Appendix F and graphic 7, fig. 151).

Surface finds indicate that the site was frequented in the late Ottoman period. Ottoman pottery in the region is very little known, because virtually no sealed deposits have been investigated archaeologically. At the present stage of our understanding, it is impossible to separate finds related to

the last phase from the residual material from earlier phases; only smokers' pipes can be readily ascribed to the Ottoman period (p.67).

In the course of the excavation of the sondages, no masonry was encountered of the type detected in the mosque. The masonry of this building consists of alternating courses of regularly cut blocks of limestone and brick-tiles (p.26 and pls 18–19); rather, the walls exposed in the sondages were built in limestone blocks set in mud mortar or of limestone rubble and mud. A tempting explanation for the quality of most of those walls built after the mosque would be simply that buildings outside the mosque were not required to be as architecturally sophisticated as the mosque itself.

The presence of a number of jar bases related to a water elevation system (*nā'ūra*) confirms that Qal'at Ja'bar, as other fortifications of the area, was well equipped and organised for its water supplies.[189]

CHAPTER 5
THE POTTERY

Introduction

This chapter deals with the pottery at Qal'at Ja'bar according to wares or groups of wares on the basis of the typology established by this writer. This typology is based on the study of the pottery recovered in the course of the excavations of the new sondages (pp.27–36) and on the related stratigraphic data combined with the study of the pottery assemblage from previous excavations by other teams at Qal'at Ja'bar (p.25).

The typology established at Qal'at Ja'bar is meant as a proposal of classification of the pottery excavated at the site organised on an archaeological basis. The ultimate aim of such a classification is that of understanding and placing Qal'at Ja'bar in a given chronological and cultural context. In fact, in the intention of this work, a detailed classification of the pottery is only a starting point; pottery is treated as documentary evidence, at the same level as historical sources or stratigraphic data. For this reason, the study of the pottery has stressed certain aspects of classification rather than others. In particular, this research did not focus on the identification of the characteristics of the pottery produced at Qal'at Ja'bar; moreover, it did not attempt to understand the distribution of the Qal'at Ja'bar products on the basis of a long-range surface survey combined with a specific archaeometric study.

The typology established here, intending to focus on the understanding of the site in its historical context, made an attempt to identify the characteristics of the pottery in use at the site, but also to identify general visual criteria of classification which could be applied elsewhere. This was made possible by combining the study of the pottery from the site with the evidence available in the literature; consequently, this classification allows comparison of the material evidence of different sites. Thus, to report that a certain ware is also found at other sites is not meant to suggest that the ware under discussion had been produced at Qal'at Ja'bar and exported from there to other sites. It rather implies that a particular ware or type of pottery found in the literature can be recognised and classified according to the criteria established at Qal'at Ja'bar. The pattern of distribution of the various wares which emerges from this research acquires thus a cultural significance, and allows interpretation of Qal'at Ja'bar as part of a certain historical context.

The pottery assemblage was classified into *wares*.[190] *Ware* specifically refers to the fabric and colour of the body and to the surface treatment, such as the type of decoration or the colour of the glaze, and it is identified with letters of the alphabet in the case of glazed pottery; a number from 1 to 6 identifies unglazed wares. A different system has been adopted for glazed and unglazed pottery to allow an immediate distinction between the two major pottery groups. In the case of glazed pottery, several wares with similar technical characteristics may be described as a single group, such as the '*Lead-glaze family*', which comprises wares R, S, Q, BJ, AZ, and BK.

Every *ware* is described in detail from a technical viewpoint; the description is supported by laboratory analysis in the case of fritware; or alternatively, visual observations are reported, often combined with the results of laboratory analysis conducted on similar wares and recorded in the literature.[191]

Each ware is subdivided by *type*, identified by a number which follows the ware capital letter. *Type* specifically identifies shapes, describing in detail the articulation of the various parts of an object belonging to a certain ware. Type A1, for example, corresponds to a conical bowl with simple rim and straight flaring sides (this is the information provided by 1), with a *fritware 1* body, covered with a colourless transparent glaze (this is the information provided by A).

Chapter 5 deals with the pottery at the ware level, while the description of the types is provided in the illustration captions,[192] to allow an immediate identification on the basis of the drawings. Specific references to the literature follow the description of the type in the illustration captions. More specifically, two levels of references are provided: a general reference at ware level (e.g., ware Q, polychrome *graffita ware*, was also found at.....; in Chapter 5) and a more specific reference concerning the type (type F2 — everted upturned rim of flaring bowl with straight or curving sides, *fritware 1* body, monochrome turquoise glaze with incised/carved/pierced decoration — finds a parallel in....; in the captions).[193] With a few exceptions, no references are provided for decorative motifs, for the fragmentary condition of the sherds makes it difficult to interpret a decorative motif and to allow a comparison with the literature. Such a comparison does not seem to be particularly significant, since a precise chronological sequence of the various motifs has not yet been established, and the material from the sondages was not helpful or meaningful in this respect.

Each section of Chapter 5 is divided into two parts: in the first part the ware, or the group of wares, is described in a technical sense. The second part combines information from various sources, such as the results of the new sondages, data from the captions and the published literature.[194] This discussion is in most cases divided into three sections: the identification of the type in the literature, which is meant as a review of previous studies on the subject; the dating evidence, which combines the stratigraphic data from the Qal'at Ja'bar sondages with the published evidence; and the evidence of production centres and distribution of the ware or group of wares together with a tentative assessment of its socio-economic significance (its presence at other sites, a quantitative assessment with reference to the published literature, the unstratified assemblage and the material from the new sondages). Conclusions expressed in this chapter are drawn on the basis of what is available at present in the relevant literature.

A very large part of the present chapter is devoted to fritware for a number of reasons. Fritware represents the great majority of the glazed pottery assemblage recovered in the new sondages, and these results provide new information about this ware. Fritware proves itself to be an excellent means of dating, since it varies considerably over time and it is more easily comparable from site to site than other wares. It has also been more extensively studied and has more often been dealt with in the literature than other glazed pottery from this period in Syria. Classification criteria presented here are supported by a specific archaeometric study, the results of which are summarised in Appendix D.

By contrast, unglazed pottery has only been studied in a preliminary sense, building up a basis for future research, because of the lack of a series of data, such as quantity, and the impossibility of building up a chronological sequence on the basis of the assemblage from the new sondages or of the archaeological literature.

The unglazed ware assemblage was divided according to wares and, subsequently, tentatively grouped by shapes. However, only those fragments which were better preserved could be interpreted in relation to a preliminary classification into forms. Therefore, the assemblage studied cannot be considered a sample, with well established parameters for representing the whole of the assemblage, but an arbitrary selection determined by the conditions of survival of the pottery from the unstratified pottery group; a small selection is presented here.[195]

No quantitative evaluation was provided on the basis of the unstratified assemblage. A sherd count was not felt to be particularly significant, for the amount of unglazed discarded pottery is not known. Unglazed pottery body sherds recovered in the course of the earliest excavations at the site had been systematically discarded, as reported by Mr 'Abd al-Razāq Zaqzūq. This is not the case with the glazed pottery, all of which was kept. The loss of all excavation documentation makes it impossible to assess the original quantity of the entire unglazed pottery assemblage recovered. Moreover, part of the material was excavated by other representatives of the Syrian Directorate of Antiquities or came from surface collections (p.25). Furthermore, it was felt particularly difficult to estimate the Minimum Form Number, not only because the amount of discarded pottery is not known, but also because many more fragments were created when the material was vandalised; a simple sherd count of such an assemblage was thus not considered to be particularly valuable. The occurrence of the various types, therefore, could not be evaluated.

The assemblage of unglazed pottery recovered from the excavation of the two sondages is numerically very limited, and it does not provide adequate reference for relative and absolute chronology for unglazed pottery, and for the occurrence of the various types. In general, this assemblage does not make it possible to understand the evolution of unglazed pottery over time, although certain changes in production have been noted.

Moreover, unglazed pottery of the period (11th–14th centuries) is not very well represented in the literature and, anyway, having a very distinctive local character, comparisons with pottery from other sites may not be particularly significant in the present state of our knowledge.

Conventions used in the description of pottery wares:
Temper proportion
small percentage: 1–5%
large quantity: above 10%
See also 'Conventions used in Appendix A' (p.75).

Fritware

The ceramic which is called fritware in this text is also known in the literature by several different terms, such as 'faïence', 'soft-paste ware', 'siliceous ware' and the most recent 'stonepaste ware'. Although it may be argued that the term 'fritware' is technically incorrect, since it implies the presence of glass frit in the body,[196] it is preferred here to maintain its use since it provides continuity with the past literature: in fact, this term seems to have been the most widely used in the literature of the last twenty years. None of the terms suggested so far seems to provide convincing alternatives to compensate for the break in continuity.[197]

Fritware is the best known of the Syrian glazed ceramics. It was first discussed by scholars after it reached the European antique market at the end of the 19th century, when it was referred to as 'Raqqa ware',[198] since dealers indicated the Euphrates town of al-Raqqa as the provenance of the pieces on the market (see p.48). Various attempts to investigate this attribution and to clarify problems of dating were made subsequently, but only with the Danish excavations at Ḥamā, in the 1930s, did a more detailed picture of Syrian fritware appear, although its ultimate provenance remained obscure. According to Vagn Poulsen, the author of the Ḥamā excavation publication, a number of fritware groups existed: "faïence locale ancienne",[199] "faïence de Raqqa",[200] "faïence de Rusafa",[201] "faïence syrienne à lustre (style tardif)",[202] "faïence syrienne bleue et noire",[203] and "faïence syrienne bleu et blanche".[204] One of Poulsen's major contributions is to have identified a group of technical characteristics which allow distinction between the various fritware groups, especially between the "faïence locale ancienne", and the rest of the production. Only comparatively recently has this fundamental distinction been fully proven and accepted.[205]

In this study, four types of fritware have been identified on the basis of various features, such as the ceramic body, shape, decorative technique and, occasionally, style. The various groups have been termed respectively *fritware 1*, *intermediate fritware*, *fritware 2*, and *fritware 3*. Labels such as 'Tell Minis ware' (*fritware 1* and *intermediate fritware*) and 'Raqqa ware' (*fritware 2*) have been abandoned to avoid begging the fraught question of provenance.[206]

The description of the various groups' technical characteristics is made on the basis of the results of the archaeometric study conducted on a small group of fritware sherds from Qal'at Ja'bar (Appendix D).[207] In the catalogue, analysed sherds have been marked with an * sign.

Fritware 1

Fritware 1 as identified at Qal'at Ja'bar corresponds to the ware generally referred to in the literature as 'Tell Minis ware'.[208]

TECHNICAL CHARACTERISTICS

The body of *fritware 1* is pure white, as shown by pieces with a recent break; it is hard, fine-grained and rather compact, although it often includes a number of airholes. The major component is finely ground quartz, which is combined with a small amount of clay minerals. Clay minerals occur in a higher percentage in the body of *fritware 1* and *intermediate fritware* and in a lower percentage in the body of *fritware 2* and *fritware 3* (Appendix D, Table 1).[209] The unglazed parts of the various objects present a perfectly smooth surface.

The glaze of *fritware 1* is normally transparent, whether coloured or colourless. All glazes analysed have a very high lead content, varying from 18% to 30%, while it is totally absent in the glazes of *fritware 2* and *fritware 3* (Appendix D, Table 2).[210] The glaze layer is thin, and it only rarely pools in the well of the vessel. The foot is consistently unglazed. The edge of the glazed areas is, on the exterior,

very well defined and only slightly thickened; this provides evidence for vessels being fired face-up. The glaze develops a wide crackle in most cases. The glossy surface usually decomposes over time and loses its original brilliance; at the same time, it may remain smooth or become rough. When it roughens, the glaze seems to lose its adhesive quality, and it tends to scale off, the scaling determined by the crackles. In some cases the *fritware 1* glaze disappears entirely. This decay differs from that observed in the glazes of *fritware 2* and *fritware 3*, for it derives from the composition of the glaze itself, since burial conditions may have been the same for all the various fritware sherds examined; this is particularly true for the pottery from the new sondages: *fritware 1* and *fritware 2* with a decay of a different nature were retrieved from the same kind of deposit.

DECORATIVE TECHNIQUES

Fritware 1 can be divided into three major groups according to the surface treatment:

1) Monochrome Ware: with/without carved/incised/ pierced decoration[211] *(figs 42–47)*

1a) Plain Monochrome Ware (figs 42–44)

WARE A: colourless glaze. The glaze is, in most cases, not entirely colourless, but tends to a kind of ivory tone. Rarely it shows a slightly greenish tinge (MFN:111).
WARE B: turquoise glaze — from copper oxide (MFN: 46).
WARE I: aubergine or black glaze — from manganese oxide (MFN: 5).
WARE D: blue glaze — from cobalt oxide (MFN: 9).

1b) Monochrome Ware with Incised/Carved/Pierced Decoration (figs 45–46; 47 a–c, g–i)

Glazes correspond to those described in the plain monochrome ware group above. The decoration includes a range of types, such as those with very fine incisions, carving, simple fluting, and, rarely, pierced decoration.
WARE E: colourless glaze, see ware A (MFN: 12).
WARE F: turquoise glaze, see ware B (MFN: 16).
WARE G: blue glaze, see ware D (MFN: 1).
WARE AR: aubergine or black glaze, see ware I (MFN: 1).

2) In-glaze Painted Ware with/without incised/carved/ pierced decoration (figs 47–50)

2a) Blue Painted Ware (figs 47 d–f, j–p; 48–49)

The characteristic of this ware is the blue in-glaze painted decoration[212] (splashes and stripes, from cobalt oxide; Appendix D, Table 2). The background glaze is colourless.
WARE H: no carved, incised or pierced decoration appears on the fragments[213] (MFN: 47).
WARE HH: a carved, incised or pierced decoration is also added to the blue-painting (MFN: 17).

2b) Polychrome Painted Ware (fig. 50 a–f)

The characteristic of this ware is an in-glaze painted decoration with at least two of the following colours: cobalt blue (cobalt oxide), turquoise (copper oxide), and aubergine (manganese oxide; see Appendix D, Table 2). The background glaze is colourless.[214]
WARE AAS: without carved decoration[215] (MFN: 4).
WARE AS: with a carved decoration (MFN: 2). This ware is known in the literature as *laqabi* ware.[216]

3) Lustre Ware (figs 50 g–j; 51–52)

The colours of the glazes associated with lustre painting correspond to those of the plain monochrome group described above. The lustre survives only in traces on most pieces, and a true decorative pattern can barely ever be distinguished. The lustre typically has a gold colour, occasionally with a greenish tinge; it is very likely obtained by the use of silver salts or copper (Appendix D, Table 2). A silver lustre also occurs.

On certain sherds, the lustre painting is finely incised: this is one of the distinctive features of *fritware 1* lustre and it is absent in the *fritware 2* group.[217]

WARE J: colourless glaze, as ware A (MFN: 11). In general the glazed surface of these sherds is quite well preserved, being still smooth and glossy. Occasionally the glaze has a slightly greenish tone.
WARE M: turquoise-green glaze from copper oxide, as ware B (MFN: 4).
WARE L: blue glaze, from cobalt oxide, as ware D (MFN: 4).
WARE AQ: interior: colourless glaze; exterior: aubergine glaze (MFN: 1).
WARE K: aubergine glaze from manganese oxide, as ware I (MFN: 2).

SHAPE

The group seems to consist of serving vessels and presents a great variety of shapes. Among these, two seem to be predominant. In the unstratified pottery assemblage, the numerically more important shape is a bowl with a flat everted rim and slightly curving sides (figs 42 j; 43 a–d, r–t; 44 a, j–k, n–o; 45 c–d; 47 p; 48 a–c; 52 d), with a diameter varying between 27 and 36 cm., but there are also smaller examples of 20 and 13 cm. diameter. The literature shows that such bowls are often associated with a relatively high type of foot ring (figs 43 l–n; 44 h; 45 f, k–l; 46 g–h, l–m; 48 f–i, j; 49 e–h; 51 c–e; 52 i), with a diameter of 10–13 cm. The splayed foot is cut in a very particular way, which is characteristic of *fritware 1*: the foot flares outwards and it is then sharply cut inwards, creating an angle in the profile. The vessel only sits on the inner edge of the foot ring, rather than on the entire ring base. In the published material, this distinctive feature has only a few parallels in Egypt, and it is found rarely in Iran.[218] However, it is found ubiquitously throughout the entire inventory of *fritware 1* bases at Qal'at Ja'bar.

A different version of the everted rim also occurs, where the rim is not flat but is rounded and narrower, and often upturned (figs 42 i; 45 b; 46 a, c–e; 47 n–o); it occurs in a vessel of large size (diameter 34 cm.) as well as in a smaller version (diameter 14 cm.).

A second very common shape is a bowl with straight flaring sides and a simple rim (figs 42 a and 50 g); several rim sherds can be associated with this shape (figs 42 b–e; 43 j–k; 44 m; 45 a; 47 c–f; 49 a–b). The diameter varies from 17 to 22 cm. This bowl shape is associated with a low type of foot, with a diameter of 7–8 cm. (figs 42 a; 43 e–f; 44 e–f; 48 d, h; 50 g); this foot presents the particular articulation described for the first type of foot.

In the assemblage from the new sondages, however, the conical bowl type occurs more frequently than the bowl with flat-everted rim; this is also the case in the *intermediate fritware* group (see p.44).

At the present stage of our knowledge, it is not possible to propose a distinct and differing chronological significance for these two types of bowl; moreover, similar types continued to be in use in the *fritware 2* repertoire, which is taken to be later. The articulation of the foot is the most pronounced feature of the *fritware 1* group; it occurs in the *intermediate fritware* group, whereas it is never associated with *fritware 2*: this fits with the chronological progression which has been argued here (see in particular p.46).

Another type of bowl may also be characteristic of the *fritware 1* group, for it does not appear among the *fritware 2* group. It is a small carinated bowl, of 10–12 cm. diameter (figs 42 k–m; 43 q; 47 l): the foot type associated with it is unknown.

A third kind of foot also frequently occurs: it is fairly high and it is small in diameter (5–6 cm.). It can be associated with closed and open forms (figs 43 o–p; 44 i; 47 k; 48 g; 50 e; 51 f–g).

Other shape types occur, but far more rarely; whether these can be considered characteristic of the *fritware 1* group can only be clarified when further evidence becomes available.

IDENTIFICATION OF FRITWARE 1 *IN THE CERAMICS LITERATURE*

As stated above, *fritware 1* as defined at Qal'at Ja'bar is known in the literature as 'Tell Minis ware'. The first examples of the so-called 'Tell Minis ware' to enter European museums were three lustre-decorated bowls found by Admiral Despointes in Damascus, in 1840: one of them was donated to the Louvre and the other two to the Sèvres Museum by the admiral.[219] In 1901, these pieces were identified as belonging to a specific group by Gaston Migeon.[220]

This hypothesis found no scholarly consensus and Migeon himself subsequently inclined towards an Egyptian attribution. In 1907 he called a bowl of this type "Syro-Egyptian", dating it to the 12th century;[221] the group was similarly identified by Garrett Chatfield Pier in 1909,[222] and in 1922 it was re-attributed to Fāṭimid Egypt by Migeon.[223]

Only with the publication in the late 1950s of the Danish excavation of the citadel of Ḥamā does a clearer picture of the group emerge.[224] In the Danish report, lustre ware is presented under the rubric "Faïence locale ancienne" as part of a larger assemblage which included plain monochrome ware, monochrome ware with incised and carved decoration and *laqabi* ware.[225] In 1960, a group of bowls — monochrome glazed and lustre painted — was offered to the British Museum with the claim that the objects had been found at Tell Minis,[226] near Ma'arrat al-Nu'mān, in north-west Syria. Since then, the group has been identified in the literature with the label 'Tell Minis ware'. In the event, the pieces were acquired by the Victoria and Albert Museum and by The David Collection in Copenhagen. Only Arthur Lane and Vagn Poulsen fully appreciated the importance of this group of ceramics as being Syrian and predating 'Raqqa ware'.[227] However, in general, lustre ware of this group has continued to be attributed to Fāṭimid Egypt until very recently.[228] In 1987, Venetia Porter and Oliver Watson produced a well documented study on this pottery, bringing together all the known examples, and defining the characteristics of its body, its glaze, its decoration and its shape.[229]

CHRONOLOGICAL EVALUATION

Very little data is available in the literature to assess fully *fritware 1* production. In this section, an attempt is made to discuss what is available in the literature and to combine it with the results from the Qal'at Ja'bar sondages S1 and S2 (pp.30–34). One of the major problems encountered is the difficulty of identifying wares which can correspond to *fritware 1* in other publications: as indicated above, the existence of a fritware phase distinct from the so-called 'Raqqa ware' phase was not fully understood for a long time. In a number of archaeological reports *fritware 1* is still confused and dealt with together with 'Raqqa ware' (*fritware 2*). In the absence of an accurate description and accompanying profile drawings, it is now virtually impossible to identify *fritware 1* ceramics in older publications and only a re-examination of the various fritware finds can provide a reliable means for ascertaining the presence of *fritware 1* and re-evaluating the results. Moreover, very few stratified excavations have been conducted in this area of Syria, and even fewer have been published.

As already stated, the material from the sondages at Qal'at Ja'bar has provided only a hypothesis for absolute dating, but it has definitely demonstrated that *fritware 1* was produced much earlier than *fritware 2*. At Qal'at Ja'bar *fritware 1* is already present in the earliest occupation phase (phase I) in a very small quantity. *Fritware 1* proportion increases markedly in the succeeding phases IIb and IIa. In phases I and IIb only plain monochrome or carved/incised *fritware 1* occur. The earliest of these phases may be attributed to the second half of the 11th century on the basis of historical evidence (pp.34–36); the residual presence in the earliest phases of incised *early glazed slip-ware* may also indicate an 11th-century date (pp.30–31 and 34–36). More recently, thermoluminesence analysis conducted on a pottery assemblage excavated at a number of sites of the Euphrates valley has provided an 11th-century date for those phases associated with *fritware 1*.[230] Lustre-decorated *fritware 1* appears at Qal'at Ja'bar from phase IIa onwards, at the time that *intermediate fritware* (plain monochrome ware, carved/incised decorated ware and lustre-decorated ware) was introduced.

Lustre-decorated *fritware 1* is much rarer than other differently decorated *fritware 1* varieties among the material from the new Qal'at Ja'bar sondages; this is confirmed by reference to the Qal'at Ja'bar unstratified assemblage (figs 42–52). It is extremely difficult to establish the significance of this quantitative data. It is possible that it truly reflects an aspect of the *fritware 1* production, i.e. lustre-decorated *fritware 1* was not produced in the same quantity as other *fritware 1* types. Alternatively, the rarity of lustre-decorated *fritware 1* at Qal'at Ja'bar may be a consequence of the fact that it was not locally produced, whereas other *fritware 1* types were local (p.42). A third possibility may simply be related to the fact that lustre decoration deteriorates much more easily than other decorations and fragments may have lost their lustre paint. At present, no evidence supports any of these interpretations, but it is plausible that lustre ware may have been particularly expensive and may not have been produced in the same quantity as other simpler wares.

In the new sondages at Qal'at Ja'bar, *fritware 1* presence considerably diminishes in phase IV, which has been assigned a post-564/1168–9 – 569/1174 date, at the point at which *fritware 2* was introduced; by phase IV *fritware 1* was probably no longer in production and that which is found is merely residual (p.33 and graphics 1–2, figs 13–14). If one accepts a second half of the 12th-century date for the introduction of underglaze-painted *fritware 2*, the end of *fritware 1* production might be placed before this date.

Although negative evidence should be treated with caution, what is stated above may be confirmed by the absence of *fritware 1* ceramics in 'Raqqa ware' (*fritware 2*) assemblages, as demonstrated, for example, by the excavations at a number of rural settlements along the Euphrates valley[231] and at the Armenian Garden at Jerusalem. At the Armenian Garden, a large bowl with incised decoration covered with a turquoise glaze, was found: it came "from a pit with other Ayyubid material

which preceded the first Ayyubid floor";[232] the *terminus ante quem* of the layer is considered 1212/14, but Tushingham, on the basis of stylistic analysis, suggests an earlier date for the piece, in the final quarter of the 12th century. No other examples of this ware were excavated and there are thus good chances that the bowl represents a residual object in the layer.

Apart from the cases of Qal'at Ja'bar, the Euphrates rural settlements, and the Armenian Garden at Jerusalem mentioned above, the archaeological literature offers little evidence as regards the end of the production of *fritware 1*, the major difficulty being the identification of residual pottery. The excavation carried out at 'Āna, on the Iraqi Euphrates, by A. Northedge, has contributed new information to the dating of Syrian fritware: a ware comparable with *fritware 1* appears in "group 8", which is attributed to the first three quarters of the 12th century.[233] In Northedge's "group 9" two kinds of fritware, comparable respectively to *fritware 1* and *fritware 2*, appear: Northedge is very cautious in suggesting an overlap of the two productions, as the possibility exists that sherds of the first variety are residual.[234]

Sites such as Ḥamā, where fritware had been found in very large quantities, have failed, however, to provide more evidence in this respect. A chronological framework for Syrian fritware had already been established by Poulsen with the publication of the Ḥamā finds, on the basis of stylistic parallels and archaeological evidence. He attributes the group "Faïence locale ancienne" (*fritware 1* and *intermediate fritware*) to the late 11th–12th centuries because of its similarity with T'ing Chinese ware.[235] According to Poulsen, the production of this fritware may have ceased at the beginning of the 13th century, by which time *fritware 2* was in production.[236] However, the evidence provided in Ḥamā is often very difficult to interpret. In Riis's chapter 'Les donnés historiques et stratigraphiques', relative and absolute chronology are discussed in detail, on the basis of coin finds from the various strata. Unfortunately, sometimes the dates Poulsen offers fail to match those on the published tabulation by Riis synthesizing the various layers, their date and the related pottery finds.[237] Moreover, *fritware 1* very often occurs in layers together with *fritware 2*. No evidence is provided for assessing whether, in these layers, *fritware 1* should be considered residual or whether it was contemporaneously produced with *fritware 2*. According to the published tabulation, only in a few not very precisely dated layers was *fritware 1* found without *fritware 2*.[238]

To conclude, according to the evidence discussed above, *fritware 1* is the product of the 11th century; it was still manufactured during the first half of the 12th century, but it is not possible to indicate precisely when it fell out of production; it was no longer produced in the second half of the 12th century, when *fritware 2* was being manufactured.

As stated above, the earliest fritware variety found at Qal'at Ja'bar is plain monochrome glazed as well as carved/incised decorated and blue-splashed decorated *fritware 1*; lustre-decorated *fritware 1* was only introduced later. This fact has also been noticed at other Syrian sites, such as Ḥamā,[239] Qaṣr al-Ḥayr al-Sharqī,[240] and, more recently, at a number of rural settlements along the middle Euphrates valley.[241]

A number of incised-decorated fritware objects have been found in Italy. These objects generally come from well dated contexts and their presence in Europe by the end of the 11th century is very significant proving not only that fritware was already produced in the 11th century, but also that incised wares correspond to a very early phase of fritware manufacture.[242] However, it is not possible to determine their precise original provenance, and they are often unspecifically labelled as 'Saljūq'. In fact, visual criteria to identify the provenance of monochrome-glazed fritware in general have not been consistently established yet. Comparable material from scientifically controlled excavations in the Near and Middle East is still sparse. Moreover, excavated finds are often published in preliminary reports, on the basis of which it is not always possible to assess what they represent in relation to the rest of the assemblage recovered (a common find or a rarity, for example), and, ultimately, whether they were locally produced. In many cases, only archaeometry can at present provide reliable criteria on the question of provenance.[243]

An example can clarify this problem of classification: a fritware bowl comes from the church of Santo Stefano *extra moenia* in Pisa, and it is attributed to the mid-11th century.[244] The decoration consists of a finely incised floral scroll, combined with a floral Kufic script; iconographically and stylistically, this decoration can be compared with that of various Syrian *fritware 1* bowls,[245] but it is also similar to the decoration of Egyptian[246] and Iranian fritware.[247] The glaze of the bowl in Pisa has a high lead content. Although the analysed sample is still insufficient to draw general conclusions, it can be noted that the glaze of Egyptian fritware samples with incised decoration analysed also seems to have a high lead content,[248] as is the case of all the Syrian *fritware 1* group.[249] In the glaze of incised or plain monochrome fritware attributed to Iran, a high lead content seems rather to be associated with tin; only a low percentage of lead has been identified in the case of transparent glaze.[250] The foot lacks the characteristic articulation of the Syrian *fritware 1* group, described above. Thus the question of attributing this bowl to Iran, Egypt or Syria must remain unanswered at this stage of our knowledge.[251]

Although more evidence than that discussed here is required, it is thus possible that incised/carved or mould-decorated fritware is the earliest fritware type to be found in the Islamic world, at least in Syria and Iran,[252] while in Egypt early fritware seems to belong both to the lustre-decorated variety and to the incised variety.[253]

An apparent contradiction may arise at this point, for lustre-decorated fritware has been considered hitherto as representing the first appearance of fritware in Syria. A number of scholars suggested that the use of fritware in the Islamic world was an Egyptian innovation, for a relevant experimental phase has only been identified in Fāṭimid lustre ware pieces.[254] An emigration of potters from Egypt to Syria and to Iran is an hypothesis that has been used to explain the sudden and abrupt appearance of fritware in Syria and Iran with no apparent antecedent.[255] As regards Syria, this theory is supported by the stylistic similarity between Syrian *fritware 1* lustre ware (the so-called 'Tell Minis ware') and Egyptian lustre ware of the Fāṭimid period. Furthermore, the vast majority of shapes in the *fritware 1* repertoire have parallels with Fāṭimid shapes.[256]

This hypothesis of diffusionism from Egypt cannot at present be confirmed by historical sources and archaeological investigations.[257] At this stage of our understanding, the Egyptian emigration theory seems plausible, as it allows for the combination of all the elements of similarity cited as well as the absence of an experimental phase for fritware in both Syria and Iran.

However, as discussed above, the archaeological evidence available suggests that in Syria the first appearance of *fritware 1* is represented by the incised and carved decoration wares. Further evidence is needed to understand whether the absence of lustre-decorated fritware in the earliest phases of the various sites considered may simply be a consequence of the limited spread of lustre ware in its initial phase of production in Syria or whether the picture discussed above corresponds to the evolution of fritware production in the whole of Syria. In this last case, the stylistic similarity between Egyptian lustre ware and early Syrian fritware could not be regarded any further as evidence for the transfer of fritware technique from Egypt to Syria.

PRODUCTION CENTRES AND DISTRIBUTION OF FRITWARE 1: *ITS SOCIO-ECONOMIC SIGNIFICANCE*

Fritware 1 wasters were found at Qal'at Ja'bar during older excavations at the site;[258] these wasters belong to the monochrome glazed variety and to the blue-splashed variety (pls 41–42).[259] However, their provenance within the site is not known. It is likely that pottery workshops lay within the fortified area, since the material retrieved during previous excavations, including the wasters, is said to have been found in the Qal'a itself. Other workshops were identified within the castle itself: a kiln for making plaster (*juṣṣ*) can still be partly recognised in a section of the Syrian excavations; a workshop, whose function is still unclear, was also excavated during previous seasons (p.26 and pl. 20).

No other production centres for *fritware 1* have been clearly identified by archaeological excavations as yet. Bālis has often been indicated as a kiln site, but the results of several seasons of excavations at the site have not been published.[260] A group of wasters is said to have been found at Tell Minis, near Ma'arrat al-Nu'man (central Syria), in the course of clandestine excavations; this assemblage includes a number of *fritware 1* sherds. Literary evidence also suggests the existence of pottery workshops in the region over a long span of time.[261] However, given the lack of contextual data, it is very difficult to fully assess this evidence and to place this production site on a map.[262]

The question of production centres seems to need further evidence before it can be dealt with satisfactorily.

As to distribution, *fritware 1* seems to have been as widespread as *fritware 2* in the Levant, although not in the same quantity (see pp.50–51 and fig. 152). However, the apparent absence of *fritware 1* at several sites may derive from the fact that it was not correctly identified as being distinct from the so-called 'Raqqa ware' (*fritware 2*). In the absence of accurate descriptions and accompanying profile drawings, it is now virtually impossible to identify *fritware 1* in older publications and only a re-examination of the various fritware finds can provide a reliable means for defining the distribution of the group. *Fritware 1* ceramics can be identified with certainty among the finds from Antioch, Qaṣr al-Ḥayr al-Sharqī, Ḥamā, al-Raqqa, Ruṣāfa, Tell Shahīn, Tell Barrī, 'Āna (Iraq), Samsat (Anatolia), Istanbul, Buṣrā, Caesarea and Jerusalem.[263] *Fritware 1* specimens have also been found at smaller settlements along the Euphrates and in the Balīkh valley.[264]

In Europe, no specimens which can be associated with any certainty with *fritware 1* have been found; several objects identified as Saljūq, in fact, may be of Syrian provenance, as discussed above (p.41 and note 242). As already stated, only a re-examination of the various pottery assemblages reporting the recovery of the so-called Saljūq fritware or 'Raqqa ware' will allow a clear picture concerning the distribution of the type to be drawn (see below and pp.43–45).[265]

The limited spread of *fritware 1* outside the Levant is paralleled in its quantitatively low proportion at various sites: where *fritware 1* can be identified with a degree of certainty, the proportion of this seems to be consistently less than that of *fritware 2*. This is the case at Ḥamā and Antioch, for example; at other sites, such as Qaṣr al-Ḥayr al-Sharqī, the lower proportion of *fritware 1* compared with *fritware 2* probably has a chronological significance, i.e. *fritware 1* was no longer in production when the deposits in question were formed.

This proportional relationship between *fritware 1* and *fritware 2* also seems to be confirmed at Qal'at Ja'bar; however, the problem of *intermediate fritware*, chronologically related to *fritware 1*, but very easily confused with *fritware 2*, and the problem of unclassifiable fritware (*fritware ?*) may affect this quantitative assessment (pp.42–46, Appendix F and graphic 7, fig. 151). In the unstratified assemblage from Qal'at Ja'bar, *fritware 2* is more plentiful than *fritware 1*. However, in the new sondages, this difference is not so sharply delineated, in particular in sondage S1 (graphics 1–2, figs 13–14). As already stated, the quantitative data from the new sondages may be influenced by the function of the area; for example, great caution must be used in comparing the quantity of fritware finds from phase III, when the area was used for dumping, with other phases when the same area was used as living quarters. However, in sondage S2 the *fritware 1* proportion never parallels that of *fritware 2*. One may conclude that *fritware 1* was never such a common item as *fritware 2*; the very high quality of the *fritware 1* specimens may be interpreted as an indication of their having been a rather luxurious item, especially in its early phase. The increase in fritware quantity may be related to the extraordinary economic development of the Euphrates valley at some point in the 12th century, which reached its culmination in the early Ayyūbid period (pp.20–22). This economic development may be mirrored in the development of fritware. Quantitative data from the new Qal'at Ja'bar sondages also point in this direction: *fritware 1* seems to be quite rare in the first phase of occupation (phase I), but it gradually becomes quantitatively more important in the pottery inventory (pp.30–34 and graphics 1–2, figs 13–14). It is more numerous than *turquoise-glazed ware*, which, at a number of sites in this area of Syria, represents the most common type of glazed ware (graphics 3–4, figs 15–16).[266] Broken vessels were readily discarded rather than repaired, judging from the considerable quantity of *fritware 1* recovered from the dumping area (phase III), and the lack of repair marks among the various samples.[267] The popularity which *fritware 1* gained at a certain point is confirmed by its presence even at small settlements along the Euphrates valley in the 11th–12th centuries.[268] As stated above, this quantitative evolution in the production of *fritware 1* can probably be taken as the consequence of the economic development of the Euphrates valley in the late 11th century and especially in the 12th century.

***Intermediate fritware* (and *fritware ?*)**

INTRODUCTION

Classified in this group are fragments whose technical characteristics fall between *fritware 1* and *fritware 2* (so called 'Tell Minis ware' and 'Raqqa ware'). Laboratory analysis has demonstrated that *intermediate fritware* samples are much closer to *fritware 1* chemically and

petrographically than to *fritware 2*.[269] Visually, however, the body has some of the characteristics of *fritware 2*, namely the same consistency and often the colour (see below). The various decorative techniques and shapes employed for *intermediate fritware* are very similar to those already described in the *fritware 1* group.

It is extremely important to identify *intermediate fritware* as it can be confused with *fritware 2* and this seriously affects the dating framework. Qal'at Ja'bar sondages S1 and S2 have demonstrated the existence of this *intermediate fritware* and shown that its production may have partly overlapped that of *fritware 1* (p.45).

It is often extremely difficult to identify samples of the *intermediate fritware* group, in particular in the case of monochrome glazed ware and lustre-decorated sherds. Monochrome glazed body sherds and rims (which are not good indicators, since both the simple rim type and the everted rim type are found in the *fritware 1* as well as in the *fritware 2* group; pp.39–40 and 47–48) can only be classified as *intermediate fritware* on the basis of laboratory analysis to detect the presence of lead in the glaze; lead is totally absent in the glazes of *fritware 2*. Apart from this the shape of the foot is the only visual means of distinguishing monochrome glazed *intermediate fritware*: it has to be of the highly diagnostic type which characterises the *fritware 1* group, with a sharp angular profile (see pp.39–40 and 44); however, this type of foot gradually evolved into a much higher and thinner type, and it is very difficult to identify at what stage this change took place. In other words, without laboratory analysis, it is still impossible to establish whether the various types of foot can be ascribed to the *intermediate fritware* or to the *fritware 2* group.

As a consequence of the present impossibility of distinguishing between most monochrome glazed *intermediate fritware* and *fritware 2*, monochrome glazed fritware from the unstratified assemblage has been dealt with in the typology as a single ware. By contrast, for fritware sherds from Qal'at Ja'bar sondages S1 and S2, distinguishing between *intermediate fritware* and *fritware 2* is essential, since mis-classification can seriously upset quantitative evaluation and relative dating. To avoid any danger of contamination of highly diagnostic *intermediate fritware* and *fritware 2* for the quantitative assessment, in studying the fritware finds from the new Qal'at Ja'bar sondages, the problematic monochrome glazed ware has been grouped apart (*fritware ?*). Only monochrome glazed fritware with a diagnostic type of foot has been counted as *intermediate fritware* among the monochrome glazed fritware finds.

The use of black glaze is also very likely to be a good indicator for *intermediate fritware*.[270] According to the results of the Qal'at Ja'bar sondages S1 and S2, the use of black glaze ceased at the point that *fritware 2* was introduced. Further analysis may identify other criteria for classifying monochrome glazed fritware.

Classification is much simpler for decorated fritware: the carved or incised decorated ware, often associated with blue splashes or polychrome painting, may represent a good indicator and allows classification of sherds which at first sight appear to have a *fritware 2* body as being, in reality, *intermediate fritware*.

Classifying lustre fritware sherds presents much the same problems as those described for monochrome glazed fritware, for it is very difficult to detect any visual difference between *intermediate fritware* and *fritware 2* lustre sherds, especially in the case of small fragments. Shape is a much more reliable criterion, as in the case of the monochrome glazed fritware (the so-called 'Tell Minis foot'). The style and the iconography of lustre painting can also occasionally be a good indicator, especially in the case of particularly large sherds or complete objects.[271]

A further problem is represented by lustre-decorated fritware with coloured glaze. As already seen (p.39), *fritware 1* can be covered with a coloured glaze and lustre-decorated. Yet this type of decoration is also used for *intermediate fritware*. According to the classification criteria adopted here, sherds with lustre decoration on coloured glaze on a *fritware 2* type of body with the very diagnostic angular type of foot mentioned above can be considered part of the *intermediate fritware* group.[272] However, it must be said that lustre on coloured glaze associated with a *fritware 2* type of body does not automatically identify *intermediate fritware*. Laboratory analysis conducted on a single sherd of fritware with lustre decoration on coloured glaze has produced intriguing results, and has opened a new classification problem (fig. 59 k). The body of the sherd analysed is much closer to *fritware 2*, as it has a lower percentage of clay minerals than the body of *fritware 1* and *intermediate fritware*. The glaze has a lead content, consistently absent in the glaze of *fritware 2*, but in a much lower percentage compared to the glazes of *fritware 1* and *intermediate fritware*. There is thus reason to suspect the existence of yet another group of fritware, which probably represents the passage between the *fritware 1/intermediate fritware* manufacturing technique and *fritware 2* manufacturing technique. Further research is needed to clarify this point, but, for the time being and in consideration of the presence of lead in the glaze, this type of fritware is treated as belonging to the *intermediate fritware* type.

TECHNICAL CHARACTERISTICS OF INTERMEDIATE FRITWARE

The body can be whitish, greyish or yellowish, as shown by sherds with a recent break; it is rather friable, but as fine-grained and compact as *fritware 1*. Analysis has demonstrated that samples belonging to this group present the same proportion of constituents as *fritware 1* sherds: finely ground quartz is combined with a small amount of clay minerals.[273] The unglazed parts of the body can be smooth, as in the case of *fritware 1*, or rough like emery paper, as in the case of *fritware 2*.

The glaze shows the same characteristics as described for the glaze of *fritware 1*: it is transparent, whether colourless or coloured, and it has a very high lead content (Appendix D). The glaze layer is thin, and it only rarely pools in the well of the vessel. However, the edge of the glazed areas on the exterior tends to be much thicker than that of *fritware 1*. Glaze also decays in the manner described for *fritware 1* (see p.39).

*DECORATIVE TECHNIQUES (*INTERMEDIATE FRITWARE *AND* FRITWARE *?)*

The decorative techniques employed are those already described for *fritware 1*, and can be sub-divided into three major groups:

1) Monochrome Glaze Ware with/without carved/ incised decoration (figs 53–58)

1a) Plain Monochrome Glaze (*intermediate fritware* or *fritware 2*) (figs 54–56; 57 a–b; 58)

In this group it is impossible to avoid classifying *intermediate fritware* sherds and *fritware 2* sherds together. As discussed above, this writer prefers to keep all monochrome glazed fritware sherds together, given the

impossibility of safely distinguishing *intermediate fritware* and *fritware 2* (*fritware ?*). Sherds which can be classified with a degree of certitude are indicated.
WARE U: colourless transparent glaze, often slightly greenish (MFN: int. frw: 10; frw 2: 10; frw ?: 35).
WARE T: turquoise transparent glaze (MFN: int. frw: 8; frw 2: 16; frw ?: 79).
WARE V: aubergine transparent glaze (MFN: int. frw: 4; frw 2: 2; frw ?: 30).
WARE W: cobalt blue transparent glaze (MFN: frw ? 8).

1b) Monochrome Ware with Carved/Incised Decoration
Intermediate fritware or *fritware 2* (fig. 57 c–k):
WARE AMM: carved decoration, turquoise transparent glaze (MFN: 6).

Intermediate fritware (fig. 53 a–g):
WARE AM : carved decoration, turquoise transparent glaze (MFN: 4).
WARE AO: carved decoration, black glaze (MFN: 2).

2) In-glaze Painted Ware with/without carved/incised decoration (fig. 53 h–j)
Intermediate fritware (fig. 53 h–j):
WARE AV: carved decoration; transparent glaze with blue splash (MFN: 2).
WARE ASI: polychrome in-glaze painting with colourless glaze — *laqabi* ware (MFN: 2).

3) Lustre Ware (fig. 59)
Intermediate fritware and *fritware ?*
WARE JJ: lustre ware on transparent colourless glaze (MFN: 5).
WARE AA: lustre on transparent turquoise glaze (MFN: 1).
WARE AB: lustre on transparent green glaze (MFN: 1).
WARE AE: lustre on transparent light green glaze (MFN: 1).
WARE AF: lustre on transparent cobalt blue glaze (MFN: 1).
WARE AD: lustre on transparent manganese glaze (MFN: 1).
WARE AC: lustre on transparent black glaze (MFN: 1).

*SHAPE (*INTERMEDIATE FRITWARE*)*
As stated in the introduction, shapes are those of the *fritware 1* group and the shape of vessels seems to indicate that the group served as table ware. These shapes include the bowl with flat everted rim and slightly curving sides (figs 53 e, i–j) and the bowl with simple rim and straight or slightly curving flaring sides (figs 53 a–b, g; 58 a–b; 59 e). As already discussed, these types of rim can be found in the *fritware 2* group as well and therefore they cannot be considered particularly diagnostic. The foot associated with these bowls is much more diagnostic and characterises *fritware 1* and *intermediate fritware*. The foot flares outwards and it is then sharply cut inwards, creating an angle in the profile (figs 53 a–b, d, f–g, k; 56 a–f; 58 a–b, h; 59 a–e).

PROBLEMS OF IDENTIFICATION
Very little data is available in the literature to assess fully the production of *intermediate fritware*. This was also the case with *fritware 1*; as we have seen, *fritware 1* is very often confused and dealt with in the literature along with 'Raqqa ware' (*fritware 2*). As seen above, it is much more difficult to identify *intermediate fritware*, since at present criteria for identification are not fully understood. Only laboratory analysis can, for the moment, be considered a reliable basis for classification. *Intermediate fritware* is even more difficult to identify in the literature, and it is only on the basis of profile drawings and detailed descriptions of the body that certain visual characteristics of *intermediate fritware* can be recognised in the published pottery assemblages (such as the shape of the foot or certain types of decoration).

Poulsen had already introduced a "groupe intérmediaire" in his classification of the Ḥamā fritware to illustrate the passage from *fritware 1* to *fritware 2*: his 'intermediate' objects are related to *fritware 1* in terms of decoration techniques, shape or style, but they are considered by Poulsen to be of less good quality, with a coarser body and less accurate in the execution of the decoration. His criterion for identifying this group is basically the quality of the object, not only in the sense of the quality of the fritware body, but in the accuracy of execution and style. Examination of the profile drawings of Poulsen's *intermediate fritware* objects allows one to conclude that they correspond to *intermediate fritware* as defined at Qal'at Ja'bar.[274] As a consequence, decorative technique and style must also be regarded an important means of identifying *intermediate fritware* in general.

Porter and Watson have also established a "Related Wares" group for those fritware objects whose characteristics seem "to fall between the two groups ['Tell Minis ware' and 'Raqqa ware'], related to both but not fitting into either".[275] In this group are classified the greater part of Poulsen's "groupe intermédiaire" fritware, but also a number of other fritware objects with similar characteristics. Here again, style is an important criterion of classification and reference to Porter and Watson's profile drawings allows us to identify *intermediate fritware* as defined for the Qal'at Ja'bar assemblage among their material.

Porter and Watson consider *laqabi*[276] ware as part of their "Related Wares" group: they noted that "some fragments seem very close indeed to the 'Tell Minis' group", but they consider "fully developed *laqabi* wares... part of the 'Raqqa' group".[277] No evidence is provided for supporting their interpretation of *laqabi* ware as part of *fritware 2* ('Raqqa ware'). At Qal'at Ja'bar, some of the *laqabi* ware sherds have been classified in the *fritware 1* group, for they show the same body, glaze, and shape as other differently decorated sherds of *fritware 1* (see p.39). Some of the *laqabi* sherds from Qal'at Ja'bar have been classified in the *intermediate fritware* group. All *laqabi* sherds from Qal'at Ja'bar were analysed in a laboratory; results confirmed the classification adopted (Appendix D, figs 50 f; 53 k–i) and allow us to conclude that *laqabi* ware is part of *fritware 1*; *laqabi* sherds with a fritware body of less good quality cannot be classified in the *fritware 2* group, but belong to the *intermediate fritware* group. Thus, it is clear that *laqabi* is a term indicating a specific decorative technique that may manifest itself in either a *fritware 1* or *intermediate fritware* body.

A number of lustre-decorated pieces are included in Poulsen's "groupe intermédiaire"; all of them were reported in Porter and Watson's "Related Wares" group together with other similar objects. According to Poulsen, and also to Porter and Watson, most of the objects included in these groups are stylistically related to lustre-decorated *fritware 1* ('Tell Minis ware'). Some of the objects present the shape of foot characteristic of *fritware 1*,[278] and can therefore be considered part of *intermediate fritware* as defined for the Qal'at Ja'bar assemblage. As discussed above, style has proven to be, in many cases, a reliable means for identifying *intermediate fritware* with lustre decoration. However, as small sherds are impossible to assess from a stylistic point of view, in establishing Qal'at Ja'bar pottery typology an attempt was made to identify other criteria of classification. Thus lustred fritware sherds from the Qal'at Ja'bar

sondages S1 and S2 have been classified according to the same principle adopted for monochrome glazed fritware, with only diagnostic shapes interpreted as *intermediate fritware*. Sherds of dubious diagnostic value were kept and counted in a separated group (*fritware ?*), to avoid upsetting quantitative assessments and dating evaluation.[279]

*CHRONOLOGICAL EVALUATION (*INTERMEDIATE FRITWARE*)*

As stated in the introduction, it is very important for dating to recognise the existence of *intermediate fritware*. According to the archaeological evidence provided by the new sondages at Qal'at Ja'bar (pp.30–34), *fritware 1* and *intermediate fritware* overlapped each other chronologically. In the earliest phases (phase I and IIb), only *fritware 1* occurs; by phase IIa, *intermediate fritware* had been introduced, and it seems to have been produced along with *fritware 1*. According to Poulsen, his "groupe intermédiaire" represents the "décadence du style",[280] the final stage of *fritware 1* production. In the light of the new Qal'at Ja'bar sondages, the sequence suggested by Poulsen has to be amended: *intermediate fritware* was in production, at some stage, together with *fritware 1*, although it is possible that *intermediate fritware* was manufactured for a longer period and that it represents the passage between *fritware 1* and *fritware 2*.

It is extremely difficult to establish at what stage the production of *intermediate fritware* ceased, for it is very easily confused with *fritware 2*, especially the monochrome glazed intermediate type.[281] At Qal'at Ja'bar, by the time *fritware 2* underglaze-painted decoration was introduced (phase IV), highly diagnostic *intermediate fritware*, such as black monochrome glazed and carved decorated fritware, occurs in a lower percentage if compared with data from phase III. It is not clear, however, whether it should be considered residual; because of the low quantity in phase IV (graphics 1–2, figs 13–14) *intermediate fritware*, together with *fritware 1*, may no longer have been in use at Qal'at Ja'bar once *fritware 2* had been introduced.

However, according to the evidence provided in the literature, it is possible that *intermediate fritware* production lasted slightly longer than *fritware 1*. At Ḥamā, as already discussed (see p.41), stratigraphic data does not clarify whether *fritware 1* (and *intermediate fritware*) can be considered residual in layers where it is found together with *fritware 2*. However, Poulsen concluded that *fritware 2* ('Raqqa ware') was already fully developed when *intermediate fritware* was in production, very likely at the beginning of the 13th century.[282] This conclusion seems to be confirmed by the evidence provided by the excavation at Qaṣr al-Ḥayr al-Sharqī. Some of the Qaṣr al-Ḥayr al-Sharqī fritware sherds may belong to the *intermediate fritware* type, in particular lustre-decorated sherds on coloured glaze.[283] In layers considered to be of the late 12th or beginning of the 13th century, lustre-decorated sherds were found together with lustre fritware with incised ornament (very likely of *fritware 1* type) and with *fritware 2*. The large number of sherds with lustre decoration on coloured glaze (presumably *intermediate fritware*) suggests that they cannot be considered residual, whereas the much smaller number of lustre fritware sherds with incised ornament (presumably *fritware 1*) may indeed be residual.[284] If lustre-decorated fritware on coloured lustre is proven to be of the intermediate type, and very likely this is the case with some of the Qaṣr al-Ḥayr al-Sharqī fritware finds,[285] the obvious conclusion is that *intermediate fritware* overlapped *fritware 2* production, at a time when *fritware 1* production had already ceased. A re-examination of the entire fritware inventory from Qaṣr al-Ḥayr al-Sharqī is highly desirable to evaluate the fritware assemblage better.[286]

As to absolute dating, a significant piece of evidence is provided by the excavations conducted at a number of rural settlements along the Euphrates valley. Here *fritware 1* and *intermediate fritware* (but no *fritware 2*) appear in two major phases, III and IV, attributed, on the basis of archaeological evidence and thermoluminescence analysis, to a period between the 11th century and the first three quarters of the 12th century. In such a rural context, however, quantities are not remarkable and residual pottery cannot be easily identified on that basis.[287]

In Genoa, at the Convento di San Silvestro, a small group of fritware sherds was found during the excavation; one of the published fritware sherds is a foot which is very similar to the typical *fritware 1* type ('Tell Minis ware'). The body is described as "estremamente friabile" and it is covered with an opaque turquoise glaze. All fritware recovered from San Silvestro is defined as 'Raqqa ware', but the shape of the sherd described indicates that it may well belong to *intermediate fritware*. It was found in phase "M", dated to AD 1170–1220.[288] Underglaze-painted *fritware 2* ('Raqqa ware') was found in the succeeding phase "L", attributed to AD 1170–1404.[289] Although it is not possible, in the present state of our knowledge, to attribute these finds to Syria rather than to Egypt, the finds from S. Silvestro seem to suggest that a certain type of monochrome fritware, similar to *intermediate fritware* as defined at Qal'at Ja'bar type, pre-dates underglaze-painted *fritware 2* (so-called 'Raqqa ware').

The same point has also been noted at the Palazzo Ducale, also in Genoa, where various fritware sherds were recovered. No detailed description is provided for the individual sherds from the Palazzo Ducale excavations, but in the publication the authors report that the body is generally friable, white or light yellow:[290] monochrome glazed fritware (turquoise, blue, or purple glazed) was found in layers 104–105, dated, on the basis of the archaeological evidence, to the first half of the 12th century, while underglaze-painted fritware was recovered from layers attributed to the end of the 12th century.[291] While fritware shapes at the Palazzo Ducale are not particularly diagnostic,[292] these monochrome glazed sherds may be related to what has been defined as *intermediate fritware* at Qal'at Ja'bar.

A similar date is also provided by the excavations at the Great Palace in Istanbul: fritware sherds which probably correspond to *intermediate fritware* as defined at Qal'at Ja'bar were recovered from a layer of 1175–1200.[293]

Thus, to summarise, *intermediate fritware* was introduced at Qal'at Ja'bar shortly after *fritware 1*, at some point between the end of the 11th century and the first half of the 12th century. This date is supported by the archaeological evidence provided by the excavations at various rural settlements of the Euphrates valley. The production of *intermediate fritware* ceased shortly after the introduction of *fritware 2*, possibly in the second half of the 12th century. Such a chronology is supported by the results of Qal'at Ja'bar sondages S1 and S2 and by the excavations conducted at Ḥamā and Qaṣr al-Ḥayr al-Sharqī.

DISTRIBUTION AND PRODUCTION CENTRES: SOCIO-ECONOMIC SIGNIFICANCE OF INTERMEDIATE FRITWARE

As noted for *fritware 1*, the lack of detailed description and accurate profile drawing makes the identification of

intermediate fritware in the literature extremely difficult. From the evidence available, it seems that *intermediate fritware*, like *fritware 1*, was not very widely distributed. *Intermediate fritware* as defined on the basis of the Qal'at Ja'bar assemblage has been found at Antioch,[294] Ḥamā,[295] 'Āna[296] and probably at Qaṣr al-Ḥayr al-Sharqī.[297] It has also been found at various small sites in the Euphrates valley.[298] In Europe, it has possibly been found in Genoa, at the Convento di San Silvestro[299] and at the Palazzo Ducale.[300]

As with *fritware 1*, the published evidence indicates that no production centres have been identified so far, with the possible exception of Qal'at Ja'bar. However, it is probably impossible visually to distinguish a monochrome glazed waster of *intermediate fritware* from a monochrome glazed waster of *fritware 2* (see discussion in the previous sections). *Fritware 1* and *fritware 2* wasters have been found at Qal'at Ja'bar, but, without laboratory analysis of the wasters, it cannot be established whether some of these sherds belong to the *intermediate fritware* group rather than the *fritware 2* group.

It is possible that the centres which were producing *fritware 1* were also manufacturing *intermediate fritware*.[301] At Qal'at Ja'bar, *intermediate fritware* production overlapped the production of *fritware 1* for a certain span of time, as discussed in the previous section. It is very difficult to evaluate this production. In particular, there is no evidence available to determine whether *intermediate fritware*, as a sort of second quality *fritware 1*, was the result of a series of accidents in the manufacturing process or whether *intermediate fritware* as such was made by intent. Faults in the manufacturing process may occur, but this is not a satisfactory explanation for the entire *intermediate fritware corpus*. In the case of certain lustre-decorated *intermediate fritware* objects, for example, the poor execution of the decoration probably indicates that less care was employed in the production of the object, i.e. the inferior quality as compared to lustre-decorated *fritware 1* was 'intentional' rather than accidental. A plausible hypothesis is that, by the time that *intermediate fritware* was introduced, fritware generally had become very popular and market demand for it had increased. The need to satisfy a larger market encouraged potters to experiment in new techniques and new materials, but also to be less concerned about quality. For instance, the more friable body of *intermediate fritware* compared to that of *fritware 1* may be the result of firing at a lower temperature, to save fuel or time to increase production rates. This hypothesis is supported at Qal'at Ja'bar by quantitative data, which demonstrates that fritware production markedly increased at some point, well before the introduction of underglaze-painted *fritware 2*, and certainly by the time that *intermediate fritware* was introduced. The explanation provided by Porter and Watson for certain lustre-decorated *intermediate fritware* related pieces is also of relevance. They consider these objects to be the product of a provincial kiln,[302] which would explain the fact that their quality is not as fine as that of *fritware 1* objects. However, at present, there is insufficient evidence to discuss the existence of central and provincial kiln centres. In the case of Qal'at Ja'bar in particular, it is unconvincing that such a production centre of *fritware 1* needed to import other lesser quality fritware from elsewhere.[303] In other words, if Qal'at Ja'bar potters had the skill to manufacture *fritware 1*, it is hard to believe that *intermediate fritware* had to be supplied by another production centre.

Potters seem to have been concerned not only to increase production, but they also experimented with new techniques. The existence of an experimental phase leading towards *fritware 2* may be hypothesised from the results of analysis on two fragments from Qal'at Ja'bar, one of which is decorated in lustre over a coloured glaze (Appendix D, figs 59 k and 53 h). The composition of the bodies is much closer to that of *fritware 2*; the quantity of lead in their glaze has markedly diminished compared to that usually found in *fritware 1* glaze (lead is totally absent from the glaze of *fritware 2*, see pp.50–51 for a tentative explanation of this technological change).

The following model can be drawn on the basis of the Qal'at Ja'bar excavations, combined with the published evidence from Qaṣr al-Ḥayr al-Sharqī:

stage 1: *fritware 1* was introduced (11th century).
stage 2: *fritware 1* production increased (late 11th–early 12th centuries).
stage 3: *intermediate fritware* was introduced, but *fritware 1* may have still been in production (late 11th–first half of the 12th centuries); potters were experimenting with new techniques, possibly to increase output and from this developed *fritware 2*.
stage 4: *fritware 1* production had already ceased; *fritware 2* was introduced (second half of the 12th century). Lustred fritware on coloured glaze was very likely still produced at this stage, as proven by the excavations at Qaṣr al-Ḥayr al-Sharqī; the two Qal'at Ja'bar fritware sherds analysed are much closer to *fritware 2* than the other differently decorated types of fritware. They demonstrate that the new manufacturing technique for *fritware 2* may be the result of experimenting during the *fritware 1* and the *intermediate fritware* phase.

Fritware 2

Fritware 2 as identified at Qal'at Ja'bar corresponds to the ware generally referred to in the literature as 'Raqqa ware'.

TECHNICAL CHARACTERISTICS

The body of *fritware 2* shows a variety of colours: it can be white, off-white, pale-yellow or greyish. It is, in most cases, rather friable. It is finely grained and quite porous. The major component is quartz, combined with a small amount of clay minerals. The percentage of the various components differs from that detected in the bodies of *fritware 1* and *intermediate fritware*, for the quantity of quartz is higher and the quantity of clay minerals lower (see note 209). This fact may determine the visual difference detected in the body of the various groups: the higher percentage of clay minerals results in the body of *fritware 1* being harder and more compact. Hardness and compactness can also be influenced by firing temperature: if not fired to a sufficiently high temperature, quartz does not fuse and the fritware remains gritty and friable to the touch. The unglazed parts of *fritware 2* vessels are rough like emery paper in most cases.

The *fritware 2* glaze is transparent. All glazes analysed were very rich in sodium, while lead was totally absent (Appendix D, Table 2).[304] The glaze is often very thick, and tends to pool in the well of the vessel. The edge of the glazed area, on the exterior, is very thick in most cases, and the glaze tends to drip down towards the foot. The foot is unglazed in *fritware 2* vessels, just as was the case with *fritware 1* and *intermediate fritware*. When the glaze of *fritware 2* deteriorates, it develops a whitish patina which gradually covers the entire surface and masks decoration. This is a consequence of the high sodium content of the glaze, which reacts in the presence of highly saline soil.[305] As noted, this type of deterioration is

markedly different from that detected on the *fritware 1* group (see p.39).

DECORATIVE TECHNIQUES
Fritware 2 can be divided into three major groups according to surface treatment:

1) Monochrome Ware (figs 54–56; 57–58)
1a) Plain Monochrome Ware (figs 54–56; 57 a–b; 58)
As already discussed (pp.42–45), it is very difficult to distinguish monochrome glazed *fritware 2* from monochrome glazed *intermediate fritware*, and, ultimately, the only reliable way of making a distinction is by laboratory analysis. For this reason, monochrome glazed fritware has been classified in a single group, which includes both fritware types. Diagnostic sherds have been arranged in the same plate with unclassifiable sherds for comparison. Some *fritware 2* sherds can be found in the following groups:
WARE U: colourless transparent glaze, often slightly greenish (MFN: int. frw: 10; frw 2: 10; frw ?: 35).
WARE T: turquoise transparent glaze (MFN: int. frw: 8; frw 2: 16; frw ?: 79).
WARE V: aubergine transparent glaze (MFN: int. frw: 4; frw 2: 2; frw ?: 30).
WARE W: cobalt blue transparent glaze (MFN: frw ? 8).

1b) Incised/Carved/Mould-decorated Monochrome Ware (fig. 57 c–k)
As already discussed (pp.42–44), monochrome glazed fritware with an incised/carved decoration is relatively easy to classify, since certain types of decoration have been proved to characterise the *intermediate fritware* type alone. However, as in the case of the plain monochrome group, unclassifiable types have been arranged in the same plates with more diagnostic types for comparison.

Only the mould-decorated type with turquoise glaze seems to be characteristic of *fritware 2*. Evidence for such a classification is provided in the literature and by the absence of a similar type in the *fritware 1* and *intermediate fritware* group from the new sondages at Qal'at Ja'bar.
WARE AMM: turquoise glaze (MFN frw ?: 6).

2) Underglaze Painted Ware (figs 64–71)
2a) Single Colour (figs 64–69)
A chromium spinel, picotite, is used for the black underglaze-painted decoration.[306] The decoration is covered with a transparent glaze, differently coloured:
WARE AG: colourless or slightly greenish glaze (MFN: 45).
WARE Y: turquoise glaze — copper oxide (MFN: 147).
WARE AK: aubergine glaze — manganese oxide (MFN: 2).

2b) Two Colours (fig. 70)
The decoration is painted in black, as in the case of the previous group. Cobalt blue or turquoise can also be added to the decoration.
WARE AH: cobalt blue is added to the black painted decoration, under a colourless glaze (MFN: 17).
WARE AJ: turquoise is added to the black underglaze-painted decoration under a colourless glaze (MFN: 1).

2c) Three Colours (fig. 71 a–e)
This type is extremely rare in the unstratified pottery assemblage and it does not occur in the assemblage excavated in the new Qal'at Ja'bar sondages. Red, brown and green can be added to the black underglaze-painted decoration. No data are available in Appendix D to determine the composition of the colouring, for no samples of this type from Qal'at Ja'bar were analysed. According to Soustiel, the red paint on similar samples consists of an iron oxide and lime slip;[307] a dark red paint is also obtained with manganese oxide.[308]
WARE AI: (MFN: 5).

3) Lustre Ware (figs 60–63)
The decoration of part of the lustre-painted fritware classified as *fritware 2* at Qal'at Ja'bar shows a number of similarities with lustre-painted *intermediate fritware*. However, in terms of shape (the high foot-ring, often associated with a low-carinated bowl, see below) and technical characteristics, primarily the absence of lead in the glaze (Appendix D, Table 2), the lustre-decorated fritware discussed here seems to fit better in the *fritware 2* group.[309] In the case of heavily worn or small sherds it remains difficult to classify lustre-decorated fritware; only underglaze-painted *fritware 2* can consistently be considered highly diagnostic for the entire *fritware 2* group.

Fritware 2 lustre paint differs in colour from that of the *fritware 1* and *intermediate fritware* groups (pp.39, 44); it has generally a dark brown or a reddish brown colour, which is obtained with copper salts (Appendix D, Table 2). Cobalt blue is often added to the decoration, but this type is very rare at Qal'at Ja'bar. In the literature, there are also lustre-decorated objects with an additional blue and turquoise painted decoration.[310]
WARE Z: the glaze is colourless or greenish (MFN: 74).
WARE AW: blue underglaze painting, colourless or greenish glaze (MFN: 2).

SHAPE
The inventory of shapes does not vary greatly in the *fritware 2* group. *Fritware 2* appears to have been used as table ware, and most of the shapes associated with it seem to have been open forms. In the *fritware 2* group, there are two ubiquitous bowl forms, both at Qal'at Ja'bar and in the published literature. They are very similar to the common shapes of the *fritware 1* and *intermediate fritware* inventory. One of these is a bowl with slightly curving sides and a flat everted rim (figs 61 a–i; 66 j–m; 67 a–d). The other is a bowl with straight or slightly curving sides and a simple rim (figs 60 a–i; 64 a–c; 65; 66 a–i; 70 a–b; 71 a–c).

Very often these vessels have a high foot, with straight or slightly flaring sides and with a tapering base (figs 62 e–k; 63 a; 64 e–f, h–i; 68 f–m; 69 a, h, o). A lower type of foot with flaring sides also occurs (figs 62 a–d; 64 g; 68 c–e; 70 f), which may be a derivative from the *fritware 1* inventory (compare with figs 43 l–n; 44 h; 45 f, k–l; 46 g–h, l–m; 48 f–i, j; 49 e–h; 51 c–e; 52 i).

As discussed in the following pages, profile drawings of *fritware 2* have not been systematically published and the full inventory of shapes may not be fully recognised at present. However, the published evidence also seems to indicate the two types just described as the most common.[311]

In the literature, a large number of *fritware 2* objects have closed forms;[312] however, with the exception of a few sherds, virtually no closed forms were identified at Qal'at Ja'bar. This may be related to the function of the area excavated (Chapter 4). There is certainly insufficient evidence to allow us to suppose that closed forms were only produced at certain sites and not at Qal'at Ja'bar.

In the *fritware 2* phase the so-called carinated conical bowl with flaring sides was introduced: it characterises the 'Raqqa ware' production. This type of bowl appeared in Iran, Syria and Egypt in the early 13th century, but where it originated is still unclear. Its introduction to Syria was

probably influenced by models from Iran, where the earliest dated example bears a date of 1204.[313] The new Qal'at Ja'bar excavations have not provided further evidence to help understand the introduction of the carinated bowl to Syria (see following discussion).

IDENTIFICATION OF FRITWARE 2 *IN THE CERAMICS LITERATURE*

The most widely known and discussed Syrian mediaeval pottery is without doubt the so-called 'Raqqa ware'. The label 'Raqqa' is now used in the literature to identify a pottery group made in Syria, at a number of workshops; some of these were probably located in al-Raqqa, but others may have been located along the Euphrates valley, in central Syria, Damascus or even Egypt (see discussion below). Originally this nomenclature referred to provenance, as it was generally believed that al-Raqqa was the production centre for all Syrian fritware (i.e. *fritware 1*, *intermediate fritware* and *fritware 2*).

The first specimens of 'Raqqa ware' reached the European market in 1895.[314] These were fragments of lustre-painted pottery which, when published by Migeon, were in the possession of Armenian art dealers based in Paris who initially tried to keep secret the location of the discovery, the town of Raqqa.[315] Migeon not only reported these details about the provenance, but gave a fairly full account of these finds. Describing them as a highly homogeneous group, he identified the pottery as belonging to a specific type, previously unknown, but other specimens of which had been encountered by Raymond Koechlin in Damascus.[316]

Several attempts to investigate the attribution of the group to al-Raqqa then followed: the former Imperial Ottoman Museum organised an archaeological expedition between 1903 and 1906, but never published the results.[317] Friedrich Sarre and Ernst Herzfeld surveyed the site in 1907–1908, and published some of the sherds that they collected.[318] Gertrude Bell also reported that pottery and pottery wasters had been found in great quantity in al-Raqqa during her visit to the town.[319] In 1924, Eustache de Lorey, director of the Institut Français at Damascus, found a pottery kiln in al-Raqqa, but although de Lorey never published the results of his investigations, his discovery was mentioned by Jean Sauvaget more than twenty years later, in a report on a group of sherds from al-Raqqa, which constitutes the first detailed study of 'Raqqa ware'.[320] Since World War II, archaeological investigations, under the aegis of the Syrian Department of Antiquities, have been mainly concerned with the 'Abbāsid town, and the publications have been almost exclusively devoted to architecture.[321] However, the excavation of a palace known as Qaṣr al-Banāt since 1977 has led to the discovery of a remarkably large number of wasters related to 'Raqqa ware'.[322]

In the meantime, hundreds of Syrian fritware objects have appeared on the Western market, all said to have come from al-Raqqa. The high esteem and commercial value 'Raqqa ware' has acquired must have convinced clandestine excavators and dealers that it was desirable to claim such a provenance. However, in the last few years archaeological research has made major steps forward on the question of provenance of so-called 'Raqqa ware', and it has now become clear that al-Raqqa cannot have been the sole manufacturing centre of this ware (see below).

CHRONOLOGICAL EVALUATION

As a whole, *fritware 2* is very well known in the literature. It has been found at several sites in and outside Syria (fig. 152). Decorated *fritware 2* is much easier to identify in publications than other fritware types, and comparisons between material from various sites are easily made. This is particularly true for the underglaze-painted variety, while lustre-decorated *fritware 2* cannot be considered as highly diagnostic; the colour of the lustre employed and the style of the decoration have some value in the classification; however, only large sherds with a well preserved lustre decoration can be considered really diagnostic for the group (see above, p.47). Style and decorative motifs employed for *fritware 2* are now relatively well known. As to shapes, only fairly recently have profile drawings been systematically published, and a survey of all the shapes employed in this production has yet to be carried out.

In the two new Qal'at Ja'bar sondages, *fritware 2* makes its appearance in phase IV, which has been attributed to a post-564/1168–69 – 569/1174 period (pp.34–36). In both sondages, this phase was very disturbed by destruction and reconstruction activities, and the assemblage recovered may be less significant as a result. Furthermore, the assemblage related to phase IV in sondage S1 is quantitatively rather limited. By contrast, in sondage S2, this phase is much better represented in terms of pottery finds; however, these data cannot be compared with those from previous phases, especially since sondage S2 was not excavated down to virgin soil.

In the new Qal'at Ja'bar sondages, the total quantity of fritware increased quantitatively by phase IV (p.33; Appendix C and graphics 1–6, figs 13–18). *Fritware 2* became noticeably more numerous than *fritware 1* in sondage S2. The monochrome glazed fritware group, in which are arranged unclassifiable sherds of both *intermediate fritware* and *fritware 2*, also markedly increased in both sondages, but its chronological value cannot be assessed (pp.42–45). Both *fritware 1* and diagnostic *intermediate fritware* are less well represented than they were in the previous phases, and their production may have already ceased in phase IV (graphics 1–2, figs 13–14).

Archaeological evidence, combined with historical data, has made it possible to draw a basic chronological framework for *fritware 2*.[323] *Fritware 2* was probably introduced in the second half of the 12th century. Thermoluminescence dating conducted on pottery assemblages excavated at a number of rural settlements along the Euphrates valley indicated that the phase associated with *fritware 2*, phase V, can be ascribed to a period between the last quarter of the 12th century and the first half of the 13th century.[324] At Ḥarrān, 'Raqqa ware' seems to have been found in a fill related to a major rebuilding phase of the citadel; according to the historical sources, extensive rebuilding work at the citadel was carried out under the reign of al-'Ādil (587/1191–599/1202).[325] This dating for the introduction of 'Raqqa ware' is also supported by the evidence from the excavation of the Palazzo Ducale in Genoa, where underglaze-painted decorated fritware occurs in layers attributed to the end of the 12th century.[326] Two bowls of the underglaze-decorated type were also found in Pisa, where they have also been dated around the end of the 12th and the beginning of the 13th century.[327]

Dating of 'Raqqa ware' production has often been based on the evidence provided by a dated bowl found by de Lorey which is said to have been prepared for lustre decoration.[328] Unfortunately this bowl has never been illustrated although its inscription has been published. It bears the name of al-Malik al-Mujāhid Shīrkūh II, who ruled Ḥims between 582/1186 and 634/1236.[329] In the absence of detailed publication of this object, it is very difficult to evaluate the evidence that it offers.

By the time that *fritware 2* was introduced, at some point in the second half of the 12th century, *fritware 1* was probably no longer manufactured, while *intermediate fritware* production may have ceased shortly thereafter. The excavated material from the new Qal'at Ja'bar sondages points in this direction, and it is supported by data from other excavated sites, including Ḥamā and Qaṣr al-Ḥayr al-Sharqī, although the chronology offered may vary slightly.

On the basis of historical and stratigraphical evidence, combined with an analysis of pottery styles, Poulsen provided a preliminary dating assessment for the entire fritware assemblage excavated at Ḥamā.[330] According to Poulsen, 'Raqqa ware' was already fully developed by the beginning of the 13th century,[331] when *fritware 1* and *intermediate fritware* were still in production.[332] Although absolute dating may not be accurate, the interesting fact is that the evidence from the Ḥamā excavations suggests that the production of the various fritware varieties mentioned above overlapped for a certain period of time.

At Qaṣr al-Ḥayr al-Sharqī, the reoccupation of the site seems to have begun after 'Raqqa ware' (*fritware 2*) had come into production (late 12th–early 13th century). *Intermediate fritware* as classified at Qal'at Ja'bar (and possibly *fritware 1*) probably also occurs among the finds from the excavation by O. Grabar and his colleagues; this implies that at the time of the reoccupation of Qaṣr al-Ḥayr al-Sharqī *intermediate fritware* was very likely still being produced.[333]

All of this evidence suggests that *fritware 1* and *intermediate fritware* production had probably ceased before the last quarter of the 12th century, for both fritware types are already missing in pottery assemblages dated to that period. This is the case at a number of rural settlements along the Euphrates valley, where no *fritware 1* or *intermediate fritware* was found in those layers of phase V associated with *fritware 2*.[334] At the Armenian Garden in Jerusalem, numismatic, stratigraphic and historical evidence all suggest that Ayyūbid-period occupation of this area of Jerusalem occurred between 1212–14 and 1219–24. The fritware assemblage consists almost entirely of *fritware 2*, with the exception of two sherds which could be of the *fritware 1* or *intermediate fritware* type.[335] This excavation, at least, suggests that by 1212–14, *fritware 1* and *intermediate fritware* were no longer in production.[336]

The year 658/1259, the date of the Mongol invasion of the Euphrates valley, is generally considered to mark the end of 'Raqqa ware' production as the town and its kilns were destroyed by Hülagü's forces. A number of other possible production centres, such as Bālis, were also destroyed. However, other kilns may still have been active in the following period, to continue a similar production which gradually developed into an entirely different fritware. This conclusion is based on data from the Qaṣr al-Ḥayr al-Sharqī and Ḥamā excavations.

At Qaṣr al-Ḥayr al-Sharqī, black underglaze-painted fritware is associated with the first years of the reoccupation (probably the first half of the 13th century), together with polychrome underglaze-painted fritware (*fritware 2*) and lustre-decorated fritware (*fritware 1*?, *intermediate fritware* and *fritware 2*), while the later decades of the reoccupation are characterised by the absence of the varieties mentioned above and the presence of blue and black underglaze-painted fritware (*fritware 3*). The occurrence of both *fritware 2* and *fritware 3* at a certain point probably indicates that the change from one production to the other was gradual; in the so-called "large enclosure", black underglaze-painted fritware under turquoise glaze (*fritware 2*) occurs together with blue and black painted fritware (*fritware 3*).[337] The assemblage excavated at Ḥamā also provides some evidence for the continuity of the fritware manufacture after the mid-13th century.[338] This conclusion finds support in the results of a recent archaeometric study conducted by R. Mason: Damascus is tentatively indicated here as one of the centres producing not only fritware of the Mamlūk period (*fritware 3*), but already underglaze-painted 'Raqqa ware' (*fritware 2*).[339] Thus, it is Damascus that may have continued producing *fritware 2* when the other production centres of the Euphrates valley had been destroyed.

The new Qal'at Ja'bar sondages have provided no data for the evolution from *fritware 2* to *fritware 3* production; the passage between phase IV, in which *fritware 2* appears, to phase V, in which *fritware 3* was encountered, is not fully understood (pp.34–36). A lack of evidence relating to the passage between the Ayyūbid and the Mamlūk periods is common to many sites in the Euphrates valley, for material from the period which follows the Mongol invasion is scarcely encountered in the literature and this matter requires further fieldwork.[340]

In the 14th century *fritware 2* seems to have disappeared everywhere. This is confirmed by 14th-century Mamlūk assemblages, where *fritware 2* is entirely absent.[341] This is also the case, for example, in Jerusalem in the Armenian Garden, where *fritware 2* does not appear in the Mamlūk phase, attributed to the second quarter of the 14th century.[342] Negative evidence from areas where *fritware 2* was very likely not being produced, however, should be treated with caution. This same trend is shown in the assemblages from Qaṣr al-Ḥayr al-Sharqī and at Ḥamā, although the contemporaneous presence of *fritware 2* and *fritware 3* in certain layers does not allow us to be more specific about the disappearance of *fritware 2* (see below).

On the basis of the evidence provided so far, one may conclude that certain kilns were destroyed in the Euphrates valley during the Mongol invasion, but other workshops continued to function; in this period, fritware production style gradually changed, as the material from Qaṣr al-Ḥayr al-Sharqī and Ḥamā seems to indicate. Fritware continued to be produced after the mid-13th century, but now in a completely different style. This change in production is confirmed by the absence of *fritware 2* in later assemblages, such as that related to the Mamlūk period occupation of the Armenian Garden in Jerusalem.[343]

As to the evolution of *fritware 2*, the new sondages at Qal'at Ja'bar do not allow us to draw up a sequence for the changes which may have occurred in its production nor to detect a difference in the use of the various decorative motifs that can be related to chronology. However, at Ḥamā, various attempts to establish a sequence were made. Ingholt has suggested that the earliest underglaze-painted objects are less densely decorated than later examples.[344] Poulsen entirely agreed with Ingholt, and added that the so-called reserved decoration is later than that "en silhouette" in the black underglaze-painted type. Poulsen supported his theory with a series of references to well dated, similarly decorated objects from Iran and stated that reserved decoration may have been introduced shortly after the first quarter of the 13th century. Decoration in both *silhouette* and reserved decoration can both be found on the same object.[345]

More recently, a major study of the various motifs which characterise underglaze-painted decoration and their evolution has been conducted by Helen Philon. She has

studied the so-called "willow-spray pattern" and its transformation after its introduction into the Syrian and Egyptian underglaze-painting repertoire, and has suggested a chronological sequence; the arguments she puts forward are very convincing.[346] More evidence from well stratified assemblages is clearly needed to better understand the development and the evolution of *fritware 2*.

PRODUCTION CENTRES AND DISTRIBUTION: THE SOCIO-ECONOMIC SIGNIFICANCE OF FRITWARE 2

Fritware 2 was very likely produced at a number of sites in the Euphrates valley. Qal'at Ja'bar was one of those, since some of the wasters identified were of the underglaze-painted variety (see, for example, pls 43–46). Bālis has also been indicated as a production centre, although no evidence has been published so far (note 260). At al-Raqqa, a large number of wasters have been found.[347] There is also evidence for lustre-decorated *fritware 2* having been produced at Samsat, in Anatolia.[348]

Production centres may also have been located in other areas of Syria, such as Damascus. On the basis of petrographic analysis, R. Mason suggests that underglaze-painted fritware of the so-called 'Raqqa ware' group may have been produced in Damascus. A number of sherds of this kind were analysed: their petrofabric ("petrographically defined fabric") is identical to that of a number of fritware samples of the Mamlūk period (*fritware 3* in this text), which may have been produced in Damascus.[349] The existence of yet other production sites should be considered: the size and the variety of *fritware 2* production, as it can be estimated on the basis of the published objects, may already be regarded as evidence in this respect. Moreover, the archaeometric study discussed above identified, beside the Raqqa petrofabric and the Damascus petrofabric, two other kinds of petrofabric (the 'Raqqa style' petrofabric and the Niniveh petrofabric), related to production centres of currently unknown location.[350]

As to the location of production centres, an unsolved problem is presented by the fact that underglaze-painted fragments of so-called 'Raqqa ware' were found in large quantities in al-Fusṭāṭ, together with wasters.[351] Technically, this group from al-Fusṭāṭ is very similar to 'Raqqa ware', to the point that visual criteria to distinguish this ware from that made in Syria have yet to be systematically defined.[352] Once again, it is likely that only laboratory analysis conducted on a number of pieces with a precise provenance can solve this attribution problem and will also allow the identification of visual criteria for classification.[353]

While acknowledging these uncertainties, it is very interesting to note that *fritware 2* lustre ware very rarely appears in pottery assemblages collected at al-Fusṭāṭ itself.[354] This is also the case at the Armenian Garden at Jerusalem, where the fritware assemblage is otherwise comprehensive for underglaze-decorated fritware, along with a few sherds of the monochrome glazed type.[355] Moreover, no lustre-decorated fritware of the 'Raqqa ware' variety appears in the assemblage of underglaze-painted *fritware 2* classified by R. Mason in the "Damascus (?) petrofabric" group.[356] It is very difficult to assess the significance of this absence of lustre-decorated *fritware 2*. It is possible that fritware production outside northern and central Syria only specialised in the underglaze-decorated type, as the finds from al-Fusṭāṭ[357] and the group attributed to Damascus would seem to indicate. Furthermore, the assemblage from the Armenian Garden may not be of Syrian provenance. It does not seem very likely that only underglaze-painted pottery was exported from northern and central Syria, and, as a consequence, underglaze-painted fritware assemblages lacking *fritware 2* lustre ware may be regarded as the product of Damascus, Egypt or another region.[358] Alternatively, lustre-decorated *fritware 2* may have slightly different chronological connotations which, at present, are not fully understood but which are represented by certain assemblages.

If the so-called 'Raqqa ware' was really produced in different countries, it would undermine any evaluation of *fritware 2* distribution based on the assumption that it was a Syrian product. It could lead to the conclusion that objects found in Europe and labelled 'Raqqa ware' may not be of Syrian origin, with the exception of those lustre-decorated in typical 'Raqqa ware' style. At the present stage of our understanding, however, this issue of provenance cannot be resolved; a partial solution would be to regard the so-called 'Raqqa ware' (all *fritware 2*) as the typical expression of Ayyūbid culture, with no need to distinguish further a specific Egyptian or Syrian regional source. This is also the solution generally adopted in the published literature in the case of *fritware 3* (pp.52–53) and it is perfectly adequate for describing distribution patterns in a broad cultural sense, as intended in this research (pp.37–38).

Fritware 2 (whether Syrian or Egyptian) seems to have been much more widely distributed than *fritware 1* and *intermediate fritware*, in particular outside the Levant (fig. 152). This is undoubtedly related to an increase in production, as a consequence of a flourishing economy which characterised the Ayyūbid period (see below and pp.20–22). *Fritware 2* has been found at a number of sites in Syria, Turkey and Iraq:[359] Antioch, Qaṣr al-Ḥayr al-Sharqī, Ḥamā, al-Raqqa, Ruṣāfa, Tell Shahīn, 'Āna, Ḥarrān, Samsat, Tell Barrī, and Tell Rifa'at.[360] Recent surveys have demonstrated that *fritware 2* is widely distributed all along the Euphrates and the Balīkh valley.[361]

Turning to Europe, the so-called 'Raqqa ware' has been identified in Italy, in Pisa, at the church of Santa Cecilia and on the tower of the church of Sant'Andrea dell'Orto.[362] It has also been found at Genoa, in the excavations of the Convento di San Silvestro[363] and at the Palazzo Ducale.[364] Two fragments from the church of Sant'Ambrogio Vecchio, in Varazze (La Spezia), one of which has a decoration painted in black under a turquoise glaze, have been classified as 'Raqqa ware'.[365] At Parma, in the Palazzo del Vescovado, a fritware bowl painted in black under turquoise glaze is still preserved in the wall of the inner courtyard; the palace is attributed to the 12th–13th-century period.[366] Unstratified fragments of the same variety were also found at Pesaro before World War II.[367] A number of *fritware 2* bowls decorate the church of San Giovanni in Toro in Ravello.[368] However, a fragment identified as 'Raqqa ware' found at the Palazzo dei Vescovi in Pistoia may not belong to the *fritware 2* group as identified at Qal'at Ja'bar.[369] In Britain, 'Raqqa ware' has also been found at Winchester[370] and at Grosmont castle in Monmouthshire.[371]

The late 12th to early 13th century was a particularly favourable period for the economy of Syria, and this fact, combined with the popularity achieved by *fritware 2* production, may have determined the creation of a number of new production centres, in Syria and elsewhere. The marked increase in production is reflected in the results provided by a number of excavations. At Qal'at Ja'bar, in the unstratified pottery assemblage from previous excavations at the site, *fritware 2* is more numerous than other fritware types (graphic 7, fig. 151). The significance

of these data are difficult to assess in relation to the pottery assemblage from the new sondages, for, as stated, the finds from sondage S1 are not numerically significant. Furthermore, the data from sondage S2 for this phase are not comparable to data from the earliest phases because the sondage was not excavated down to virgin soil (p.29). However, in the Ḥamā excavations, where *fritware 1*, *intermediate fritware* and *fritware 2* were all recovered and recognised as such, the numerical superiority of *fritware 2* compared to *fritware 1* and *intermediate fritware* is remarkable.[372]

On the basis of the evidence of the new Qal'at Ja'bar sondages, production had already markedly increased during the previous phases IIb and III, and, at the same time, a new experimental phase may have developed well before the introduction of *fritware 2*. This experimental phase probably led to the origin of *fritware 2*, as certain intermediate types allow us to suspect (pp.45–46). Gradually, the fritware body changed in its composition as did the glaze. The reason for this change is difficult to understand, but it is probably of a technical nature, as will be discussed below.

The technique of underglaze painting was a true novelty and it was extensively used by potters of 'Raqqa ware'. The technique consists of painting directly on the body which is then covered with a transparent glaze; after this stage the piece is fired. Where underglaze painting was first developed is still a matter of discussion, for it has been ascribed to both Egypt (on the basis of sherds regarded as prototypes)[373] and to Iran.[374] An alkaline glaze with no lead may have been adopted to prevent the painted decoration from running and to improve the stability of the painted decoration; as seen in *laqabi* ware, colours tend to run very easily when a glaze with a high lead content is used. The employment of less clay mineral in the fritware body may have been necessary to adapt the new alkaline glaze to the body. More evidence should be provided in this respect with the study and publication of the wasters from the Qaṣr al-Banāt palace at al-Raqqa, which bear on several aspects of *fritware 2* production.[375]

Fritware 3

Fritware 3 is generally referred to in the literature as the fritware production related to the Mamlūk fritware.

TECHNICAL CHARACTERISTICS

The body of *fritware 3* is yellowish, as shown by a sherd with a recent break; it can occasionally be greyish or whitish. It is very soft, gritty, porous, and fine-grained. Uncrushed rounded grains of sand were used together with crushed quartz in the composition of *fritware 3* (pl. 49).[376] The quantity of clay minerals has markedly diminished by comparison with the quantity found in *fritware 1*, *intermediate fritware* and *fritware 2*. As already noted, this, together with the firing temperature, is responsible for the compactness and hardness of the fritware body. *Fritware 3* vessels are thickly potted, and unglazed areas present a rough surface, similar to emery paper.

The glaze is normally transparent and colourless, occasionally with a greenish tinge. It is often thickly applied and it frequently pools in the well; it tends to run in thick drips on the outside. The foot of *fritware 3* vessels is unglazed. On the exterior, the glaze is sometimes carelessly applied, and painted areas can remain unglazed. The decoration is applied directly onto the body, without slip.[377] Black paint is thickly applied and, as in the case of *fritware 2*, a chromium spinel (picotite) is used; it is ground and applied directly to the body.[378] Blue is obtained by the use of cobalt oxide, which tends to fuse into the colourless glaze that is applied over it (Appendix D, Table 2).

The glaze normally decays badly with the surface showing a wide crackle and, in most cases, it becomes entirely covered by a whitish film, as in the case of *fritware 2*. In this case, the decoration is often visible only when the surface is wet.

DECORATIVE TECHNIQUES (FIGS 71–75)

The *fritware 3* sherds recovered at Qal'at Ja'bar are all decorated with the underglaze-painting technique. The group has been further sub-divided according to the colours employed:

WARE TT (fig. 71 f–l): the decoration is painted in black under a transparent turquoise glaze (copper oxide). Technically, this ware is similar to *fritware 2* ware T; stylistically, the group is close to *fritware 3* ware N (MFN: 7).

WARE N (figs 72–73; 74 a–f): the decoration is underglaze-painted in blue and black, sometimes with the addition of turquoise. The black is a rather thick, opaque pigment, similar to that used in *fritware 2* underglaze-painted decoration. Blue and turquoise colours are obtained respectively with cobalt and copper oxides (Appendix D, Table 2); they tend to fuse in the transparent glaze applied over them and they are themselves transparent (MFN: 31).

WARE BR (fig. 75 f; pls 39–40): a slight relief decoration is obtained with a slip, thickly applied directly on the ceramic body. The slip can be white or grey/green in colour; the decoration is then painted over the slip in blue and black, as in the case of ware N. This ware is often referred to in the literature as 'Sultanabad-imitation ware' (see note 382) (MFN: 2).

WARE O (figs 74 g–o; 75 a–e): the decoration is painted in a rich, dark blue from cobalt oxide; the painted decoration is transparent. The glaze occasionally tends to a greenish tinge (MFN: 14).

SHAPE

The group does not present a great variety of shapes. The bowl with a flat everted rim and slightly curving sides seems to have been quite common, just as it was in the *fritware 1*, *intermediate fritware* and *fritware 2* group. However, in the case of *fritware 3*, the edge of the rim is slightly upturned; this characteristic is only found in the *fritware 3* group, and has been illustrated by Porter (figs 71 f–i; 72 e; 74 j).[379]

Another shape represented in the *fritware 3* group is a deep cup with straight sides and everted rim (fig. 72 a). This shape is well known in the literature in the *fritware 3* group and it was probably already in use in the *fritware 2* phase.[380]

Fritware 3 hemispherical bowls are often reported in the literature;[381] in the Qal'at Ja'bar assemblage two bowls of this variety appear in the blue and white group (fig. 74 h–i).

Bases generally consist of thickly potted foot rings (figs 71 k; 72 j–k; 73 a–d; 74 k–l), often notably high. A flat base also appears at Qal'at Ja'bar: it has no parallels in the literature (fig. 73 e).

Large jars and *albarellos* are well represented in Museum collections (see p.52). At Qal'at Ja'bar their presence is attested by a few sherds belonging to closed forms (fig. 74 a–f, m, o). The majority of sherds recovered at Qal'at Ja'bar belong to open forms and one concludes that *fritware 3* seems to have been used especially as a table ware or for

food preparation, and only much more rarely for closed vessels such as storage vessels.

THE PRODUCTION CENTRES FOR FRITWARE 3*: AN 'INTERNATIONAL' STYLE*

Introduction

At Qal'at Ja'bar, sherds have been classified as *fritware 3* on the basis of certain visual characteristics, such as the quality of the body and the style of the decoration. Qal'at Ja'bar *fritware 3* is consistently decorated in the underglaze-painted technique under a colourless glaze; the different colours employed have determined further subdivisions of the group.[382] The homogeneity of this class has been demonstrated by laboratory analysis (see above); in the following paragraphs, the homogeneity of the group from a chronological point of view is also discussed.

Fritware 3 is relatively easy to identify in the literature on the basis of the decoration and style. As will be discussed below, it represents the Mamlūk period production, and it was manufactured for at least two hundred years (late 13th–15th centuries). Needless to say, production must have varied over such a long span of time. Since the discovery of the first specimens at the end of the last century, our understanding of the *fritware 3* group has progressed on the basis of the evidence provided by ceramic tiles from well dated buildings, finds from stratified excavations, archaeometric research, and thanks to a series of comparative studies analysing decorative motifs and style. However, the rarity of chronological fixed points makes our knowledge incomplete.

In this section, an attempt has been made to focus the discussion of *fritware 3* of the early Mamlūk period (i.e. the second half of the 13th and the 14th centuries) in the light of the Qal'at Ja'bar finds that can be assigned to this period. With few exceptions in relation to the problem of production centres, references to *fritware 3* in the literature have been limited to this late 13th to 14th-century timespan.

The majority of the first intact objects which can be classified as *fritware 3* were discovered in Sicily in the second half of the 19th century. They consisted of large jars, underglaze-painted in blue and black or lustre-decorated over a cobalt blue glaze; they were attributed to the 13th–14th centuries, but were considered to be of local production, as the label proposed for the group, 'Siculo-Arabian' ware, clearly indicates.[383] During the following years, collections of sherds from al-Fusṭāṭ caught the attention of scholars;[384] a large number of the sherds collected there showed the same characteristics as the so-called 'Siculo-Arabian' ware, and scholars gradually inclined to a different attribution. On the basis of the evidence excavated and collected at al-Fusṭāṭ, Damascus, and Baalbek, the group was finally assigned its present definition as Syro-Egyptian production.[385]

The label 'Syro-Egyptian' was already in use at the beginning of this century; it reflects well the difficulty of attributing the production to either one of the two regions and it strongly suggests the existence of an 'international' Mamlūk style, for, at some point, both Syria and Egypt started to produce a very similar kind of fritware. However, visual criteria for distinguishing the productions of Syria and Egypt have still to be established, although they can be identified on the basis of petrographic analysis.[386] The evidence provided so far indicates that production centres were probably active in both regions, although their precise location is still a matter of discussion. The evidence provided to date for attributing the production to workshops in Damascus and in Cairo is discussed below.

Damascus

At Damascus, in the early 1920s, de Lorey identified two kilns together with wasters of *fritware 3*. The archaeological evidence of his discovery is now lost, and the results unfortunately were never published.[387] J. Carswell published a group of blue and white wasters which are said to have been found in Damascus,[388] while M. Jenkins also published *fritware 3* apparently "found in an old cemetery on the outskirts of Damascus" in 1911.[389] Excavations have rarely been systematic at Damascus, as is often the case in densely populated centres, having rather the character of accidental discoveries.[390] It was in such circumstances that a large number of blue and black underglaze-painted sherds came to light during the restoration of the Damascus citadel.[391]

Further evidence for considering Damascus a production centre for this period is provided by the inscriptions on two celebrated objects. One is a jar painted in gold lustre on a blue glaze, now in the Āl Ṣabāḥ collection in Kuwait, attributed to the late 13th to early 14th centuries.[392] The other object is a blue and white bowl in the Louvre, ascribed to the mid-15th century.[393]

Ceramic tiles have also survived in a number of buildings in Damascus; the tiles, in particular those from the mausoleum of Ghars al-Dīn al-Khalīl al-Tawrizī, prove the existence of a workshop specialised in blue and white tile manufacture which was active in Damascus from the second decade of the 15th century.[394]

Historical sources attest a potters' quarter in Damascus which Timūr is reported to have destroyed when he took Damascus in 1400–01.[395]

'Damascus ware' seems to have been known and appreciated in Europe in the 14th and 15th centuries, as it is listed in French, Spanish and Italian inventories of the period.[396] Most of the objects found in Europe were jars and *albarellos*; they were traded as ceramics, but they were also used as containers for transporting spices, chemical compounds, and other exotic items.

Cairo/Al-Fusṭāṭ

At al-Fusṭāṭ, an enormous number of sherds have been collected and studied in the course of the past one hundred years or so.[397] The amount of pottery discovered at al-Fusṭāṭ cannot be regarded as evidence for local production in itself, for large quantities of pottery which is not considered to be locally produced have also been found.[398] However, years of investigations at al-Fusṭāṭ have also provided enough evidence to accept a local production as well and for this the study of a number of al-Fusṭāṭ sherds by A. Bahgat and F. Massoul is still of great value. They report the discovery of two 14th-century pottery kilns[399] and provide a map locating pottery workshops.[400] A number of wasters are also described and partly published; they belong to the blue and white and to the so-called 'Sultanabad-imitation ware'.[401] Their study of the archaeological evidence is also accompanied by research based on historical texts mentioning the use of glazed pottery and the existence of kilns in al-Fusṭāṭ from the Fāṭimid to the Mamlūk period.[402] More recently, *fritware 3* wasters have been recovered in the course of the excavations at al-Fusṭāṭ directed by G. Scanlon; two of these wasters have been analysed.[403] *Fritware 3* wasters are also included in other collections of sherds collected from al-Fusṭāṭ.[404]

Between 1964 and 1981, systematic excavations were conducted at al-Fusṭāṭ by the American Research Center

in Egypt, under the direction of G. Scanlon. The Institut Français at Cairo has also promoted archaeological investigation at al-Fusṭāṭ under the direction of R. Gayraud. The final publication of the results of these excavation will probably be of fundamental importance in establishing secure chronological sequences for the development of fritware and other pottery varieties.[405]

A characteristic of the *fritware 3* assemblage from al-Fusṭāṭ may be particularly significant in relation to the problem of production centres. Numerous fragments from al-Fusṭāṭ bear an inscription on the reverse of the base. A series of studies has been devoted to the interpretation of these 'signatures', in an attempt to establish whether they should be regarded as the mark of a specific workshop or whether they are the personal 'signature' of a specific potter.[406] *Fritware 3* bowls from Qal'at Ja'bar are not signed. This is also true for *fritware 3* from Ḥamā and Qaṣr al-Ḥayr al-Sharqī and for most of *fritware 3* found in Damascus. 'Signatures' thus seem to be a distinctive characteristic for distinguishing the Syrian production from the Egyptian.[407]

In Cairo, a number of fritware tiles have survived, some from securely dated buildings. They provide evidence for the existence of workshops located in Cairo and specialised in the production of ceramic tiles in the 15th century.[408]

The evidence provided so far is enough to establish that *fritware 3* was produced both in Syria and Egypt for part of or for the entire Mamlūk period; the workshops were located in Damascus and al-Fusṭāṭ. No evidence has been provided so far for other production centres.[409] At present, no visual criteria for distinguishing Syrian products from Egyptian products have been identified, with the possible exception of 'signatures'.[410] Only petrographic analysis can, at present, be considered a reliable means of identification.[411] However, as already discussed, this research aims at placing Qal'at Ja'bar in a context defined on the basis of the pattern of distribution of a number of pottery wares (pp.15; 37–38; 70–74). The definition of such a cultural horizon can only rely on visual criteria, since it has to take into consideration material evidence gathered, studied and published according to different methods. Thus, in the context of this research, the label Syro-Egyptian seems to be highly appropriate for describing this production.

CHRONOLOGICAL EVALUATION

As already discussed, *fritware 3* is relatively easy to identify in the literature on the basis of style. Furthermore, scholars agree, at present, that *fritware 3* must be assigned to the Mamlūk period; however, a precise chronological sequence of changes in the production over the two centuries of its production has yet to be established. A basic chronological framework is, however, provided by well dated objects. The blue and black underglaze-painted group can be assigned a late 13th–14th-century date on the basis of a few inscribed objects. An *albarello* in the Museo di Capodimonte, in Naples, blue and black underglaze-painted, provides the *terminus ante quem* of 717/1317 for this ware.[412] Three fragments excavated at Ḥamā bear an inscription, stating that they were made in the year "44" or "45"; these dates have been interpreted by E. Hammershaimb as 744/1343 and 745/1344.[413] A similar inscription also appears on a fragment in the Islamic Museum of Cairo.[414]

The blue and white *fritware 3* group is attributed to the late 14th century and to the first half of the 15th century, by comparison with Chinese blue and white ceramics and with tiles from well dated buildings (see below).

The sondages at Qal'at Ja'bar have not provided evidence for a more precise dating of *fritware 3*. Only a single sherd of *fritware 3* was found and this came from phase V, from a layer sealed by floor 6 (p.33). This layer has been interpreted as marking the abandonment or destruction of phase IV (mid-13th century) and the beginning of the next phase (phase V): because of its stratigraphic position and because of the presence of *graffita ware*, phase V may have lasted until the Mamlūk period (pp.34–36). The Mamlūk phase at Qal'at Ja'bar can probably be ascribed to the first half of the 14th century: the site is reported by Abū'l-Fidā' to have been completely abandoned (probably at the end of the 13th or at the beginning of the 14th centuries), but it was restored by the governor of Damascus, Tankiz, in 736/1333–4 (pp.22–23). It is thus to this period that the corpus of *fritware 3* should be ascribed. According to historical sources, during the Mamlūk period Qal'at Ja'bar was directly controlled from Damascus; the presence of *fritware 3* — very likely the product of the Damascus kilns — can be taken as evidence of its direct connection with the capital (see pp.54–55).

The *fritware 3* assemblage at Qal'at Ja'bar is very close to that found at Ḥamā and Qaṣr al-Ḥayr al-Sharqī. At both sites, the Mamlūk period has been assigned a date very similar to that suggested for the Mamlūk phase at Qal'at Ja'bar (second half of the 13th century and 14th century); this similarity of dating is mirrored in the *fritware 3* assemblages from the three sites.

At Ḥamā, Poulsen identifies *fritware 3* primarily on the basis of style, referring in particular to the Baalbek finds by way of comparison;[415] dating evidence is also provided by historical and archaeological evidence and by dated objects. The year 1401 is indicated as the *terminus ante quem* for the entire pottery assemblage for in that year Timūr conquered Ḥamā and destroyed the citadel, which the Danish team excavated.[416] At Ḥamā, *fritware 3* was found together with *fritware 1* and *fritware 2*; in the chronological tabulation, these layers are generically ascribed to a "période indéterminée antérieure à 1401".[417] However, significantly, no *fritware 3* was found in the layers attributed to a "période indeterminée antérieure à 1260".[418] According to the tabulation provided by Riis, only in two layers does *fritware 3* appear without the other fritware types; these two layers are attributed to "1302–1401".[419] Of particular interest is Poulsen's reference to a cistern, "G 10 α", in which the greatest part of the blue and white fritware was found, together with some blue and black underglaze-painted large bowls.[420] The three fragments mentioned above, bearing an inscription with the date, confirm that blue and black underglaze-painted ware was still produced in the mid-14th century (note 413). Blue and white ware was produced at some point together with blue and black underglaze-painted ware, as the finds from the cistern mentioned above seem to indicate.[421] However, the limited quantity of blue and white ware at Ḥamā may be interpreted as a chronological indicator: this ware may have been in use at the site for a shorter time than other *fritware 3* varieties, i.e. only a little time had elapsed since it was introduced when the site was destroyed by Timūr. Moreover, blue and white ware found at Ḥamā is stylistically different from the blue and white tiles attributed to the 15th century.[422]

A very similar pottery horizon to that of Ḥamā is presented by the excavations conducted at Qaṣr al-Ḥayr al-Sharqī: in particular, a relative chronological sequence for the various *fritware 3* varieties is provided. In the Large Enclosure, the "middle layer" presents a higher concentration of black underglaze-painted fritware (*fritware 2*), but blue and black ware is also present (i.e.,

our *fritware 3*); in the "top layer" a higher concentration of blue and black ware is attested, while blue and white ware is also present.[423] This indicates that *fritware 2* was produced at some point together with *fritware 3* of the blue and black underglaze-painted type,[424] while blue and white ware was introduced much later, very likely in the 14th century.[425]

The smaller quantity of blue and white ware compared to blue and black underglaze-painted ware has been noted at several sites and it is probably related to chronology.[426] It seems that Syrian and Egyptian blue and white fritware became predominant during the 15th century. In Syria this decorative technique seems to have been especially used for tile-work, some of which still survives in a number of buildings.[427] However, *fritware 3* is virtually unrepresented in 15th-century assemblages from excavations in Syria. This absence has been related to Timūr's ravages, for he not only destroyed the potters' quarter in Damascus, but also deported a number of potters to Samarkand. Given these assaults on the industry, it is not surprising that ceramics do not show much sign of development in Syria during the 15th century, with the exception of ceramic tile production. However, it is possible that other ceramic varieties were in production in the 15th century, which scholars have not been able to identify as yet. A much more precise picture will appear when the finds recovered at sites occupied during the late Mamlūk period are published.[428]

It may be that, by the 15th century, blue and black underglaze-painted *fritware 3* was no longer being produced. Important information on this issue is provided by the excavations at the Armenian Garden in Jerusalem, where the Mamlūk occupation is dated to the last quarter of the 14th century, after which it terminates.[429] Fritware attributed to this period consists of three plain, monochrome glazed bowls[430] and a blue and white fritware bowl.[431] The absence of blue and black underglaze-painted *fritware 3* from the assemblage implies that this ware was no longer in use during the Mamlūk phase at the Armenian Garden site. It is true that such a conclusion should be treated with caution, for the excavated pottery assemblage is limited quantitatively. Further evidence is needed to clarify this aspect of the *fritware 3* production.[432]

DISTRIBUTION AND SIGNIFICANCE OF FRITWARE 3

In northern Syria and western Mesopotamia, *fritware 3* has only rarely been found (fig. 152). This is probably related to the fact that very few sites of the valley seem to have been occupied after the Mongol invasion of 1258–60 and the destabilising raids that followed over the next half century.[433] A number of *fritware 3* sherds of the late 13th to 14th-century variety (the Ḥamā, Qaṣr al-Ḥayr al-Sharqī, and Qal'at Ja'bar horizon) have been found, for example, during the surveys and excavations along the Syrian Euphrates valley;[434] although *fritware 3* was collected in very small quantities, its discovery demonstrates that a number of settlements were still occupied or at least frequented after the Mongol invasion. Our assessment of the post-Mongol invasion phase in the region lacks accuracy and clarity, once again, as few survey and excavation results have been published so far.

By contrast, *fritware 3* of the 13th to 14th centuries is much more numerous in central Syria, where rich assemblages have been found at Ḥamā and Qaṣr al-Ḥayr al-Sharqī.[435] *Fritware 3* has also been found in regions nearer the coast, such as Antioch, Baalbek and in the Tripoli area.[436] In this more westerly area, the *fritware 3* horizon shows great similarity with the Ḥamā and Qaṣr al-Ḥayr al-Sharqī assemblages.

No *fritware 3* attributable to the 15th century has been recovered from northern Syria, central Syria, or from the coast. This does not necessarily imply that these areas were abandoned in the 15th century, but, rather, it may reflect our limited understanding of 15th-century pottery wares. A better understanding of the occupation pattern in the 15th century in northern and central Syria needs the support of further survey and excavation evidence.

Fritware 3 has frequently been found in southern Syria, Jordan and Palestine (fig. 152). In the Archaeological Museum at the Qal'a of Amman, for example, a number of *fritware 3* objects are exhibited, which are said to have been found locally; an assemblage of *fritware 3* has also been found at Tell Abu Gourdan (Dayr 'Allā).[437] *Fritware 3* has often been found west of the River Jordan, for example at the monastery of St. Mary of Carmel,[438] at the Red Tower,[439] at the Armenian Garden and at the Damascus Gate in Jerusalem,[440] at Capernaum,[441] and at Tell Qaymūn.[442]

The higher concentration of *fritware 3* in the south of Bilād al-Shām may be related to the fact that it was produced in this area, at Damascus, but also at Cairo. It may also indicate a higher level of settlement concentration in the south, for Mamlūk policy focused on southern Syria and Palestine rather than on the ravaged Jazīra and northern Syria.[443] After the Mongol invasion, western Mesopotamia became a frontier area, while central and southern Syria, including the coasts, became the primary area of interest for the Mamlūk sultans. However, as already discussed, caution must be exercised, as Mamlūk finds may not have been fully and correctly recognised as yet, and a number of areas have not been properly investigated.

Fritware 3 is widely distributed in Europe. As discussed in the introduction, a number of objects have come to light in Sicily;[444] fragments seem to have also been found on the Adriatic coast.[445] Ceramic objects of the Mamlūk fritware variety are mentioned in 14th and 15th-century inventories, usually described as "*da Domasco*", "*domaschini*" and "*alla domaschina*", but it is very likely that they were brought in from both Syria and Egypt (pp.52–53).[446] The presence of *fritware 3* in Europe during the Mamlūk period fits with the pattern of trade that is known to have occurred in this period: Spanish, Italian, and Portuguese ships regularly sailed between Europe and Alexandria, and *fritware 3 albarellos* and jars were very likely traded to Europe both as objects in their own right and also occasionally for transporting perfumes, essences, chemical compounds, spices and preserved fruit.[447] Evidence for this is provided, for example, by a well known blue and white *albarello* in the Louvre bearing an inscription celebrating the virtue of a medical compound.[448] Most of the ceramic objects found in Europe can be ascribed to the 14th century and early 15th century: in the 15th century, the export of these goods from the Levant diminished considerably.[449] A better understanding of the *fritware 3* production in the 15th century may be possible when the pottery excavated at al-Fusṭāṭ by various archaeological teams is entirely published (see note 405).

As already indicated, only one sherd of *fritware 3* was found in the new sondages at Qal'at Ja'bar, although a more significant quantity of *fritware 3* is part of the unstratified pottery assemblage. *Fritware 3* seems to be an import at Qal'at Ja'bar, perhaps produced and traded from Damascus; if this is so, the presence of imported fritware at Qal'at Ja'bar is very significant, for it may indicate that fritware manufacture had ceased in northern Syria after the Mongol invasion of the mid-13th century.

The proportion of *fritware 3* in the unstratified pottery assemblage at Qal'at Ja'bar is also particularly interesting. Fritware is no longer the most important item among the glazed pottery recovered, for in the Mamlūk period, the *lead-glaze family* (and *graffita ware* in particular) is much more numerous (graphic 7, fig. 151).[450] This proportion at Qal'at Ja'bar has no parallels at other sites with a similar chronological horizon, such as Ḥamā and Qaṣr al-Ḥayr al-Sharqī. This difference may reflect a cultural/political distinction between north and central Syria (see discussion on *graffita ware*, pp.60–62). The small quantity of *fritware 3* found at Qal'at Ja'bar by comparison with other glazed wares probably indicates that fritware was not readily available or that it had become so expensive that consumers turned to a local and less expensive market for their glazed ware. Local production in northern Syria may also have changed entirely after the Mongol invasions, for economic and technological reasons. Fritware manufacture requires a higher degree of skill than other glazed earthenwares, for example, in the use of the wheel or in the firing process. As fritware needs to be fired at a particularly high temperature, good quality fuel is required in quantities, increasing the cost of production.[451]

In the strained circumstances of the Euphrates valley on the war-torn frontier in the early Mamlūk period, it is quite plausible that expensive pottery ceased to be produced, both through a lack of skilled potters and an economic deterioration that contrasted completely with the prosperity of Ayyūbid times in the Euphrates region.

Turquoise-glazed ware [452]

TECHNICAL CHARACTERISTICS[453] *AND DECORATION*

The body of *turquoise-glazed ware* shows the same variety in colours, hardness and compactness noted in the unglazed pottery group *Ware 1*; it can be light yellow, buff, or light pink (Munsell 7.5YR 7/4 and 7/6 seem to be the most common, but also 5YR 6/6, 6/8, 7/6, 7/4 and 7/8, 7.5YR 5/4, 6/4, 6/6 10YR 6/47/4 often occur). The clay used seems to be the local Euphrates clay, which varies in colour depending on the lime content. The body is fine-grained, compact and hard; very fine sand seems to have been used as temper.[454] According to Franken, de Haas and Kalsbeek this clay was fired between 800° and 1000° C.[455]

The glaze is applied directly to the body. The glaze presents a great variety of colours between turquoise and green; the green-glazed fragments of the *turquoise-glazed ware* group cannot be confused with green-glazed *slip-ware* (ware AZ, figs 98–103) because of the absence of slip. Turquoise glaze tends to deteriorate in the same way as the glaze of *fritware 2*: it devitrifies and it becomes covered by a whitish film.[456]

Two underglaze-decorated sherds occur in the unstratified pottery group: the decoration consists of bands of combed incisions or of applications, very similar to the decoration frequently employed for unglazed pottery (one is illustrated in fig. 81 l).

SHAPE AND FUNCTION (FIGS 76–81)

Open and closed forms are represented in this group (MFN: 142). At Qal'at Ja'bar, the majority of the vessels recovered belong to open forms; in the unstratified group they are twice as numerous as closed forms (OF: 90; CF: 51). Only two sherds from closed forms have been found in the new sondages (see fig. 31 e and 25 r). *Turquoise-glazed ware* may have served a number of functions, from storage to food preparation, but it seems to have been extensively used as table ware, as the presence of numerous small bowls may indicate (see below).

PROBLEMS OF IDENTIFICATION

From the technical description in the previous section, it appears clear that *turquoise-glazed ware* as defined at Qal'at Ja'bar seems to have been a variety of pottery which can be described as being 'of common use'. By the term 'pottery of common use' archaeologists specifically refer to the function of a given ware when this serves the needs of everyday life; pottery of common use satisfies food storage and food preparation needs, but can also be used as table ware and for the transport of various goods. It is made of rough material easily available in a specific area, and whose manufacture does not require a very high standard of skill. Its value on the market is presumed to have been fairly modest, and, as a consequence, it was not worth trading too far from the production centre, except when used for trading goods.[457] It is very likely that a number of sites may have produced such a category of pottery to satisfy local consumption needs. As a consequence, *turquoise-glazed ware* is characterised by strong local connotations, as is the case with unglazed pottery. The search for parallels can be meaningful only if restricted to a specific geographic area, for common ware is very likely to change significantly from site to site: *turquoise-glazed ware* excavated in Iran cannot provide very reliable chronological evidence for *turquoise-glazed ware* excavated in Syria. Moreover, on the basis of the published evidence, it is difficult to understand to what degree two given specimens from two different sites can be considered similar or to assess whether they may have been produced at the same site even within the same restricted geographic area. Only with a better understanding of the various productions will it also be possible to trace the distribution of the pottery used for transport and identify the pattern of trade routes.[458]

For the moment, the literature on the subject offers very little evidence for evaluating the production of *turquoise-glazed ware* in Syria as a whole, as few excavations and surveys in the Euphrates valley have been published so far. *Turquoise-glazed ware* as defined at Qal'at Ja'bar seems to have been found in fairly large quantities at a number of sites during recent surveys.[459] It is often considered the most common variety of glazed pottery in the Euphrates valley. Numerous specimens of *turquoise-glazed ware* are exhibited in the Museums of Aleppo and Deyr ez-Zor; most of them have been recovered in the course of the still unpublished excavations of Bālis and al-Raḥba (see notes 260 and 428).

A much clearer evaluation of the ware will only be possible after the publication of archaeological work currently in progress. However, an attempt is made in the following section on the basis of the evidence provided by the Qal'at Ja'bar excavations and by the literature available at present.

CHRONOLOGICAL EVALUATION

At Qal'at Ja'bar, turquoise ware was already in use in the first phase of occupation (phase I), together with *fritware 1*. In this phase, sherds of *turquoise-glazed ware* are twice as numerous as those of *fritware 1*. Their proportion varies in the following phases, and fritware becomes numerically more important by phase IIa. The data from the new sondages at Qal'at Ja'bar does not allow us to assess whether *turquoise-glazed ware* was still in production at the time of the introduction of *fritware 2* in phase IV (the Ayyūbid phase), and in phase V (the Mamlūk phase). In phase V in particular, it is very difficult to evaluate whether *turquoise-glazed ware* was still in use or whether it had

been replaced by the glazed ware of common use related to that period, from the *lead-glaze family* of wares (pp.30–34, and graphics 3–4, figs 15–16, Appendix F and graphic 7, fig. 151).

A better documented assemblage comparable with the Qal'at Ja'bar corpus is that excavated at Qaṣr al-Ḥayr al-Sharqī. At this site, *turquoise-glazed ware* is considered the most common ware;[460] it was in use during the entire second occupation phase, probably from the late 12th to the end of the 14th centuries; it was often found in layers with *fritware 3* and *graffita ware*. *Turquoise-glazed ware* wasters have been found at Qaṣr al-Ḥayr al-Sharqī in the course of the excavation, and testify to the presence of a production centre located in the vicinity.[461]

Other sites have provided useful further information. In western Mesopotamia, a *turquoise-glazed ware* kiln has been found at Terqa; numismatic evidence provided a 12th-century date for production at the site.[462] *Turquoise-glazed ware* is attributed to the Ayyūbid period in Malabiya, in the Khabūr valley. However, the evidence for this dating is not clearly stated in the publication.[463] It has also been found at Tell Barrī, together with *fritware 1* and *fritware 2*.[464]

At 'Āna, *turquoise-glazed ware* appears for the first time in group 8, attributed to the 12th century, and in which *fritware 1* also occurs.[465] A specimen of *turquoise-glazed ware* is also present in group 10, attributed to the 13th–14th centuries, together with *graffita ware*.[466] No *turquoise-glazed ware* appears in group 9, very likely a *fritware 2* phase, attributed to the 13th century. From the evidence provided by the 'Āna excavation, it is difficult to assess whether production ceased in the Mamlūk period, for *turquoise-glazed ware* is still present in group 11, which is ascribed to the period of the abandonment of the site, i.e., from the late 13th to the 19th centuries.[467]

For southern Syria, very little evidence of the presence of *turquoise-glazed ware* has been provided so far. It has been found at Buṣrā, in various phases ascribed to the Ayyūbid and Mamlūk periods.[468]

From the evidence discussed, *turquoise-glazed ware* seems to have been in use in Syria in the 12th, 13th and 14th centuries. When exactly it was introduced it is not yet possible to assess; the excavations conducted by the present writer at Tell Shahīn indicate the absence of *turquoise-glazed ware* in the phase which precedes the introduction of fritware, i.e. very likely the late 10th to 11th centuries.[469] Because it often occurs together with *fritware 1*, *turquoise-glazed ware* production may have started contemporaneously with the introduction of *fritware 1*. It is much more difficult to assess when *turquoise-glazed ware* production ceased, since a similar category is attested in the 15th to 16th centuries at al-Raḥba and possibly down to a much more recent period, as the evidence from 'Āna seems to suggest. However, the finds from Qal'at Ja'bar do not provide enough evidence to elucidate this point.

PRODUCTION CENTRES AND DISTRIBUTION OF TURQUOISE-GLAZED WARE*: ITS SIGNIFICANCE*

As already explained, owing to the fact that *turquoise-glazed ware* can be considered 'pottery of common use', the production is characterised by strong local connotations. At the present state of our knowledge, it is virtually impossible to establish the distribution of the products of one specific atelier from the published evidence. The aim of the following discussion is not to deal with distribution in this sense, but rather to assess whether this kind of pottery was in use at other sites and what may have been its function.

The lack of published evidence does not allow us, at present, to draw a complete picture of its distribution. Archaeological work in progress in the Jazīra (see note 459) has demonstrated the ubiquitous presence of *turquoise-glazed ware* at settlements which roughly can be ascribed to the post-'Abbāsid period.

The situation seems to vary west of the Euphrates. Very little *turquoise-glazed ware* seems to have been found during the Tell Rifa'at survey, in the Aleppo region.[470] *Turquoise-glazed ware* does not occur in assemblages recovered in the coastal region, in the Tripoli area,[471] or at Baalbek, al-Mīnā' or Antioch; in central Syria, it occurs at Qaṣr al-Ḥayr al-Sharqī but not at Ḥamā. However, for most of the sites mentioned above, the lack of published *turquoise-glazed ware* may depend on the fact that only fine wares have been considered for publication and so we may not be dealing with a real absence.[472]

In southern Syria, *turquoise-glazed ware* seems to have been found only at Buṣrā. It does not appear in Jordan[473] and Palestine, where, however, *fritware 2* and *fritware 3* have been found.[474] In the south, common glazed pottery seems to have been only of the lead-glaze type (see pp.62–63).

As pottery of common use, *turquoise-glazed ware* may have been produced at a number of sites. Wasters have been found at Qaṣr al-Ḥayr al-Sharqī,[475] Terqa,[476] Bālis,[477] and Tell Ḥrīm.[478] Wasters also occur in the unstratified assemblage from the old excavations at Qal'at Ja'bar (pl. 47). More evidence will probably be provided with the publication of the archaeological work still in progress in the Jazīra.

At Qal'at Ja'bar, the assemblage from the new sondages is quantitatively quite small. According to the archaeological evidence, *turquoise-glazed ware* seems to have been numerically very significant in phase I, where there is twice as much as *fritware 1*; gradually fritware becomes the most numerous item of the glazed-pottery inventory (pp.30–34, and graphics 3–4, figs 15–16). It is very difficult to assess whether this change corresponds to a real shift in emphasis (i.e. fritware was produced in larger quantities than *turquoise-glazed ware*) or whether this data depends on the different function of the area over time. During phase III, however, the area of sondage S1 was used for dumping and therefore the assemblage should correspond fairly precisely to the pottery assemblage in use at the site during that period.

In sondage S1, only open forms seem to occur (phases I and II); two sherds belonging to closed forms appear in phase III, in sondage S1 and sondage S2 (pp.32–33 and figs 25 r and 31 e). A tempting working hypothesis would be the following: at the beginning of its production, *turquoise-glazed ware* was used specifically for vessels related to food preparation and consumption (table ware), while unglazed pottery was used for storage (large jars and basins). Thereafter, this table-ware function was supplanted gradually by fritware; as a consequence, *turquoise-glazed ware* was not produced on as large a scale as it had been hitherto. At this stage, *turquoise-glazed ware* may have become more frequently associated with vessels for food preparation and storage (jars and basins). No data are available to illustrate this second phase at Qal'at Ja'bar and further evidence is needed to test this hypothesis. By

phase V, *turquoise-glazed ware* may no longer have been in use as the *lead-glaze family* replaced it in its table-ware function and for food preparation and storage (pp.62–63). Proportions in the unstratified pottery assemblage partly confirm this, for *turquoise-glazed ware* is quantitatively much more numerous than *fritware 1*, but much less than *fritware 2*.

Appendix F shows that the *lead-glaze family* is much more numerous than *turquoise-glazed ware* in the unstratified pottery group from Qal'at Ja'bar. This proportion has no parallel at other sites; at Qaṣr al-Ḥayr al-Sharqī, as already discussed, *turquoise-glazed ware* was the most common ware. At Qal'at Ja'bar, *turquoise-glazed ware* may have been particularly important during the phases in which *fritware 1* and *fritware 2* were in use, while the *lead-glaze family* replaced it at the time that *fritware 3* was introduced, i.e., in the Mamlūk period. That *turquoise-glazed ware* was not in use simultaneously with *lead-glaze ware* is confirmed, for example, in an assemblage from the Tripoli area.[479] However, further evidence is clearly needed to confirm this interpretation. A much clearer picture will be available with the publication of the excavations at al-Raḥba, one of the few sites in the Euphrates valley characterised by a continuous occupation from the 'Abbāsid period (9th century) through to the Mamlūk and Ottoman period (see note 428).

Lead-glaze family

Polychrome *graffita ware*

Polychrome *graffita ware* is also known as *sgraffito* ware, *sgraffiato* ware, and *graffito* ware. I prefer to use the original Italian word *graffita* rather than these hybrids, specifying whether it is monochrome glazed or is associated with polychrome decoration.[480]

TECHNICAL CHARACTERISTICS AND DECORATION

The body is light orange, pinkish red, or, more rarely, light buff (Munsell 5YR 7/6, 7.5YR 7/4, 7/6, and 8/4 occur very often; more rarely, Munsell 2.5Y 6/8, 7/4, and 8/4; and 10YR 5/4, 8/4 are also found). Occasionally it has a very small percentage of extremely fine sand and, rarely, larger quartz grains. It is not clear whether sand was already present in the rough clay or whether it was added by the potter as temper. Variations in the colour of the body depend on the percentage of the lime content, and also on firing.[481] The body is hard and compact and walls are rather thickly potted. The ware is normally associated with open forms, bowls in most cases (see below). The interiors of bowls and the upper part of the exterior are covered with a slip, white, creamy or slightly pinkish in colour. The decoration is deeply scratched through the slip; incisions are 1–1.5 mm. wide and colouring pigments are subsequently applied in relation to the incised decoration.[482] According to laboratory analysis conducted on samples from al-Mīnā',[483] copper oxide was used for green, iron oxide for yellow-brown, and manganese oxide for dark brown.[484]

The glaze covers the entire inner surface and part of the exterior in the same way as the slip; it is a transparent lead glaze,[485] which can be colourless, or have a light-yellow or light-green tinge.[486] The exterior is generally bright yellow or green. Occasionally, the exteriors of bowls may also be decorated with incisions and polychrome patterns. The glaze is very well preserved and glossy. It is often not completely smooth, but presents an irregular surface with a number of bubbles. This occurs especially on the exteriors of bowls. The incised pattern looks black after firing, for the glaze is directly in contact with the body in the incised areas.

Vessels often show spurmarks in the well, produced by the use of stilts for superimposed stacking in the kilns. The exteriors of the vessels often have clay lumps or remains of other vessels attached to them (pl. 51). The dripping of the glaze on some of the fragments indicates that bowls were fired upside down (see, for example, fig. 84 f; see also Appendix G, section X).

SHAPE AND FUNCTION (FIGS 82–92)

The group does not present a very great variety of shapes (MFN: 389). The commonest form in use seems to have been a shallow bowl with flat, everted rim and curving sides, with a diameter varying from 22 to 30 cm. (figs 86 i–l; 87; 88 d–i; 89 a–i). Very often, a small ridge appears at the inner edge of the rim or/and at the connection between the *cavetto* and the everted rim (figs 88 d–i; 89 a–i). A plain everted rim also occurs (figs 86 i–l; 87). This form seems to have been the commonest at al-Mīnā',[487] Antioch,[488] Ḥamā,[489] and Caesarea;[490] the occurrence of this variety is also attested at Qaṣr al-Ḥayr al-Sharqī,[491] and, occasionally, in the Tripoli region.[492] This shape appears in other Mediterranean regions, Italy in particular, where it is associated with *graffita ware* and with *proto-maiolica*.[493]

A hemispherical bowl with a simple rim seems also to have been very common (fig. 82; diameter 18–30 cm; a unique example has a diameter of 10 cm). The rim may also present a barely perceptible groove on the exterior (figs 83; 84 a–i). This type has been found at Qaṣr al-Ḥayr al-Sharqī and at 'Āna, but it seems to have been extremely rare in the Tripoli area,[494] while it does not occur at al-Mīnā' or Antioch. The use of the hemispherical bowl may thus be one of the characteristics that distinguish coastal production from the northern Syrian and western Mesopotamian productions. It may also be related to the Mamlūk period.

The bowl with straight flaring sides is often used in Egyptian *graffita ware* of the Mamlūk period;[495] it is extremely rare in the polychrome *graffita ware* at Qal'at Ja'bar (fig. 85 e–f). It is also extremely common in the Tripoli area,[496] but it only rarely occurs at Antioch[497] and al-Mīnā',[498] and it is absent from Qaṣr al-Ḥayr al-Sharqī and 'Āna. The occurrence of such a shape may also be related to geographical variations.

Carinated bowls do not seem to have been very popular at Qal'at Ja'bar (fig. 86 a–f); this is also the case at al-Mīnā'[499] and Antioch.[500] This type occurs more frequently in the Tripoli area.[501]

Bases lack any major variation among the polychrome *graffita ware* group. A single variety, with minimal variations, occurs more frequently in the group: it has a high, slightly flaring foot ring (figs 89 e–h, j–l; 90; 91; 92 a–b). This type of foot is also the commonest at al-Mīnā',[502] Antioch[503] and in the Tripoli area.[504]

Thus, to summarise, *graffita ware* seems to have been used as table ware. As demonstrated in the above discussion, it is very likely that an extensive survey of *graffita ware* shapes from various areas will provide some means of distinguishing the coastal variety from the western Mesopotamian and north Syrian variety, if the variations noted so far are proven to be consistent.

PROBLEMS OF CLASSIFICATION

Polychrome *graffita ware* seems to have been a very popular variety of pottery in a number of regions, including most of the Byzantine territories, Cyprus, Syria, western Mesopotamia, Armenia, Georgia, north-west Iran, and Afghanistan, as well as in the western Mediterranean, particularly in Italy (see below, pp.60–62).[505] A large number of varieties is attested, the common characteristic being the incised decoration scratched through the slip, and a polychrome decoration related to it. In this study, the present writer has focused on the Syrian variety of polychrome *graffita ware*, in an attempt to determine the timespan of its use and to trace its distribution in the area. For comparisons with the published material, discussion is restricted to western Mesopotamia, Syria and Palestine, especially for the chronology of its production. Particular attention will be devoted to the simultaneous appearance of polychrome *graffita ware* and fritware, because fritware is a reliable means of dating on the one hand, but also because comparing the distribution pattern of fritware with that of polychrome *graffita ware* proves to have some significance (pp.60–62).[506]

The polychrome *graffita ware* of Syria was first excavated at al-Mīnā', one of the two ports of Antioch, in the 1930s by a British team under the direction of Sir Leonard Woolley;[507] the mediaeval finds were published by Arthur Lane.[508]

The ware has also come to light at other Syrian and Palestinian sites, in the Crusader states of the coastal regions, and also in central and northern Syria and western Mesopotamia. The occurrence of polychrome *graffita ware* at Crusader settlements is well documented, thanks to a number of recent archaeological investigations. By contrast, the occurrence of polychrome *graffita ware* in northern Syria and western Mesopotamia cannot be fully evaluated yet, because of the lack of published evidence from archaeological work. Moreover, as will be discussed below, polychrome *graffita ware* is probably related to the Mamlūk period in the Euphrates valley and the number of sites with an attested Mamlūk occupation in the area is very limited. A further complication is that earlier varieties of monochrome *graffita*-related wares exist in the valley; if the publication of pottery is not supported by a clear terminology, detailed description, and accurate profile drawings, it is virtually impossible to assess and evaluate polychrome *graffita ware* and its dating.[509]

The present study is concerned with the polychrome *graffita ware* assemblage excavated at Qal'at Ja'bar, and attempts to define the characteristics of this group and to assess its chronology. According to the published evidence, there seems to be a chronological gap between the polychrome *graffita ware* produced on the coast at al-Mīnā', and that found in the hinterland, at Qal'at Ja'bar, Qaṣr al-Ḥayr al-Sharqī and at other sites (see below, pp.58–60). In terms of typology, differences can also be observed among the various assemblages. I had the opportunity to study the finds from al-Mīnā' in the Victoria and Albert Museum, London: the polychrome *graffita ware* there is very similar to that at Qal'at Ja'bar. However, some differences have been detected. For example, the practice of decorating the exterior of bowls with polychrome and incised stripes is never found at al-Mīnā', but has been observed among the Qal'at Ja'bar *graffita ware* sherds (figs 83 h; 85 b, d; 88 h; 89 d, i; 92 a, m) and those from the Mamlūk period assemblages found at 'Āna[510] and at Korukutepe, in southern Anatolia.[511] Some difference has also been noted in the occurrence of shapes, with the exception of the bowl with flat everted rim (figs 86 i–l; 87; 88 d–i; 89 a–i) which was found in large quantities at al-Mīnā' and Qal'at Ja'bar. Differences in terms of style and decorative motifs are much more difficult to detect on small fragments; in general, Qal'at Ja'bar fragments seem to be much more heavily decorated, while large areas are often left undecorated in the polychrome *graffita ware* of al-Mīnā', especially the *cavetto*. Band motifs decorating the rim are very similar in both productions. On the other hand, a particular pattern, which seems to be an imitation of a Raqqa pseudo-Kufic rim (see, for example, figs 65 a–c; 66 d, h, j), is found at al-Mīnā'[512] as well as in the Tripoli[513] assemblage, but never at Qaṣr al-Ḥayr al-Sharqī and Qal'at Ja'bar. The stylistic similarity between the Qal'at Ja'bar and the al-Mīnā' polychrome *graffita ware* can be detected in a comparison of a bird decorating a sherd from Qal'at Ja'bar (fig. 92 a) and a bird decorating a fragment from al-Mīnā'.[514]

Differences detected among the two groups, however, do not seem to occur consistently, and, at first sight, polychrome *graffita ware* from Qal'at Ja'bar and from al-Mīnā' seems very much alike.[515] Moreover, the al-Mīnā' group may not be so homogeneous from a chronological point of view (see below).

Further evidence is needed to define better the existence of different groups and their characteristics. A detailed description of the group found at Qal'at Ja'bar, which is extremely homogeneous in terms of ceramic body, shape and decoration, and, very likely, in terms of chronology, may be a first step in this direction.

CHRONOLOGICAL EVALUATION

At Qal'at Ja'bar, the phase related to *graffita ware* can be ascribed to the Mamlūk period (first half of the 14th century, see pp.22–23); however, this phase is poorly represented in the new sondages. *Graffita ware* occurred in the layers sealed by floor 6 in sondage S1 and in the layers sealed by floor 58 in sondages S2 (pp.33–34); a large amount of *fritware 2* was also found in these layers, together with a single sherd of *fritware 3*. All layers sealed by the two floors have been interpreted as marking the abandonment or destruction of the previous phase IV (attributed to the Ayyūbid period) — marked by the presence of underglaze-painted *fritware 2* — and the subsequent building of phase V (attributed to the Mamlūk period) – marked by the presence of *fritware 3* and *graffita ware*. *Graffita ware*, and the *lead-glaze family* in general, does not occur in phase IV or in any of the earlier phases; in the light of this, the presence of these wares in phase V in an assemblage of pottery still very close to the Ayyūbid horizon of phase IV has been interpreted as relating to the building of the new Mamlūk phase V. The material recovered from above the two floors of phase V is not homogeneous, since the layers related to them had been heavily disturbed by later activities; however, this assemblage includes *graffita ware* and *fritware 3*.

From the evidence provided by the new sondages, it is not clear whether *graffita ware* was introduced during the last years of *fritware 2* production or only after *fritware 2* production had ceased. The absence of *graffita ware* in phase IV (marked by the presence of *fritware 2*), demonstrates that *graffita ware* was in use at Qal'at Ja'bar in a later phase. However, on the basis of the new Qal'at Ja'bar sondages, it is not possible to establish conclusively whether *graffita ware* was introduced already in the late Ayyūbid period or whether it was a Mamlūk innovation.

Graffita ware is much better represented in the unstratified pottery assemblage than in the new Qal'at Ja'bar sondages. As already explained above, the finds from previous excavations at the site were vandalised and the records

lost, but some registration numbers have survived on a group of sherds recovered during the 1973 excavation campaign: according to these numbers, *graffita ware* sherds and other related wares were recovered from "phase 1". Two Chinese celadon sherds were also recovered from the same "phase 1"; they have been attributed to the first half of the 14th century (p.67). The registration mark on some *fritware 2* sherds indicates that they were from "phase 2".[516] During the excavations carried out by Mr Zaqzūq, I witnessed the recovery of a Chinese blue and white sherd together with a large number of *lead-glaze family* sherds; the Chinese sherd is very similar to a fragment that J. Carswell attributes to the 14th century.[517] Mr Zaqzūq also confirmed that, according to his excavations at Qal'at Ja'bar, *lead-glaze ware* is related to the last occupation phase at the site.[518]

On the basis of this evidence, one may conclude that *graffita ware* is related to the Mamlūk phase at Qal'at Ja'bar, which is probably related to the second quarter of the 14th century, after the restoration by Tankiz in 1334–5. However, at present, it has not been possible to be more precise, in particular about the *terminus post quem* to be assigned to the Mamlūk phase (pp.22–23).

That polychrome *graffita ware* may be considered post-Ayyūbid in western Mesopotamia and northern Syria is supported by the absence of *graffita ware* at sites abandoned after the Mongol passage, such as al-Raqqa, Ruṣāfa and Tell Shahīn.[519] The evidence provided by the assemblage recovered at Qaṣr al-Ḥayr al-Sharqī also confirms this dating. Polychrome *graffita ware* has been recovered at Qaṣr al-Ḥayr al-Sharqī in "modest quantity"; it is described as a very homogeneous group, in terms of its technical characteristics and its decorative style. At Qaṣr al-Ḥayr al-Sharqī, while it is possible that polychrome *graffita ware* was already in use at the end of the 12th and in the 13th centuries,[520] it is more often associated with *fritware 3*,[521] and it could thus be attributed to the second half of the 13th century and to the 14th century.[522] A similar date is also provided by the excavations at 'Āna, where *graffita ware* occurs in group 10, dated to the 13th–14th centuries.[523]

On the coast, in the Crusader states in particular, polychrome *graffita ware* is generally given a 13th-century date. As mentioned above, polychrome *graffita ware* was found in great quantities at al-Mīnā' and a number of wasters were also recovered in the course of the excavations. At al-Mīnā', *graffita ware* was found together with a number of Crusader coins, mainly datable to the first half of the 13th century.[524] Because al-Mīnā' was captured by Baybars in 1268, Lane suggests this date as the *terminus ante quem* for polychrome *graffita ware* production.[525]

Al-Mīnā' polychrome *graffita ware* has been found at a number of sites occupied by Crusaders and generally abandoned in the second half or at the end of the 13th century at the latest.[526] During the 13th century, polychrome *graffita ware*, probably from al-Mīnā', was in wide circulation throughout the Crusader states.[527] The abandonment or the destruction of Crusader settlements provides a precise *terminus ante quem* for all of these assemblages. However, the case of the monastery of St. Mary of Carmel is particularly intriguing. Pringle published the pottery from the excavations of the monastery; a few sherds labelled "Polychrome *Graffita ware* of North Syrian (St.-Symeon) Type" occur.[528] A number of *fritware 3* sherds also occur in this assemblage, including two blue and white ware sherds.[529] According to historical evidence, the Monastery site was abandoned in 1291, much too early a date for the blue and white *fritware 3*.[530] Subsequently, Pringle suggested that the assemblage from St. Mary of Carmel included post-1291 wares, such as the so-called 'roulette-ware', and reassigned a 14th-century date to the two blue and white sherds.[531] This site, thus, may have been occupied, or at least frequented, after 1291. This case demonstrates that dates assigned to the abandonment of a given site by the Crusaders or its assault by the Mamlūks do not necessarily correspond to the *terminus ante quem* for the occupation of the site itself in an absolute sense; this should be taken into consideration when assessing the chronology of the finds from these sites.

Doubts about the abandonment of al-Mīnā' after the Mamlūk conquest were expressed by Florence Day. After the publication of the al-Mīnā' finds, Day reviewed the assemblage from a stylistic point of view, on the basis of the finds from Tarsus that she had studied.[532] She concluded that Lane's group is not as homogeneous as had been previously thought, and she isolated four different groups, the fourth of which she ascribes to the Mamlūk period.[533] Day's suggestion regarding her group 4 may be particularly significant, although stylistic and iconographic assessments on the basis of pottery fragments alone are not entirely reliable.

As discussed in the foregoing paragraphs, the dating of *graffita ware* is still a matter of discussion, exacerbated by the fact that in some instances historical events do not seem to be adequate for interpreting archaeological evidence. To summarise the *status questionis*, in the following pages the occurrence of *graffita ware* at various relevant sites is recorded, focusing in particular on the appearance or absence of fritware (compare fig. 152 to fig. 153).[534]

POLYCHROME GRAFFITA WARE *IN ASSEMBLAGES DATABLE TO THE 13TH CENTURY*

Samsat (Anatolia; abandoned by the end of the 13th century): varieties of fritware were produced at this site, included lustre-decorated *fritware 2* but possibly earlier lustre-decorated fritware varieties. *Polychrome graffita ware* is considered to have been produced locally.[535]

Raqqa (destroyed in 1259): the site may have been one of the major production centres for *fritware 2*. Sauvaget published two small polychrome *graffita ware* fragments in an assemblage of *fritware 1* and *fritware 2* from al-Raqqa.[536] No other *graffita ware* is reported to have been found in the course of the various excavations which have taken place at the site.[537]

Al-Mīnā' (Portus S. Symeoni, destroyed and abandoned in 1268): some *fritware 2* sherds have been found together with *graffita ware*.[538]

Caesarea (Cesaire; Crusader occupation: 1101–87 and 1191–1265): a few possible *fritware 1* objects occur, together with a more significant number of *fritware 2* sherds. Only one object may belong to blue and black decorated *fritware 3*.[539]

'Atlit (Chastiau Pélerin, built in 1217, abandoned by the Crusaders in 1291): polychrome *graffita ware* has been found in a layer sealed by the abandonment phase.[540]

Jerusalem, Armenian Garden: *graffita ware* was found in the Ayyūbid layer, with *fritware 2*.[541]

Alexandria, Kawm al-Dikka: *graffita ware* occurs in the well stratified Ayyūbid layer, together with very few fragments of possible *fritware 2*.[542]

POLYCHROME GRAFFITA WARE *IN LATE 13TH–14TH-CENTURY ASSEMBLAGES*

Korukutepe (Turkey): *graffita ware* occurs in the late 13th–14th-century layers, dated on the basis of numismatic evidence.[543]

Antioch: *graffita ware* occurs in an unstratified assemblage with *fritware 1*, *fritware 2*, and *fritware 3*.[544]

Tripoli (abandoned by the Crusaders in 1289): *graffita ware* occurred with a large number of *fritware 3* fragments, including 14th-century blue and white sherds.[545]

Tarsus: evidence not published; Day gives a short account on the pottery finds, and attributes *graffita ware* to the 13th and 14th centuries.[546]

Qaṣr al-Ḥayr al-Sharqī: *graffita ware* occurs in particular in *fritware 3* assemblages, but also, occasionally, with *fritware 2*.[547]

Hama: *graffita ware* occurs in a *fritware 1*, *fritware 2*, and *fritware 3* assemblage.[548]

Khirbat al-Dayr (S. Maria de Carmelo, abandoned by the Carmelites in 1291): only three sherds of polychrome *graffita ware* occur with a significant number *of fritware 3* sherds, including the blue and white variety.[549]

Capernaum: *graffita ware* occurs in an assemblage attributed to the 13th century; it is not clear whether *graffita ware* from this excavation is related to the Syrian variety. In the assemblage, a blue and white *fritware 3* sherd also occurs.[550]

Abu Gourdan (Dayr 'Alla): *graffita ware* is found in the second and third period, together with *fritware 3*; one of the sherds may belong to the *fritware 2* group.[551]

ABSENCE OF POLYCHROME GRAFFITA WARE

Late 13th–14th-century assemblages

Tell Qaymun: no polychrome *graffita ware*; *fritware 3* was found.[552]

Red Tower: no polychrome *graffita ware*; *fritware 3* was found.[553]

Jerusalem, Damascus Gate: no polychrome *graffita ware*; a number of *fritware 2* and *fritware 3* sherds occurred in a poorly stratified assemblage.[554]

Damascus: no polychrome *graffita ware*; *fritware 3* was found.[555]

12th–13th-century assemblages

Apamea: no polychrome *graffita ware*; *fritware 1* and *fritware 2* were found.[556]

Ruṣāfa: no polychrome *graffita ware*; *fritware 1* and *fritware 2* were found.[557]

Tell Shahīn: no polychrome *graffita ware*; *fritware 1* and *fritware 2* were found.[558]

On the basis of the evidence above, one may conclude that in Syria the production of polychrome *graffita ware* started in the 13th century on the coast, probably at al-Mīnā'.[559] The presence of Crusaders in the area may have influenced the production and contributed to its development (pp.60–62). Polychrome *graffita ware* seems to have been widely traded through the Crusader settlements in the 13th century. It is possible that the occupation of a number of sites used or founded by Crusaders continued after their departure; the presence of polychrome *graffita ware* at these sites may be attributed to the 13th and 14th centuries.[560] In northern Syria and western Mesopotamia, the evidence indicates that polychrome *graffita ware* may have been introduced and extensively produced in the Mamlūk period. It could have been an earlier arrival at certain sites, such as Qaṣr al-Ḥayr al-Sharqī, i.e. in the 13th century.

It has also been noted that in Jordan and Palestine, in the post-Crusader period, several monochrome *graffita ware* varieties were developed, probably influenced by Syrian or by Byzantine *graffita wares*. In western Mesopotamia, northern Syria and Cyprus[561] polychrome *graffita ware* varieties continued to be produced in the post-Crusader period.

As discussed above, the production of polychrome *graffita ware* does not seem to have significantly changed over time. Comparing the al-Mīnā' finds with the Qal'at Ja'bar finds, certain differences have been identified in the assemblages, but these differences do not seem to occur systematically and further evidence is needed to confirm the consistency of the differences noted so far. Lane also noted the occurrence of two different styles at al-Mīnā', one characterised by a more accurate execution of decoration; however, Lane considered the two groups contemporaneous,[562] whereas Day identified stylistic differences which may help in the recognition of a later group. Most of the differences noted were related to style, which is particularly difficult to assess properly on the basis of such small sherds. The assemblage excavated at Qal'at Ja'bar, extremely homogeneous from every point of view, thus provides an exceptional point of comparison for evaluating such changes.

PRODUCTION CENTRES AND DISTRIBUTION: AN INTERPRETATION OF POLYCHROME GRAFFITA WARE

The production of polychrome *graffita ware* is attested at al-Mīnā', where a number of wasters have been found. *Graffita ware* has been found at various Crusader sites, where it has been interpreted as an import from al-Mīnā' and often labelled 'Port St. Simeon ware' after the Crusader name of the town.[563] As discussed above, al-Mīnā' *graffita ware* production may be ascribed to the 13th century, although such a date could need re-assessment.

No shortage of evidence exists to show that polychrome *graffita ware* continued to be produced into the late 13th and 14th centuries, after al-Mīnā was abandoned in 1268; it is often found in *fritware 3* assemblages, which can be ascribed to the late 13th and 14th-century period. After al-Mīnā' was destroyed, other places must have become the production centres for polychrome *graffita ware*.[564] Further south, other varieties of pottery related to Syrian or Byzantine *graffita ware*, often with a monochrome glaze, started to be produced in the Crusader period and in the post-Crusader period.[565] In northern Syria and western Mesopotamia, a variety very similar to the al-Mīnā' polychrome *graffita ware* probably continued to be produced during the Mamlūk period, but no production centres have been identified as yet. The *graffita ware* assemblage recovered from Qal'at Ja'bar may have been produced in the area, but no true wasters were found during the excavations at Qal'at Ja'bar itself. However, a large number of the sherds recovered can be interpreted as second choice pottery:[566] overfired glaze, tripod marks, and lumps of clay attached to the external walls of bowls are all quite common in the polychrome *graffita ware* assemblage recovered at Qal'at Ja'bar (pls 50–51). In general, this pottery is not as technically sophisticated as fritware. The

lead-glaze family does not require such a high standard of skill in the potting process; manufacturing and finishing of the objects, as mentioned above, show a lower degree of accuracy than that observed in general in the fritware group. Glaze is used to cover the interior of the bowl, and only a minor proportion of the exterior is glazed, while almost the entire external surface was glazed in the fritware group; this may indicate that the need to save raw material was a priority in comparison with aesthetic concerns. It is very difficult to imagine that pottery of such a quality would have been widely exported since its value does not seem likely to have covered the expenses of transportation. However, very little is known at present about the trading patterns of the period, especially in relation to pottery; in particular, it is not known whether long-distance trading was easily reaching this peripheral area of the Mamlūk sultanate or whether the majority of the consumers had to rely on a local source of supply. These observations need to be supported by further evidence to allow us to conclude that such pottery of second quality was distributed from the production centre to a local market, relatively close to Qal'at Ja'bar itself. It should be noted that no large settlements (possible production centres as an alternative to Qal'at Ja'bar itself) attributable to the Mamlūk period have been identified in the area as yet.

The evidence provided by sites along the Euphrates valley shows that fritware production ceased at the time of the Mongol invasion in the mid-13th century (pp.48–50).[567] The loss of fritware production skills may have been the result of the destruction of fritware kilns, or the death or flight and dispersal of the potters. A number of Euphrates sites remained unoccupied after the Mongol invasion, a consequence of destruction and death, imprisonment and dispersal of the population. The discovery of *fritware 3* at certain sites, however, implies that some of these areas remained active in the aftermath of the Mongol attacks (fig. 152, and see pp.52–55).[568] As already discussed, fritware production continued in Damascus; Damascus products, however, may not have been easily available or affordable in the north of the country, a hypothesis seemingly confirmed by the very low proportion of *fritware 3* in the unstratified pottery assemblage at Qal'at Ja'bar (Appendix F and graphic 7, fig. 151). The inhabitants of the area in the Mamlūk period presumably purchased the table ware most readily available: a production centre located in the area seems to be a possibility. If kilns were destroyed in the Euphrates valley, new ones may have been constructed to satisfy local needs in the Mamlūk period when life went back to some level of normality (pp.22–23). *Graffita ware*, and the entire *lead-glaze family*, may thus correspond to this new phase of the production. A certain span of time may have passed between the end of *fritware 2* production and the beginning of the *lead-glaze family* production, but, at present, there is insufficient data to confirm this point.

Another very important question requires investigation. The visual difference between fritware and the *lead-glaze family* is striking and one may wonder what determined such a radical change in taste. As already discussed, polychrome *graffita ware* was widely traded through the Crusader settlements of Syria and Palestine. A detailed map indicating the distribution of polychrome *graffita ware* of the al-Mīnā' variety and related wares has been published by Pringle, covering Palestine, Egypt and Syria,[569] and by Vannini, covering the whole Mediterranean region;[570] a distribution map has been designed on the basis of the evidence discussed here (fig. 153). Polychrome *graffita ware* seems to occur in particular in the coastal areas under Frankish rule in the 13th century. However, polychrome *graffita ware* has also been found in quantity in the interior territory controlled by the Muslims, such as Ḥamā, Qaṣr al-Ḥayr al-Sharqī and at Qal'at Ja'bar. Varieties of pottery very similar to Syrian polychrome *graffita ware* have been found in north-western Iran, in the Garrus district, at Ḥamadān, Takht-i Sulaymān, Aghkand and Zanjān, and are generally labelled "Aghkand ware".[571] Aghkand ware differs stylistically from Syrian products, although a certain similarity has been noticed to 13th-century Syrian objects.[572] Kilns producing a variety of pottery very similar to Aghkand ware have also been found at Tiflis, in Georgia.[573] There is evidence that polychrome *graffita ware* was produced at a number of sites on the Anatolian plateau, such as Asvan Kale, Kalehisar, Korukutepe and, very likely, at Samsat;[574] evidence was also recovered at Ahlat in Armenia, south of lake Van.[575] Polychrome *graffita ware* seems also to have been very popular in Afghanistan.[576]

Soustiel noted that *graffita ware* seems to have developed in particular in areas related to the former Byzantine empire, where Christian communities may have been numerically quite significant. In other words, a sort of cultural *koiné* originated in the former lands of the Byzantine empire and in lands close to the Byzantine frontiers, and survived in these areas much longer than the Byzantine dominion proper.[577] The arrival of the Crusaders at the end of the 11th century encouraged Mediterranean trade and the Crusaders may have contributed to the evolution of a common cultural pattern, helping promote the development of a common language in terms of pottery manufacture, as noted by Vannini.[578]

In the light of Soustiel's theory, the occurrence of *graffita ware* in the Euphrates valley may be related to the fact that it was a frontier between the Islamic world and the Byzantine empire. Furthermore, the presence of a Crusader state near by at Edessa from 1098 may have had a role in the diffusion and development of a certain taste, and in this context the alliance between Qal'at Ja'bar and the Crusaders in the early 12th century should also be taken into account. Soustiel's interpretation of the evidence is undoubtedly appealing. However, the complete distribution map for polychrome *graffita ware* has yet to be drawn, and, once completed, may suggest a different interpretation of the facts (fig. 153).

It should also be noted that polychrome *graffita ware* seems to be a natural evolution of splashed and incised wares, a firmly rooted pottery tradition in the early Islamic world.[579] This kind of early *graffita ware* was particularly well developed in Iran, far from Byzantine influences, in the heart of the old Sassanian empire. Lane is convinced that, at al-Mīnā', potters producing polychrome *graffita ware* were local people, not only because the only legible inscription found on the pottery is in Arabic, but especially because iconographically the pottery is very close to Islamic traditions.[580]

To conclude, polychrome *graffita ware* seems to have been a fairly common variety of pottery in western Mesopotamia in the Mamlūk period. It replaced fritware after the Euphrates kilns had been destroyed during the passage of the Mongols in 1259–60 and it may have been produced in the Euphrates valley as well as elsewhere. On the coast, this ware may have been very popular at the time of the Crusader occupation (12th and 13th centuries). It also seems to have been particularly developed in places where fritware was not produced, as a cheaper and less sophisticated table ware (figs 152–153). In fact, while *graffita ware* was produced and widely traded in the Mediterranean, at Damascus a completely different variety of pottery was extensively produced, *fritware 3*. No

polychrome *graffita ware* has been found in Damascus so far, with the exception of late 15th-century North Italian imports;[581] however, Damascus has not been systematically excavated. A very similar situation seems also to prevail at Cairo; there, however, polychrome *graffita ware* of the al-Mīnā' variety has been found at al-Fusṭāṭ, while the polychrome *graffita ware* locally developed is of a completely different variety.[582] Cairo and Damascus fine-ware production (*fritware 3*) seems to have been particularly open to Eastern influence (Chinese porcelain in particular), but does not seem to present any characteristic in common with the Mediterranean *koiné* mentioned above. The possibility that polychrome *graffita ware* was an alternative to the fritware *koiné*, supplying table wares in those areas where fritware table ware was not easily available, should be taken into consideration. However, a more complete picture of polychrome *graffita ware* distribution is needed to support this theory or any other on the subject.

Monochrome *graffita ware*

TECHNICAL CHARACTERISTICS AND DECORATION

The body has the same characteristics as those described for the polychrome *graffita ware* group. The incised decoration also has a close similarity to the polychrome *graffita ware* group from a technical and stylistic point of view (p.57), with the possible exception of two sherds, which seem very close to the Byzantine variety (figs 93 m; 94 d). The lack of polychrome painted decoration is the defining characteristic of monochrome *graffita ware*. After the execution of the incised decoration, objects were covered with a monochrome glaze in one of three different colours:

WARE R: yellow glaze (MFN: 6).
WARE S: green glaze (MFN: 10).
WARE BBJ: brown glaze (MFN: 4).

SHAPE AND FUNCTION (FIGS 93–94)

Very few sherds have been classified in this group. Shapes represented correspond to those already described in the polychrome *graffita ware* group (p.57).

DISCUSSION

Monochrome *graffita ware* seems to be closely related to polychrome *graffita ware* in terms of technical characteristics, shape, style and decorative motifs. On the basis of this similarity, one may conclude that monochrome *graffita ware* was produced at the same time as the polychrome variety; the much smaller proportion of monochrome *graffita ware* probably indicates that it was not as popular as the polychrome variety.

In western Mesopotamia, an incised-decorated monochrome variety was already in use in the pre-fritware phase (i.e. 11th century, see pp.66–67); however, apart from the colouring and decorative pattern, this earlier production has very little in common with monochrome *graffita ware*. Because the two varieties may be confused in the literature in the absence of accurate descriptions and drawings,[583] very small sherds cannot be considered diagnostically useful for dating purposes.

In the literature, no monochrome *graffita ware* similar to that at Qal'at Ja'bar is well documented. Furthermore, in western Mesopotamia, the lack of published material prevents us from fully assessing the distribution of this pottery (pp.58–62). Only at Tell Barrī have a few monochrome *graffita ware* sherds been recovered and no polychrome *graffita ware* was found in the course of the excavation.[584] Nor was any similar pottery recovered at al-Mīnā'.[585] No monochrome *graffita ware* as defined at Qal'at Ja'bar occurs at other northern Syrian sites showing a ceramic horizon very similar to the Qal'at Ja'bar horizon. At Tripoli[586] and Tell 'Arqa[587] monochrome *graffita ware* is much closer to the Palestinian varieties (see below). At Ḥamā, monochrome *graffita ware* is considered by Poulsen to be a later and local interpretation of al-Mīnā' polychrome *graffita ware* on the basis of sketchy incised decoration which shows a vague similarity to al-Mīnā' examples.[588] A few fragments have also been recovered at Qaṣr al-Ḥayr al-Sharqī, but they are not comparable to the Qal'at Ja'bar examples.[589]

Monochrome *graffita ware* seems to have been particularly popular in the south of Syria, Palestine and Transjordan, yet, with few exceptions, these varieties are unrelated to monochrome *graffita ware* from Qal'at Ja'bar;[590] they have been found, for example, at Buṣrā,[591] at Caesarea,[592] at the Red Tower,[593] at the monastery of St. Mary Carmel,[594] at Capernaum,[595] at the Damascus gate[596] and at the Armenian Garden in Jerusalem,[597] and at Tell Abu Gourdan (Dayr 'Allā) in the Jordan valley.[598]

The ceramics literature does not provide dating for the Qal'at Ja'bar monochrome *graffita ware*; indeed at Qal'at Ja'bar, the similarity of monochrome *graffita ware* to polychrome *graffita ware* is the only reason for attributing it to the same period. Furthermore, the evidence available provides only a very incomplete picture of the distribution of monochrome *graffita ware* comparable to that at Qal'at Ja'bar and it seems that varieties of monochrome *graffita ware* were produced at many different sites. At Qal'at Ja'bar, monochrome *graffita ware* can be interpreted as a less sophisticated variety of polychrome *graffita ware*.

Monochrome glazed *slip-ware*

TECHNICAL CHARACTERISTICS

The body and glaze of monochrome glazed *slip-ware* show the same characteristics described already for polychrome *graffita ware*. Objects are covered with a transparent, coloured monochrome glaze over a white slip (see p.57 for a description).[599]

WARE BK: yellow glaze (MFN: 144).
WARE AZ: green glaze (MFN: 411).
WARE BJ: brown glaze (MFN: 7).

SHAPE AND FUNCTION (FIGS 95–103)

This group offers a large variety of shapes, although most of them have already been discussed for the polychrome *graffita ware* group (see p.57). Like polychrome *graffita ware*, monochrome glazed *slip-ware* is generally to be associated with table ware, and especially with bowls. The most common shape in this group is a hemispherical bowl, occasionally carinated, with a slightly upturned rim, often grooved on the exterior (figs 95 f–j; 96 a–e; 98 m–o; 99 a–k). It already appeared in polychrome *graffita ware* (see, for example, fig. 85 h–k), but in the monochrome glazed *slip-ware* group it occurs much more often. The bowl with flat everted rim, very popular in the polychrome *graffita ware* group, occurs less frequently with monochrome glazed *slip-ware* (figs 97 f–h; 101 a–h). A few closed forms (figs 97 i–j; 101 i–m) are also represented in this group, together with oil lamps (fig. 98 j–l). The group seems to have had utilitarian functions including that of table ware.

DISCUSSION

As noted, this group is very similar to polychrome *graffita ware* and it may represent a plain and less sophisticated variety. On the basis of this similarity, the same date should be ascribed to the monochrome glazed *slip-ware* group at Qal'at Ja'bar.

The literature provides very little data for the distribution of this ware in the Euphrates valley and in Syria in general;

this is not only related to the fact that archaeological fieldwork in the Euphrates valley has not been extensively published, but also that this pottery is probably related to the Mamlūk period, which is very scantily represented in the valley.[600] Moreover, in the absence of detailed descriptions and profile drawings, monochrome glazed *slip-ware* is easy to confuse with earlier wares, such as the *early glazed slip-ware* group (pp.66–67).[601]

So far, only the assemblage from Tripoli provides a pottery horizon comparable to that at Qal'at Ja'bar, with the occurrence of both polychrome *graffita ware* and monochrome glazed *slip-ware* in quantities.[602] No other varieties of common glazed ware have been found at Tripoli, including *turquoise-glazed ware*. At Qal'at Ja'bar both monochrome glazed *slip-ware* and *turquoise-glazed ware* occur in the unstratified pottery assemblage; the incidence of monochrome glazed *slip-ware* is about four times as high as the incidence of *turquoise glazed-ware* (Appendix F and graphic 7, fig. 151). How these two wares are related chronologically was not clarified by the assemblage from the new excavations, since both wares are poorly represented, especially monochrome glazed *slip-ware*. On the contrary, at Qaṣr al-Ḥayr al Sharqī, polychrome *graffita ware* occurs together with *turquoise-glazed ware*, while an insignificant proportion of monochrome glazed *slip-ware* has been found.[603] Data for common glazed pottery are not available from the Ḥamā excavations.

In the south of Syria, Palestine and Transjordan, monochrome glazed *slip-ware* seems to have been fairly common.[604] This ware was probably already in use in the 13th century, as the evidence provided from the excavations at the Armenian Garden in Jerusalem,[605] and at Caesarea[606] seems to indicate. It is particularly common in the Mamlūk period; for example, it has been found in late 13th or 14th-century assemblages at Damascus,[607] Buṣrā,[608] Tell Qaymūn,[609] Khirbat al-Fāris,[610] Jerusalem,[611] the Red Tower,[612] Tell Abu Gourdan (Dayr 'Allā),[613] and Pella.[614]

On the basis of this evidence, one has the impression that, to a degree, monochrome glazed *slip-wares* have been one of the commonest varieties of glazed pottery found in the south of Syria in particular. Monochrome glazed *slip-ware* appears to have overtaken the common glazed ware function that *turquoise-glazed ware* had held in 12th and 13th-century western Mesopotamia. This is especially true in southern Syria, on the Syrian coast, and in Palestine, while the evidence provided by the Qal'at Ja'bar assemblage demonstrates that this was also the case in northern Syria and western Mesopotamia, i.e. the Euphrates valley. The only exception seems to have been Qaṣr al-Ḥayr al-Sharqī, where *turquoise-glazed ware* seems to have been in use in the Mamlūk period as well. The publication of the finds from the fortress of al-Raḥba may clarify the role of monochrome glazed *slip-wares* in the Mamlūk period.[615]

Unglazed pottery

As discussed in the introduction to this chapter (pp.37–38), the unglazed pottery assemblage has only been subjected to a preliminary study, mainly because of the lack of quantitative data and reference material from the new sondages and from the archaeological literature.

The unstratified unglazed pottery assemblage consists of approximately 8,000 fragments.[616] It was divided according to wares and, subsequently, tentatively grouped by shapes. As already discussed, the assemblage presented here cannot be considered a sample, but an arbitrary selection of those pieces which, because better preserved than others, could be interpreted in relation to their shape and function (pp.37–38).

The pottery assemblage from the new sondages was quantitatively very limited; it did not provide sufficient data for classifying the unstratified assemblage in further detail and it did not allow an evaluation of the production in terms of types' occurrence and their evolution over time. Only a few, preliminary observations can be offered here.

As already observed, only very little has been published of the pottery recovered in the course of archaeological research along the Euphrates valley and the literature generally lacks a well dated reference corpus; this is particularly true for unglazed pottery. Moreover, unglazed pottery is characterised by strong local connotations; the search for parallels in the literature should thus be restricted to a limited area to be of some significance at this stage of our knowledge. It is also true that in the Islamic world there are examples of unglazed coarse wares being traded, serving as containers for transporting goods.[617] However, in many areas of the Islamic world too little is known about the various unglazed pottery productions to allow speculation about their circulation. A first step for research would be to describe the characteristics of the pottery available in a specific area; at this stage, parallels seems to be of some significance only if restricted to a well defined geographical horizon. Subsequently, once the productions of a number of areas become well defined (in relation to technical characteristics, chronology, occurrence, use, etc.), parallels can be analysed in relation to much broader areas and their circulation can be discussed.

Our understanding of unglazed pottery of the Euphrates valley can only improve with the systematic publication of the evidence recovered so far. The study of the unglazed pottery assemblage from Qal'at Ja'bar may be of some value in this respect, even in a preliminary form for it considerably enlarges the inventory of shapes known so far in the valley.

Unglazed pottery recovered at Qal'at Ja'bar can be divided into two major groups: light-firing wares (Wares 1, 2, 5, and 6) and red-firing wares (Wares 3 and 4).

Light-firing wares

Light-firing wares seem to represent the large majority of unglazed pottery in the unstratified assemblage[618] as well as in the assemblage from the new sondages.

The group presents a striking homogeneity in the characteristics of the body. It is likely that the same clay was used for the various wares; the same clay was also employed for the *turquoise-glazed ware* and for the *lead-glaze family* (pp.55, 57, 62). Small variations are related to the proportion of lime and sand in the body,[619] as well as to firing.[620] Four varieties have been identified: Ware 1, Ware 2, Ware 5 and Ware 6.

WARE 1 (FIGS 104–144; PLS 53–72)

Description

Ware 1 is by far the most numerous group of the unglazed pottery assemblage. The body presents a very large variety of buff colours, with a yellowish, orange or pink tone; Munsell 7.5YR 7/4 and 7/6 seem to be the most common, but also 5YR 6/6, 6/8, 7/6, 7/4 and 7/8, 7.5YR 5/4, 6/4, 6/6, 10YR 6/4, 7/4 often occur. The surface is often lighter than the core: Munsell 2.5Y 7/2, 8/2, and 10YR 8/2 are very frequently found.

Variations in colour are not only related to firing,[621] but also to the variable lime content.[622] Medium, fine, and very fine grained sand is added to the clay in most cases. The quantity and the size of the sand grains indicates that sand was added by the potter as temper. However, in some cases, it is possible that a small proportion of very fine sand was already present in the clay.[623] The ware is hard, compact and fine-textured.

Decoration[624]
The ware is often decorated with a large variety of decorative techniques. Most decorative techniques and patterns do not seem to be very sensitive to the passage of time.

Incision. This is the most extensively used of all decorative techniques. A very popular decoration is executed with a comb, and consists of a series of bands and wavy lines (pls 53–59). It is in use during all phases at Qal'at Ja'bar. A large comb with approximately ten teeth was generally used, but smaller varieties were also employed.

A needle or a pin were also used for incised decoration. A particular kind of incised decoration occurs only in the earliest phases in the new sondages at Qal'at Ja'bar (pp.31–32; pls 32–33). Large areas are entirely covered with a rich and dense composition of highly stylised branches and leaf motifs, and more abstract patterns of dotted bands (pls 61–64).[625]

Impression. This is also a technique very often used in the decoration of unglazed pottery. Finger impressions are used to decorate wide ridges which have the function of strengthening large jars' walls (fig. 133 d; pl. 58). Seal impressions are also encountered, often in association with applied ornament (pls 68–69).

Applications. This technique is not as commonly encountered in the assemblage as the decoration described above, but it is not rare. It consists of the application of modelled lumps and rolls of clay to the pots. These applications often have the function of strengthening walls, but they can also be purely decorative (see pls 68–69; figs 133 d; 134 f; 139 f–h; 140 a). The applied ornament often results in a very heavy and rich decoration.

Small fragments of fritware were also applied for decorative purposes (see pls 70–72). This technique, to this writer's knowledge, is not known in the literature. The author had the opportunity to observe pottery with these fragments of fritware as decoration among the finds from the excavations at Bālis.[626] Bālis was not reoccupied during the Mamlūk period, and thus this decoration may be assigned a *terminus ante quem* of the Mongol invasions. The use of fritware fragments in the decoration may be restricted to sites producing fritware, where discarded fragments were available in large quantities.

Function
The inventory of Ware 1 shapes is particularly rich.[627] A large variety of open and closed forms occurs at Qal'at Ja'bar: bowls, basins, ewers, water jugs, and large jars of different shape and size are all well represented. It seems that Ware 1 pottery was extensively employed for storage and transport (large jars especially), but also for food preparation. Ware 1 is also related to *nā'ūra* pottery, employed in water elevation systems (figs 127–128; 143 a–f).

A large assemblage of bowls also occurs among the unstratified pottery. This group presents a variety of shapes, some of which are closely related to those employed for glazed pottery (figs 105 a–i; 106 k; 107). Because of this similarity, it is possible that a number of these bowls can be regarded as unfinished products: they were ready to be glazed and fired a second time. A badly deformed bowl, very likely a waster, also occurs in this group (fig. 106 f).

Discussion
The absence of well documented and dated assemblages in the literature does not make it possible to provide chronological references for the Qal'at Ja'bar unstratified unglazed pottery. Moreover, it has not been possible to isolate different stages in the unglazed pottery production on the basis of the small assemblage recovered from the new sondages nor to relate the various shapes to a well defined period; however, some changes over time were noted.

From the evidence of the new sondages, and from an examination of the unstratified pottery assemblage, Ware 1 seems to have been the commonest ware in all phases.[628] In the Qal'at Ja'bar new sondages, it was noted that the proportional relationship between glazed and unglazed wares varies over time. Unglazed pottery, which mainly consists of Ware 1, diminished with the simultaneous increase of fritware production (pp.30–34, and graphics 5–6, figs 17–18). Although this data may be related to the changing function of the area during the various phases (for example, a storage room would probably provide a very different proportion), the significance of the relative proportion of glazed and unglazed wares could perhaps be assessed more easily if comparative data existed from other contemporary sites in the Euphrates valley, especially from sites with a cultural and functional status similar to that of Qal'at Ja'bar. If a significant increase in the production of glazed wares is proven to have taken place, this fact may be related to the higher technological skill achieved by potters at some stage. The highest incidence of glazed ware may be a consequence of the flourishing economy which characterised the second half of the 12th and the first half of the 13th-century period and which may have influenced the demand for glazed (and very likely more expensive) wares (pp.20–22).

Owing to the numerically limited assemblage from the new excavations at Qal'at Ja'bar, the absence of certain types cannot be safely interpreted as a chronological indicator. However, certain changes in the production have been noted, recognised through the occurrence of particular types in relation to the new sondages' stratigraphy. The following remarks must be considered as working hypotheses, which need the support of further archaeological evidence.

It has been observed that a particular variety of incised decoration, with highly stylised branches and leaf motifs (pls 32–33, 61–64), seems to be related to the earliest phases at Qal'at Ja'bar (phases I, II, and III). However, in later phases it is scarcely represented in the finds. Similarly, pottery with applied decoration (see above) makes its first appearance in phase IV, and it is also found in phase V, but great caution should be employed in interpreting the meaning of the absence of pottery with applied decoration in the earliest phases (pp.30–34).

Of particular interest is the frequent presence of *nā'ūra* pots in the unstratified pottery assemblage and among the finds from the new sondages. Two different varieties of rim occur (figs 127 a–j and 127 k–n; 128); marks of usage, probably from a rope, have been noted around the neck. The first type occurs in phases I, II, and III (figs 19 k–l; 22 b; 25 k; 31 s), while the second type is absent from

these earliest phases, but it is represented to a large extent in the unstratified pottery assemblage; one specimen occurs in the surface assemblage (phase VI; fig. 39 e). According to Northedge, *nā'ūra* pots make their first appearance at 'Āna in the 11th-century pottery group.[629] It is possible that the Qal'at Ja'bar first type (fig. 127 a–i) is earlier than the Qal'at Ja'bar second type (figs 127 k–n; 128); no chronological sequence can be suggested for *nā'ūra* pottery bases.[630]

Handles are not considered in general a very good chronological indicator; a possible exception may be double handles and turban handles. Both types occur in the earliest phase of the Qal'at Ja'bar new sondages (double handles: figs 23 i — sondage S1 phase IIa; 24 l — sondage S1 phase III; turban handles: figs 23 k — sondage S1 phase IIa; 31 u — sondage S2 phase III). Double handles seem to have been produced in Syria from the early 'Abbāsid period (8th–9th centuries), but were still in use in the middle 'Abbāsid period (10th–11th centuries); they occur at Tell Shahīn, in an assemblage attributed to the 11th century.[631] Turban handles generally appear in early and middle 'Abbāsid contexts (8th–11th centuries) in Syria, Iraq, and Iran,[632] but also occurred in later times.

WARE 2 (FIGS 117 R–S; 118 B–I; 119 A–D; 121 A– C; 142 A; PLS 73–82)
Description
The body of Ware 2 is generally light buff; Munsell 2.5Y 8/2 and 8/4 seem to be the commonest colours encountered. The colour does not show the pinkish and orange tone often observed in Ware 1. According to Franken *et al.* this light buff colour is related to the higher lime content which characterises Ware 2.[633] The clay seems to have been finely sifted, and it is in general well levigated. Ware 2 is also characterised by the almost total absence of sand; when present, it is so finely grained that it is possible that it was already present in the clay. The body is hard, compact and very fine in texture.

Decoration and shape
Ware 2 is often associated with mould-made vessels with relief decoration, but also with wheel-made jugs and small ewers.[634]

Most mould-made pottery recovered at Qal'at Ja'bar is represented by small water jugs, often provided with a filter. An assemblage of these jugs from Qal'at Ja'bar was studied in detail by Franken and Kalsbeek, with specific reference to manufacturing technique.[635] The decoration appears consistently on the shoulder, but less frequently walls are also decorated. In the literature, the mould-making technique is often associated with so-called pilgrims' flasks; no fragments clearly belonging to this type were found at Qal'at Ja'bar. However, they occurred in the pottery assemblage from Qal'at Ja'bar analysed by Franken *et al.*[636] The mould-relief decoration shows a large variety of motifs and patterns. It was not possible, however, to isolate significant and consistent changes in the decoration in relation to chronology.

Wheel-made vessels consisted of small jugs, very finely potted and often provided with a filter. They were occasionally decorated with incisions and ridges.

Discussion
Very little evidence has been provided from the new sondages to better understand this production and its change over time. Ware 2 is present in all phases, especially the mould-made variety (pp.30–34). Differences have been noted in the motifs, general style and iconography of the decoration. An evolutionary sequence for these motifs cannot be defined as yet. In the literature, earlier varieties of mould-made vessel with relief decoration are better known; they are generally related to the 'Abbāsid period.[637] A typology of the various motifs used and the relative chronological framework will be possible when the finds from excavations become available from a number of sites in the Euphrates valley, such as al-Raqqa, Bālis, Madīnat al-Fār, and al-Raḥba. As already noted by Kalsbeek and Franken, this technique was widely practised and mould-made vessels were very likely manufactured at a large number of sites in the Levant.[638]

WARE 5
Description, decoration, shape, and function
Ware 5 has the same characteristics described for Ware 1, in terms of colour, hardness, compactness and texture. A large quantity of fine sand has been added to the clay, and the surface is not smooth like that of Ware 1, but is particularly rough to the touch. Ware 5 occurs only rarely in the unstratified pottery assemblage, and it is better represented in the finds from the new excavations (pp.30–34). A very limited number of shapes have been identified; in the new sondages, Ware 5 seems to be related to closed forms, such as jugs of large and medium size. No Ware 5 open forms occur in the pottery assemblage from Qal'at Ja'bar, but this fact can be related to the limited amount of Ware 5 recovered. Occasionally, fragments with incised decoration occur: the decoration consists of comb-incised bands and wavy lines, both already encountered in the Ware 1 group. No Ware 5 with stamped or applied ornament has been found.

Discussion
Ware 5 occurs only rarely in the unstratified pottery assemblage. It is much better represented in the pottery recovered from the new sondages, especially in the earliest phases. It constitutes approximately 30% of unglazed pottery in phase I, whereas Ware 1 constitutes 60%. Ware 5 gradually disappears, and it is totally absent by phase IV (pp.30–34). A 'sandy ware' was already in use in Mesopotamia in the Sassanian and in the early Islamic period.[639] No data is available to understand whether the use of a large quantity of sand temper continued uninterrupted until the fritware production phase. Moreover, it is possible that the use of abundant sand temper has no significant chronological connotations, but it may relate merely to the type of clay bed available at a certain site and to different manufacturing techniques adopted by the potter; some potters, for example, may have felt more than others the need for a less plastic clay. A much larger assemblage from Qal'at Ja'bar may clarify this point.[640] The publication of the finds from other sites in the area may also provide more evidence to understand the unglazed pottery production; however, a certain uniformity of codification in the description of wares is necessary to make wares more readily comparable from site to site.

A 'sandy ware' does not seem to have occurred at Qaṣr al-Ḥayr al-Sharqī, which presents a chronological horizon very similar to that of Qal'at Ja'bar, but which was also occupied in the 'Abbāsid period.

WARE 6 (FIGS 140 B–E; 143 G–H)
This ware was found only in very small quantities in the course of the excavation of the new sondages (pp.30–34). It rarely occurs in the assemblage from the earliest excavations at the site. The clay employed for Ware 6 is very similar to that used for Ware 1, except that Ware 6 has a more reddish colour, a possible consequence of a lower lime content. Coarse sand, occasionally with straw added, was used as temper. Ware 6 is hand-made and

thickly potted and it is used to shape very thick vessel walls (figs 140 b–e; 143 g).

It is very likely that Ware 6 was used in connection with *tannūr*, the bread-ovens, frequently encountered in the area both in archaeological contexts and in modern life.

Red-firing wares
Red-firing wares may be divided into two very similar groups, Ware 3 and Ware 4. The clay used for these wares seems to be different from that employed for light-firing wares and it is characterised by the absence of lime; that a different source of clay was probably used for these wares is confirmed by the archaeometric study conducted on the pottery from Qal'at Ja'bar by Franken *et al.*[641] Both Ware 3 and Ware 4 were used for cooking pots, as shown by traces of fire on a number of fragments of these two wares.

WARE 3 (FIGS 145 A–E; 147 F)
The body is red; Munsell 10R 4/6 and 4/8 are the most frequently encountered colours. Both the internal and external surfaces of the vessels present the same colour. The body is very well fired, hard and compact. Fine sand seems to have been used as temper. The surface is often polished, especially on the external surface.

Vessels are very finely potted, but the inventory of shapes seems fairly limited. Most of the fragments recovered at Qal'at Ja'bar belong to a type of closed, neck-less cooking pot with a globular profile and folded rim (fig. 145 a–c). The body is often decorated with grooves or incisions, and it is only rarely ribbed, unlike the 'Abbāsid variety where ribbing is usual. On the basis of the evidence provided by the excavation of the new sondages, Ware 3 seems to be related to the earliest phases at the site (phases I, II, and III); by phase IV, Ware 3 had been replaced by Ware 4 (pp.30–34).

WARE 4 (FIGS 145 F–G; 146; 147 A–E; G–J; 148)
The body is dark red or brown. Munsell 2.5YR 4/8, 4/6, 5/8, 7.5YR 3/4, 4/2 are frequently encountered. The external surface seems to have been finished with a very liquid clay wash in most cases. Temper consists of coarse and fine sand; grains are occasionally up to 2 mm. in diameter. The body is well fired and brittle. Traces of soot deposit are occasionally found on the interior of these vessels.

The vessels are wheel-made and are finely potted. Most shapes consist of closed forms, generally globular cooking pots with short necks. A variety very similar to the Ware 3 cooking pot with no neck and folded rim also occurs (fig. 145 f–g).

Ware 4 is particularly common in the unstratified pottery assemblage. In the Qal'at Ja'bar new sondages, Ware 4 seems to have replaced Ware 3 from phase IV onwards. It does not occur in the earliest phases. However, both Ware 3 and Ware 4 were recovered in the new sondages in only small quantities, and the significance of their absence in a particular phase should be treated with caution. It is not clear whether Ware 4 was also in use in phase V, i.e. in the Mamlūk phase (pp.30–34).

A variety of cooking pot very similar to Ware 4 seems to have been in use at Qaṣr al-Ḥayr al-Sharqī during the second period of occupation (late 12th–14th centuries); the production of this cooking ware, however, seems to have ceased by the time that *fritware 3* was introduced, very likely about the mid-13th century. No other variety of cooking ware seems to have replaced it in the Mamlūk period.[642]

Early glazed slip-ware

This group has been named elsewhere 'Shahīn ware' by the present writer: on the basis of a very homogeneous assemblage recovered during the excavations conducted at Tell Shahīn, an attempt was made to define this group which was still very little known in Syria.[643] Considerable new evidence has been gathered since the publication of the finds from Tell Shahīn; in particular, evidence for manufacturing was found at al-Raqqa (see below). To avoid misunderstanding in relation to the location of production centres, and in consideration of the fact that there is no long-established tradition in the literature in the use of the label 'Shahīn ware', the present writer prefers to use here a more general term such as 'glazed slip-ware'. However, given the fact that other wares as defined at Qal'at Ja'bar could fit into this category (see, for example, monochrome glazed *slip-ware*, pp.62–63), a chronological definition has also been introduced ('early'). Terminology may however need reassessment in the light of future evidence.

DESCRIPTION
The *early glazed slip-ware* body is generally dark orange-buff (Munsell 5YR 7/6 and 5YR 7/4). It has a very fine texture and it is hard and compact; a small amount of very fine sand seems to be present in the clay.

Vessels are generally well manufactured and well finished. The unglazed part of the foot is particularly well finished and smooth. The surface is coated with a thin whitish slip. Part of the external surface of the foot is also covered in most cases. A transparent and lustrous glaze is applied over the slip. This glaze is likely to be lead-based. In all cases the glaze is very well preserved.

At Qal'at Ja'bar the following *early glazed slip-ware* varieties occur:
*EGSW*1 (fig. 28 b): plain monochrome glaze; the glaze has a cream-yellow colour (Tell Shahīn type M).
*EGSW*2 (fig. 19 r, s): the decoration is finely incised through the slip, and covered by a monochrome bright green glaze (Tell Shahīn type A).
*EGSW*3 (figs 21 s; 25 p): the glaze has a light yellow colour; the decoration consists of green splashes (Tell Shahīn type K).

Early glazed slip-ware may correspond to the fine table ware in use before the introduction of fritware. All sherds recovered at Tell Shahīn belong to open forms, such as bowls and plates; this is also the case with the Qal'at Ja'bar finds.

DISCUSSION
*EGSW*3 ware is not as good a chronological indicator as *EGSW*2 and *EGSW*1, for it also occurs in 9th–10th-century assemblages.[644] The following discussion is thus concerned, in particular, with *EGSW*1 and *EGSW*2.

At Tell Shahīn, these wares were attributed to the 11th century on the basis of stratigraphic and comparative evidence; the group occurred in the latest pre-fritware phase, in layers probably deposited after the phase characterised by the presence of 9th–10th-century Sāmarrā'-related wares. An 11th-century date is suggested for a very large assemblage of this ware, which includes

wasters, recently excavated at al-Raqqa from an industrial complex.[645] This dating is confirmed by the absence of *early glazed slip-ware* at Madīnat al-Fār, where the 9th to the early 10th-century pottery horizon is largely represented.[646] Two sherds of this ware were part of an assemblage excavated at Sāmarrā' which was attributed to the 11th century on the basis of stratigraphic evidence.[647]

Early glazed slip-ware (*EGSW*1 and *EGSW*2) of the variety discussed here is very rarely noted in the literature. This may be related to its limited production and distribution, but it may also arise from the fact that little archaeological evidence from the Euphrates valley has been published so far. Some *early glazed slip-ware* sherds occur in the pottery assemblage from the excavation of Qaṣr al-Banāt, at al-Raqqa;[648] more recently, a production centre for this ware has been excavated at al-Raqqa, in the modern suburb of Mishlab.[649] A number of specimens have also been found at Bālis, and they are at present in the Aleppo Museum, still unpublished. At Ruṣāfa, *early glazed slip-ware* has been recovered in the course of recent excavations.[650] At al-Raḥba, wares related to *early glazed slip-ware* (red-slip painted ware) have been found from an 11th-century level.[651] It appears at Sāmarrā', in Iraq,[652] and at Sūsa, in Iran.[653] The distribution map thus remains to be expanded by further research in the future. However, the result of a survey conducted by K. Bartl in the Balīkh valley, recently published, seems to confirm the impression of a limited production and distribution of *early glazed slip-ware*.[654] According to Bartl, a contraction of settlements took place in the Balīkh valley around the 11th century and only four of the sites Bartl surveyed can be assigned to that date.[655]

There is no other evidence of *early glazed slip-wares* being made locally at Tell Shahīn, but this site may have been a pottery production centre, for fritware wasters were found on the surface. As mentioned above, recent excavations conducted at al-Raqqa allowed the identification of a manufacturing centre for *early glazed slip-ware* at the modern suburb of Mishlab.[656]

At Qal'at Ja'bar, only very little *early glazed slip-ware* has been found in the course of the excavation of the new sondages, and it does not occur in the unstratified assemblage. The very small quantity recovered in the *fritware 1* and *intermediate fritware* layers (phases I–III) is interpreted as evidence for *early glazed slip-ware* being residual at Qal'at Ja'bar (pp.30–33).[657] It may thus have ceased to be used with the introduction of fritware, the replacement for *early glazed slip-ware* as fine table ware. This supports its early date, i.e. late 10th or 11th centuries.

Chinese celadon[658]

DESCRIPTION
The body is light grey, very hard and vitrified, and it is normally defined as stoneware. It is covered with a lustrous light-green glaze in a variety of shades; the colour is derived from a small amount of iron oxide, fired in a reducing atmosphere. Body and glaze are fired simultaneously, at a temperature above 1200°C.[659]

Most of the sherds recovered at Qal'at Ja'bar seem to belong to open forms. They often present a finely incised decoration under the glaze. Most of these fragments are body sherds, with the exception of the flat everted rim of a dish (fig. 149). One fragment seems to belong to a large jar,[660] with a moulded decoration on the exterior.

DISCUSSION
According to Dr Rose Kerr, these sherds correspond to the fine ware identified as Longquan celadons, named after the site of Lung-Ch'üang, in the Zhejiang province of southern China, a market town where very good quality celadon has been found in large quantities. The shape of the dish (fig. 149 a), together with the decoration of the large jar (see note 660), indicates that the assemblage may be ascribed to the first half of the 14th century.

At Qal'at Ja'bar, Chinese celadons only occur in the unstratified assemblage.[661] The numbering from earlier excavations at the site still surviving on two celadon fragments indicates that they occurred in the latest occupation phase together with *graffita ware* (pp.58–59).

Celadons are well represented among the Chinese exports traded in the Middle East, and have been found at sites in the Gulf region, on the Red Sea coast, Egypt and Yemen.[662] In Syria, they have been found in the course of excavations at Antioch, Ḥamā, and Qaṣr al-Ḥayr al-Sharqī (see below). However, to the writer's knowledge, this is the first time that Chinese celadons have been found in an archaeological context in the Euphrates valley;[663] the absence of 14th and 15th-century Chinese celadon and porcelain in general may be related to the sparseness of the post-Mongol occupation of the valley. The presence of Chinese celadon at Qal'at Ja'bar suggests that the castle was not an isolated outpost, but a major place where sophisticated wares were used as well as being connected with the major trading network of the period in the Middle East. The distribution map of Chinese celadons in Syria has yet to be completed: celadon has been found at Antioch,[664] Ḥamā,[665] and Qaṣr al-Ḥayr al-Sharqī,[666] all sites with a pottery horizon related to that of Qal'at Ja'bar. It is possible that Chinese wares were available on the Damascus market, and that, from there, they reached Qal'at Ja'bar via Ḥims, for Qal'at Ja'bar was a stage on the Ḥims-Ra's al-'Ayn postal route in the second quarter of the 14th century (pp.22–23).

Smokers' pipes

DESCRIPTION
At Qal'at Ja'bar only heads of pipes have been found; none of these pipe-heads is complete. In some cases, the bowl and the shenk are preserved, while most of the finds consist of small fragments of rim. No mouthpieces have been identified at Qal'at Ja'bar. Depending on the ware, the pipe-heads recovered at Qal'at Ja'bar divide into two groups. The first group (P1) presents a dark grey body, made of hard-fired, finely sifted clay. The surface is covered with a brilliant and polished grey-brown slip. All samples from the unstratified pottery assemblage (eleven fragments) and one of three smokers' pipe fragments recovered in the new sondages fall into this group (figs 39 g; 41 m; 150; pls 83–88). The second group (P2) is characterised by a slightly friable red body with white inclusions, and by the absence of lustrous slip; only one fragment belongs to this group; it was found in the course of the excavation of the new sondages at Qal'at Ja'bar (fig. 41 l).

All pipes were made in moulds and are generally decorated. The decoration can be rouletted, stamped, impressed or incised; often, all these techniques are combined on the same pipe. The only pipe of the P2 group is decorated with incisions. On three fragments of the P1 group the so-called ateliers' marks are visible (figs 150 a–b, d).

DISCUSSION[667]

At Qal'at Ja'bar, smokers' pipes were found in the surface layer, which contains finds re-deposited from earlier occupation phases as well as finds from the post-abandonment phase of the site. This surface layer accumulated above the floors of phase V (6 and 58, see pp.34–36). Statigraphically, this assemblage can be assigned to the *terminus post quem* of the Mamlūk phase, the end of which very likely occurred in the second half of the 14th century.

The difficulty of differentiating late mediaeval pottery from Ottoman pottery is a very well known problem in the Near East. No well stratified assemblages related to the Ottoman period are known in Syria or Palestine and late layers, very close to the present surface, are in most cases very poorly stratified, and usually mixed with the abandonment phase, just as in the case of Qal'at Ja'bar. Moreover, only fairly recently has field archaeology become concerned with this later period.[668]

Smokers' pipes recovered throughout the Middle East from these later assemblages have long been misinterpreted; they have been attributed to the latest phase of occupation at most sites, at least in part because they were generally recovered from poorly stratified surface assemblages.[669] Only fairly recently have clay pipes been correctly attributed to the Ottoman period. Tobacco was only introduced into the Ottoman empire at the beginning of the 17th century, but smoking was not popular until the late 17th century;[670] there is so far no evidence that other substances were being smoked before the Ottoman period as was suggested by Sarre and by Poulsen.[671]

The detailed typological studies conducted on finds from Turkey and Greece provide the basic chronological framework for the assemblages found in Syria and Palestine.[672] No chronological data for pipes has been provided from excavations in Syria and Palestine so far.[673] The largest assemblage recovered in the area is that found in Jerusalem, at the Damascus gate, where it was recovered from a poorly stratified post-Crusader deposit.[674]

From the published evidence, it seems that a large variety of pipes existed and it is very likely that pipes were produced at a number of sites. However, production sites have not been identified,[675] and the literature so far has not been concerned with evaluating the scale of this industry and its characteristics.[676] It seems that many regional variations may have existed; as a consequence, chronology at any given site based on other sites' pipe finds should be treated with caution.

On a large number of fragments the use of workshop marks is attested. The evidence from the Greek and Turkish assemblages indicates that many marks may have existed: these include simple geometric marks, marks indicating individual or geographical names, and more complex marks containing inscriptions and referring to smoking in general or of religious significance.[677] The chronological implication of the use of these marks has yet to be ascertained, especially because there seem to exist geographical variations in their use. It has been suggested that in Greece and Turkey marks especially occurred in the 19th century,[678] but there is evidence from Mytilene on the island of Lesbos to indicate that marks were very frequent in the 18th century as well.[679] Simpson suggests an 18th-century date for the assemblage from the Damascus Gate, because only two pipes had marks: these consist of a very simple monogram.[680]

On the basis of the published evidence from Greece and Turkey, it seems that Qal'at Ja'bar smokers' pipes should be attributed a 19th–early 20th-century date.

At Qal'at Ja'bar, a very few smokers' pipes were found during previous excavations at the site (eleven fragments only out of a pottery assemblage of approximately 10,000 sherds). However, three pipe fragments were found during the excavation of the new sondages, from a relatively small area (three fragments from an assemblage of approximately 578 sherds — MFN); it is possible that quantitative evaluation of the stratified assemblage may need re-assessment on the basis of further research at the site. The small quantity of pipes at the site may confirm that Qal'at Ja'bar was only frequented in a limited manner in the 19th–early 20th centuries. Sulaymān Shāh, an ancestor of the Ottoman dynasty, was erroneously believed to have died at Qal'at Ja'bar; a commemorative tomb was guarded by a Turkish garrison until the first decades of this century (p.23).

Another factor may be partly responsible for the low number of smokers' pipes at the site; they are normally sold in the local antique market as Roman pipes. Although their value is not very high, this may have encouraged the local population to search for pipes on the surface of archaeological sites.

From the small amount of work in the Euphrates valley published so far, it does not seem that smokers' pipes are ever a very common find. This may mirror the general settlement pattern in the 18th and 19th centuries, signifying that the valley was scarcely populated in the period. It may also be related to our poor understanding of remains and finds of the Ottoman period, and to the fact that the majority of late Ottoman settlements are the settlements still inhabited today, for the late Ottoman period may be buried under modern settlements.

CHAPTER 6
CONCLUSION

This study has attempted to combine archaeological evidence with the varying level of detail provided by the historical record to understand an important middle Euphrates valley fortress from its earliest existence down to its eclipse and abandonment. This study has relied heavily on the mutual reinforcement provided by three forms of source material:

1) historical texts
2) archaeological excavation
3) excavated ceramics.

Treated individually, all of these sources have limitations, but they are overcome to some degree by bringing them together to establish a far clearer picture of Qal'at Ja'bar over a long period of time. Pottery, on which this study has focused at length, has played a particularly significant role as a link between the absolute chronological framework provided by the historical record, the relative chronology of the new sondages excavated and the published archaeological literature. It is also hoped that it drew attention to the complexity of ceramic productions in the area and that the model proposed will be treated as a working hypothesis in the course of future research.

This approach has clarified the role that Qal'at Ja'bar played over time, while a number of issues have emerged that require further research, such as the nature of settlement in the Euphrates valley in the post-Mongol period. This study, showing that the site participated in the major trends of mediaeval ceramic production in the region between the 11th and the 14th centuries, allows Qal'at Ja'bar to be placed in a given historical and cultural context.

Beyond the limited context of Qal'at Ja'bar, this research is far from complete in a broad geographical and historical sense, and it is hoped that it has underlined the need for detailed studies which should be devoted to the mediaeval Jazīra region as a whole,[681] especially now that more fieldwork has been conducted in the area. It would be very profitable to combine the results of this body of fieldwork as it becomes available with extensive research on edited and unedited texts for the period, such as the unpublished parts of ibn al-Furāt.

The study of the pottery: summary of the results

The pottery from previous excavations at the site has been studied and has been treated as unstratified, because all records relating to these excavations were lost in 1982 (pp.25, 37–38). This pottery was of a very mixed provenance from across the site — from surface collection, from excavations in various areas of the site, and from clearance work around the fortification walls. This assemblage has been classified according to a typology, largely based on visual criteria, established by the present writer. In the case of fritware, laboratory analysis has lent support to the suggested typology based on a visual classification.

One of the main difficulties in dealing with an unstratified assemblage such as this — of unknown provenance within the site and probably in part derived from surface collection over a large area but of unrecorded extent — is to evaluate to what degree it is representative of the pottery horizon of the site as a whole. It was reassuring to realise that, basically, all wares of the typology were also represented in the finds from the new excavations; however, major differences were noted in the comparative proportions between the various wares. This appears clearly in a comparison of the graphics illustrating the incidence of the various glazed wares in the unstratified pottery assemblage (Appendix F and graphic 7, fig. 151) and the graphics illustrating the various occurrences in the new sondages (graphics 1–4, figs 13–16). This difference may be related to the fact that the latest occupation, i.e. the 14th-century Mamlūk phase, is not as well represented in the new sondages as it seems to be in the unstratified assemblage (see *graffita ware*, pp.58–59); this may be related to the fact that the site was not occupied to the same degree in the various areas during the Mamlūk period.

Although with a certain caution in the light of this proportional variation, it can be concluded that the unstratified pottery assemblage is to some extent representative of the occupational history of the site. Moreover, the unstratified pottery typology has proven to be particularly useful in helping to isolate residual pottery from the excavations. In fact, I mainly relied on quantity to isolate residual pottery recovered in the course of the excavation of the new sondages at Qal'at Ja'bar (p.31). The risk is that this approach does not allow the significance of rare and imported wares to be assessed. Results are more reliable if combined with other data, such as those offered by a large pottery typology. The absence of a given ware from the corpus of unstratified pottery is yet another clue for interpreting it as residual. This has been, for instance, the case of *early glazed slip-ware*, which has been attributed to a pre-fritware phase, very likely of the 11th century (pp.66–67).

The assemblage from the new sondages has supplied some missing data for assessing changes in the local pottery production, especially data on incidences in relation to a relative chronological framework.

However, because essential data such as the function of areas was not understood for most of the phases identified in the new sondages at Qal'at Ja'bar, great caution must be exercised in assessing the various incidences of ceramics. To be on the safe side, the various incidences have been used as a working hypothesis and compared with the ceramic and archaeological literature at length. The distribution of the various wares and their proportion at other sites has been dealt with to re-assess the meaning of their proportion at Qal'at Ja'bar and to offer generalisations on their significance. For the most part, it has been possible to specify whether a ware can be considered a 'luxury item' or a 'common ware of everyday life'.

An attempt has been made to relate major changes in pottery production to historically ascertained transformations, in most cases related to political shifts; the traditional division of periods according to ruling dynasties, has, in most cases, been cautiously maintained (see pp.14 –15).

The pottery from the new sondages has provided a relative chronological framework, which has been compared to the chronological framework provided by the historical sources for the site. This absolute chronology has also been

compared with the absolute date provided by the archaeological literature: the review of the available literature has been confined as far as possible to north Syria and the Jazīra. However, the chronological pattern and evolutionary model suggested for the pottery should be tested by future work.

The following are some of the major results achieved in the definition of pottery wares:

Fritware
A new model for fritware production and development, along with an analysis of its distribution, has been identified on the basis of the excavated assemblage (both stratified and unstratified). This assemblage has been compared with the conclusions suggested hitherto in the ceramic and archaeological literature. In particular, fritware development has been described in five major phases (pp.38–55):
1) *fritware 1*
2) *fritware 1* and *intermediate fritware*
3) *fritware 2* and *intermediate fritware*
4) *fritware 2*
5) *fritware 3*.
Up to now, fritware has very rarely been distinguished in such detail, and it has usually all been defined in the literature as 'Raqqa ware' without further differentiation. This study has thus demonstrated the variety of the production on an archaeological basis and has discussed the possibility of identifying various production centres, among them Qal'at Ja'bar itself. The picture offered by the quantitative data from the new Qal'at Ja'bar sondages is that fritware was initially a luxury item (phase 1), which gradually became a fairly common type of serving vessel at Qal'at Ja'bar (phases 2–4).[682] In the last phase (phase 5), it was probably not as readily available as it had been in the past, since it was no longer produced locally. By this time, other glazed wares were commonly used as serving vessels, such as *graffita ware* and related wares (pp.38–55).

Turquoise-glazed ware
Turquoise-glazed ware, so far considered the most common type of glazed ware in the Euphrates valley in the Ayyūbid period, was found in surprisingly limited quantities at Qal'at Ja'bar (see pp.55–57, figs 15–16 and 151). Its definition as a glazed ware of common use has been maintained, however, in recognition of the fact that *turquoise-glazed ware* must have been an inexpensive item, not particularly sophisticated, and probably produced at many sites. It is particularly common at settlements of smaller size, where access to a market for luxury items and more sophisticated material would have been more difficult. At such sites, there was apparently a tendency by consumers to rely on local sources for their pottery. However, Qal'at Ja'bar was a production centre for fritware and more sophisticated ceramics were readily available there. The limited quantity of *turquoise-glazed ware* found at Qal'at Ja'bar may relate to the fact that the availability of luxury wares meant that there was no demand for cheaper and inferior table wares of the type that *turquoise-glazed ware* seems to represent.

***Graffita ware* and monochrome-related ware (*lead-glaze family*)**
Very little information was provided by the new sondages at Qal'at Ja'bar for the *lead-glaze family*, since the phase to which its use relates was poorly represented in the excavations (pp.33–36 and 57–63). No evolutionary pattern could be identified as no quantitative data was provided by the new sondages. Nevertheless, the review of the ceramic and archaeological literature, combined with data — mainly quantitative — from the unstratified assemblage, allows us to establish that the *lead-glaze family* can be regarded in the Jazīra as the glazed ware of the Mamlūk period. The large amount of such pottery in the unstratified assemblage may have been a consequence of the fact that most of this pottery was recovered in the course of surface collection, where the material related to the last phase of occupation is likely to be found in greatest quantity.

The considerable quantity of pottery of the *lead-glaze family* recovered has been interpreted as an indication of the importance of the site and the degree of activity in the Mamlūk period. This is also confirmed by the presence of Chinese celadon imports, which have been ascribed to the same 14th-century period (p.67). However, the historical sources give very little information for the history of the site at this late date, and for the area in general.

Unglazed pottery
As already indicated, unglazed pottery has been dealt with in a preliminary sense, providing only a basis for future research. The main contribution of this research is the production of a sequence of wares and types related to the phases from the excavations of the new sondages; however, the assemblage of unglazed pottery from the new Qal'at Ja'bar sondages was quantitatively fairly limited. It did not provide a suitable chronological framework for the unstratified unglazed pottery and it did not permit us to draw an evolutionary pattern for unglazed pottery in general or to isolate major changes in the production. Moreover, the absence of well documented and dated assemblages in the ceramic and archaeological literature for this region makes it impossible to relate the typology established for unglazed ware from the unstratified pottery assemblage to an absolute chronological sequence.

The unstratified, unglazed pottery assemblage presented in this study can roughly be ascribed to a late 11th–14th-century date. It represents a large repertoire of types; comparisons with the ceramic and archaeological literature for the area show that most of the types are at present unknown. This may be explained by the fact that very little has been published so far for the area, but it may also demonstrate that unglazed pottery has a distinctively local character and varies to a great extent from site to site (pp.63–66).

Qal'at Ja'bar in the light of the evidence examined

Combining the results of research based on the various sources of information used in this study, some observations can be offered which it is hoped throw some light on the history of Qal'at Ja'bar in relation to a broad regional context.

From the foundation to the Mongol invasion
The historical sources have provided evidence for the earliest period of occupation at Qal'at Ja'bar, although this has not been reflected by archaeological evidence so far. As we have seen, the first phase of occupation identified by the new sondages and in the unstratified pottery assemblage from the site includes only 11th–12th-century material, whereas the existence of a fortification at the Qal'at Ja'bar site is attested in the sources in the 5th or 6th century, and possibly as early as the 2nd century AD (pp.17–19). Although the textual information is not easy to connect to absolute chronology and too vague to allow an assessment of the nature of the settlement in this period (p.17, and note 11), at present it represents the only source

for the earliest history of Qal'at Ja'bar. Archaeology has so far failed to identify material evidence pre-dating the 11th century, with the exception of a number of Byzantine coins of uncertain provenance within the site (pp.18 and 26). The possibility that the site was located elsewhere prior to the 11th century has been given some consideration; however, no sites which could correspond to early Qal'at Ja'bar (Dawsar in the mediaeval texts) were identified in the course of extensive field work conducted in the area before the construction of the al-'Asad dam (p.25).

According to the sources, by the first half of the 11th century Qal'at Ja'bar, still known as Dawsar, emerges as one of the numerous fortresses of the Jazīra and northern Syria, autonomous to a great extent, although administratively subservient to the dynasties that dominated in the area from the 11th to the first half of the 13th centuries. From the 11th century, a number of fortifications are attested in the mediaeval sources; the appearance of fortifications on the regional scene has not been sufficiently investigated, either on the basis of textual or archaeological evidence, to allow discussion of the phenomenon as a whole. As to archaeological research, only rarely has this been devoted to fortified settlements in the region; at present, the archaeological evidence is too meagre to allow generalisations on the origins of fortified settlements in the area considered. For example, there are no elements to assess whether the pattern of distribution of fortresses shows elements of continuity with fortifications of the Roman and Byzantine *limes*. The region had significantly changed during the Early Islamic period, and the need for fortified settlements may have been determined by a combination of new elements.

Defence (of the territory as well as of the roads for communication, trade and pilgrimage) and regional strategy were certainly priorities; in fact, fortifications seem to be attested in the sources from the 11th century, while northern Syria and the western Jazīra were gradually recovering from a long period of instability created by nomadic tribal pressure and Byzantine and Fāṭimid expansion and when various tribes were trying to establish themselves in the area as autonomous small principalities (pp.17–19). A high degree of decentralisation of power was allowed by the system of the *iqta'*, the basis of the administrative relationship between the central government and the local *umarā'*. In this context, therefore, fortresses became vital for the control of the territory, as was the case in feudal Europe. Qal'at Ja'bar seems to emerge as a place with a considerable regional strategic role: for several decades of the 11th century it was held by the tribe of the Banū Numayr, who were also in control of a number of fortifications in western Diyār Muḍar and in Diyār Rabi'a, and ruled Ḥarrān and al-Ruḥā; the textual sources very clearly state that the Banū Numayr, as well as other tribes, derived their revenue from taxing trade on their territories. The importance of Qal'at Ja'bar seems especially related to its location on one of the major Euphrates crossing points, from which it was possible to control trade and monitor communications between northern Syria and the Jazīra.

From the 11th century until the Ayyūbid conquest, Qal'at Ja'bar seems to be consistently related to the government in Aleppo, and therefore especially orientated towards northern Syria. Qal'at Ja'bar was independently ruled by a local Lord, who was however appointed by the various dynasties which superseded each other in the government of Aleppo. Like Manbij and al-Bīra, Qal'at Ja'bar can in fact be considered a key point in the defence of Aleppo, controlling one of the roads leading to this town from the north-east. Shortly after the Ayyūbids gained control of the area, however, Qal'at Ja'bar was assigned to the rulers of the Jazīra (589/1193), and became part of the so-called Eastern Territories. The process of centralisation of power which started gradually during the Ayyūbid period diminished the strength of local dynasties and the importance of their fortresses. Power was being transferred southwards, to Damascus and Cairo, while the coast was gaining a central role in the trading network; the Jazīra can be regarded in the Ayyūbid period as frontier land in relation to the rest of the Ayyūbid territories. On the basis of textual evidence, it can be assumed that, although within this context of frontier, Qal'at Ja'bar maintained a certain status; for example, along with Karak, Qal'at Ja'bar was the depository of the treasury of the brother of Ṣalaḥ al-Din, al-'Ādil, to whom the Eastern Territories had been assigned (p.21).

The archaeological evidence gathered at Qal'at Ja'bar does not seem to confirm this shift between the pre-Ayyūbid and the Ayyūbid period attested by the sources. On the contrary, it seems adequate to treat this period as a certain cultural unit, articulated in several different phases but with patterns marked by a strong homogeneous character. It is true that the material evidence of the region is at present too scanty to allow conclusive generalisations in this respect; more specifically, because of the lack of adequate research conducted in the field in northern Syria and in the Jazīra, the lack of information cannot be treated as negative evidence in many cases. However, the conclusion that the region revealed a strong cultural unit is supported, for example, by the distribution pattern of fritware. Considering in particular the two varieties which are better defined in relation to chronology and which are easier to identify on the basis of the published evidence, i.e., *fritware 1* and *fritware 2*, it can be noted that both varieties are found at Antioch, Bālis, Qaṣr al- Ḥayr al-Sharqī, Ḥamā, al-Raqqa, Ruṣāfa, Tell Shahīn, Tell Barrī, 'Āna, Samsat, in the Balīkh and Euphrates valleys (pp.42, 50–51; fig. 152), and probably in the Ma'arrat al-Nu'man area, while only *fritware 2* seems to have been found at Ḥarrān and Tell Rifa'at. On the basis of this evidence, it seems possible to conclude that, at least in relation to the distribution of these fine wares, northern and central Syria and the Jazīra, including Qal'at Ja'bar, all seem to belong to the same cultural context. In other words, in spite of the significant change of ruling dynasties, and, more important, the decentralisation of power which characterised this area from the 11th century, the various sites taken into consideration share a number of characteristics and seem to be part of the same cultural horizon.[683]

In this context of cultural unity, however, there is also space for elements reflecting division: the presence, in a relatively limited geographical area, of a number of production centres of fritware, such as Bālis, Qal'at Ja'bar, al-Raqqa, and Samsat. The concentration and development of pottery workshops in the region is certainly related to the availability of raw materials, such as good clay, adequate sand, and fuel. However, beyond this, the various kiln centres may also reflect to some extent the political divisions of the small principalities which characterised the administration of the area from the 11th century onwards.[684]

More evidence on this subject will certainly be available with the completion of the excavations and the study of the standing structures at Qal'at Ja'bar. The study of building techniques will certainly contribute to the location of Qal'at Ja'bar in a more specific cultural context, as has been attempted with the pottery. At present, however, the

structures observed at Qal'at Ja'bar have not been studied in sufficient detail, especially in relation to relative and absolute chronology. Moreover, a systematic survey of Syrian architecture is still lacking, and comparative material for the structures observed at Qal'at Ja'bar is still too little known to really serve this purpose.

As already discussed, previous excavations at the site uncovered a number of structures. However, the results of the excavations conducted at the site by the Syrian Directorate of Antiquities in the 1970s under the direction of Mr A. Zaqzūq were unfortunately lost as a consequence of the Ḥamā events of 1982 (p.25). Mr Zaqzūq at present is involved in a major study of the fortifications of Qal'at Ja'bar (pp.25–26 and Appendix H). There are no elements, at present, to relate them to a specific span of time; it is true that they show a number of characteristics in common with Nūrid and Zangid architecture as known in the area, and for this reason they have been attributed to this period.[685] It should be remembered, however, that too little is known of the architectural modes of the following periods at the site and that the various phases of construction and restoration of the fortification have not been isolated and attributed to a specific period as yet. In other words, it is not possible to attribute a precise chronology to most of the building phases at Qal'at Ja'bar. Moreover, the use of baked brick is well attested in those areas excavated by Zaqzūq which have been attributed to the Mamlūk period (pp.25–26 and Appendix H).

In the course of the excavation of the new sondages, the remains of various walls were unearthed. Most of them have proved to be very different from the walls known so far at Qal'at Ja'bar. This includes not only the standing fortification walls, which are different from those of other buildings inside the fortress, but also the walls of the Zangid mosque, which are architecturally more sophisticated than those of other buildings (pp.26, 103 and pls 18–19). The walls unearthed in the excavation of sondages S1 and S2 also differ from walls exposed in the course of previous excavations in other areas of the site (pp.27–29 and pls 21–22). Previously unknown mud and limestone architecture was frequently encountered in the new sondages, such as wall 30 (sondage S1, phase I; see pls 27–28) and wall 75 (sondage S2, phase III; see p.29). At present, it is not possible to determine to what extent differences in building materials and techniques are related to chronology or to the function of the various areas. At this stage, one can only note the existence of such differences. Future excavations, together with a detailed analysis of the architectural remains already exposed, and a comparative study of the various building techniques employed, may enable us to improve our understanding of the chronology of the structural remains. It is hoped that it will soon be possible to combine the results of a pottery-based study such as the present research with studies based on architectural research at the site.

As already noted, the lack of comparable architectural material for Syria makes it difficult to employ architectural evidence to draw more general observations. Hillenbrand, as already mentioned, completed a very detailed and well documented study of brick architecture from al-Raqqa, Qal'at Ja'bar and Bālis. He examined a series of monuments built in baked brick, with extensive use of *hazārbāf*, which can be attributed to the second half of the 12th century, including the minaret of Qal'at Ja'bar, noting that they constitute an exception in Syria. The author interprets the architectural evidence examined as "the westernmost extension of Iranian architectural modes in the Arab world",[686] and observes that this influence was probably determined by the coming of the Saljūks. A basic framework of unity certainly characterised the areas ruled by the Saljūks; this can, for example, be observed in the case of incised-decorated fritware, as already noted (pp.41–42). However, it should also be noted that the use of baked brick in the region is attested, for example, at Madīnat al-Fār prior to the early 10th century.[687] In the Jazīra, well supplied with raw material, baked brick may have been much more widely employed in architecture than can at present be assessed. In other words, the sudden appearance of baked brick in the area in the 11th century may only be apparent, related to the fact that too little evidence is available at present to discuss the subject in terms of continuity with the past.

To conclude, it does not seem possible, at present, to employ architectural evidence to discuss a possible shift of Qal'at Ja'bar towards the east either in the Ayyūbid or in the previous period, since elements of continuity and change cannot yet be fully recognised.

The material evidence also provides evidence for the nature of settlement at Qal'at Ja'bar.

The presence of wasters of various fritware types (pls 41–47) indicates that Qal'at Ja'bar was a production centre for fritware up to the Ayyūbid period. This fact has obviously been taken into account in discussing the incidence of the various wares at the site.

The presence of pottery workshops at Qal'at Ja'bar does not merely indicate that the site was a self-contained entity, producing its own pottery, but it has more extensive implications. The nature of the pottery production — in particular fritware — indicates that it was a highly specialised, professional and, very likely, commercial mode of production. It is extremely significant that such an industry developed at a key fortress, where demand for serving vessels, socially of a highly visible character, would be expected.

It is also interesting to note that the analysis of the exposed structures at Qal'at Ja'bar has revealed the presence of a number of workshops whose presence suggests a settlement closer to a self-contained residential fortification, rather than a mere military outpost. The provision of workshops at far more grandiose Islamic palace-settlements is well known: the present observations on production at Qal'at Ja'bar extend the concept of the self-contained residence with its own manufacturing to a site of a lower rank. This has consequences for our understanding of the nature of settlement at prominent fortifications. Whether this was a broadly encountered phenomenon in the Euphrates area, whether it was solely regional and how long it extended over time, are all questions that require further research at sites of similar scale elsewhere.

The increasing proportion of glazed wares over time is also particularly meaningful. To some extent, the fact that Qal'at Ja'bar was a production site may have meant that glazed wares were more easily purchasable and being readily available, were equally readily disposable after damage. The recovery of a dumping area in the course of the excavation of the new sondages (phase III, see pp.28 and 32–33) is particularly significant in this respect. Furthermore, the lack of repair marks on sherds from this deposit and from the unstratified assemblage shows that damaged vessels were discarded rather than retained and

repaired, and even fine fritware was consumed in large quantities at Qal'at Ja'bar.

This evidence can be interpreted in relation to the state of the economy where the increasing demand for glazed wares is taken to mark both prosperity and social ranking in terms of buying power. In this study, glazed ware has been assumed to have been more expensive than unglazed ware, and within the range of glazed wares, fritware is taken to have been at the upper end of the market in terms of cost.[688] Glazed ware at Qal'at Ja'bar was readily available and easy to purchase, and this is reflected in the readiness with which it was disposed of rather than repaired when broken. This is taken to be evidence of a period of relative economic efflorescence, very likely related to the 12th–early 13th centuries in terms of absolute historical chronology.

Considering the material evidence, the establishment of a mint at Qal'at Ja'bar during the reign of al-'Ādil can certainly be regarded as an important element (p.22). On the one hand, this may be regarded as a further attempt to underline the autonomy of the Eastern Territories. On the other hand, it suggests that the need for small change, typical of urban societies, was felt at Qal'at Ja'bar as well. Similar and contemporary issues are attested at al-Ruḥā and at Ḥarrān, which are generally defined as fortified towns. This can therefore be regarded as a further clue to consider Qal'at Ja'bar much more similar to a self-contained urban entity rather than an isolated post-guard. This also implies that our perception of Islamic fortified settlements as frontier forts in the period considered may not be very accurate at present,[689] and it needs re-assessment in the light of archaeological research.

The post-Mongol period

In the new sondages, no evidence of the Mongol assault described in the sources was identified; to the present writer's knowledge, this is also the case in the areas excavated by Zaqzūq.[690] Therefore, excavations do not add information to the picture of this period offered in the sources. However, discontinuity between the pre-Mongol and the post-Mongol period is reflected in the material evidence to which this research devoted more attention, the pottery. As will be discussed below, the pottery in use in this period deeply differs from that in use and in production in the previous period, showing that a shift from a fritware consumer horizon to a glazed-earthenware consumer horizon had taken place, confirming that the characteristics of the area had been significantly modified. As already noted, architectural evidence is at present too little known at the site and in the literature to contribute to this discussion.

The study of the textual evidence has once more drawn attention to the fact that little evidence is available for the Euphrates valley in the period that follows the Mongol invasions. In the light of the material evidence examined, however, Qal'at Ja'bar seems to emerge as one of the few settlements retaining some importance in the area and remaining active into the 14th century.

Textual and material evidence both indicate that the road between Damascus, northern Syria and the Jazīra was still in use, although part of the itinerary may have been significantly modified, especially in relation to al-Raqqa. Qal'at Ja'bar is attested in the sources as one of the stations of the Mamlūk mail service system on the road to Ra's al-'Ain (pp.22–23). Besides this, the presence of imports (*fritware 3*, presumably from Damascus, and Chinese celadon) indicates that the site was connected with major trade routes and markets. Moreover, in the unstratified pottery assemblage, the considerable number of wares related to the 14th century, in particular *graffita ware*, is extremely helpful in assessing the role of the site in a period otherwise scarcely documented in the sources: Qal'at Ja'bar in this period was not an isolated outpost in the north, occupied by a small garrison, but a major settlement, where a large amount of glazed ware was consumed. Further excavations at Qal'at Ja'bar will probably better clarify the characteristics of the site in relation to the Mamlūk period. The new sondages conducted at the site by the present writer showed that certain areas, including that of the new sondages, may not have been as densely settled as others: this appears clear when comparing the quantity of finds related to the Mamlūk period from the unstratified pottery assemblage with that from the new sondages (pp.50–52 and 35).

The study of the distribution patterns of the various glazed wares also allows some general observations to be made, although these cannot be considered conclusive in light of the fact that insufficient comparative material evidence is available as yet for this area and that the chronology offered for polychrome *graffita ware* has still to be regarded as an hypothesis.

In the period considered, the predominant glazed ware seems to have been *graffita ware*. Fritware is also present (*fritware 3*), but its occurrence in the unstratified pottery assemblage has significantly diminished in comparison with the occurrence of fritware in the previous periods, *fritware 1* and *fritware 2*. This has been taken as further evidence of the fact that fritware was no longer produced in western Mesopotamia: *fritware 3* has been interpreted at Qal'at Ja'bar as an import from Damascus (pp.54–55).

On the other hand, polychrome *graffita ware* and related wares occur in remarkable quantities in the unstratified assemblage; this quantitative element, together with the fact that many objects can be regarded as seconds, has been interpreted as evidence of the fact that the production of *graffita ware* and related wares was located in the neighbouring area.

On the basis of the evidence available, it has also been noted that the proportion of glazed wares dated to the post-Mongol period seems to differ significantly from the proportional occurrence observed at other Syrian sites, such as Qaṣr al-Ḥayr al-Sharqī and Ḥamā (pp.60–62).[691] The predominance of polychrome *graffita ware* and related wares in the unstratified pottery assemblage from Qal'at Ja'bar seems to find parallels at Anatolian sites, such as Korukutepe, but also at sites on the Syrian coast, such as Tripolis. It has also been noted that *graffita ware*, in a number of variants, has been developed in the lands of the Byzantine empire; related wares and further developments are attested in the territories which were part of the Latin Kingdoms, but continued after the Crusader period; *graffita ware* developed in many regions of Italy, and continued to be produced for several centuries in a number of different varieties. However, it has been observed that *graffita ware* and related wares found at Qal'at Ja'bar are very similar to those found in southern Anatolia and on the northern Syrian coast, while they significantly differ from the wares in use in the south, in the territories which had once been part of the various Latin Kingdoms.

In light of this, it has thus been suggested that *graffita ware* and related wares may be interpreted as the expression of a Mediterranean *koiné*. On the other hand, the production of fritware seems to shift gradually more to the east than it had in the past. This appears clearly when examining the

decorative vocabulary employed. Blue and black underglaze-decorated fritware (the earliest variety of *fritware 3*) shows a number of elements which had been recognised as related to the Mongol decorative vocabulary; blue and white fritware shows strong similarities with Chinese decorative patterns.[692]

It is tempting to interpret the predominance of *graffita ware* in relation to other glazed wares as a sign of an orientation towards the west in a cultural sense. Different varieties of *graffita ware* occur together with *fritware 3* at various sites of the Mamlūk sultanate (pp.52, 55 and 58–62; figs 152–153); however, it is to the different proportions that attention should be drawn. It is in the light of a numerical predominance of *graffita ware* and related wares that it is suggested that Qal'at Ja'bar seems to show a stronger orientation towards a Byzantine or a Mediterranean culture. As already stated, too little evidence is available at present to treat this observation as conclusive. However, the pottery assemblage studied at Qal'at Ja'bar significantly and undoubtedly changed in the post-Mongol period. Fritware, for a series of reasons, is consumed in much lower quantities while a completely different kind of pottery, *graffita ware*, becomes predominant, as is the case in Anatolia and on the Syrian coast. This fact observed at Qal'at Ja'bar cannot be satisfactorily explained at present; moreover, it cannot be said whether the change observed at Qal'at Ja'bar occurred in the whole region or whether it constitutes an exception.

The abandonment

After the period of Mamlūk restoration, Qal'at Ja'bar seems to have sunk into obscurity. The lack of material evidence from the excavations as well as of textual evidence all seems to suggest that Qal'at Ja'bar was deserted, or was only frequented by nomads; no evidence is available at present concerning the reasons for the abandonment or the period in which it took place. It should be remembered, however, that already in the Mamlūk period the whole area had become frontier land, and most settlements had been deserted. The abandonment of Qal'at Ja'bar, therefore, can probably be regarded as a later stage in this gradual abandonment of an area with little strategic value.

Some evidence related to an Ottoman phase, which may be as late as the beginning of the 20th century, has been provided by the presence of smokers' pipes (pp.67–68). Their very low incidence in both the unstratified assemblage and in the assemblage from the new sondages has been interpreted as an indication that, in the Ottoman period, the site was only occasionally frequented, rather than properly settled or occupied. The limited understanding of this period at Qal'at Ja'bar reflects the fact that very little attention has been paid to the material evidence for the Ottoman period so far and that this span of time is very little understood in the Euphrates valley as well as in the rest of Greater Syria. Moreover, in this period the region was especially frequented by nomads: archaeological evidence related to their use of the land is still, at present, too ephemeral and difficult to assess.

CONVENTIONS USED IN THE APPENDICES

Conventions used in Appendix A

SIZE:[693]
fine sand: 0.02 mm.– 0.06 mm.
medium sand: 0.06 mm.– 0.20 mm.
coarse sand: 0.20 mm.–2 mm.

fine pebbles: 2 mm.–6 mm.
medium pebbles: 6 mm.–20 mm.
coarse pebbles: 20 mm.–60 mm.
cobbles: 60 mm.–200 mm.

Abbreviations used in Appendix B

frg/f: fragment
GL.POT: glazed pottery
Paint PL: painted plaster
SH: shell
SH bival: shell bivalve
UNGL.P.: unglazed pottery
Wstone: worked stone

Abbreviations used in Appendix C and in the graphics

FrN: number of fragments
MFN: minimum form number

FRW1: *fritware 1*
INT FRW: *intermediate fritware*
FRW?: unclassifiable fritware, which could correspond to *intermediate fritware* or to *fritware 2*
FRW 2: *fritware 2*
FRW 3: *fritware 3*
TUR glaze: *turquoise-glazed ware*
TRQ: *turquoise-glazed ware*
Graf ware: *graffita ware*
GRF w: *graffita ware*
Lead glaze: monochrome glazed *slip-ware*
LD gl: monochrome glazed *slip-ware*
Ungl: unglazed pottery
EGSW: early glazed slip-ware

APPENDIX A
DESCRIPTION OF THE STRATIGRAPHIC UNITS

Sondage S1

No.	Short Description	Strat. Position	figs & pls
0	DEPOSIT: modern surface. Very soft, light grey, very fine sand. Frequent large tile and limestone fragments.	Surface.	
1	MASONRY: floor. Made of re-used tile fragments, some complete (29 cm. x 29 cm. x 6 cm.); on bed, one course. Bonding: traces of white plaster.	Surface.	
2	DEPOSIT Loose light very fine sand and clayey sand. Frequent medium and large fragments of tile and limestone. Occasional small fragments of plaster.	Below 0 and 1.	fig. 9
3	MASONRY: floor. 29 cm. x 29 cm. x 5 cm. tiles, one course, on bed. Bonding: mud and white plaster. Lines of tiles laid N–S and E–W.	Below 2. Very likely same as 6.	figs 7, 9
3A	DEPOSIT Finds lying directly on floor 3.	Part of 2.	
3B	MASONRY: coping of floor 3. One 29 cm. x 14 cm. x 6 cm. tile, on edge. Bonding: mud and white plaster. N-S direction.	Bonded to 3. Below 2.	figs 7, 9 pls 23–24
4	DEPOSIT See 2 for description.	Same as 2.	
5	DEPOSIT: fill of 5A. Very soft, brownish grey fine silty sand and tiles (approximately 20 cm. x 20 cm. x 6 cm.), tile fragments (tiles 50% of fill). Frequent fragments of limestone.	Fill of 5A.	
5A	CUT Circular cut. Break of slope, top and base: gradual. Vertical sides, flat base.	Cuts 2, 7, 12, 24, 25, 26, 27.	figs 4–7 pls 23–24
6	MASONRY: floor. Made of 29 cm. x 29 cm. x 6 cm. tiles. On bed, one course. Frequently repaired. Lines of a few tiles laid N–S and E–W. Bonding: silty sand and white plaster.	Abuts 13. Same as 3 (?). Above 7.	figs 7–9 pl. 23
7	DEPOSIT Firm light brown clayey sand and limestone flecks and fragments, frequent tile fragments and tiles (29 cm. x 29 cm. x 6 cm.).	Below 6. Above 14, 18, 12, 9.	figs 8–9
8	DEPOSIT Unnecessary subdivision of 7. See 7 for description.		
9	DEPOSIT Very loose, brownish black ash and organic sediments. Frequent bone, occasional charcoal.	Below 7, 10, 11, 14. Same as 12.	
10	MASONRY: part of foundation wall (?). Two blocks of squared limestone, 40 cm. x 20 cm. x 20 cm. Very likely remains of a foundation wall very similar to 23, but not as clearly *in situ*.	Above 9.	fig. 5
11	MASONRY (?) Group of limestone fragments; size varies from 10 cm. x 10 cm. to 10 cm. x 25 cm. Part of 7. This is probably a subdivision of collapsed stones in 7.	Part of 7. Above 9.	fig. 5
12	DEPOSIT Very soft brownish black ash and organic sediments. Frequent bone, occasional charcoal.	Below 7 and 14. Cut by 5. Above 24.	figs 8–9 pl. 28
13	DEPOSIT: fill of 13A. Loose light brown silty sand and fragments of limestone and tile (15%). Occasional pottery.	Below 2.	fig. 8
13A	CUT Circular cut, vertical sides. Not completely excavated. Break of slope: sharp, lined with tile fragments (6) and wall 102.	Cuts 14. Area around 13A not excavated. Contains 13 and 17. Associated with 6, 102, 104.	figs 7–8

No.	Short Description	Strat. Position	figs & pls
14	MASONRY: floor. Hard light brown clayey sand and clay. Frequent flecks and fragments of limestone.	Below 7. Above 23. Above 15, 18. Associated with 106, 108.	figs 6, 8
15	MASONRY: wall (?). Three mud-tiles (approximately 40 cm. x 40 cm. x 6 cm.), with frequent flecks and small fragments of limestone. On bed, N–S direction, three courses. The third course is very eroded, lines barely detectable.	Below 14. Abuts 23. Abuts 101 (?), 44 (?).	figs 5, 8 pl. 29
16	DEPOSIT Firm brown clayey sand, occasional limestone flecks and fragments.	Above 19. Below 15.	fig. 8
17	DEPOSIT: fill of 13A. Firm light brown, fine sandy silt.	Below 13. Fill of 13A.	
18	DEPOSIT Hard light brown clayey sand and clay. Frequent flecks and fragments of limestone.	Below 12 and 14. Below 106 and 108.	figs 5, 9
19	MASONRY: collapse of wall (?). Group of stones. Four roughly hewn blocks of limestone (40 cm. x 20 cm. x 20 cm.).	Below 16. Area not excavated, in section only.	fig 8.
20	DEPOSIT Same as 18. See 18 for description.		
21	CUT Cut containing a large jar (neck-less and bottom-less). The bottom was filled with limestone granules (113), on top of which was placed a bottom-less cooking pot.	Cuts 7, 12, 24, 25, 26. Associated with 106. Below 7.	figs 6, 9 pls 26, 28
22	DEPOSIT Firm light brown silty sand, occasional small and medium fragments of limestone.	Below 3. Above 106 and 107. Same as 7.	fig 9.
23	MASONRY: foundation wall. Squared blocks of limestone (approximately 40 cm. x 20 cm. x 20 cm.), on bed. Laid in two parallel lines, longer face according to the direction of the wall (E–W). One course only, set in mud mortar. Width: 45 cm.	Below 47. Above 14.	figs 5, 8 pl. 31
24	DEPOSIT Firm light pinkish-brown sandy silt, frequent small and medium fragments of limestone. Frequent pottery and bone.	Below 12. Above 25.	figs 8–9 pls 28–29
25	DEPOSIT Very soft brownish-black ash and organic sediments. Frequent pottery, occasional metal (iron nails) and glass. Frequent bone, occasional charcoal.	Below 24. Above 26. Cut by 21, 5.	figs 8–9 pls 28–29
26	DEPOSIT Very soft reddish-yellow organic sediment. Occasional small and medium fragments of limestone. Frequent pottery and occasional glass.	Below 26. Above 27 and 28.	figs 8–9 pls 28–29
27	DEPOSIT Very soft brownish-black ash and organic sediments. Occasional glass and pottery.	Below 26. Above 29.	figs 4, 8–9 pls 28–29
28	DEPOSIT Firm brownish-black ash, organic sediments and sandy silt.	Below 26. Same as 27, in the eastern part of the trench, below 19.	fig. 8 pls. 29
29	DEPOSIT Firm dark brown fine clayey sand and clay. Moderate medium and large fragments of limestone; frequent fragments of mud-brick and baked brick tiles.	Below 27 and 28. Above 30, 31, 34, 35, 36. Above 32. Same as 32 (?).	figs 8–9 pls 28–29
30	MASONRY: wall. See 30A (collapsed mud-brick) and 30B (limestone blocks/rubble and mud).		figs 3, 9
30A	MASONRY: collapse *in situ*. Collapse of a mud-brick wall. No bricks were found in their original position.	Above 30B.	pl. 27
30B	MASONRY: foundation wall. Foundation of wall 30. Made of mud and roughly hewn blocks of limestone (from 10 cm. x 10 cm. x 20 cm. to 30 cm. x 20 cm. x 10 cm.), coursed. N-S direction. No facing. Bonding: mud mortar. Width: 80 cm.	Below 30A. Above 40. Abutted by 34.	fig. 9 pls 28–29

No.	Short Description	Strat. Position	figs & pls
31	MASONRY: collapse. Group of tiles and limestone (rubble and roughly hewn blocks), only visible in the southern baulk of the sondage.	Not entirely excavated. Below 29.	fig. 9 pl. 28
32	DEPOSIT Firm light brown clayey sand and clay. Moderate limestone flecks and occasional large limestone fragments.	Above 34. Below 31. Same as 29 (?).	fig. 9 pl. 28
33	DEPOSIT Firm light brown fine sandy silt and clay.	Below 34. Above 38.	fig. 9 pl. 28
34	MASONRY: floor. Made of grey mortar (coarse sand, fine and medium pebbles). In the northern part, this floor is a mixture of grey mortar (as described) and mud.	Below 32. Above 33. Same as 42.	figs 3, 9 pl. 28
35	DEPOSIT Compact dark brown clayey sand and mud, frequent blocks of limestone (the size varies between 10 cm. x 10 cm. x 20 cm. and 20 cm. x 20 cm. x 10 cm.) and tiles. Area not fully excavated; collapse from another wall (?).	Below 29.	figs 3, 8
36	MASONRY: wall. Structure made of packed mud, with frequent small and large fragments of limestone. S-E direction. Area not excavated further.	Below 46. Abuts 30.	figs 3, 8
37	DEPOSIT Firm light brown fine sandy silt and clay. In the northern part of sondage S1.	Below 33. Above 39.	
38	DEPOSIT Strongly cemented medium pebbles (6–20 mm.), fragments of limestone (2-60 mm.) and fine light pinkish brown sandy silt.	Below 33. Above 39.	fig. 9 pl. 28
39	MASONRY: floor. Very hard grey mortar (sand and medium and large pebbles).	Below 45. Above 40. Below wall 30.	fig. 9 pl. 28
40	DEPOSIT Hard, brown, very fine sandy silt and clay. Frequent pottery (20–50 mm.). Moderate fragments of limestone (6–20 mm.)	Below 39. Above 41 (bedrock)	fig. 9 pl. 28
41	NATURAL BEDROCK		fig. 9
42	MASONRY: floor. Same as 34, east of wall 30. See 34 for description.	Same as 34.	fig. 8
43	MASONRY: floor. Tiled floor (5 tile fragments) between 103 and 104. Same as 1.	Same as 1.	
44	MASONRY: collapse. Three squared blocks of limestone (approximately 40 cm. x 20 cm. x 20 cm.), on bed. Two are laid parallel, with the longer face E–W orientated, and one N–S orientated. Destruction of foundation wall 101 (?).	Part of 7. Above 12.	fig. 9 pl. 28
45	DEPOSIT Hard greyish brown sandy silt, frequent limestone flecks and fragments. Frequent pottery fragments (maximum size 20–55 mm.).	Below 38. Above 39.	fig. 9 pl. 28
46	MASONRY: interface between deposit 29 and wall 36. It may possibly correspond to 30A.	Above 36. Same as 30A (?).	
47	MASONRY: interface between floor 14 and wall 23.	Above 23.	
48	MASONRY: interface between floor 14 and wall 101.	Above 101.	
49	MASONRY Structure made of large blocks of squared stones (probably limestone), of different sizes. Their height varies between 30 cm. and 20 cm. No bonding material was found. Function unclear.	Below 2. Abutted by 3.	fig. 7 pls 23–24
101	MASONRY: foundation wall. Squared blocks of limestone (approximately 40 cm. x 20 cm. x 20 cm.), on bed. Longer face follows the orientation of the wall (N–S). One course only, set in mud. Width (?). Similar to 23 (slightly higher level).	Below 48 and 14. Associated with 18. Abutted by 15. Above 12. Same as 23 (?).	fig. 5
102	MASONRY: wall (?). Tile fragments and limestone rubble set in greyish mortar (coarse sand and *juṣṣ*). Lining of the eastern edge of cut 13A. Continuation of 104 (?).	Associated with 104. Area not completely excavated.	fig. 7

No.	Short Description	Strat. Position	figs & pls
103	MASONRY: wall. Roughly hewn blocks of limestone (varying approximately between 40 cm. x 20 cm. x 20 cm. and 20 cm. x 20 cm. x 20 cm.). Longer face E–W direction; direction of the wall N–S. Built in courses: two courses only. With foundation (103A). No bonding material found. Width: 40 cm.	Associated with 105. Above 7.	figs 7–8 pl. 29
103A	MASONRY: foundation wall of 103. Roughly hewn blocks of limestone (size varies approximately between 40 cm. x 20 cm. x 20 cm. and 10 cm. x 10 cm. x 20 cm.). Built in courses. N–S direction. Set in clayey sand.	Associated with 105. Above 7.	figs 7–8 pl. 29
104	MASONRY: wall. Roughly hewn blocks of limestone (approximately 20 cm. x 20 cm. x 20 cm.). N–S direction. One course only. No bonding material found.	Associated with 103. Above 7.	fig. 8
106	MASONRY: floor. Compact greyish plaster, with coarse sand, fine pebbles and flecks of limestone.	Associated with 21. Below 22 and 107. Associated with 14/18.	figs 6, 9
107	MASONRY: floor. Two blocks of well finished stone (40 cm. x 40 cm. x 6 cm.), set above a layer of greyish plaster (106).	Abuts the wall of the mosque. Below 22. Above 106.	fig. 9
108	MASONRY: floor. Two tiles (29 cm. x 29 cm. x 6 cm.) on bed, set in mud.	Below 14. Above 18.	fig. 6, 8
109	MASONRY: interface between surface (0) and wall 102.	Above 102.	
110	MASONRY: interface between surface (0) and wall 103.	Above 103.	
111	MASONRY: interface between surface (0) and wall 104.	Above 104.	
112	MASONRY: interface between floor 14 and wall 10.	Above 10.	
113	DEPOSIT: fill of 21. Limestone granules.	Part of 21. Below 22.	pl. 25

Sondage S2

50	DEPOSIT: surface. Very soft light grey very fine sand. Frequent large tile and limestone fragments.	Above 56. Same as 73.	fig. 10
51	MASONRY: floor. Made of re-used tile fragments, occasionally complete (29 cm. x 29 cm. x 6 cm.). On bed, one course. Bonding: traces of white plaster.	Associated with 50. Probably same as 1.	fig. 7
52	CUT Circular cut, gradual slope at top, concave sides. Not entirely excavated. Robber trench (?).	Excavation not continued in this area. Associated with 50.	
53	MASONRY: wall (?). Roughly hewn blocks of limestone (size varies between 40 cm. x 20 cm. x 20 cm. and 20 cm. x 20 cm. x 20 cm), re-used. One course only. No bonding material found. E–W direction. 53A: east of 56. 53B: west of 56.	Similar to 103, 104. Abuts 56. Below 80.	figs 7, 10
54	MASONRY: floor. Tiles (approximately 29 cm. x 29 cm. x 6 cm.), on bed. Bonding: silty sand and white plaster. N–S orientation.	Below 50. Same as 6.	fig. 7 pl. 30
55	MASONRY: floor. See 54 (unnecessary subdivision).		
56	MASONRY: wall. Squared blocks of limestone (20 cm. x 30 cm. x 40 cm. approximately). One course, faces parallel to the orientation of the wall, N–S. Bonding: grey mortar, sand with fine pebbles. Width 50 cm.	Associated with floor 58. Associated with 53A and 53B.	figs 7, 10 pl. 30
57	DEPOSIT: surface. Loose grey fine sand and limestone fragments (maximum size 20 cm. x 10 cm. x 10 cm.).	Above 58. Same as 50, but in the northern part of the sondage.	

No.	Short Description	Strat. Position	figs & pls
58	MASONRY: floor. Compact grey mortar, limestone flecks, and fine and medium pebbles.	Below 50 and 73. Associated with 56.	figs 7, 10 pl. 30
59	DEPOSIT Stiff dark brown sandy silt, frequent limestone flecks and medium fragments.	Below 58. Above 64 and 66.	fig. 10
60	MASONRY: floor. Same as 6, sondage S1. See 6 for a description.		
62	MASONRY Only upper surface detected. Mud tile, bonded with grey mortar. In the northern part of the trench. Not visible in the section. Area not fully excavated.	Associated with 58 (?).	
63A	MASONRY: round structure. Roughly hewn limestone blocks (approximately 30 cm. x 20 cm. x 20 cm.); built in courses, two courses. Bonded with mud. Not completely excavated.	Below 58. Contains 63.	
63	DEPOSIT: fill of 63A. Light brown firm sandy silt. Occasional pottery.	Fill of 63A.	
64	DEPOSIT Compact mud and grey plaster, with flecks and medium fragments of limestone; occasional fine pebbles.	Below 59. Above 65 and 66.	fig. 10
65	DEPOSIT Hard dark brown sandy clay.	Below 64 and 59. Above 67A.	fig. 10
66	DEPOSIT Soft brown sandy silt, frequent ash. Probably a subdivision of 65.	Below 59.	fig. 10
67A	MASONRY (?): floor. Stiff fine grey clayey silt and ash.	Below 65.	fig. 10
67	DEPOSIT. Soft dark brown sandy and clayey silt. Frequent lumps of clay and limestone in flecks and small/medium fragments.	Below 67 A. Above 74.	fig. 10
68	DEPOSIT Soft brown sandy silt with frequent limestone fragments, medium and large, and moderate clay lumps.	Below 74 and 75.	
69	DEPOSIT Soft brown sandy silt, with frequent limestone flecks and clay lumps; occasional ash. Probably same as 68, but in the southern part of the sondage.	Below 74.	fig. 10
70	DEPOSIT See 50 (for checking)	Above 58.	
71	DEPOSIT: surface. Same as 50.		
72	DEPOSIT See 59 (for checking)	Below 58.	
73	DEPOSIT Finds lying on floor 58.	Above 58.	fig. 10
74	MASONRY: floor. Firm mud, fine and medium pebbles and limestone fragments.	Above 68 and 69.	fig. 10
75	MASONRY: wall. Roughly hewn limestone rubble (approximately 20 cm. x 10 cm. x 10 cm.); shape: spherical, subangular. Bonded with mud. N–S orientation. Width 65 cm.	Same as 23 (sondage S1). Below 67A and 67. Not entirely excavated.	figs 5, 10
76	MASONRY: foundation wall. Squared blocks of limestone (approximately 40 cm. x 20 cm. x 20 cm.). On bed. Laid in two parallel lines; longer face follows the direction of the wall, E–W. Set in clayey silt. Width 45 cm.	Same as 23. Below 67A and 67.	fig. 5
77	MASONRY: interface between floor 67A and wall 75.	Above 75.	
78	MASONRY: interface between surface and wall 53.	Above 76.	
79	MASONRY: interface between surface and wall 56.	Above 79.	

APPENDIX B
QUANTITATIVE ANALYSIS OF THE FINDS

Sondage S1

PHASE	UNIT	GL.PLOT.	UNGL.P.	GLASS	METAL	COIN	BONE	OTHER
I	40	4 [3]	142 [13]					
IIb	45	16 [7]	80 [15]	1 frg				
	37	1 [1]	17 [3]		1 Fe frg			
	33	4 [3]	25 [3]	1 frg				
IIa	35	1 [1]	25 [5]	1 lamp bs	1 Fe frg			
	32	7 [6]	75 [6]	1 frg	2 Fe nail			1 SHbival
	29	45 [20]	214 [38]	3 frg 4 bangle	3 Fe nail 1 dec. nail	1		1 Stucco f
IIIc	28	1 [1]	12 [2]					1 Wstone
	27	6 [4]	22 [3]	1 bangle			¼ bag	
IIIb	26	15 [8]	75 [15]	2 bangle			2 bag	
	25	33 [18]	81 [18]	6 frg 1 rim	1 Fe nail		3 bag	
IIIa	24	39 [16]	84 [13]	1 frg				
	12	15 [8]	75 [13]	3 frg 1 base 1 bangle	1 Fe? Slag 1 Fe nail	4	3 bag	
	9	30 [12]	102 [21]	2 frag 2 base 3 rim	1 Fe nail 1 Ag ring	2	1 bag	
IV	21	—	2 [2]					
	20	12 [5]	14 [9]		3 Cu frg			
	18	4 [4]	3 [1]					
	14	10 [7]	40 [6]			1		
V	8	6 [3]	15 [3]	1 frg 1 rim 1 bead	1 Fe plate			
	7	37 [15]	109 [18]		4 Fe frg 2 Fe nail 1 ring		4 frg	
VI	17	7 [4]	1 [1]	2 frg				
	13	3 [3]	8 [1]	1 bangle				
	5	2 [2]	37 [6]		11 Fe nail frg			1 SH
	4	8 [5]	5 [2]					
	3A	2 [2]	12 [3]	1 frg	1 Fe nail 1 Cu frg	1		1 SHbival
	2	32 [10]	119 [10]		2 Cu frg 1 bangle	2	3 frg	1 pipe
	0	17 [11]	66 [10]	3 frg 2 bangle	4 Fe nail 2 Cu frg			1 stilt

Sondage S2

PHASE	UNIT	GL.POT.	UNGL.P.	GLASS	METAL	COIN	BONE	OTHER
III	69	7 [6]	2 [2]					
	68	12 [7]	51 [15]	1 rim 1 stick		1	½ bag	
IVa	67	18 [11]	81 [10]		1 Fe? blade			
V	72	16 [7]	40 [4]	1 frg				
	66	8 [5]	12 [2]	1 frg				
	65	2 [2]	17 [2]		1 Fe nail	1		
	63	—	11 [1]					
	59	47 [14]	198 [27]	7 frg 1 rim 1 bangle	4 Fe nail 1 bangle		1 bag	1 Paint PL
VI	73	5 [4]	35 [10]					1 pipe
	57	3 [3]	11 [3]					
	50	20 [11]	78 [11]	1 frg	1 Fe nail 1 ? frg			1 pipe

APPENDIX C
QUANTITATIVE ANALYSIS OF THE POTTERY FINDS

Sondage S1

PHASE	UNIT	FRW 1	INT FRW	FRW ? mono	FRW ? lustre	FRW 2	TUR glaze	Graf ware	Lead glaze	Ungl W1+ W2	Ungl moul W2	Ungl W5	Ungl W3	Ungl W4	Other
I	40	1					3			104		37			1 W6
		1					2			8		4			1 W6
	FrN (146)	1					3			104		37			1 W6
	%	0.7					2.0			71.2		25.3			0.7 W6
	MFN [16]	1					2			8		4			1 W6
	%	6.2					12.5			50.0		25.0			6.2 W6
II b	45	3					12			41		33			6 W6 1 *EGSW*
		2					4			11		3			1 W6 1 *EGSW*
	37						1			6		11			
							1			1		2			
	33	2					2			17		8			
		2					1			2		1			
	FrN (143)	5					15			64		52			6w6/4.2 1*EGSW*/0.7
	%	3.5					10.5			44.7		36.4			
	MFN [32]	4					6			14		6			1w6/3.1 1*EGSW*/3.1
	%	12.5					18.7			43.7		18.7			
II a	35	1								18		7			
		1								3		2			
	32	1	1	4			1			54		21			
		1	1	3			1			4		2			
	29	21	6	5	1		9			178	4	25	4		3 W6 2 *EGSW* 1 ?
		9	1	2	1		5			28	3	4	2		1 W6 1 *EGSW* 1 ?
	FrN (367)	23	7	9	1		10			250	4	53	4		3w6/0.8/2*EGSW*/0.5 1?/0.3
	%	6.3	1.9	2.4	0.3		2.7			68.1	1.1	14.4	1.1		
	MFN [76]	11	2	5	1		6			35	3	8	2		1w6/1.3/1*EGSW*/1.3 1?/1.3
	%	14.5	2.6	6.6	1.3		7.9			46.0	3.9	10.5	2.6		
III c	28						1			12					
							1			2					
	27	3		1			2			20		1	1		
		2		1			1			1		1	1		
	FrN (41)	3		1			3			32		1	1		
	%	7.3		2.4			7.3			78.0		2.4	2.4		
	MFN [10]	2		1			2			3		1	1		
	%	20.0		10.0			20.0			30.0		10.0	10.0		
III b	26	3	7	4			1			67	1	2	3		2 W6
		2	3	2			1			10	1	1	2		1 W6
	25	7	4	12	4		5			65		7	9		1 *EGSW*
		4	3	6	2		2			15		1	2		1 *EGSW*
	FrN (204)	10	11	16	4		6			132	1	9	12		2w6/1.0 1*EGSW*/0.5
	%	4.9	5.4	7.8	2.0		2.9			64.7	0.5	4.4	5.9		
	MFN [59]	6	6	8	2		3			25	1	2	4		1w6/1.7 1*EGSW*/1.7
	%	10.2	10.2	13.5	3.4		5.1			42.4	1.7	3.4	6.8		
III a	24	11	3	17	3		3			71	1	2	3		6 W6 2 *EGSW* 1 paint.
		6	2	4	1		1			8	1	1	1		1 W6 2 *EGSW* 1 paint.
	12	1	9	2			3			70	1		4		
		1	4	2			1			10	1		2		

PHASE	UNIT	FRW 1	INT FRW	FRW ? mono	FRW ? lustre	FRW 2	TUR glaze	Graf ware	Lead glaze	Ungl W1+ W2	Ungl moul W2	Ungl W5	Ungl W3	Ungl W4	Other
	9	1	3	22	3		1			96		1	3	2	
		1	2	6	2		1			18		1	1	1	
	FrN (345)	13	15	41	6		7			237	2	3	10	2	6w6/1.7 2egsw/
	%	3.8	4.3	11.9	1.7		2.0			68.7	0.6	0.9	2.9	0.6	0.6 1 p./ 0.3
	MFN [83]	8	8	12	3		3			36	2	2	4	1	1w6/1.2/2egs w/
	%	9.6	9.6	14.4	3.6		3.6			43.4	2.4	2.4	4.8	1.2	2.4 1p./ 1.2
III tot.	**FrN** (591)	26	26	59	10		16			401	3	13	23	2	8w6/1.3/3egs w/
	%	4.4	4.4	10.0	1.7		2.7			67.8	0.5	2.2	3.9	0.3	0.5 1 p./ 0.2
	MFN [152]	16	14	21	5		8			64	3	5	9	1	2w6/1.3/3egs w/
	%	10.5	9.2	13.8	3.3		5.3			42.0	2.0	3.3	5.9	0.7	2.0 1p./ 0.7
IV	**21**									1				1	
										1				1	
	20		4	6		2				9	1			2	2 W6
			1	2		2				6	1			1	1 W6
	18			2				1	1	3					
				2				1	1	1					
	14	2	1	6		1				38				2	
		2	1	3		1				5				1	
	FrN (85)	2	5	14		3		1	1	51	1			5	2 W6
	%	2.3	5.9	16.5		3.5		1.2	1.2	60.0	1.2			5.9	2.3 W6
	MFN [34]	2	2	7		3		1	1	13	1			3	1 W6
	%	5.9	5.9	20.6		8.8		2.9	2.9	38.2	2.9			8.8	2.9 W6
V	**8**	1		3			2			12				3	
		1		1			1			1				2	
	7	2	1	19	1	4	3	2	4	101	3			5	1FRW3
		1	1	3	1	3	2	1	2	15	1			2	1FRW3
	FrN (167)	3	1	22	1	4	5	2	4	113	3			8	1FRW3
	%	1.8	0.6	13.2	0.6	2.4	3.0	1.2	2.4	67.7	1.8			4.8	0.6frw3
	MFN [39]	2	1	4	1	3	3	1	2	16	1			4	1FRW3
	%	5.1	2.6	10.2	2.6	7.7	7.7	2.6	5.1	41.0	2.6			10.2	2.6frw3
VI	**17**			5		2				1					
				2		2				1					
	13						1	1	1	8					
							1	1	1	1					
	5			1			1			32	1			4	
				1			1			4	1			1	
	4	1	1	3		1	1		1	4	1				
			1	1		1	1		1	1	1				
	3A						1		1	11				1	
							1		1	2				1	
	2	2	2	11	1	7	5	1	3	113	2			4	1 pipe
		1	1	1	1	2	2	1	1	8	1			1	1 pipe
	0	4	1	5		1	1	1	4	65				1	
		4	1	1		1	1	1	2	9				1	
	FrN (320)	7	4	25	1	11	10	3	10	234	4			10	1 pipe
	%	2.2	1.2	7.8	0.3	3.4	3.1	0.9	3.1	73.1	1.2			3.1	0.3pipe
	MFN [71]	5	3	6	1	6	7	3	6	26	3			4	1 pipe
	%	7.0	4.2	8.4	1.4	8.4	9.8	4.2	8.4	36.6	4.2			5.6	1.4pipe
TOT	**FrN 1819**	67	43	129	13	18	59	6	15	1217	15	155	27	25	20 W6
	%	3.7	2.4	7.1	0.7	1.0	3.2	0.3	0.8	66.9	0.8	8.5	1.5	1.4	/1.1 6*EGSW*/0.3 .....1FRW3 1pipe 1paint. 1 ? =4: 0.2

PHASE	UNIT	FRW 1	INT FRW	FRW ? mono	FRW ? lustre	FRW 2	TURg laze	Graf ware	Lead glaze	Ungl W1+ W2	Ungl moul W2	Ungl W5	Ungl W3	Ungl W4	Other
	MFN [420]	41	22	43	8	12	32	5	9	176	11	23	11	12	6w6/1.4
	%	9.8	5.2	10.2	1.9	2.9	7.6	1.2	2.1	41.9	2.6	5.5	2.6	2.9	*5EGSW*/1.2 ..... 1FRW3 1 pipe 1 paint. 1? =4: 0.9

Sondage S2

III	**69**	2	2	1			2			1				1	
		2	1	1			2			1				1	
	68	2	3	3	1		3			41	1	5	3	1	
		2	1	1	1		2			10	1	2	1	1	
	FrN (72)	4	5	4	1		5			42	1	5	3	2	
	%	5.6	6.9	5.6	1.4		6.9			58.3	1.4	6.9	4.2	2.8	
	MFN [30]	4	2	2	1		4			11	1	2	1	2	
	%	13.3	6.7	6.7	3.3		13.3			36.7	3.3	6.7	3.3	6.7	
IV a	**67**	2	1	3	1	10	1			71	1			1	8 W6
		2	1	1	1	5	1			7	1			1	1 W6
	FrN (99)	2	1	3	1	10	1			71	1			1	8 W6
	%	2.0	1.0	3.0	1.0	10.1	1.0			71.7	1.0			1.0	8.1 W6
	MFN [21]	2	1	1	1	5	1			7	1			1	1 W6
	%	9.5	4.8	4.8	4.8	23.8	4.8			33.3	4.8			4.8	4.8 W6
V	**72**			2		9	5			39		1			
				2		3	2			3		1			
	66			1	2	3	1		1	11	1				
				1	1	1	1		1	1	1				
	65		1			1				16					1 W6
			1			1				1					1 W6
	63									11					
										1					
	59	2	11	9		22	1	1	1	189	5			2	2 W6
		2	1	4		4	1	1	1	22	2			2	1 W6
	FrN (351)	2	12	12	2	35	7	1	2	266	6	1		2	3 W6
	%	0.6	3.4	3.4	0.6	10.0	2.0	0.3	0.6	75.8	1.7	0.3		0.6	0.9 W6
	MFN [63]	2	2	7	1	9	4	1	2	28	3	1		2	1 W6
	%	3.2	3.2	11.1	1.6	14.3	6.3	1.6	3.2	44.4	4.8	1.6		3.2	1.6 W6
VI	**73**		1	2		1	1			33					2 W6 1 pipe
			1	1		1	1			9					1 W6 1 pipe
	57				1	1	1			10				1	
					1	1	1			2				1	
	50		1	4		8	2	3	1	62	7			9	1FRW3 1 pipe
			1	3		3	1	1	1	8	2			1	1FRW3 1 pipe
	FrN (154)		2	6	1	10	4	3	1	105	7			10	2w6/1.3 1f3/ 0.6
	%		1.3	3.9	0.6	6.4	2.6	1.9	0.6	68.2	4.5			6.4	2 pp/1.3
	MFN [44]		2	4	1	5	3	1	1	19	2			2	1w6/2.3 1f3/2.3
	%		4.5	9.1	2.3	11.4	6.8	2.3	2.3	43.2	4.5			4.5	2 pp/4.5
TOT	**FrN (674)**	6	20	25	5	55	17	4	3	484	15	6	3	15	13 W6
	%	0.9	3.0	3.7	0.7	8.2	2.5	0.6	0.4	71.8	2.2	0.9	0.4	2.2	/ 1.9 1f3/ 0.1
	MFN [158]	8	7	14	4	19	12	2	3	65	7	3	1	7	2pp/ 0.3 3w6/1.9
	%	5.1	4.4	8.9	2.5	12.0	7.6	1.3	1.9	41.1	4.4	1.9	0.6	4.4	1f3/ 0.6 2pp/ 1.3

APPENDIX D
RESULTS OF LABORATORY ANALYSIS ON FRITWARE

The Tables illustrated in this appendix are entirely based on an archaeometric study presented by the present writer and Prof. R. Franchi at the 1994 World Ceramic Congress,[694] amended for the purpose of this study. The study was intended to define the chemical characteristics of Syrian fritware production on the basis of fritware sherds excavated at Qal'at Ja'bar, and to explain the visual differences detected among the fritwares identified at the site by reference to laboratory analysis (pp.82–131).

THE FOLLOWING SHERDS WERE ANALYSED:

Fritware 1/Intermediate fritware (*)
fig. nos: **49 e** (205); **46 b** (972); **44 o** (219); **46 g** (220); **53 i** (227*); **49 c** (228); **52 i** (900); **53 k** (226*); **50 f** (907); **53 e** (1498*).

Fritware 2
fig. nos: **66 j** (717); **67 j** (277); **69 w** (859); **62 j** (810); **70 h** (869); **61 f** (832).

Fritware 3
fig. nos: **74 l** (888); **71 h** (725); **73 d** (280); **73 k** (131).

Intermediate fritware ?
fig. nos: **59 k** (830); **53 h** (229a).

TABLE 1: BODY

Samp		SiO_2	K_2O	Na_2O	Fe_2O_3	CaO	MgO	Al_2O_3
FRW1 and INT.FRW (*)								
fig. 49e	205	88.11	1.45	2.52	—	0.89	0.25	6.89
fig.46 b	972	83.50	1.57	4.60	0.38	1.83	0.86	7.45
fig.44 o	219	84.50	1.24	3.19	—	0.90	0.32	7.53
not ill.	262	86.64	1.95	2.45	1.00	1.32	0.95	5.83
fig.46 g	220	88.46	0.92	2.42	—	1.33	0.88	5.97
fig.53 I	227*	86.85	1.31	2.43	0.69	1.33	0.97	5.51
fig. 49 c	228	87.13	1.59	3.38	0.54	1.40	0.52	5.43
fig.52.i	800	84.39	1.94	2.93	1.29	3.56	0.92	5.17
fig.53.k	226*	84.75	1.74	3.53	—	2.47	0.95	6.37
fig.50 f	907	81.64	2.38	3.94	1.12	2.99	1.57	6.15
fig.53.e	1498*	86.60	1.59	3.21	1.13	2.01	0.62	5.84
FRW2								
fig. 66 j	717	85.36	0.74	3.36	1.49	3.88	2.00	2.71
fig. 67 j	277	85.84	0.53	3.25	1.11	3.28	2.08	2.08
fig. 69 w	859	89.64	0.49	1.65	0.71	3.58	1.71	2.32
fig. 62 j	810	85.22	0.85	2.78	1.37	3.95	1.84	3.00
fig. 70 h	869	83.51	0.96	2.97	1.78	4.72	2.49	3.18
fig. 61 f	832	86.85	1.04	2.29	1.07	3.33	1.85	3.68
not ill.	264	81.88	1.28	3.78	1.01	4.20	3.74	3.77
FRW3								
fig.74 l	888	84.40	0.75	2.04	0.68	7.80	2.53	1.50
fig. 71 h	725	84.22	0.66	2.20	0.56	8.13	2.18	1.89
fig. 73 d	280	88.64	0.61	1.61	0.46	6.42	1.61	1.55
fig. 73 k	131	84.32	0.69	2.49	0.32	7.57	2.30	1.84
INT FRW?								
fig. 59 k	830	88.50	0.97	1.55	1.55	4.05	—	2.00
fig.53 h	229a	84.77	0.91	3.21	1.23	3.01	1.63	3.84

TABLE 2: GLAZE

Samp		SiO_2	Na_2O	K_2O	Fe_2O_3	Al_2O_3	CaO	MgO	CuO	CoO	PbO	MnO	Ag_2O	S
Frw 1 and INT FRW (*)														
49 e	205	51.33	12.97	1.07	1.64	1.75	2.85	1.25	0.75	0.81	24.78	—	—	—
46 b	972	60.04	10.78	1.46	0.60	2.37	3.63	1.23	1.92	—	18.28	—	—	—
44 o	219	54.71	11.78	1.85	4.39	2.34	3.85	1.53	—	0.40	18.95	—	—	—
not ill.	262	53.94	13.43	1.16	4.68	1.72	3.40	1.57	1.56	0.35	17.90	—	—	—
46 g	220	52.48	8.88	0.86	0.92	2.02	3.29	1.08	2.62	—	26.95	—	—	—
49 c	228	57.83	12.17	1.75	0.80	1.32	2.92	2.25	—	0.87	20.12	—	—	—
53 i	227*	51.32	9.87	2.81	—	0.90	3.34	1.80	0.68	—	28.81	—	—	—
	227*	49.11	10.42	2.84	0.49	1.19	3.29	2.00	—	0.37	29.19	—	—	—
52 i	900	58.68	13.97	1.26	0.96	1.42	3.27	2.16	—	—	18.09	—	—	—
53 k	226*	52.16	12.76	0.91	—	1.16	4.08	2.71	1.20	—	24.97	—	—	—
	226*	54.26	13.64	0.95	0.74	1.40	3.47	2.81	—	—	22.24	—	—	—
	226*	55.06	11.30	2.49	1.51	1.54	3.47	2.81	—	1.45	22.74	—	—	—
50 f	907	51.93	10.64	3.15	0.41	1.37	3.07	1.76	—	0.70	28.00	—	—	—
	907	52.89	10.54	2.15	0.76	2.07	3.31	2.48	2.16	—	24.44	—	—	—
53 e	1498*	39.06	1.52	2.60	3.37	6.20	1.77	0.70	—	—	22.34	22.02	—	—
	1498*	53.14	13.10	1.29	1.10	2.20	2.37	2.44	0.35	0.40	22.64	—	—	—
FRW 2														
66 j	717	68.00	17.52	1.18	1.27	2.08	4.47	2.11	2.87	—	—	—	—	—
67 j	277	66.80	18.16	1.08	0.95	2.01	5.68	3.13	1.89	—	—	—	—	—
69 w	859	67.16	18.06	1.22	1.12	1.88	7.94	2.62	1.00	—	—	—	—	—
62 j	810	69.07	16.45	1.75	0.52	1.15	4.51	2.35	—	—	—	4.94	—	—
	810	70.18	12.75	1.68	1.83	2.35	6.45	3.67	0.67	—	—	—	—	—
70 h	869	59.40	6.65	0.67	3.57	2.05	15.75	11.87	—	—	—	—	—	—
	869	54.81	15.68	1.14	7.15	6.83	5.48	7.10	1.15	0.68	—	—	—	—
61 f	832	60.79	17.12	1.75	1.08	2.97	5.36	3.07	—	0.66	—	6.10	—	—
	832(A)	67.03	15.09	2.73	1.65	2.32	5.89	4.40	—	0.85	—	—	—	—
	832(B)	33.15	4.83	2.60	3.22	1.57	5.94	2.32	2.82	—	—	—	41.31	2.06
	832	65.30	12.58	2.81	2.00	1.03	5.57	3.79	3.23	0.80	—	—	3.00	—
not ill.	264	63.64	19.50	2.00	4.40	1.52	4.51	2.87	—	0.87	—	—	—	—
	264	65.48	19.26	2.08	3.77	1.45	4.92	2.95	—	—	—	—	—	—
FRW 3														
74 l	888A	66.98	16.06	2.63	0.36	7.47	4.67	1.81	—	—	—	—	—	—
	888B	88.58	2.65	2.47	0.45	1.20	1.43	3.08	1.25	—	—	—	—	—
	888C	88.16	0.45	1.71	1.63	0.56	0.90	6.56	—	—	—	—	—	—
71 h	725	66.98	14.65	2.56	2.37	7.78	2.61	1.27	2.64	—	—	—	—	—
	725	58.86	7.20	0.67	3.57	15.75	11.87	2.05	—	—	—	—	—	—
73 d	280	67.67	15.04	2.63	0.45	1.99	6.78	3.40	1.65	—	—	—	—	—
	280	65.09	17.06	2.31	0.45	2.31	5.83	4.57	1.13	0.80	—	—	—	—
73 k	131	66.19	17.26	3.37	0.91	1.18	6.94	5.17	—	—	—	—	—	—
	131	64.81	17.06	2.59	0.73	2.31	5.83	4.57	1.13	0.64	—	—	—	—
INT FRW?														
59 k	830	63.94	13.07	2.19	1.25	2.10	5.06	1.95	1.21	—	3.60	5.09	—	—
53 h	229A	62.94	16.61	2.28	4.37	2.36	4.24	2.18	1.00	0.40	3.60	—	—	—
	229A	67.08	18.19	2.11	0.81	1.81	3.90	2.01	—	—	3.87	—	—	—

APPENDIX E
ALPHABETICAL SEQUENCE OF GLAZED WARES

A: *fritware 1*, colourless glaze, fig. 42; fig. 43 a–i, l–p (42: A1, A1a, A2, A6, A12, A5, A3, A7, A17, A11; 43: A5, A1b, A10, A9).

B: *fritware 1*, turquoise glaze, fig. 43 j–k, q–t; fig. 44 h–i (43: B1, B4, B5, B3; 44: B3, B2, B7, B6, B8, B9).

D: *fritware 1*, cobalt blue glaze, fig. 44 m–o (D1, D2).

E: *fritware 1*, incised, carved, pierced decoration and colourless glaze, fig. 45 (E1, E2, E8, E3, E4, E).

F: *fritware 1*, incised, carved decoration and turquoise glaze, fig. 46; fig. 47 a–b, g–h (46: F2, F1, F3, F4, F; 47: F).

G: *fritware 1*, carved, pierced decoration and cobalt blue glaze, fig. 47 c (G1).

H: *fritware 1*, blue decoration, colourless glaze, fig. 47 d–f, j–p; fig. 48 (47: H1, H2, H12, H4, H3, H6, H5; 48: H5, H7, H10, H8, H11).

I: *fritware 1*, aubergine or black glaze, fig. 44 j–l (I1, I4).

J: *fritware 1*, lustre decoration on colourless glaze, fig. 50 g–j; fig. 51 (50: J3, J4, J1, J6; 51: J2, J7, J5, J8, J).

K: *fritware 1*, lustre decoration on aubergine or black glaze, fig. 52 j–k, m (K1, K).

L: *fritware 1*, lustre decoration on cobalt blue glaze, fig. 52 d–h (L1, L3, L).

M: *fritware 1*, lustre decoration on cobalt blue glaze, fig. 52 a–c (M1, M3, M2).

N: *fritware 3*, turquoise, blue and black painted decoration under colourless glaze, figs 72–73; 74 a–f (72: N, N2, N1a, N1b, N3, N1, N4; 73: N4, N, N5, N12, N6, N; 74: N).

O: *fritware 3*, blue painted decoration under colourless glaze, fig. 74 g–o; 75 a–e (74: O1, O2, O3, O4, O, O5, O6, O; 75: O, O7).

Q: polychrome *graffita ware*, figs 82–92 (82: Q1a; 83: Q1b; 84 Q1b, Q22; 85: Q17, Q21, Q3, Q23, Q16, Q2a; 86: Q2a, Q2b, Q19, Q23, Q6; 87: Q6; 88: Q5, Q4; 89: Q4, Q9; 90: Q9; 91: Q9, Q10, Q11; 92: Q11, Q12, Q8, Q13).

R: monochrome *graffita ware*, yellow glaze, fig. 93 a–g (R1, R2, R).

S: monochrome *graffita ware*, green glaze, fig. 93 h–n; 94 a–g (93: S1, S2, S4, S5, S3, S; 94: S).

T: *fritware ?* (*intermediate fritware* or *fritware 2*), turquoise glaze, figs 55–56; 57 a–b (55: T1, T7, T23, T19, T6, T4, T3, T26; 56: T8, T13, T11, T24, T10, T12, T14, T25, T15, T; 57: T17, T18).

U: *fritware ?* (*intermediate fritware* or *fritware 2*), colourless glaze, fig. 54 (U1, U4, U2, U5, U13, U8, U10, U11, U14, U9, U12).

V: *fritware ?* (*intermediate fritware* or *fritware 2*), aubergine or black glaze, fig. 58 a–e, h–m (V1, V4, V8, V9, V6, V5).

W: *fritware ?* (*intermediate fritware* or *fritware 2*), cobalt blue glaze, fig. 58 f–g; n–o (W1, W2, W3, W4).

Y: *fritware 2*, black painted decoration under turquoise glaze, figs 65–68; 69 a–n; p–q; r–v, (65: Y1; 66: Y1, Y2; 67: Y2, Y3, Y5, Y7, Y6, Y16, Y15; 68: Y8, Y10, Y9; 69: Y9, Y11, Y, Y14, Y17).

Z: *fritware 2*, lustre decoration on colourless or light green glaze — occasionally with blue painted decoration — figs 60–62; 63 a (60: Z1, Z5; 61: Z2, Z; 62: Z10, Z11; 63: Z11).

AA: *intermediate fritware*, lustre decoration on turquoise glaze, fig. 59 e (AA1).

AB: *intermediate fritware* or *fritware ?*, lustre decoration on green glaze, fig. 59 f (AB1).

AC: *intermediate fritware*, lustre decoration on black glaze, fig. 59 m–n (AC).

AD: *intermediate fritware*, lustre decoration on aubergine glaze, fig. 59 k–l (AD).

AE: *intermediate fritware* or *fritware ?*, lustre decoration on light green glaze, fig. 59 g (AE1).

AF: *intermediate fritware* or *fritware ?*, lustre decoration on cobalt blue glaze, fig. 59 h–j (AF).

AG: *fritware 2*, black painted decoration under colourless glaze, fig. 64 (AG1, AG2, AG4, AG5, AG8, AG7, AG6, AG).

AH: *fritware 2*, black painted decoration with blue under colourless glaze, fig. 70 a–h, j–k, m–n (AH1, AH2, AH5, AH3, AH6, AH4, AH).

AI: *fritware 2*, brown, red, blue, green painted decoration under colourless glaze, fig. 71 a–e (AI1, AI).

AJ: *fritware 2*, black painted decoration with turquoise under colourless glaze, fig. 70 i, l, o (AJ).

AK: *fritware 2*, black painted decoration under aubergine glaze, fig. 69 o, w (AK1, AK).

AM: *intermediate fritware*, carved decoration with turquoise ware, fig. 53 a–d (AM1, AM3, AM2).

AO: *intermediate fritware*, carved decoration with aubergine or black glaze, fig. 53 e–f (AO, AO1).

AQ: *fritware 1*, interior: colourless glaze; exterior: aubergine glaze; lustre decoration, fig. 52 i, l (AQ1, AQ).

AR: *fritware 1*, carved decoration, aubergine or black glaze, fig. 47 i (AR).

AS: *fritware 1*, polychrome and carved decoration with colourless glaze – *laqabi* ware – fig. 50 d, f (AS2, AS1).

AV: *intermediate fritware*, blue splash, carved decoration and colourless glaze, fig. 53 g–h (AV1, AV2).

AY: *turquoise-glazed ware*, figs 76–81 (76: AY1, AY3; 77: AY2, AY4; 78: AY6, AY31, AY5, AY7, AY10, AY9; 79: AY8, AY11, AY12, AY13, AY14; 80: AY15, AY17, AY16, AY19, AY20, AY21, AY22, AY23, AY24; 81: AY25, AY26, AY30, AY27, AY29, AY28, AY35, AY).

AW: *fritware 2*, lustre decoration and blue painting with colourless glaze, fig. 63 b–c (AW1).

AZ: monochrome glazed *slip-ware*, green glaze, figs 98 f–r; 99–102; 103 a–j (98: AZ15, AZ21, AZ13, AZ14; 99: AZ1, AZ2, AZ7, AZ9, AZ5, AZ10, AZ3; 100: AZ6, AZ4, AZ8, AZ11; 101: AZ16, AZ17, AZ19, AZ23, AZ26, AZ22; 102: AZ28, AZ29, AZ30, AZ33, AZ34; 103: AZ32, AZ31 AZ, AZ20, AZ).

BK: monochrome glazed *slip-ware*, yellow glaze, figs 95–98 (95: BK8b, BK8a, BK1; 96: BK3, BK5; 97: BK6, BK2, BK10, BK12, BK13, BK20, BK21, BK14; 98: BK14, BK17).

BR: *fritware 3*, grey/green slip, decoration painted in white slip and black under greenish glaze, fig. 75 f (BR1).

CC: Chinese celadon, fig. 149 (CC1).

HH: *fritware 1*, blue painted and incised/carved/pierced decoration with colourless glaze, fig. 49 (HH1, HH3, HH2, HH4, HH5, HH).

JJ: *intermediate fritware*, lustre decoration on colourless glaze, fig. 59 a–d (JJ1).

TT: *fritware 3*, black painted decoration under turquoise glaze, fig. 71 f–l (TT1, TT, TT2).

AMM: *fritware ?* (*intermediate fritware* or *fritware 2*), carved or mould-reliefed decoration with turquoise glaze, fig. 57 c–k (AMM1, AMM).

AAS: *fritware 1*, polychrome decoration and colourless glaze, fig. 50 a–c, e (AAS2, AAS1, AAS3).

ASI: *intermediate fritware*, polychrome and carved decoration with colourless glaze — *laqabi* ware — fig. 53 i–j, k (ASI1, ASI2).

BBJ: monochrome glazed *slip-ware*, brown glaze, fig. 103 k–m (BBJ4, BBJ2).

APPENDIX F
QUANTITATIVE ANALYSIS OF GLAZED WARES FROM THE UNSTRATIFIED POTTERY ASSEMBLAGE

Unstratified pottery assemblage Glazed wares Minimum Form Number (MFN) and Proportion

An attempt to assess quantity (in terms of Minimum Form Number) in the unstratified pottery assemblage was made, but for glazed wares only (see pp.37–38). Fragments clearly belonging to the same vessel were counted as one. Body sherds were not taken into consideration in the count, except when they were the only representative of a specific and rare ware (like Chinese celadon, p.67). The criteria for discarding pottery during previous excavations are fundamental for the quantitative evaluation. Mr 'Abd al-Razāq Zaqzūq reports having kept all fragments of glazed pottery (see pp.37–38).

The proportion indicated is calculated in relation to the glazed pottery assemblage only.

TOTAL MFN: 2024

Fritware: 895 (44.2 %)
— *Fritware 1*: 293 (14.5 %)
(wasters: 7; 0.3 %)
— *Intermediate fritware*: 43 (2.1 %)
— *Fritware ?* (*intermediate fritware* or *fritware 2*): 158 (7.8 %)
(wasters 8; 0.4%)
— *Fritware 2*: 321 (15.9 %)
(wasters 11; 0.5%)
— *Fritware 3*: 54 (2.7 %)
Turquoise-glazed ware: 142 (7.0 %)
(wasters 7; 0.3 %)

Lead-glaze family
— Polychrome *graffita ware*: 389 (19.2 %)
— Monochrome *graffita ware*: 20 (1.0 %)
— Monochrome glazed *slip-ware*: 562 (27.8 %)
Chinese Celadon: 9 (0.4 %)

Total wasters: 33 (1.6 %)

APPENDIX G
TECHNOLOGICAL REPORT ON THE POTTERY FROM QAL'AT JA'BAR
by H.J. Franken, H.J. de Haas and †J. Kalsbeek

Leiden, May 1976

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II) Wheel-made pottery: preliminary remarks
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X) Yellow glaze
XI) Green glaze

I. Thinslides analysis

Twenty-nine thinslides were made. The sherds were selected from different types of pottery.

- Three light-firing sherds with very thin walls and decoration, made by hand with the point of a needle or a rib: nos 1, 6, 15 [Ware 2, p.65; fig.118 d–e].
- Nine light-firing sherds from small pots partly made in moulds: nos 2, 5, 7–9, 11, 12, 14, 16 [Ware 2, p.65; fig.118 g–i; pls 73–82].
- Five thrown unglazed sherds (bowls and jars): nos 4, 10, 13, 17, 18 [Ware 1, pp.63–65; figs 104–144; pls 53–72].
- Five thrown glazed sherds: nos 25–29 [*turquoise-glazed ware* or *lead-glaze family*, pp.55–63; figs 76–103].
- Six glazed sherds made from a mixture of clay and quartz: nos 3, 20–24 [fritware, pp.38–55; figs 42–75].
- One sherd of cooking pot material: no 19 [Ware 3 or Ware 4, p.66; figs 145–148].

THE CLAY
[Ware 1; Ware 2; *turquoise-glazed ware*; *lead-glaze family*]
With the exception of the last two groups it seems that the same type of clay was used. The clay contains much lime in an extremely fine grain size. The amount of lime can be different. More lime results in a lighter firing colour. There is a preference for clay with much lime for the pots that were partly made in moulds and the very thin unglazed pottery [Ware 2, p.65, figs 117 r–s; 118 b–i; 119 a–d; 121 a–c; 142 a; pls 73–82].

THE TEMPER
The temper consists of mixed sand. Mixed sand means sand as found along the river, which consists of quartz and other minerals like feldspars, occasionally lime grains, basalt, flint, etc. Sand is found in all sherds but sometimes so little and in such small grain size that it can be supposed that it was present in the clay and not added by the potter.

It is impossible to be absolutely certain whether in other cases the sand was added or not. There is however a contrast between sherds with little or no grit and sherds with much grit. In order to understand why sherds have different colours and why some have a coarser feel than others we have to combine these two aspects. More lime in a sherd means a more whitish colour. Reddish colours mean less lime. Here we suppose that the temperature in the kiln was the same. It means that colour is of little help in making the typology.

In both cases — much lime or little or no lime in the clay — we find also: temper or no temper. We found that in most cases the very thin and white ware and the pots that are partly made in moulds have no temper [Ware 2, p.65, figs 117 r–s; 118 b–i; 119 a–d; 121 a–c; 142 a; pls 73–82]. Thrown unglazed pottery has temper as a rule [Ware 1, pp.63–65; figs 104–144; pls 53–72], glazed pottery has as a rule no temper [*turquoise-glazed ware* or *lead-glaze family*, pp.55–63; figs 76–103].

MEANING OF TEMPER
The temper consists of grains < 0.25 mm. in diameter; three or four grains per mm.^{2} is a maximum amount. Usually there is less, one or two grains per mm.^{2} Seldom do we find a larger grain. Often the grains are angular and not rounded. Together with the fairly uniform grain size this points to the possibility that sand was crushed to a fine fraction before it was added to the clay. It is not very clear why sand was added. The clay as found was not very plastic because it has such a large quantity of very fine "impurities" that by itself it is a "sandy" clay. It is of course possible that some potters continued to add some sand (not much, in comparison with the amount one sometimes finds for instance in cooking pots), whereas other potters had discovered that it was not necessary for their purpose to add sand to this type of clay. We may conclude therefore that clay with or without temper did not show much difference in relation to the way the pottery was made. The conclusion is that the potters used clay with much fine lime (mostly without adding temper) for the group of moulded pottery, and for very delicate, thin jars etc. [Ware 2, p.65, figs 117 r–s; 118 b–i; 119 a–d; 121 a–c; 142 a; pls 73–82].

For larger vessels [Ware 1, pp.63–65; figs 104–144; pls 53–72] and glazed pottery [*turquoise-glazed ware* or *lead-glaze family*, pp.55–63; figs 76–103] they mostly used clay with less lime (often with some temper added), producing the more reddish colours. This would mean that they were able to judge whether clay from the clay beds contained much lime or not.

The cooking pot sherd has a temper in which quartz dominates [Wares 3 and 4, p.66; figs 145–148]. The grains are rounded and not angular. There is an amazing uniformity in the grain size: between 0.25 and 0.20 mm. in diameter. The distribution is four to five grains per mm.^{2} The clay does not contain fine lime. That is one of the reasons why the colour is red. It is not likely that this clay comes from the same find spot as the clay used for the other types of pottery. It is true that other cooking pots have a calcite temper, which may have recrystallized and looks like lime.

Finally, there is a group of glazed wares which contain an extremely high amount of crushed quartz [fritware, pp.38–55; figs 42–75]. Some sherds contain extremely fine quartz, others have a coarser grain size, but it is always crushed, probably in a mill. Clay, probably mixed with other elements, was used to bind quartz.

II. Wheel-made pottery: preliminary remarks

[Ware 1, pp.63–65; figs 104–144; pls 53–72. *Turquoise-glazed ware* and *lead-glaze family*, pp.55–63; figs 76–103]
Very few complete pottery shapes were found in this group. Therefore we cannot be sure about some technical features. On the other hand we did not find strange or unexpected technical aspects in this group. We can say this for two reasons:

1. We recognised various fragments of pottery because similar types were found at Ta'as and Hadidi.
2. There is a remarkable technical similarity with some of the methods of potmaking in roughly the same period in the Jordan valley (Franken and Kalsbeek 1975). It is not a similarity in shape but in the methods of manufacture. It is possible therefore to have a good idea about the technical background of this group. From the analysis of some thinslides we have the impression that with the exception of the cooking pots the same type of clay was used.

We have seen that this clay contains much lime, sometimes more, sometimes less. We can reasonably suppose that the potters kept the temperature in the kiln below the maturing range of the pottery. There was probably very little difference between the temperature at which the pottery can become really hard ware and the temperature at which it starts to melt. With more lime this temperature is lower. When the pottery is greenish, it has been close to melting point. If this pottery is "well fired", it does not mean that it becomes hard. Some sherds are harder than others. The pottery will never become real red-brown pottery: there is too much lime in it. The pottery was fired at between approximately 800° and 1000° C.

Yet the clay has good properties for the potters. It is a sandy clay which can be used for making pottery on a kick-wheel; it is not too plastic and not too lean for that purpose. It is a bit lean because it cannot be stretched very much, in contrast to the capacities of good plastic clays. For instance, if the potter made a cylindrical shape wider in the middle of the cylinder, he could not widen the circumference very much. The clay soon starts to lose its cohesion, sooner in fact than a good plastic clay would do. This may also be the reason why the thrown pottery has rather thick walls.

III. Wheel-made pottery

[Ware 1, pp.63–65; figs 104–144; pls 53–72. *Turquoise-glazed ware* and *lead-glaze family*, pp.55–63; figs 76–103]
The pottery that was made on a wheel can be divided into three groups.

1. From the cone: more than one piece from one lump of clay.
2. One piece at a time: for each new piece clay is put on the wheel.
3. While the pot is made: more clay is added in the shape of clay rolls.

A certain amount of clay would be fastened to the wheel from which the potter could make more than one pot, only one pot, or less than one pot.

1. FROM THE CONE
A number of small bowls can be made from the cone. We only know for sure that the lamps were made from the cone. There are three types of lamps.

a. A small bowl with a "spout", pinched from the rim and a tiny cup in the centre of the lamp. There is a hole through the wall of this cup.
b. The same lamp, but without a cup in the centre.
c. A larger lamp, with flaring rim and a "spout".

In these cases (more than one pot from one cone of clay) there is no reason to give the base a specific finishing treatment. When the lamp is cut from the cone, the shape is finished. This is not the case with the larger lamps. After the bowl is taken from the cone, the base may be too thick. Then a knife is used to make the base thinner. This is a very old practice, dating back already to the second millennium BC in the Near East.

We cannot demonstrate that other pieces were made from the cone. It is however very likely that small bowls, spouts, necks of jars, conical ornaments attached to handles and the like were made from the cone. In this way many pieces could be manufactured in a short time.

A string or a needle is used to cut the finished piece from the cone. All the lamps of the kind described under a. show the marks of this cut. It is advisable to look for bases that show the same marks and may belong to types other than lamps. Such bases may belong to small bowls or small jars.

2. ONE PIECE AT A TIME
To this group belong bowls and presumably some jars, notably those with thin walls. We have no complete pieces and we cannot be sure that the sherds are representative of this group. But on the basis of the sherds it seems likely that, for instance, the glazed bowls and jars with thin walls (to a height of *c.* 30 cm.) were made from one piece of clay.

3. ADDED CLAY ROLLS
The larger types were all made by adding rolls of clay while the pot was under construction. One often finds sherds which broke off along the joint of two rolls of clay. The very large and heavy jars were built up in that way, but in these cases no wheel was used. It is important to note that a jar which is about 40 cm. high was made with clay coils or rolls. The thickness of the wall is roughly 1 cm. But often two halves were fitted together and then a roll of clay added on the inside of the pot against the joint. The rolled clay strengthened the joint.

IV. Bases

[Ware 1, pp.63–65; figs 104–144; pls 53–72. *Turquoise-glazed ware* and *lead-glaze family*, pp.55–63; figs 76–103]
Four different types of bases were found.

1. A large flat base. The base is made from a sheet of clay and attached to a round slab of stone or other material. This was probably put on a wheel and coils of clay were added to the base. This type of base was used for cylindrical pots and bowls with slanting walls. The very same bowls are still made in north Syria today.

2. Most bases are made on a wheel. The potter begins by throwing the base. When the pot is finished and dried a little, he puts the pot back on the wheel and makes the base thinner. Then he gives the base its proper shape. He cuts surplus clay out of the thick base and leaves clay for the ring. Sometimes he adds clay to make a high ring base.

3. Bases closed upside down. This was a very common method but in the Qal'at Ja'bar pottery we found it only on one type of jar. It is a jar with a round body (football shape), a large flaring neck and a knob at the base. First, the upper part of the jar was made, then dried, then the lower part was made and then the top of the neck was closed by pulling the clay to the centre and at the same time pushing it down. It is possible that such pots were used for drawing up water with the aid of a wheel (like the wooden containers on the wheel today) [see pp.64–65; figs 143 a–f].

4. Finally, there are bases which are made as part of a bowl-shape in a mould. See section VIII.

V. The rims

[Ware 1, pp.63–65; figs 104–144; pls 53–72. *Turquoise-glazed ware* and *lead-glaze family*, pp.55–63; figs 76–103]
There is in fact great uniformity among the rims although there seem to be many different kinds. When the potter has made a neck, then the end of the neck is always a "rim". If the neck is made very thin then often there is no rim-profile (see for instance the rims of the small jars made in a mould). But if the neck is not so thin, the potter may make a profile at the end from the clay, and so make a "real" rim.

If there is very coarse grit in the clay, the potter cannot use a needle to cut away clay from the top of the neck. But he always wants to make a horizontal upper end for bowls and jars. If he cannot use a needle he must make a fold. He must fold the top to the inside or to the outside. But if the grit is rather fine he can do three things:
a. Cut off the surplus clay with a needle.
b. Press or fold the top of the rim down.
c. Do both things.
We see that many rims have one flat side either on the top or on the side. This means that the potter in most cases has chosen method c. He made the rim horizontal and then pushed the clay down. This results in a thick rim with a flat top. But often he also pushed the rim to the outside. The flat side of the rim can even be folded down so far that it is in a vertical direction. If one looks at the rims from this technical point of view one can make a fairly simple typology.

VI. The construction of bowls and jars

[Ware 1, pp.63–65; figs 104–144; pls 53–72. *Turquoise-glazed ware* and *lead-glaze family*, pp.55–63; figs 76–103]
BOWLS
Thrown from one piece of clay (Franken and Kalsbeek 1975, 118, para.93, figs 31–32).

This method is the same, whether making glazed or unglazed bowls. Different shapes can also be made with this method. The method of making deep bowls is described in Franken and Kalsbeek 1975, 109, para. 90 and fig. 27.

JARS
The method of making jars with a base closed upside down is shown in Franken and Kalsbeek 1975, 86, para. 79 and fig. 17.

Thrown from the cone: see Franken and Kalsbeek 1975, 77 and fig. 14.

VII. The method of decoration of unglazed pottery [Ware 1]

INCISED DECORATION [P.64; PLS 32–33, 53–66]:
a. A line made with the rib (like the blunt point of a knife).
b. A line made with a pin.
c. A line made with the point of a knife in fairly dry clay.
d. Parallel lines made with a comb.

IMPRESSED DECORATION [P.64; PLS 57–58, 67–69]:
a. With the thumb (only when the wall is thin).
b. With a stamp (negative impression).

RELIEF DECORATION BY ADDING STRIP OF CLAY OR MODELLED CLAY [P.64; PLS 68–69; FIGS 133d; 134f; 139f–h; 140a]:
a. Strips with or without finger impressions.
b. In the shape of, for instance, a human face.

RELIEF DECORATION MADE WHILE THROWING THE POT:
Some clay is collected between the fingers while the pot is turning and in that way a horizontal ridge is made. This ridge can be made thinner and wider. Then the end can be folded back and pressed against the wall of the pot. In this way a hollow, air-filled tube is made against the pot.

Then the potter can cut out small pieces of clay to make a certain pattern.

Obviously the potters enjoyed making combinations of different techniques of decorating the unglazed pottery. Large pots often show these lavishly applied decorations. They even went on to add tiny pieces of blue glazed sherds which they pressed in the wet clay like jewels [p.64; pls 70–72].

VIII. Pottery made partly in moulds

[Ware 2, p.65; fig 118 g–i; pls 73–82]
RELIEF DECORATION IN THE MOULD:
Decoration in relief can only be produced by using a mould, engraved with the decoration. If the decoration is applied on isolated areas of the pot, the potter uses a small "mould", in other words, a stamp. But if the decoration is to be applied over the entire circumference of the pot and a broad area, the potter has to use large shapes. These are called shaping dishes. Together with the decoration the entire part of the pot on which the decoration occurs is made in this mould.

Shaping dishes can be made from plaster of Paris, pottery and other materials. The material from which the shaping dish is made has to comply with only one requirement. The weak clay which is pressed into the mould should not adhere to the wall, but has to shrink away from it during the drying period without tearing. Hence, materials used for shaping dishes must have a strong capacity for absorbing moisture. The shape of such a mould must be

such that the dry clay vessel does not get trapped in it. It must be possible to lift it out.

In the Qal'at Ja'bar collection this relief decoration is found on small jugs [figs 118 g–i and pls 75–76]. Sometimes the decoration is found on the wall and shoulder, sometimes only on the shoulder. This is made in the following way.

A decorative pattern on the surface inside the shaping dish is scratched or impressed (see below). This pattern will show up on the outside surface of the dish that is to be made. It is the positive pattern of what is negatively engraved in the shaping dish.

Two identical shaping dishes are used, each with its own engraved decoration. In both dishes a thin layer of clay is applied by hand on the inside. In order to get the best results for the decoration a very white clay is used. This clay is capable of penetrating into the engraved lines of the decoration without much pressure. Clay which contains much water shrinks heavily during drying. The bowl which is being formed comes away easily from the shaping dish. In cases when clay clearly was not wet enough the decoration has lost much of its sharp contours.

After the clay has been applied to the shaping dishes, it is allowed to dry for a while and to get stiff. After that the two shaping dishes are fitted together and then the upper one is removed leaving the moulded bowl on top of the lower one. Then the other shaping dish is also removed. Next the two halves are properly adjusted to each other and placed on a cylindrical support which has been fitted into the wheel. In a turning movement the potter, with a needle, cuts a circular segment out of the bowl which is designed to become the upper part of the juglet. To prevent this circular fragment from dropping into the juglet the needle is held obliquely. This segment is put aside and kept to be placed back into the hole. With his forefinger and middle finger the potter can now just reach the joint of the two parts on the inside in order to fix the joint, which is a weak spot in the construction. In order to make this a more efficient operation the potter has already attached a roll of clay on the inside along the edge of the upper half, before putting it on the lower half. This clay is still moist and since the pressure from the fingers on this clay roll comes from above, this clay is pushed over the joint which gives extra strength.

Then the section which was cut out is put back into place again. On the circular cut a neck is placed and fixed in a turning movement. This fixes at the same time the circular section. This neck is made on the wheel and has already dried somewhat. It can be handled without distorting the shape.

After a short period of drying the juglet is put on the wheel again, this time upside down. A circular roll of clay is attached to the part which is to become the base and a ring is made from the roll of clay in a turning movement. One pulled handle is attached to the juglet, running from the neck to the middle of the shoulder. Inside the neck a perforation is then made with a needle in the clay section after it is put back in its place. The perforation consists mostly of triangular holes, thus becoming a sieve [figs 118 f–g, I; 119 a–d].

The technological division of this material:

a. Both halves are decorated (upper and lower part).
b. Only the upper part (shoulder) is decorated [pls 73–74].
c. There is no sieve. The circular section has not been replaced and the juglet is open [fig. 118 h and pl. 74].

DIFFERENCES FROM THE METHOD DESCRIBED ABOVE:

1. Some small fragments show that the clay layer was not always put into the shaping dish with a free movement of the hand. The clay is then applied while the shaping dish is being turned on the wheel. Maybe the clay has a different composition in these cases. This juglet is smaller than others.

2. The sieve is attached higher up on the neck [as in Ware 1, fig. 119 e]. The neck was attached to the juglet first. The opening is now too narrow to put the circular section back into its original position. This piece had also to be perforated.

3. The opposite also happened: the neck is narrower than the opening, which had been closed again. By adding some clay to the joint and pressing some circular grooves with the rib over and around the joint in the wet clay, the joint is fixed. The sieve is lower than the neck.

4. The lower part of the juglet is not made in a mould but thrown on the wheel. There is no decoration on this part, but the upper part is decorated and comes from a mould. The upper part is put upside down on the lower part, which is still wet and on the wheel. The joint is strong enough and does not need an extra clay roll on the inside. The upper part of the thrown piece is widened on the inside in order to make the two parts fit well. They did not need to have exactly the same circumference.

The base ring is not attached but is cut out of the thicker part near the base, which has to be thinned while the juglet is standing upside down on the wheel. There is no sieve in this juglet. The rest is like the normal treatment.

FURTHER REMARKS CONCERNING THE SHAPING DISH AND THE RELIEF PATTERN:

This relief pattern is made on the inside surface of the shaping dish. One can distinguish various elements from which the pattern is composed.

a. Mechanically made lines

The shaping dish is put on the wheel. While the wheel turns around, a blunt pin is used to make a groove. This groove (or grooves) will always run parallel to each other.

b. Freely formed lines

1. Straight lines mostly more or less in a vertical direction.
2. Lines serving to delineate motifs like leaves or more abstract designs. Lines for stems, animals or lettering are wider. In section they may be convex, or flattish, depending on the point of the engraving needle.
3. Impressions of small stamps. It is clear that small stamps are used to make impressions, such as small rosettes, stars, rings or pendant motifs. The impression is in negative.

Making stamp impressions can only be done in a weak substance. One cannot use plaster of Paris for this purpose. It is either in a liquid state or hard. There is no gradual transition. Clay turns from a wet state gradually to become bone-dry and hard; this process can be controlled. This shows that the shaping dishes were made from pottery.

THE PATTERN
Almost always the pattern consists of a combination of the techniques described above. The result depends on how dominant one of the techniques is over the other.

Combinations
a. Freely engraved lines (1) with leaves, animals, garlands (2) together with impressions of small stamps (3), impressions of small stamps arranged in lines. Mechanically made lines are practically absent [pls 73–80].
b. Lines drawn mechanically combined with stamps (3). No freely engraved lines.
c. Engraved letters (2) with small circles (3). The space between the letters is filled with circular impressions (made with pipes) [fig. 33 m]. They are densely packed together and the lettering stands out against this rough background. It reminds one of certain techniques on chase work on metal objects. Classification of this pottery can take place on the basis of the combinations of pottery manufacture and decorative techniques.

Pilgrim flask
A different shape is made in practically the same way. The two parts are made in two very shallow, decorated moulds. The cylindrical part of the wall is thrown. A mould, thinly covered inside with clay, is placed on the wheel upside down. On this mould the thrown cylindrical piece is placed in a straight position. Attachment of the separate parts is achieved by pressing a finger on the joint while turning. The circumference of the mould is slightly wider than the circumference of the cylinder. The cylinder wall fits inside the raised clay rim in the mould. Next the bowl is lifted from the other mould and placed upside down on the cylinder. These parts are also attached, but only on the outside. The joint is pressed between thumb and forefinger. After a drying period the pot is lifted from the bottom mould. A previously thrown neck is placed on and attached to the cylindrical part. The part of the wall now in the neck is perforated by cutting triangles with a needle. It can be used as a sieve. Next a handle is attached.

IX. Glazed pottery: some tests

[*Turquoise-glazed ware* and *lead-glaze family*, pp.55–63; figs 76–103; fritware, pp.38–55; figs 42–75]
Some glazes have largely disintegrated. If one refires them one finds that the material is no longer a glaze. This seems mostly to be the case with alkali glazes, which begin to look like decayed glass. It is worthwhile (for larger pieces) just to scrape off the decayed layer to see if there is a painted pattern underneath. This is not possible of course if the pattern is painted on top of the glaze (lustre ware). But if the glaze is not so disintegrated, the painted pattern can sometimes be rescued. For example we cleaned some of those sherds only over half of the surface. Then the difference becomes clear. Cleaning the surface can be done with fine sand paper or a sharp knife. One finds that in some spots the glaze is still good, in other spots it is partly decayed and sometimes completely disintegrated. By painting a thin layer of lacquer on the cleaned surface one can make the design clearer.

We refired some glazed sherds in two groups. The first group we fired to 950° C. Some were refired, some not, in order to compare the result. In general one has to keep in mind that we do not know the correct firing temperatures. There is a chance that the original temperature was higher. Because the glaze is fired to melting point again, it may lose some of its components by evaporation. Some glazes had started to disintegrate in the soil and therefore they react differently now than in the original firing. Some glazes had gone too far already. Another disturbing factor is the question of how thick the glaze is. If there is only a thin layer it may completely burn away during the test. The two samples represent most of the different elements found in this group. This test merely shows that there is in fact much less difference in glazes than one would suspect. The differences in colour are often due to lack of oxygen during the firing and to decay while in the soil.

The second group of glazed sherds was fired to 900° C. In the main, the glaze does not become smooth, but if there is still some of the original composition in the glaze, the colours come out very well. Due to the fact that the glaze is heated for the second time, it always loses some of its thickness by evaporation.

X. Yellow glaze

[*Lead-glaze family, monochrome-glazed slip-ware*; pp.62–63; ware BK, figs 95–97 and 98 a–e]
Some remarks:
1 Transparent lead glaze — probably also alkaline.
2. The following colours are found: yellowish, yellowish brown, brownish and greenish colours.
3. Greenish colours are probably the result of reduction in the kiln and caused by the type of fuels used.
4. The intensity of the colour depends on:
   a. The amount of oxide which is the colouring agent.
   b. The dissolving capacity of the glaze, which in turn depends on the composition and on the temperature.
   c. The thickness of the layer of the glaze (how thick it was applied to the sherd).
   d. The grain size of the oxide that gives the colour.
   e. The colour of the slip underneath the glaze.
5. The colouring oxide consists of metal of which iron is the main component, one way or another. The oxide for instance could be a component of the raw material of the glaze, or it has been added, which is more likely the case.
6. The shine of the glaze depends on the slip layer underneath. There is much less shine, and even air bubbles sometimes, if the glaze is applied to the body without a slip.
7. The glaze has a strong capacity for dissolving the slip layer. If this layer is rather thin it can be totally taken up by or dissolved in the glaze.
8. This dissolving of the slip probably depends to a large extent on:
   a. Thickness of the glaze.
   b. The degree of heat in the kiln.
   c. Duration of the time during which a certain temperature is maintained in the kiln.
9. The tiny hair-cracks (called crazing) in the glaze had probably been influenced by the lime content of the clay. The form of the cracks changes and their number decreases as the lime content gets smaller.
10. The clay composition varies from more-or-less yellow to more-or-less red-firing ware. This variation in colour is probably closely related to a changing quantity of lime in the clay bed.
11. The clay and glaze were fired at the same time. This is seen by the fact that the glaze has become damaged by the burning away of impurities in the clay.

12. Glazed bowls were fired upside down. This is concluded from the drops of glaze which hang down on the rims of the bowls.
13. Stilts were used to stack the larger glazed bowls.
14. The drops of green glaze (containing copper) on the yellow glazed bowls show that green and yellow glazed wares were fired together in one kiln loading. The green drops fell from above.

See Franken and Kalsbeek 1975 for construction drawings and a general description of glazes.

XI. Green glaze

[*Lead-glaze family, monochrome-glazed slip-ware*, pp.62–63; ware AZ, figs 98 f–r, 99–102, 103 a–j; *turquoise-glazed ware* ?, pp.55–57; figs 76–81]

1. Lead — possibly also alkaline glazes.
2. The colouring element in the glaze is one or another copper oxide.
3. The "oxide" is completely dissolved in the glaze. However, on the yellow glazed ware this is not the case. One observes speckled effects on the surface.
4. The clearest green tints contain the smallest amounts of iron in the glaze.
5. The brownish-green tints contain the largest amounts of iron in the glaze.
6. The colouring oxide of the green glazes probably makes the glaze somewhat more liquifiable than the colouring agents in the yellow glaze.
7. Drops of glaze fallen from pots stacked higher in the kiln are not observed on this ware. (Perhaps the yellow glazed wares were stacked at the bottom of the kiln?)
8. Stilts were used to stack large bowls inside each other. Smaller bowls were stacked as follows: one row right side up, a second layer upside down with the rims overlapping each other.
9. Colour: bright green, olive-green, bleached-green (moonlight green).
10. There are more fragments of large jars in this group than in the yellow glazed ware.

APPENDIX H
QAL'AT JA'BAR: THE STUDY OF THE WALLS AND THE EXCAVATION
by A. Zaqzūq

Translated from the Arabic by Cornelia al-Khaled

1. The walls of the citadel

Qal'at Ja'bar is rectangular in shape: it stretches 320 m. from north to south and 70 m. from east to west (fig. 2). Two huge walls encircle it, one interior and the other exterior, both of which contain a large number of towers. Only a few metres separate the two walls, forming a passage (pl. 89). These walls, built of brick, surround the cliff on which the citadel is built. Many of the walls and towers have collapsed and some of the towers are completely destroyed, leaving few traces. The Directorate General of Archaeology and Museums of Syria has restored parts of this wall and its towers (pl. 90).

The towers, numbering more than 35, have different geometrical shapes: squares, semi-hexagonal (pl. 11), semi-octagonal or semi-circular (pl. 91). They are also built on differently shaped bases. This section describes tower 2, a major and important structure (figs 154–155; pl. 7).

Tower 2 lies to the west, overlooking the main entrance from the north. Most of its parts and frame are well preserved. The projecting part of the tower has a five-sided ground plan, the longest side being the western, sitting on a rectangular base. Originally it consisted of three storeys, the first covered by a pointed vault. The roof of the second storey has fallen, as have the roof and the upper parts of the third storey.

It is noticeable from the style of construction that the second storey is different from the first. While the first consists of an open space covered by a pointed vault (pl. 92), the second consists of a small courtyard surrounded by three halls on the western, northern and southern sides (figs 154–155). These three halls have arrow-slits and are also covered by pointed vaults. The architectural remains of the courtyard reveal that it was covered by a cross vault. Very little remains of the third storey: one arrow-slit (pl. 93) can be seen on its northern side. No traces are left to indicate the kind of roof that covered it.

In addition to the towers, there were niches in the walls connecting every two towers; these in turn had arrow-slits. The depth of one of these niches to the north of the tower reaches 130 cm.

The citadel's gate lies to the west and is built of brick (pl. 94) as are the other parts of the citadel. It is topped by a small arch. The gate leads to a small passage covered by a pointed vault, which in turn leads to an open space leading to an important tower, called 'Aliya Tower, which is approximately 100 m. away from the entrance. To the left of the open space is a stone entrance to a rock-cut tunnel, restored and consolidated by the Directorate of Archaeology and Museums of Syria (pl. 8). This almost 50-m. long tunnel leads to the citadel's wall. It was laid with bricks, most of which have disappeared, leaving few traces.

2. The excavations

The excavations focused on two sites: the first is the mosque and the buildings lying in this area, referred to as Site I (fig. 2, E–H). The second includes the buildings on the south-western angle of the citadel, referred to as Site II (fig. 2, I–J).

Site I

Excavations began at this site on the southern and south-eastern sides of the minaret. They revealed four enclosed units, most probably the main rooms in the prayer hall. They have been much altered over time, especially after Qal'at Ja'bar was demolished by the Mongols in 658/1260.

Different levels were found in these rooms. One of them was excavated to bedrock, and consisted of four levels from the surface to the floor of the mosque. The floor was unpaved in the excavated part, but we have no evidence whether this was the original design or if it was altered. Further excavation of the floors of the other rooms would establish this.

North of these rooms was a large courtyard, probably the yard of the mosque. The mosque's walls were built of bricks and local limestone. The limestone is very delicate and breaks up into pieces when touched by water.

The building technique is: one course of limestone blocks, 25 cm. in height, followed by one course of bricks, 5 cm. in height and 28 cm. in length (pls 18–19).

The minaret, to the north of the western room, has survived and is brick-built (pl. 15). It has a rectangular base. Its visible part stretches 5.5 m. in height and it has a side of 5.65 m. in length. It is topped by a cylindrical shape, 21 m. high and 3.75 m. in circumference. At the bottom of this part is the entrance to the minaret which overlooks the west and is 160 cm. high and 90 cm. wide. A spiral staircase leads to its top and is built with minute exactness and perfection. The top of the cylindrical part is encircled by an inscription between two lines of ornaments. The writing includes epithets of Sultan Nūr al-Dīn al-Zanki such as "the knowledgeable, the fair, the fighter, the procurer of justice in the two worlds, the evenhanded with the oppressed", and so on (pl. 95).

The minaret, its ornaments and inscriptions and interior stairs were brick-built. Each brick is 25 cm. long, 21 cm. wide and 5 cm. high. All have strong plaster which is 3 cm. thick. Today, the minaret leans eastwards.

THE HOUSE OF THE ARCHES (FIG. 2, G) [note: only part of this building is shown on fig. 2]:
This house lies next to the mosque to its north. It consists of many brick-built rooms (pl. 96). The height of the remaining walls ranges between 1–2 m. So far seven rooms

have been excavated, designated rooms B^g, F, D^e, C^d, C^c, C^b, B^b. In the middle of the floor of each of rooms D^e, C^d, C^c, C^b, B^b was a semi-circular arch-shaped wall. It is built of bricks with a circumference of 324 cm., breadth 50 cm. and height 40 cm. It has an opening in the middle, 35 cm. wide. In room C^d were two arches instead of one (pl. 97).

The purpose behind the building of these circular walls is unknown. The discovery of a millstone close to the wall in room D^e, however, suggests that these walls are related to the grinding of a certain substance. The circumference of this millstone is 90 cm. and it is 10 cm. thick.

Four levels were found in the rooms of this house. The first was close to the surface and paved with fragments of bricks (pl. 98). This type of floor appeared in most rooms. There was very little pottery on this floor, and it reflected a mixture of the types found in the lower levels: some monochrome *graffita ware* sherds together with unglazed pottery sherds.

The floor of the second level of this house was made of white solid soil. What distinguishes this level is the presence of monochrome and polychrome *graffita ware* which dates to the Mamlūk period. In addition, some poor quality fritware fragments were found. The depth of this level ranges between 35–45 cm. below the surface.

The third level of room C^d, which is 125 cm. below the surface, has a solid plastered floor. In this level many more sherds of the polychrome *graffita ware* type are found. The monochrome *graffita ware* has a green or a dark yellow glaze. Also in room B^g were some blue and white porcelain fragments, dating to the 14th century AD (pl. 103).

The fourth level in the rooms of this house lies directly above bedrock. Circular walls are built on it which reach 180 cm. below the ground (pl. 99). Fritware sherds and one fragment of a shiny metal plate were found here. The fritware fragments were painted with a burnt brown colour [lustre-painted fritware], some of them with a delicate, turquoise or creamy-coloured glaze.

THE TANK HOUSE (FIG. 2, H) [note: only part of this building is shown on fig. 2]:
This lies north of the House of the Arches (pl. 100), 35 m. north of the mosque and the minaret. It has a rectangular courtyard under which lies a tank carved in bedrock, whose walls are covered with mortar to prevent water leaks. Its roof is cross-vaulted and brick-built.

Many rooms surround the courtyard from the northern, eastern and western sides (pl. 101). A passage on the south wall leads to the main entrance, to the west, and to stairs and a small room, to the east.

There are three adjacent rooms on the western side. They are all built of successive courses of local limestone and bricks. The height of the course of limestone is 25 cm., while that of the bricks is 5 cm. The walls are painted with plaster whose remains could still be seen on the southern wall of the passage. The height of the remaining fragments of these walls ranges between 100–150 cm.

Three successive rooms are found to the east (pl. 102). The two northern ones are similar, but the third, southern, one is much larger with a wide entrance opening onto a courtyard. Most likely it was the kitchen, as traces of ash and burning were found on its floor.

To the north of the courtyard is a room which is similar to the other rooms in the style of construction, shape and the type of stones and bricks. This courtyard was paved with stone tiles, of which only a very small part remains in the north.

Site II
THE SOUTH-WESTERN BUILDING (FIG. 2, I–J):
This building overlooks the Euphrates from the south-western side of the citadel. It includes many important buildings which most probably were those of the prince and his dependents. It is a large building consisting of many rooms and passages, all built in brick and connected to each other. Its floor is paved in stones or brick tiles of fine geometric ornaments. Water and sewage tubes are skilfully laid out. It is noticeable that some parts of this building were used in different periods, the last of which most probably was the Mamlūk period. The entire building has not yet been excavated but future work may uncover the remainder.

BIBLIOGRAPHY

Reference works

EI¹

Encyclopaedia of Islam, Leiden, 1913–1919.

EI²

Encyclopaedia of Islam, new edition, Leiden, from 1960.

RCEA

Combe, Et., Sauvaget, J., Wiet, G. *Répertoire Chronologique d'Épigraphie Arabe*, Cairo, 1941–1942.

Cambr. Hist. of Iran, V

Cambridge History of Iran, vol. V: *The Seljuk and the Mongol periods*, Cambridge, 1968.

Early sources

Abū'l-Faraj: *The Chronography of Gregory Abū'l Faraj, the son of Aaron*, Syriac text and translation by Budge, E.A.W., 2 vols, London, 1932.

Abū'l-Fidā' a: Ismā'īl ibn 'Alī Abū'l-Fidā', *Taqwīm al-Buldān*, edited by Reinaud, J.T. and de Slane, M., Paris, 1840.

Abū'l-Fidā' b: Ismā'īl ibn 'Alī Abū'l-Fidā', *Taqwīm al-Buldān*, translated by Reinaud, J.T., Paris, 1848.

Al-Bakrī: Abū 'Ubayd ibn 'Abd al-'Azīz al-Bakrī, *Mu'jam mā isti'jam*, edited by Wüstenfeld, F., Göttingen and Paris, 1876–1877.

Al-Balādhurī: Aḥmad ibn Yaḥyā ibn Jābir al-Balādhurī, *Kitāb futūḥ al-buldān*, edited by de Goeje, M.J., Leiden, 1966.

Al-Dhahabī a: Abū 'Abd Allah Muḥammad al-Dhahabī, *Duwal al-Islām*, edited by Hyderabad, 2 parts, 1337 H (1918–1919).

Al-Dhahabī b: Abū 'Abd Allah Muḥammad al-Dhahabī, *Duwal al-Islām*, partly translated by Nègre, A., Damascus, 1979.

Al-Ṭabarī: Abū Ja'far Muḥammad ibn Jarīr al-Ṭabarī, *Ta'rīkh al-rusul wa al-mulūk*, edited by de Goeje, M.J. *et al.*, 13 vols, Leiden, 1879–1903.

Al-Ẓāhirī: Ghars al-Dīn Khalīl ibn Shahīn al-Ẓāhirī, *Zubdat kashf al-mamālik*, edited by Ravaisse, P., Paris, 1894.

Al-Harawī: Al-Harawī, *Kitāb al-ziyārāt*, translated by Sourdel-Thomine, J., Damascus 1957.

Al-Idrīsī: Muḥammad ibn Muḥammad al-Idrīsī, *Kitāb nuzhat al-mushtāq fī-ikhtirāq al-āfāq*, edited by Cerulli, E., Gabrieli, F., Levi Della Vida, G., Petech, L., Tucci, G., Naples-Rome, fasciculus sextus, 1976.

Anon. Syr. Chron.: "The First and Second Crusades from an Anonymous Syriac Chronicle", translated by Tritton, A.S. *Journal of the Royal Asiatic Society*, 1933, 69–101 and 273–305.

Benjamin of Tudela: *The Itinerary of Rabbi Benjamin of Tudela*, edited and translated by Asher, A., London and Berlin, 1840 (1983 edition).

Fronto: *The correspondence of Marcus Cornelius Fronto with Marcus Aurelius Antoninus, Lucius Verus, Antoninus Pius, and various friends*, edited and translated by Haines, C.R., 2 vols, London, 1919–1920.

Ḥajjī Khalīfa: Muṣṭāfa ibn 'Abdallah Ḥajjī Khalīfa, *Jihān numa'*, translated by Norberg, M., 1818 (1973 edition).

Ibn al-Athīr: 'Izz al-Dīn Abu al-Ḥasan 'Alī ibn Muḥammad ibn al-Athīr, *al-Kāmil fī l-ta'rīkh*, edited by Tornberg, 14 vols, Leiden, 1851–1876.

Ibn al-'Adīm: Kamāl al-Dīn ibn al-'Adīm, *Zubdat al-Ḥalab*, edited by Dahan, S., 3 vols, Damascus, 1951–1954.

Ibn Ḥawqal: Ibn Ḥawqal, *Kitāb ṣurat al-arḍ*, translated by Kramers, J.H. and Wiet, G., Paris, 1964.

Ibn Iyās: Muḥammad ibn Aḥmad ibn Iyās, *Badā'i' al-zuhūr fī waqā'i' al-duhūr*, edited by Bulak, 3 vols, Cairo, 1311 H (1893).

Ibn Khallikān a: Ibn Khallikān, *Kitāb wafayāt al-a'yān wa anbā' al-zamān*, edited by 'Abbās, I., 8 vols, Beirut, 1968–1972.

Ibn Khallikān b: Ibn Khallikān, *Kitāb wafayāt al-a'yān wa anbā' al-zamān*, translated by de Slane, M., Paris and London, 1843–1871.

Ibn Khurradādhbih: Abū al-Qāsim 'Ubayd Allāh ibn 'Abd Allāh ibn Khurradādhbih, *Kitāb al-Masālik wa al-Mamālik*, edited by de Goeje, M.J., Leiden, 1967 (2nd edition).

Ibn al-Qalānisī a: Gibb, H.A.R. *The Damascus Chronicle of the Crusades: Extracted and Translated from the Chronicle of Ibn al-Qalānisī*, London, 1932.

Ibn al-Qalānisī b: Le Tourneau, R. *Damas de 1075 à 1154: Traduction annotée d'un fragment de l'Histoire de Damas d'Ibn al-Qalanīsī*, Paris, 1952.

Ibn Shaddād a: 'Izz al-Dīn ibn Shaddād, *Al-A'lāq al-khaṭīra fī dhikr umārā' al-Shām wa al-Jazīra*, (Jazīra) edited by 'Abbāra, Y., 2 vols, Damascus, 1978.

Ibn Shaddād b: 'Izz al-Dīn ibn Shaddād, *Al-A'lāq al-khaṭīra fī dhikr umārā' al-Shām wa al-Jazīra*, (Syrie du Nord) edited by Eddé, A.-M. *Bulletin d'Études Orientales*, XXXII–XXXIII, 1980–1981, 265–402.

Ibn Shaddād c: 'Izz al-Dīn ibn Shaddād, *Al-A'lāq al-khaṭīra fī dhikr umārā' al-Shām wa al-Jazīra*, (Syrie du Nord) translated by Eddé-Terrasse, A.-M., Damascus, 1984.

Isidore of Charax: Isidore of Charax, *Parthian Stations of Isidore of Charax: An Account of the Overland Trade Route between the Levant and India in the First Century B.C.*, edited by Schoff, W.H., Philadelphia, 1914.

Matthiew of Edessa: *Récit de la première croisade: Extrait de la chronique de Matthieu d'Edesse*, translated by Dulaurier, E., Paris, 1850.

Nāṣir-i Khusraw: Nāṣir-i Khusraw, *Sefer Nameh*, edited and translated by Schefer, Ch., Paris, 1881.

Procopius: Procopius, *De aedificiis*, edited and translated by Downey, G., Cambridge, Mass. and London, 1961.

Ptolemy: C. Ptolemy, *Geography of Claudius Ptolemy*, translated by Stevenson, E.L., New York, 1932.

Stephan of Byzantium: Stephan of Byzantium, *Ethnicorum quae supersunt, ex recensione Augusti Meinekii*, Berlin, 1849.

Usāma a: Derenbourg, H. *Ousāma ibn Mounḳidh, un émir syrien au premier siècle des Croisades (1095–1188): Vie d'Ousama*, Paris, 1889.

Usāma b: Hitti, P. *An Arab-Syrian Gentleman and Warrior in the Period of the Crusades: Memoirs of Usāmah ibn-Munqidh (Kitāb al-i'tibār)*, translated from the original manuscript, New York, 1929.

Yaḥyā of Antioch: Yaḥyā ibn Sa'īd al-Anṭākī, *Annales*, partly edited by Cheikho, L. Paris, 1909; partly edited and translated by Kratchkovsky and Vasiliev, *Patrologia Orientalis*, XVIII, 701–833; XXIII, 347–520, Paris, 1924.

Yāqūt: Abū 'Abd Allāh Yāqūt ibn 'Abd Allāh, *Mu'jam al-Buldān*, edited by Wüstenfeld, F., 6 vols, Leipzig 1866–1870.

William of Tyre: William of Tyre, *Historia rerum in partibus transmarinis*, edited and translated in Recueil des Historiens des Croisades: Historiens Occidentaux, publié par les soins de l'Académie Royale des Inscriptions et Belles Lettres, 2 vols, Paris, 1844.

Modern works

Abdul Hak, S. (1959?) *Les trésors du Musée National de Damas*, Damascus, n.d.

Abdu'l-Haqq, S. (1951) "Le cavalier en céramique glacisée de Raqqa", *Annales Archéologiques Arabes Syriennes* I, 143–144.

Abel, A. (1930) *Gaibī et les grands faïenciers égyptiens d'époque mamlouke*, Cairo.

Adams, R. McC. (1965) *Land behind Baghdad: A History of Settlement on the Diyala Plains*, Chicago and London.

Adams, R. McC. (1970) "Tell Abū Sarīfa: A Sassanian-Islamic Ceramic Sequence from South Central Iraq", *Ars Orientalis* VIII, 87–119.

Aleppo (1974) *Exposition des découvertes de la campagne internationale de sauvegarde des antiquités de l'Euphrate*, Musée National d'Alep, Aleppo.

Allan, J.W. (1971), *Medieval Middle Eastern Pottery*, Oxford.

Allan, J.W. (1973) "Abū'l-Qāsim's Treatise on Ceramics", *Iran* XI, 111–120.

Allan, J.W, Llewellyn, L.R. and Schweizer, F. (1973) "The History of So-called Egyptian Faience in Islamic Persia: Investigations into Abū'l-Qāsim's Treatise", *Archaeometry* 15/2, 165–173.

Allan, J.W. (1974a) "Incised Wares of Iran and Anatolia in the 11th and 12th Centuries", *Keramos* 64, 15–22.

Allan, J.W. (1974b) "Some Observations on the Origin of the Medieval Persian Ceramic Body", *PDF Colloquy* 4, 60–67.

Allan, J.W. (1991), *Islamic Ceramics*, Oxford.

Amedroz, H.F. (1902) "Three Arabic MSS. on the History of the City of Mayyāfāriqīn", *Journal of the Royal Asiatic Society*, 785–812.

Amiran, R. and Eitan, A. (1970) "Excavations in the Courtyard of the Citadel, Jerusalem, 1968–1969", *Israel Exploration Journal* 20, 9–17.

Arias, C., Berti, G. and Liverani, G. (1973) "Analisi con fluorescenza a Raggi X dei rivestimenti vetrosi monocromi delle Ceramiche Egiziane dei secoli XI–XIII", *Faenza* LIX, 33–44.

Ashtor, E. (1983) *Levant Trade in the Later Middle Ages*, Princeton.

Atil, E. (1973) *Ceramics from the World of Islam*, catalogue of an exhibition held at The Freer Gallery of Art, Washington.

Atil, E. (1975) *Art of the Arab World*, catalogue of an exhibition held at The Freer Gallery of Art, Washington.

Atil, E. (1981) *Renaissance of Islam: Art of the Mamluks*, catalogue of an exhibition held at The Freer Gallery of Art, Washington.

Baer, E. (1969) "'Fish-pond' Ornaments on Persian and Mamluk Metal Vessels", *Bulletin of the School of Oriental and African Studies* XXXI, 15–27.

Bagatti, B. (1971) "Scavo presso la chiesa di S. Giuseppe a Nazaret (agosto 1970)", *Liber Annuus* XXI, 5–32.

[Bahgat, A.B. (1922) — attributed by Ballardini 1934, note 2, p. 392], *La céramique égyptienne de l'époque musulmane*, Musée de l'Art Arabe du Caire, Basilea.

Bahgat, A.B. and Gabriel, A. (1921) *Fouilles d'al Fousṭāṭ*, Paris.

Bahgat, A.B. and Massoul, F. (1930) *La Céramique Musulmane de l'Egypte*, Cairo.

Bahnassi, A. (n.d.) *Le sauvetage des vestiges de la zone de submersion du barrage de Tabqa sur l'Euphrate*, Damascus.

Bahnassi, A. and Bounni, A. (1973) *Sauvegarde des antiquités du lac du barrage de l'Euphrate*, Damascus.

Bahrain (1988) "Al-Kuwait: Tārīkh wa ḥadhāra", *Dār al-Āthār al-Islāmiyya*, Kuwait National Museum, April, 18–21 (Arabic version) and 12–15 (English version).

Bakirer, O. (1973) "The Excavations at Korucutepe, Turkey, 1968–70: Preliminary Report. Part VII: The Medieval Glazed Pottery", *Journal of Near Eastern Studies* 33, 96–108 (plates in van Loon, M.N. (1973) "The Excavations at Korucutepe, Turkey, 1968–70: Preliminary Report. Part I: Architecture and General Finds", *Journal of Near Eastern Studies* 32, pls 21–26).

Bakirer, O. (1980) "The Medieval Pottery and Baked Clay Objects", in van Loon, M.N. (ed.) (1980) *Korucutepe: Final Report on the Excavations of the Universities of Chicago, California (Los Angeles) and Amsterdam in the Keban Reservoir, Eastern Anatolia 1968–70*, vol. 3, Amsterdam/New York/Oxford, 189–249.

Baldwin, M.W. (ed.) (1955) *A History of the Crusades, vol. I, The First Hundred Years*, Philadelphia.

Ballardini, G. (1934) "Bacini Orientali a Ravello", *Bollettino d'Arte*, March 1934, 391–400.

Ballardini, G. (1938) "Per un corpus dei bacini di ceramica dei nostri antichi monumenti", *Faenza* XXVI, 3–16.

Balog, P. (1980) *The Coinage of the Ayyubids*, London.

Bartl, K. (1994a) *Frühislamische Besiedlung im Balīḫ-Tal/ Nordsyrien*, Berlin.

Bartl, K. (1994b) "Tell Sheikh Hasan: A Settlement of the Roman-Parthian to the Islamic Period in the Balikh Valley-Northern Syria", *Archéologie islamique* 4, 5–17.

Bartl, K. (1996) "The Balīh Valley Survey: Settlements of the Late Roman/Early Byzantine and Islamic Period", in Bartl, K. and Hauser, S.R. (eds) *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), Freie Universität Berlin, *Berliner Beiträge Vorderen Orient* 17, 333–348.

Bechtel, F., Raffaillac-Desfosse, C., Schvoerer, M. and Berthier, S. (in press) "Vieillissement de céramiques glaçurées de l'Islam médiéval", in *Actes du Colloque de Madrid sur les céramiques médiévales* (Oct. 1993).

Becker, A. (1994) "Die frühislamische Glasproduktion in Raqqa", in *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), Freie Universität Berlin, Seminar für Vorderasiatische Altertumskunde, 6–9 April, 1994.

Bell, G. L. (1911) *Amurath to Amurath*, London.

Beirut (1974) *Art islamique dans les collections privées libanaises*, Musée Sursock, Beirut.

Benente, F and Gardini, A. (1996) "I bacini ceramici della Liguria", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 67–99.

Ben-Tor, A. and Rosenthal, R. (1978) "The First Season of Excavations at Tel Yoqne'am, 1977: Preliminary Report", *Israel Exploration Journal* 28, 57–82.

Ben-Tor, A., Portugali, Y. and Avissàr, M. (1979) "The Second Season of Excavations at Tel Yoqne'am, 1978: Preliminary Report", *Israel Exploration Journal* 29/2, 65–83, pls 9–11.

Berlin (1971) *Museum für Islamische Kunst. Katalog*, Berlin.

Berlin (1981–1982) *Islamische Kunst: Meisterwerke aus dem Metropolitan Museum of Art, New York/Islamic Art: Masterpieces from the Metropolitan Museum of Art*, New York/Berlin.

Bernus, M. (1972) "Acquisitions des céramiques iraniennes", *Revue du Louvre et des Musées de France*, 193–194.

Bernus-Taylor, M. (1978) "The Islamic Glazed Pottery", in Matthers, J. *et al.*, "Tell Rifa'at, 1977, Preliminary Report of an Archaeological Survey", *Iraq* XL, 156–162.

Bernus Taylor, M. (1981) "The Islamic Glazed Pottery", in Matthers, J. (ed.) *The River Qoweiq, Northern Syria, and its Catchment: Studies Arising from the Tell Rifa'at Survey 1977–79*, BAR International Series 98, I–II, Oxford, 473–498.

Berthier, S. (1985) "Sondage dans le secteur des thermes sud à Buṣrā (Syrie) 1985", *Berytus* XXXIII, 5–45.

Berthier, S. and Geyer, B. (1988) "Rapport préliminaire sur une campagne de fouilles de sauvetage à Tell Ḥrīm (Syrie) — Hiver 1986", *Syria* LXV, 63–98.

Berthier, S., D'Hont, O. and Geyer, B. (1989) "Le peuplement rural de la moyenne vallée de l'Euphrate à l'époque islamique (VIIe siècle–début du XXe siècle)", *Contribution Française à l'Archéologie Syrienne 1969–1989*, Institut Français d'Archéologie du Proche-Orient, Damascus, 227–231.

Berthier, S. and D'Hont, O. (1994) "Le peuplement rural de la moyenne vallée de l'Euphrate à l'époque islamique (VIIe–XXe siècle): Premiers résultats", *Archéologie islamique* 4, 153–175.

Berthier, S. *et al.* (in press) *Le peuplement rural de la moyenne vallée de l'Euphrate à l'époque islamique (VII–XIX siècles): Étude régional Deir ez-Zor/Abu Kamal (Syrie)*, Institut Français d'Études Arabes, Damascus.

Berti, G. and Tongiorgi, L. (1981) *I bacini ceramici medievali delle chiese di Pisa*, Rome.

Berti, G. (1996) "I 'bacini' ceramici della Toscana", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 101–138.

Berti, G. (1997) *Pisa — Museo Nazionale di San Matteo: Le ceramiche medievali e post-medievali*, Florence.

Berti, G. and Cappelli, L. (1994) *Dalle ceramiche islamiche alle "maioliche arcaiche". Secc. XI–XV, Ricerche di archeologia altomedievale e medievale 19–20*, Florence.

Berti, G. and Gelichi, S. (1995) "Ceramiche, ceramisti e trasmissioni tecnologiche tra il XII e XIII secolo nell'Italia centro settentrionale", in *Miscellanea in Memoria di Giuliano Cremonesi*, Dipartimento di Scienze archeologiche dell'Università di Pisa, Pisa, 409–445.

Berti, G., Gabbrielli, F. and Parenti, R. (1996) "Bacini e architettura. Tecniche di inserimento e complesso decorativo", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 243–264.

Berti, G., Torre, P. *et al.* (1983) *Arte islamica in Italia: i bacini delle chiese pisane*, catalogue of an exhibition at the Museo Nazionale d'Arte Orientale di Roma, Pisa.

Besançon, J., Copeland, L., Hours, F. and Sanlaville, P. (1978) "The Paleolithic Sequence in Quaternary Formations of the Orontes River Valley, Northern Syria: A Preliminary Report", *Bulletin of the Institute of Archaeology of London* 15, 149–170.

Besançon, J., de Contenson, H., Copeland, L., Hours, F., Muhesen, S. and Sanlaville, P. (1980) *Étude géographique et prospection archéologique des plateaux de la région de Menbij (Syrie du Nord)*, Travaux de la R.C.P. 438, Lyon, Maison de l'Orient.

Besançon, J., Copeland, L., Hours, F., Muhesen, S. and Sanlaville, P. (1982) "Prospection géographique et préhistorique dans le bassin d'el Kowm (Syrie). Rapport préliminaire", *Cahiers de l'Euphrate* 3, 9–26.

Besançon, J. and Sanlaville, P. (1981) "Aperçu géomorphologique sur la vallée de l'Euphrate syrien", *Paléorient* 7/2, 5–18.

Bianquis, Th. (1979) "Réflexions sur l'archéologie islamique en Syrie: la genèse de la fouille de Rahba-Mayadin", *Hommages à Serge Sauneron (1927–1976)*, II, Institut d'Archéologie Orientale, Cairo, 269–285.

Bianquis, Th. (1987) "La mission franco-syrienne de Rahba Mayadin", *Dossier histoire et archéologie* 122, December, 27–31.

Bianquis, Th. (1989) "Mission franco-syrienne de Rahba-Mayadin (1976–1981)", *Contribution Française à l'Archéologie Syrienne 1969–1989*, Institut Français d'Archéologie du Proche-Orient, Damascus, 220–226.

Bianquis, Th. (1986–1989) *Damas et la Syrie sous la domination Fatimide*, 2 vols, Damascus.

Blake, H. (1978) "Ceramiche romane e medievali e pietra ollare", in Ward-Perkins, B. *et al.*, "Scavi nella Torre Civica di Pavia", *Archeologica Medievale 5*, 141–170.

Blake, H. (1980) "The Bacini of North Italy", in *La céramique médiévale en Mediterranée occidentale. Xe–XVe siècles.* Valbonne 1978, CNRS, Paris, 93–111.

Blake, H. (1980) "La maiolica arcaica dell'Italia centro-settentrionale: Montalcino, Assisi e Tolentino", *Faenza* LXVI, 106–152, pls XII–XIX.

Blake, H. and Aguzzi, F. (1989) "I bacini ceramici della torre civica di Pavia", in Gabba, E. (ed.) *La Torre Maggiore di Pavia*, Milan, 209–241.

Bloom, J. (1989) *Minaret: Symbol of Islam*, Oxford Studies in Islamic Art VII.

Bounni, A. (1975) "La campagne internationale de sauvegarde des antiquités de l'Euphrate", *Archéologie* 82, May, 24–33.

Bojani, G.C., Ravanelli Guidotti, C. and Fanfani, A. (1985) *La donazione Galeazzo Cora dal medioevo al XIX secolo*, Milan.

British Naval Intelligence (1943): Great Britain Naval Intelligence Division, Syria, B.R. 513 (restricted). Geographical handbook series. For official use only, London.

Brosh, N. (1986) "Ceramic Remains: Pottery of the 8th–13th Centuries C.E. (Strata 1–3)", in Levine, L.I. and Netzer, E. (1986) *Excavations at Caesarea Maritima. 1975, 1976, 1979: Final Report*, Qedem 21, 66–89.

Brown, R.M. (1992) *Late Islamic Ceramic Production and Distribution in the Southern Levant: A Socio-economic and Political Interpretation*, unpublished Ph.D. thesis, State University of New York at Binghamton.

Buckingham, J.S. (1827) *Travels in Mesopotamia. Including a Journey from Aleppo to Baghdad, By the Route of Beer, Orfa, Diarbekr, Mardin, and Mousul; with Researches on the Ruins of Niniveh, Babylon, and Other Ancient Cities*, 2 vols, London.

Bulliet, R.W. (1993) "Pottery Styles and Social Status in Medieval Khurasan", in Knapp, A.B. (ed.) *Archaeology,* Annales, *and Ethnohistory*, Cambridge, 75–82.

Cabona, D., Gardini, A. and Pizzolo, O. (1986) "Nuovi dati sulla circolazione delle ceramiche mediterranee dallo scavo di Palazzo Ducale a Genova (secc. XII–XIV)", *La ceramica medievale nel mediterraneo occidentale* (Siena 8–12 October, 1984, Faenza, 13 October, 1984), Florence, 453–482.

Cahen, Cl. (1934) "La Djazira au milieu du treizième siècle d'après 'Izz ad-din ibn Chaddād", *Revue des Études Islamiques* 8, 109–128.

Cahen, Cl. (1940) *La Syrie du Nord à l'époque des Croisades et la principauté franque d'Antioche*, Paris.

Cahen, Cl. (1969) "The Mongols and the Near East", in Setton, K.M. (ed.) *A History of the Crusades*, II, Madison, Milwaukee, and London, 715–732.

Cahen, Cl. (1971) "Iktā'", EI² III, 1088–1091.

Caiger Smith, A. (1985) *Lustre Pottery*, London.

Canard, M. (1953) *Histoire de la Dynastie des H'amdanides de Jazīra et de Syrie*, Paris.

Canard, M. (1965) "Djazīra", EI² II, 523–524.

Canard, M. and Cahen, Cl. (1965) "Diyār Muḍar", EI² II, 347–348.

Canard, M. and Cahen, Cl. (1965) "Diyār Rabī'a", EI² II, 348–349.

Canard, M., Cahen, Cl., Yinanç, M.H. and Sourdel-Thomine, J. (1965) "Diyār Bakr", EI² II, 343–347.

Carswell, J. (1966) "A Fourteenth Century Chinese Porcelain Dish from Damascus", in Sarrūf, F. and Tamim, S. (eds) *American University of Beirut Festival Book (Festschrift)*, Beirut, 39–58.

Carswell, J. (1972a) "Six Tiles", in Ettinghausen, R. (ed.) *Islamic Art in the Metropolitan Museum of Art*, New York, 99–123.

Carswell, J. (1972b) "Some Fifteenth-century Hexagonal Tiles from the Near East", *Victoria and Albert Museum Yearbook* 3, 59–75.

Carswell, J. (1979) "Ṣīn in Syria", *Iran* XVII, 15–24.

Carswell, J. (1985) *Blue and White: Chinese Porcelain and Its Impact on the Western World*, Catalogue of an exhibition at

the David and Alfred Smart Gallery, The University of Chicago, October 3–December 1, 1985.

Carswell, J. (1987) "Two Tiny Turkish Pots: Some Recent Discoveries in Syria", *Islamic Art* II, 203–216.

Charleston, R.J. (1979) *Masterpieces of Western and Near Eastern Ceramics, IV: Islamic Pottery*, Tokyo.

Comstock, H. (1945) "Islamic Acquisition and an Exhibition in Cleveland", *The Connoisseur* CXV, 108–109.

Conteneau, G. (1924) "L'Institut Français d'Archéologie et d'Art à Damas", *Syria* V, 203–211.

Creswell, K.A.C. (1952) "Fortification in Islam before A.D. 1250", *Proceedings of the British Academy* 38, 89–125.

Damascus (1931) *Musée National Syrien de Damas: Edité à l'occasion de l'Exposition Coloniale et des Pays d'Outre Mer*, Damascus.

Damascus (1954–1955) *Deuxième Exposition des Découvertes Archéologiques des Années 1954–1955 Organisée par la Direction Générale des Antiquités de Syrie au Musée National de Damas*, Damascus.

David-Weill, J. (1960) "Sur un bol de Damas", *Cahiers de Céramique* 19, 183–184.

Day, F.E. (1939) "Medieval Finds at Al Mina in North Syria, by Arthur Lane", *Ars Islamica* VI, 187–197.

Day, F.E. (1941) "The Islamic Finds at Tarsus", *Asia* XLI, 143–149.

Day, F.E. (1960) "Islamic Glazed Wares", in Delougaz, P.D. and Haines, R.C., *A Byzantine Church at Khirbat al-Karak*, Chicago, 40–48.

Dayton, J.E. and Bowles, J. (1977) "Abu Qasim of Kashan, and the Problem of Persian Glazing", *Annali dell'Istituto Orientale di Napoli* 37, 143–152.

De Crescenzo, A. (1996) "I bacini ceramici dell'Italia meridionale e della Sicilia", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 203–230.

Demmin, A. (1875) *Histoire de la céramique*, Paris.

Dikigoropoulos, A.I. and Megaw, A.H.S. (1958) "Early Glazed Pottery from Polis", *Report of the Department of Antiquities, Cyprus 1940–1949*, Nicosia, 77–93, pls VIII–IX.

Dimand, M.S. (1930) *A Handbook of Mohammedan Decorative Arts*, The Metropolitan Museum of Art, New York.

Dornemann, R.H. (1985) "Salvage Excavations at Tell Hadidi in the Euphrates River Valley", *Biblical Archaeologist* 48, 49–59.

Dussaud, R. (1927) *Topographie historique de la Syrie antique et médiévale*, Paris.

Dussaud, R., Deschamps, P. and Seyrig, H. (1931) *La Syrie antique et médiévale illustrée*, Paris.

Einwag, B. (1993) "Vorbericht über die archäologische Geläandebehing in der Westgazira", *Damaszener Mitteilungen* 7, 23–43.

Elisséeff, N. (1949–1951) "Les monuments de Nūr ad-Dīn", *Bulletin d'Études Orientales* XIII, 5–43.

Elisséeff, N. (1952–1954) "La titulature de Nūr ad-Dīn d'après ses inscriptions", *Bulletin d'Études Orientales* XIV, 155–196.

Elisséeff, N. (1967) *Nūr al-Dīn: Un grand prince musulman de Syrie au temps des Croisades (511–569 H./1118–1174)*, 3 vols, Damascus.

Emiliani, T., Vecchi, G. and Ravioli, F. (1966) "Le Faenze silicee", *Rassegna della Istruzione Artistica* 3, 26–32.

E[ttinghausen], R. (1960) *Medieval Near Eastern Ceramics in the Freer Gallery of Art*, Washington.

Fairchild Ruggles, D. (1997) "Fortifications of the Islamic Period", in Meyers, E.M. (ed.) *The Oxford Encyclopedia of Archaeology in the Near East*, New York and Oxford, 334–336.

von Falke, O. (1896) *Majolica*, Berlin.

Fehérvari, G. (1968) "Seljuq Pottery of Mesopotamia (Raqqa and Rusafa)", in Charleston, R.J. (ed.) *World Ceramics*, New York, 86.

Fehérvari, G. (1985) *La Ceramica Islamica*, Milan.

Finster, B. and Smith, J. (1976) "Sasanidische und frühislamische Ruinen im Iraq", *Baghdader Mitteilungen* 8.

Fiorilla, S. (1997) *Gela: Le ceramiche medievali dai pozzi di Piazza San Giacomo*, Messina.

Fortnum, C.D. (1873) *A Descriptive Catalogue of the Maiolica, Hispano Moresco, Persian, Damascus and Rhodian Wares in the South Kensington Museum*, London.

Fouquet, J. (1900) *Contribution à l'Étude de la Céramique Orientale*, Cairo.

Franken, H.J. and Kalsbeek, J. (1975) *Potters of a Medieval Village in the Jordan Valley*, Amsterdam/Oxford/New York.

Franchi, R., Tonghini, C., Paloschi, F. and Soldi, M. (1995) "Mediaeval Syrian Fritware: Materials and Manufacturing Techniques", in Vincenzini, P. (ed.) *The Ceramics Cultural Heritage*, TECHNA — Monographs in Materials and Society 2, Faenza, 197–205.

Frantz, M. (1938) "Middle Byzantine Pottery in Athens", *Hesperia* 7, 429–467.

Frierman, J.D. and Giauque, R.D. (1973) "Saljūq Faïence and Tīmūrid Earthenware from Tammīsha: Some Preliminary Technological Notes", *Iran* XI, 180–184.

Frierman, J.D., Asaro, F. and Michel, H.V. (1979) "The Provenance of Early Islamic Lustre Wares", *Ars Orientalis* XI, 111–126.

Gabrieli, F. (1957) *Storici Arabi delle Crociate*, Turin.

Gabrieli, F. and Scerrato, U. (1979) *Gli Arabi in Italia*, Milan.

Gangoly, O.C. (1925) "On Some Rakka and Raghes Potteries", *Rupam* 24, October, 80–86.

Garner, J. (1927) "Ancient Potteries from the Site of Rakka", *International Studio* 87, 52–59.

Gaudefroy-Demombynes, M. (1923) *La Syrie à l'époque des Mamelouks d'après les Auteurs Arabes*, Paris.

Gayraud, R.P. (1986a) "Importations de céramiques occidentales dans l'Empire des Mamelouks", *La ceramica medievale nel mediterraneo occidentale*, Siena 8–12 October 1984, Faenza, 13 October 1984, Florence, 611.

Gayraud, R.P. (1986b) "Istabl 'Anṭar (Fostat) 1985: Rapport de Fouilles", *Annales Islamologiques* 22, 1–26.

Gayraud, R.P. (1987) "Istabl 'Anṭar (Fostat) 1986: Rapport de Fouilles", *Annales Islamologiques* 23, 55–71.

Gayraud, R.P. (1991) "Istabl 'Anṭar (Fostat) 1989: Rapport de Fouilles", *Annales Islamologiques* 25, 57–87.

S. Gelichi, S. and Nepoti, S. (1996), "I 'bacini' in Emilia Romagna, Veneto e Friuli Venezia Giulia", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 51–66.

Geneva (1981) *Céramiques Islamiques dans les Collections Genevoises*, Musée d'Art et d'Histoire, Geneva.

Golvin, L. and Raymond, A. (1974) "Meskeneh/Balis", *Exposition des découvertes de la campagne internationale de sauvegarde des antiquités de l'Euphrate*, Musée National d'Alep, Aleppo, 107–111.

Gompertz, S. St. G. M. (1980) *Chinese Celadon Wares*, London.

Grabar, O. (1965) "Qasr al-Hayr al-Sharqi, Preliminary Report on the First Season of Excavations", *Annales Archéologiques Arabes Syriennes* X, 107–120.

Grabar, O. (1978) "Palaces, Citadels and Fortifications", in Michell, G. (ed.) *Architecture of the Islamic World: Its History and Social Meaning*, London, 65–79.

Grabar, O. *et al.* (1978) *City in the Desert: Qasr al-Hayr East*, 2 vols, Cambridge, Mass., 1978.

Grierson, Ph. (1984) *Introduzione alla numismatica*, Rome.

Grousset, R. (1934–1936) *Histoire des Croisades et du royame franc de Jérusalem*, 3 vols, Paris (2nd ed. 1991).

Grube, E.J. (1963) "Raqqa-Keramik in der Sammlung des Metropolitan Museum in New York", *Kunst des Orients* IV, 48–78.

Grube, E.J. (1966) "Islamic Sculpture: Ceramic Figurines", *Oriental Art* XII, 165–175.

Grube, E.J. (1974) "Islamic Pottery and the Ceramic Arts of the Far East", *Atti VII Convegno Internazionale della Ceramica*, Albisola, 45–49.

Grube, E.J. (1976) *The Keir Collection: Islamic Pottery of the Eighth to the Fifteenth Century*, London.

Grube, E.J. (1995) *Cobalt and Lustre: The Nasser D. Khalili Collection of Islamic Art. A Survey of the Arts of the Islamic Lands*, vol. IX, the Nour Foundation, London.

Guérin, A. (1996) "L'occupation abbaside de Nasibin. Typologie et chronologie préliminaires de la céramique prospectée en surface", in Bartl, K. and Hauser, S.R. (eds) *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), Freie Universität Berlin, *Berliner Beiträge Vorderen Orient* 17, 377–400.

Gyllensvard, B. (1973) "Recent Finds of Chinese Ceramics at Fostat. I", *Bulletin of the Museum of Far Eastern Antiquities* 45, Stockholm, 99–119.

Gyllensvard, B. (1975) "Recent Finds of Chinese Ceramics at Fostat. II", *Bulletin of the Museum of Far Eastern Antiquities* 47, Stockholm, 93–117.

Haase, C.-P. (1991) "Madīnat al-Fār: First Archaeological Soundings at the Site and the History of an Umayyad Domain in Abbasid Times", in al-Bakhit, M.A. and Schick, R. (eds) *Bilād al-Shām During the 'Abbasid Period*, Proceedings of the Fifth International Conference on the History of Bilād al-Shām, 206–225.

Haase, C.-P. (1996) "The Regional Late Antique Tradition of an Early Islamic Foundation", in Bartl, K. and Hauser, S.R. (eds) *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), Freie Universität Berlin, *Berliner Beiträge Vorderen Orient* 17, 165–171.

Hakimian, S. and Salamé-Sarkis, H. (1988) "Céramiques médiévales trouvées dans une citerne à Tell 'Arqa", *Syria* LXV, 1–52.

Hammershaimb, E. (1957) "Les inscriptions sur verres et poteries", *Hama: Fouilles et recherches de la Fondation Carlsberg 1931–1938*, IV/2, Copenhagen, 284–301.

Hamer, F. and Hamer, J. (1991) *The Potter's Dictionary of Materials and Techniques*, third edition, London.

Hansman, J. (1985) *Julfār, an Arabian Port: Its Settlement and Far Eastern Ceramic Trade from the 14th to the 18th Centuries*, London.

Hardy-Guilbert, Cl. (1984) "Les niveaux islamiques du secteur Apadana-Ville Royale", *Cahiers de la Délégation Archéologique Française en Iran* 14, 121–225.

Harrison R.H. and Firatli, N. "Excavations at Saraçhane in Istanbul: Fifth Preliminary Report. With a Contribution on a Seventh-century Pottery Group by John W. Hayes", *Dumbarton Oaks Papers* 22, 195–216.

Hayes, J.W. (1980) "Turkish Clay Pipes: A Provisional Typology", in *The Archaeology of the Clay Tobacco Pipe* IV, BAR International Series 92, Oxford, 3–10.

Hayes, J.W. (1992) *Excavations at Saraçhane in Istanbul, Volume 2: The Pottery*, Princeton University.

Heidemann, S. (1990) *Die Expedition Taqī ad-Dīn 'Umars in die Jazīra und die Rebellion al-Manṣūr Muḥammads in Ḥarrān während des Dritten Zreuzzuges*, unpublished M.A. thesis, Freie Universität Berlin, Institut für Islamwissenschaften, Berlin, November, 1990.

Heidemann, S. (1994) *Das aleppiner Kalifat (A.D. 1261)*, Leiden.

Heidemann, S. (1996) "Al-'Aqr, das islamische Assur: Ein Beitrag zur historischen Topographie in Nordmesopotamien", in Bartl, K. and Hauser, S.R. (eds) *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), Freie Universität Berlin, *Berliner Beiträge Vorderen Orient* 17, 259–285.

Henderson, J. and Raby, J. (1989) "The Technology of the Fifteenth Century Turkish Tiles: An Interim Statement on the Origins of the Iznik Industry", *World Archaeology* 21/1, 115–132.

Heusch, J.-Ch. and Meinecke, M. (1989) *Die Residenz des Harun al-Rashid in Raqqa*, Damascus.

Hillenbrand, C. (1979) *The History of the Jazīra 1100–1150: The Contribution of Ibn al-Azraq al-Fāriqī*, 2 vols, unpublished Ph.D. thesis, Edinburgh (unseen).

Hillenbrand, C. (1985) "The History of the Jazīra, 1100–1250: A Short Introduction", *Oxford Studies in Islamic Art* I (ed. by Raby, J.), 9–19.

Hillenbrand, R. (1985) "Eastern Islamic Influences in Syria: Raqqa and Qal'at Ja'bar in the Later 12th Century", *Oxford Studies in Islamic Art* I (ed. by Raby, J.), 21–48.

Hobart, M. and Porcella, F. (1996), "Bacini ceramici in Sardegna", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 139–160.

Hobson, R.L. (1932a) *A Guide to the Islamic Pottery of the Near East*, The British Museum, London.

Hobson, R.L. (1932b) "A Dish of Rakka Pottery", *The British Museum Quarterly* VII, 49–50, pl. XXIb.

Hobson, R.L. (1934) "A Persian Pottery Box", *The British Museum Quarterly* VIII, 134.

Hobson, R.L. (1937) "Syria or Cyprus?", *Ars Islamica* IV, 467–468.

Hollis, H.C. (1938) "Two Iranian Pottery Bowls", *Bulletin of the Cleveland Museum of Art* XXV, 43–49.

Hollis, H.C. (1944) "Two Near Eastern Lustered Bowls", *Bulletin of the Cleveland Museum of Art* XXXI, 156–160.

Höllmann, S. and Höllmann, T.O. (1988) "Teuflische Gelüste — Einige Bemerkungen zum Tabakgenub im Osmanischen Reich", in *Diplomaten und Wesire: Krieg und Frieden im Spiegel türkischen Kunsthandwerks*, Staatliches Museum für Völkerkunde München, Munich, 161–174.

Honigmann, E. and Bianquis, Th. (1995) "al-Raḥba", EI² VIII, 393–396.

Humprey, J.W. (1990) "The Turkish Clay Smoking Pipes of Mytilene", *Soc. for Clay Pipe Research, Newsletter* 26, April, 2–9.

Humphreys, R.S. (1977) *From Saladin to the Mongols*, State University of New York.

Hurst, D.G. (1964) "Medieval Britain in 1962 and 1963, II: Post-conquest" (compiled by), *Medieval Archaeology* 8, 241–299.

IFEAD (1988) *Un mission de reconnaissance de l'Euphrate en 1922. Première partie: les cartes*, Institut Français de Damas, Damascus.

Ilisch, L. (1984) *Geschichte der Artuqidenherrschaft von Mardin zwischen Mamluken und Mongolen 1260–1410 AD*, Münster.

Ingholt, H. (1934) *Rapport préliminaire sur la première campagne de fouilles de Hama*, Copenhagen.

Ingholt, H. (1940) *Rapport préliminaire sur sept campagnes de fouilles à Hama en Syrie (1932–1938)*, Copenhagen.

Irwin, R. (1986) *The Middle East in the Middle Ages: The Early Mamluk Sultanate, 1250–1382*, London.

Jacobs, L. (1991–1992) "Causes for the Pale Colour of Iron-containing, Second Millennium B.C. Pottery from Three Archaeological Sites in Mesopotamia", *Newsletter of the Department of Pottery Technology* 9–10, Leiden University, 7–21.

Japan (1989–1990) *The Exhibition of Great Civilizations of Syria*, travelling exhibition, Japan.

Japarizde, V.V. (1956) *Keramikuli c'armoeba XI–XIII ss. Sak'art'veloshi (ark'eologiuri masalebis mikhedvit)* [Ceramic production in 11th–13th-century Georgia according to archaeological evidence], Tiflis.

Jenkins, M. (1984) "Mamluk Underglaze-Painted Pottery: Foundations for Future Study", *Muqarnas* 2, 95–114.

Jenkins, M. (1988) "Sa'd: Content and Context", with a "Technical Note" by Gary W. Carriveau, in Soucek, P.P. (ed.) *Content and Context of Visual Arts in the Islamic World*, Papers from

a Colloquium in Memory of Richard Ettinghausen (New York, April, 1980), Pennsylvania State University Press and London, 67–75, figs 1–23.

Johns, C.N. (1932) "Excavations at Pilgrims' Castle ('Atlit): The Faubourg and its Defences", *Quarterly of the Department of Antiquities in Palestine* I, 111–129.

Johns, C.N. (1932) "Medieval Slip-ware from Pilgrims' Castle, 'Atlīt (1930–1)", *Quarterly of the Department of Antiquities in Palestine* III, 136–144, pls XLIX–LVII, and "Excavations at Pilgrims' Castle, 'Atlīt (1932): The Ancient Tell and the Outer Defences of the Castle", *ibid.*, 145–164, pls LVIII–LXIV.

Johns, C.N. (1936) "Excavations at Pilgrims' Castle, 'Atlīt (1932–3): Stables at the South-west of the Suburb", *Quarterly of the Department of Antiquities in Palestine* V, 31–60, pls XXII–XXVIII.

Johns, C.N. (1950) "The Citadel, Jerusalem", *Quarterly of the Department of Antiquities in Palestine* XIV, 121–190.

Johns, J., McQuitty, A. , Falkner, R. and project staff (1989) "The Fâris Project: Preliminary Report upon the 1986 and 1988 Seasons", *Levant* XXI, 63–95.

Kalsbeek, J. and Franken, H.J. (1991–1992) "Medieval Pottery from the Levant Entirely or Partly Made in Moulds", *Newsletter of the Department of Pottery Technology* 9–10, Leiden University, 47–53.

Karamağarali, C.N. (1991) "Ahlat Seramikleri", *International Congress of Turkish Art, Istanbul, 23–27 September, 1991, Summary of Contributions*, Istanbul, 101.

Kawadoko, M. and Sakura, K. (eds) (1994) *Excavations at Fustat. Final Report*, Tokyo, Waseda University Press.

Kennedy, H. (1994) *Crusader Castles*, Cambridge.

Kennet, D. (1994) "Jazīrat al-Ḥulayla — Early Julfār. With a historical commentary by G.R.D. King", *Journal of the Royal Asiatic Society* 4/2, 3rd series, July 1994, 163–212.

Kerametli, C. (1973) "Asya'dan Anadolu'ya Türk Çini ve Seramik Sanati", *Türkiyemiz* 9, Subat 1973, 11–20.

Kervran, M. (1977) "Les niveaux islamiques du secteur oriental du Tépé de l'Apadana. II. Le matériel céramique", *Cahiers de la Délégation Archéologique Française en Iran* 7, 75–161.

Kervran, M. (1984) "Le matériel archéologique", *Cahiers de la Délégation Archéologique Française en Iran* 14, 52–93.

al-Khūlī, M. (1975) "Ba'ḍ al-muqtanayāt al-ḥadītha min al-khazaf al-ayyūbī al-maḥfūẓa fī maṭḥaf dimashq al-waṭanī", *Annales Archéologiques Arabes Syriennes* 25, 151–157.

Koechlin, R. (1912) "La céramique dans l'art musulman", *Art et Décoration* XXXII, July–December, 185–192.

Koechlin, R. and Migeon, G. (n.d.) *Cent planches en couleurs d'Art Musulman. Céramique, Tissus, Tapis*, Paris (the date 1928 is pencilled in the copy of the Victoria and Albert Museum Library; second edition edited by R. Pinder-Wilson, 1956).

Kouchakji, F. (1923) "Glories of er Rakka Pottery", *International Studio* LXXXVI, 515–524.

Kubiak, W.B. (1967) "Les fouilles polonaises à Kôm el Dik en 1963 et 1964", *Bulletin de la Société Archéologique d'Alexandrie* 42, 47–80, pls I–IX.

Kubiak, W.B. (1969) "Overseas Pottery Trade of Medieval Alexandria as Shown by Recent Archaeological Discoveries: A Preliminary Communication", *Folia Orientalia* X, 5–30.

Kubiak, W.B. (1970) "Crusaders' Pottery of al-Mīnā found at Fusṭāṭ", *Folia Orientalia* XII, 113–123.

Kubiak, W.B. and Scanlon, G.T. (1989) *Fusṭāṭ Expedition Final Report. Vol. 2: Fusṭāṭ-C*, American Research Center in Egypt. Reports 11, Eisenbrauns, Lake Winona, Indiana.

Kühnel, E. (1925) *Islamische Kleinkunst*, Berlin.

Kühnel, E. (1938) *Die Sammlung türkischer und islamischer Kunst im Tschinili Köschk*, Berlin.

Kühnel, E. (1970) *Islamic Arts*, London.

Kuwait (1983) *Islamic Art in the Kuwait National Museum*, ed. by Jenkins, M., London.

Lamm, C.J. (1941) *Oriental Glass of Mediaeval Date Found in Sweden and the Early History of Lustre-painting*, Stockholm.

Lane, A. (1937) "Medieval Finds at Al Mina in North Syria", *Archaeologia* LXXXVII, 19–78.

Lane, A. (1938) "The Early Sgraffito Ware of the Near East", *Transactions of the Oriental Ceramic Society*, 33–54.

Lane, A. (1947) *Early Islamic Pottery*, London.

Lane, A. (1949) "Archaeological Excavations at Kom el-Dik: A Preliminary Report on the Medieval Pottery", *Bulletin of the Faculty of Arts Alexandria University* 5, 144–154.

Lane, A. (1956) *Islamic Pottery from the Ninth to the Fourteenth Centuries A.D. (Third to Eighth Centuries A.H.) in the Collection of Sir Eldred Hitchcock*, London.

Lane, A. (1957) *Later Islamic Pottery*, London.

Lane, A. and Serjeant, R.B. (1948) "Pottery and Glass Fragments from the Aden Littoral, with Historical Notes", *Journal of the Royal Asiatic Society*, 108–133.

Lapidus, I.M. (1967) *Muslim Cities in the Later Middle Ages*, Cambridge, Mass.

Lapidus, I.M. (1984) *Muslim Cities in the Later Middle Ages*, student edition, Cambridge.

Lavazza, A. and Vitali, M.G. (1994) "La ceramica d'uso comune: problemi generali e note su alcune produzioni tardoantiche e medievali", in Lusuardi Siena (ed.) *Ad mensam: Manufatti d'uso da contesti archeologici fra tarda antichità e medioevo*, Udine, 17–54.

Lebeau, M., Gubel, E. and Monchambert, J.-Y. (1985) "Rapport préliminaire sur la première campagne de fouilles à Tell Melebiya (moyen-Khabour — printemps 1984)", *Akkadica* 45, 1–15.

Legner, A. (1964) "Islamische Keramik in Resafa", *Annales Archéologiques Arabes Syriennes* XIV, 98–108.

Le Strange, G. (1930) *The Lands of the Eastern Caliphate*, Cambridge.

Léth, A. (1948) "C.L. Davids Samling af Islamisk Keramik", *C.L. Davids Samling. Nogle Studier*, Copenhagen, 31–129.

Léth, A. (1975) *Davids Samling, Islamisk Kunst/The David Collection, Islamic Art*, Copenhagen.

Levine, L.I. and Netzer, E. (1986) *Excavations at Caesarea Maritima. 1975, 1976, 1979: Final Report*, Qedem 21.

Lewis, B. (1955) "The Ismā'īlites and the Assassins", in Baldwin, M.W. (ed.) *A History of the Crusades, I: The First Hundred Years*, Philadelphia, 99–132.

Lisbon (1963) *L'Art de l'Orient Islamique: Collection de la Fondation Calouste Gulbenkian*, Lisbon.

Lloyd, S. and Brice, B. "Harran", *Anatolian Studies* 1, 77–111.

Loffreda, S. (1982) "Documentazione preliminare degli oggetti della XIV campagna di scavi a Cafarnao", *Liber Annuus* XXXII, 409–426, pls 83–96.

Logar, N. (1991) "Katalog der Keramikfunde aus dem Wasserverteiler" in Brinken, W. "Zur Wasserversorgung von Resafa-Sergiupolis", *Damaszener Mitteilungen* 5, 147–168, pls 50–53.

Logar, N. (1992) "Die Kleinfunde aus dem Westhofbereich der Groben Basilika von Resafa", *Damaszener Mitteilungen* 6, 417–478, pls 77–78.

Logar, N. (1995) "Die Keramik des mittelalterlichen Wohnkomplexes in Resafa", *Damaszener Mitteilungen* 8, 269–291.

van Loon, M. (1973) "The Excavations at Korucutepe, Turkey, 1968–70: Preliminary Report. Part I: Architecture and General Finds", *Journal of Near Eastern Studies* 32, 357–423.

van Loon, M.N. (ed.) (1978) *Korukutepe: Final Report on the Excavations of the Universities of Chicago, California (Los Angeles) and Amsterdam in the Keban Reservoir, Eastern Anatolia, 1968–1970. Volume 2*, Amsterdam/New York/Oxford.

London (1976) *The Arts of Islam*, London.

Lusuardi Siena, S. (ed.) (1994) *Ad mensam: Manufatti d'uso da contesti archeologici fra tarda antichità e medioevo*, Udine.

Lyonnet, B. (1996) "Settlement Patterns in the Upper Khabur (N.E. Syria) from the Achaemenids to the Abbasid Period: Methods and Preliminary Results from a Survey", in Bartl, K. and Hauser, S.R. (eds) *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), Freie Universität Berlin, *Berliner Beiträge zum Vorderen Orient* 17, 349–361.

Lyons, M.C. and Jackson, D.E.P. (1982) *Saladin: The Politics of the Holy War*, Cambridge.

Maher, S. (1976) "Ḥafā'ir Kulliyat al-Athār bi-jāhir madīnat al-Fusṭāṭ", *Majallat Kulliyat al-Athār* 1, 95–126.

Mahmoud, A. (1978) "Terqa Preliminary Reports, No. 5: Die Industrie der Islamischen Keramik aus der Zweiten Season", *Syro-Mesopotamian Studies* 2/5, August, 95–114.

Mannoni, T. and Giannichedda, E. (1996) *Archeologia della produzione*, Turin.

Martin, F.R. (1909) "The True Origin of the so-called Damascus Ware", *Burlington Magazine* XV, 269–270.

Martin, F.R. (1929) *Il lustro sul vetro e la ceramica da Adriano a Saladino,* Collana di studi d'arte ceramica, Faenza.

Marzouk, M.A (1957) "Three Signed Specimens of Mamlūk Pottery from Alexandria", *Ars Orientalis* II, 497–501.

Mason, R.B. (1995a) "Criteria for the Petrographic Characterization of Stonepaste Ceramics", *Archaeometry* 37/2, 307–321.

Mason, R.B. (1995b) "Defining Syrian Stonepaste Ceramics: Petrographic Analysis of Pottery from Ma'arrat al-Nu'man", *Islamic Art in the Ashmolean Museum*, Part Two, *Oxford Studies in Islamic Art* X (edited by Allan, J.), 1–18.

Mason, R.B. and Keall, E. J. (1988) "Provenance of Local Ceramic Industry and the Characterization of Imports: Petrography of Pottery from Medieval Yemen", *Antiquity* 62, 452–463.

Mason, R.B. and Keall, E. J. (1990) "Petrography of Islamic Pottery from Fustat", *Journal of the American Research Center in Egypt* XXVII, 165–184.

Mason, R.B. and Tite, M.S. (1994) "The Beginnings of Islamic Stonepaste Technology", *Archaeometry* 36/1, 77–91.

McCarthy, B., Vandiver, P. and Gibson, McG. (1995) "Innovation and Continuity in the Technology of Southwest Asian Monochrome Glazes", in Vincenzini, P. (ed.) *The Ceramics Cultural Heritage*, TECHNA — Monographs in Materials and Society 2, Faenza, 207–218.

Medley, M. (1975) "Islam, Chinese Porcelain and Ardabīl", *Iran* XIII, 31–37.

Medley, M. (1976) *The Chinese Potter: A Practical History of Chinese Ceramics*, Oxford.

Meinecke, M. (1988) "Syrian Blue-and-white Tiles of the 9th/15th Century", *Damaszener Mitteilungen* 3, 203–215, pls 37–44.

Meinecke, M. (1995) "al-Raḳḳa", EI² VIII, 410–414.

Meinecke-Berg, V. (1983) "Keramik der italienischen Renaissance im Nationalmuseum von Damaskus", *Damaszener Mitteilungen* 1, 243–247, pl. 57.

Michaud, J.-F. (1884) *Histoire des Croisades*, Paris 1812–1817 (Italian edition Milan 1884).

Michel, H.V., Frierman, J.D. and Asaro, F. (1976) "Chemical Composition Patterns of Ceramic Wares from Fustāt, Egypt", *Archaeometry* 18/1, 85–92.

Michigan (1981) *The Meeting of Two Worlds: The Crusades and the Mediterranean Context*, The University of Michigan Museum of Art, May 9–September 27.

Migeon, G. (1901) "Céramique Orientale à reflets métalliques: A propos d'une acquisition récente du Musée du Louvre", *Gazette des Beaux Arts* XXVI, 3e pér., 192–208.

Migeon, G. (1907) *Manuel d'Art Musulman, II: Les Arts Plastiques et Industriels*, Paris.

Migeon, G. (1922) *Musée du Louvre: L'Orient Musulman*, II, Paris.

Migeon, G. (1923) "Nouvelles découvertes sur la céramique de Damas", *Revue de l'Art Ancien et Moderne* XLIV, 383–386.

Migeon, G. (1927) *Manuel d'Art Musulman*, Paris (2nd ed.).

Mikami, T. (1980–1981) "China and Egypt: Fustat", *Transactions of the Oriental Ceramic Society* 45, 67–89.

Morgan, D.O. (1985) "The Mongols in Syria, 1260–1300", in Edbury, P.W. *Crusade and Settlement*, University College Cardiff Press, 231–235.

Morgan, P. (1991) "New Thoughts on Old Hormuz: Chinese Ceramics in the Hormuz Region in the Thirteenth and Fourteenth Centuries", *Iran* XXIX, 67–83.

Morgan, P. (1995) "Iranian Stone-paste Pottery of the Saljuk Period: Types and Techniques", in Grube, E.J. *Cobalt and Lustre: The Nasser D. Khalili Collection of Islamic Art. A Survey of the Arts of the Islamic Lands*, vol. IX, the Nour Foundation, London, 155–169.

Morgan, P. and Leatherby, J. (1987) "Excavated Ceramics from Sīrjān", *Oxford Studies in Islamic Art* IV (ed. by Allan J. and Roberts, C.), 23–172.

Morgan, P. and Nassar, N. (1995) "Bamiyan and Afghan Wares", in Grube, E.J. *Cobalt and Lustre: The Nasser D. Khalili Collection of Islamic Art. A Survey of the Arts of the Islamic Lands*, vol. IX, the Nour Foundation, London, 295–329.

Mota, M.M. (1988) *Louças Seljúcidas: Catálogo das louças islâmicas, I*, Museum Calouste Gulbenkian, Lisbon.

Muhesen, S. (1985) *L'Acheuléen Récent Évolué de Syrie*, BAR International Series 248, Oxford.

Musil, A. (1927) *The Middle Euphrates: A Topographical Itinerary*, New York.

Nepoti, S. (1986) "Ceramiche tardo medievali spagnole ed islamiche orientali nell'Italia centro-settentrionale adriatica", in *Secundo Coloquio Internacional de Céramica Medieval en el Mediterráneo Occidental, Toledo 1981*, 353–363.

Nepoti, S. and Gelichi, S. (1996) "I 'bacini' delle Marche", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 183–201.

New York (1931) *Loan Exhibition of Ceramic Art of the Near East*, The Metropolitan Museum of Art, New York, May 12 to June 28.

Northedge, A. (1985) "Planning Sāmarrā': A Report for 1983–4", *Iraq* XLVII, 109–118.

Northedge, A. and Falkner, R. (1987) "The 1986 Survey Season at Sāmarrā'", *Iraq* XLIX, 143–173.

Northedge, A., Bamber, A. and Roaf, M. (1988) *Excavations at 'Āna*, British School of Archaeology in Iraq, Warminster.

Northedge, A., Wilkinson, T.J. and Falkner, R. (1990) "Survey and Excavations at Sāmarrā' 1989", *Iraq* LII, 121–147.

O'Neill, B.H.St.J. (1932) "A Syrian Vase Found in Monmouthshire", *Archaeologia Cambrensis* 87, 193–194.

Orsi, P. (1915) "Ceramiche arabe di Sicilia", *Bollettino d'Arte* IX, 249–256.

Öney, G. (1982) "1978–1979 Yili Samsat Kazilarinda Bulunan Islam Devri Buluntulariyla Ilgili Ilk Haber", *Arkeoloji-Sanat Tarihi Dergisi* 1.

Paris (1971) *Arts de l'Islam des origines à 1700 dans les collections publiques françaises, Orangerie des Tuileries*, Paris.

Paris (1977) *L'Islam dans les collections nationales,* Le Grand Palais, Paris.

Pauly-Wissowa, *Realenzyklopaedie des klassischen Altertums*, IV, 2234.

Pederson, B. (1980) "Blue and White Imitation Pottery from the Ghaibī and Related Workshops in Medieval Cairo", *Bulletin of the Museum of Far Eastern Antiquities* 52, Stockholm, 65–88.

Peduto, P. (1991), "L'uso della ceramica nei mosaici", *Apollo* VII, 103–109.

Peduto, P. (1992) "Materiali arabo-islamici nella Ravello del secolo XIII. Eredità o moda?", *Presenza araba e islamica in Campania, Atti del Convegno, Napoli-Caserta 22–25 novembre 1989*, Naples, 467–475.

Pérez-Arantegui, J., Querré, G. and Kaczmarczyk, A. (1995) "Chemical Characterization of Islamic Glazed Ceramics by Particle Induced X-ray Emission (PIXE)", in Vincenzini, P. (ed.) *The Ceramics Cultural Heritage*, TECHNA — Monographs in Materials and Society 2, Faenza, 475–482.

Philon, H. (1980) *Early Islamic Ceramics*, Benaki Musum of Athens, London.

Philon, H. (1985) "Stems, Leaves, and Water-Weeds: Underglaze-Painted Pottery in Syria and Egypt", *The Art of Syria and the Jazira, 1100–1250, Oxford Studies in Islamic Art* I (ed. by Raby, J.), 113–126.

Chatfield Pier, G. (1909) "Pottery of the Hither Orient in the Metropolitan Museum", *Burlington Magazine* XIV, 120–125 (I) and 384–388 (II).

du Plat Taylor, J. and Megaw, A.H.S. (1951) "Cypriot Medieval Glazed Pottery: Notes for a Preliminary Classification", *Report of the Department of Antiquities, Cyprus 1937–1939*, Nicosia, 1–13, pls I–XI.

Poche, A. (1952) "Faïences de collections privées à Alep", *Faenza* XXXVIII, 8–9.

Poidebard, A. (1934) *La trace de Rome dans le désert de Syrie: Le limes de Trajan à la conquête arabe. Recherches aériennes (1925–1932)*, Paris.

Pope, A.U. (1939) "The Ceramic Art in Islamic Times", in Pope, A.U. and Ackermann, P. (eds) *Survey of Persian Art* II (new edition vol. IV, Oxford 1967).

Porter, A.K. (1916–1917) *Lombard Architecture*, 3 vols, New Haven, Yale.

Porter, V. (1981) *Medieval Syrian Pottery*, Ashmolean Museum, Oxford.

Porter, V. and Watson, O. (1987) "'Tell Minis' Wares", *Syria and Iran, Three Studies in Medieval Ceramics, Oxford Studies in Islamic Art* IV (ed. by Allan, J. and Roberts, C.), 175–248.

Poulsen, V. (1957) "Les poteries médiévales", *Hama: Fouilles et recherches de la Fondation Carlsberg 1931–1938*, IV/2, Copenhagen, 115–283.

Poulsen, V. (1970) "Islamisk Fayence fra Syrien", *C.L. Davids Samling, Fjerde del Jubilaeumsskrift, 1945–1970*, Copenhagen, 257–291.

Pringle, R.D. (1977) "La ceramica dell'area Sud del Convento di San Silvestro a Genova", *Archeologia Medievale* 4, 100–161.

Pringle, R.D. (1978) "Le ceramiche dell'area sud del Chiostro di San Silvestro a Genova", *Archeologia Medievale* 5, 430–436.

Pringle, D. (1982) "Some More Proto-maiolica from 'Athlit (Pilgrims' Castle) and a Discussion of its Distribution in the Levant", *Levant* XIV, 104–117.

Pringle, D. (1984a) "Thirteenth-Century Pottery from the Monastery of St. Mary of Carmel", *Levant* XVI, 91–111.

Pringle, D. (1984b), "Italian Pottery from Late Mamluk Jerusalem: Some Notes on Late and Post Medieval Italian Tradewares in the Levant", *Atti del XVII Convegno Internazionale della Ceramica, Albisola*, 37–44.

Pringle, D. (1985) "Medieval Pottery from Caesarea: The Crusader Period", *Levant* XVII, 171–202.

Pringle, D. (1986a) *The Red Tower (al-Burj al-Ahmar): Settlement in the Plain of Sharon at the Time of the Crusaders and Mamluks, A.D. 1099–1516*, British School of Archaeology in Jerusalem, London.

Pringle, D. (1986b) "Pottery as Evidence for Trade in the Crusader States", in Airaldi, G. and Kedar, B.Z. (eds) *I comuni Italiani nel Regno Crociato di Gerusalemme*, Genoa, 451–496.

Prost, Cl. (1916) *Les revêtements céramiques dans les monuments musulmans de l'Égypte*, Mémoires de l'Institut Français d'Archéologie Orientale du Caire 40, Cairo.

Qaddumi, Gh.H. (1987) *Variety in Unity: A Special Exhibition on the Occasion of the Fifth Islamic Summit in Kuwait*, 1987.

Raymond, A. and Paillet, J.-L. (1995) *Bālis II: Histoire de Bālis et fouilles des îlots I et II*, IFEAD, Damascus.

Redford, S. (1995) "Medieval Ceramics from Samsat, Turkey", *Archéologie islamique* 5, 54–80.

Rengarten, A. (1929) "Raskopki v oblasti srednyago Evfrata", *Seminarium Kondakovianum* II, 301–304, pls XXVII–XXVIII.

Rice, D.S. (1952) "Studies in Medieval Ḥarrān: Studies on its Topography and Monuments, I", *Anatolian Studies* 2, 36–84.

Riefstahl, R.M. (1922) *The Parish-Watson Collection of Mohammadan Potteries*, New York.

Riis, P.J. (1957) "Les données historiques et stratigraphiques", *Fondation Carlsberg. Hama: Fouilles et recherches 1931–1938, IV/2, Les verreries et poteries médiévales*, Copenhagen, 1–29.

Rivière, H. (1913) *La céramique dans l'art musulman. Recueil de cents planches en couler reproduisant les plus belles pièces originales choisies dans les Musées et le collections privées et étrangères*, with a preface by Gaston Migeon, 2 vols, Paris.

Robine, G. and Roumi, M. (in press) *Les norias de l'Oronte: Eléments du patrimoine technologique syrien*, Institut Français d'Études Arabes, Damascus.

Robinson, C.F. (1996) "Tribes and Nomads in Early Islamic Northern Mesopotamia", in Bartl, K. and Hauser, S.R. (eds) *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), Freie Universität Berlin, *Berliner Beiträge Vorderen Orient* 17, 429–452.

Robinson, R.C.W. (1983) "Clay Tobacco Pipes from the Kerameikos", *Mitteilungen des Deutschen Archäologischen Institut* (Atenische Abteilung) 98, 265–85, pls 52–56.

Robinson, R.C.W. (1985) "Tobacco Pipes of Corinth and of the Athenian Agora", *Hesperia* 54, 149–203, pls 33–64.

Rogers, J.M. (1972) "Apamea: The Mediaeval Pottery. Preliminary Report", *Actes du Colloque Apamée de Syrie. Bilan des Recherches Archéologiques 1969–1971*, Brussels, 253–270.

Rome (1985) *Da Ebla a Damasco: Diecimila anni di archeologia in Siria*, Milan.

Rosen-Ayalon, M. (1974) *Ville Royale de Suse IV: La poterie islamique*, Paris.

Rousset, M.-O. (1996) "Evolution in the Settlement in Māyādīn (Syria)", in Bartl, K. and Hauser, S.R. (eds) *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period* (colloquium), *Berliner Beiträge zum Vorderen Orient* 17, 185–194.

Rowe, L.E. (1931), "Two Mesopotamian Bowls", *Bulletin of the Rhode Island School of Design* XIX, 45–47.

Runciman, S. (1954), *A History of the Crusades II*, Cambridge (1990 edition).

Saccardo, F. (1995) "Ceramiche tardomedievali veneziane e d'importazione dal ritrovamento di Malamocco-Forte, al Lido di Venezia", *Archeologia Uomo e Territorio* 14, Rome, 161–182.

Saccardo, F. (1996) "Nuovi dati sulla ceramica tardomedievale veneziana: il ritrovamento di Malamocco", *Atti del XXVI Convegno Internazionale della Ceramica, Albisola 28–30 maggio 1993*, 353–372.

Saccardo, F. (in press a) "Venezia: Le importazioni ceramiche tra XII e XIII secolo", in *Ceramica, città e commercio nell'Italia tardomedievale e nelle aree circonvicine, Atti del Seminario di Studi*, Ravello 1993.

Saccardo, F. *et al.* (in press b) *Ritrovare restaurando*, catalogue of an exhibition held at Venice, Palazzo Ducale, March–May 1997.

Safar, F. (1945) *Wasit, the Sixth Season's Excavations*, Cairo.

Salamé-Sarkis, H. (1980) *Contribution à l'histoire de Tripoli et de sa région à l'époque des Croisades: Problèmes d'histoire, d'architecture et de céramique*, Bibliothèque Archéologique et Historique CVI, Paris.

Salibi, K. (1977) *Syria under Islam, 634–1097*, New York.

Saliby, N. (1954–1955) "Rapport préliminaire sur la deuxième campagne de fouilles à Raqqa", *Annales Archéologiques Arabes Syriennes* IV–V, 205–212.

Ṣalībī, N. (1956) "Ḥafriyyāt al-Raqqa, taqrīr awwalī 'an al-mawsim al-thālith, kharīf 1953: iktishāf al-qaṣr", *Annales Archéologiques Arabes Syriennes* VI, 25–40.

Sanlaville, P. (ed.) (1979) *Quaternaire et préhistoire du Nahr el Kébir septentrional: Les débuts de l'occupation humaine dans la Syrie du Nord*, Travaux de la R.C.P. 438, Maison de l'Orient, Lyon.

Sanlaville, P. (ed.) (1985) *Holocene Settlement in North Syria*, BAR International Series 238, Oxford.

Sanlaville, P., Besançon, J., Copeland, L. and Muhesen, S. (1993) *Le Paléolitique de la vallée moyenne de l'Oronte (Syrie): Peuplement et environnement*, BAR International Series 587, Oxford.

Sarre, F. (1909) "Rakka Ware", *Burlington Magazine* XIV, 388.

Sarre, F. (1913–1914) "Frühislamische, in Graffito-Technik dekorierte Keramik persischer Herkunft in der Islamischen Kunstabteilung", *Amtliche Berichte aus den Königlichen Kunstsammlungen* XXXV, 45–52.

Sarre, F. (1921) "Die Keramik im Euphrat- und Tigris-Gebiet", in Friedrich Sarre and Ernst Herzfeld, *Archaeologische Reise im Euphrat- und Tigris-Gebiet* IV, Berlin, 1–25 (Illustrations in vol. III, published in 1911, pls CXIII–CXX and CXLI–CXLVII, see Sarre and Herzfeld 1911).

Sarre, F. (1925) *Keramik und andere Kleinfunde der islamischen Zeit von Baalbek*, Berlin and Leipzing (Sonderdruck aus dem III. Bande der Ergebnisse der Ausgrabungen und Untersuchungen in den Jahren 1989 bis 1905).

Sarre, F. and Herzfeld, E. (1911) *Archaeologische Reise im Euphrat- und Tigris-Gebiet*, III, Berlin.

Sauer, J.A. (1976) "Pottery Techniques at Tell Deir 'Allā", *Bulletin of the American Schools of Oriental Research* 224, December, 91–94.

Sauvaget, J. (1932) *Les monuments historiques de Damas*, Beirut.

Sauvaget, J. (1938) "R.L. Hobson, *Syria or Cyprus?* (Ars Islamica, t. IV, 1937, p. 467)", in "Abstracta Islamica, B.-Céramique", *Revue des Études Islamiques*, page A. 27.

Sauvaget, J. (1941) *La poste aux chevaux dans l'empire des Mamelouks*, Paris.

Sauvaget, J. (1948) "Tessons de Rakka", *Ars Islamica* XIII–XIV, 31–45.

Scanlon, G.T. (1967) "Fustat Expedition: Preliminary Report 1965, Part II", *Journal of the American Research Center in Egypt* 6, 65–86.

Scanlon, G.T. (1968) "Ancillary Dating Material from Fustat", *Ars Orientalis* VII, 7–17.

Scanlon, G.T. (1974) "The Pits of Fustat: Problems of Chronology", *Journal of Egyptian Archaeology* 60, 60–78,

Scanlon, G.T. (1976) "Fustat Expedition: Preliminary Report 1968. Part II", *Journal of the American Research Center in Egypt* 13, 69–89.

Scanlon, G.T. (1971) "The Fustat Mounds: A Shard Count", *Archaeology* 24/2, 220–233.

Scanlon, G.T. (1980) "Some Mamluk Ceramic Shapes from Fustat: 'Sgraff' and 'Slip'", *Islamic Archaeological Studies* II, 59–145.

Scanlon, G.T. (1981) "Fusṭāṭ Expedition: Preliminary Report, 1972. Part I", *Journal of the American Research Center in Egypt* XVIII, 57–84.

Scanlon, G.T. (1982) "Fusṭāṭ Expedition: Preliminary Report, 1972. Part II", *Journal of the American Research Center in Egypt* XIX, 119–129.

Scanlon, G.T. (1984a) "Fusṭāṭ Expedition: Preliminary Report 1978", *Journal of the American Research Center in Egypt* XXI, 1–38.

Scanlon, G.T. (1984b) "Mamluk Pottery: More Evidence from Fustat", *Muqarnas* 2, 115–126.

Scanlon, G.T. (1986) *Fusṭāṭ Expedition Final Report. Vol. 1: Catalogue of Filters*, American Research Center in Egypt. Reports, vol. 8, Eisenbrauns, Winona Lake, Indiana.

Scanlon, G.T. (1990) "The Archaeology of al-Fusṭāṭ: Some Novelties", *Bulletin de l'Institut d'Egypte* LXVIII–LXIX, Cairo, 1–16.

Scerrato, U. (1967) *Arte islamica a Napoli*, Naples.

Scerrato, U. and Ventrone-Vassallo, G. (1982) "La ceramica islamica", *Tell Barri/Kahat 1. Relazione preliminare sulla campagna 1980–1981*, Rome, 77–88.

Schaefer, J. (1989) "Archaeological Remains from the Medieval Islamic Occupation of the Northwest Negev Desert", *Bulletin of the American Schools of Oriental Research* 274, May, 33–60.

Schvoerer, M., Ney, Cl., Raffaillac-Desfosse, Cl. and Peduto, P. (1992) "Bacini et tesselles en céramique glaçurée de l'église San Giovanni del Toro, Ravello", *Apollo* VIII, 74–96.

Scott, R.E. (1989) *Percival David Foundation of Chinese Art: A Guide to the Collection*, London.

Shahid, I. (1986) "Lakhmids", EI² V, 632–634.

Schnyder, R. (1973) "Mediaeval Incised and Carved Wares from North West Iran", *Colloquies on Art and Archaeology in Asia No. 4*, London, 85–95.

Sfrecola, S. (1989) "Analisi mineralogico-petrografiche dei bacini architettonici", in Gabba, E. (ed.) *La Torre Maggiore di Pavia*, Milan, 242–268.

Simpson, St.J. (1990a) "A Brief Introduction to Ottoman Clay Pipes", *Soc. for Clay Pipe Research, Newsletter* 27, July, 6–10.

Simpson, St.J. (1990b) "Ottoman Clay Pipes from Jerusalem and the Levant: A Critical Review of the Published Evidence", *Soc. for Clay Pipe Research, Newsletter* 28, October, 7–16.

Smith, R.H. *et al.* (1973) *Pella of the Decapolis, Vol. I: The 1967 Season of the College of Wooster Expedition to Pella*, The College of Wooster, Wooster, Ohio.

Sourdel, D. (1965) "Ḏja'bar", EI² II, 354.

Sourdel-Thomine, J. (1960) "Bālis", EI² I, 995–996.

Sourdel-Thomine, J. (1960) "Buzā'ā", EI² I, 1357–1358.

Soustiel, J. (1985) *La céramique islamique*, Fribourg.

Soustiel, L. and Allan, J. (1995) "The Problem of Saljuq Monochrome Wares", in Allan, J. (ed.) *Islamic Art in the Ashmolean Museum*, Part Two, *Oxford Studies in Islamic Art* X, 85–116.

Spence, C. (ed.) (1990) *Archaeological Site Manual*, Department of Urban Archaeology, Museum of London (second edition).

Spallanzani, M. (1978) *Ceramiche Orientali a Firenze nel Rinascimento*, Florence.

Spallanzani, M. (1989) "Fonti archivistiche per lo studio dei rapporti fra l'Italia e l'Islam: le arti minori nei secoli XIV–XVI", in Grube, E.J. (ed.) *Venezia e l'Oriente Vicino*, Venice, 83–100.

Stead, C. (1935) *Fantastic Fauna: Decorative Animals in Moslem Ceramics*, Cairo.

Stepansky, Y. (1988–1989) "Hanot Minnim (Khan Minya)", *Excavations and Surveys in Israel* 1988/89 7–8, 73–75.

Stevenson, R.B.K. (1947) *The Great Palace of the Byzantine Emperors: The Pottery*, First report on the excavations carried out in Istanbul on behalf of the Walker Trust (the University of St. Andrews) 1935–1938, reprinted 1947.

Tabbagh coll. (1937) *A Magnificent Collection of Near Eastern and Early Mediterranean Art, Ceramics, Miniatures, Oriental Rugs, Ancient Glass, Property of the Estate of the Late Émile Tabbagh*, catalogue of a sale held at the American

Art Association, Anderson Gallery, New York, January 3–4, 1936.

Talbot Rice, D. (1930) *Byzantine Glazed Pottery*, Oxford.

Talbot Rice, D. (1965) "The Pottery of Byzantium and the Islamic World", *Studies in Islamic Art and Architecture in Honour of Professor K.A.C. Creswell*, Cairo, 194–236.

Tangheroni, M. (1996) *Commercio e navigazione nel Medioevo*, Bari.

Thalmann, J.-P. (1978) "Tell 'Arqa (Liban Nord). Campagnes I–III (1972–1974)", *Syria* LV, 1–144.

Tite, M.S. (1989) "Iznik Pottery: An Investigation of the Methods of Production", *Archaeometry* 31/ 2, 115–132.

Tonghini, C. (1995a) "A New Islamic Pottery Sequence in Syria: Tell Shahin", *Levant* XXVII, 197–207.

Tonghini, C. (1995b) "The Fine Wares of Ayyubid Syria", in Grube, E.J. *Cobalt and Lustre: The Nasser D. Khalili Collection of Islamic Art. A Survey of the Arts of the Islamic Lands*, vol. IX, the Nour Foundation, London, 248–293.

Tonghini, C. (1995c) *Qal'at Ja'bar Pottery: A Study of a Syrian Fortified Site of the Late 11th–14th Century*, Ph.D. thesis, School of Oriental and African Studies, University of London.

Tonghini, C. (in press) "La céramique à pâte siliceuse", in Berthier, S. *et al.*, *Le peuplement rural de la moyenne vallée de l'Euphrate à l'époque islamique (VII–XIX siècles): Étude régional Deir ez-Zor/Abu Kamal (Syrie)*, Institut Français d'Études Arabes, Damascus.

Tonghini, C. and Grube, E. (1988–1989) "Towards a History of Syrian Islamic Ceramics before 1500", *Islamic Art* III, 59–93.

Tonghini, C. and Henderson, J. (1998) "An Eleventh-century Pottery Production Workshop at al-Raqqa. Preliminary Report", *Levant* XXX, 133–127.

Toueir, K. (1973) "Céramiques mameloukes à Damas", *Bulletin d'Études Orientales* XXVI, 209–217.

Toueir, K. (1979) "Syria Islamica aus archäologischer Sicht", *Das Altertum Heft* 2, 25, 93–98.

Toueir, K. (1985) "Der Qaṣr al-Banāt in ar-Raqqa: Ausgrabung, Rekonstruktion und Wiederaufbau (1977–1982)", *Damaszener Mitteilungen* 2, 297–319, pls 72–82.

Turquety-Pariset, F. (1982) "Fouille de la municipalité de Beyrouth (1977): les objects", *Syria* LIX, 27–76.

Tushingham, A.D. (1985) *Excavations in Jerusalem 1961–1967*, I, Royal Ontario Museum, Toronto.

Ulbert, T. *et al.* (1986) *Die Basilika des Heiligen Kreuzes in Resafa-Sergiupolis*, Resafa II, Mainz am Rhein.

Vannini, G. (1982) "La ceramica 'crociata': un documento archeologico da costruire", *Toscana e Terrasanta nel Medioevo*, Florence, 346–390.

Vannini, G. *et al.* (1985–1987) *L'antico Palazzo dei Vescovi di Pistoia*, vol. II*: *Indagini archeologiche* and vol. II**: *I documenti archeologici*, Florence.

de Vaux, R. (1946) "Céramique musulmane des Xe–XIe siècles à Abu-Gosh (Palestine)", *Bulletin d'Études Orientales* XI, 13–30.

Venice (1993) *Eredità dell'Islam: Arte islamica in Italia*, catalogue of an exihibition held at the Palazzo Ducale, Venice, 30, October, 1993–30 April, 1994, Milan.

Vignier, Ch. (1925) "L'Exposition d'Art Oriental: Notes sur la céramique persane", *Revue des Arts Asiatiques* II, 41–48.

Waagé, F.O. (1948) "Ceramics and Islamic Coins", *Antioch-on-the-Orontes*, Princeton, 88–108.

Wallis, H. (1887) *Notes on Some Examples of Early Persian Pottery*, London.

Wallis, H. (1889) *Notes on Some Examples of Early Persian Lustre Ware*, London.

Wallis, H. (1891) *The Godman Collection: Persian Ceramic Art in the Collection of Mr. F. DuCane Godman, F.R.S., the Thirteenth Century Lustered Vases*, London.

Wallis, H. (1904) *Italian Ceramic Art: The Albarello, a Study in Early Renaissance Maiolica with Illustrations by Henry Wallis*, London.

Watson, O. (1978) "Persian Silhouette Ware and the Development of Underglaze Painting", *Colloquies on Art and Archaeology in Asia No.* 8, 86–103.

Watson, O. (1985) *Persian Lustre Ware*, London.

Watson, O. (1987) "Ceramics", *Art from the World of Islam, 8th–18th century*, exhibition at the Louisiana Centre (Copenhagen), Louisiana Revy, vol. 27/3, March, 43–49.

Welch, A. (1979) *Collection of Islamic Art, Prince Sadruddin Aga Khan*, IV, Geneva.

Whitcomb, D. (1992) "The Islamic Periods Seen from Selected Sites", in MacDonald, B. (ed.) *The Southern Ghors and Northeast 'Arabah Archaeological Survey*, Sheffield, 113–118.

Whitcomb, D. and Johnson, J.H. (1979) *Quseir al-Qadim 1978: Preliminary Report*, American Research Center in Egypt, Cairo.

Whitcomb, D.S. and Johnson, J.H. (1982) *Quseir al-Qadim 1980: Preliminary Report*, American Research Center in Egypt. Reports, vol. 7, Malibu, Undena.

Whitehouse, D. (1968) "Excavations at Sīrāf: First Interim Report", *Iran* VI, 1–22.

Whitehouse, D. (1971) "La Liguria e la ceramica medievale nel Mediterraneo", *Atti IV Convegno Internazionale della Ceramica*, 265–294.

Whitehouse, D. (1972a) "Chinese Porcelain in Medieval Europe", *Medieval Archaeology* 16, 63–78.

Whitehouse, D. (1972b) "Excavations at Sīrāf. Fifth Interim Report", *Iran* X, 63–87.

Wightman, G.J. (1989) *The Damascus Gate, Jerusalem: Excavations by C.-M. Bennett and J.B. Hennessy at the Damascus Gate, Jerusalem, 1964–66*, BAR International Series 519, Oxford.

Will, E., Dentzer, J.M. and Thalmann, J.P. (1973) "La première campagne de fouilles à Tell 'Arqa (Liban Nord)", *Bulletin du Musée de Beyrouth* XXVI, 61–79, pls I–XXIV.

Wirth, E. (1971) *Syrien: Eine Geographische Landeskunde*, Darmstadt.

Woolley, L. (1937) "Excavations near Antioch in 1936", *Antiquaries Journal* XVII, 1–15.

Woolley, L. (1938) "Excavations at Al Mina, Sueidia", *Journal of Hellenistic Studies*, 1–30.

Wulzinger, K. and Watzinger, C. (1924) *Damaskus, die islamische Stadt*, Berlin and Leipzig.

Yerasimos, S. (1991) *Les voyageurs dans l'empire Ottoman (XIVe–XVIe): Bibliographie, itinéraires et inventaire des lieux habités*, Ankara.

Zakkar, S. (1971) *The Emirate of Aleppo 1004–1094*, Beirut.

Zaqzouq, A. (1974) "Les fouilles de Ja'bar", *Exposition des découvertes de la campagne internationale de sauvegarde des antiquités de l'Euphrate*, Musée National d'Alep, Aleppo, 42–43.

Zaqzûq, A. (1981) "Qal'at Ja'bar", *Al-nadwat al-dawliyya li-tārīkh al-Raqqa wa āthāriha*, 28 October, 73–78.

Zaqzûq, A. (1984) "Qal'at Ja'bar", *Waqā'i' al-nadwat al-dawliyya li-tārīkh al-Raqqa wa āthāriha*, 24–28 October, Damascus, 53–56.

Zaqzuq, A.R. (1985) "Fouilles de la citadelle de Ja'bar", *Syria* LXII, 140–141.

Ziada, M.M. (1969) "The Mamluk Sultans to 1293", in Setton, K.M. (ed.), *A History of the Crusades*, II, Madison, Milwaukee and London, 733–758.

Ziadeh, N.M. (1964) *Damascus under the Mamluks*, Oklahoma.

ENDNOTES

1 See Canard 1965. See map on fig. 1.

2 The Jazīra is divided into three districts, Diyār Muḍar in the west, Diyār Rabi'a in the east and Diyār Bakr in the north. Their names derived from the tribes which inhabited the area in the pre-Islamic period. See in particular Canard 1965; Canard and Cahen 1965; Robinson 1996, 429–430.

3 The following notes are based on the geological map of Syria of 1964 (Ponikarof 1964), produced by the USSR for the Syrian Ministry of Industry. From 1972, the French CNRS undertook an extensive programme of geological survey in Syria, known as R.C.P. 438, "L'homme et le milieu au Proche Orient", directed by Paul Sanlaville. See Besançon *et al.* 1978, 1980, and 1982; Sanlaville 1979; Sanlaville 1985 and Sanlaville *et al.* 1993; Besançon and Sanlaville 1981. For a summary of this survey, and a map of the surveyed area, see Muhesen 1985, map 3 in particular. A general geographical work on Syria is Wirth 1970; the detailed bibliography at the end of each chapter is useful. Of a certain interest still is the survey of Syria by British Naval Intelligence: see British Naval Intelligence 1943.

4 The author expresses gratitude to Mr Hans Braakman, of Syria Shell Petroleum Devp. B.V., Damascus; Mr J.F.E. Paxton, formerly of Shell International Petroleum Co., London; and Mr A.J.M. Lush, for having supplied the Ponikarof 1964 geological map of Syria.

5 See note 3. For the Euphrates Quaternary terraces, see Besançon and Sanlaville 1981 and Muhesen 1985, 7–20. For a general discussion, Wirth 1971, 41–67, and 'karte 2'; see also pp.66–67 for a complete bibliography on the subject up to 1971, and van Liere publications, pp.495–496.

6 Besançon and Sanlaville 1981. See also British Naval Intelligence 1943, 41–43 and 396–398, and Wirth 1971, 41–67 and 'karte 2' (the terrace of the Euphrates is Pleistocene according to this map).

7 Wirth 1971, 68–107, 'karte 10', and 20, fig. 3. British Naval Intelligence 1943, 69, fig. 27; Sanlaville 1985, 20, fig. 2 (0–250 mm. rainfall) and 23, fig. 7; Muhesen 1985, map 2; Besançon *et al.* 1982, 18, fig. 1.

8 For a description of the Euphrates and its discharge, see British Naval Intelligence 1943, 33–36 and 43–55. See also Sanlaville 1985, 28–30, figs 16–18. See also Wirth 1971, 108–136.

9 Ibn Shaddād a, I, 110. Yāqūt, IV, 164 and II, 84. See also Musil 1927, 95 note 53. Pauly-Wissowa, IV, 2234. Sourdel 1965.

10 Al-'Adīm, I, 259 (d. 1226). Ibn al-Athīr, X, 444 (d. 1233). Al-Idrīsī, VI, 649 (d. 1166). Musil 1927, 95 note 53. Al-Ṭabarī, IV, 3300. See also Lewis 1955, 114 note 20.

11 Ibn Shaddād a, I, 110. According to Yāqūt, II, 621, the term "dawsar" may also refer to a very strong camel. It may also indicate a group of soldiers of al-Nu'mān ibn Mundhir.

It is difficult to identify to which al-Nu'mān ibn Mundhir of al-Ḥīra the sources refer. They may refer to al-Nu'mān I, who lived at the beginning of the 5th century; the two divisions of his army were known as al-Shahbā' and al-Dawsar. Al-Nu'mān II was known as a warrior king, and he took part in the Byzantine-Persian war at the end of the 5th century. The most famous is the last Lahkmid king, al-Nu'mān V, son of al-Mundhir IV, who ruled between 580 and 602. He is often mentioned in poetry. See Shahid 1986.

12 Fronto, 133.

13 Isidore of Charax, 4–5. Ptolemy, 127. Dussaud 1927, 465.

14 Procopius, II, vi:14. Procopius provides a list of forts restored by Justinian. He says that some of them lacked walls; others had mud brick or mud brick and stone walls.

15 Stephan of Byzantium, 222.

16 Ibn Khurradādhbih, 74 and 97–98.

17 Canard 1953, 436–446, 595–663, in particular 634–645 and 662–663. A number of surveys, recently conducted in the area, have demonstrated the abundance of early 'Abbāsid settlements; see Bartl 1994a and Berthier *et al.* (in press); Berthier *et al.* (in press) in particular provides a study of the system of canalisation for agricultural purposes in the Middle Euphrates valley (from Deyr ez-Zor to Abū Kamāl) in the early 'Abbāsid period. For a detailed study of settlement and agriculture in lower Mesopotamia based both on textual and archaeological evidence, see Adams 1965, 84–116.

18 Al-Bakrī, I, 356–357.

19 Al-Idrīsī, VI, 649.

20 Ibn Khurradādhbih, 74.

21 On Bālis, see in particular ibn Shaddād c, 4–13. See also Canard 1953, 88; Dussaud *et al.* 1931, pls 107–108; Sourdel-Thomine 1960. A short account on commercial roads through Mesopotamia can be found in Bianquis 1986–1989, 9.

22 See pp.46–47, on the earliest clearance undertaken at the site. See also Zaqzūq 1984, 53.

23 For the 10th century in northern Syria and northern Mesopotamia, see Canard 1953. More recently, Bianquis 1986–1989 has analysed the 10th and especially the 11th century in the area, providing a very convincing hypothesis for the numerous changes which characterise this period. For a detailed analysis of this period of decline in a neighbouring area (based on textual and archaeological evidence), see Adams 1965, 84–89 and 102–106 in particular.

24 Saliby 1977, 51–83, and Canard 1953. Also Canard 1965 and Canard and Cahen 1965.

25 Saliby 1977, 51–83.

26 Bianquis 1986–1989, 16, 125 (note 1), 456–459, 665–667 and 682–683; see also Zakkar 1971, 67–85.

27 Saliby 1977, 51–83, and Canard 1953, 634–645 and 662–663.

28 Canard 1953, 715–720.

29 A detailed analysis of the period is provided by Bianquis 1986–1989; see in particular the conclusions, 652–701.

30 Bianquis 1986–1989 analyses the account of Yaḥyā of Antioch and al-Fāriqī, 478–483. Yaḥyā of Antioch (d. 458/1056) provides a detailed account of fortifications in northern and coastal Syria, Cilicia and Armenia; he also shows an interest in building techniques, which makes his text an essential tool for understanding the military architecture of the period.

31 For an analysis of Fāṭimid policy in Syria see Bianquis 1986–1989, 384–386, and 161.

32 Bianquis 1986–1989, 319–325.

33 Bianquis 1986–1989, 385–387, 415–523 and 553–579. See also Zakkar 1971, chapters II and III, for the Mirdāsid dynasty in northern Syria, Aleppo and the Jazīra. The Banū Kilāb had originated in northern Arabia and had infiltrated into Syria in the course of the early 10th century at the expense of older Syrian tribes like Banū Kalb.

For an up-to-date discussion of historical evidence concerning the nomads of northern Mesopotamia see Robinson 1996, 439–443 in particular.

34 Al-Dazbirī was of Turkish origin. He was formerly governor of Palestine for the Fāṭimids; see Zakkar 1971, 129–135 and Bianquis 1986–1989, 415–523.

35 Bianquis 1986–1989, 415–523 and 553–579.

36 Ibn al-'Adīm, I, 257–259: al-Dazbirī acquired Qal'at Ja'bar "li-yakūn muṭallān 'alayhi [Thimāl]", 259. Ibn Shaddād a, I, 110. Zakkar 1971, 129–135.

37 Bianquis 1986–1989, 489–490; see also 506–507.

38 Ibn Shaddād a, I, 111. Yāqūt, IV, 164 and II, 84–85. On Ja'bar ibn Sābiq see Rice 1952, 57.

39 Bianquis 1986–1989, 527–533 and Nāṣir-i Khusraw.

40 Grousset 1934–1936, I, XXIX and Bianquis 1986–1989, 585–586.

41 Ibn Shaddād a, I, 111, 49 and 77. Abū'l-Faraj, 231. Ibn al-'Adīm, II, 100–101. Ibn al-Athīr, X, 97–98. Yāqūt, IV, 84–85.

42 Aleppo became a Saljūq protectorate in 463/1071, but the Mirdāsids continued to rule it for Alp Arslān (ibn al-'Adīm, II, 16–23). It subsequently passed to the 'Uqaylid ruler of Mosul, Muslim ibn Quraysh, who was supported by the Arab tribes of Kilāb, Numayr, 'Uqayl and Qushayr; initially acquiescing to the Saljūqs, he subsequently rebelled and refused to pay his tribute. For this reason Malikshāh attacked Aleppo in 479/1086 (ibn al-'Adīm, II, 100–101). See also Zakkar 1971, 186–233 and Bianquis 1986–1989, 581–615.

43 Ibn Shaddād a, 111, and ibn Shaddād c, 8.

44 Ibn Shaddād a, I, 111–112.

45 Bianquis 1986–1989, 581–615, 603 in particular. See also Humphreys 1977, 10–15 and Appendix B, and Cahen 1971.

46 See the description of the area by William of Tyre, 1015–1017.

47 Ibn Shaddād a, I, 112. Usāma a, 481–482, and Usāma b, 159–160.

48 Cahen 1940, 210 and 236.

49 Ibn al-Athīr, X, 253.

50 Usāma b, 119–120.

51 Runciman 1952, 40–45, 107–112. Grousset 1934–1936, I, 433–435 and Cahen 1940, 237–238.

A slightly different version is provided by Anon. Syr. Chron., 80–82: Joscelin went to Mosul with the help of the lord of Qal'at Ja'bar and delivered Baldwin from the lord of Mosul, al-Jāwalī. See also Abū'l-Faraj, 242: al-Jāwalī gave his horse to Joscelin as a present (the episode of the freeing of Baldwin seems here rather confused).

Joscelin's release was marked by an enlightening episode revealing the nature of the alliances between the Franks and the Muslims. Al-Jāwalī had provided Joscelin with an escort of Turks when he was freed and together they crossed the Euphrates to head towards Antioch; as soon as the party had passed the river, Joscelin started to raid the area. When the Turks asked him whether this was not against his agreement with al-Jāwalī, he answered: "But this land does not belong to him". Ibn al-Athīr, X, 322. See, however, Runciman 1952, 113–114, reporting a similar episode under different circumstances.

52 Runciman 1952, 113–114.

53 Ibn al-Athīr, X, 322–323 and 325 for the alliance between Rudwān and Tancred. For the alliance between al-Jāwalī and Baldwin II, see Grousset 1934–1936, I, 433–442 and Cahen 1940, 249–251.

54 Cahen 1940, 350–351.

55 Ibn Shaddād a, I, 111–112.

56 Ibn al-Qalānisī a, 118. Grousset 1934–1936, I, 481.

57 Ibn al-Athīr, X, 372.

58 Ibn al-Qalānisī b, 152–163 and Ibn al-'Adīm, II, 197. See also Grousset 1934–1936, I, 625–627.

59 Ibn al-Qalānisī b, 152. On this episode see also Elisséeff 1967, II, 326, referring to 517/1123. Grousset 1934–1936, I, 625–627.

60 Ibn al-'Adīm, II, 200–202 and 222–223. Anon. Syr. Chron., 96–97. Grousset 1934–1936, I, 623–627. Ibn al-Athīr, X, 427 and 430. Dubays was killed in 1129 (Anon. Syr. Chron., 282, note 1).

In general, for a detailed account on the various episodes reported above, see Runciman 1952, 171–176.

61 Cahen 1940, 300–303.

62 Matthew of Edessa, 72. See also Grousset 1934–1936, I, 636.

63 Cahen 1940, 283–307. Bursuqī was murdered in 1126. See also Anon. Syr. Chron., 98 note 2.

64 Anon. Syr. Chron., 94.

65 Ibn al-Qalānisī b, 157. Ibn al-Athīr, X, 427.

66 Ibn al-Qalānisī b, 164, for the year 518/1124.

67 Shihāb al-Dīn is mentioned several times in the life of Usāma; the date of his death is not known, but he was still alive in 1128 (Usāma a, 359 note 2). Ibn al-'Adīm, III, 657.

68 Ibn Shaddād a, I, 112–113. Usāma a, 481–482 and Usāma b, 159–160.

69 Ibn Shaddād a, I, 112.

70 Ibn Shaddād a, I, 113 and ibn al-Athīr, XI, 71–72. See also ibn al-Qalānisī b, 274–275 and Elisséeff 1967, II, 384–386.

71 Ibn Shaddād a, I, 114. Ibn al-Athīr reports that 'Imād al-Dīn was killed by a group of his *mamālīk,* XI, 72. Al-Dhahabī reports that three men were responsible for his murder (a, II, 41, 20; b, 111). See also ibn al-Qalānisī a, 270–271, and Abū'l-Faraj, 271.

72 Ibn al-Qalānisī a, 273–274, and ibn al-Qalānisī b, 275 and 280.

73 Ibn Shaddād a, I, 115. This is also reported by ibn al-Qalānisī b, 325, but the son of 'Izz al-Dīn is called Mālik ibn 'Alī.

74 Sourdel-Thomine 1960 and Elisséeff 1967, I, 171.

75 Ibn Shaddād a, I, 115–116. Yāqūt, IV, 84–85. Elisséeff 1967, II, 620–626.

76 Yāqūt, II, 85; Ibn al-Athīr, XI, 220; Gibb, in Baldwin 1955, 525; Elisséeff 1967, II, 384, 620–622; Abū'l-Faraj, 293, notes 58–59. On the fortresses and their strategic importance for Nūr al-Dīn, see Elisséeff 1967, III, chapter I.I.A "Les défenses de l'empire", 705 and 715–716 in particular.

77 Ibn Shaddād a, I, 116.

78 Ibn al-Athīr, XI, 220 and 334 ff. Ibn Shaddād a, I, 116. At the death of Majd al-Dīn in 565/1170, his possessions passed to his brother 'Alī ibn al-Dāya; Elisséeff 1967, II, 653.

79 The description, however, probably refers to the time when ibn al-Athīr was writing (1160–1234); see ibn al-Athīr, XI, 220: "hiya min amna' al-qalā' wa aḥsanaha muṭalla 'ala al-Furāt min jināb al-sharq".

80 See Elisséeff 1949–1951, 36 and 42; 1967, III, chapter I.I.A., 719 in particular; for the 1170 earthquake see also Amedroz 1902, 793; for the functioning of fortifications, water supplies etc., see Elisséeff 1967, III, 715–719.

81 Elisséeff 1949–1951, 36, 42 and 1967, III, 715–716. Dussaud *et al.* 1931, pl. 110. For the undated inscription on the minaret referring to Nūr al-Dīn, see Elisséeff 1953–1954, 165–166; RCEA, IX, n. 3314; R. Hillenbrand 1985, 40–41, figs 3–4. See also C. Hillenbrand 1985, 15–18.

82 Ibn Shaddād a, I, 117. C. Hillenbrand 1985, 12–15, 17.

83 Al-Harawī (d. 1225), 140.

84 Ibn al-'Adīm, III, 17–19; Cahen 1940, 415–416; Elisséeff 1967, II, 660, 694–699.

85 Ibn Shaddād a, I, 116–117; ibn al-Athīr, XI, 236.

86 Ibn Shaddād a, I, 117.

87 Humphreys 1977, 33.

88 Ibn Shaddād a, I, 116–117. Ibn al-Athīr, XI, 236.

89 Elisséeff 1967, II, 384.

90 Ibn al-Qalānisī a, 352. Cahen 1940, 398. Elisséeff 1967, II, 533.

91 Ibn al-Athīr, XI, 238; ibn Shaddād a, I, 173; Elisséeff 1967, II, 658.

92 Usāma a, 353.

93 Heidemann 1990, 108–109.

94 Ibn al-Qalānisī b, 317.

95 Benjamin of Tudela, 93. He was in Constantinople in December, 1161. Anon. Syr. Chron., 291, reports that 'Imād al-Dīn al-Zangī settled 300 families of Jews in Edessa.

96 Ibn Shaddād a, I, 117.

97 Ṣalāḥ al-Dīn, like al-Malik al-'Ādil after him, gave part of his territories to his heirs while he was still alive; Humphreys 1977, Introduction, note 10. The eleven-year-old al-Ẓāhir Ghāzī, Ṣalāḥ al-Dīn's favourite son, was given Aleppo after Ṣalāḥ al-Dīn took it in 579/1183, Humphreys 1977, 53–54.

[98] Ibn Shaddād a, I, 117–118. Humphreys 1977, 60–66. Heidemann 1990, 108–109.

[99] Humphreys 1977, 118.

[100] Humphreys 1977, 84.

[101] Humphreys 1977, 83–84 and 105–109.

[102] Abū'l-Faraj, 345; Humphreys 1977, 98.

[103] Humphreys 1977, 111–112.

[104] When he moved to Damascus, al-'Ādil named as governor of Diyār Muḍar al-Fā'iz Ibrāhīm, one of his sons; for the succession of rulers in Diyār Muḍar, Humphreys 1977, 383.

[105] Humphreys 1977, 112–115.

[106] Ibn Shaddād a, I, 118. Ibn Shaddād c, 12.

[107] Humphreys 1977: when al-Kāmil moved to Egypt to follow his father, the Eastern Territories were assigned to the other sons of al-'Ādil. Diyār Muḍar had been assigned to al-Ashraf Mūsā in 597–598/1201, 125–126, 161 and 165. Al-Ashraf became independent in 615/1218, at the death of his father. See also Abū'l-Faraj, 373, for the division of the territories at the death of al-'Ādil.

[108] Humphreys 1977, 162–170 and 175.

[109] Humphreys 1977, 180–181, 198–199, and 222, al-Ashraf always took part in the campaigns in the north as a vassal of al-Kāmil, especially between 1129 and 1136; this period was characterised by internal stability, and the frontier became a crucial zone in Ayyūbid defence policy. The area since the invasion of the Khwārazmians, and subsequently by the Saljūqs al-Rūm, had revealed its vulnerability, and it was much weaker and open to invasions. Al-Ashraf participated in every campaign in the East, but as a subordinate of his brother, whereas he had taken a leading role in the Jazīra during his father's time and in the early reign of al-Kāmil. Humphreys 1977, 214–228.

[110] Ibn Shaddād a, I, 118–119. The possessions in the Jazīra of al-Malik al-Nāṣir Ṣalāḥ al-Dīn Yūsūf ibn Muḥammad were: Ḥarrān, al-Ruḥā, Sarūj, al-Raqqa, Qal'at Ja'bar, and al-Bīra (*ibid.*, 245). See also ibn Shaddād c, 55–56.

[111] Cahen 1934, quoting ibn Shaddād, 118–119 . Humphreys 1977, 258, 270–271, 291–292 and 309–363.

[112] Humphreys 1977, 10–15 and Appendix B. See also Cahen 1971.

[113] Humphreys 1997, 333–363, especially 349–350.

[114] Humphreys 1977, 333–344.

[115] Ibn Shaddād, a, I, 119. See also Cahen 1934, 125, quoting ibn Shaddād.

[116] For this diplomatic exchange with the Mongols, see Cahen 1934. For the mission by ibn Shaddād to Hülagü, see Amedroz 1902, 800–809; Abū'l-Faraj, 434–435.

[117] Humphreys 1977, 333–363, especially 346. See also *Cambr. Hist. of Iran*, vol. V, 340–355; Amedroz 1902, 805; Cahen 1969; Morgan 1985.

[118] Ibn Shaddād a, I, 119. Ibn Shaddād is not very precise about this event. Abū'l-Faraj, 435: everyone was killed in 658/1259 in Ḥarrān, Edessa, al-Bīra, Qal'at Najm and Qal'at Ja'bar among the other places mentioned.

[119] Ilisch 1984, 50–51. He reports the episode of a wealthy Jew from Qal'at Ja'bar who fled to Ḥamā with his family, after having buried at Qal'at Ja'bar part of his belongings with the intention of going back soon after the end of the invasion (*ibid.*, note 9, 259, referring to 50).

[120] Berthier *et al.* (in press); Bartl 1994a; Matthers *et al.* 1981; Guérin 1996; Lyonnet 1996.

[121] Balog 1980, cat. nos 346–348 (for the 601 and 602 issues), 498 (for the 629 issue), and 499 (for the 631 issue).

[122] Grierson 1984. Tangheroni 1996, 31–32.

[123] Ibn Shaddād c, 57, where the date of 673/1274–75 is expressly indicated by ibn Shaddād. See also Introduction, XIV. Ibn Shaddād died in Cairo in 684/1285.

[124] Ibn Shaddād a, I, 110.

[125] Ibn Shaddād c, 57. See p.21, note 6 for a bibliography on the Mamlūk conquest of northern Syria and the Jazīra.

[126] Ibn Shaddād c, 4–13.

[127] For an analysis of the Mongol policy in the area after the first invasion of 657–8, see Ilisch 1984, 50 ff. Canard and Cahen 1965; Canard, Cahen, Sourdel-Thomine and Yinanç 1965. See also notes 117 and 125.

[128] Ilisch 1984, 52.

[129] Abū'l-Fidā' a, 276–7 and 269. In Abū'l-Fidā' b, 53, note 2, Reynaud reports that a note was added in the margin of one of the manuscripts (ms. 578) saying that the fortress was restored by Tankiz al-Nāṣirī in the year 734/1333.

[130] Ibn Iyās, I, 168–169. See also Rice 1952, 47, note 8.

[131] Al-Ẓāhirī, 50.

[132] Sauvaget 1941, 56.

[133] Canard and Cahen 1965; Canard, Cahen, Sourdel-Thomine and Yinanç 1965.

[134] Yerasimos 1991, 80–82. Qal'at Ja'bar was visited in 1574 by Leonhart Rauwolff (Yerasimos 1991, 301), in 1580 by Gasparo Balbi (*ibid.*, 319), in 1581 by John Newberie (*ibid.*, 81 and note 547, 350), in 1589 by Georg Christoph Fernberger (*ibid.*, 364) and by Johann Christoph Tayfel (*ibid.*, 393), and in 1598 by Abel Pinçon (*ibid.*, 429). The Euphrates itinerary fell out of use after the end of the 16th century, *ibid.*, 80–82.

[135] Ḥajjī Khalīfa, II, 50.

[136] Dussaud *et al.* 1931, pl 110

[137] Musil 1927, 94–95.

[138] Bell 1911, 49–51.

[139] Dussaud *et al.* 1931, pl. 110, reports that de Lorey and Salles made sondages at Qal'at Ja'bar, probably when they were excavating at Bālis between 1929 and 1931. See p.45.

[140] Dussaud *et al.* 1931, pls 107–108 and 110.

[141] A conspicuous number of reports and publications have derived from the Euphrates dam project. For a list of the sites excavated and an indication of the various directors of these projects, see Dornemann 1985, 49–50. For short summary of the activities within this project, a number of reports have been issued by the Syrian Directorate of Antiquities, see for instance *Exposition des découvertes de la campagne internationale de sauvegarde des antiquités de l'Euphrate* 1974, Bahnassi (n.d.), Bahnassi and Bounni 1973, and Bounni 1975. An excellent satellite photograph of this area is published in *The Biblical Archaeologist* 48, March 1985, facing p.35.

[142] Zaqzūq 1985, 141. Dornemann 1985, 49–50, and Bahnassi and Bounni 1973, 10.

[143] See, for example, Zaqzūq 1975, 1981, 1984, and 1985, and Appendix H.

[144] Dussaud *et al.* 1931, pl. 110.

[145] Sauvaget 1941, 56. See also R. Hillenbrand 1985, 22.

[146] Personal communication, Qal'at Ja'bar, October 1992.

[147] Zaqzūq 1984 and 1981, 77. See also R. Hillenbrand 1985, fig. 9.

[148] Zaqzūq 1974, 42; 1985, 141; 1984, 53.

[149] Bell 1911, figs 31–32.

[150] Dussaud *et al.* 1931, pls 110–111. Bloom 1989, 168–169, and fig. III.

[151] Bell 1911, figs 29–30. See also R. Hillenbrand 1985, figs 3–4, from Creswell Archive, Oxford.

[152] R. Hillenbrand 1985, figs 1–3, 26–27 and 39–42; Bloom 1989, 168–169, figs 110–111; Meinecke 1995, 413 and pl. XXVI, 1.

[153] Elisséeff 1949–1951, 36 and 42; 1952–1954, 155–156; 1967, III, 715–716. See also RCEA, IX, no. 3314 and R. Hillenbrand 1985, fig. 4.

[154] R. Hillenbrand 1985, fig. 4, 40–41.

[155] Zaqzūq 1974, 42 and 1981, 77–78.

[156] Zaqzūq 1985, 140–141.

[157] Zaqzūq, personal communication, Qal'at Ja'bar, October 1992.

[158] Zaqzūq, personal communication, Qal'at Ja'bar, October 1992.

[159] Zaqzūq 1985, 140–141.

[160] Zaqzūq 1981, 78, and 1985, 141.

[161] Zaqzūq 1981, 78, and 1985, 141.

[162] Zaqzūq, personal communication, Qal'at Ja'bar, October 1992.

[163] Japan 1989–1990, no. 273.

[164] The term 'context' in this publication does not mean the specific current archaeological term but has the conventional OED meaning of the world. The more specific term 'stratigraphic unit' has been used to indicate archaeological features.

[165] This Stratigraphic Unit Recording Sheet is based on a combination of the Museum of London Recording Sheets (see Spence 1990) and the Italian Soprintendenza ai Beni Culturali e Ambientali, amended to fit this particular project.

[166] There is some uncertainty about the collapsed mud-brick material that lies above walls 30 and 36. As already indicated, walls 30 and 36 are different structurally and, perhaps, chronologically. The collapsed mud-brick that lies above, covering them, appears to be the fallen superstructure of both walls. However, in the matrix, separate numbers have been assigned to the destruction of wall 30 and wall 36: 30A is the mud-brick collapse from above wall 30, while 46 is the collapsed mud-brick superstructure from above wall 36.

[167] As is generally acknowledged, glass quantity is not particularly significant since broken glass was often re-fused.

[168] The coins retrieved were in very poor conditions, but they may provide dating evidence after cleaning. This information is, at the moment, unavailable. Coins are at present kept at the Museum at Ḥamā; restoration will be carried out at the National Museum in Damascus.

[169] See also Tonghini and Grube 1988–1989 and Tonghini 1995b.

[170] Tonghini 1995a.

[171] According to the historical sources, the site remained deserted after the Mongol invasion of 657/1259: Qal'at Ja'bar was restored by the governor of Damascus, Tankiz, in 736/1333–4. See pp. 22–23.

[172] The principle "of first appearance" has not been adopted, primarily because in such a small pottery assemblage only rarely does the same type occur twice in the various phases; secondly to avoid missing the continuity of production without change for more than one phase. An exception to this is represented by unglazed bases, which are, however, not considered particularly diagnostic in terms of chronology.

[173] A possible case is discussed on p.28 (S1, phase V) and pp.33–34 (phase V).

[174] See also Berthier *et al.* (in press) and Northedge *et al.* 1988, 21, 94, and 102, and figs 45, 11 and 46, 14.

[175] It has been suggested that carved and incised decorated fritware is earlier than the lustre decorated variety, see pp.40–42.

[176] This ware does not appear in the unstratified pottery assemblage. See, however, pp.66–67. See also Bartl 1994a, pl. 37.

[177] Compare, for example, fig. 20 (d) from phase IIb with fig. 22 (c) from phase IIa; these are also very close to fig. 19 (e) from sondage S1, phase I.

[178] See also Kervran 1984, fig. 36, 2 and Bartl 1994a, pl. 25, 2.

[179] Tonghini 1995a, fig. 8g.

[180] Porter and Watson 1987, 181.

[181] Tonghini 1995a, fig. 8d.

[182] The present writer is well aware that it is very risky to evaluate a technological change on the basis of a few cooking pot sherds; however, this change in the production has already been noted elsewhere (see, for example, Berthier *et al.* in press). See also p.66, for a description and discussion of these two types.

[183] This data is more significant in sondage S1, excavated down to bed-rock, and it therefore presents a complete occupation sequence. However, as already noted, the importance of certain variables, such as the function of the excavated area in different phases, should always be taken into account in quantity assessment.

[184] The glass from the Syrian excavations at the site has been studied in a preliminary way by the present writer. The glass assemblage is characterised by a large number of very thick and heavy vessels of light green blown glass. A typology for the Syrian glass production of this period has not yet been established and dating is still unclear. The glass from the excavation of the new sondages did not produce enough evidence to provide a tentative chronological framework for glass manufacture. For this reason the assemblage of unstratified glass has not, for the moment, been further analysed.

[185] I had the opportunity to be shown part of the glass recovered in the course of several years of excavations at al-Raqqa by the German team directed by Prof. Dr M. Meinecke. Dr A. Becker is at present involved in a study for the final publication of the glass finds, see Becker 1994.

[186] It is not clear, in fact, whether the glass assemblage comes from the Syrian excavations or from the surface collection.

[187] See, for example, Northedge *et al.* 1988, fig. 54, 19–22; Schaefer 1989, 48, figs 10, 7–10 and 11, 4–5.

[188] Zaqzūq, personal communication, October 1992. See also Chapter 3, 25.

[189] Elisséeff 1967, III, 705–721.

[190] A traditional technological classification was adopted instead of a functional classification because of the fragmentary condition of most of the pottery assemblage. For a discussion concerning the methodology of the various approaches to a pottery classification and their value, see Mannoni and Giannichedda 1996, 126–167.

[191] For a more precise definition of quantity and size terms used in the description of wares, such as "small inclusions", see pp. 38, 75.

[192] The arrangement of the plates does not follow the alphabetical sequence of wares or the sequence of type numbers within the various wares (e.g., ware I is illustrated in fig. 44 j–l, before ware H in figs 47 d–f, j–p and 48; type A6 is illustrated in fig. 42 g–h, before type A5 in figs 42 j and 43 a–d), since the final order could not be established during the preliminary subdivision into wares and types. For quick reference to wares and types, see Appendix E, arranged alphabetically as the type sequence.

[193] In the case of no specific parallels for the types being found, reference can also be made to a similar shape associated with a different ware within the general group (type F2 — everted upturned rim of a flaring bowl with straight or curving sides, *fritware 1* body, monochrome turquoise glaze with incised/carved/pierced decoration — can be compared to [reference], everted upturned rim of flaring bowl with straight or curving sides, *fritware 1* body, colourless and transparent glaze, carved and blue-splashed decoration). The ware of the reference provided is generally specified, in particular when it does not match that of the analysed object.

[194] Discussion concentrates on pottery finds recovered in the course of scientifically controlled excavations and, with few exceptions, does not deal with the objects which reached otherwise private collections and museums. Collected objects, lacking contextual data of all kind, do not provide relevant evidence for the discussion as intended here, aiming at the understanding of the various pottery wares in the context of a site (in terms of quantity, use, distribution, etc.) and to assess their socio-economic value.

All archaeometric studies related to the pottery discussed here have been taken into consideration. A number of these studies focused on samples lacking contextual data; in particular, in

these studies it is very difficult to understand to what extent the sample analysed represents the pottery produced or used in a given area and to assess its relation, not only in terms of chronology, with the rest of the production (is it an exception, a luxury item, or a common ware, for example). Thus, although archaeometry seems to reach the zenith of its potentiality in the context of archaeological research (for a discussion see Mannoni and Giannichedda 1996, 136–138), even when it focuses on samples which lack contextual data, it can provide useful analytical data in relation to the components of a ware and their provenance. See, for example, Mason 1995a and b.

195 A much larger selection is illustrated in Tonghini 1995c, pls 204–334.

196 The absence of glass frit in the ceramic body of a large quantity of examples has been proven by petrographical analysis. See, for example, Appendix D.

197 For example, Mason and Tite 1994 introduced the term 'stonepaste ware'; this term is technically more correct than 'fritware'. However, since it is the translation of a term used by recent Iranian potters, it does not seem more adequate than others to describe mediaeval Syrian fritware. The present writer would be more inclined towards a general term such as 'siliceous ware'. However, in the present writer's opinion, the advantages provided by any of these terms do not seem to justify the break with the past literature.

198 Kouchakji 1923, 515: "The earliest fragments arrived in Europe in 1895, but it was a decade later when the first entire specimens were found." It is true, however, that Syrian fritware, not always recognised as such, is dealt with in the literature from at least 1873; see Tonghini and Grube 1988–1989. See also pp.40, 48.

199 Poulsen 1957: BVI, 132–156.

200 Poulsen 1957: BVII–BVIII, 157–182.

201 Poulsen 1957: BIX, 182–198.

202 Poulsen 1957: BX, 198–202. This type is now included in the core 'Raqqa ware' group.

203 Poulsen 1957: BXI, which is subdivided into "a) 13e siècle" (202–204), now considered part of the 'Raqqa ware' group, and "b–f) 14e siècle" (204–224).

204 Poulsen 1957: BXII, 224–231.

205 Porter 1981; Porter and Watson 1987; Northedge *et al.* 1988.

206 In the literature, it is now clear that 'Tell Minis ware' and 'Raqqa ware' are only useful terms to describe a specific ware, regardless of the place of production; see Porter and Watson 1987.

207 Franchi *et al.* 1995.

208 Porter and Watson 1987. See also p.40.

209 Franchi *et al.* 1995, 200–201, 204. A recipe for fritware was reported in the treaty of Abu al-Qāsim of the beginning of the 14th century, see Allan 1973; Dayton and Bowles 1973; Mason 1995a. See also Mason and Tite 1994, in particular for the beginning of the fritware technique in the Middle East; Mason and Keall 1990; Tite 1989; Henderson and Raby 1989.

No glass frit was identified among the Qal'at Ja'bar samples analysed. The presence of glass has been reported in other archaeometry studies; see in particular Mason and Tite 1994, where a technological hypothesis for this usage is provided.

Potting such a dry material must have required a very high degree of skill. Experiments in this respect have been conducted by the team of the Museo Internazionale delle Ceramiche, Faenza (Italy), see Emiliani *et al.* 1966, where the various fritware pots manufactured at Faenza are also published. A modern fritware pot is also published by Allan *et al.* 1973, pl. 4, thrown by Miss Rosemary Brewer; see also *ibid.*, 170.

210 Franchi *et al.* 1995, 201–203.

211 Undecorated fragments of the incised decorated ware and lustre-decorated sherds which have lost their lustre paint may unavoidably be included here.

212 Franchi *et al.* 1995, 201–202: the various analyses conducted revealed that the colouring oxides were applied on top of the unfired transparent glaze of the background.

213 The characteristic of the ware is the addition of blue paint to the colourless glaze. It was felt necessary, however, to further subdivide H into sherds with and sherds without incising, carving or piercing. In most of the examples in the literature, blue in-glaze painting is associated with carving/incising/piercing (Porter and Watson 1987, B18–30), but there are also pieces with only a blue decoration (Poulsen 1957, fig. 440). See also fig. 47 k and pl. 34.

214 See note 212.

215 No pieces with polychrome painted decoration of this type are known in the literature. Ware AAS fragments, however, seem to be a ware distinct from AS; it is very unlikely they were part of a polychrome and incised/carved decorated vessel (see fig. 50 a–f).

216 The term '*laqabi*' appears to have been coined by dealers, and was first used in print in the *Survey of Persian Art* published in 1939. It derives from a Persian term for 'water-stained', which is appropriate since the glaze colours have often run; see Pope 1939, 1525, and Soustiel 1985, 388. The confusion over where *laqabi* ware was produced can be illustrated by the comments of Charles Vignier writing in 1925: he noted that fragments of the wares had been found in al-Raqqa by Eustache de Lorey, but one of the best known examples — the eagle dish in Berlin — he claimed had been found by his brother at Rayy in Iran (Vignier 1925, 43). There has been little agreement among scholars about the provenance of *laqabi* ware; see Tonghini 1995b, note 22, for a list of publications dealing with *laqabi*.

Recent and as yet unpublished excavations at Bālis tend to support a Syrian manufacture; see discussion on this excavation in note 260. A detailed study of the various examples could probably resolve the question and establish whether *laqabi* ware is a homogeneous group manufactured in a single centre, or rather the product of several different kilns and even different regions. At Qal'at Ja'bar, the *laqabi* sherds are part of the unstratified pottery assemblage; their technical characteristics are those of the *fritware 1*, and occasionally *intermediate fritware* group; like the rest of the *fritware 1* and *intermediate fritware* production, they may have been locally manufactured. The only evidence for dating *laqabi* ware is provided by a bowl found in Istanbul, in a layer which has been dated by the excavator to between 1150–1175 (Hayes 1968). However, this date is not mentioned in the final publication; see Hayes 1992, 43–44, pl. 9g.

217 Philon 1980, 175–178. It has been suggested that the practice of incising through lustre glaze may have been imported from Egypt, together with the lustre technique itself and the new fritware type of body. The style of the lustre paint also points in the direction of Egypt. Porter and Watson 1987, 189; Watson 1985, 24–26; Jenkins 1988, 67–75. See also pp.40–42.

218 Porter and Watson 1987, 181; Soustiel and Allan 1995, 99. The particular cut of the foot was not noted by Poulsen (Poulsen 1957): in fact very little attention is paid in his publication of the Ḥamā finds to the study of shapes.

For Egyptian examples see Scanlon 1982, fig. 12; Scanlon 1984a, fig. 20. For objects attributed to Iran showing a foot similarly cut see Grube 1995, pl. 243; Soustiel and Allan 1995, figs 3, 5, 14, 16.

219 One of the bowls was first published in 1875, in a general history of ceramics produced by Auguste Demmin (Demmin 1875, pl. 84, in the chapter "Poteries Africaines: Poteries égyptiennes et arabes"); see also Migeon 1901, 204–205 and Porter and Watson 1987, A34. This bowl was acquired at the Séchan sale (Migeon 1901, 204). Migeon (*ibid.*) thinks that this is one of the bowls found by Admiral Despointes because a similar piece in the Sèvres Museum (Porter and Watson 1987, A 35) bears a label indicating "qu'elle fut trouvée à Damas en 1840, par le contre-amiral Despointes". It is now usually considered one of the Despointes bowls (Soustiel

1985, fig. 126 and 114). The second bowl is that in the Sèvres Museum mentioned above. The third, in the same Museum, was published by Wallis 1889, pl. 4 and fig. 13D (Porter and Watson 1987, A16), and said to have been found in Beirut. Of this and three other bowls from the 'Tell Minis ware' group, Wallis states (1889, 12) that : "it might be advanced that they are a Syrian or Damascus ware, and the hypothesis could not be proved to be untenable. If Syrian, the derivation of the lustre from Egypt would be probable, considering the political relationship of the two countries. While there are these doubts, and until they are cleared up, the Persian classification may be accepted as at least the most comprehensive." The other 'Tell Minis ware' bowls came from Syria, found by "Signor Castellani" (Wallis 1889, pls 5–6 and 9). These three bowls were at that time in the former Museum of Industrial Art, Berlin.

220 Migeon 1901, 206.

221 Migeon 1907, 229–232.

222 Pier 1909, 49, fig. 18 and 51, fig. 19, respectively from the Louvre and the Sèvres Museum.

223 Migeon 1922, pl. 19, nos 67–68, and also in Migeon 1927, 183–188, figs 334–336.

224 Already a decade earlier *fritware 1* was identified as a separate group in the publication of the Antioch excavation: Waagé 1948, Groups IA5, IB2, IC6, IIA5, IIB2, IIC1, IVD1, XIIC1, XIIC3, XIIC5, and XIIC11. Waagé's meticulous classification had very little impact in the literature, possibly because of the complexity of the typology, whose general organisation does not facilitate consultation.

225 Poulsen 1957, section BVI, 132–156. See note 216.

226 Porter and Watson 1987, 175.

227 Lane 1957, 15, note 2; Poulsen 1957 and 1970; Porter and Watson 1987, 175–176. See also pp.46–51 for 'Raqqa ware'.

228 Paris 1971, nos 60–62; Atil 1973, nos 59–60; Atil 1975 correctly attributes no. 18 to Syria, Tell Minis, but no. 15 to Egypt; Léth 1975, nos 29–30; Paris 1977, no. 1975.

229 Porter and Watson 1987.

230 Tonghini (in press).

231 Tonghini (in press); see also note 287.

232 Tushingham 1985, fig. 37, 14 and 144.

233 Northedge *et al.* 1988, 102.

234 Northedge *et al.* 1988, 103.

235 Poulsen 1957, 135.

236 Poulsen 1957, 157.

237 Compare Poulsen 1957 with Riis 1957, 28–29 (tabulation). To give some examples, "couche K 7 δ", in which lustre ware and cobalt glazed ware were found, is given 1037 as *terminus post quem*, while in the tabulation it is defined "période indéterminée antérieure à 1269". The "couche N 13 α", with *laqabi* and lustre ware of Poulsen's intermediate type (see pp.42–46, for a classification and discussion of the intermediate fritware) is dated "environ 1200", but then 1170/91–1260 in the tabulation. The "couche 0 II β", with lustre ware, is dated 1081, and in the tabulation is again referred to as "période indéterminée antérieure à 1260".

In most cases, *fritware 1* occurs together with *fritware 2* in a number of layers. There is no way to assess whether *fritware 1* was residual in these layers or whether it was contemporaneously produced with *fritware 2*. See the following note.

238 Poulsen 1957: there are very few layers in which *fritware 1* occurs without *fritware 2*, and they are not very precisely dated: in "M17 b–c", dated as 636–1191, a turquoise glazed sherd was found; moreover, the sherd is not discussed in the text (*ibid.*148–150). It could correspond to fig. 463, from 017, since this layer is also described as M–O17, 20–21. Layer "N 13 α", from which an intermediate lustred fritware object (150–152) was recovered together with a *laqabi* bowl (mistakenly not indicated in the text, 146–148), is dated "environ 1200". Layer "O 13", with a *laqabi* bowl (fig. 450), is dated to 1260 as a *terminus ante quem*. "N 15", in which a lustre ware bowl (fig. 417) occurs, and "P 14 β", with another lustre ware find (152) is very generically given 1401 as *terminus ante quem*.

239 Ingholt 1940, 148. This layer is dated "fin XIIe–fin XIVe" in Ingholt 1934, 27.

240 At Qaṣr al-Ḥayr al-Sharqī, in north-central Syria, a number of lustre-decorated *fritware 1* sherds were found (they may belong to the *intermediate fritware* type, see pp.42–46), whereas the carved decorated fritware was absent. This fact has been interpreted as an important chronological element for Qaṣr al-Ḥayr al-Sharqī by the authors of the final publication: by the time the site was re-occupied, very likely at the end of the 12th or at the beginning of the 13th century, carved/incised/pierced decorated fritware was no longer in production. Grabar *et al.* 1978, 116.

241 Tonghini (in press).

242 Blake 1978, 150–151, publishes one fritware fragment with a transparent glaze, very likely with an incised decoration; it is from the Torre Civica excavations in Pavia (phase X, fig. 36, 13 and 150–151). It is classified as Saljūq and it is attributed to the late 11th–early 12th centuries on the basis of numismatic evidence. Blake describes another fragment of fritware from the same phase; it is covered with a turquoise glaze with a high lead content. He gave a fairly detailed account of the discovery of similar fritware objects in Italy; the presence of this fritware in Europe in the late 11th century allows us to conclude that they may already have been produced in the 11th century (Blake 1978, 151).

A bowl of this type decorated the church of San Michele Maggiore, in Pavia (Whitehouse 1972a, 69–70, and note 38) and a fragment still decorates the church of SS. Primo e Feliciano, in Pavia. Both churches are dated to about 1120 (Blake 1978, 151). Another bowl, with incised decoration under an aubergine glaze, decorated the Cortile di Pilato in the complex of Santo Stefano in Bologna. It was probably placed here in 1142 or shortly afterwards (for the date of this church, see Porter 1916–1917, II, 124–160, 157 in particular); see Blake 1978, 151; 1980, 96; Nepoti 1986, 355 and fig. 6a; Gelichi and Nepoti 1996, 55. It is attributed to Fāṭimid Egypt (Blake 1980, 96). A fragment of a fritware bowl, with incised decoration under aubergine glaze, still survives in the facade of the Palazzo della Regione, at Pomposa; the facade is attributed to the 11th century; see Nepoti 1986, 354.

At Venice, in the island of San Lorenzo in Ammiana, incised-decorated fritware has been found in a layer which pre-dates a fire which occurred in 1104; see Saccardo (in press a), fig. 12, 2. This fritware has also been found at San Lorenzo di Castello, Venice, see Saccardo *et al.* (in press b).

The present writer is currently working on a project, sponsored by the University of Florence, which aims at collecting evidence related to the presence of fritware imports found in Italy; a more complete map of distribution will be available at the completion of this research.

At Athens, in a cistern to the north of the Hephasteion, so-called Saljūq fritware was also found in an excavated layer which, on the basis of numismatic and archaeological evidence, can be attributed to 1143–80 (Frantz 1938, 432, A15, fig. 4, 441).

243 On the limits of archaeometry beyond archaeological research, see note 194.

244 Berti and Tongiorgi 1981, no. 81, 42, fig. 201, 251–252, and pl. CLXXXVI. Berti 1997, no. 81, 34.

245 See, for example, Porter and Watson 1987, B15 and B18; Soustiel 1985, fig. 158, 134.

246 Mason and Keall 1990, fig. 7a.

247 See, for example, Soustiel 1985, fig. 92, 101.

248 Arias, Berti and Liverani 1973; Mason and Tite 1994, Table 2, Fu.909.2; Michel *et al.* 1976, 19, n. 15; Soustiel 1985, 373, n. 36.

249 See Appendix D; Bechtel *et al.* (in press), BDX 2409, black glaze; Soustiel 1985, 374, n. 42.

[250] Allan *et al.* 1973, Table 2; Soustiel, 1985, 371, nn. 18–19; Frierman and Giauque 1973, n. 6 has 8% lead content. Opaque glaze may be a characteristic of Iranian fritware, although transparent glaze is also found: see Soustiel and Allan 1995, 86–97; Soustiel 1985, 371–372, nn. 17, 20, 24–25.

[251] Berti and Tongiorgi 1981, 251–252, were in favour of an Iranian attribution; this object was subsequently attributed to Egypt, see, for example, Berti 1997, 34.

[252] In Iran, literary evidence suggests that glass artisans may have attempted to develop a new ceramic body, fritware, as early as the 10th century, while in the 11th century it was already being produced in Afghanistan (Allan 1973, 172; Allan *et al.* 1973; Morgan 1995, 155–156). No archaeological or artefactual evidence can, at present, provide support in this respect. Iranian fritware is not well documented from local archaeological excavations: virtually no material has been published from well stratified excavations, but large assemblages of Iranian provenance have been studied in detail and published, including a number of well dated fragments (Grube 1995, 147–153; Morgan 1995; Soustiel 1985, nos 89–94, 100–101). Such early fritware from Iran as has been published shows a number of similarities with Syrian fritware. This is not surprising, since northern Syria, where early fritware was presumably produced, was, like Iran, part of the Saljūq empire for about a century from the second half of the 11th century. Although dated objects provide only a *terminus ante quem*, and cannot be considered as evidence for the beginning of a certain production, it is interesting to note that the earliest undisputed example for Iranian fritware bears a 534 *hijrī* date (AD 1139/40), and it belongs to the mould-decorated type, see Grube 1995, pl. 148. The earliest lustre-decorated object is dated *Muḥarram* 575 (June 1179), see Watson 1985, pl. 37, 69; Morgan 1995, 155, 162–166.

[253] In Egypt, early examples of fritware have been identified in the lustre-decorated group as well as the incised group, see Mason and Tite 1993, Table 2.

Further research is needed to fully understand Egyptian production and, more specifically, its fritware production. Pottery from Egypt is especially known on the basis of finds out of context and of preliminary archaeological reports, and still awaits a final study (see note 405). The various phases of the production have not been fully assessed and understood: preliminary reports of archaeological finds generally lack vital information for the understanding of a particular ware. In particular, it is often difficult to understand what the published finds represent in relation to the rest of the assemblage recovered, not only in terms of chronology, but, for example, in relation to occurrence. Dating of Egyptian lustre ware is often still based on stylistic comparison; objects from well dated contexts from Italy, the so-called *bacini*, can also provide reliable dating evidence as *terminus ante quem*. See Berti and Tongiorgi 1981, 255–268; Grube 1995, 138–145; Philon 1980, 63–76 and 163–181.

[254] Recent archaeometric research conducted by Mason and Tite 1994 has provided indisputable evidence on the subject; their analytical study on a sample of sherds illustrates the different stages of development from the usual clay body to the new composite body, proving that experiments were being carried out in Egypt, in the Fāṭimid period, to obtain a new ceramic body; the antecedents of this evolution are traced back as far as 'Abbāsid Iraq.

Already in 1986, Dr Oliver Watson had made an attempt in this direction, on the basis of a study conducted on a series of Fāṭimid lustre sherds: "Clay to Frit: the Fatimid potter's body", unpublished communication to the Symposium on Fāṭimid History and Art, held in June, 1986 at the School of Oriental and African Studies, University of London. A possible continuity of the technique from ancient fritware in Egypt is discussed by Soustiel 1985, 27–28 and 80.

Other scholars have considered fritware an Iranian innovation: Lane 1947, 32; Soustiel 1985, 61, no. 42. See also Allan *et al.* 1973 and note 252.

[255] Lane 1947, 38; Porter and Watson 1987, 191; Philon 1980, 177.

[256] See Philon 1980 for a large inventory of Fāṭimid shapes. For the conical bowl with angular foot characteristic of *fritware 1* (see figs 42 a and 50 g), see Scanlon 1984, fig. 8, 7; this bowl is attributed to the 11th century. See also Scanlon 1982, 129, fig. 12.

A further link between Syria and Egypt is suggested by the name of a painter of enamelled glass who was active in Egypt, Ḥusayn al-Shāmī; Lamm 1941, 56.

Similarities in terms of shape and decoration have also been observed between the Fāṭimid and the early Iranian lustre-decorated production, see Morgan 1995, 155–156 and 162–166.

[257] The historical sources are hardly ever concerned with pottery in terms of production centres, distribution, markets, import-export and techniques. Soustiel 1985, 37–38, for a discussion.

[258] A number of wasters were part of the unstratified pottery assemblage. Most of them were photographed by the present writer during the first two seasons of field work, but not drawn. In the following years, the pottery was no longer available for drawings. See pls 41–47 (wasters) and 52 (kiln waste).

[259] Lustre ware wasters are not necessarily easy to identify. We tend to consider as real wasters only those objects which are badly deformed, for a vessel with simple faults may still have had a use. Very likely, lustre paint would only be applied to already fired pieces and, as a consequence, deformed lustred pieces which can be interpreted as wasters do not and should not exist (but see Tonghini 1995b, pl. 315). A fault in the lustre paint is much more difficult to identify as such, in particular because criteria for discarding badly lustred vessels in the Middle Ages are not known. See pl. 46.

[260] Bālis (Meskene is the modern village name) is a site located on the right bank of the Euphrates, 42 km. west of Qal'at Ja'bar. Excavations were carried out by Eustache de Lorey and Georges Salles in 1929–31 (Canard 1953, 88 and Dussaud *et al.* 1931, pls 107–108); some of the pottery finds were published in Rengarten 1929, and Damascus 1931; the excavation is also mentioned in Lamm 1941, 56. On the occasion of the construction of the dam on the middle Euphrates, archaeological investigations were continued, as part of a vast rescue excavation project (p.25), by the Institut Français d'Études Arabes of Damascus, under the direction of Lucien Golvin and André Raymond between 1970 and 1975 (Golvin and Raymond 1974; Bianquis 1987, 28). Part of the results have been recently published (Raymond and Paillet 1995). The excavated pottery, never published, is kept at the Aleppo Museum and partly at the Louvre. A small number of sherds have been recently the subject of an archaeometric study (see Pérez *et al.* 1995). The site has been extensively disturbed by clandestine excavators. The water level has progressively dropped in the dam since 1989; in order to protect the site and to carry on archaeological investigations, the Syrian Directorate of Antiquities promoted a campaign in 1991, under the direction of Dr Shaukī Sha'th, of the Aleppo Museum. There are good opportunities for other campaigns in the immediate future.

[261] Porter and Watson 1987, 192–199; Mason 1995b.

[262] Mason 1995a has recently conducted an archaeometric study on this assemblage of wasters. Group 1 and group 2, which identify respectively two different kinds of petrofabric, can be classified as *fritware 1* (with the exception of 1c). Mason is inclined to link the production of at least one of these groups to the Ma'arrat al-Nu'man region, see Mason 1995, 16.

[263] Antioch (Waagé 1948), Ḥamā (Poulsen 1957), Qaṣr al-Ḥayr al-Sharqī (Grabar *et al.* 1978), al-Raqqa (Sauvaget 1948; see note 323), Ruṣāfa (Logar 1991, 1992, 1995; Ulbert *et al.* 1986), Tell Shahīn (Tonghini 1995a), Tell Barrī (Scerrato and Ventrone 1982, 84), 'Āna (Northedge *et al.* 1988), Samsat (Anatolia; see Öney 1982; Redford 1995; see also Porter and Watson 1987, 178, reporting that some sherds were shown by Gönül Öney at the 1982 Saljūq conference in Edinburgh), Istanbul (Hayes 1968 and 1992, 43–44), Buṣrā (Berthier 1985), Caesarea (Pringle 1985) and Jerusalem (Tushingham 1985).

264 Bartl 1994a; Tonghini (in press).

265 The possibility that the bowl from the church of Santo Stefano *extra moenia* in Pisa already mentioned may be of Syrian origin must be taken into account; the bowl is attributed to the mid-11th century on the basis of contextual evidence offered by the structure of the church, see Berti 1996, 102; Berti 1997, 34, no. 81; Berti *et al.* 1996, 247; see also Berti and Tongiorgi 1981, no. 81, 42, fig. 201, 251–252, and pl. CLXXXVI. See also the *intermediate fritware* group found in Genoa, pp.45–46.

266 See Berthier *et al.* (in press).

267 Repair holes have been identified in several fragments from the Euphrates villages: see Tonghini (in press).

268 Quantities are not as high as those for *fritware 2,* see Tonghini (in press); see also the problem of classifying monochrome glazed fritware, pp.42–45.

269 Analysed samples of *intermediate fritware* have been grouped with *fritware 1* in the tables of components (see Appendix D, Tables 1–2), since there is no difference between the two from a chemical or petrographical point of view, see Franchi *et al.* 1995. *Intermediate fritware* samples have been marked with an asterisk in the tables of Appendix D (fig. 53 e, i, k).

270 Analysis conducted on black-glazed sherds from the Euphrates valley has revealed the presence of lead among the components, see Bechtel *et al.* (forthcoming).

271 There are a number of objects in the literature which can be regarded as *intermediate fritware*; see for example Tonghini 1995b, pls 291 and 297; these bowls can be classified in the *intermediate fritware* group in the sense established for the Qal'at Ja'bar pottery typology on the basis of the style of lustre painting and because of the shape of the foot.

272 See, for example, Grabar *et al.* 1978, pl. G/1.

273 See note 209 for fritware manufacturing. As stated above, analysed samples of *intermediate fritware* have been grouped with *fritware 1* in the table of components, since there is no difference between the two from a chemical or petrographical point of view (Appendix D). *Intermediate fritware* samples have been marked with an asterisk in the tables of Appendix D: fig. 53 e, i, k. As already stated in the introduction above, two of the samples analysed were grouped separately: the composition of the body is much closer to that of *fritware 2*. Glazes present a lead content much less than that usually found in *fritware 1* glazes; no lead is normally found in the glazes of *fritware 2*. One of the samples is covered with a coloured, transparent, glaze and is lustre-decorated (fig. 59 k). Further analysis is needed to better define this group.

274 Porter and Watson 1987 published the profile drawings of a number of the fritware objects from Ḥamā; from Poulsen's "groupe intermédiaire" are: C1–C3 and C9–C16.

275 Porter and Watson 1987, 186.

276 For a discussion on *laqabi* ware, see note 216.

277 Porter and Watson 1987, 186.

278 See, for example, Porter and Watson 1987, pls C14 and C16.

279 It is possible to recognise *fritware 2* lustre ware on the basis of decoration (colour of the lustre and style). In this case, lustre ware pieces were not classified in the doubtful group, but obviously typed with the rest of *fritware 2*. However, the lustre-decorated group is not considered as diagnostic as the underglaze-painted group for identifying *fritware 2*, see pp.46–50.

280 Poulsen 1957, 152.

281 As stated above, to provide more reliable quantitative data, monochrome fritware has been isolated from more diagnostic *fritware 1*, *intermediate fritware* and *fritware 2* and defined as *fritware ?* Conclusions have only been drawn on the basis of highly diagnostic sherds.

282 Poulsen 1957, 160.

283 A single sherd with a lustre decoration over a coloured glaze was analysed (fig. 59 k): the composition of the body is much closer to that of *fritware 2*; on the other hand, the glaze contains a small percentage of lead, entirely absent from *fritware 2* glaze (Appendix D, Table 2). Lustre on coloured glaze fritware needs further investigation. For the moment, lustre ware of this type has been treated as the monochrome fritware group, and only highly diagnostic shapes of the lustre type have been attributed to *intermediate fritware*.

284 Grabar *et al.* 1978, 116 and 121.

285 Grabar *et al.* 1978, pl. G/1.

286 In Grabar *et al.* 1978, the bases G-1/21a–b and e–f are related to *fritware 1* in terms of shape, but it is essential to have a detailed description of the fritware body for a tentative classification.

287 Tonghini (in press); thermoluminescence analysis was part of the archaeological project on the Middle Euphrates valley directed by Dr Sophie Berthier, under the aegis of the Institut Français d'Études Arabes, Damascus, and the Fondation van Berchem, Geneva; see Berthier *et al.* 1989; Berthier and D'Hont 1994; Bechtel *et al.* (in press); Berthier *et al.* (in press). Archaeometric research was directed by Prof. M. Schvoerer, University of Bordeaux.

288 Pringle 1977, 140, no. 168, pl. XXI; for phase dating, see 98–99.

289 Pringle 1978, 434, no. 13, not illustrated. For phase dating, see Pringle 1977, 98–99.

290 Cabona, Gardini and Pizzolo 1986, 467: "In alcuni frammenti l'impasto è siliceo e di colore bianco, a frattura granulosa, molto tenero, friabile. Negli altri frammenti l'impasto è di tipo sabbioso, di colore cuoio chiaro, tenero."

291 Cabona, Gardini and Pizzolo 1986, 467: "Nei livelli 104/105, databili alla prima metà del XII secolo, vi sono solo scodelle con rivestimento di colore turchese, blu e viola. E' interessante notare che i tipi monocromi compaiono prima di quelli decorati. I prodotti decorati si possono assegnare per le loro caratteristiche alla produzione tipo Raqqa che compare nei livelli della fine del secolo XII".

292 Only a monochrome glazed foot seems already to be in the *fritware 2* tradition; however, it is not clear from which layer this particular sherd was retrieved. See Cabona, Gardini and Pizzolo 1986, no. 83, pl. IX.

293 Hayes 1992, 44, pl. 9f.

294 Waagé 1948. The very detailed classification of the Antioch fritware assemblage is helpful for identifying *intermediate fritware* in the sense established at Qal'at Ja'bar. Waagé himself noted the existence of a fritware body whose characteristics fall in between *fritware 1* and *fritware 2*, see types IC4, IG3, IIE1, IVA3, XIIC5, XIIC11.

295 Poulsen 1957, "groupe intermédiaire", BVIg.

296 A. Northedge, communication on the occasion of the colloquium: Berlin, 6–9 April 1994.

297 Grabar *et al.* 1978, see discussion above.

298 The writer had the chance to study the fritware material from the Berthier project of survey and excavations concerned with the middle Euphrates valley; *intermediate fritware* has been found at numerous sites on both banks of the Euphrates. See Berthier *et al.* (in press) and Tonghini (in press).

299 Pringle 1977 and 1978.

300 Cabona, Gardini and Pizzolo 1986.

301 See, however, Porter and Watson 1987, 186 and 188. They consider "Related Wares" lustre ware (Lustre Group 2) a sort of "degenerate version of 'Tell Minis' wares" (*ibid.*, 186). Rather than providing a simple chronological interpretation for this group, they consider these lustred fritware pieces the product of a provincial kiln (*ibid.*, 188).

302 Porter and Watson 1987, 186 and 188.

303 It is obviously possible that at Qal'at Ja'bar some workshops were more skilled than others, and were producing better quality fritware. However, this does not diminish the argument that market demand had increased: if there were new ateliers trying to produce fritware, this also means that demand for it had grown.

[304] Franchi *et al.* 1995; Schvoerer *et al.* 1992, 79–80.

[305] Franchi *et al.* 1995; Bechtel *et al.* (forthcoming).

[306] Franchi *et al.* 1995, 203.

[307] Soustiel 1985, 118. The red paint is often termed 'bol arménien ou d'Arménie', see 382; laboratory analyses were conducted on a number of sherds (see *ibid.*, 365–380 for the results). Red paint had already been used for the so-called Nishapur pottery and was also used extensively in the Byzantine empire from the 10th century. See also Tite 1989, 127–128 and Poulsen 1957, 182.

[308] Soustiel 1985, 118.

[309] In the ceramic literature lustre-decorated fritware and underglaze-painted fritware are generally considered part of the 'Raqqa ware' group; see, for example, Grube 1963 and Porter 1981. Both varieties may in fact come from the same production centres; for example, this has been recently demonstrated by R. Mason; on the basis of petrographic analysis, Mason classified black underglaze-painted fritware with lustre-decorated fritware (both of the variety which is generally referred to in the literature as 'Raqqa ware') in the same group "Ma'arrat al-Nu'man group 3: Raqqa petrofabric". Mason 1995b, 9–11, fig. 2, a–b, g–h. Both varieties are also classified in the "Abu Sudaira group 1: 'Raqqa-style' petrofabric", p.11.

[310] See, for example, Grube 1963 and Porter 1981.

[311] See, for example, Porter 1981, fig. 1 and Tonghini 1995b.

[312] See, for example, Grube 1963.

[313] Watson 1978, 92, and Philon 1985, 115–116.

[314] Kouchakji 1923.

[315] Migeon 1901, 196–197.

[316] Kouchakji 1923.

[317] The Imperial Ottoman Museum archaeological work at al-Raqqa was conducted under the direction of Maqridi Bay from 1906. The outbreak of World War I and the collapse of the Ottoman Empire prevented the continuation of the research. Some of the pieces were exhibited in the Çinili Köšk Museum in Istanbul, and were partly published by Ernst Kühnel in 1938 (Kühnel 1938). The excavators collected pottery fragments from other sites in Syria (this writer owes this information to Çihat Soyhan, of the Türk ve Islam Eserleri Müzesi in Istanbul); these sherds, together with those collected at al-Raqqa, are now kept in the Türk ve Islam Eserleri Müzesi in Istanbul. In September, 1991, I had the opportunity to visit this still unpublished collection, thanks to Dr Nazan Ôlçer, curator of the Museum. A number of fritware wasters are included in this assemblage.

[318] A few fragments are published in Sarre and Herzfeld 1911, pls. CXVI–CXX; a detailed description and discussion of these finds was published in Sarre 1921. A pottery kiln was also found during this survey.

[319] Bell 1911, 59–60.

[320] Sauvaget 1948; for the discovery of the kiln and its description see p.34, note 6. The sherds found by de Lorey at al-Raqqa and in Damascus (*ibid.*, 34, note 7) were never published; they were kept at the Institut Français in Damascus, at that time in the 'Azam Palace, and then lost. The sherds collected by Sauvaget and published in the article are in the Sèvres Museum.

[321] Abdu'l-Haqq 1951; Saliby 1954–1955; Salībī 1956; Toueir 1985.

[322] Toueir 1985 and Meinecke 1995. The material, excavated under the direction of Dr Kassem Toueir, of the Syrian Directorate of Antiquities, has been recently studied by Dr Venetia Porter and Dr Oliver Watson. The results of this study will be published in the volumes devoted to the al-Raqqa excavations by the Deutsches Archäologisches Institut in Damascus.

[323] Initially, Migeon and Pier ascribed *fritware 2* to the period of Ḥarūn al-Rashīd, but it was subsequently attributed to the Ayyūbid period. Migeon 1901 and 1907, and Pier 1909 followed the general opinion that the pottery was found in the complex built for Ḥarūn al-Rashīd and dated 'Raqqa ware' accordingly. Sarre 1909, on the basis of his survey at al-Raqqa, reports that the pottery had been found near the mosque built in 561/ 1166, during the period of Nūr al-Dīn Maḥmūd. He therefore dates the pottery to around the 11th–12th centuries.

In spite of Sarre's note, scholars in the next decades seemed to be rather confused about chronology: for example, Koechlin 1912 and Rivière 1913 were still uncertain and attributed 'Raqqa ware' to the period of the 9th–12th centuries while Kouchakji 1923 was still convinced that a 9th-century date was correct.

[324] Tonghini (in press). See also note 287.

[325] Rice 1952, 45, 47–48, 52, 66–73. According to Rice, this rebuilding cannot be related to the Mamlūk period, when only some restoration was carried out, see Rice 1952, 48. Northedge *et al.* 1988, 102, drew my attention to the dating evidence from Ḥarrān for Syrian underglaze-painted ware of the Ayyūbid period.

[326] Cabona, Gardini and Pizzolo 1986, nos 78–80, pl. IX, 466–467.

[327] Berti and Tongiorgi 1981, no. 306 (fig. 204), from the tower of the church of San Paolo all'Orto, attributed to the end of the 12th–beginning of the 13th century, 96 and 98; no. 365 (pl. CLXXXVII, fig. 205) from the church of Santa Cecilia, attributed to the first half of the 13th century (probably to a post-1216 period, 99). Fortnum removed this bowl (no. 365) from its original position in the church (Fortnum 1870, 383) and donated a fragment of it to the Victoria and Albert Museum and another fragment to the British Museum (Ballardini 1938, 5), Berti and Tongiorgi 1981, 109.

[328] Unlike contemporary Iranian pottery, Raqqa fritware production lacks objects dated with inscriptions. Although inscriptions do occasionally occur, they often consist only of blessings or purely decorative patterns.

[329] RCEA, no. 4178; Sauvaget 1948, 42.

[330] See, however, the discussion on the stratigraphic data from the Ḥamā excavation, p.41. As several areas of the citadel provided only a very vague date for the finds, such as 'pre-1250' or 'post-600', attempts to date the pottery on the basis of style were made; Poulsen 1957.

[331] It is important to notice that Poulsen's 'Raqqa ware' (Poulsen 1957) only refers to black underglaze-painted fritware (BVII–BVIII, 157–182); polychrome underglaze-painted ware is described as "faïence de Rusafa" (BIX, 182–198) and lustre ware as "faïence syrienne à lustre (style tardif)" (BX, 198–202).

[332] Poulsen 1957, 160.

[333] Grabar *et al.* 1978, 121 and 123.

[334] Tonghini (in press).

[335] Tushingham 1985. The bowl in fig. 37, 14 is described as "off-white soft-paste ware", p.331; this bowl has an incised decoration and it is covered with a turquoise glaze. It presents the characteristic cut of the foot, and, according to the Qal'at Ja'bar classification, it could belong to the *fritware 1* or to the *intermediate fritware* group. The bowl in fig. 40, 16 is described as "pale yellow soft-paste ware. Impressed pattern in which olive green glaze lies more thickly and appears darker", *ibid.*, 335; it is not possible to conclude whether these two objects can be considered of *intermediate fritware* or of *fritware 2*

[336] Tushingham 1985, 108–109 and 143–144 in particular.

[337] Grabar *et al.* 1978, 117 and 122. A certain caution must be employed, however, since a black-painted *fritware 3* also occurs.

[338] Poulsen 1957, 182, 196–198, 202–232.

[339] Mason 1995b, 13–14 and 16. See also below, pp.52–55.

[340] See, for example, Bartl 1994a and Berthier *et al.* (in press).

[341] Franken and Kalsbeek 1975, fig. 38 (with the possible exception of no. 12, which could belong to the *fritware 2*

group); Pringle 1984a; Pringle 1986a, pl. 51 (with the possible exception of nos 80–81, which could belong to the 'Raqqa ware' group); Salamé-Sarkis 1980; Wightman 1989. Pringle 1985, 196 (referring to Pringle (forthcoming), "Excavations at 'Akko 1974: the medieval pottery from site D", in M. Dothan (ed.) *'Akko excavations 1* (Haifa), nos 24–31), states that at Acre black underglaze-painted fritware appears only in 13th-century layers.

342 Tushingham 1985, 108–109 and 143–144. The Mamlūk phase is attributed to the last quarter of the 14th century.

343 Tushingham 1985. See also note 341.

344 Ingholt 1934, 46 ff.

345 Poulsen 1957, 161, 169 and 174.

346 Philon 1985.

347 A much clearer picture of the fritware produced at al-Raqqa will soon be available, see Meinecke 1995 and note 322. A number of wasters, presumably from al-Raqqa, were studied by R. Mason, see Mason 1995b, 9–10.

348 See Öney 1982, 74; Redford 1995, 65–66, fig. 10, QQ and 12, CCC.

349 Mason 1995b, 13–14 and 16; none of the underglaze-painted samples of so-called 'Raqqa ware' classified as "Ma'arrat al-Nu'man group 4: Damascus (?) petrofabric" is illustrated here; reference to a sample which had already been published is made in note 31. On the sherds from Ma'arrat al Nu'man see also Porter and Watson 1987, 192–199.

350 Mason 1995b, 11–12 and 16.

351 See Bahgat and Massoul 1930, 72 and pl. 3b. Sherds excavated in Syria normally show badly decomposed surfaces, with large areas of iridescence covering the glaze which is often divitrified. By contrast, the fragments from al-Fusṭāṭ have glossy, intact surfaces, but this is not always the case. Whether this difference depends on the conditions of the soil or on the composition of the glazes is a problem that only laboratory analysis can solve.

352 This has been noted by a number of scholars; see, for example, Whitehouse 1971, 281–282. See also Scanlon 1984b, 118–119 and 125, note 15.

353 See Mason and Keall 1990; Mason and Tite 1994; Mason 1995a. Franchi and Tonghini are preparing an archaeometric study comparing fritware from Qal'at Ja'bar and Bālis with the *fritware 2* and *fritware 3* sherds from al-Fusṭāṭ in the Martin collection, kept at the Museo Internazionale delle Ceramiche, Faenza.

354 See, for example, the Martin collection in the Museo Internazionale delle Ceramiche, Faenza (Italy). See also [Bahgat] 1922, pls 87–99 and Bahghat and Massoul 1930.

355 Tushingham 1985.

356 Mason 1995b, 13–15.

357 Pottery from al-Fusṭāṭ will be much better understood when large collections of finds have been systematically published by the archaeologists at present involved in these excavations or in the study of the finds. See note 405.

358 Bahgat and Massoul 1930, 11 and 66–67, consider the absence of lustre ware in Egypt a consequence of a law promulgated by Ṣalāḥ al-Dīn for pottery production regulations. This point must be further investigated.

359 The lack of published evidence makes this list unavoidably incomplete.

360 Antioch: Waagé 1948. Qaṣr al-Ḥayr al-Sharqī: Grabar *et al.* 1978. Ḥamā: Poulsen 1957. Al-Raqqa: Sauvaget 1948; see also note 347. Ruṣāfa: Legner 1964, Logar 1991, 1992 and 1995, Ulbert *et al.* 1986. Tell Shahīn: Tonghini 1995a. 'Āna: Northedge *et al.* 1988. Ḥarrān: Rice 1952. Samsat: Öney 1982; Redford 1995. Tell Barrī: Scerrato and Ventrone-Vassallo 1982. Tell Rifa'at: Bernus-Taylor 1978 and 1981.

361 Bartl 1994a; Berthier *et al.* (in press); Bernus-Taylor 1981. See also Guérin 1996; Lyonnet 1996.

362 Berti and Tongiorgi 1981, nos 306 and 365, 254.

363 Pringle 1978, no. 13, 434, not illustrated, from phase "L", dated 1170–1472.

364 Cabona, Gardini and Pizzolo 1986, 466–467, nos 78–80, pl. IX.

365 Whitehouse 1971, 281; Benente and Gardini 1996, 70 and 72. In the case of Sant'Ambrogio Vecchio, the part of the church with the *bacini* is attributed to a period between the end of the 12th century and the beginning of the 13th century. A 'Raqqa ware' fragment is also attested in the church of Sant'Ambrogio Nuovo, attributed to the second half of the 14th century; see Benente and Gardini 1996, 74–75.

366 See Nepoti 1986, 355, fig. 6b.

367 See Nepoti 1986, 355, fig. 6c.

368 Wallis 1904; Ballardini 1934, figs 2, 48, 11; Gabrieli and Scerrato 1979, figs 424–432; Peduto 1992; Schvoerer *et al.* 1992; De Crescenzo 1996, 203–207.

369 Also identified as 'Raqqa ware' in Vannini *et al.* 1985–1987, vol. II*, pl. XI, no. 3 (between 422 and 423), and 436–437; it would be difficult to place this object, and I do not think it can be considered *intermediate fritware*, but more likely *fritware 2* or even *fritware 3*; only analysis can classify it properly; it is attributed to the 13th–14th centuries. It is presently at the Museum of the Palazzo dei Vescovi, Pistoia (Italy).

370 Hurst 1964, 253–254, from Winchester, in a late 13th–early 14th-century layer. See also Pringle 1986b, 453 and notes 13–14.

371 O'Neill 1932 suggests that this jar may have been brought back from the Near East by Edmund, Earl of Lancaster, who accompanied his brother Edward on the Crusade of 1270 and returned in 1272.

372 No indication of pottery proportions is provided in the publication, Poulsen 1957; the present writer's conclusions are based on counting of published pottery.

It must also be said that quantitative assessments on the basis of the Ḥamā finds may be misleading, for only part of the glazed finds seem to have been published. No monochrome fritware, for example, is represented, with the exception of *fritware 1* monochrome type. It is thus possible that monochrome glaze was simply discarded and that the picture provided in the Ḥamā publication is not as complete as could be desired.

373 Lane 1947, 44; Soustiel 1985, 117–118 for a discussion. See also Mason and Tite 1994.

374 Watson 1978. A type of pottery which had been in use for a very limited time in southern Anatolia, Syria and Iran has also been regarded by scholars as a possible prototype for the underglaze painting technique. These were fritwares covered with a colourless glaze, occasionally also decorated with stripes painted in cobalt blue under the glaze; Porter 1981, 12–13; Soustiel 1985, 118. However, these pieces may be in-glaze painted and not under-glaze painted, as is often the case with cobalt blue.

375 Meinecke 1995; see note 322.

376 Franchi *et al.* 1995, 201 and 209. This had also been noted by Mason and Keall 1988, 461, fig. 6i (presumably on a 'Raqqa ware' lustre-decorated sherd); Mason and Keall 1990, 182 ("Blue and White sherd" of the Mamlūk period); Mason 1995b, "Damascus (?) petrofabric", 13–15.

377 A number of scholars indicate the use of a slip for the underglaze-painted *fritware 3*; see, for example, Atil 1981, 153. See also Tite 1989, 120 and 122. At Qal'at Ja'bar, a slip is only used in ware BR, fig. 75 f and pls 39–40.

378 Franchi *et al.* 1995, 203.

379 Porter 1981, fig. 10.

380 Poulsen 1957, figs 521–526, 567, 567–570, 617, 647–648, 665, 681 (*fritware 2* and *fritware 3*).

381 See, for example, Porter 1981 figs 7–8; Toueir 1973, pl. VII, 14–15; al-Khūlī 1975.

382 The so-called 'Sultanabad-imitation ware' can be considered part of the underglaze-painted group; only two small fragments of this ware have been found at Qal'at Ja'bar, and they occur in the unstratified pottery assemblage. The well known early Mamlūk lustre ware (*fritware 3*, cobalt blue glazed and decorated in gold lustre) was not found at Qal'at Ja'bar. It does not occur in the published assemblages from excavated material, in particular in those chronologically and typologically related to the Qal'at Ja'bar pottery horizon, such as Ḥamā and Qaṣr al-Ḥayr al-Sharqī. Lustre-decorated *fritware 3* is well known in the literature; see for example Wallis 1891, pls XI–XII; Migeon 1927, fig. 363; Charleston 1979, fig. 82; Lane 1957, pl. 9; Atil 1981, no. 84, 175; Kuwait 1983, 84. Lustre-decorated fragments of *fritware 3* were found in al-Fusṭāṭ. See, for example, Soustiel 1985, 228, note 13 in particular; see also Faenza, Museo Internazionale delle Ceramiche, Collezione Martin, sherds AB 1427, AB 1341, AB 1423, AB 1418, AB 1432, some of which are published in Venice 1993, fig. 164, 292 (they are stylistically still related to the Ayyūbid underglaze-painting style). At the present stage of our understanding, there is no data to assess the absence of the Mamlūk lustred fritware from these excavated assemblages.

383 Fortnum 1873; Wallis 1887.

384 Fouquet 1900; Bahgat 1914; [Bahgat] 1922; Bahgat and Massoul 1930.

385 Wallis 1891, 40; Falke 1896, 25, fig. 7; Migeon 1901; Poulsen 1957, 206.

386 See, for example, Mason 1995a.

387 Migeon 1923, 383–384; Contenau 1924, 205 and pls XLVIII–XLIX. Both authors refer to the excavations conducted by Eustache de Lorey at Bāb al-Sharqī, in Damascus. Two kilns were found, together with a certain number of pottery sherds: lustre-painted ware on blue glaze; blue and black underglaze-painted ware; blue and white ware; the so-called 'Sultanabad-imitation ware'. The *terminus ante quem* for this pottery is considered to be 1401, the year of Timūr's sack of Damascus and of the consequent demolition of the potters' quarter. Migeon 1923, 384 indicates the existence of a number of wasters among the finds. Unfortunately, the finds were never fully published and were subsequently lost.

388 These wasters are now kept at the Museum of the American University in Beirut, see Carswell 1979, 19, pl. XVIII and figs 12–15.

389 Jenkins 1984, pl. 9, c–d, 104 and note 8.

390 See, for example, Toueir 1973.

391 I am indebted to Dr Moḥammad al-Khūlī, formerly curator in the National Museum of Damascus, for showing me on several occasions (1986–1988) the pottery finds collected during the restoration of the citadel and from other areas in Damascus. The assemblage does not include wasters, and remains unpublished.

392 The inscription reads: "made for Asad al-Iskandarī, work of Yūsuf from Damascus"; Migeon 1923, 383 and Migeon 1927, fig. 363; Lane 1957, 16 and pl. 7; Kuwait 1983, 84; Soustiel 1985, fig. 265, 233.

393 The inscription reads: "made in Damascus". David-Weill 1960; Soustiel 1985, fig. 267, 233.

394 Meinecke 1988 has brought together all evidence for the 15th century from surviving tiles in a number of Damascus buildings. In this well documented study Meinecke puts forward the hypothesis of a workshop active in Damascus from the second decade of the 15th century and specialised in tile-work. According to Meinecke, the specialists were part of an itinerant atelier of Iranian origin, which migrated from Cairo, p.211, notes 29–30. See also Carswell 1972a and 1987; Sauvaget 1932, 75, fig. 30; Wulzinger and Watzinger 1924, pls 28, b–c; Jenkins 1984.

395 Lane 1957, 16, 29–30. See also Soustiel 1985, 219–220 and 228–230.

396 Spallanzani 1978, 31–83 and Spallanzani 1989, 83–100. See also Lane 1957, 17 and Soustiel 1985, 221.

397 Fouquet 1900; Bahgat and Massoul 1930; Abel 1930.

398 See, for example, Bahgat and Massoul 1930, 4.

399 Both kilns are described in detail in Bahgat and Massoul 1930. A kiln was found in 1913, already published in Bahgat 1914 (Bahgat and Massoul 1930, 24–28); wasters are also published, although it is not clear to what type they belong. The other kiln was found in 1923; imitation celadon fritware wasters were found there (*ibid.*, 28–29).

400 Bahgat and Massoul 1930, 31.

401 Bahgat and Massoul 1930, 70 and 73. One of the 'Sultanabad-imitation' sherds bears an inscription with a possible '1345' date; the original *hijrī* date is not provided in the text (p.74). A blue and black underglaze-painted jug with a manufacturing fault is also illustrated (*ibid.*, 74, pl. K, no. 82).

402 Bahgat and Massoul 1930, 5–14; various texts concerning taxation, rules of sale and fuel usage regulations are reported in translation.

403 Jenkins 1984, 104 and pl. 12, c–d. Other wasters from al-Fusṭāṭ are also published; see pl. 11a and pl. 12e–f.

404 See, for example, the Martin collection in the Museo Internazionale delle Ceramiche, Faenza (Italy). Martin 1929, 33.

405 An American team of archaeologists has been working in al-Fusṭāṭ since 1964 under the direction of George T. Scanlon. A large number of preliminary reports have been published, but the final publication on the pottery is still in preparation. For a bibliography on the American excavation, see Scanlon, in the main bibliography. For the pottery, see in particular Scanlon 1971, 1980, 1984b, 1986, and Kubiak and Scanlon 1989, chapter 4.

For the French excavation at al-Fusṭāṭ directed by Roland Pierre Gayraud, see Scanlon 1990, 7; Gayraud 1986a and b, 1987, and 1991; Gayraud, "Istabl 'Anṭar: évolution d'un quartier de Fostat (VIIe–XIe siècles)", paper presented at the Colloque d'Archéologie Orientale, Institut Français d'Archéologie Orientale, Cairo, 3–7 February, 1993.

See also Maher 1976, for the Egyptian excavations; Kawadoko and Sakura 1994 for the Japanese excavations at al-Fusṭāṭ.

406 Soustiel 1985, 220–221; Jenkins 1984 and 1988. The problem of interpreting these signatures is related to the long-debated question of the meaning of the *nisba* in context of art and handicraft. The *nisba* seems to have been especially used in Il-Khānid Persia (see Watson 1985) and in Fāṭimid and Mamlūk Egypt. The meaning of its usage is still a matter of discussion and, in the present stage of our knowledge, two possible explanations are generally accepted. The *nisba* was either used by artists who were working abroad, willing to stress their provenance (this could be the case of al-Shāmī, a potter of Syrian origin who seems to have been active in Egypt: a number of sherds from al-Fusṭāṭ bear his 'signature'; Bahgat and Massoul 1930, pl. XLII, 3; Abel 1930, 28–30; Lamm 1941, 56) or it may be interpreted as the mark of a pottery atelier, rather than the name of a specific craftsman. A number of sherds in Iran have been taken as testimony of this second usage; the *nisba* seems to have been especially used on pottery which was going to be exported; see Watson 1985, 42.

The case of al-Maṣrī could be particularly significant in this respect and may confirm the first interpretation of the nisba. A number of wasters bearing the signature "Ustādh al-Maṣrī" were found in Damascus by de Lorey; see Bahgat and Massoul 1930, 79. This potter, however, seems to have been active in al-Fusṭāṭ as well, for a large number of sherds bearing his 'signature' were found in al-Fusṭāṭ; Bahgat and Massoul 1930, 79.

The case of al-Ghaybī is much more complex. According to Abel 1930, 17, Ghaybī ibn al-Tawrizī seems to have been active in Damascus; he subsequently moved to Cairo, where he kept the *nisba* al-Shāmī (mid-14th century). See also Soustiel 1985, 220–221. Evidence of his working in Damascus has also been provided by Meinecke 1988.

In the light of our present knowledge, no conclusion can be drawn. Indeed, it seems quite possible that both interpretations

have a certain value. Some 'signatures' may have been the real signature of a specific potter; others may have been pseudonyms or atelier marks.

[407] At present, only one signature can be associated with Syria, that of Yūsuf from Damascus, who signed the famous lustre-painted jar in the Kuwait Museum (see above).

Signatures have also been identified on ceramic tiles of the 15th century (see Meinecke 1988). There is no evidence to establish whether in Syria the practice of signing ceramic work was introduced much later, in the 15th century, for there are no assemblages securely attributed to this period. Meinecke suggests that ceramic tiles in Damascus may have been made by an itinerant workshop from Cairo, which was 'signing' Ghaybī. If so, then the practice of signing ceramic work remains an Egyptian practice, only rarely found in Syria where it would have been introduced under the influence of foreign potters.

[408] Prost 1916, 11–12 and pl. IV, 1; Bahgat and Massoul 1930, pl. O, no. 135.

[409] Franken and Kalsbeek 1975, 207, argue that fritware was also manufactured in the Jordan valley, but concrete evidence for the area is lacking at present.

[410] An archaeometric study attempting to identify means of distinguishing between the two productions is now in preparation; see note 353.

[411] See Mason 1995a and 1995b.

[412] This date is provided in numerals on the *albarello*, Spallanzani 1978, pl. 11.

[413] Poulsen 1957, 206 and 291–292, figs 1093, 1094A and 1094B; these sherds are painted in dark brown and turquoise under transparent glaze. See also Hammershaimb 1957, 291 for the inscriptions on these sherds.

[414] Bahgat and Massoul 1930, pl. L, no. 86; Jenkins 1984, 104, note 11.

[415] Poulsen 1957, groups BXIb–f and BXII.

[416] Riis 1957, 9.

[417] Riis 1957, 28–29; only in layer K 10 does *fritware 3* occur without the other fritware types; Poulsen 1957, fig. 736.

[418] Poulsen 1957, 28–29.

[419] Poulsen 1957, figs 737 and 746 were found in layer O 15; they belong to type BXIe, decorated in blue and black under colourless glaze. In the tabulation on pp.28–29, blue and white fritware is reported to have been found in So. 1, also attributed to "1302–1401", but it is not clear to which object reference is made, and it is not reported in the chapter on pottery.

[420] Poulsen 1957, 210–212 and 224–230, figs 710–716. As already discussed (p.41), it is often very difficult to interpret stratigraphic data from this publication; in the pottery commentary, a number of layers are mentioned, but they do not appear systematically in the tabulation by Riis 1957, 28–29; cistern G 10 α, for example, does not appear in the tabulation.

[421] Poulsen 1957, 230.

[422] See, for example, Carswell 1972a and 1972b; Meinecke 1988.

[423] Grabar *et al.* 1978, 122–123.

[424] A certain caution is necessary in this respect, for a black underglaze-painted *fritware 3* seems also to have existed. Poulsen 1957, 177; Philon 1985.

[425] Blue and white ware seems to be associated with "the last years of the site's functioning"; the ware is ascribed to the 14th century on the basis of decorative motifs derived from China. Grabar *et al.* 1978, 117.

[426] Pringle 1984a: black and blue/turquoise underglaze-painted fritware (no. 77 also has a red colour in the decoration) and blue and white fritware were found at the Monastery of St. Mary of Carmel. The year 1291 is indicated as the *terminus ante quem* for the occupation of the site: in this year the site was destroyed, or simply evacuated and never reoccupied, with the arrival of the Mamlūks after the fall of Acre (Pringle 1984a, 91–95 and 108–109). However, Pringle re-assessed this dating in 1986 (Pringle 1986a, 150–152); he re-assigns a 14th-century date to the assemblage from the Carmelite Monastery. At the Red Tower, blue and white fritware appears in phase E, which corresponds to the destruction of the Mamlūk phase D, attributed to 1265–1390. He assigned these fragments to the 14th century (p.154). Blue and black fritware is present in phase D just mentioned; Pringle 1986a, 153, pl. 51.

[427] Meinecke 1988; Carswell 1972a, 1972b and 1987.

[428] I refer in particular to the excavations at al-Raḥba, conducted by the Institut Français at Damascus and the Syrian Directorate of Antiquities between 1976 and 1981, under the direction of Thierry Bianquis (Bianquis 1987 and 1989). Al-Raḥba had been an important settlement from the 9th century; it was particularly significant after the Mongol invasion of the mid-13th century, as a fortification against Mongol invasions (Bianquis 1987, 31; Honigmann and Bianquis 1995). The study of the finds from this excavation may provide a clearer picture of the 15th century (Honigmann and Bianquis 1995, 395); previously unknown and unpublished wares from 15th–16th-century al-Raḥba are mentioned by Northedge (Northedge *et al.* 1988, 112–114). Mme Marie-Odile Rousset, Université de Lyon, is at present engaged in the study and publication of the archaeological evidence from these excavations; Rousset 1996.

[429] Tushingham 1985, 108–109, 147–149.

[430] Tushingham 1985, fig. 41, nos 18, 35, and 42.

[431] Tushingham 1985, figs 45, 22.

[432] Meinecke 1988. Carswell has produced a quite detailed study of blue and white ware; Carswell 1985. He has established a chronological sequence for the various decorative motifs employed on Syrian and Egyptian blue and white fritware. The transformation of Chinese motifs to an Islamic style is analysed and discussed. The increase in the production of blue and white wares in Syria and Egypt in the 15th century is attributed by Carswell to a lack of imports from China, as a consequence of the economic difficulties that the Mamlūk sultanate endured during that period (Carswell 1985, 30–31).

[433] It is possible, however, that the Mamlūk period is not fully understood at present in terms of finds, i.e. certain wares have not been identified yet as Mamlūk.

[434] Tonghini (in press).

[435] Poulsen 1957 and Grabar *et al.* 1978.

[436] See respectively Waagé 1948, Sarre 1925 and Salamé-Sarkis 1980.

[437] Franken and Kalsbeek 1975. The place-name indicated here refers to that used in the Franken and Kalsbeek publication.

[438] Pringle 1984a.

[439] Pringle 1986a.

[440] See respectively Tushingham 1985 and Wightman 1989.

[441] Loffreda 1982.

[442] Ben-Tor and Rosenthal 1978; Ben-Tor *et al.* 1979; the place-name indicated in this report is "Tell Yoqne'am".

[443] This interpretation fits well with the generally accepted view that Aleppo and the area to its east suffered a severe eclipse as a result of the Mongol invasion and the wars that followed. Lapidus 1984, 14–15; Heidemann 1994.

[444] Wallis 1887. See also Orsi 1915, who publishes a number of *fritware 3* fragments, together with some lustre ware fragments, very likely of the late Fāṭimid period. These finds were recovered from restoration and construction works in Siracuse, and are at present in the Museo Regionale di Palazzo Bellomo, Siracuse (Italy). Another fragment of a blue and white *fritware 3 albarello* has been found in the course of the excavations at Piazza San Gimignano, in Gela (Italy), in 1955; see Fiorilla 1997, n. 91. A fragment of a *fritware 3 albarello*, decorated in blue, black and turquoise under transparent glaze was found during the excavations at Palazzo Steri, in Palermo, from a late 14th-century layer (Venice 1993, no. 102, 210–211).

[445] Venice: Malamocco; see Saccardo 1995, 164 and 1996, 358. Torre di Palme (Ascoli Piceno): church di S. Maria a mare; see Nepoti and Gelichi 1996, 189 for a bibliography. The present author did not have the chance to see these objects. Their attribution to the *fritware 3* group should not therefore be regarded as conclusive. Three fragments of *fritware 3* of the blue and white variety were found in Fano, during clearance excavations in the years 1925–30; see Nepoti 1986, 356, fig. 6d. See also note 242.

[446] Spallanzani 1978, 31–68, 70–83, 107–116, and, in particular, 129–139. According to Spallanzani, ceramic *albarellos* and jars were not used to transport the various wares from the Levant; other types of containers, still not clearly identified, were used. Frequently, however, ceramics were sold to private clients together with the content. Spallanzani 1978, 132–134; 1989, 83–100.

[447] Lane 1957, 15–20 and Soustiel 1985, 221. Metalwork and textiles are also often referred to in the inventories; Spallanzani 1989. For the trade in the Levant, see Ashtor 1983, chapters I–III in particular, 3–199.

[448] The inscription has been recently read by L. Kalus; Soustiel 1985, fig. 257, 228–229; see also fig. 254, 224–225.

[449] Spallanzani 1989, 85–86, and 1978, 31–83 and 129–139. See also Ashtor 1983, chapters I–III, 3–199.

[450] As already discussed, very little data concerning the Mamlūk phase is available from the new sondages. Much more significant in this respect is the unstratified pottery assemblage. However, a certain caution must be used when dealing with percentages, for the discarding system used by previous excavators at Qal'at Ja'bar is unknown; see pp.37–38.

[451] Mason 1995a, 309–312.

[452] *Turquoise-glazed ware* is markedly distinct from 'Abbāsid blue-glaze ware, which is characterised by a darker colour of glaze, a very light yellow body, and generally associated with closed forms only; see Grabar *et al.* 1978, "Blue-white ware", 114. For a complete study of 'Abbāsid blue-glaze ware and *turquoise-glazed ware* on the Euphrates valley, see Berthier *et al.* (in press).

[453] These remarks are based on visual examination of the pottery. A series of technical analyses have been made on pottery from Qal'at Ja'bar by Franken, de Haas and Kalsbeek (Appendix G). In their report it is very difficult to identify *turquoise-glazed ware,* because it can be easily confused with green-glazed *slip-ware* of the *lead-glaze family.* This suspicion is supported by the remark they make in section XI.10: there are more fragments of large jars in the green-glaze group than in the yellow-glaze group. According to the present writer's typology, *turquoise-glazed ware* is more often associated with large jars than green-glaze ware. However, the study of clay, glaze components and manufacturing techniques by Franken *et al.* in Appendix G is essential for understanding Qal'at Ja'bar pottery production.

[454] Franken *et al.* (Appendix G) note that in some cases it is not possible to conclude whether this sand had been added by the potter or whether it was already present in the clay: Appendix G, see section I.

[455] Appendix G, section II. See also note 453.

[456] Because of this similarity, turquoise glaze may have a high alkaline content, like the glaze of *fritware 2.* This deterioration is never found in the *lead-glaze family.* However, a number of varieties in the composition of the glaze are know for the turquoise glaze ware in the Middle East, see McCarthy *et al.* 1995. An interesting contribution to the study of the origins of turquoise glaze in the Middle East is provided by Soustiel 1985, 23–30.

[457] For a discussion on a definition of 'pottery of common use' (*ceramica d'uso comune*) and a review of the literature on this subject, see Lusuardi Siena 1994, 12–13 and Lavazza and Vitali 1994, in particular 17–18.

[458] Lavazza and Vitali 1994.

[459] This writer took part in the survey of the middle Euphrates valley by the Institut Français d'Études Arabes at Damascus and directed by Dr Sophie Berthier. For the results, see Berthier *et al.* (in press). Bertold Einwag, from the Deutsches Archäologisches Institut at Damascus, is at present involved in a survey of the northern Euphrates area (see Einwag 1993), and he has kindly shown the writer some of the finds he collected (Raqqa, September–November, 1991). The Khabūr area has been surveyed by a team from the French CNRS and from the Institut Français d'Études Arabes at Damascus, under the direction of Dr Berthille Lyonnet; a short account of the results of this survey was the subject of a paper presented at a conference held in Berlin in April, 1994; see Guérin 1996 and Lyonnet 1996. Dr Karin Bartl has recently published the results of the survey she conducted along the Balīkh valley; Bartl 1994a and 1996.

[460] Grabar *et al.* 1978, 114.

[461] Grabar *et al.* 1978, 113–114, 124–126.

[462] Maḥmūd 1978 publishes a study on this discovery, providing sections, plans of the kiln and profile drawings of the finds.

[463] Lebeau *et al.* 1985.

[464] Scerrato and Ventrone-Vassallo 1982, pl. 11, figs 12–13, 15 and 17.

[465] Northedge *et al.* 1988, fig. 46, 3–5

[466] Northedge *et al.* 1988, fig. 49, 1.

[467] Northedge *et al.* 1988, 112–114. Northedge specifies that *turquoise-glazed ware* from this group may be compared with a 15th–16th-century ware from al-Raḥba, often black-underglaze painted. On al-Raḥba, see also Rousset 1996, 188.

[468] Berthier 1985 publishes the finds from the excavation of a sondage in the area of the "Thermes" in Buṣrā. She gives a very detailed account of the stratigraphy and she publishes the finds with a precise description and accurate profile drawings. *Turquoise-glazed ware* appears from phase V, which the author ascribes to the Ayyūbid period on the basis of numismatic evidence, see pp.8–9. In the assemblage from phase V, *fritware 1* occurs, but *fritware 2* is absent. According to the evidence discussed in this study, the presence of *fritware 1,* combined with the absence of *fritware 2,* would correspond to an 11th–first half of the 12th-century date (see p.46). However, the problem of residual pottery and the fact that, at Buṣrā, *fritware 1* is very likely to be an import, should be taken into consideration.

[469] Tonghini 1995a.

[470] Profile drawings of the Islamic sherds collected in the course of this survey are published in Bernus-Taylor 1981 (p.474 for a discussion on *turquoise-glazed ware*); a brief description of the Islamic finds also appears in Bernus-Taylor 1978.

[471] See, for example, Salamé-Sarkis 1980: it is true that the material from the Tripoli area published in this study generally corresponds to the Mamlūk period, and does not illustrate an earlier phase in which *turquoise-glazed ware* may have been in use.

[472] Sarre 1925: Baalbek; Waagé 1948: Antioch; Lane 1937: al-Mīnā'; Poulsen 1957: Ḥamā.

[473] Dr G.R.D. King notes the possibility of its existence in the area south of Madaba, personal communication, London, 27.12.1994.

[474] The best example is provided by the finds from the excavation at the Armenian Garden in Jerusalem: a number of *fritware 2* and *fritware 3* sherds have been found, but no *turquoise-glazed ware* has been recovered (with the possible exception of fig. 35, 29, covered with "bright green glaze"; it is not clear whether the sherd has a slip under the glaze), Tushingham 1985. It does not occur in assemblages with *fritware 3,* see for example Franken and Kalsbeek 1975.

[475] Grabar *et al.* 1978, 113–114, 127.

[476] Maḥmūd 1978.

[477] Numerous wasters cover a large area of the site. Kilns have been found, some of which are still visible at the site. See note 260.

[478] Berthier and Geyer 1988 and Berthier *et al.* (in press).

[479] Salamé-Sarkis 1980. In the course of the Tell Rifa'at survey, in the region of Aleppo, a large quantity of lead-glaze ware seems to have been found, while *turquoise-glazed ware* was encountered much more rarely. Bernus-Taylor 1978 and 1981, 474.

[480] This term had already been used by Pringle, see, for example, Pringle 1984a and 1985.

[481] Laboratory analysis conducted on the Qal'at Ja'bar pottery by Franken, de Haas and Kalsbeek (see Appendix G) included polychrome *graffita ware*. This author's description of the earthenware body is based on a combination of personal observations and the support of their analysis, in particular sections I, X, and XI.

[482] According to Lane 1937, 46–47, vessels were fired a first time to produce the biscuit texture; only subsequently were they decorated and glazed. According to Franken *et al.* (Appendix G, sections IX–XI) *lead-glaze family* pottery was fired only once: damage observed in the glaze can only be caused by the burning away of impurities in the clay. The shape of unglazed spur-marks consistently present on the interior of lead-glaze ware vessels also supports this theory (see pl. 50).

[483] Lane 1937, 46–47 and 47, note 1.

[484] The use of iron and copper oxide is also confirmed by Franken *et al.* (Appendix G), sections IX–XI.

[485] Lane 1937, 46. See also Appendix G, section X.

[486] According to Franken *et al.* (Appendix G, section X), variations in colouring may be related to the firing atmosphere caused by the type of fuel used.

[487] Lane 1937, 48.

[488] Waagé 1948, 96.

[489] Poulsen 1957 does not draw this conclusion, but this is clear from the plates, figs 803–813.

[490] Pringle 1985, fig. 13.

[491] Grabar *et al.* 1978, H/17–21.

[492] Salamé-Sarkis 1980, groups A.I.2 and A.I.3, in figs 9–12. No percentage of the different shapes is indicated and my observation is only based on the drawings.

[493] For *proto-maiolica*, see in particular Pringle 1982 and 1985, Whitehouse 1971. For Mediterranean *graffita ware* see, for example, Vannini 1982. See also Blake 1980.

[494] Salamé-Sarkis 1980, fig. 10 and footnote 1.

[495] Scanlon 1980, 64–67, figs 8–10 and 12–15.

[496] Salamé-Sarkis 1980, figs 10–11. Like the rest of the *graffita ware* group, a 13th-century date is assigned to the shape.

[497] Waagé 1948, 98.

[498] Lane 1937, 48.

[499] Lane 1937, 47–48.

[500] Waagé 1948, 1255p, 1260m, 1260p, 1260u, and 1260v.

[501] Salamé-Sarkis 1980, fig. 9, 11.

[502] The author had the opportunity to study the al-Mīnā' finds kept at the Victoria and Albert Museum (February, 1991). Bases are very similar to those recovered at Qal'at Ja'bar, and they are not as sharp-cornered as they seem to be in Lane 1937, fig. 8, 47.

[503] Waagé 1948, ZZ.

[504] Salamé-Sarkis 1980, fig. 12, 12.

[505] A very abundant literature is available at present on the subject of *graffita ware* in Italy. An early variety of this, known as "graffita arcaica tirrenica", was produced in Savona from the late 12th century or from the beginning of the 13th century. See, for example, Berti and Gelichi 1995, 421–423.

[506] Pringle 1982.

[507] Woolley 1937 and 1938.

[508] Lane 1937.

[509] For example, Bernus-Taylor 1978 does not publish any profile drawings of the Islamic finds from the Tell Rifa'at survey (Iraq). She refers to an Ayyūbid variety of polychrome *graffita ware*, C.I.B.2, but also to a Mamlūk variety, D.I.B; the difference between these two varieties is not indicated. The finds from this survey are included in the final publication, but here again the difference between the Ayyūbid and the Mamlūk variety is not clarified; Bernus-Taylor 1981, 476–477.

[510] Northedge *et al.* 1988, fig. 48, nos 8–10.

[511] Van Loon 1973, pl. 22D. A major distinction lies in the fact that only the external rims of bowls are covered with glaze at al-Mīnā', while a large area of the upper part of the bowls is glazed at Qal'at Ja'bar (see figs 82–88, 89 a–i).

[512] Victoria and Albert Museum, C307 B1937.

[513] Salamé-Sarkis 1980, pl. XLVIII, 9.

[514] Lane 1937, pl. XXII, fig. 1D, and p.49; an inscription in Arabic appears below the bird, *babaghāl* (parrot).

[515] Lane 1937, 51–52 "Sgraffiato-ware was still being made in the region of the upper Euphrates [...] and though this has little relation in style, it would seem to have influenced the coastal potters in their technique". Al-Mīnā' production, however, is probably earlier than the Euphrates variety (see pp.58–60).

[516] Mr Zaqzūq directed the 1973 campaign. He described to the writer his marking system: he marked on the sherds only the year of the campaign and the number of the phase. Phases were numbered from the top down in Arabic numerals. "Phase 1" corresponded to the latest occupation phase at the site.

[517] Carswell 1985, fig. 4, 12c. See also Appendix H under 'The House of the Arches' and pl. 103.

[518] Personal communication, Qal'at Ja'bar, October, 1992. See also Appendix H, 'The House of the Arches', levels I–III.

[519] The present writer had the opportunity to see the pottery found at the palace known as Qaṣr al-Banāt and from the Great Mosque, in al-Raqqa. The absence of *graffita ware* from the finds recovered at the excavations of al-Raqqa has also been confirmed by Prof. Dr Michael Meinecke (personal communication, al-Raqqa, May 1992). However, Sauvaget publishes two polychrome *graffita ware* sherds with an assemblage of *fritware 1* and *fritware 2* (Sauvaget 1948, 40, nos 44–45). No *graffita ware* has been found at Ruṣāfa (Legner 1964; Logar 1991, 1992 and 1995; Ulbert *et al.* 1986) and Tell Shahīn (Tonghini 1995a). At both sites, a large amount of *fritware 1* and *fritware 2* was recovered, while *fritware 3* was absent.

[520] Grabar *et al.* 1978, 121 and 126.

[521] Grabar *et al.* 1978, 122, and 125–126.

[522] In the Small Enclosure, polychrome *graffita ware* appears, as the authors put it, "only accidentally" in layers associated with polychrome underglaze-painted fritware, plain monochrome and moulded fritware, and lustre-painted fritware (Grabar *et al.* 1978, 121). All fritware varieties described may correspond to *fritware 1*, *intermediate fritware*, and *fritware 2*. The number of polychrome *graffita ware* fragments increases in loci with a large number of blue and black underglaze-painted fritware sherds (*fritware 3*) (*ibid.*, 121, layer IV of the Small Enclosure). In the Large Enclosure polychrome *graffita ware* occurs in the so-called "middle-layer" (*ibid.*, 122; it constitutes 3.7% of the pottery finds), where black underglaze-painted fritware (*fritware 2*) is predominant but where blue and black underglaze-painted fritware also occurs (*fritware 3*), but it is also present in the "top layer", where only *fritware 3* occurs (*ibid.*, 122; it constitutes 2.2 % of the pottery finds). In general, at Qaṣr al-Ḥayr al-Sharqī, polychrome *graffita ware* tends to occur together with *turquoise-glazed ware* and *fritware 3* (*ibid.*, 125–126). For quantity, see tables *ibid.*, 128–137.

[523] Northedge *et al.* 1988, fig. 48. *Graffita ware* is considered by Northedge "a rather late arrival in 'Āna, certainly later than its appearance in the 7th/13th century at al-Mīnā' on the Syrian coast, and later than the introduction of the blue and black painted Raqqa Ware", *ibid.*, 112.

[524] Lane 1937, 46.

[525] Lane 1937, 45: "If the sgraffito-ware found there ['Athlit] was imported from Port St. Symeon, it must have been made between 1217, when the castle was built, and 1268, when Port. St. Symeon was captured by the Mamlūks."

[526] Pringle 1986b provides detailed distribution maps illustrating the occurrence of al-Mīnā' *graffita ware*, fritware, proto-maiolica and other related wares in the Levant (Tables 1–5), with a discussion on the significance of these occurrences and on trading patterns in the Levant. See also Pringle 1982; for a chronology of Crusader occupation, see p.111.

[527] Pringle 1986b, 458–459. Pringle 1985, 193.

[528] Pringle 1984a, 106, fig. 8, 66.

[529] Pringle 1984a, figs 8, 72–73 and 9, 74–79.

[530] Pringle 1984a, 107 and 109.

[531] Pringle 1984b, 38; 1986a, 154.

[532] Day 1941.

[533] Day 1939, 191–195; such a date would be supported by the presence of a glass fragment which Day ascribes to the early Mamlūk period, see *ibid.*, 193–194.

[534] For a more complete review of *graffita ware* occurrence in the Levant see Pringle 1986 and Brown 1992, 272–275. The Crusader names of sites are also reported in italics after Pringle 1982 and Kennedy 1994.

[535] Öney 1982, 74; Redford 1995.

[536] Sauvaget 1948, nos 44–45, 40.

[537] As explained above, the present author had the opportunity to see the finds from the Qaṣr al-Banāt palace and some of the finds from the Great Mosque, at al-Raqqa (see note 519). The absence of *graffita ware* at al-Raqqa was also confirmed to me by Prof. Dr Michael Meinecke, director of the German excavations at al-Raqqa.

[538] Lane 1937; Day 1939 suggests that the site may have also been occupied in the Mamlūk period, see above.

[539] Pringle 1985. See also Brosh 1986: fig. 3, nos 1, 6, and 9 are very close to the Syrian variety of polychrome *graffita ware* and are part of the Crusader pottery assemblage.

[540] Johns 1934, 159–160. See also Johns 1932, 129 and Johns 1936, 55–56 in particular.

[541] Tushingham 1985: only one very small fragment may belong to the polychrome *graffita ware* group, fig. 34, 28, in a *fritware 2* assemblage.

[542] Kubiak 1969, 17: "luxury pottery decorated in lustre and manufactured in Syria, with al-Raqqa as the principal centre of production, and in Persia". No *graffita ware* of the Syrian variety is reported to have been found in the Mamlūk group, where a number of possible *fritware 3* sherds seem to occur (see *ibid.*, 19).

[543] Van Loon 1973, 373–374, pls 21–22; Bakirer 1974, 96–108.

[544] Waagé 1948.

[545] Salamé-Sarkis 1980 attributes *graffita ware* from the Tripoli region to the 13th century, on the basis of the al-Mīnā', 'Athlit, Antioch and Ḥamā finds (p.236), for the stratigraphy of the sites from which he collected the material was extremely disturbed (*ibid.*, 234). On the basis of the body and the decoration, Salamé-Sarkis identifies two different groups of polychrome *graffita ware*. Group A.I.2 is characterised by incisions of about 1 mm. wide; it occurred especially at Tripoli castle (*ibid.*, 161–166). The second group, A.I.3, is characterised by larger incisions, about 1–2 mm wide; it was especially found in the so-called "île des Palmiers" (*ibid.*, 166–169). The first group was much more numerous, and was closer to the sherds from Qal'at Ja'bar.

[546] Day 1939 and 1941.

[547] Grabar *et al.* 1978, 115, 121–122, and 125–126.

[548] Poulsen 1957, 234, agrees with Lane's dating, although he tends to drop the overly strict *terminus ante quem* of 1268 and prefers a 13th-century date. He also identifies a related group which he considers to be a local and later imitation of polychrome *graffita ware* (*ibid.*, 235–236, C.XV c). In the chronological tabulation (*ibid.*, 28–29) polychrome *graffita ware* appears in layer M 17 b–c, attributed to "639–1191", together with *fritware 1*; the object, however, is not discussed in the text (see *ibid.*, 232–234), and does not seem to have been illustrated: see also *ibid.*, 282. Polychrome *graffita ware* also occurs in layer G 11 β, attributed to "période indéterminée antérieure à 1401", associated with blue and white *fritware 3*, *fritware 2* lustre ware and underglaze-painted *fritware 2*.

According to the data provided in the discussion of the pottery section, polychrome *graffita ware* is also present in other layers, which are not indicated in the chronology table. Of eighteen pieces described in the text (*ibid.*, 232–236), only two appear in the chronological table (*ibid.*, 28–29). Of the other sixteen pieces, only one was found in a layer which also appears in the table (fig. 804, in L 12, dated 1302–1401). The other layers are often not even mentioned in the table. Alternatively, layers mentioned in the pottery discussion do not correspond to those in the table (for example, K 7 occurs in the pottery discussion, but K 7 a, d, e are indicated in the chronological table, *ibid.*, 28–29).

Poulsen's dating is mainly based on stylistic assessments, and does not refer to the fact that bowl fig. 804 appears in a layer dated 1302–1401. His arguments against a Mamlūk dating are that at Ḥamā *graffita ware* is not numerically as important as "la céramique typique du 14e s. d'argile rouge foncé avec peinture d'engobe". Moreover, in his opinion, Port St. Simeon ware cannot be later than the 13th century because of the existence of a local group imitating it, produced after the destruction of al-Mīnā' (*ibid.*, 235–236, C XV c).

[549] Pringle 1984a; see also Pringle 1986a, 154.

[550] Loffreda 1982, figs 10, 1, and 14.

[551] Franken and Kalsbeek 1975, 131–132, fig. 38; polychrome *graffita ware* comparable to the Syrian variety may be nos 22, 26, and 29. Franken, however, states that the polychrome decoration is not related to the incised motif, *ibid.*, 131–132. *Fritware 2* may be fig. 38, 12. No clear chronology is provided for their three periods. See Sauer 1976 for a review of Franken and Kalsbeek 1975, p.94 in particular.

[552] Ben-Tor *et al.* 1979.

[553] Pringle 1986a.

[554] Wightman 1989, pl. 69.

[555] Toueir 1973, Migeon 1923, and Conteneau 1924.

[556] Rogers 1972; the site was occupied by the Crusaders between 544/1149 and 602/1205–6.

[557] Legner 1964, Ulbert *et al.* 1986, Logar 1991, 1992, and 1995.

[558] Tonghini 1995a.

[559] Pringle 1984a, 106, observes that the production of *graffita ware* is so widely distributed that yet other production centres must be presumed to have existed. See also Pringle 1986, 458–459.

[560] In particular the Monastery of St. Mary of Carmel (Pringle 1984a and 1986a, 154) and Tripoli (Salamé-Sarkis 1980).

[561] For an overview, see Pringle 1986b, 456–460 in particular.

[562] Lane 1937, 47–48.

[563] See, for example, Pringle 1982, 1985 and 1986b, 458–459.

[564] Lane 1937 thinks that potters from al-Mīnā' may have moved to 'Athlit, where *graffita ware* seems to have occurred until 1291, the date of the abandonment of the site. He is dubious about the discovery of a kiln in 'Athlit, *ibid.*, 45–46. See also Pringle 1986b; on Cyprus, see pp.458–459.

[565] See, for example, Pringle 1985, "Coarse Graffita Ware" and "Yellow and Green Gouged Ware".

[566] Some of the sherds recovered may have been rejected as wasters; criteria for discarding pottery are not known, and it

is particularly difficult to establish them in the case of fragments. At present, one can only consider pottery fragments with firing faults as second choice pottery, and suppose that they were still usable, though of lower market value.

567 Meinecke 1995; Legner 1964; Ulbert *et al.* 1986; Logar 1991, 1992, and 1995; Tonghini 1995a.

568 Berthier *et al.* (in press).

569 Pringle 1986b.

570 Vannini 1982.

571 See, for example, Soustiel 1985, 65–76.

572 See, for example, Atil 1973, no. 62; Geneva 1981, no 112.

573 Japarizde 1956.

574 See Redford 1995, 66–67.

575 Karamağarali 1991; Soustiel 1985, 72.

576 Morgan and Nassar 1995.

577 Soustiel 1985, 70.

578 Vannini 1982.

579 The use of colouring pigments in conjunction with an incised pattern is attested in the Islamic Near East from the Middle 'Abbāsid period, see, for example, Northedge 1985: the colouring pattern is still totally independent of the incised motif. See also Lane 1937, 34–37, pls XV and XVII; Lane 1938. Schnyder 1973 manages to isolate the passage from earlier varieties to the fully developed polychrome *graffita ware* at Takht-i Sulaymān, and he ascribes it to the 11th century. For a detailed discussion of the early variety of slipped, incised wares and their relation with Chinese wares see Grube 1976, 85–92 and Grube 1974. See also *early glazed slip-ware*, pp.66–67.

580 Lane 1937, 51. Fig. 90 h (Qal'at Ja'bar catalogue) with a human representation is, iconographically, undoubtedly Islamic.

581 Meinecke-Berg 1983.

582 Kubiak 1970; Scanlon 1980.

583 Tonghini 1995a. It is very difficult, for example, to interpret the "light green " *graffita ware* from the Tell Rifa'at survey in Bernus-Taylor 1978, 159, ware C.I.B1, attributed to the Ayyūbid period.

584 Scerrato and Ventrone-Vassallo 1982, 81: monochrome *graffita ware* is well represented at the site on the surface and in the excavation down to layer 6; the dating of the finds from the last phases may be ascribed to the 13th and 14th centuries. With the exception of two sherds not clearly identified, no polychrome *graffita ware* has been found at Tell Barrī (*ibid.*, 82).

585 Lane 1937.

586 Salamé-Sarkis 1980, 171–173, type A.I5, very likely of local production.

587 Thalmann 1978, types C, D, and E, 23–27, figs 33–36. Fig. 36, nos 10–11, are characterised by a "décor figuré" and are stylistically very different from the rest of the finds; they are classified as type E' (*sic*) because, according to Thalmann, they are technically related to the rest of the *graffita wares* (*ibid.*, 24). Dating is not very clear. On the basis of parallels with the literature, the production of these wares is attributed to the 13th century; however, according to Thalmann, they continued to be manufactured until modern times (*ibid.*, 26–27). Only one fritware sherd has been published from this excavation; it is not clear whether it belongs to the *fritware 1*, *intermediate fritware* or *fritware 2* group, *ibid.*, fig. 34, 14. See also Will *et al.* 1973, pl. V.

588 Poulsen 1957, 235–236, type C. XVc.

589 Grabar *et al.* 1978, 119, pl. I/14.

590 For a review of the published evidence and distribution of this ware in the south of Bilād al-Shām, see Brown 1992, 272–275.

591 Berthier 1985, 14, pl. 6, nos 78–79. The two published fragments were found in phases VI and in phase V respectively, from the Ayyūbid period.

592 Monochrome *graffita ware* from Caesarea is labelled "Coarse *graffita ware*" and it is considered by Pringle to be a locally produced ware of the 12th–14th centuries (Pringle 1985, 183–186, nos 37–47, figs 6–8). Occasionally, green and yellow splashes are also added to the decoration. This is yet another example of the very close relation between monochrome and polychrome *graffita ware*. Brosh also identifies monochrome *graffita ware* sherds which are much closer to Byzantine than to Syrian varieties (see, for example, Brosh 1986, fig. 3, 3). The assemblage is related to the Crusader period, with 1291 as the *terminus ante quem*.

593 Very little *graffita ware* was found at the Red Tower. The monochrome *graffita ware* sherds recovered are considered to be of local production (Pringle 1986a, 150), from the 12th century and from the Ayyūbid-Mamlūk period.

594 Pringle identifies monochrome *graffita ware* sherds as imports, related to "Metallic" and "Roulette" wares found in Corinth; Pringle 1984a, 103–104. This ware shows no similarity with Qal'at Ja'bar monochrome *graffita ware*.

595 Loffreda 1982, fig. 9, 1. A blue and white *fritware 3* bowl is also part of this assemblage, see *ibid.*, fig. 10, 1 and fig. 14.

596 Wightman 1989, pl. 42, nos 11, 14, and 16, pl. 67, no 5, and pl. 68, 1–9. Only pl. 68, nos 3 and 8 show a certain similarity to the monochrome *graffita ware* from Qal'at Ja'bar. All sherds were recovered from the post-Crusader deposit.

597 Monochrome *graffita ware* was recovered at the Armenian Garden in Jerusalem from the Ayyūbid layers (Tushingham 1985, 143 and fig. 34, nos 25 and 33, fig. 35, nos 12, 22 and 25, fig. 38, no. 8, and fig. 40, no. 3). They are not similar to Qal'at Ja'bar monochrome *graffita ware*.

598 Franken and Kalsbeek 1975, fig. 38, nos 21 and 24. They occur in a *fritware 3* assemblage with one single possible *fritware 2* fragment (*ibid.*, fig. 38, 12).

599 See also Appendix G, sections X–XI.

600 See pp.53–54 in particular; see also Bartl 1994a: no post-mid-13th-century pottery was found in the course of the survey in the Balīkh valley.

601 See, for example, Bernus-Taylor 1978: monochrome green glazed ware is attributed to the Ayyūbid period, while ochre and brown glazed wares to the Mamlūk period. No profile drawings are published and the reason for this distinction is not clear. See also Bernus-Taylor 1981, 474. At Tell Barrī, the presence of slip is not indicated for green and yellow monochrome glazed wares; shapes are, however, very similar to those of Qal'at Ja'bar monochrome glazed *slip-wares* (Scerrato and Ventrone-Vassallo 1982).

602 Salamé-Sarkis 1980, group A.III, 186–191; the group is attributed to the Mamlūk period (*ibid.*, 191). Monochrome glaze *slip-wares* may have also been found at Tell 'Arqa (Thalmann 1978, 24, types C and D); these varieties are described as *graffita ware*, but from the figures it seems that a plain monochrome ware is also represented (*ibid.*, figs 33–35). No polychrome *graffita ware* seems to have been found. The pottery is generally ascribed to the medieval period, and, on the basis of parallels in the literature, to the 13th century and possibly later (*ibid.*, 26–27).

603 Grabar *et al.* 1978, 115, 118–119, 121–122, 125–126. Monochrome glazed ware is described as very similar in shape and body fabric to the *graffita ware*, and they are not "so common as the common glazed wares" at Qaṣr al-Ḥayr al-Sharqī (*ibid.*, 118); see *ibid.*, pl. I, nos 3a–c, 5–7, and proportion tables, pp.128–137.

604 For a summary and review of the published evidence, see Brown 1992, 267–272.

605 Tushingham 1985, fig. 34, nos 24, 27, and 29–30, and fig. 40, no. 18, all from Ayyūbid contexts, slipped and glazed in yellow or green.

606 Pringle 1985: the monochrome glazed *slip-wares* are attributed to the 13th century at Caesarea, pp.177–179.

607 Toueir 1973.

608 Berthier 1985, monochrome glaze *slip-ware* has been found, in particular in phase VI, dated to the first half of the 13th

century, but also in the Mamlūk period, see p.9, and 14, pl. 6, no. 83.

[609] Ben-Tor *et al.* 1979, fig. 5, 1, from a Mamlūk assemblage including *fritware 3*.

[610] Johns *et al.* 1989, monochrome slipped and glazed wares were found in the "post 12th-century" deposits, see figs 25, no 36, 26, nos 44–45, and 27, no. 54.

[611] Wightman 1989: the monochrome glazed group is numerous in the post-Crusader deposit (75 and 82, pl. 42, no. 13, pl. 43, no. 7, pl. 64, nos 2–8, pl. 65, nos 3–8). The group represents the commonest glazed ware of the period.

[612] Pringle 1986a, 147–149; "monochrome glazed slip-wares" already occurred during the Frankish occupation at the Red Tower (phase B–early 12th century? and phase C–after the third Crusade) but became more common after the destruction of the castle, which took place between 1248 and 1390 (*ibid.*, 128). Pringle suggests that this ware was produced from "the late 13th century onwards", *ibid.*, 147.

[613] Franken and Kalsbeek 1975: slipped-glazed wares appear in the second and third period of occupation (*ibid.*, 131, 136–137), together with *fritware 3* and one single *fritware 2* fragment (*ibid.*, fig. 38, 12). They have also noted that a technical change occurred in the second period: pots were stacked right side-up in the kilns, as is evident from large circles "left in the bases of the bowls from the luting of the foot-rings" (*ibid.*, 138, and fig. 37).

[614] Smith 1973, 238–239, Group C, a. There is no evidence for dating this material at Pella, and the group is attributed to the 13th century by comparison with the literature (*ibid.*, 239). A fragment of *fritware 3* was also found (*ibid.*, no 804, pl. 72 and colour photograph 93D).

[615] Honigmann and Bianquis 1995, 395.

[616] For a larger selection, see Tonghini 1995c, pls 204–334.

[617] See, for example, Pringle 1986b, 463–465, 468 and fig. 5.

[618] As already stated, no precise quantitative assessments are provided for the unstratified pottery assemblage; this can only be considered an approximate evaluation of the unglazed pottery kept in the excavation house at Qal'at Ja'bar, see pp.37–38.

[619] This fact has also been noted by Franken *et al.* (Appendix G, section I) on the basis of an archaeometric study.

[620] On the basis of their study, Franken *et al.* (Appendix G, section I) conclude that all these varieties were fired at between 800° and 1000°C.

[621] For example, a greenish tone indicates that the clay had been fired very close to melting point.

[622] Franken *et al.* (Appendix G, section I) noted that potters were very likely able to understand the presence and quantity of lime in the clay. Clay with less lime seems to have been used more often for large vessels and glazed pottery.

[623] This has also been discussed by Franken *et al.* (Appendix G, section I).

[624] Franken and Kalsbeek 1975, Chapter 3, for a detailed description of the techniques discussed in this chapter and the tools employed.

[625] See also Bartl 1994a, pl. 8, 5, from site 135, dated from the early Islamic period to the end of the Ayyūbid period.

[626] Material excavated at Bālis in 1991 by a team from Aleppo Museum, directed by Dr Shawkī Sha'th. The assemblage is characterised by the frequent incidence of *fritware 2*. See note 260.

[627] According to Franken *et al.* (Appendix G), pottery-making techniques employed at Qal'at Ja'bar are very similar to those described at Tell Abu Gourdan (Dayr 'Allā), although shapes are different; see section II.

[628] In the earliest phase (phase I), Ware 5 was also very common; see p.31.

[629] Northedge *et al.* 1988, 21 and 102.

[630] Northedge *et al.* 1988, 21 for an account on *nā'ūra*. A detailed study of water elevation pottery in archaeological contexts has been made by Berthier for the middle Euphrates valley; see Berthier *et al.* (in press). A complete study on the water elevation systems of Syria in the past and at present has recently been completed; see Robine and Roumi (in press).

[631] Tonghini 1995a, fig. 8g. See also pp.30–34.

[632] See, for example, Kervran 1984, fig. 36, 2 and Bartl 1994a, pl. 25, 2.

[633] See Appendix G, section I, referring in particular to mould-decorated pottery and section VIII. Kalsbeek and Franken 1991–1992, 47; Jacobs 1991–1992.

[634] See Franken and Kalsbeek (1975) for a manufacturing technique description. See also Appendix G, section VIII in particular for mould-made vessels.

[635] Franken and Kalsbeek 1991–1992.

[636] Appendix G, section VIII.

[637] See, for example, the 'Abbāsid assemblage from Madīnat al-Fār; Bartl 1994a, pl. MF 9, 149, nos 12–18. A collection of early mould-decorated fragments from the 'Abbāsid and later periods will also be published by Berthier *et al.* (in press); most of these fragments have been dated with precision on the basis of stratigraphic sondages.

[638] Kalsbeek and Franken 1991–1992, 47.

[639] See, for example, Northedge *et al.* 1988, 77 and 82, groups 1, 2, and 3. See also Finster and Schmidt 1976.

[640] As already noted, very few Ware 5 shapes occur in the assemblage from the new sondages (pp.30–34). An extensive survey of Ware 5 shapes may clarify whether the production is very close to that of Ware 1, or whether it differs significantly. A type of small folded rim of a neck occurs in both Ware 1 and Ware 5; see figs 19 k–l; 22 b; 25 k; 31 s.

[641] Only a single sherd of a cooking pot has been analysed in Appendix G, section I. From the description provided, it seems very close to Ware 4.

[642] Grabar *et al.* 1978, 113.

[643] Tonghini 1995a.

[644] Bartl 1994a, pl. 37; Northedge 1985.

[645] Tonghini and Henderson 1998.

[646] Bartl 1994a, 121–149, 186, and 221; see also Bartl 1996, 334–336.

[647] Falkner in Northedge *et al.* 1990, 143–145.

[648] Toueir 1985; Meinecke 1995, 413. Fine wares have been studied by Porter and Watson; see note 322.

[649] Tonghini and Henderson 1998.

[650] Logar 1991, fig. 4/6.

[651] See Rousset 1996, 186.

[652] Northedge and Falkner 1987, fig. 13, 67; Northedge *et al.* 1990, fig. 15, 7–8.

[653] Rosen-Ayalon 1974, figs 596–597, 601, 603 and 604; Kervran 1977, fig. 44, 3; Hardy-Guilbert 1984, fig. 28, 4.

[654] Bartl 1994a, pl. 38, 1–5 and 7, and pl. 39, 4.

[655] Bartl 1994a, 187; see also Barl 1994b, 15–16. The possibility that 11th-century pottery is still difficult to recognise as such should also be taken into account.

[656] Tonghini and Henderson 1998 publishes a selection of *early glazed slip-ware* sherds, including wasters.

[657] The fact that only a small quantity of *early glazed slip-ware* occurs may indicate that these sherds are imports at Qal'at Ja'bar; however, the evidence provided by the Tell Shahīn and the recent al-Raqqa excavations mentioned above clearly indicates that *early glazed slip-ware* was produced in the pre-*fritware 1* phase.

[658] The author expresses gratitude to Dr Rose Kerr, curator of the Far Eastern Collections at the Victoria and Albert Museum, who kindly examined the Chinese celadon fragments from

the Qal'at Ja'bar excavation. The following section is entirely based on her comments and suggestions.

659 Gompertz 1980; Hamer and Hamer 1991, "Celadon", p.52 and "Stoneware", p.311; Medley 1976, 146–152; Scott 1989, 60–64.

660 See Tonghini 1995c, pl. 335b–c/1.

661 See also Zaqzouq 1974, 43.

662 For the Gulf, see Hansman 1985, 25–34; Morgan 1991; Whitehouse 1968, 16–18, and Whitehouse 1972b, pl. XI. For the Red Sea, see Whitcomb and Johnson 1979 and 1982. For al-Fusṭāṭ, see Gyllensvard 1973 and 1974; Kubiak and Scanlon 1989, 47–48; Mikami 1980–1981; Scanlon 1982, pl. XI, and 1984b, 116, pl. 2. For Yemen, see Lane and Serjeant 1948, 113–117 and 123–129.

663 Chinese celadon, however, was found by Sarre and Herzfeld in the course of their survey in the Jazīra; Sarre 1921, 21. Early Chinese celadon had been found at Sāmarrā'.

664 Waagé 1948, 104–105; see also *ibid.*, 105–106: "Technological Report on the Chinese Pottery", by Frederick R. Matson, Jr.

665 Poulsen 1957, 118–119; see also Ingholt 1940, 150–151, pl. 47, 3.

666 Grabar *et al.* 1978, 119, pl. K-1/1a, b.

667 A detailed and complete account of the production of Ottoman smokers' pipes, their occurrence, dating and distribution, including a survey of the published evidence, is provided by Simpson 1990a and 1990b. The following discussion is largely based on Simpson's articles.

668 An attempt to investigate the Ottoman period from an archaeological point of view and to understand the socio-economy of an area of the Near East from the 17th century onwards has been made by R. Brown in her Ph.D. thesis. See Brown 1992, in particular 311–312; see also 53–230 and 431–453.

669 Smokers' pipes are attributed to the Mamlūk period in Poulsen 1957, 280–281 and Sarre 1925, pl. 14, 8. On the basis of the excavated evidence from Ḥamā, pipes discovered at other sites are also attributed to the Mamlūk period, see Ben-Tor and Rosenthal 1978, 70, fig. 6, nos 1–2; Bernus-Taylor 1981, 484, 487 and note 39; Turquety-Pariset 1982, 37–38, fig. 4, nos 25–27. See Simpson 1990b, 7–9 for a discussion on Poulsen's dating evidence at Ḥamā.

670 Hölmann and Hölmann 1988; Robinson 1985, 149–153; Simpson 1990b, 8.

671 Poulsen 1957, 280; Sarre 1925, pl. 14, 8; Hölmann and Hölmann 1988; Robinson 1983, 265–268, and Robinson 1985, 150–151; Simpson 1990b, 8. Robinson reports that analysis conducted on a group of Ottoman pipes from Jerusalem has identified the practice of smoking hashīsh (Robinson 1985, 150–151, note 4); Simpson 1990a, 6.

672 Pringle 1986a, 142, fig. 43, nos 11–12, noted the similarity of smokers' pipes from the Red Tower with those published by Robinson 1985. Three major studies provide the most detailed typology for Ottoman clay pipes and the basic chronological framework: Hayes 1980 (pipes from Istanbul), Robinson 1983 (pipes from Athens), and Robinson 1985 (pipes from Corinth).

673 As suggested by Simpson 1990b, 8, the absence of pipes in well stratified and sealed Ayyūbid-Mamlūk assemblages of Palestine can be considered a reliable chronological indicator. Thus they were not used in the Mamlūk period.

674 Wightman 1989, 61, and 104.

675 Simpson 1990a, 7 and 1990b, 10. No production sites have been identified so far, but an industry located at Diyarbakr is reported by Buckingham 1927, I, 380.

676 Simpson 1990b, 10.

677 Simpson 1990b, 10.

678 Hayes 1980, 4; Robinson 1985, 161; Simpson 1990b, 10.

679 Humprey 1990, 4–6; Simpson 1990b, 10.

680 Simpson 1990b, 10.

681 As noted by Bianquis 1986–1989, XIII.

682 It must be noted that Pringle, already in 1985, argued for a reassessment of what can be considered luxury pottery in the Near East in the mediaeval period; Pringle 1985, 174. This issue bears consideration, and it should be re-examined in the light of the new evidence provided by continued excavations in the area.

683 It has been pointed out that Damascus as well as al-Fusṭāṭ may have been a production centre for underglaze-painted *fritware 2*. As already discussed, no visual criteria have been identified so far to allow a distinction between the products of northern Syria and of the Jazīra and those from Damascus and Egypt (pp.48–52). The discussion in the main text is based on the assumption that finds from the Jazīra would have been purchased from one of the production centres located in the area rather than relying on long-distance trade.

684 This has also been noted by Redford 1995, 68.

685 See R. Hillenbrand 1985.

686 R. Hillenbrand 1985, 21.

687 See Haase 1991 and 1996.

688 Pringle, already in 1985 (1985, 174), argued for a reassessment of the definition of luxury wares in the Near East. In the light of the evidence available in the archaeological literature and gathered at Qal'at Ja'bar the concept of luxury ware can hardly be applied to fritware production as a whole.

689 See Grabar 1978, 66 and 78; see also Creswell 1952 and Fairchild Ruggles 1997.

690 See Zaqzūq 1974, 1981, 1984 and 1985.

691 It should be noted that proportions can only be deduced on the basis of the published finds, since very often in the case of old archaeological research the proportional incidence of the finds is not provided. This is the case, for instance, with the Ḥamā excavations, see Poulsen 1957.

692 See, for example, Soustiel 1985, 219–233; see also *infra* pp.60–62.

693 Spence 1990, section 3.1.

694 Franchi *et al.* 1995.

FIGURES AND PLATES

Catalogue

Colour code to pottery drawings



black decoration; black background glaze (except when combined with carved decoration)



fritware: blue decoration; blue background glaze
polychrome *graffita ware*: green decoration



fritware: turquoise decoration; turquoise background glaze
lead-glaze family: green background glaze



fritware: lustre decoration
lead-glaze family: brown (decoration and background)



lead-glaze family: yellow (decoration and background)



fritware: aubergine decoration; aubergine background glaze

..... extent of glaze

-------- *lead-glaze family*: extent of slip

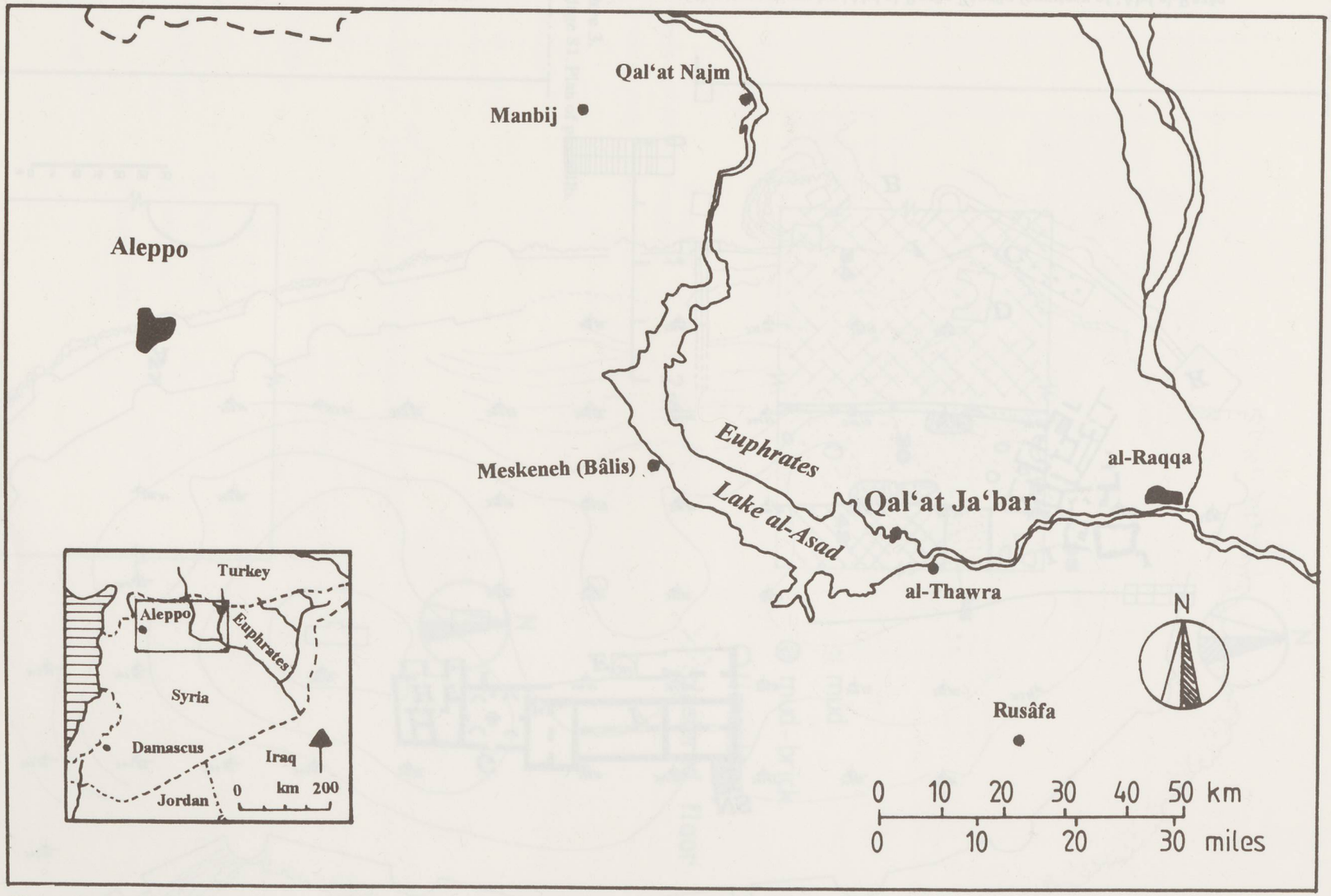


Figure 1.
General map of the middle Euphrates showing the position of Qal'at Ja'bar.

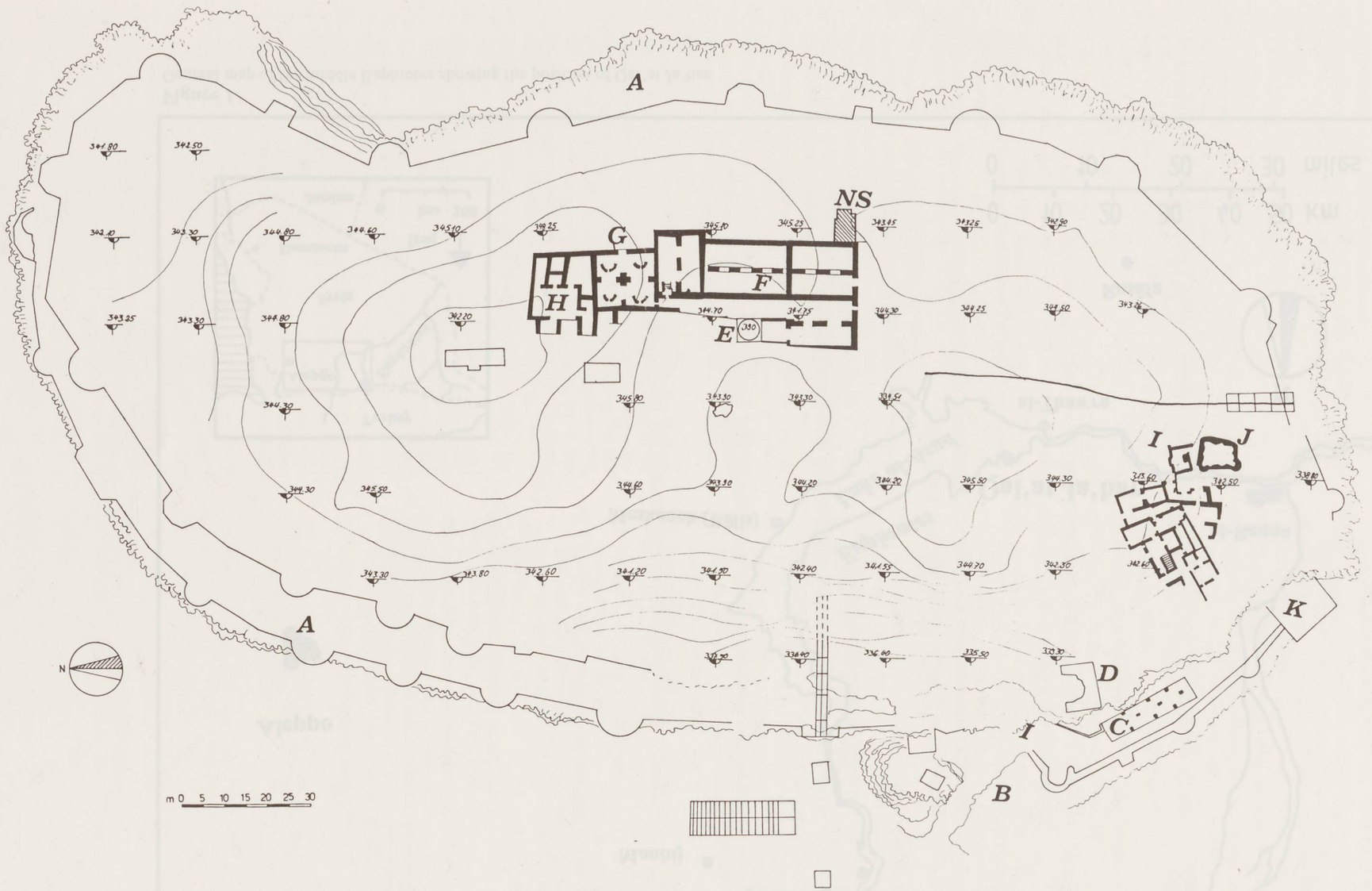


Figure 2.
Topographical map of Qal'at Ja'bar, showing the standing structures and the buildings exposed in the course of the excavations by 'Abd al-Razāq Zaqzūq (courtesy of 'Abd al-Razāq Zaqzūq, Directorate of Antiquities, Ḥamā). The location of the new sondages is also indicated (NS). See pp.27–29.

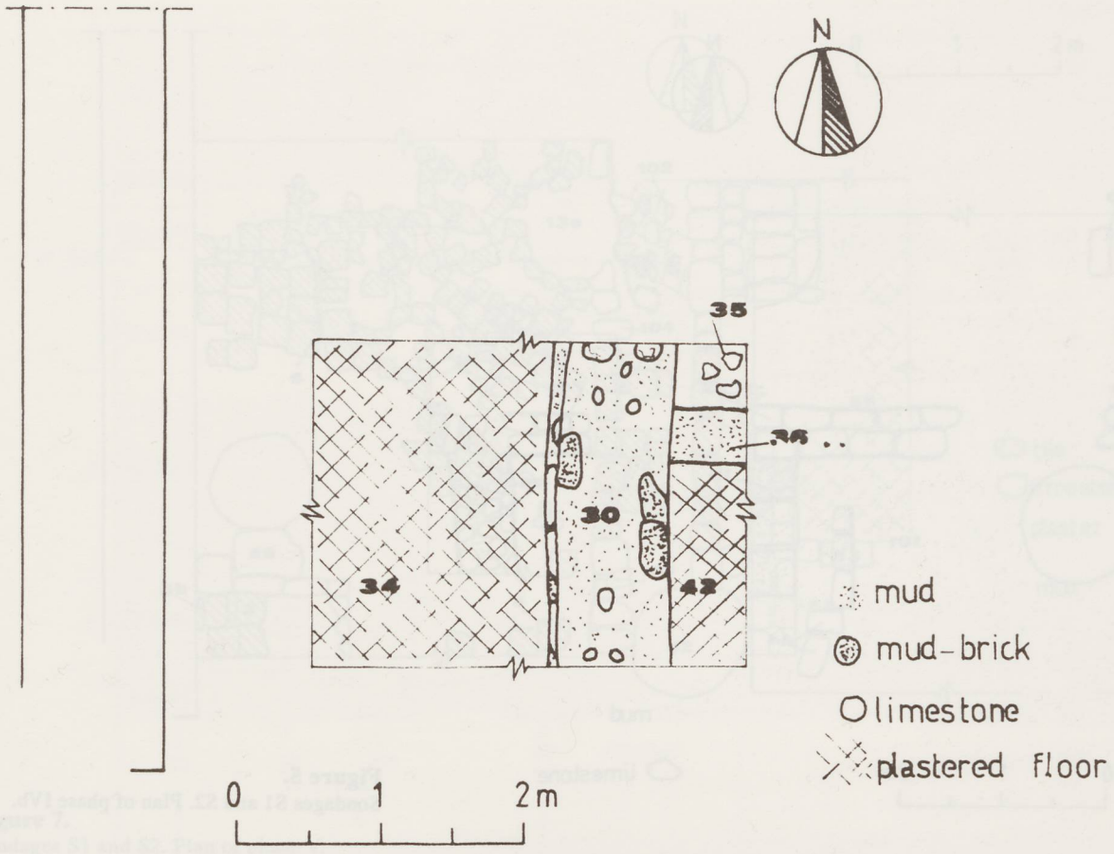


Figure 3.
Sondage S1. Plan of phase IIb.

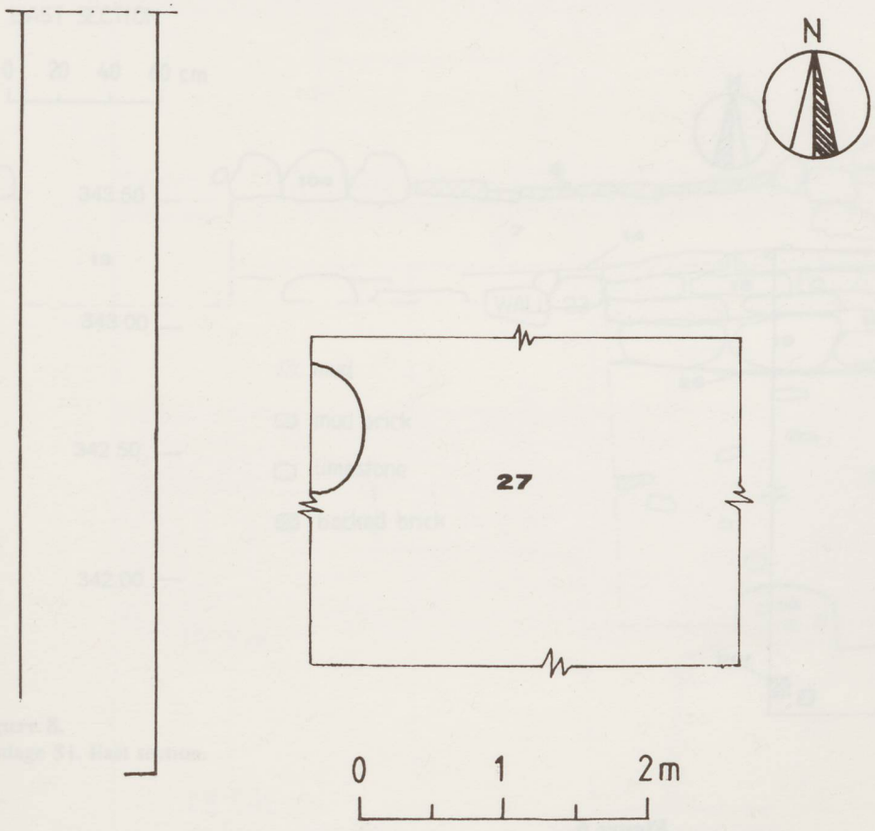


Figure 4.
Sondage S1. Plan of phase IIIc.

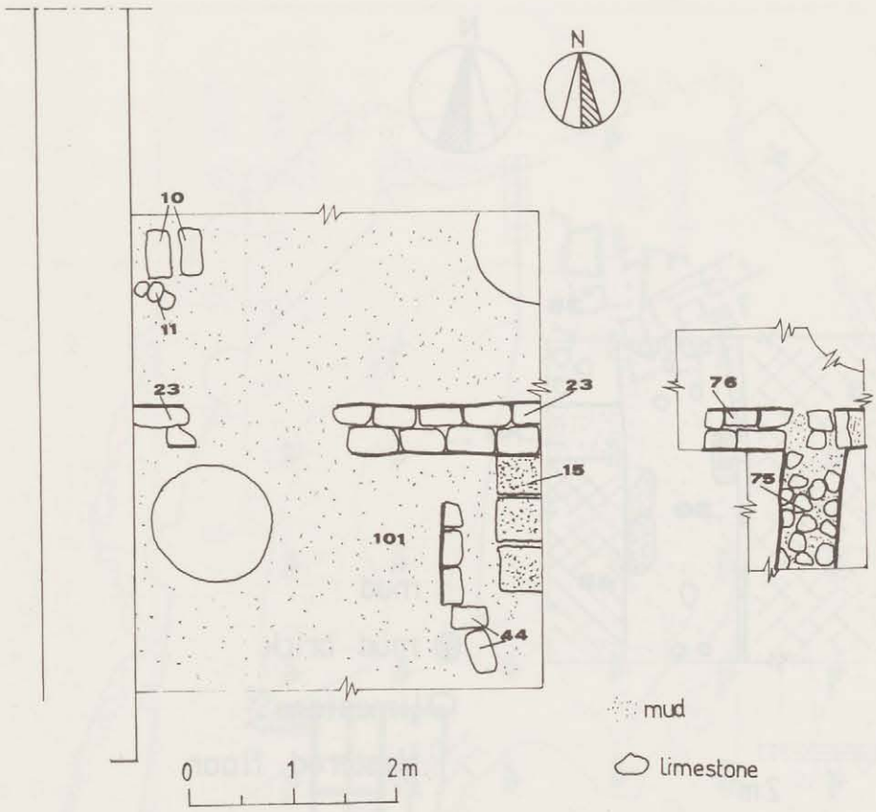


Figure 5.
Sondages S1 and S2. Plan of phase IVb.

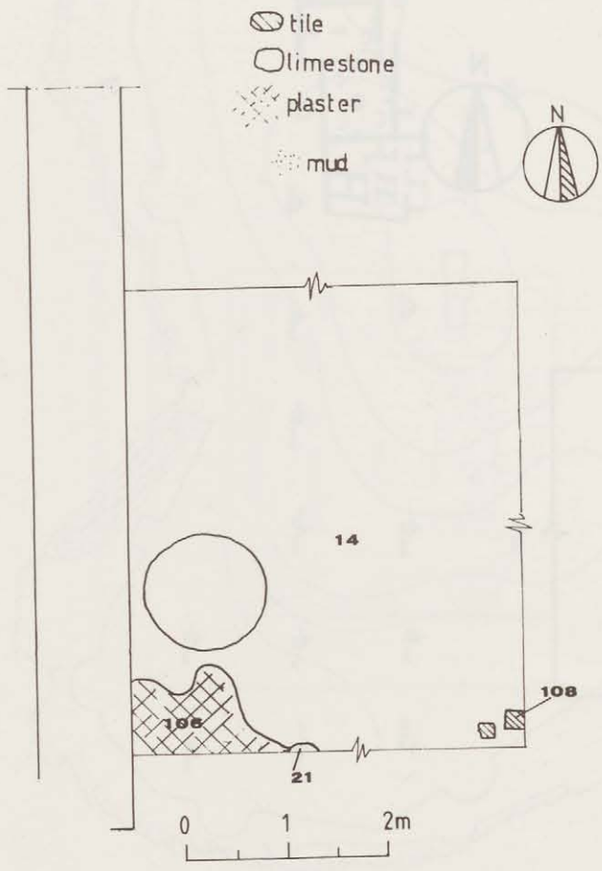


Figure 6.
Sondage S1. Plan of phase IVa.

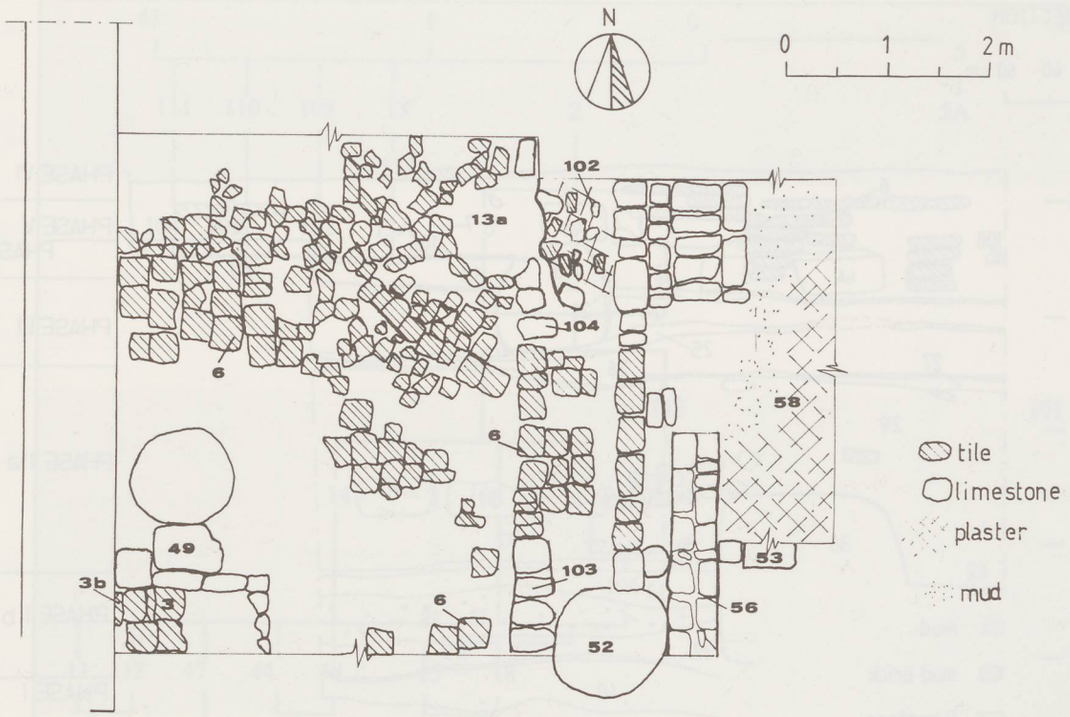


Figure 7.
Sondages S1 and S2. Plan of phase V.

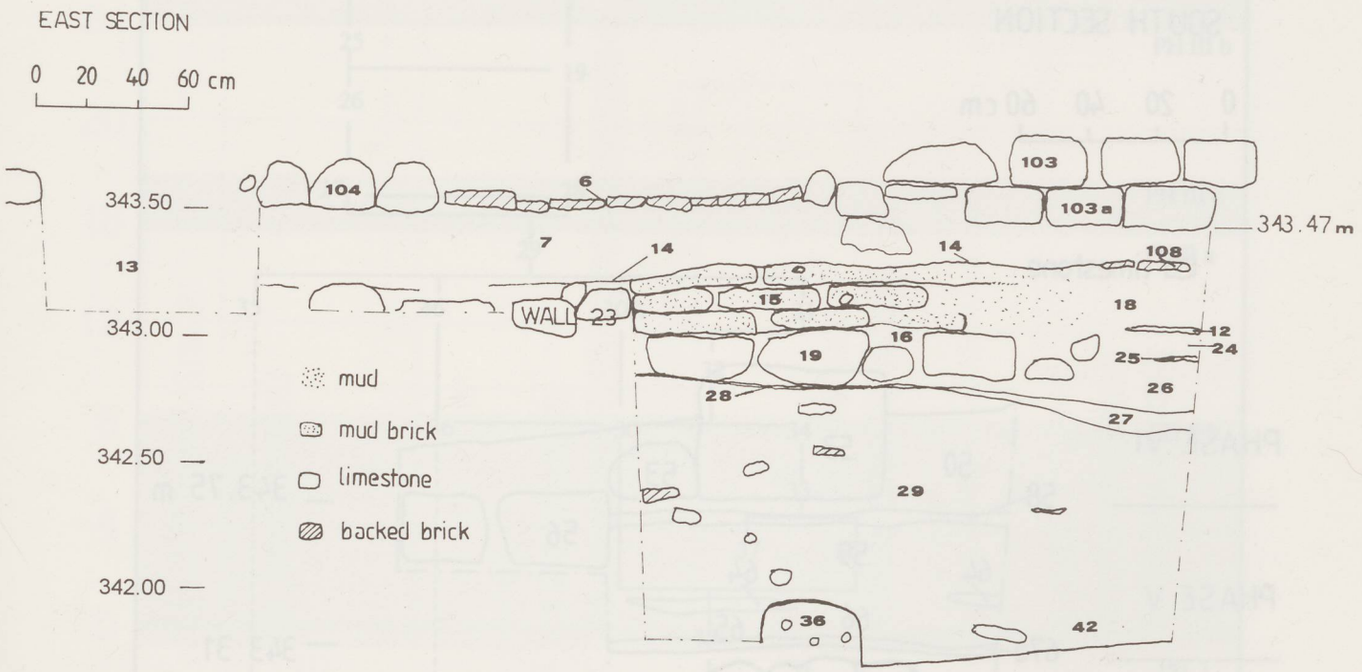


Figure 8.
Sondage S1. East section.

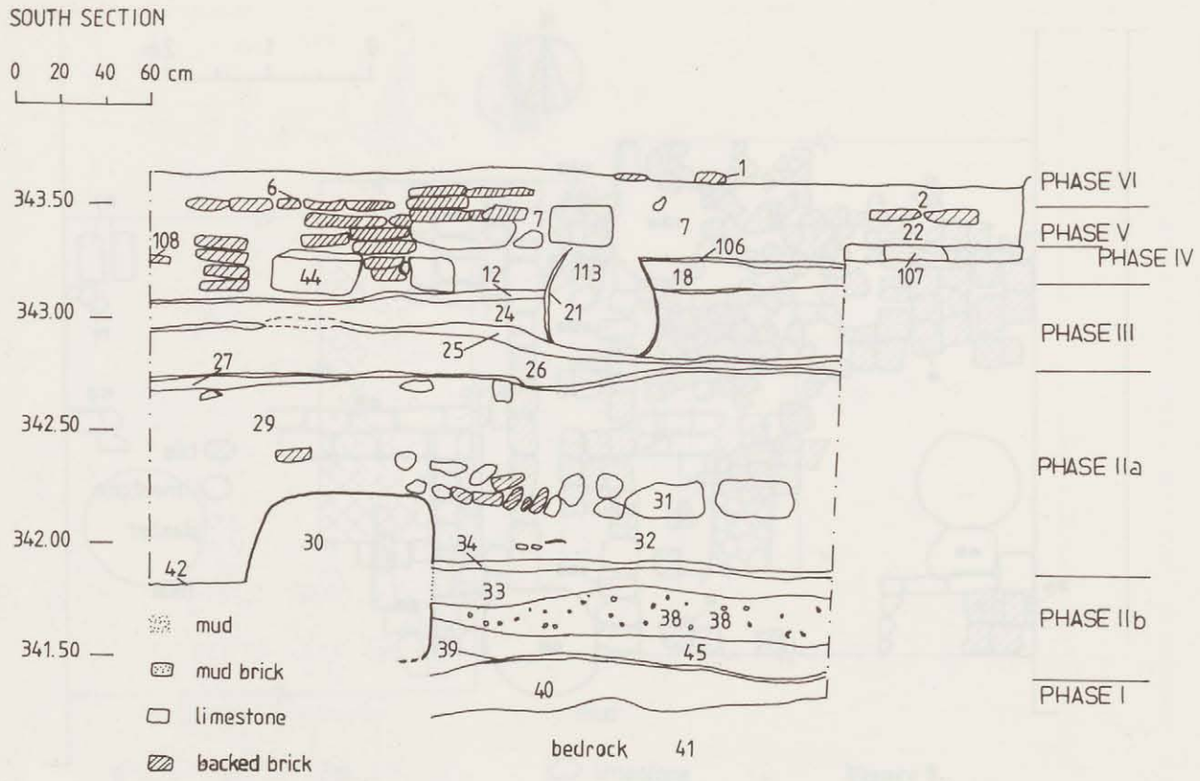


Figure 9.
Sondage S1. South section.

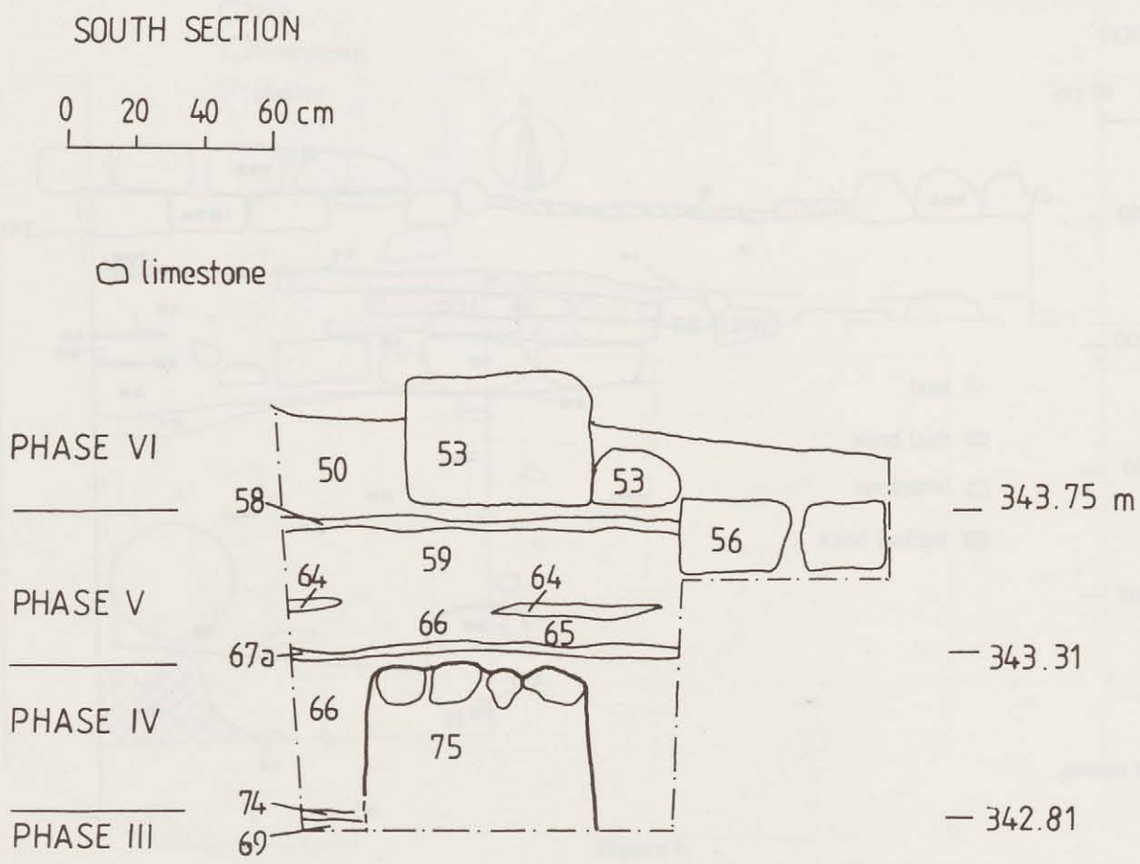


Figure 10.
Sondage S2. South section.

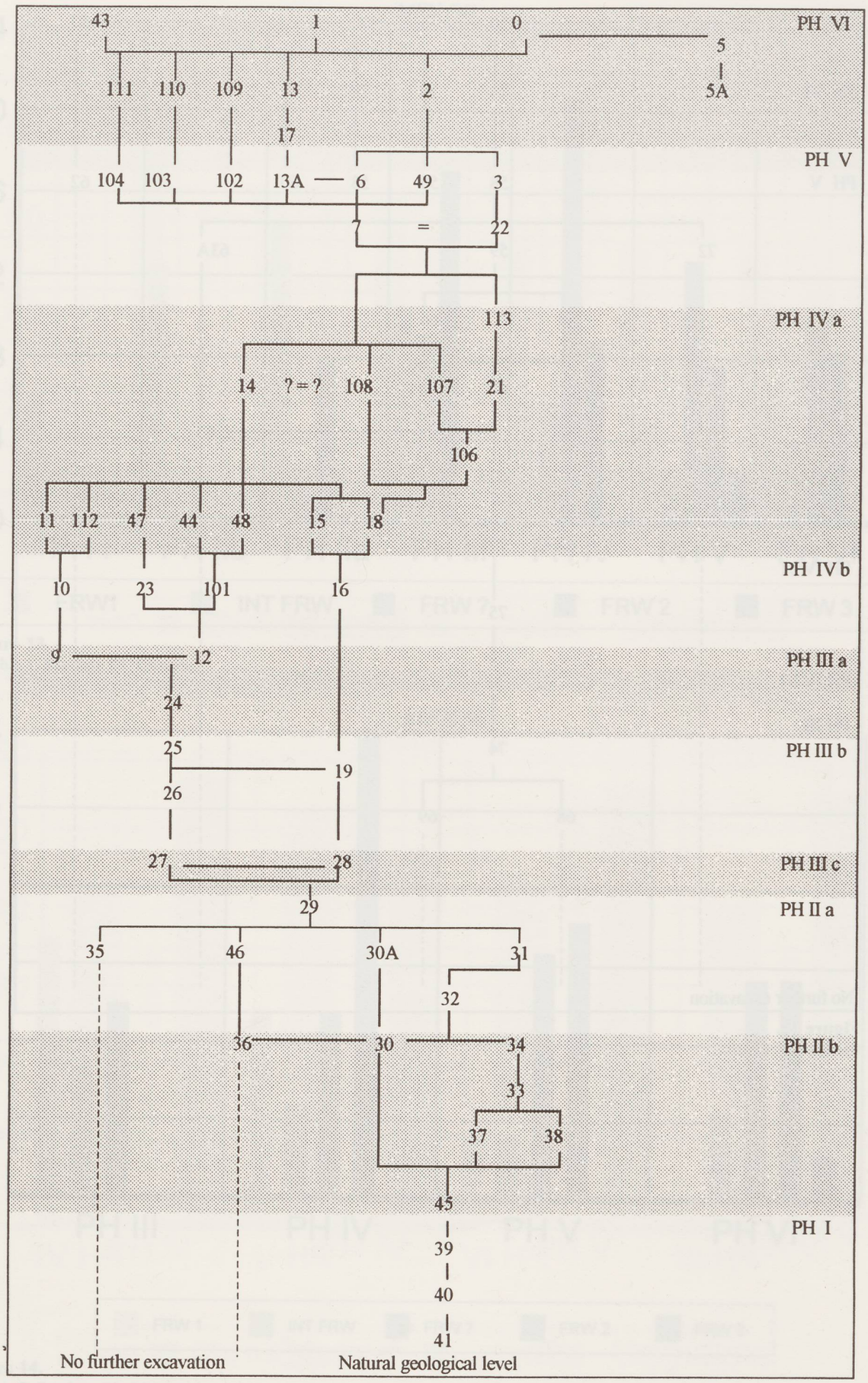


Figure 11.
Sondage S1: matrix.

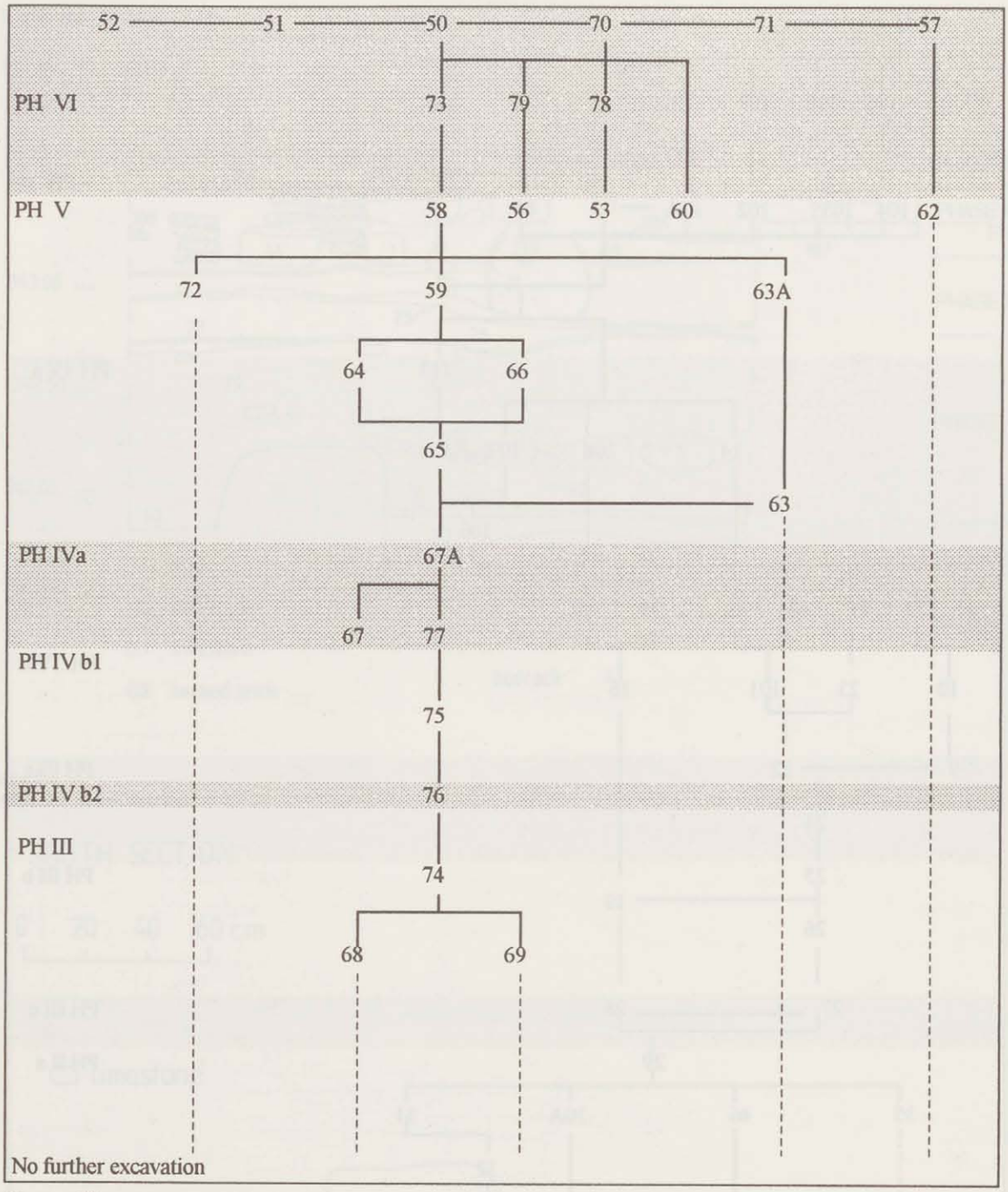


Figure 12.
Sondage S2: matrix.

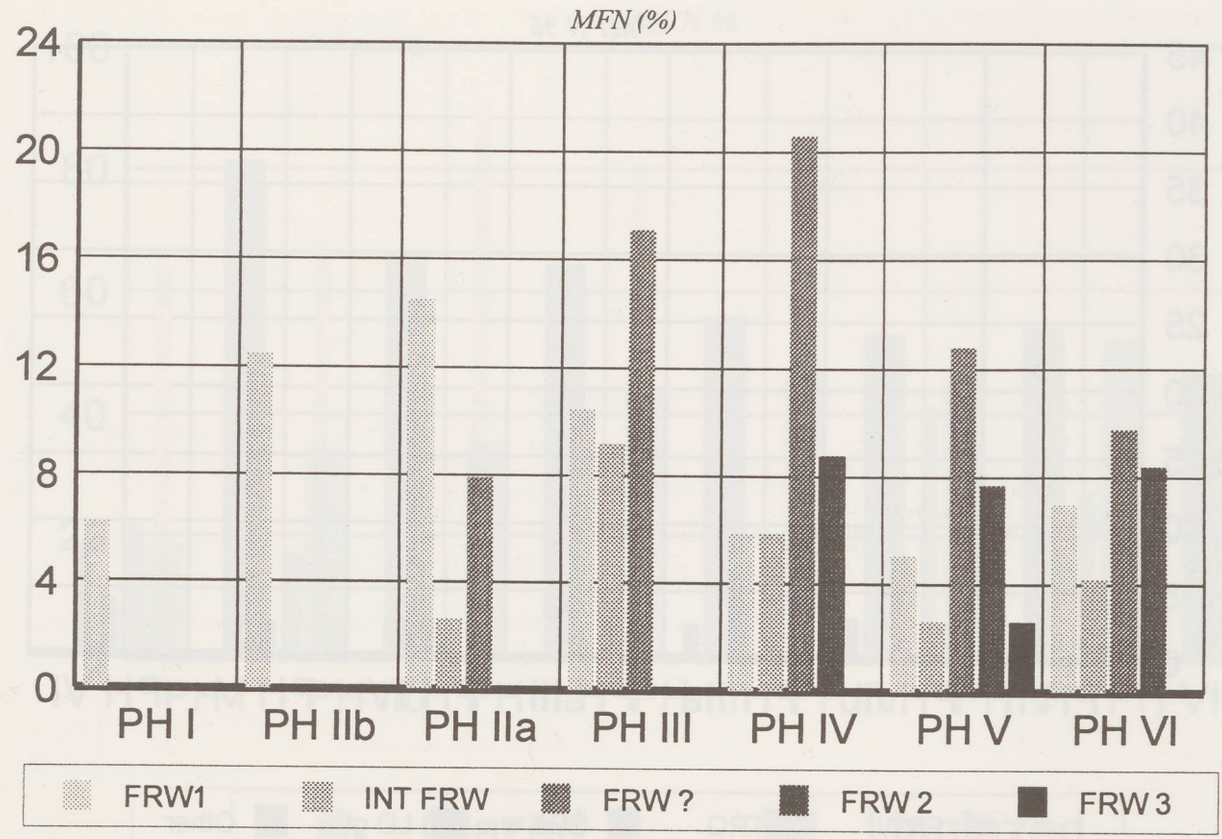


Figure 13.
Graphic 1. Sondage S1: fritware.

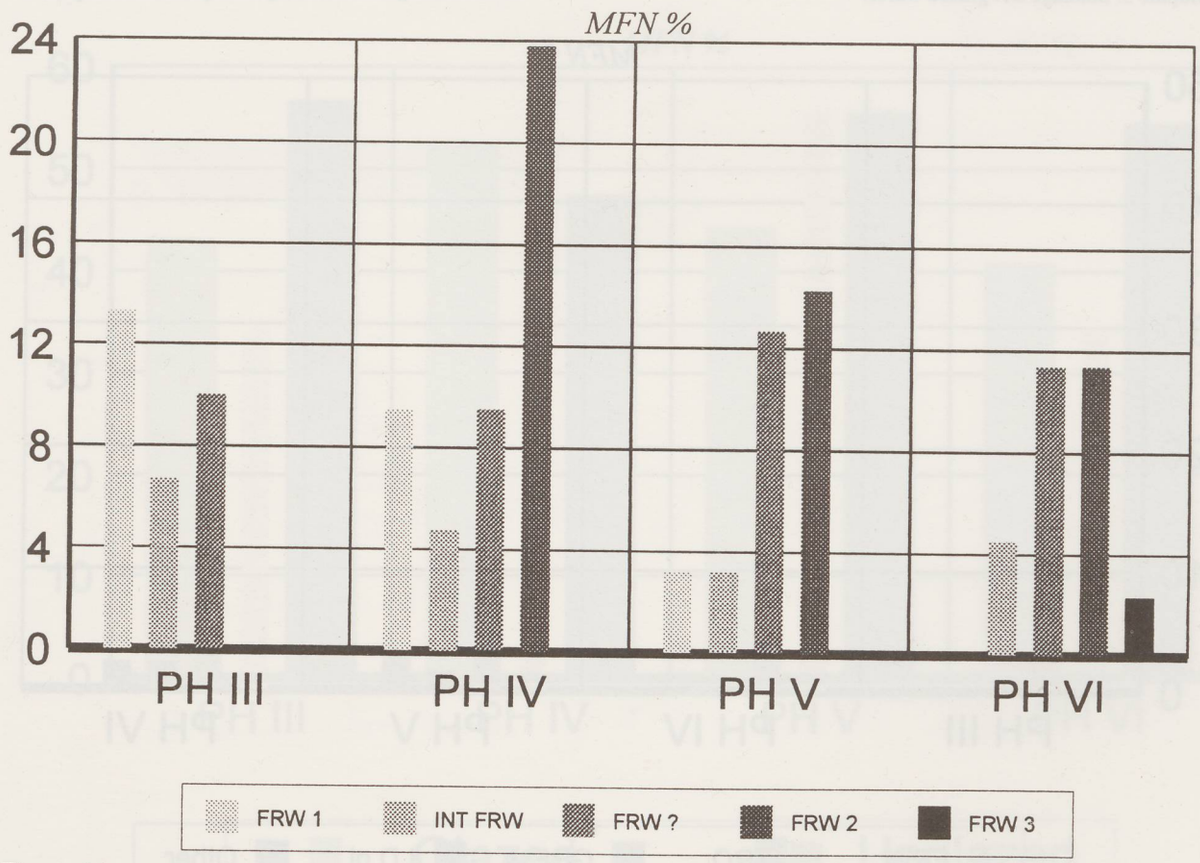


Figure 14.
Graphic 2. Sondage S2: fritware.

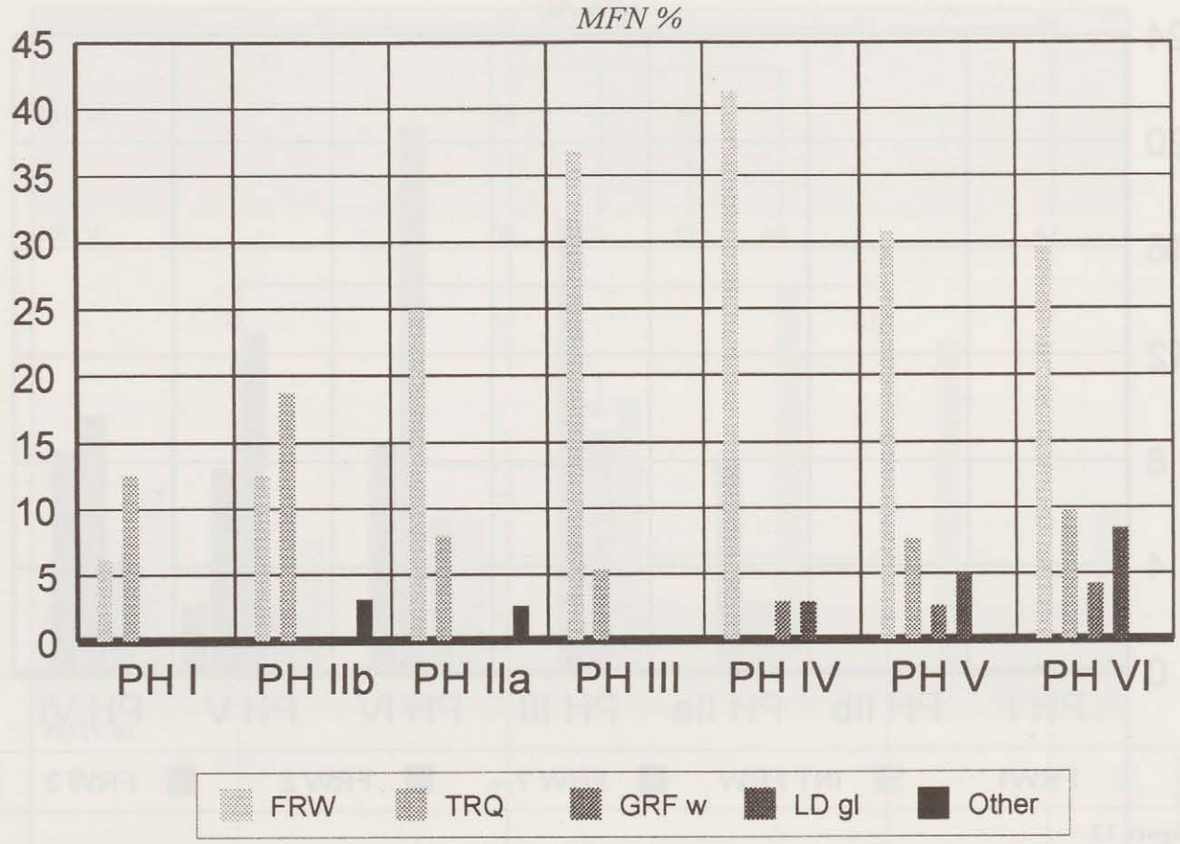


Figure 15.
Graphic 3. Sondage S1: glazed wares.

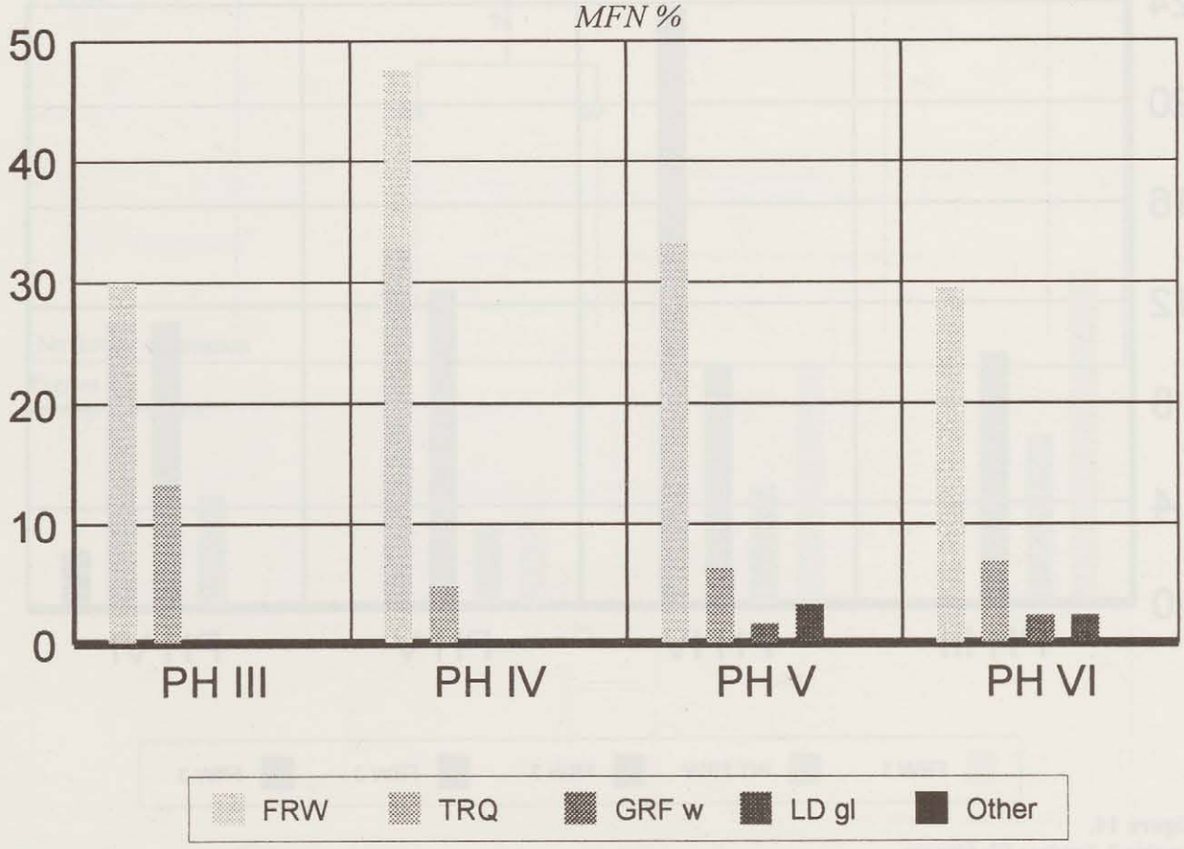


Figure 16.
Graphic 4. Sondage S2: glazed wares.

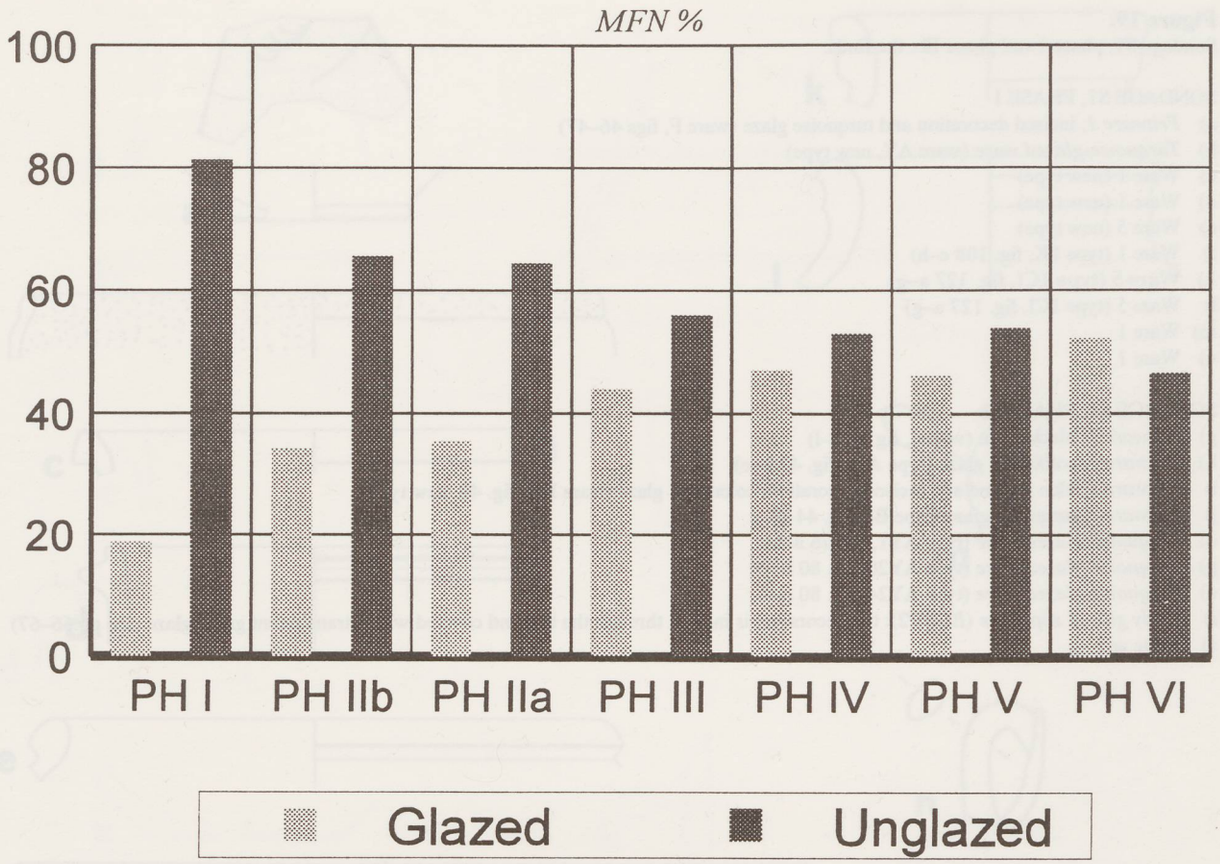


Figure 17.
Graphic 5. Sondage S1: glazed and unglazed wares.

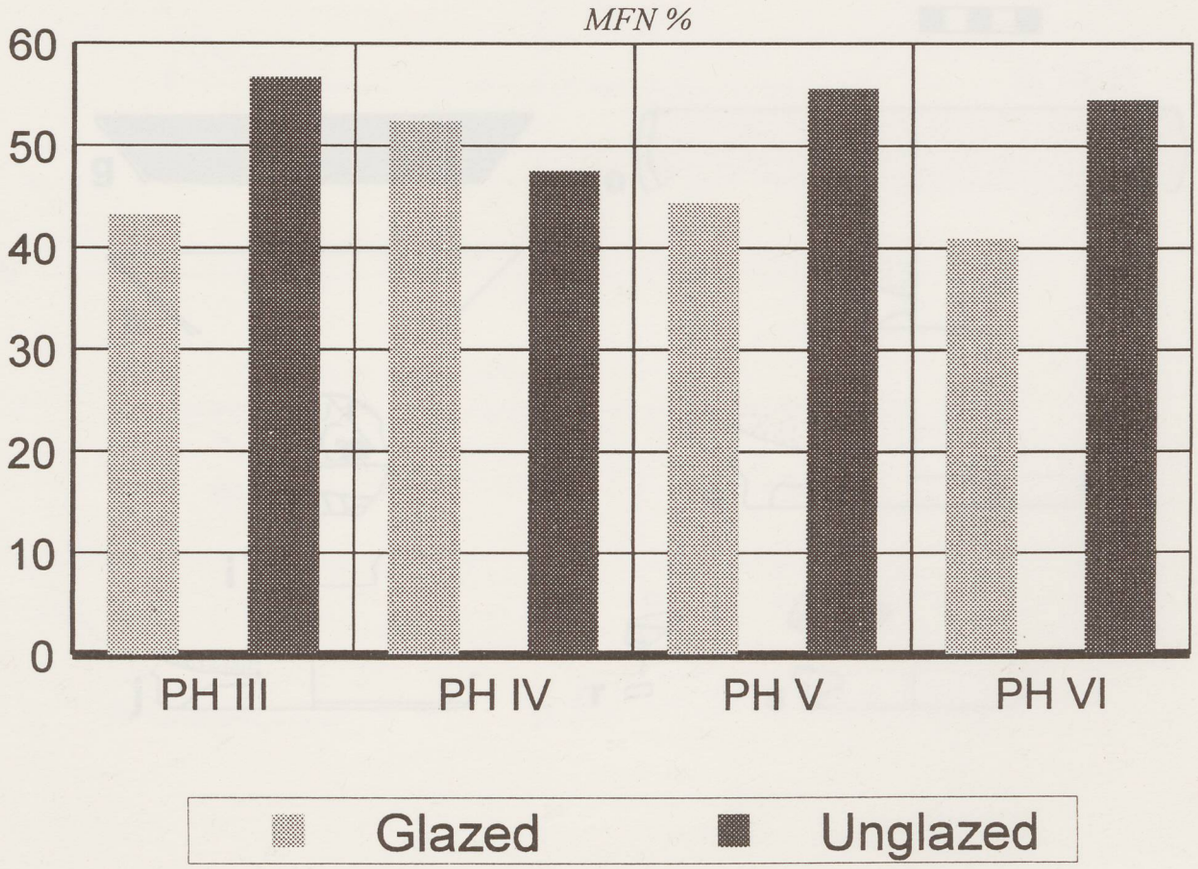


Figure 18.
Graphic 6. Sondage S2: glazed and unglazed wares.

Figure 19.
Sondage S1, phase I and phase IIb: the finds.

SONDAGE S1, PHASE I

a) *Fritware 1*, incised decoration and turquoise glaze (ware F, figs 46–47)
b) *Turquoise-glazed ware* (ware AY, new type)
c) Ware 1 (new type)
d) Ware 1 (new type)
e) Ware 5 (new type)
f) Ware 1 (type 1K, fig. 108 c–h)
k) Ware 5 (type 1CI, fig. 127 a–g)
l) Ware 5 (type 1CI, fig. 127 a–g)
m) Ware 1
n) Ware 1

SONDAGE S1, PHASE IIb

g) *Fritware 1*, black glaze (ware I, fig. 44 j–l)
h) *Fritware 1*, colourless glaze (type A1a, fig. 42 b–e)
i) *Fritware 1*, blue painted and incised decoration, colourless glaze (ware HH, fig. 49, new type)
j) *Fritware 1*, turquoise glaze (type B8, fig. 44 h)
o) *Turquoise-glazed ware* (type AY1, fig. 76 a–h)
p) *Turquoise-glazed ware* (type AY20, fig. 80 h–j)
q) *Turquoise-glazed ware* (type AY24, fig. 80 q–t)
r) *Early glazed slip-ware* (*EGSW2*): the decoration is incised through the slip and covered with a transparent green glaze (see pp.66–67)
s) Same as r

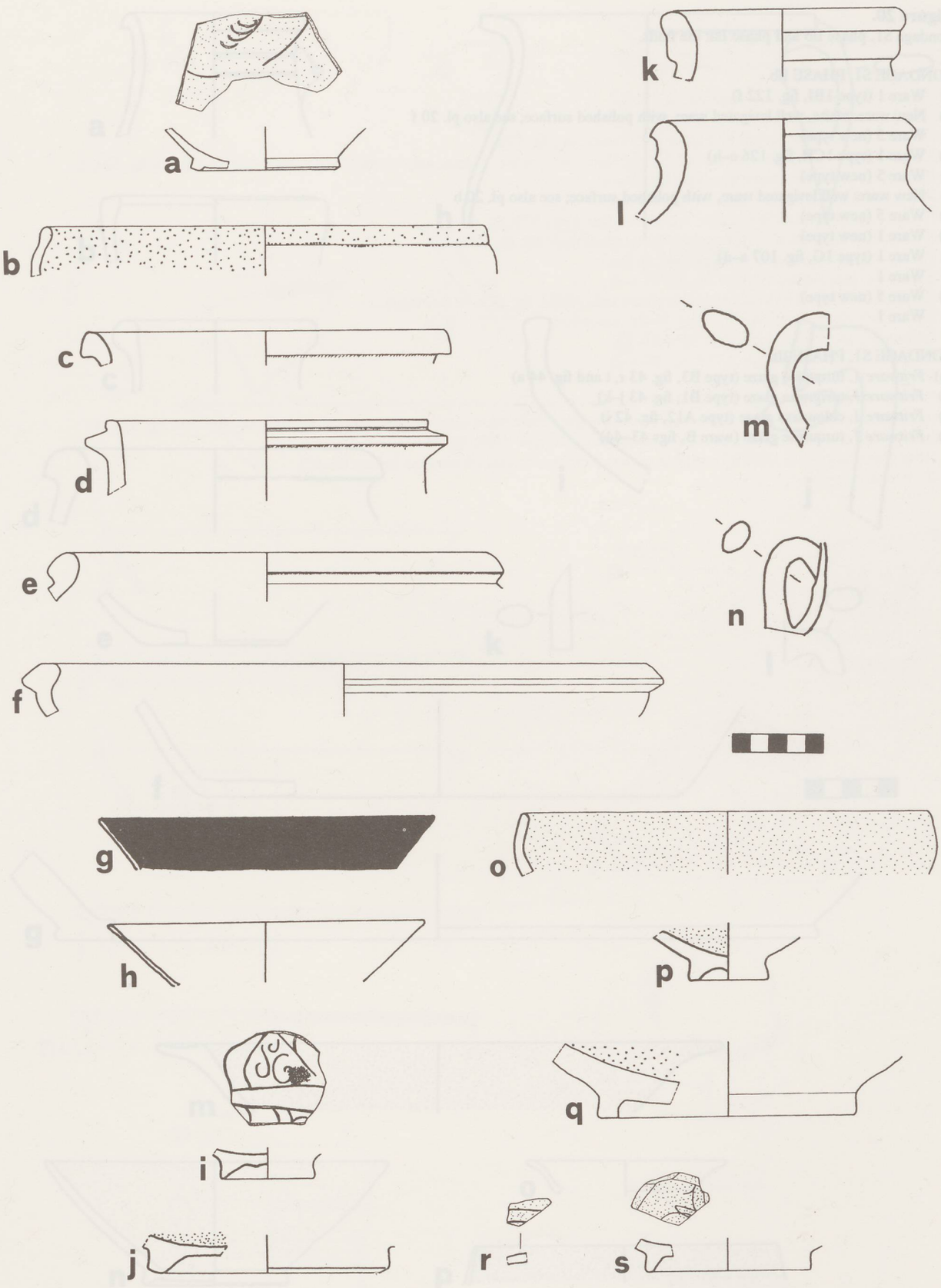

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Figure 20.
Sondage S1, phase IIb and phase IIa: the finds.

SONDAGE S1, PHASE IIb
a) Ware 1 (type 1BJ, fig. 122 f)
b) New ware: white, well levigated ware, with polished surface; see also pl. 20 f
c) Ware 5 (new type)
d) Ware 1 (type 1CH, fig. 126 e–h)
e) Ware 5 (new type)
f) New ware: well levigated ware, with polished surface; see also pl. 20 b
g) Ware 5 (new type)
h) Ware 1 (new type)
i) Ware 1 (type 1G, fig. 107 a–d)
j) Ware 1
k) Ware 5 (new type)
l) Ware 1

SONDAGE S1, PHASE IIa
m) *Fritware 1*, turquoise glaze (type B3, fig. 43 r, t and fig. 44 a)
n) *Fritware 1*, turquoise glaze (type B1, fig. 43 j–k)
o) *Fritware 1*, colourless glaze (type A12, fig. 42 i)
p) *Fritware 1*, turquoise glaze (ware B, figs 43–44)

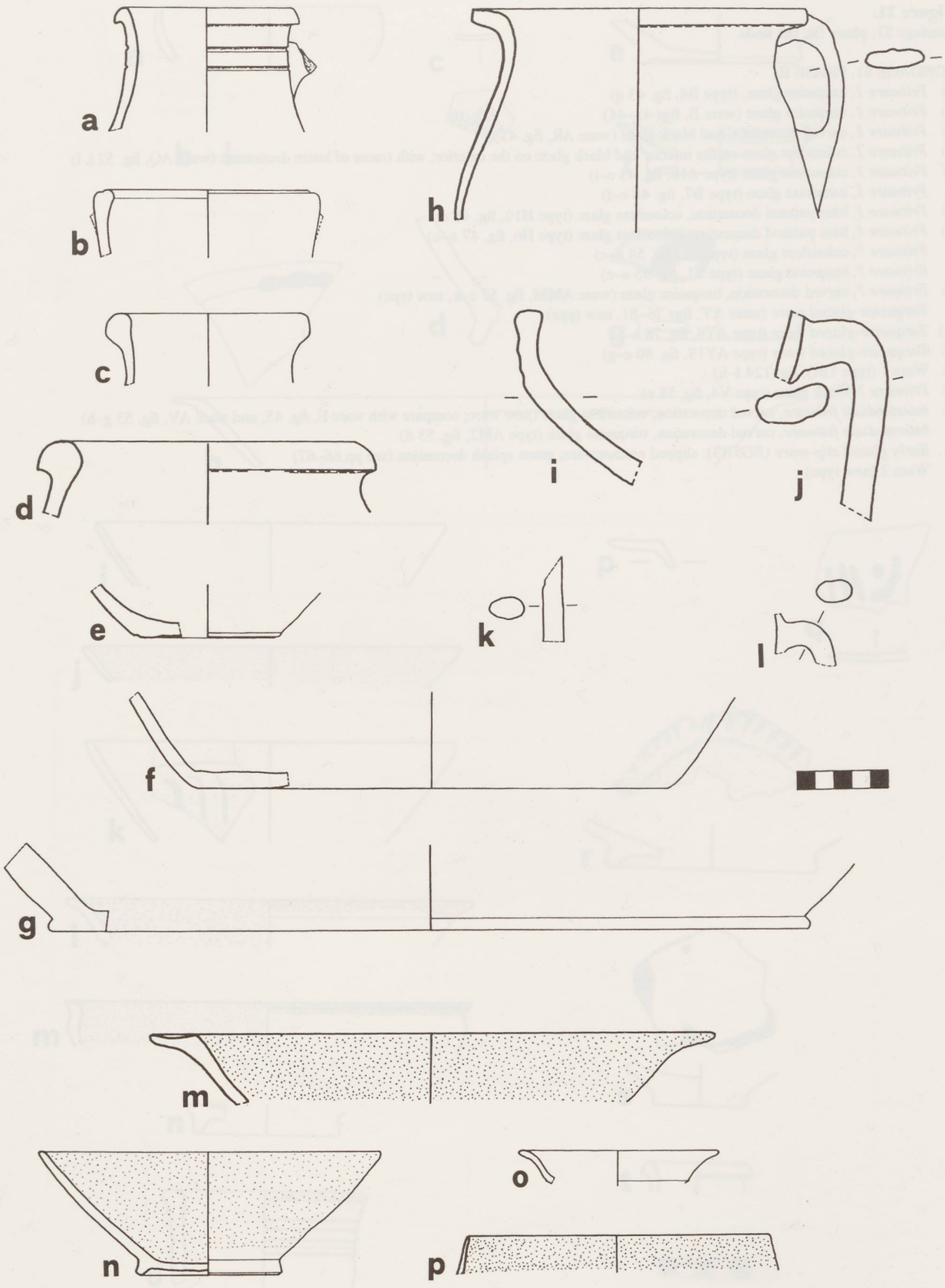

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Figure 21.
Sondage S1, phase IIa: the finds.

SONDAGE S1, PHASE IIa

a) *Fritware 1*, turquoise glaze, (type B4, fig. 43 q)
b) *Fritware 1*, turquoise glaze (ware B, figs 43–44)
c) *Fritware 1*, carved decoration and black glaze (ware AR, fig. 47 i)
d) *Fritware 1*, colourless glaze on the interior and black glaze on the exterior, with traces of lustre decoration (ware AQ, fig. 52 i, l)
e) *Fritware 1*, colourless glaze (type A1b, fig. 43 e–i)
f) *Fritware 1*, turquoise glaze (type B7, fig. 44 e–f)
g) *Fritware 1*, blue painted decoration, colourless glaze (type H10, fig. 48 e)
h) *Fritware 1*, blue painted decoration, colourless glaze (type H6, fig. 47 n–o)
i) *Fritware ?*, colourless glaze (type U1, fig. 54 a–c)
j) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
k) *Fritware ?*, carved decoration, turquoise glaze (ware AMM, fig. 57 c–k, new type)
l) *Turquoise-glazed ware* (ware AY, figs 76–81, new type)
m) *Turquoise-glazed ware* (type AY6, fig. 78 a–e)
n) *Turquoise-glazed ware* (type AY19, fig. 80 e–g)
o) Ware 1 (type 1BQ, fig. 124 f–h)
p) *Fritware ?*, black glaze (type V4, fig. 58 e)
q) *Intermediate fritware*, carved decoration, colourless glaze (new ware; compare with ware E, fig. 45, and ware AV, fig. 53 g–h)
r) *Intermediate fritware*, carved decoration, turquoise glaze (type AM2, fig. 53 d)
s) *Early glazed slip-ware* (*EGSW3*): slipped earthenware; green splash decoration (see pp.66–67)
t) Ware 2 (new type)

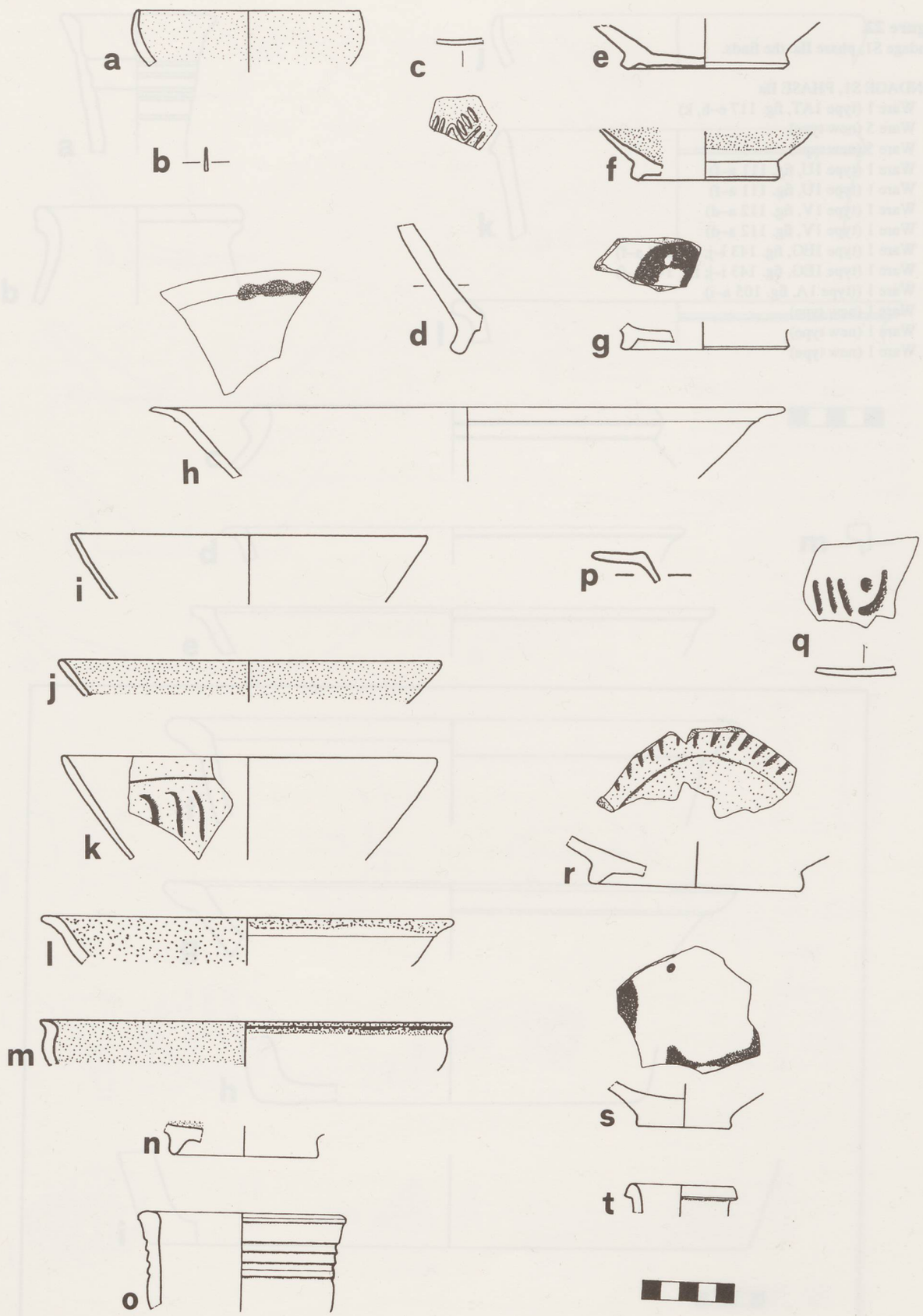

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Figure 22.
Sondage S1, phase IIa: the finds.

SONDAGE S1, PHASE IIa
a) Ware 1 (type 1AT, fig. 117 e–h, k)
b) Ware 5 (new type)
c) Ware 5 (new type)
d) Ware 1 (type 1U, fig. 111 a–f)
e) Ware 1 (type 1U, fig. 111 a–f)
f) Ware 1 (type 1V, fig. 112 a–d)
g) Ware 1 (type 1V, fig. 112 a–d)
h) Ware 1 (type 1EG, fig. 143 i–j; fig. 144 a–f)
i) Ware 1 (type 1EG, fig. 143 i–j; fig. 144 a–f)
j) Ware 1 ((type 1A, fig. 105 a–i)
k) Ware 1 (new type)
l) Ware 1 (new type)
m) Ware 1 (new type)

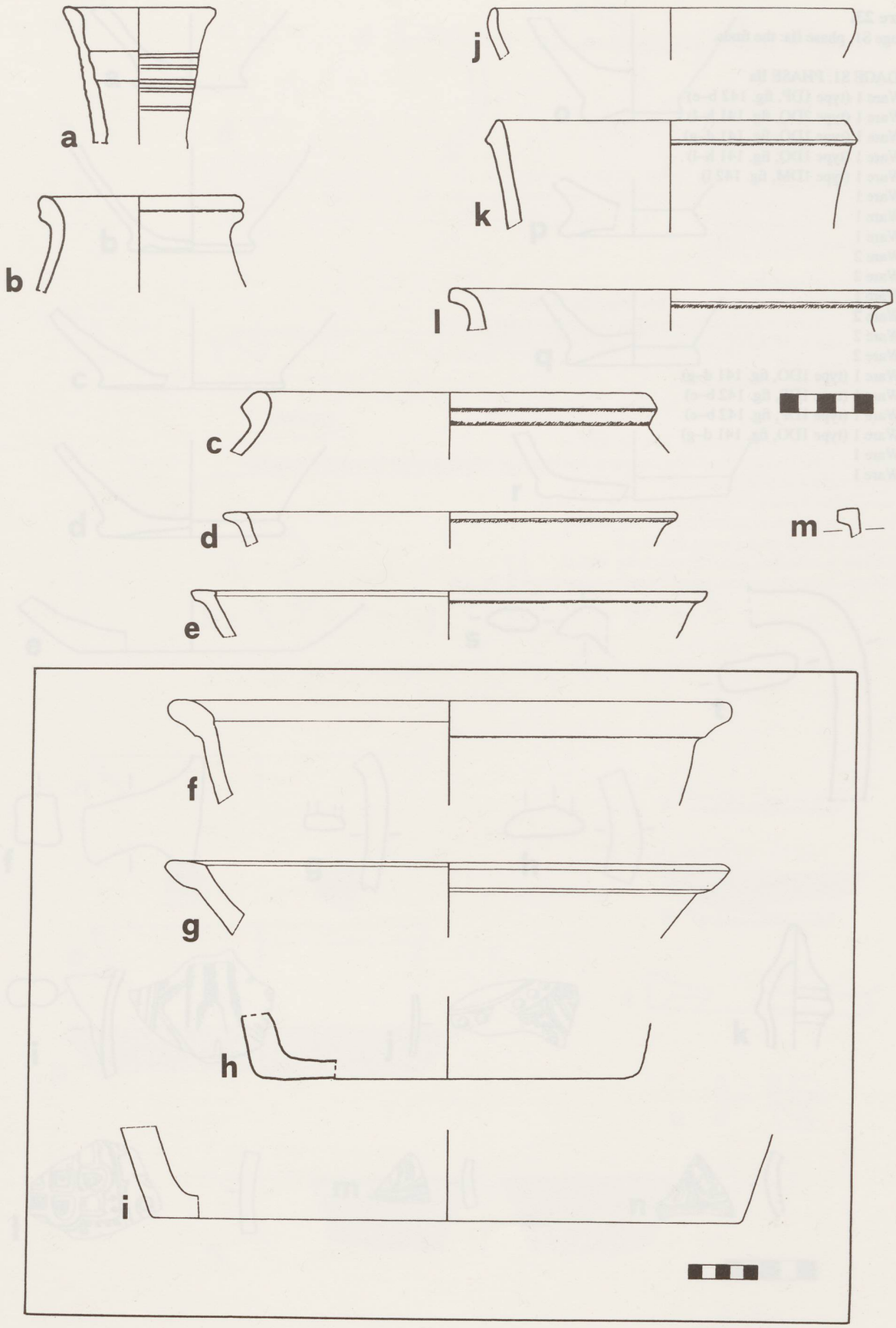

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Figure 23.
Sondage S1, phase IIa: the finds.

SONDAGE S1, PHASE IIa
a) Ware 1 (type 1DP, fig. 142 b–e)
b) Ware 1 (type 2DQ, fig. 141 h–l)
c) Ware 1 (type 1DO, fig. 141 d–g)
d) Ware 1 (type 1DQ, fig. 141 h–l)
e) Ware 1 (type 1DM, fig. 142 i)
f) Ware 1
g) Ware 1
h) Ware 1
i) Ware 2
j) Ware 2
k) Ware 1
l) Ware 2
m) Ware 2
n) Ware 2
o) Ware 1 (type 1DO, fig. 141 d–g)
p) Ware 1 (type 1DP, fig. 142 b–e)
q) Ware 1 (type 1DP, fig. 142 b–e)
r) Ware 1 (type 1DO, fig. 141 d–g)
s) Ware 1
t) Ware 1

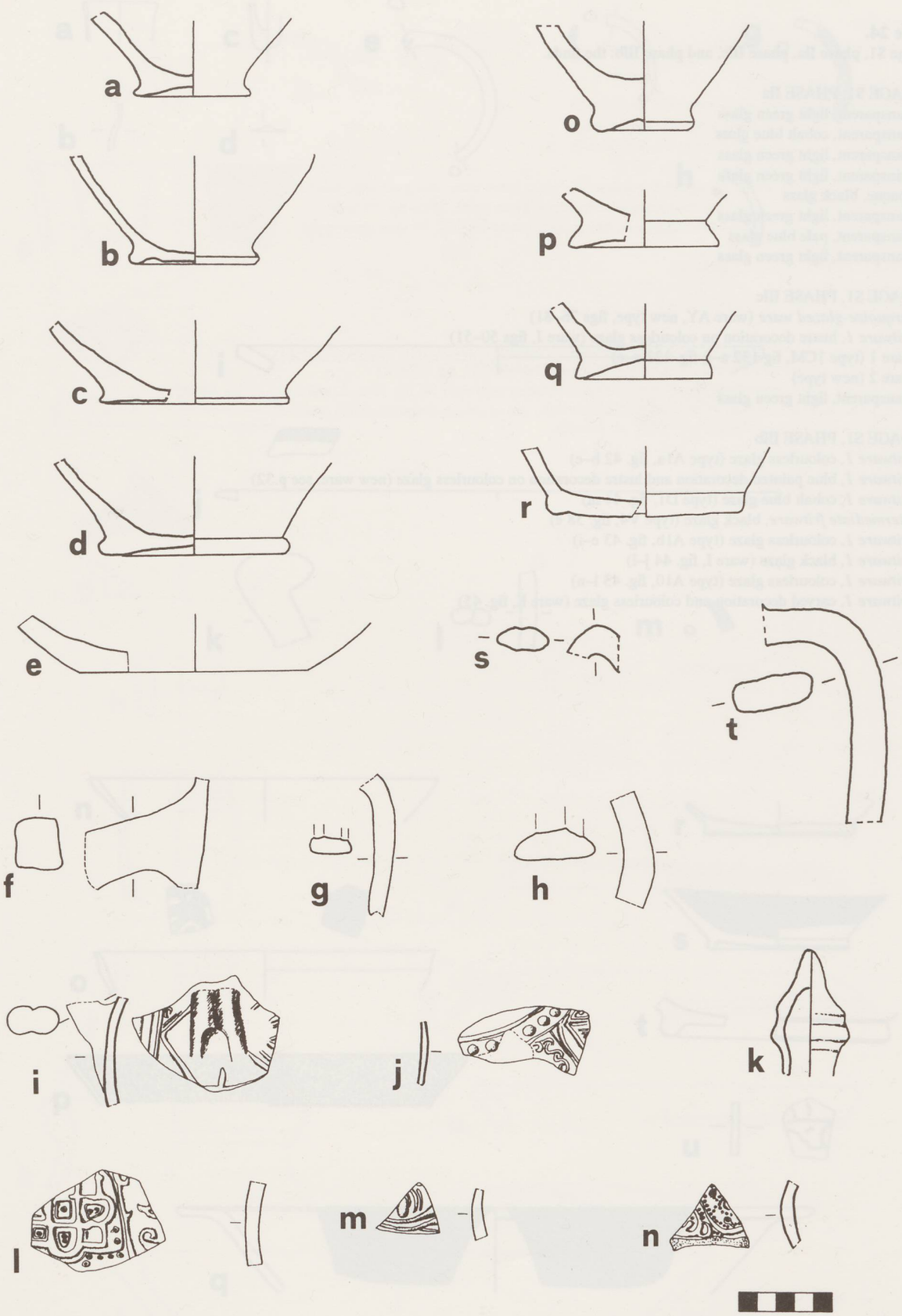

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Figure 24.
Sondage S1, phase IIa, phase IIIc, and phase IIIb: the finds.

SONDAGE S1, PHASE IIa
a) Transparent, light green glass
b) Transparent, cobalt blue glass
c) Transparent, light green glass
d) Transparent, light green glass
e) Opaque, black glass
f) Transparent, light green glass
g) Transparent, pale blue glass
h) Transparent, light green glass

SONDAGE S1, PHASE IIIc
i) *Turquoise-glazed ware* (ware AY, new type, figs 76–81)
j) *Fritware 1*, lustre decoration on colourless glaze (ware J, figs 50–51)
k) Ware 1 (type 1CM, fig 132 a–f; fig. 133 a–e)
l) Ware 2 (new type)
m) Transparent, light green glass

SONDAGE S1, PHASE IIIb
n) *Fritware 1*, colourless glaze (type A1a, fig. 42 b–e)
o) *Fritware 1*, blue painted decoration and lustre decoration on colourless glaze (new ware, see p.32)
p) *Fritware 1*, cobalt blue glaze (type D1, fig. 44 m)
q) *Intermediate fritware*, black glaze (type V4, fig. 58 e)
r) *Fritware 1*, colourless glaze (type A1b, fig. 43 e–i)
s) *Fritware 1*, black glaze (ware I, fig. 44 j–l)
t) *Fritware 1*, colourless glaze (type A10, fig. 43 l–n)
u) *Fritware 1*, carved decoration and colourless glaze (ware E, fig. 45)

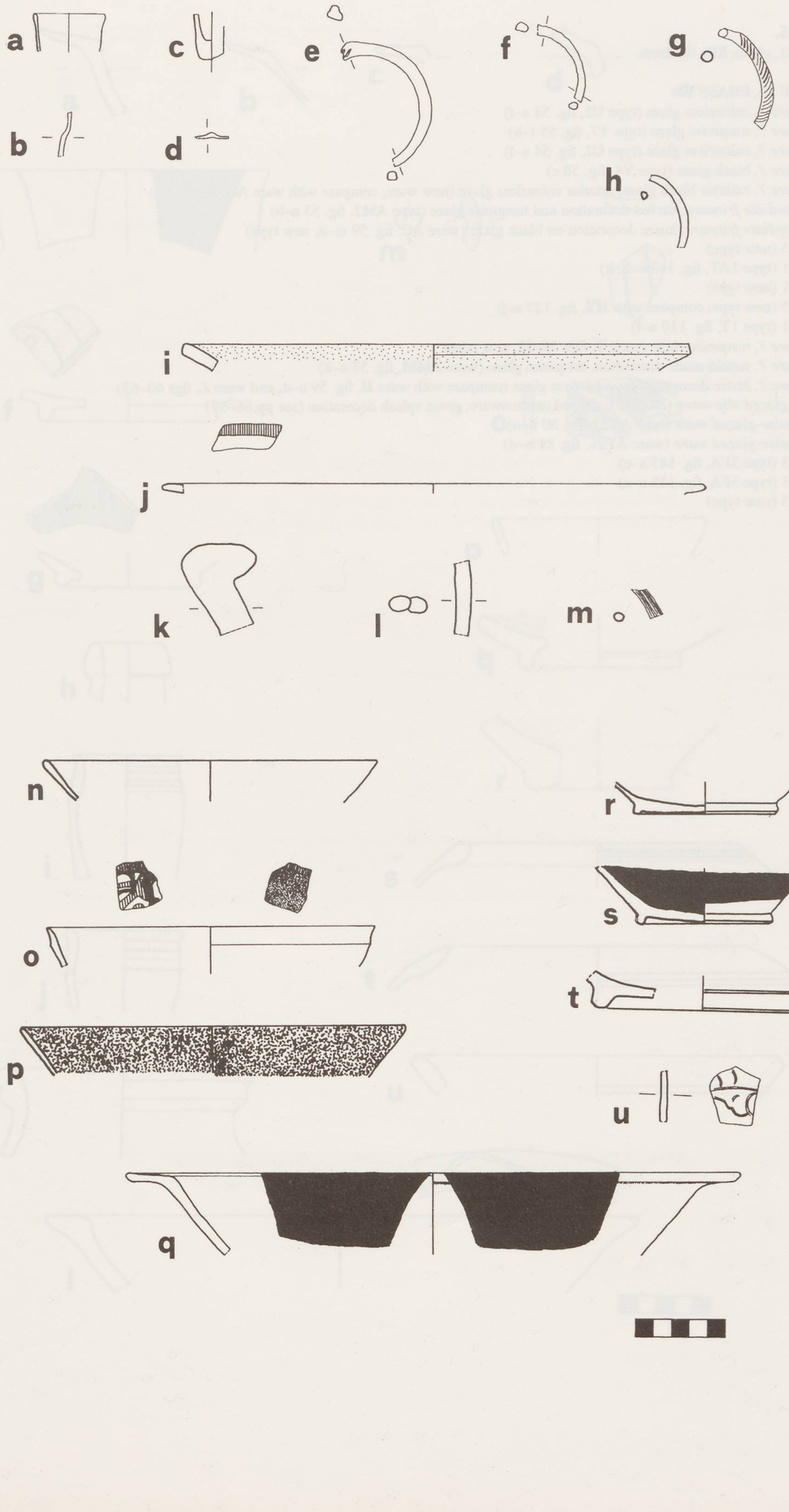

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Figure 25.
Sondage S1, phase IIIb: the finds.

SONDAGE S1, PHASE IIIb

a) *Fritware ?*, colourless glaze (type U2, fig. 54 e–f)
b) *Fritware ?*, turquoise glaze (type T7, fig. 55 f–h)
c) *Fritware ?*, colourless glaze (type U2, fig. 54 e–f)
d) *Fritware ?*, black glaze (type V4, fig. 58 e)
e) *Fritware ?*, exterior black glaze, interior colourless glaze (new ware, compare with ware AQ, fig. 52 i, l)
f) *Intermediate fritware*, carved decoration and turquoise glaze (type AM2, fig. 53 a–b)
g) *Intermediate fritware*, lustre decoration on black glaze (ware AC, fig. 59 m–n, new type)
h) Ware 5 (new type)
i) Ware 1 (type 1AT, fig. 117 e–h, k)
j) Ware 1 (new type)
k) Ware 5 (new type; compare with 1CI, fig. 127 a–j)
l) Ware 1 (type 1T, fig. 110 a–f)
m) *Fritware ?*, turquoise glaze (ware T, figs 55–57, new type)
n) *Fritware ?*, mould-made decoration, turquoise glaze (ware AMM, fig. 57 c–k)
o) *Fritware ?*, lustre decoration on colourless glaze (compare with ware JJ, fig. 59 a–d, and ware Z, figs 60–63)
p) *Early glazed slip-ware* (*EGSW*3): slipped earthenware; green splash decoration (see pp.66–67)
q) *Turquoise-glazed ware* (type AY22, fig. 80 n–o)
r) *Turquoise-glazed ware* (ware AY26, fig. 81 b–d)
s) Ware 3 (type 3FA, fig. 145 a–c)
t) Ware 3 (type 3FA, fig. 145 a–c)
u) Ware 3 (new type)

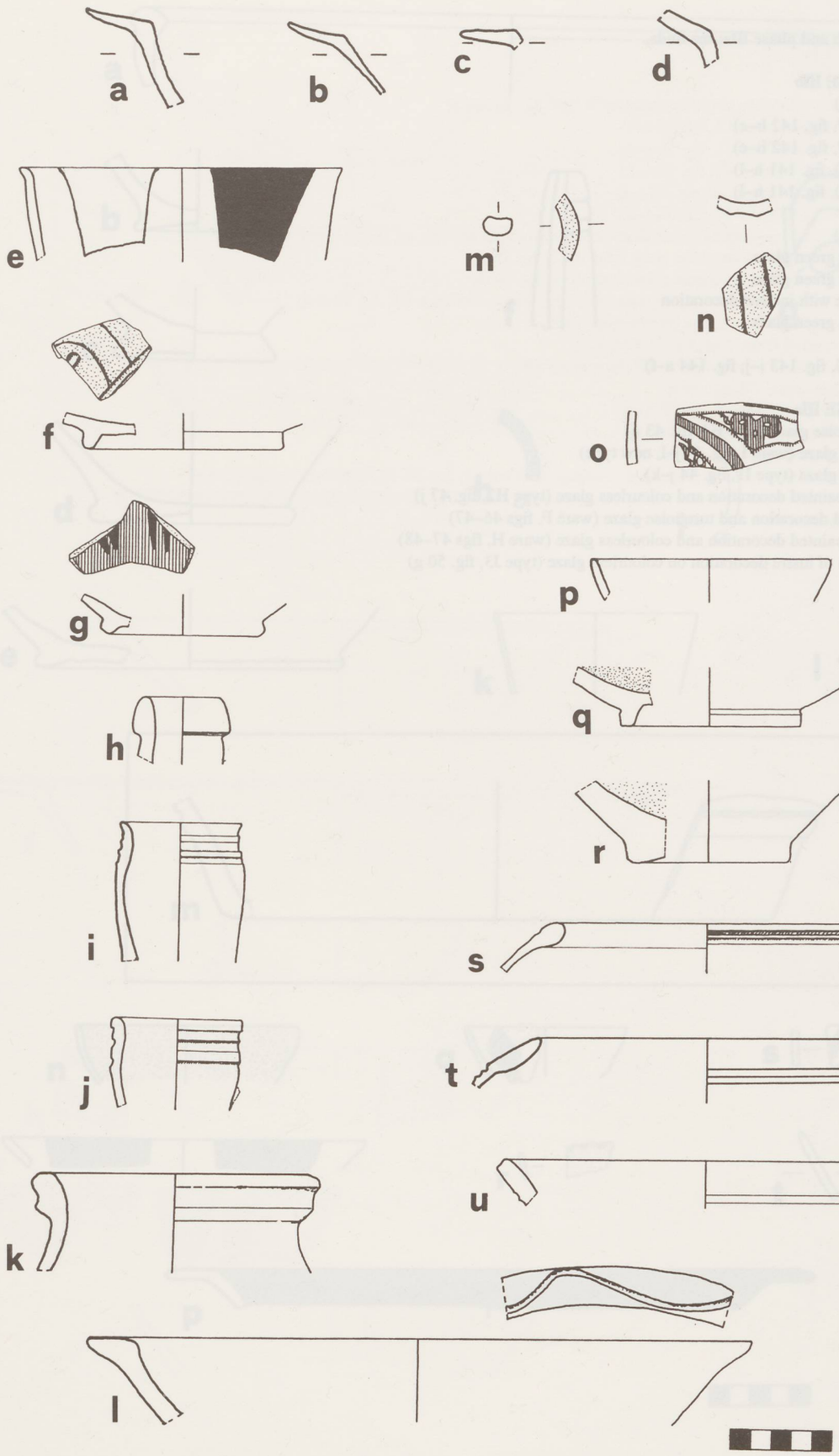

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Figure 26.
Sondage S1, phase IIIb and phase IIIa: the finds.

SONDAGE S1, PHASE IIIb

a) Ware 1 (new type)
b) Ware 1 (type 1DP, fig. 142 b–e)
c) Ware 1 (type 1DP, fig. 142 b–e)
d) Ware 1 (type 1DQ, fig. 141 h–l)
e) Ware 1 (type 1DQ, fig. 141 h–l)
f) Ware 1
g) Ware 1 (new type)
h) Transparent, light green glass
i) Transparent, light green glass
j) Copper alloy plate with incised decoration
k) Transparent, light green glass
l) Ware 1
m) Ware 1 (type 1EG, fig. 143 i–j; fig. 144 a–f)

SONDAGE S1, PHASE IIIa

n) *Fritware 1*, turquoise glaze (type B4, fig. 43 q)
o) *Fritware 1*, black glaze (ware I, fig. 44 j–l, new type)
p) *Fritware 1*, black glaze (type I1, fig. 44 j–k)
q) *Fritware 1*, blue painted decoration and colourless glaze (type H2, fig. 47 j)
r) *Fritware 1*, carved decoration and turquoise glaze (ware F, figs 46–47)
s) *Fritware 1*, blue painted decoration and colourless glaze (ware H, figs 47–48)
t) *Fritware 1*, traces of lustre decoration on colourless glaze (type J3, fig. 50 g)

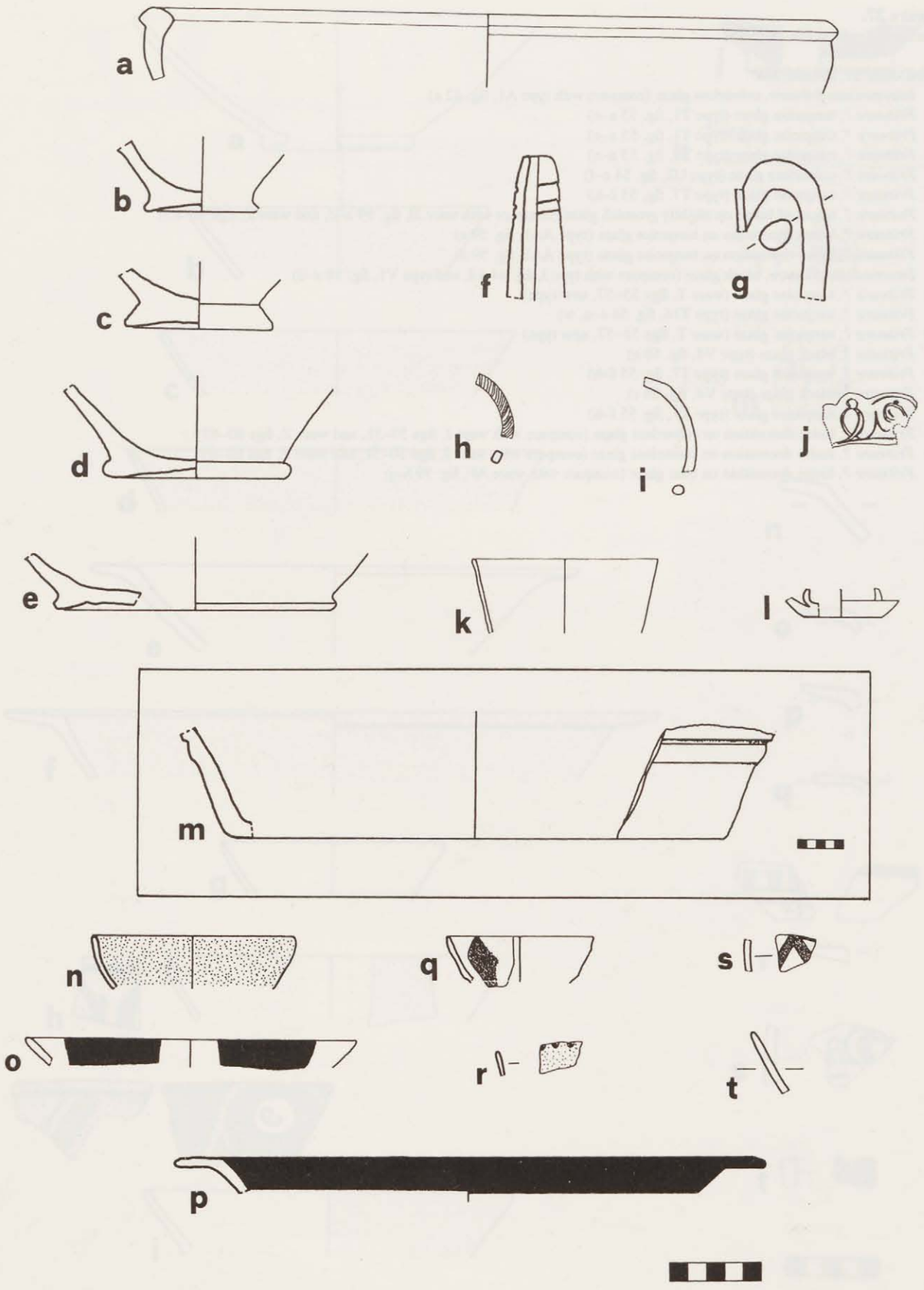

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Figure 27.
Sondage S1, phase IIIa: the finds.

SONDAGE S1, PHASE IIIa

a) *Intermediate fritware*, colourless glaze (compare with type A1, fig. 42 a)
b) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
c) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
d) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
e) *Fritware ?*, colourless glaze (type U2, fig. 54 e–f)
f) *Fritware ?*, turquoise glaze (type T7, fig. 55 f–h)
g) *Fritware ?*, traces of lustre on slightly greenish glaze (compare with ware JJ, fig. 59 a–d, and ware Z, figs 60–63)
h) *Fritware ?*, lustre decoration on turquoise glaze (type AA1, fig. 59 e)
i) *Fritware ?*, lustre decoration on turquoise glaze (type AA1, fig. 59 e)
j) *Intermediate fritware*, black glaze (compare with type I, fig. 44 j–l, and type V1, fig. 58 a–d)
k) *Fritware ?*, turquoise glaze (ware T, figs 55–57, new type)
l) *Fritware ?*, turquoise glaze (type T14, fig. 56 s–u, w)
m) *Fritware ?*, turquoise glaze (ware T, figs 55–57, new type)
n) *Fritware ?*, black glaze (type V4, fig. 58 e)
o) *Fritware ?*, turquoise glaze (type T7, fig. 55 f–h)
p) *Fritware ?*, black glaze (type V4, fig. 58 e)
q) *Fritware ?*, turquoise glaze (type T7, fig. 55 f–h)
r) *Fritware* ?, lustre decoration on colourless glaze (compare with ware J, figs 50–51, and ware Z, figs 60–63)
s) *Fritware ?*, lustre decoration on colourless glaze (compare with ware J, figs 50–51, and ware Z, figs 60–63)
t) *Fritware ?*, lustre decoration on blue glaze (compare with ware AF, fig. 59 h–j)

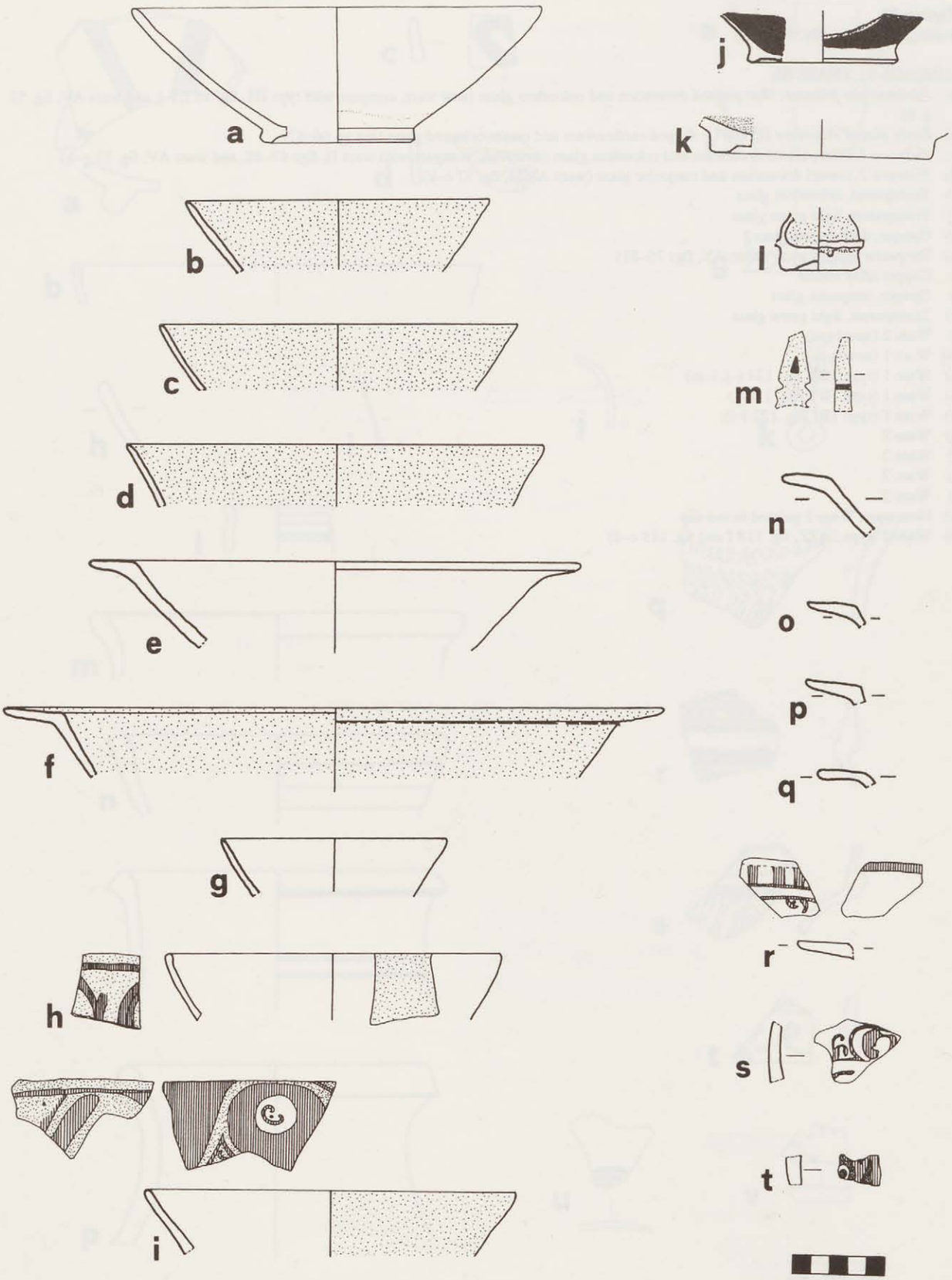

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Figure 28.
Sondage S1, phase IIIa: the finds.

SONDAGE S1, PHASE IIIa

a) *Intermediate fritware*, blue painted decoration and colourless glaze (new ware, compare with type H8, fig. 48 f, i–j, and ware AV, fig. 53 g–h)
b) *Early glazed slip-ware* (*EGSW*1): slipped earthenware and cream-coloured glaze (see pp.66–67)
c) *Fritware ?*, blue painted decoration and colourless glaze (new ware, compare with ware H, figs 47–48, and ware AV, fig. 53 g–h)
d) *Fritware ?*, carved decoration and turquoise glaze (ware AMM, fig. 57 c–k)
e) Transparent, colourless glass
f) Transparent, light green glass
g) Opaque, dark brown glass
h) *Turquoise-glazed ware* (ware AY, figs 76–81)
i) Copper alloy needle
j) Opaque, turquoise glass
k) Transparent, light green glass
l) Ware 2 (new type)
m) Ware 1 (new type)
n) Ware 1 (type 1BR, fig. 124 i–j, l–m)
o) Ware 1 (type 1BY, fig. 125 g)
p) Ware 1 (type 1BJ, fig. 122 f–i)
q) Ware 2
r) Ware 2
s) Ware 2
t) Ware 2
u) New ware: Ware 1 painted in red slip
v) Ware 2 (type 2AZZ, fig. 118 f and fig. 119 c–d)

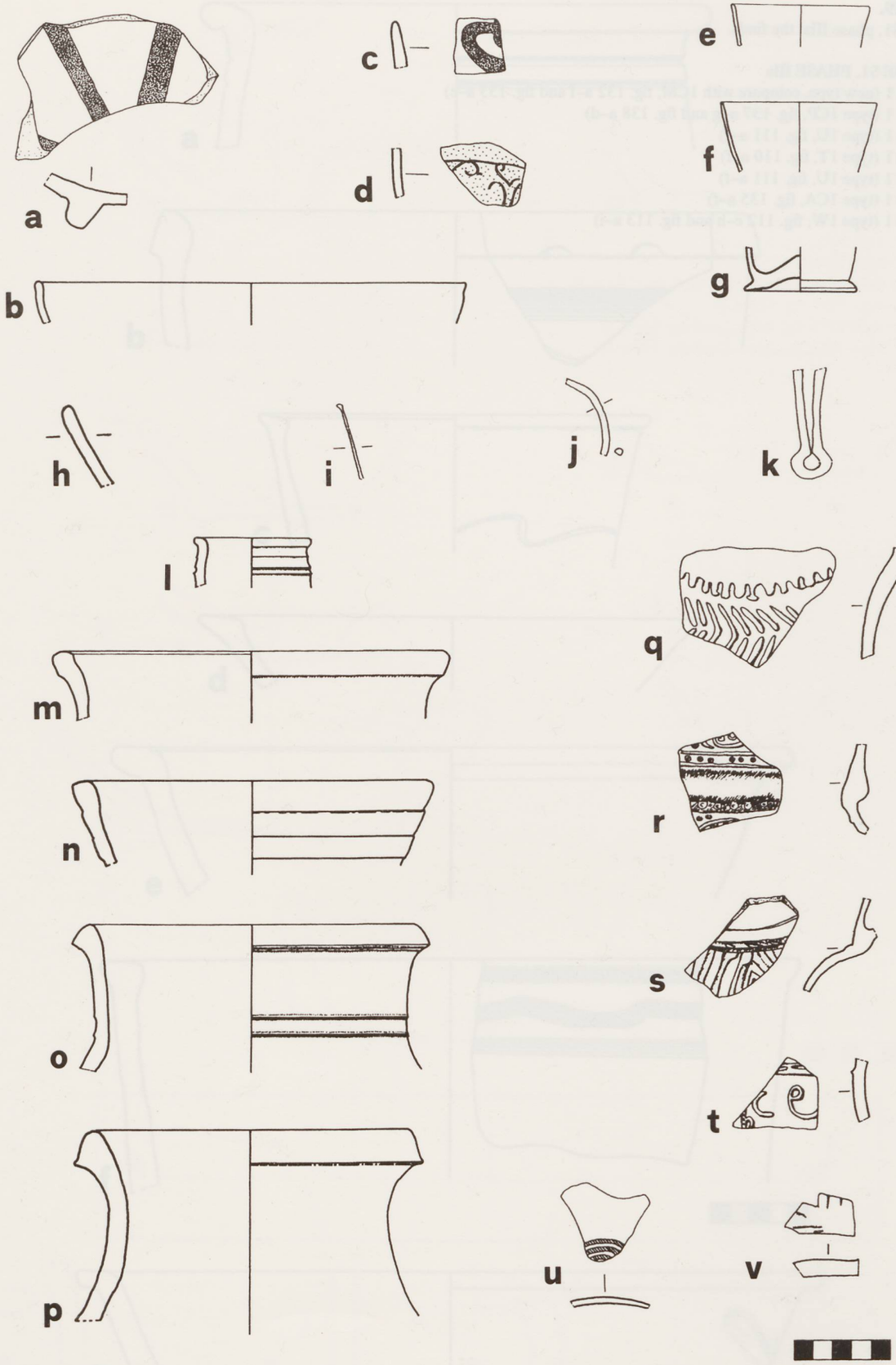

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Figure 29.
Sondage S1, phase IIIa: the finds.

SONDAGE S1, PHASE IIIa

a) Ware 1 (new type, compare with 1CM, fig. 132 a–f and fig. 133 a–e)
b) Ware 1 (type 1CP, fig. 137 a–g and fig. 138 a–d)
c) Ware 1 (type 1U, fig. 111 a–f)
d) Ware 1 (type 1T, fig. 110 a–f)
e) Ware 1 (type 1U, fig. 111 a–f)
f) Ware 1 (type 1CA, fig. 135 a–f)
g) Ware 1 (type 1W, fig. 112 e–h and fig. 113 a–i)

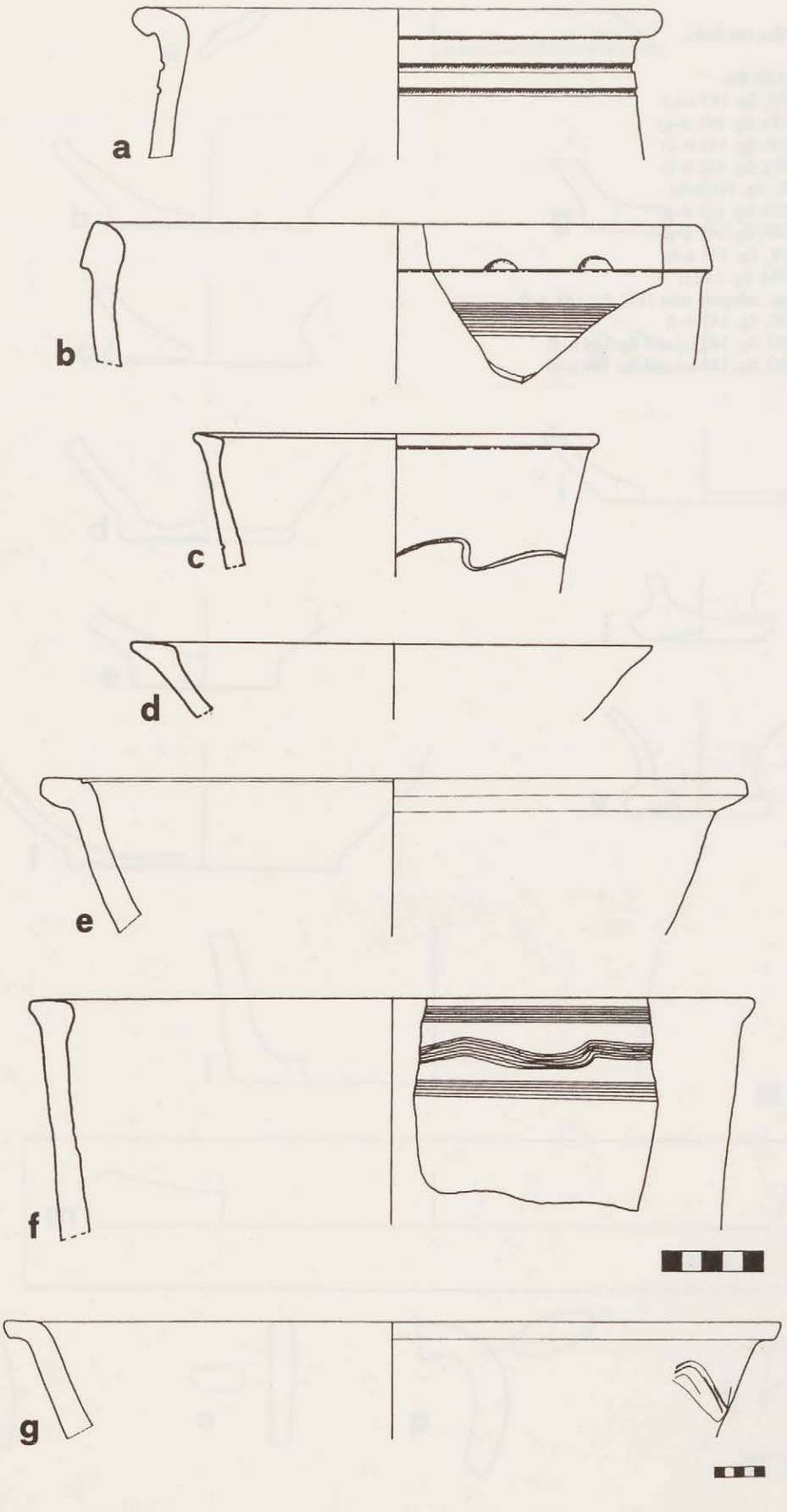

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Figure 30.
Sondage S1, phase IIIa: the finds.

SONDAGE S1, PHASE IIIa
a) Ware 3 (type 3FA, fig. 145 a–c)
b) Ware 1 (type 1DO, fig. 141 d–g)
c) Ware 1 (type 1DP, fig. 142 b–e)
d) Ware 1 (type 1DQ, fig. 141 h–l)
e) Ware 1 (type DL, fig. 141 a–b)
f) Ware 1 (type 1DO, fig. 141 d–g)
g) Ware 1 (type 1DO, fig. 141 d–g)
h) Ware 1 (type 1DL, fig. 141 a–b)
i) Ware 1 (type 1DM, fig. 142 i)
j) Ware 1 (new type, compare with 1EC, fig. 143 d–f)
k) Ware 1 (type 1EC, fig. 143 d–f)
l) Ware 1 (type 1EG, fig. 143 i–j and fig. 144 a–f)
m) Ware 1 (type 1EG, fig. 143 i–j and fig. 144 a–f)
n) Ware 1
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q) Ware 1

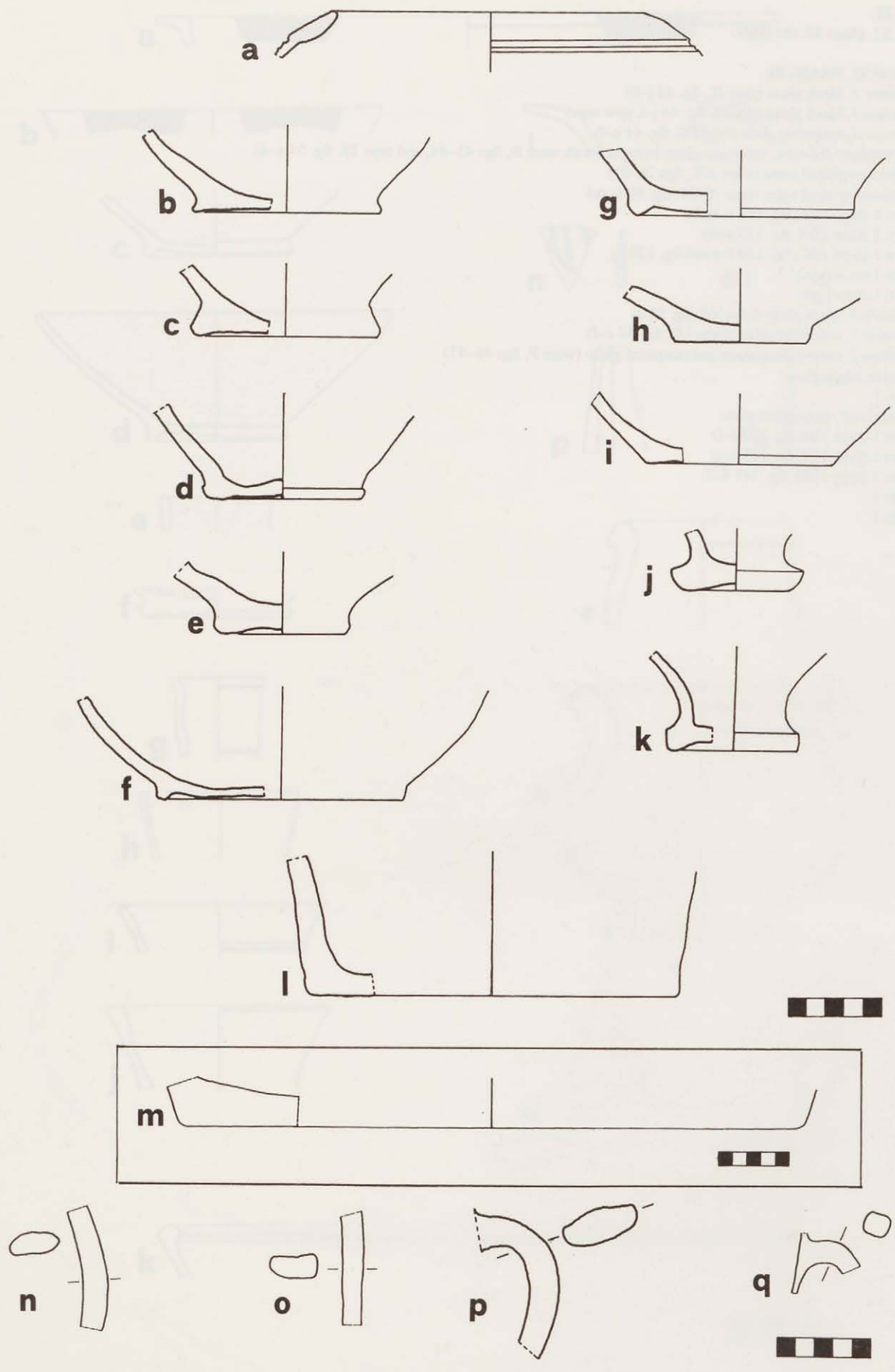

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Figure 31.
Sondage S2, phase III: the finds.

SONDAGE S2, PHASE III

a) *Fritware 1*, black glaze (type I1, fig. 44 j–k)
b) *Fritware 1*, black glaze (ware I, fig. 44 j–l, new type)
c) *Fritware 1*, turquoise glaze (type B7, fig. 44 e–f)
d) *Intermediate fritware*, turquoise glaze (compare with ware B, figs 43–44, and type T8, fig. 56 a–d)
e) *Turquoise-glazed ware* (ware AY, figs 76–81)
f) *Turquoise-glazed ware* (type AY21, fig. 80 k–m)
g) Ware 1 (type 1AT, fig. 117 e–h, k)
h) Ware 2 (type 2BA, fig. 119 a–b)
i) Ware 1 (type 1BC, fig. 119 f–j and fig. 120 a)
j) Ware 1 (new type)
k) Ware 1 (new type)
l) *Fritware ?*, black glaze (type V4, fig. 58 e)
m) *Fritware ?*, colourless glaze (type U2, fig. 54 e–f)
n) *Fritware 1*, carved decoration and turquoise glaze (ware F, figs 46–47)
o) Opaque, black glass
p) Ware 1
q) Transparent, light green glass
r) Ware 1 (type 1BJ, fig. 122 f–i)
s) Ware 1 (type 1CI, fig. 127 a–j)
t) Ware 1 (type 1DQ, fig. 141 h–l)
u) Ware 1
v) Ware 1

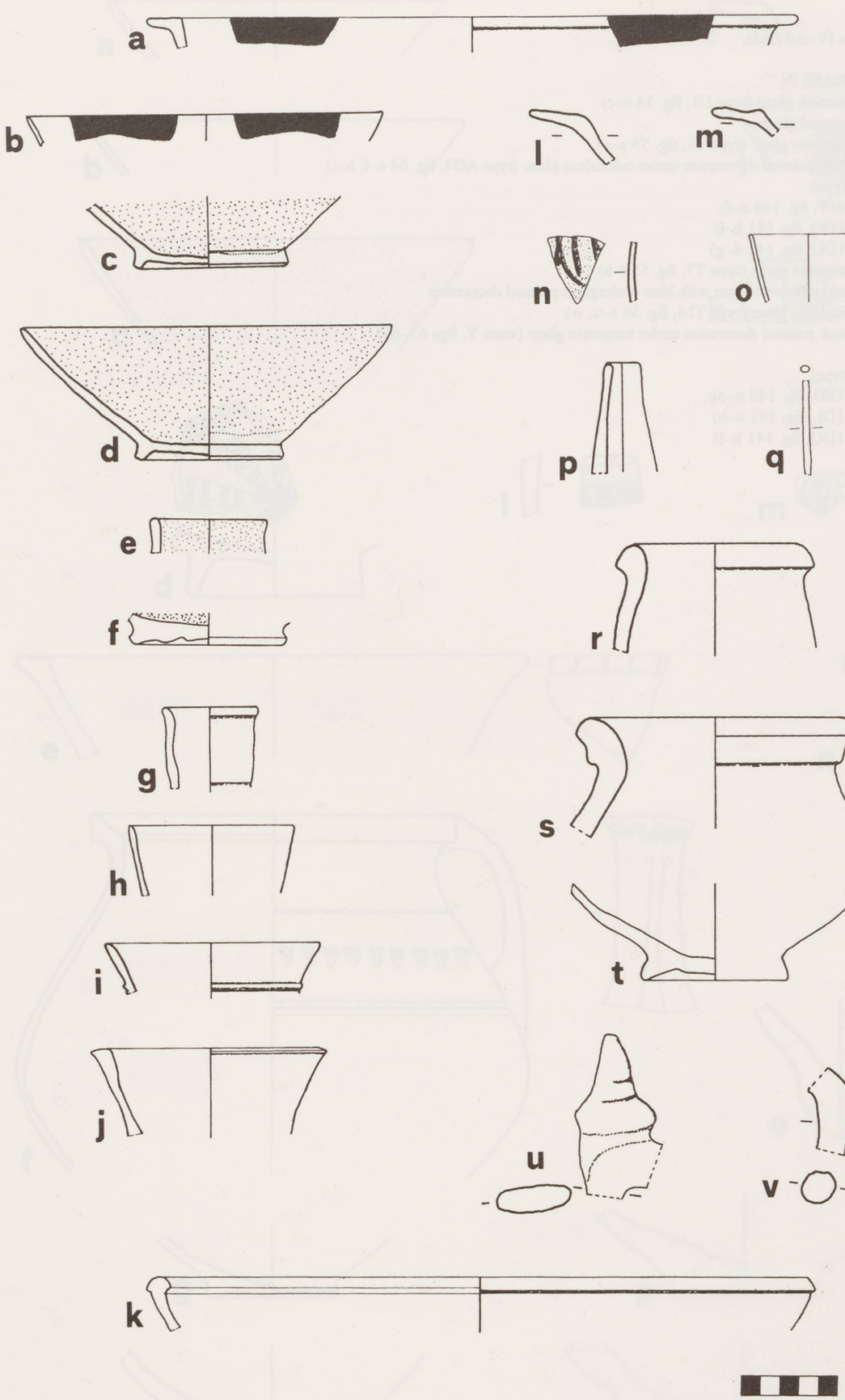

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Figure 32.
Sondage S1, phase IV: the finds.

SONDAGE S1, PHASE IV

a) *Fritware ?*, greenish glaze (type U1, fig. 54 a–c)
b) *Fritware ?*, decayed glaze
c) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
d) *Fritware 2*, black painted decoration under colourless glaze (type AG4, fig. 64 e–f, h–i)
e) Ware 1 (new type)
f) Ware 4 (type 4FF, fig. 146 a–f)
g) Ware 1 (type 1DQ, fig. 141 h–l)
h) Ware 1 (type 1DO, fig. 141 d–g)
i) *Fritware ?*, turquoise glaze (type T7, fig. 55 f–h)
j) New ware: hard, yellow fritware with blue underglaze painted decoration
k) *Fritware ?*, turquoise glaze (type T14, fig. 56 s–u, w)
l) *Fritware 2*, black painted decoration under turquoise glaze (ware Y, figs 65–69)
m) Ware 2
n) Ware 1 (new type)
o) Ware 1 (type 1ED, fig. 142 n–o)
p) Ware 1 (type 1DL, fig. 141 a–b)
q) Ware 1 (type 1DQ, fig. 141 h–l)

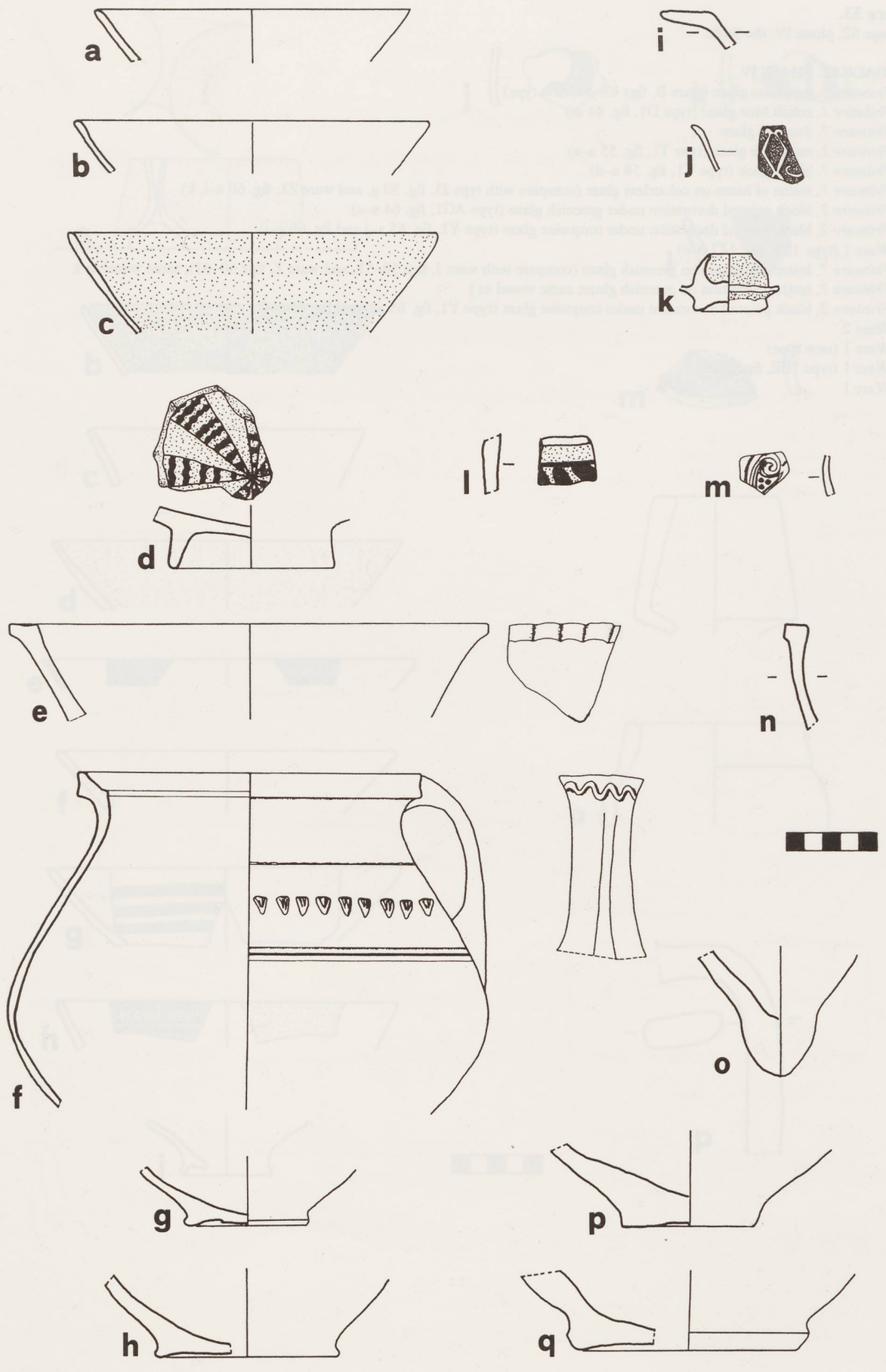

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Figure 33.
Sondage S2, phase IV: the finds.

SONDAGE S2, PHASE IV

a) *Fritware 1*, turquoise glaze (ware B, figs 43–44, new type)
b) *Fritware 1*, cobalt blue glaze (type D1, fig. 44 m)
c) *Fritware ?*, decayed glaze
d) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
e) *Fritware ?*, black glaze (type V1, fig. 58 a–d)
f) *Fritware ?*, traces of lustre on colourless glaze (compare with type J3, fig. 50 g, and ware Z1, fig. 60 a–i, k)
g) *Fritware 2*, black painted decoration under greenish glaze (type AG1, fig. 64 a–c)
h) *Fritware 2*, black painted decoration under turquoise glaze (type Y1, fig. 65 a–j and fig. 66 a–i)
i) Ware 1 (type 1DP, fig. 142 b–e)
j) *Fritware ?*, lustre decoration on greenish glaze (compare with ware J, figs 50–51, and ware Z, figs 60–63); same vessel as k
k) *Fritware ?*, lustre decoration on greenish glaze; same vessel as j
l) *Fritware 2*, black painted decoration under turquoise glaze (type Y1, fig. 65 a–j and fig. 66 a–i)
m) Ware 2
n) Ware 1 (new type)
o) Ware 1 (type 1BE, fig. 120 e–i)
p) Ware 1

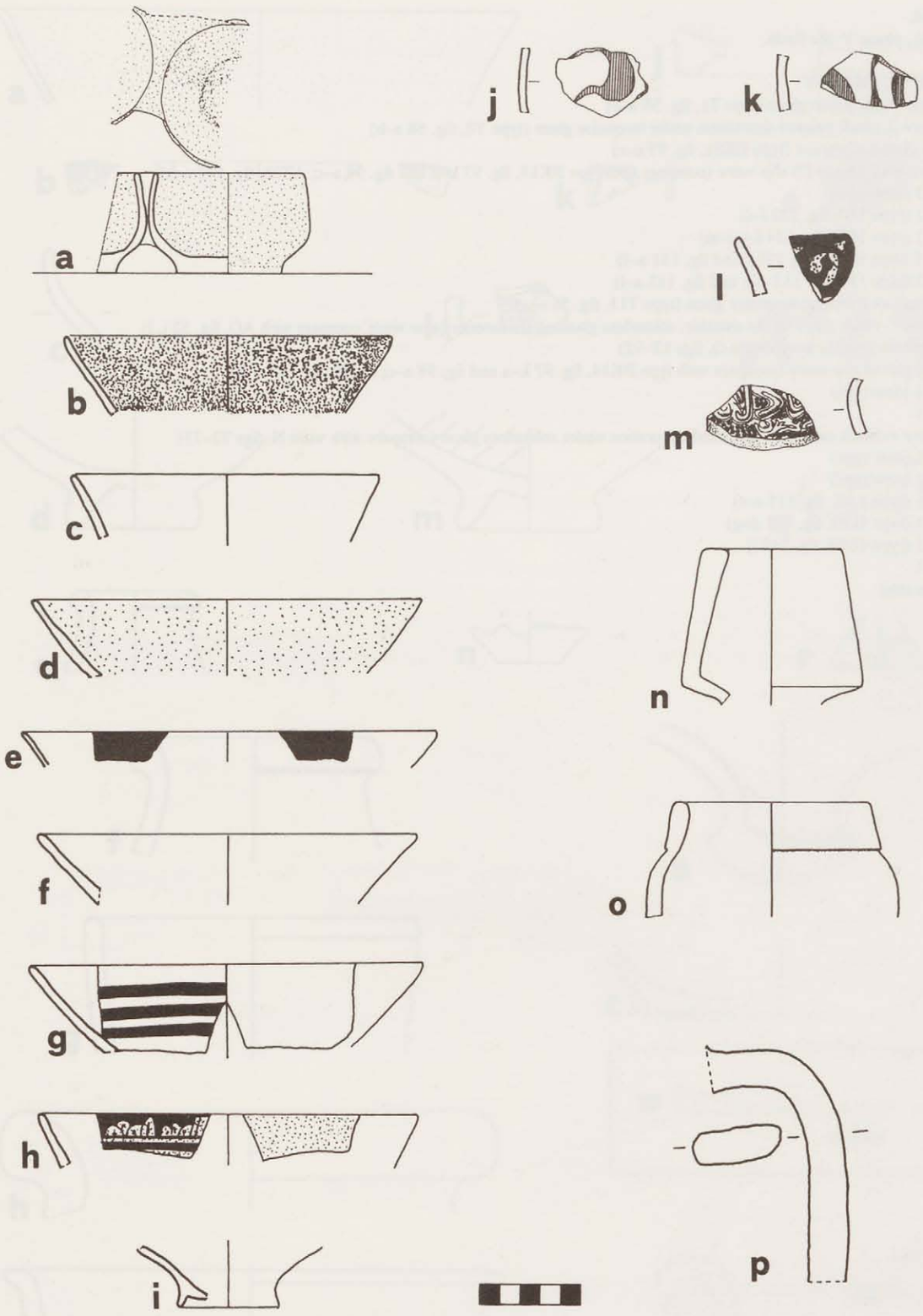

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Figure 34.
Sondage S1, phase V: the finds.

SONDAGE S1, PHASE V

a) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
b) *Fritware 2*, black painted decoration under turquoise glaze (type Y8, fig. 68 a–b)
c) Green glazed *slip-ware* (type BK8a, fig. 95 c–e)
d) Monochrome glazed (?) *slip-ware* (compare with type BK14, fig. 97 k–n and fig. 98 a–c; AZ28, fig. 102 a–h)
e) Ware 1 (new type)
f) Ware 1 (type 1BJ, fig. 122 f–i)
g) Ware 1 (type 1BR, fig. 124 i–j, l–m)
h) Ware 1 (type 1CEE, fig. 130 f and fig. 131 a–f)
i) Ware 1 (type 1W, fig. 112 e–h and fig. 113 a–i)
j) *Intermediate fritware*, turquoise glaze (type T13, fig. 56 e–g)
k) *Fritware ?*, black glaze on the exterior, colourless glaze on the interior (new ware, compare with AQ, fig. 52 i, l)
l) Polychrome *graffita ware* (ware Q, figs 82–92)
m) Yellow glazed *slip-ware* (compare with type BK14, fig. 97 k–n and fig. 98 a–c; AZ28, fig. 102 a–h)
n) Ware 1 (new type)
o) Ware 2
p) *Fritware 3*, black (and blue?) painted decoration under colourless glaze (compare with ware N, figs 72–73)
q) Ware 1 (new type)
r) Ware 1 (new type)
s) Ware 1 (type 1AE, fig. 115 e–f)
t) Ware 1 (type 1DO, fig. 141 d–g)
u) Ware 1 (type 1DM, fig. 142 i)
v) Ware 1
w) Copper ring

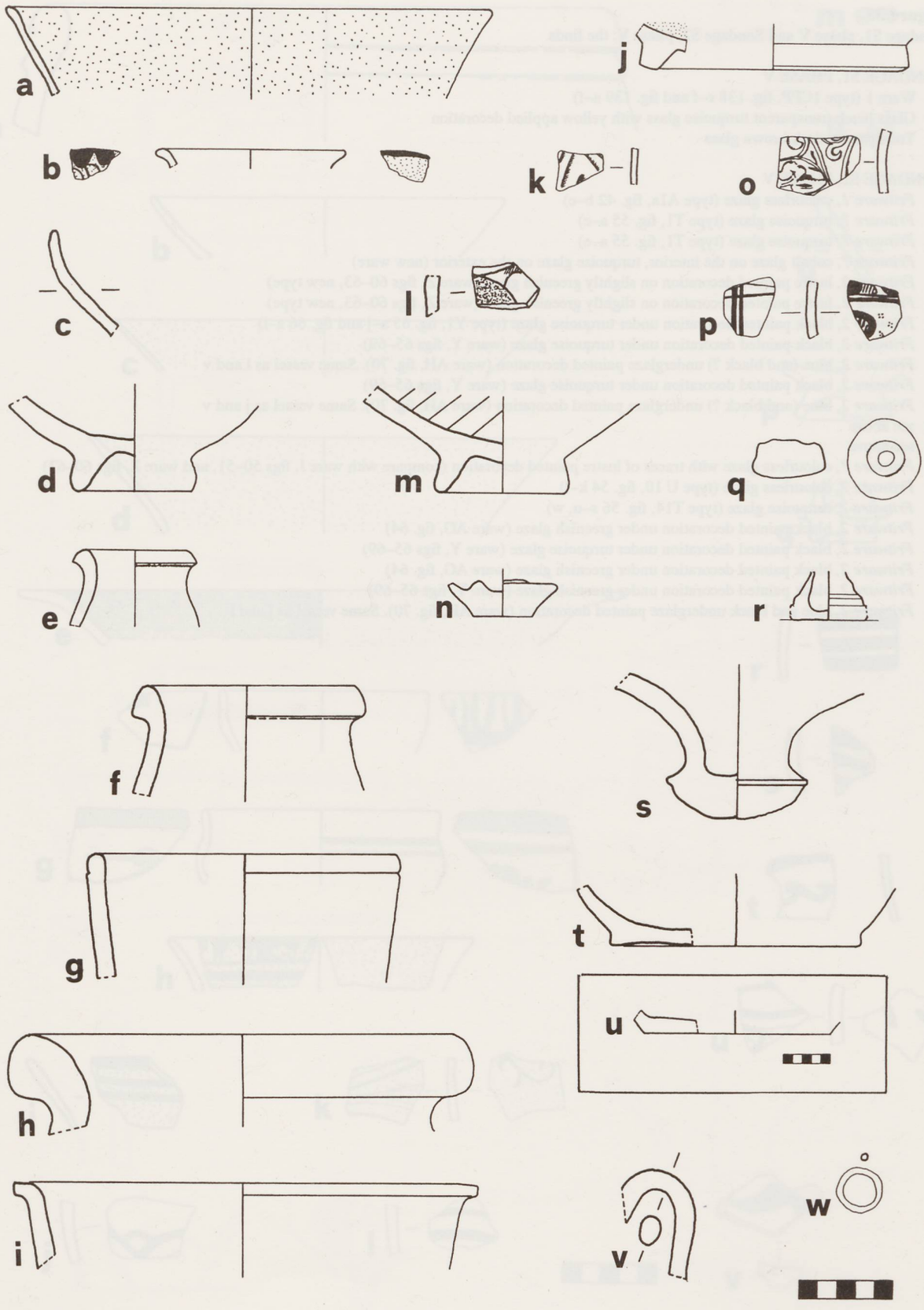

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Figure 35.
Sondage S1, phase V and Sondage S2, phase V: the finds.

SONDAGE S1, PHASE V

a) Ware 1 (type 1CPP, fig. 138 e–f and fig. 139 a–f)
m) Glass bead: transparent turquoise glass with yellow applied decoration
n) Transparent, dark brown glass

SONDAGE S2, PHASE V

b) *Fritware 1*, colourless glaze (type A1a, fig. 42 b–e)
c) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
d) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
e) *Fritware ?*, cobalt glaze on the interior, turquoise glaze on the exterior (new ware)
f) *Fritware 2*, lustre painted decoration on slightly greenish glaze (ware Z, figs 60–63, new type)
g) *Fritware 2*, lustre painted decoration on slightly greenish glaze (ware Z, figs 60–63, new type)
h) *Fritware 2*, black painted decoration under turquoise glaze (type Y1, fig. 65 a–j and fig. 66 a–i)
i) *Fritware 2*, black painted decoration under turquoise glaze (ware Y, figs 65–69)
j) *Fritware 2*, blue (and black ?) underglaze painted decoration (ware AH, fig. 70). Same vessel as l and v
k) *Fritware 2*, black painted decoration under turquoise glaze (ware Y, figs 65–69)
l) *Fritware 2*, blue (and black ?) underglaze painted decoration (ware AH, fig. 70). Same vessel as j and v
m) see above
n) see above
o) *Fritware ?*, colourless glaze with traces of lustre painted decoration (compare with ware J, figs 50–51, and ware Z, figs 60–63)
p) *Fritware ?*, colourless glaze (type U 10, fig. 54 k–l)
q) *Fritware ?*, turquoise glaze (type T14, fig. 56 s–u, w)
r) *Fritware 2*, black painted decoration under greenish glaze (ware AG, fig. 64)
s) *Fritware 2*, black painted decoration under turquoise glaze (ware Y, figs 65–69)
t) *Fritware 2*, black painted decoration under greenish glaze (ware AG, fig. 64)
u) *Fritware 2*, black painted decoration under greenish glaze (ware Y, figs 65–69)
v) *Fritware 2*, blue and black underglaze painted decoration (ware AH, fig. 70). Same vessel as j and l

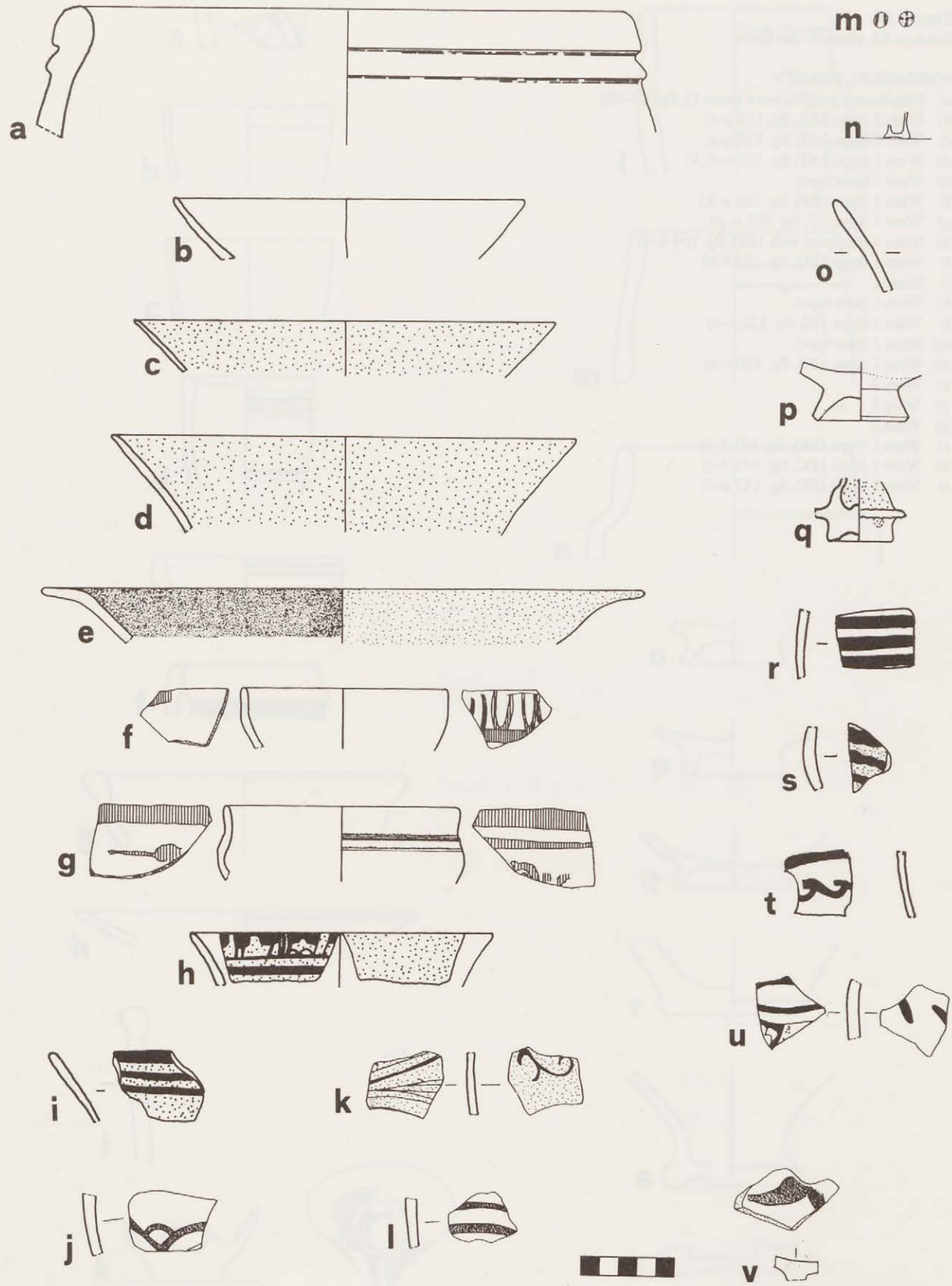

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Figure 36.
Sondage S2, phase V: the finds.

SONDAGE S2, PHASE V

a) Polychrome *graffita ware* (ware Q, figs 82–92)
b) Ware 2 (type 2AZ, fig. 118 g–i)
c) Ware 2 (type 2AZ, fig. 118 g–i)
d) Ware 1 (type 1AT, fig. 117 e–h, k)
e) Ware 1 (new type)
f) Ware 1 (type 1BN, fig. 123 a–k)
g) Ware 1 (type 1C, fig. 105 n–p)
h) Ware 1 (compare with 1DF, fig. 104 d–e)
i) Ware 1 (type 1BQ, fig. 124 f–h)
j) Ware 1
k) Ware 1 (new type)
l) Ware 1 (type 1BI, fig. 122 a–e)
m) Ware 1 (new type)
n) Ware 1 (type 1BE, fig. 120 e–i)
o) Ware 2
p) Ware 2
q) Ware 2
r) Ware 1 (type 1DQ, fig. 141 h–l)
s) Ware 1 (type 1EC, fig. 143 d–f)
t) Ware 1 (type 1EC, fig. 143 d–f)


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Figure 37.
Sondage S2, phase V: the finds.

SONDAGE S2, PHASE V
a) Ware 4 (type 4FN, fig. 148 c–e)
b) Ware 4 (type 4FE, fig. 145 f–g)
c) Ware 1 (type 1AJ, fig. 116 a–b)
d) Ware 1 (new type)
e) Ware 1 (type 1EG, fig. 143 i–j and fig. 144 a–f)

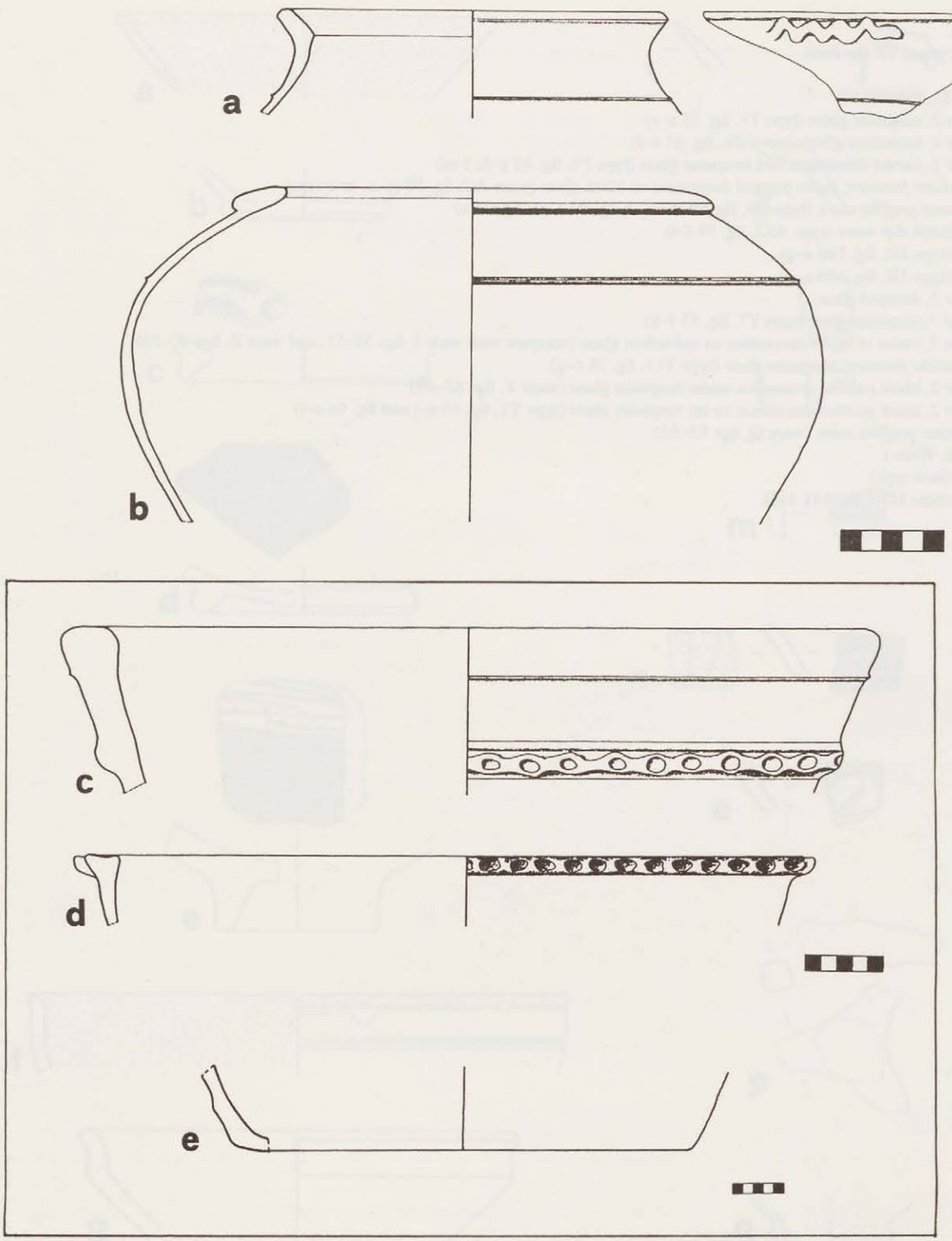

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Figure 38.
Sondage S1, phase VI: the finds.

SONDAGE S1, PHASE VI

a) *Fritware ?*, turquoise glaze (type T1, fig. 55 a–e)
b) *Fritware 1*, colourless glaze (type A1b, fig. 43 e–i)
c) *Fritware 1*, carved decoration and turquoise glaze (type F4, fig. 46 g–h, l–m)
d) *Intermediate fritware*, lustre painted decoration on black glaze (ware AC, fig. 59 m–n, new type)
e) Polychrome *graffita ware* (type Q9, fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a)
f) Green glazed *slip-ware* (type AZ2, fig. 99 f–i)
g) Ware 1 (type 1D, fig. 106 a–g)
h) Ware 1 (type 1D, fig. 106 a–g)
i) *Fritware ?*, decayed glaze
j) *Fritware ?*, turquoise glaze (type T7, fig. 55 f–h)
k) *Fritware ?*, traces of lustre decoration on colourless glaze (compare with ware J, figs 50–51, and ware Z, figs 60–63)
l) *Intermediate fritware*, turquoise glaze (type T13, fig. 56 e–g)
m) *Fritware 2*, black painted decoration under turquoise glaze (ware Y, figs 65–69)
n) *Fritware 2*, black painted decoration under turquoise glaze (type Y1, fig. 65 a–j and fig. 66 a–i)
o) Polychrome *graffita ware* (ware Q, figs 82–92)
p) Kiln stilt, Ware 1
q) Ware 2 (new type)
r) Ware 1 (type 1DO, fig. 141 d–g)

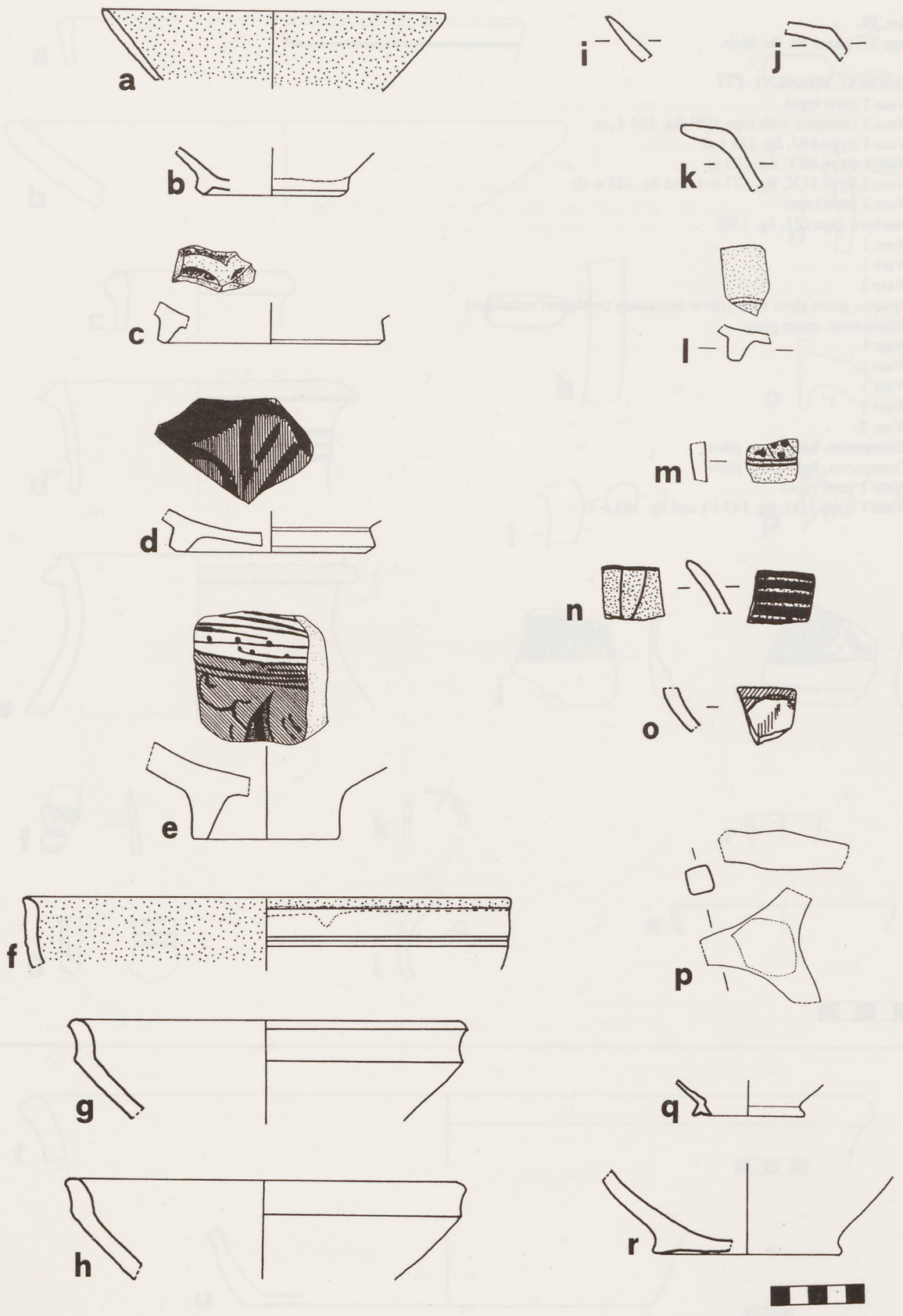

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Figure 39.
Sondage S1, phase VI: the finds.

SONDAGE S1, PHASE VI
a) Ware 1 (new type)
b) Ware 1 (compare with type 1DF, fig. 104 d–e)
c) Ware 1 (type 1BJ, fig. 122 f–i)
d) Ware 1 (type 1BY, fig. 125 g)
e) Ware 1 (type 1CK, fig. 127 k–n and fig. 128 a–d)
f) Ware 2 (new type)
g) Smokers' pipe (P1, fig. 150)
h) Ware 1
i) Ware 1
j) Ware 2
k) Opaque, green glass with yellow decoration (*millefiori* technique)
l) Transparent, green glass
m) Ware 1
n) Ware 1
o) Ware 1
p) Ware 1
q) Ware 2
r) Transparent, light green glass
s) Transparent, light green glass
t) Ware 1 (new type)
u) Ware 1 (type 1EG, fig. 143 i–j and fig. 144 a–f)

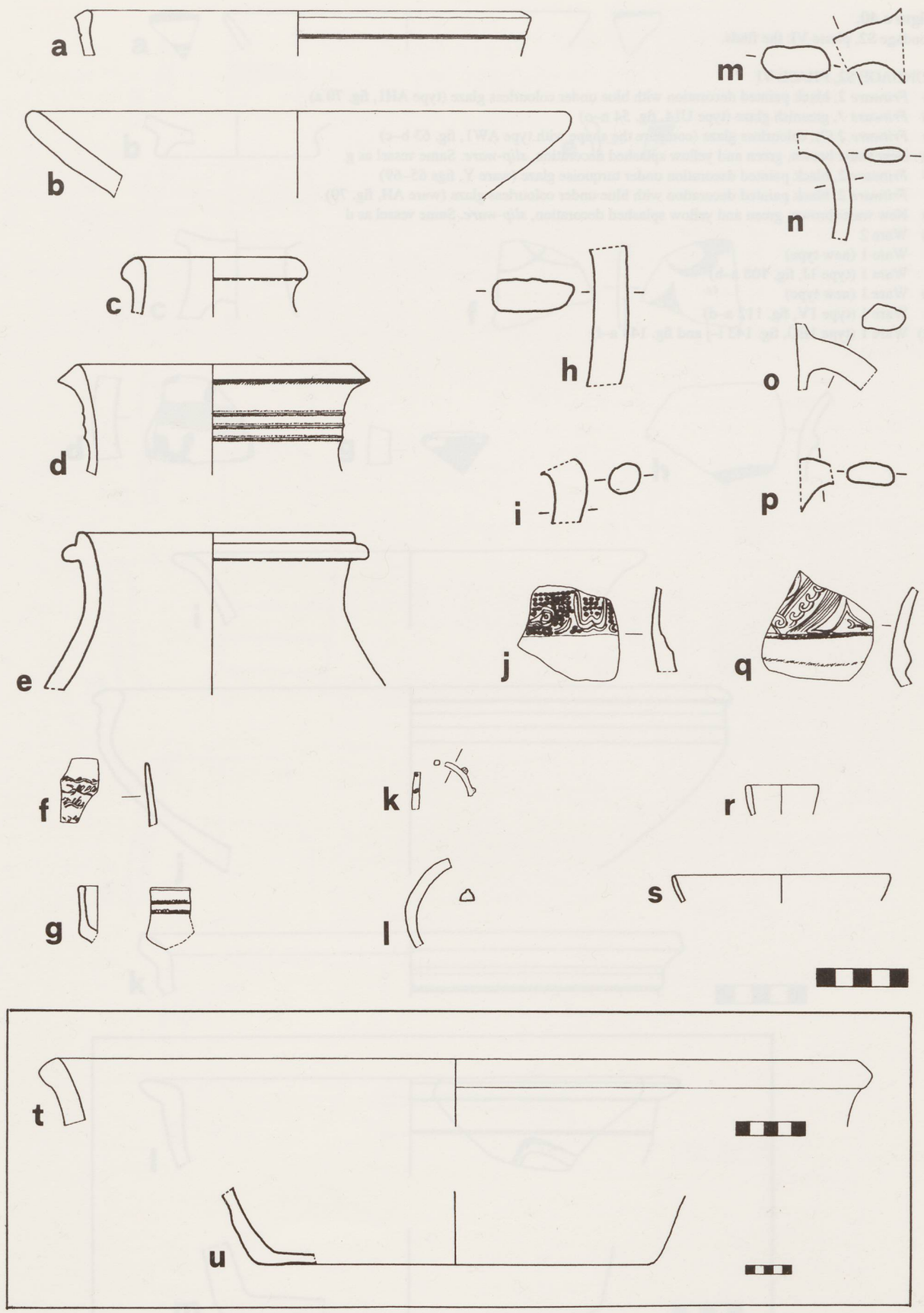

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Figure 40.
Sondage S2, phase VI: the finds.

SONDAGE S2, PHASE VI

a) *Fritware 2*, black painted decoration with blue under colourless glaze (type AH1, fig. 70 a)
b) *Fritware ?*, greenish glaze (type U14, fig. 54 n–o)
c) *Fritware 2* (?), colourless glaze (compare the shape with type AW1, fig. 63 b–c)
d) New ware: brown, green and yellow splashed decoration, *slip-ware*. Same vessel as g
e) *Fritware 2*, black painted decoration under turquoise glaze (ware Y, figs 65–69)
f) *Fritware 2*, black painted decoration with blue under colourless glaze (ware AH, fig. 70)
g) New ware: brown, green and yellow splashed decoration, *slip-ware*. Same vessel as d
h) Ware 2
i) Ware 1 (new type)
j) Ware 1 (type 1J, fig. 108 a–b)
k) Ware 1 (new type)
l) Ware 1 (type 1V, fig. 112 a–d)
m) Ware 1 (type 1EG, fig. 143 i–j and fig. 144 a–f)

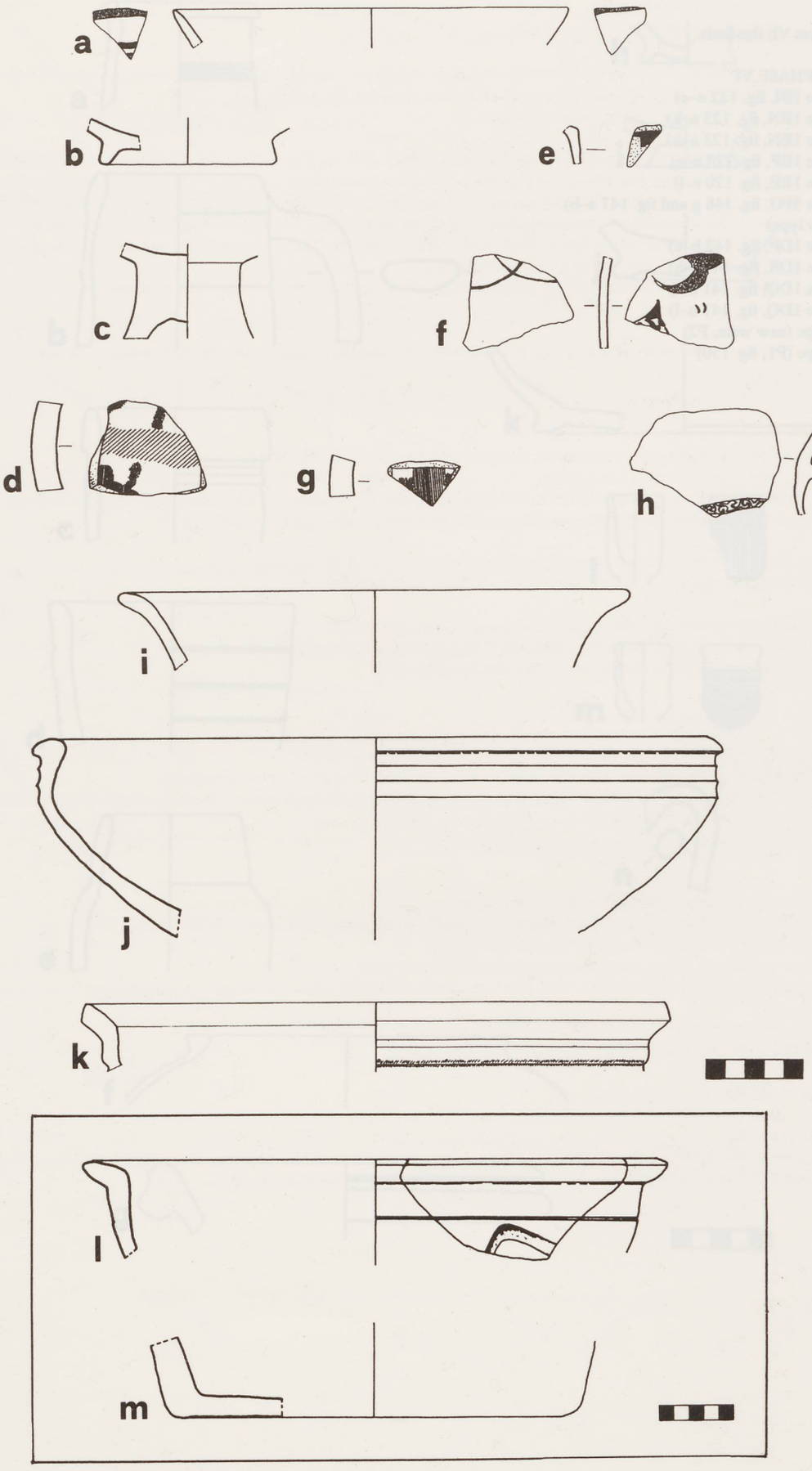

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Figure 41.
Sondage S2, phase VI: the finds.

SONDAGE S2, PHASE VI
a) Ware 1 (type 1BI, fig. 122 a–e)
b) Ware 1 (type 1BN, fig. 123 a–k)
c) Ware 1 (type 1BN, fig. 123 a–k)
d) Ware 1 (type 1BP, fig. 124 a–e)
e) Ware 1 (type 1BE, fig. 120 e–i)
f) Ware 4 (type 4FG, fig. 146 g and fig. 147 a–b)
g) Ware 1 (new type)
h) Ware 1 (type 1DP, fig. 142 b–e)
i) Ware 1 (type 1DR, fig. 142 f–h)
j) Ware 1 (type 1DQ, fig. 141 h–l)
k) Ware 1 (type 1DQ, fig. 141 h–l)
l) Smokers' pipe (new ware, P2)
m) Smokers' pipe (P1, fig. 150)
n) Ware 1

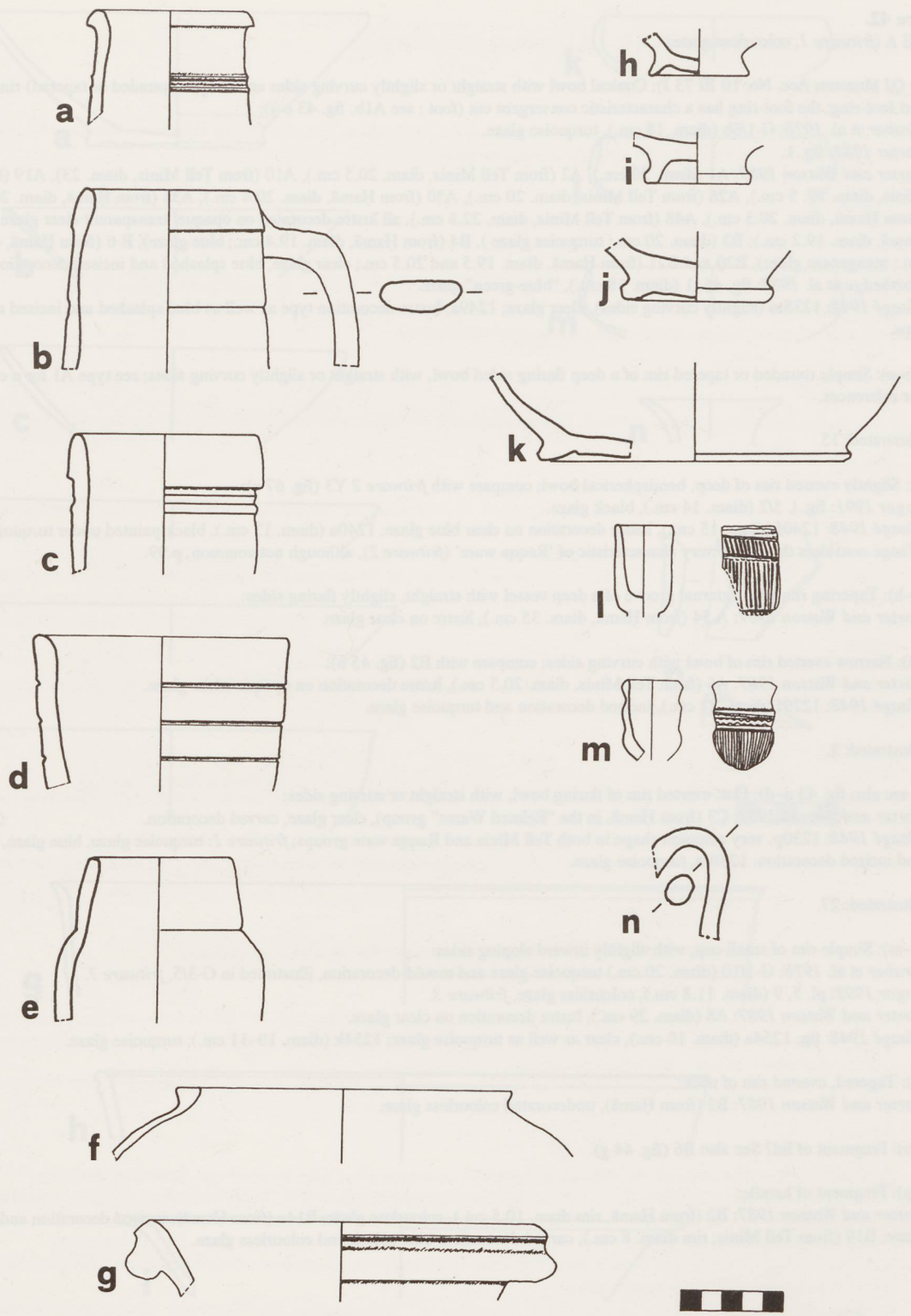

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Figure 42.
WARE A (*fritware 1*, colourless glaze)

A1 (a: QJ Museum Acc. No. 10 III 73 J): Conical bowl with straight or slightly curving sides and simple (rounded or tapered) rim; low, splayed foot-ring; the foot-ring has a characteristic convergent cut (foot : see A1b, fig. 43 e–i):
Grabar et al. *1978*: G-1/6b (diam. 18 cm.), turquoise glaze.
Porter 1981: fig. 1.
Porter and Watson 1987: A1 (diam. 20 cm.), A2 (from Tell Minis, diam. 20.5 cm.), A10 (from Tell Minis, diam. 23), A19 (from Tell Minis, diam. 19. 5 cm.), A26 (from Tell Minis, diam. 20 cm.), A30 (from Ḥamā, diam. 20.4 cm.), A33 (from Ḥamā, diam. 20. 6), A46 (from Ḥamā, diam. 20.3 cm.), A48 (from Tell Minis, diam. 22.8 cm.), all lustre-decorated on opaque/ transparent clear glaze. B1 (from Ḥamā, diam. 19.2 cm.); B3 (diam. 20 cm.; turquoise glaze), B4 (from Ḥamā, diam. 19.4 cm.; blue glaze), B 6 (from Ḥamā, diam. 12.7 cm.; manganese glaze), B20 and B21 (from Ḥamā, diam. 19.5 and 20.5 cm.; clear glaze, blue splashed and incised decoration).
Northedge et al. *1988*: fig. 46, 1 (diam. 18 cm.), "blue-green" glaze.
Waagé 1948: 1238m (slightly curving sides), clear glaze; 1249a, lustre decoration type as well as blue splashed and incised decoration type.

A1a (b–e): Simple rounded or tapered rim of a deep flaring sided bowl, with straight or slightly curving sides; see type A1 for a complete shape and for references.

Not illustrated: 15

A2 (f): Slightly everted rim of deep, hemispherical bowl; compare with *fritware 2* Y3 (fig. 67 e):
Logar 1991: fig. l. 5/2 (diam. 14 cm.), black glaze.
Waagé 1948: 1240f (diam. 15 cm.), lustre decoration on clear blue glaze; 1240a (diam. 13 cm.), black painted under turquoise glaze. Waagé considers this shape very characteristic of 'Raqqa ware' (*fritware 2*), although not common, p.99.

A6 (g–h): Tapering rim with external groove of a deep vessel with straight, slightly flaring sides:
Porter and Watson 1987: A 54 (from Ḥamā, diam. 35 cm.), lustre on clear glaze.

A12 (i): Narrow everted rim of bowl with curving sides; compare with E2 (fig. 45 b):
Porter and Watson 1987: A6 (from Tell Minis, diam. 20.5 cm.), lustre decoration on opaque white glaze.
Waagé 1948: 1229f (diam. 27 cm.), incised decoration and turquoise glaze.

Not illustrated: 3.

A5 (j; see also fig. 43 a–d): Flat, everted rim of flaring bowl, with straight or curving sides:
Porter and Watson 1987: C3 (from Ḥamā, in the "Related Wares" group), clear glaze, carved decoration.
Waagé 1948: 1230p, very common shape in both Tell Minis and Raqqa ware groups; *fritware 1*: turquoise glaze, blue glaze, blue splashed and incised decoration. 1230 u, turquoise glaze.

Not illustrated: 27.

A3 (k–m): Simple rim of small cup, with slightly inward sloping sides:
Grabar et al. *1978*: G-1/10 (diam. 20 cm.) turquoise glaze and mould-decoration, illustrated in G-3/5, *fritware ?*.
Logar 1992: pl. 5, 9 (diam. 11.8 cm.), colourless glaze, *fritware ?*.
Porter and Watson 1987: A8 (diam. 29 cm.), lustre decoration on clear glaze.
Waagé 1948: fig. 1254a (diam. 10 cm.), clear as well as turquoise glaze; 1254k (diam. 10–11 cm.), turquoise glaze.

A7 (n): Tapered, everted rim of neck:
Porter and Watson 1987: B2 (from Ḥamā), undecorated colourless glaze.

A17 (o): Fragment of lid? See also B6 (fig. 44 g).

A11 (p): Fragment of handle:
Porter and Watson 1987: B2 (from Ḥamā, rim diam. 10.5 cm.), colourless glaze; B14a (from Ḥamā), incised decoration and turquoise glaze; B19 (from Tell Minis; rim diam. 8 cm.), carved decoration, blue splash and colourless glaze.

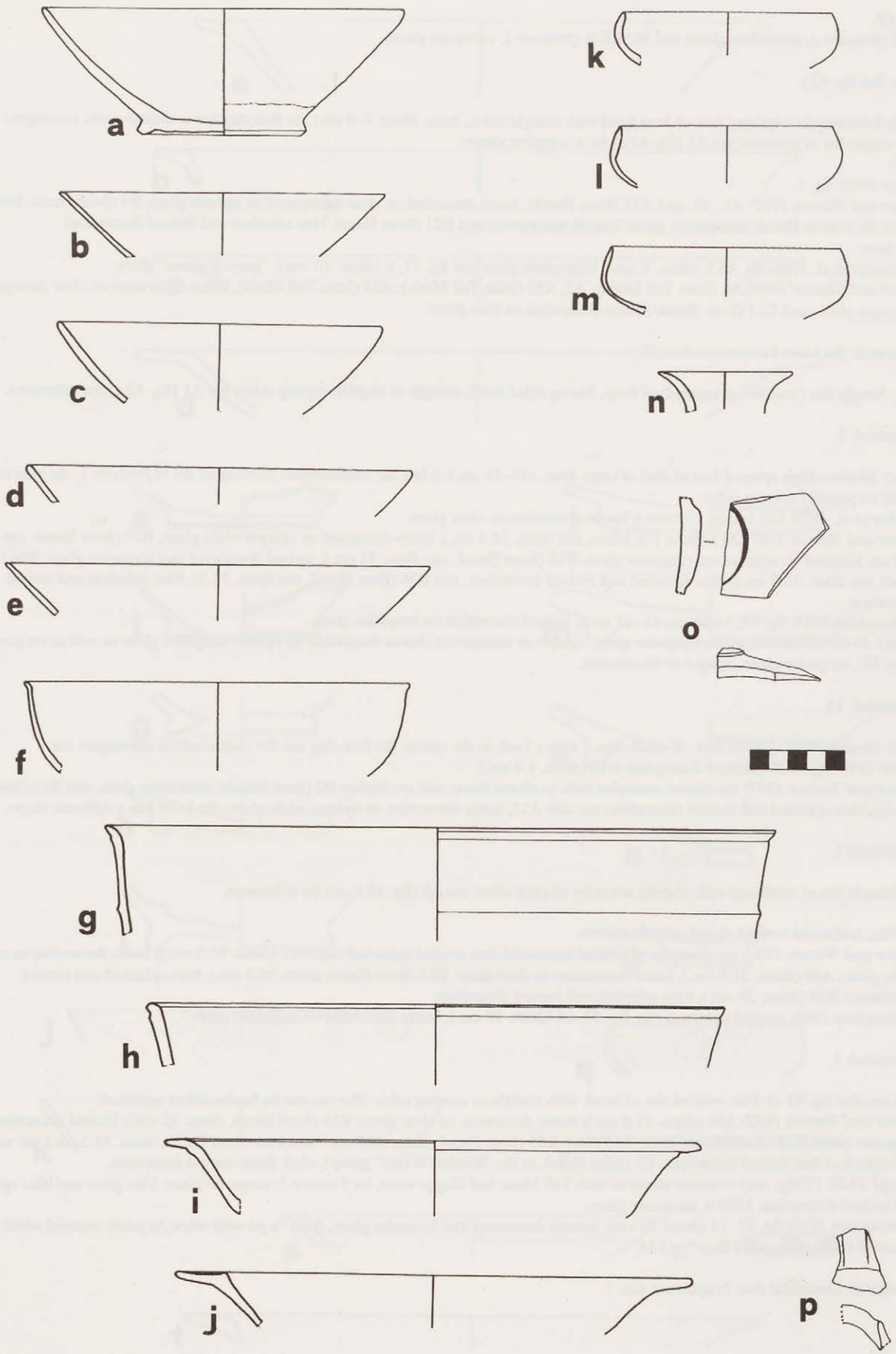

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Figure 43.
WARE A (*fritware 1*, colourless glaze) and WARE B (*fritware 1*, turquoise glaze)

A5 (a–d): See fig. 42 j.

A1b (e–i): Low/very low splayed foot of deep bowl with straight sides, diam. about 7–8 cm.; the foot-ring has a characteristic convergent cut; the base can be flat or concave; see A1 (fig. 42 a) for a complete shape:
Flat base:
Porter 1981: fig. 1.
Porter and Watson 1987: A1, A9, and A33 (from Ḥamā), lustre-decorated on clear transparent or opaque glaze; B4 (from Ḥamā, blue glaze), B12 (from Ḥamā, manganese glaze, incised decoration) and B21 (from Ḥamā, blue splashed and incised decoration).
Concave base:
Northedge et al. *1988*: fig. 46,1 (diam. 8 cm.), blue-green glaze and fig. 47, 6 (diam. 10 cm.), "grayish-green" glaze.
Porter and Watson 1987: A6 (from Tell Minis), A7, A26 (from Tell Minis), A44 (from Tell Minis), lustre decoration on clear transparent or opaque glaze, and C14 (from Ḥamā), lustre decoration on blue glaze.

Not illustrated: flat base: 12; concave base: 5.

B1 (j–k): Simple rim (rounded or tapered) of deep, flaring sided bowl; straight or slightly curving sides; see A1 (fig. 42 a) for references.

Not illustrated: 9.

A10 (l–n): Medium/high splayed foot of dish of large diam. (10–13 cm.); it has the characteristic convergent cut of *fritware 1*; the base is flat; straight or very gently curving sides:
Grabar et al. *1978*: G/1 (diam. 12,5 cm.), lustre decoration on clear glaze.
Porter and Watson 1987: A15 (from Tell Minis, rim diam. 34.4 cm.), lustre-decorated on opaque white glaze, B15 (from Ḥamā, rim diam. 30.8 cm.) incised decoration and turquoise glaze, B16 (from Ḥamā, rim diam. 32 cm.), incised decoration and turquoise glaze, B24 (from Ḥamā, rim diam. 36.5 cm.), blue splashed and incised decoration, and B26 (from Ḥamā, rim diam. 32.5), blue splashed and incised decoration.
Tushingham 1985: fig. 37, 14 (diam. 11–12 cm.), incised decoration on turquoise glaze.
Waagé 1948: 1238s blue glaze, turquoise glaze, opaque or transparent, lustre decoration on opaque turquoise glaze as well as on green glaze; EE, turquoise glaze, opaque or transparent.

Not illustrated: 15.

A9 (o–p): Medium/high splayed foot, of small diam., with a knob in the centre; the foot-ring has the characteristic convergent cut:
Logar 1992: figs 6/10 (diam. 4.3 cm.) and 6/12 (diam. 4.4 cm.).
Porter and Watson 1987: the closest examples refer to closed forms and are higher: B2 (from Ḥamā), colourless glaze, and B19 (from Ḥamā), blue splashed and incised decoration; see also A12, lustre decoration on opaque white glaze; the knob has a different shape.

Not illustrated: 1.

B4 (q): Simple rim of small cup with slightly inwardly sloping sides; see A3 (fig. 42 k–m) for references.

B5 (s): Flat, horizontal everted rim of carinated bowl:
Porter and Watson 1987: no examples of everted horizontal rim; everted upturned rim: A12 (diam. 15.5 cm.), lustre decoration on opaque white glaze; A36 (diam. 21.8 cm.), lustre decoration on clear glaze; B24 (from Ḥamā, diam. 36.5 cm.), blue splashed and incised decoration; B29 (diam. 29 cm.), blue splashed and incised decoration.
Tushingham 1985: everted upturned rim: fig. 37, 14 (diam. 28 cm.), lustre decoration on turquoise glaze.

Not illustrated: 1.

B3 (r, t; see also fig. 44 a): Flat, everted rim of bowl, with straight or curving sides. The rim can be horizontal or upturned:
Porter and Watson 1987: A36 (diam. 21.8 cm.), lustre decoration on clear glaze; B16 (from Ḥamā, diam. 32 cm.), incised decoration and turquoise glaze; B24 (from Ḥamā, diam. 36.5 cm.), B25 (from Ḥamā, diam. 20.5 cm.) and B26 (from Ḥamā, diam. 32.5 cm.), all with blue splashed and incised decoration. C3 (from Ḥamā, in the "Related Wares" group), clear glaze, carved decoration.
Waagé 1948: 1230p, very common shape in both Tell Minis and Raqqa ware; for *fritware 1*: turquoise glaze, blue glaze and blue splashed and incised decoration. 1230 u, turquoise glaze.
Tushingham 1985: fig. 37, 14 (diam. 28 cm), incised decoration and turquoise glaze, from "a pit with other Ayyubid material which preceded the first Ayyubid floor", p.144.

Not illustrated: horizontal rim: 7; upturned rim: 1.

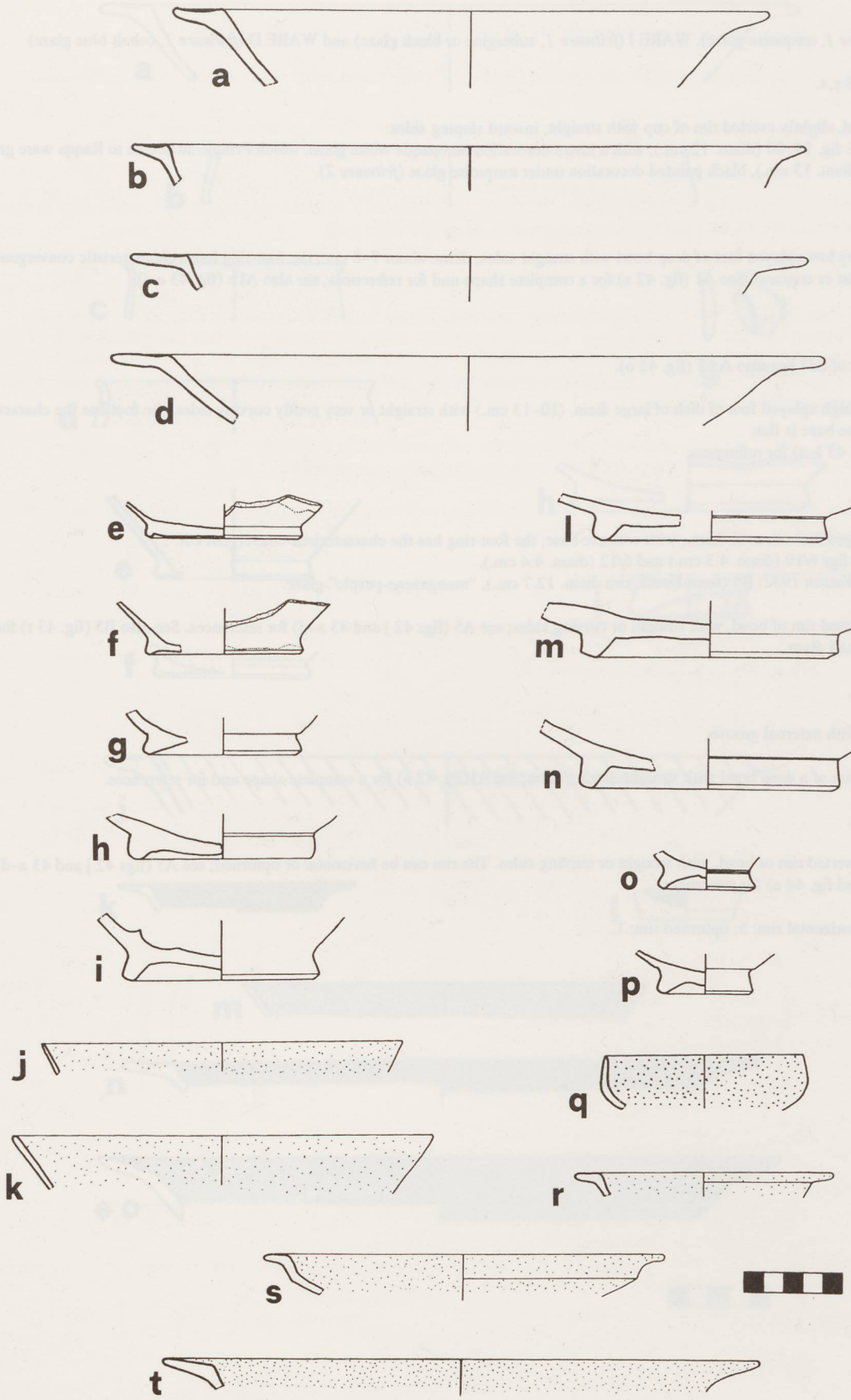

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Figure 44.
WARE B (*fritware 1*, turquoise glaze), WARE I (*fritware 1*, aubergine or black glaze) and WARE D (*fritware 1*, cobalt blue glaze)

B3 (a): See fig. 43 r, t.

B2 (b–d): Tapered, slightly everted rim of cup with straight, inward sloping sides:
Pringle 1985: fig. 14, 80 (diam. 12 cm.), with a lustre decoration on opaque white glaze, which Pringle attributes to Raqqa ware group.
Fig. 14, 83 (diam. 13 cm.), black painted decoration under turquoise glaze (*fritware 2*).

Not illustrated: 1

B7 (e–f): Low/very low splayed foot of deep bowl with straight sides, diam. about 7–8 cm.; the foot-ring has a characteristic convergent cut; the base can be flat or concave. See A1 (fig. 42 a) for a complete shape and for references; see also A1b (fig. 43 e–i).

Not illustrated: 8.

B6 (g): Fragment of lid? See also A 17 (fig. 42 o).

B8 (h): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides; the foot has the characteristic convergent cut; the base is flat:
See A10 (fig. 43 l–n) for references.

Not illustrated: 2.

B9 (i): High splayed foot of small diam., with concave base; the foot-ring has the characteristic convergent cut:
Logar 1991: figs 6/10 (diam. 4.3 cm.) and 6/12 (diam. 4.4 cm.).
Porter and Watson 1987: B6 (from Ḥamā, rim diam. 12.7 cm.), "manganese-purple" glaze.

I1 (j–k): Flat, everted rim of bowl, with straight or curving sides; see A5 (figs 42 j and 43 a–d) for references. See also B3 (fig. 43 r) for a fragment with small diam..

Not illustrated: 1.

I4 (l): Flat base with external groove.

D1 (m): Simple rim of a deep bowl with straight, flaring sides; see A1(fig. 42 a) for a complete shape and for references.

Not illustrated: 5.

D2 (n–o): Flat, everted rim of bowl, with straight or curving sides. The rim can be horizontal or upturned; see A5 (figs 42 j and 43 a–d) and B3 (fig. 43 r, t and fig. 44 a) for references.

Not illustrated: horizontal rim: 5; upturned rim: 1.

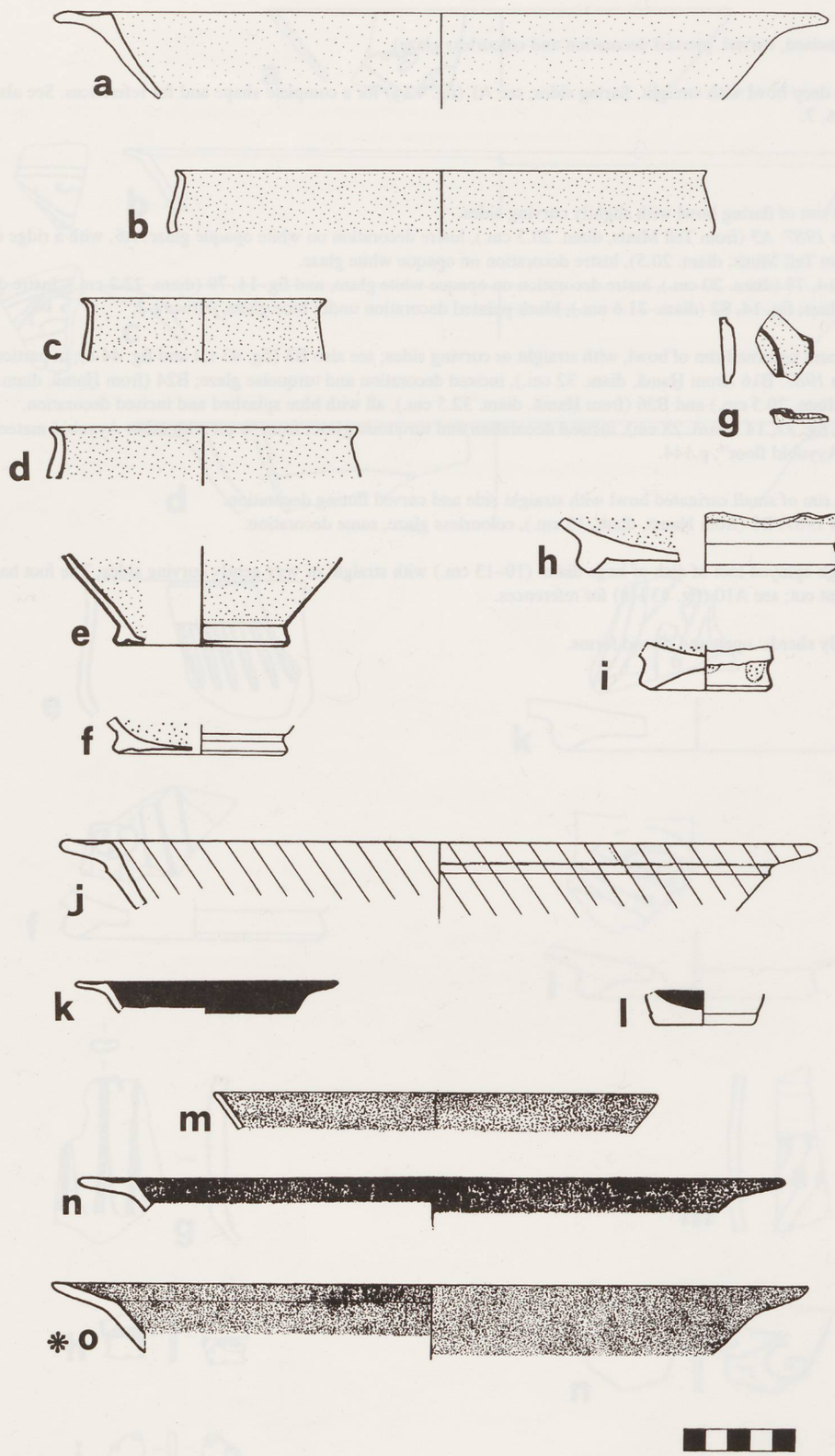

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Figure 45.
WARE E (*fritware 1*, incised, carved, pierced decoration and colourless glaze)

E1 (a): Simple rim of a deep bowl with straight, flaring sides; see A1 (fig. 42 a) for a complete shape and for references. See also:
Hayes 1992: fig. 16, 7.

Not illustrated: 2.

E2 (b): Narrow everted rim of flaring bowl with slightly curving sides:
Porter and Watson 1987: A3 (from Tell Minis, diam. 20.5 cm.), lustre decoration on white opaque glaze; A6, with a ridge on the exterior just below rim (from Tell Minis, diam. 20.5), lustre decoration on opaque white glaze.
Pringle 1985: fig. 14, 78 (diam. 20 cm.), lustre decoration on opaque white glaze, and fig. 14, 79 (diam. 22.2 cm.), lustre decoration on opaque off-white glaze; fig. 14, 82 (diam. 21.6 cm.), black painted decoration under blue glaze, *fritware 2*.

E8 (c–d): Flat, everted and upturned rim of bowl, with straight or curving sides; see also B3 (fig. 43 r, t and fig. 44 a); in particular:
Porter and Watson 1987: B16 (from Ḥamâ, diam. 32 cm.), incised decoration and turquoise glaze; B24 (from Ḥamā, diam. 36.5 cm.), B25 (from Ḥamā, diam. 20.5 cm.) and B26 (from Ḥamā, diam. 32.5 cm.), all with blue splashed and incised decoration.
Tushingham 1985: fig. 37, 14 (diam. 28 cm), incised decoration and turquoise glaze, from "a pit with other Ayyubid material which preceded the first Ayyubid floor", p.144.

E3 (e): Tapered simple rim of small carinated bowl with straight side and carved fluting decoration:
Porter and Watson 1987: B8 (from Ḥamā, diam. 15 cm.), colourless glaze, same decoration.

E4 (f, k–l): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides. The foot has the characteristic convergent cut; see A10 (fig. 43 l–n) for references.

E (g–n): Decorated body sherds: open and closed forms.

Not illustrated: 5.

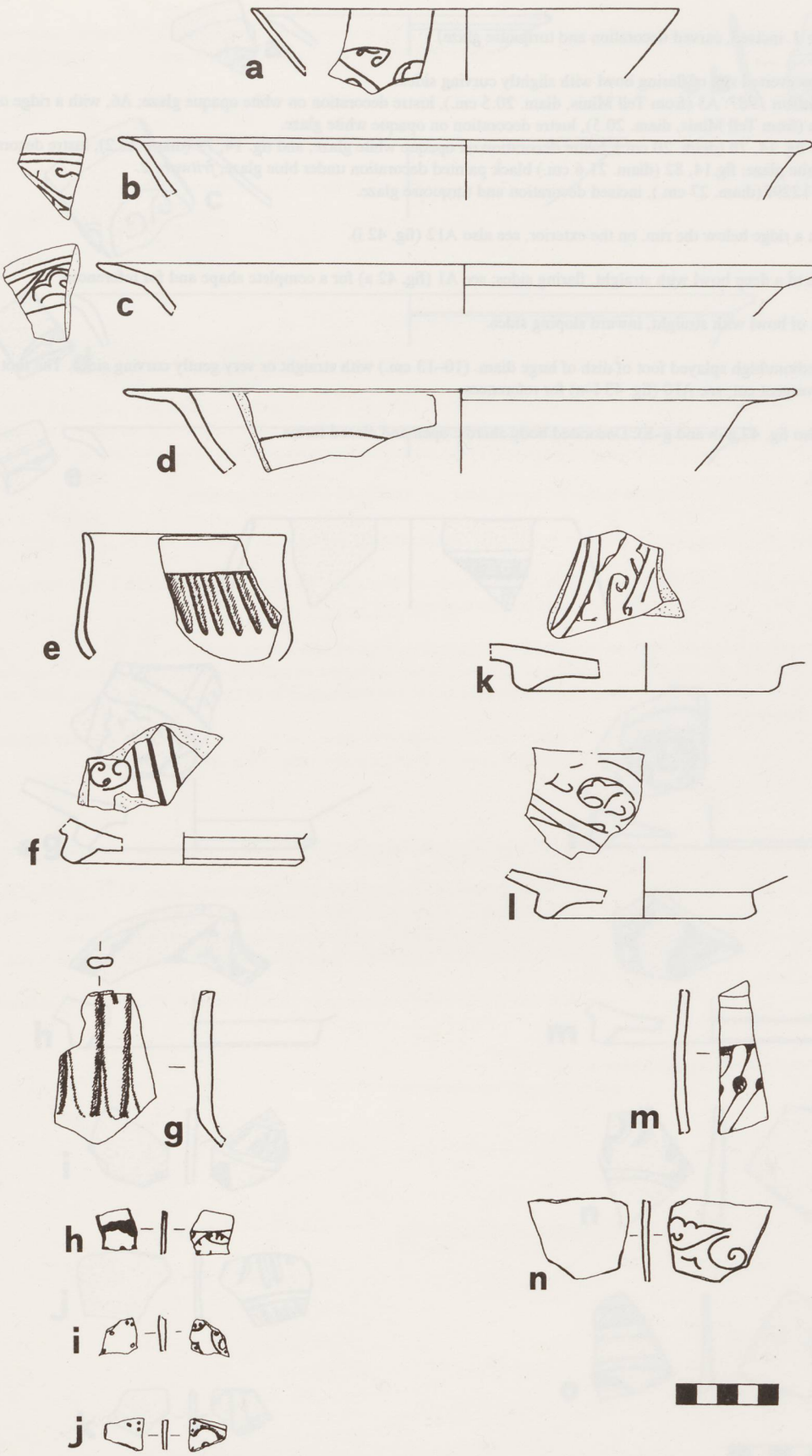

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Figure 46.
WARE F (*fritware 1*, incised, carved decoration and turquoise glaze)

F2 (a, c–e): Narrow everted rim of flaring bowl with slightly curving sides:
Porter and Watson 1987: A3 (from Tell Minis, diam. 20.5 cm.), lustre decoration on white opaque glaze; A6, with a ridge on the exterior just below rim (from Tell Minis, diam. 20.5), lustre decoration on opaque white glaze.
Pringle 1985: fig. 14, 78 (diam. 20 cm.), lustre decoration on opaque white glaze, and fig. 14, 79 (diam. 22.2), lustre decoration on opaque off-white glaze; fig.14, 82 (diam. 21.6 cm.) black painted decoration under blue glaze, *fritware 2*.
Waagé 1948: 1229f (diam. 27 cm.), incised decoration and turquoise glaze.

For examples with a ridge below the rim, on the exterior, see also A12 (fig. 42 i).

F1 (b): Simple rim of a deep bowl with straight, flaring sides; see A1 (fig. 42 a) for a complete shape and for references.

F3 (f): Simple rim of bowl with straight, inward sloping sides.

F4 (g–h, l–m): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides. The foot has the characteristic convergent cut; see A10 (fig. 43 l–n) for references.

F (i–k, n–o; see also fig. 47 a–b and g–h): Decorated body sherds: open and closed forms.

Not illustrated: 11.

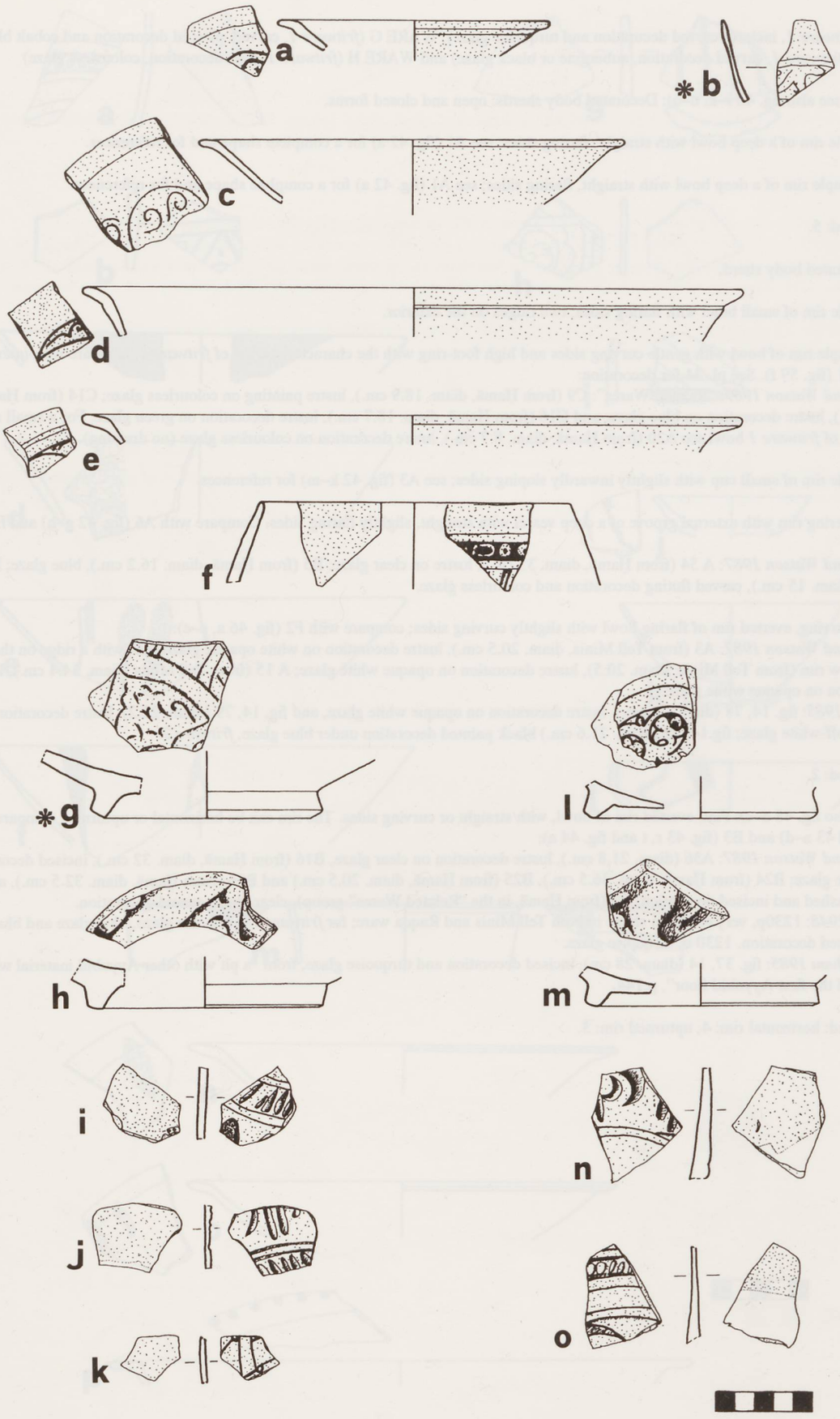

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Figure 47.
WARE F (*fritware 1*, incised, carved decoration and turquoise glaze), WARE G (*fritware 1*, carved, pierced decoration and cobalt blue glaze), WARE AR (*fritware 1*, carved decoration, aubergine or black glaze) and WARE H (*fritware 1*, blue decoration, colourless glaze)

F (a–b, g–h; see also fig. 46 i–k, n–o): Decorated body sherds: open and closed forms.

G1 (c): Simple rim of a deep bowl with straight, flaring sides; see A1 (fig. 42 a) for a complete shape and for references.

H1 (d–f): Simple rim of a deep bowl with straight, flaring sides; see A1 (fig. 42 a) for a complete shape and for references.

Not illustrated: 5.

AR (i): Decorated body sherd.

H2 (j): Simple rim of small bowl with flaring sides; two ridges on the exterior.

H12 (k): Simple rim of bowl with gentle curving sides and high foot-ring with the characteristic cut of *fritware 1*; compare with *intermediate fritware* AB1 (fig. 59 f). See pl. 34 for decoration:
Porter and Watson 1987: "Related Wares": C9 (from Ḥamā, diam. 18.9 cm.), lustre painting on colourless glaze; C14 (from Ḥamā, diam. 19.6 cm.), lustre decoration on blue glaze; and C16 (from Ḥamā, diam. 18.7 cm.), lustre decoration on green glaze. For a small size example of *fritware 1* bowl see A20 (from Ḥamā, diam. 8.7 cm.), lustre decoration on colourless glaze (no drawing).

H4 (l): Simple rim of small cup with slightly inwardly sloping sides; see A3 (fig. 42 k–m) for references.

H3 (m): Tapering rim with external groove of a deep vessel with straight, slightly flaring sides. Compare with A6 (fig. 42 g–h) and E3 (fig. 45 e):
Porter and Watson 1987: A 54 (from Ḥamā, diam. 35 cm.), lustre on clear glaze; B5 (from Ḥamā, diam. 16.2 cm.), blue glaze; B8 (from Ḥamā, diam. 15 cm.), carved fluting decoration and colourless glaze.

H6 (n–o): Curving, everted rim of flaring bowl with slightly curving sides; compare with F2 (fig. 46 a, c–e):
Porter and Watson 1987: A3 (from Tell Minis, diam. 20.5 cm.), lustre decoration on white opaque glaze; A6, with a ridge on the exterior just below rim (from Tell Minis, diam. 20.5), lustre decoration on opaque white glaze; A 15 (from Tell Minis, diam. 34.4 cm.), lustre decoration on opaque white glaze.
Pringle 1985: fig. 14, 78 (diam. 20 cm.), lustre decoration on opaque white glaze, and fig. 14, 79 (diam. 22.2), lustre decoration on opaque off-white glaze; fig.14, 82 (diam. 21.6 cm.) black painted decoration under blue glaze, *fritware 2*.

Not illustrated: 2.

H5 (p; see also fig. 48 a–c): Flat, everted rim of bowl, with straight or curving sides. The rim can be horizontal or upturned; compare with A5 (fig. 42 j and 43 a–d) and B3 (fig. 43 r, t and fig. 44 a):
Porter and Watson 1987: A36 (diam. 21.8 cm.), lustre decoration on clear glaze, B16 (from Ḥamā, diam. 32 cm.), incised decoration and turquoise glaze; B24 (from Ḥamā, diam. 36.5 cm.), B25 (from Ḥamā, diam. 20.5 cm.) and B26 (from Ḥamā, diam. 32.5 cm.), all with blue splashed and incised decoration. C3 (from Ḥamā, in the "Related Wares" group), clear glaze, carved decoration.
Waagé 1948: 1230p, very common shape in both Tell Minis and Raqqa ware; for *fritware 1*: turquoise glaze, blue glaze and blue splashed and incised decoration. 1230 u, turquoise glaze.
Tushingham 1985: fig. 37, 14 (diam. 28 cm), incised decoration and turquoise glaze, from "a pit with other Ayyubid material which preceded the first Ayyubid floor", p.144.

Not illustrated: horizontal rim: 4; upturned rim: 3.

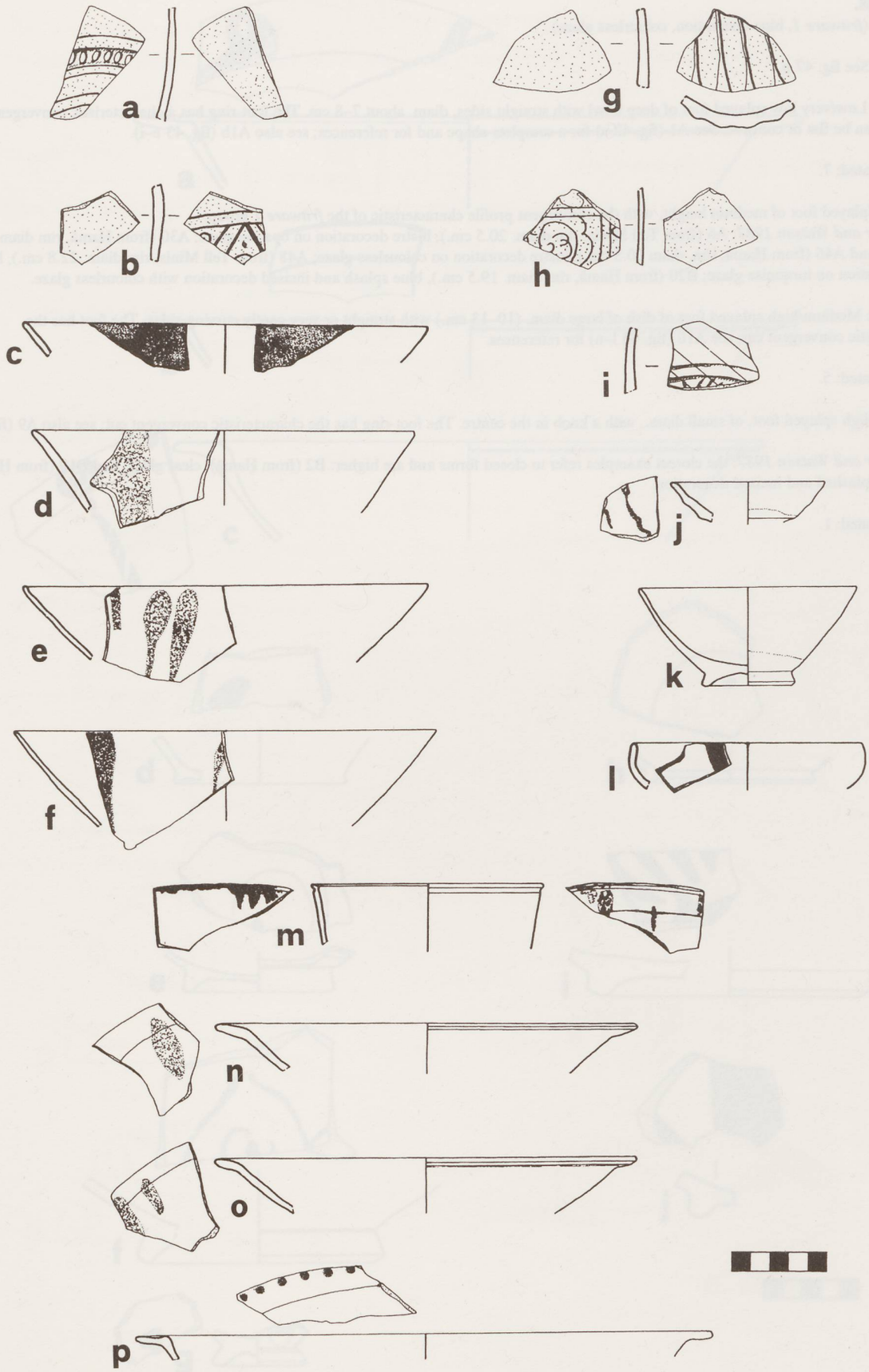

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Figure 48.
WARE H (*fritware 1*, blue decoration, colourless glaze)

H5 (a–c): See fig. 47 p.

H7 (d, h): Low/very low splayed foot of deep bowl with straight sides, diam. about 7–8 cm. The foot-ring has a characteristic convergent cut; the base can be flat or concave. See A1 (fig. 42 a) for a complete shape and for references; see also A1b (fig. 43 e–i).

Not illustrated: 7.

H10 (e): Splayed foot of medium height, with the convergent profile characteristic of the *fritware 1* group:
Porter and Watson 1987: A6 (from Tell Minis, rim diam. 20.5 cm.), lustre decoration on opaque glaze; A30 (from Ḥamā, rim diam. 20.4 cm.) and A46 (from Ḥamā, rim. diam 20.3 cm.), lustre decoration on colourless glaze; A48 (from Tell Minis, rim diam. 22.8 cm.), lustre decoration on turquoise glaze; B20 (from Ḥamā, rim diam. 19.5 cm.), blue splash and incised decoration with colourless glaze.

H8 (f, i–j): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides. The foot has the characteristic convergent cut; see A10 (fig. 43 l–n) for references.

Not illustrated: 5.

H11 (g): High splayed foot, of small diam., with a knob in the centre. The foot-ring has the characteristic convergent cut; see also A9 (fig. 43 o–p):
Porter and Watson 1987: the closest examples refer to closed forms and are higher: B2 (from Ḥamā), clear glaze, and B19 (from Ḥamā), blue splashed and incised decoration.

Not illustrated: 1.

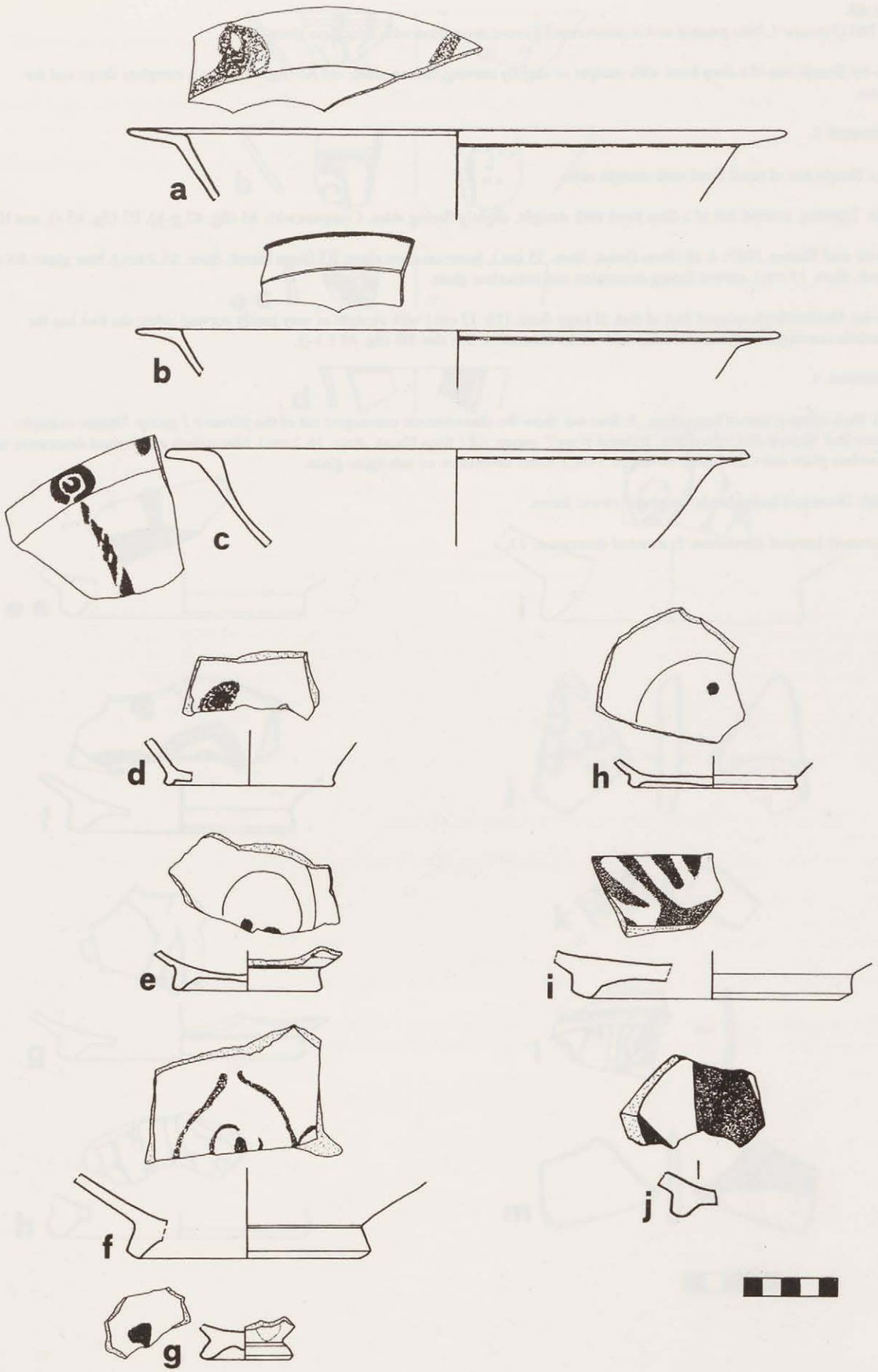

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Figure 49.
WARE HH (*fritware 1*, blue painted and incised/carved/pierced decoration with colourless glaze)

HH1 (a–b): Simple rim of a deep bowl with straight or slightly curving, flaring sides; see A1 (fig. 42 a) for a complete shape and for references.

Not illustrated: 2.

HH3 (c): Simple rim of small bowl with straight sides.

HH2 (d): Tapering, everted rim of a deep bowl with straight, slightly flaring sides. Compare with A6 (fig. 42 g–h), E3 (fig. 45 e), and H3 (fig. 47 m):

Porter and Watson 1987: A 54 (from Ḥamā, diam. 35 cm.), lustre on clear glaze; B5 (from Ḥamā, diam. 16.2 cm.), blue glaze; B8 (from Ḥamā, diam. 15 cm.), carved fluting decoration and colourless glaze.

HH4 (e–h): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides; the foot has the characteristic convergent cut; see A10 (fig. 43 l–n) for references. See also H8 (fig. 48 f, i–j).

Not illustrated: 4.

HH5 (i): High splayed foot of large diam.. It does not show the characteristic convergent cut of the *fritware 1* group. Unique example:

Porter and Watson 1987: from the "Related Wares" group: C4 (from Ḥamā, diam. 16.2 cm.), blue splash and incised decoration with colourless glaze and C21 (diam. of rim 20.5 cm.), lustre decoration on aubergine glaze.

HH (j–m): Decorated body sherds: open and closed forms.

Not illustrated: internal decoration: 5; external decoration: 13.

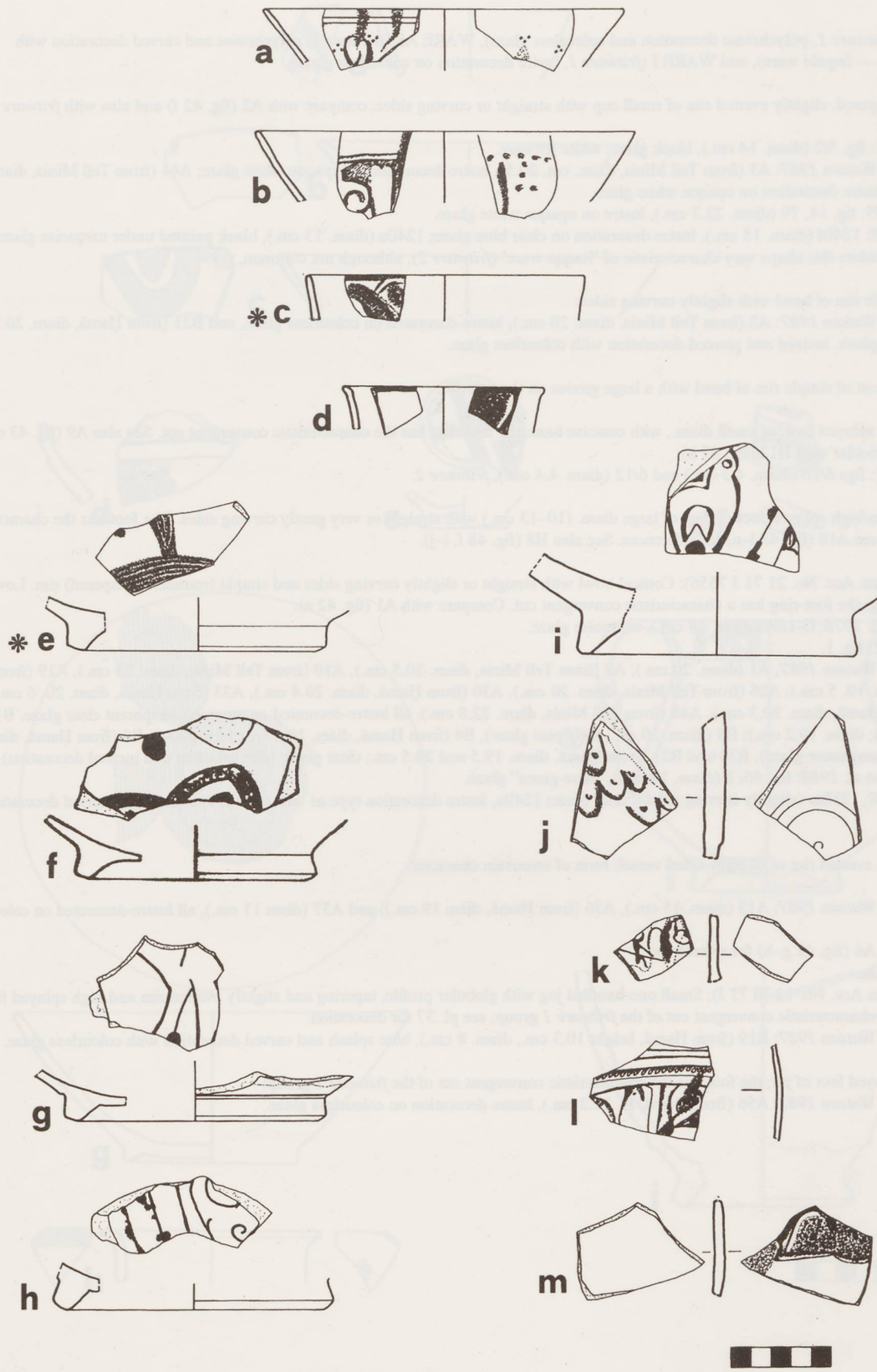

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Figure 50.
WARE AAS (*fritware 1*, polychrome decoration and colourless glaze), WARE AS (*fritware 1*, polychrome and carved decoration with colourless glaze — *laqabi* ware), and WARE J (*fritware 1*, lustre decoration on colourless glaze)

AAS2 (a–b): Tapered, slightly everted rim of small cup with straight or curving sides; compare with A2 (fig. 42 f) and also with *fritware 2* AG2 (fig. 64 d):

Logar 1991: fig. 5/2 (diam. 14 cm.), black glaze, white fritware.

Porter and Watson 1987: A3 (from Tell Minis, diam. cm. 20.5), lustre decoration on opaque white glaze; A44 (from Tell Minis, diam. 20.3 cm.), lustre decoration on opaque white glaze.

Pringle 1985: fig. 14, 79 (diam. 22.2 cm.), lustre on opaque white glaze.

Waagé 1948: 1240f (diam. 15 cm.), lustre decoration on clear blue glaze; 1240a (diam. 13 cm.), black painted under turquoise glaze. Waagé considers this shape very characteristic of 'Raqqa ware' (*fritware 2*), although not common, p.99.

AAS1 (c): Simple rim of bowl with slightly curving sides:

Porter and Watson 1987: A2 (from Tell Minis, diam. 20 cm.), lustre-decorated on colourless glaze, and B21 (from Ḥamā, diam. 20.5 cm.), blue splash, incised and pierced decoration with colourless glaze.

AS2 (d): Fragment of simple rim of bowl with a large groove on the exterior.

AAS3 (e): High splayed foot, of small diam., with concave base; the foot-ring has the characteristic convergent cut. See also A9 (fig. 43 o–p). Compare in particular with H12 (fig. 47 k):

Logar 1991: figs 6/10 (diam. 4.3 cm.) and 6/12 (diam. 4.4 cm.), *fritware 2*.

AS1 (f): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides. The foot has the characteristic convergent cut; see A10 (fig. 43 l–n) for references. See also H8 (fig. 48 f, i–j).

J3 (g: QJ Museum Acc. No. 21 71 J 7556): Conical bowl with straight or slightly curving sides and simple (rounded or tapered) rim. Low, splayed foot-ring; the foot-ring has a characteristic convergent cut. Compare with A1 (fig. 42 a):

Grabar et al. *1978*: G-1/6b (diam. 18 cm.), turquoise glaze.

Porter 1981: fig. 1.

Porter and Watson 1987: A1 (diam. 20 cm.), A2 (from Tell Minis, diam. 20.5 cm.), A10 (from Tell Minis, diam. 23 cm.), A19 (from Tell Minis, diam. 19. 5 cm.), A26 (from Tell Minis, diam. 20 cm.), A30 (from Ḥamā, diam. 20.4 cm.), A33 (from Ḥamā, diam. 20. 6 cm.), A46 (from Ḥamā, diam. 20.3 cm.), A48 (from Tell Minis, diam. 22.8 cm.), all lustre-decorated on opaque/transparent clear glaze. B1 (from Ḥamā, diam. 19.2 cm.); B3 (diam. 20 cm., turquoise glaze), B4 (from Ḥamā, diam. 19.4 cm.; blue glaze), B6 (from Ḥamā, diam. 12.7 cm.; manganese glaze), B20 and B21 (from Ḥamā, diam. 19.5 and 20.5 cm.; clear glaze, blue splashed and incised decoration).

Northedge et al. *1988*: fig. 46, 1 (diam. 18 cm.), "blue-green" glaze.

Waagé 1948: 1238m (slightly curving sides), clear glaze; 1249a, lustre decoration type as well as blue splashed and incised decoration type.

J4 (h): Curving, everted rim of straight-sided vessel; form of uncertain character.
Closed form:

Porter and Watson 1987: A13 (diam. 15 cm.), A56 (from Ḥamā, diam 19 cm.), and A57 (diam 11 cm.), all lustre-decorated on colourless glaze.

Open form: see A6 (fig. 42 g–h) for references.

J1(i: QJ Museum Acc. No. 12 III 73 J): Small one-handled jug with globular profile, tapering and slightly everted rim and high splayed foot; the foot has the characteristic convergent cut of the *fritware 1* group; see pl. 37 for decoration:

Porter and Watson 1987: B19 (from Ḥamā, height 10.3 cm., diam. 8 cm.), blue splash and carved decoration with colourless glaze.

J6 (j): High splayed foot of jar; the foot has the characteristic convergent cut of the *fritware 1* group:

Porter and Watson 1987: A56 (from Ḥamā, H. 20.2 cm.), lustre decoration on colourless glaze.

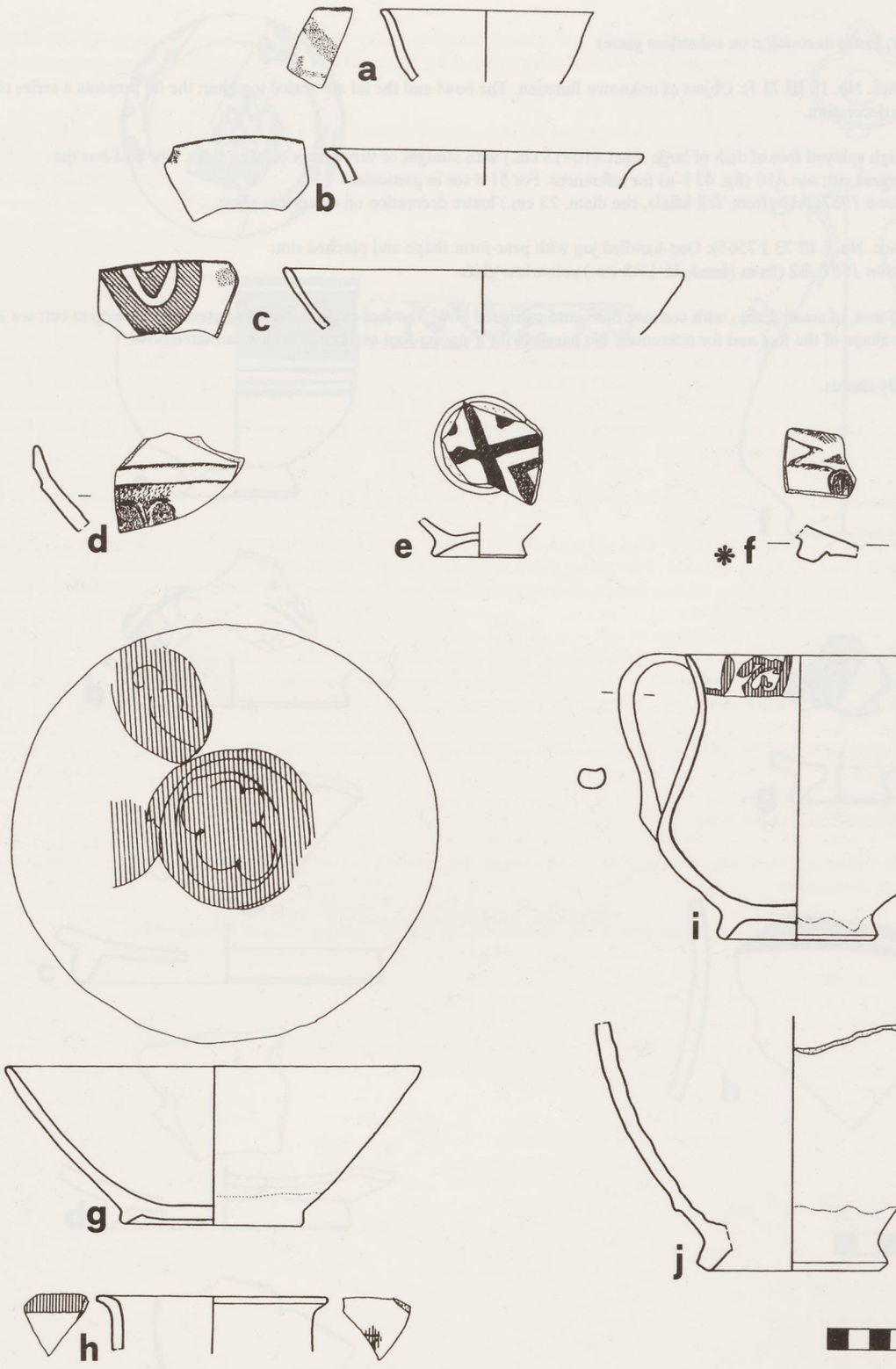

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Figure 51.
WARE J (*fritware 1*, lustre decoration on colourless glaze)

J2 (a: QJ Museum Acc. No. 19 III 73 J): Object of unknown function. The bowl and the lid are sealed together; the lid presents a series of holes. See pl. 36 for decoration.

J7 (b–e): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides. The foot has the characteristic convergent cut; see A10 (fig. 43 l–n) for references. For 51 e see in particular:
Porter and Watson 1987: A10 (from Tell Minis, rim diam. 23 cm.) lustre decoration on colourless glaze.

J5 (f: QJ Museum Acc. No. 6 III 73 J 7565): One-handled jug with pear-form shape and pinched rim:
Porter and Watson 1987: B2 (from Ḥamā, H. 17.8 cm.) colourless glaze.

J8 (g): High splayed foot, of small diam., with concave base, and carinated bowl; the foot-ring has the characteristic convergent cut; see A9 (fig. 43 o–p) for the shape of the foot and for references. No parallels for a similar foot associated with a carinated bowl.

J (h): Decorated body sherds.

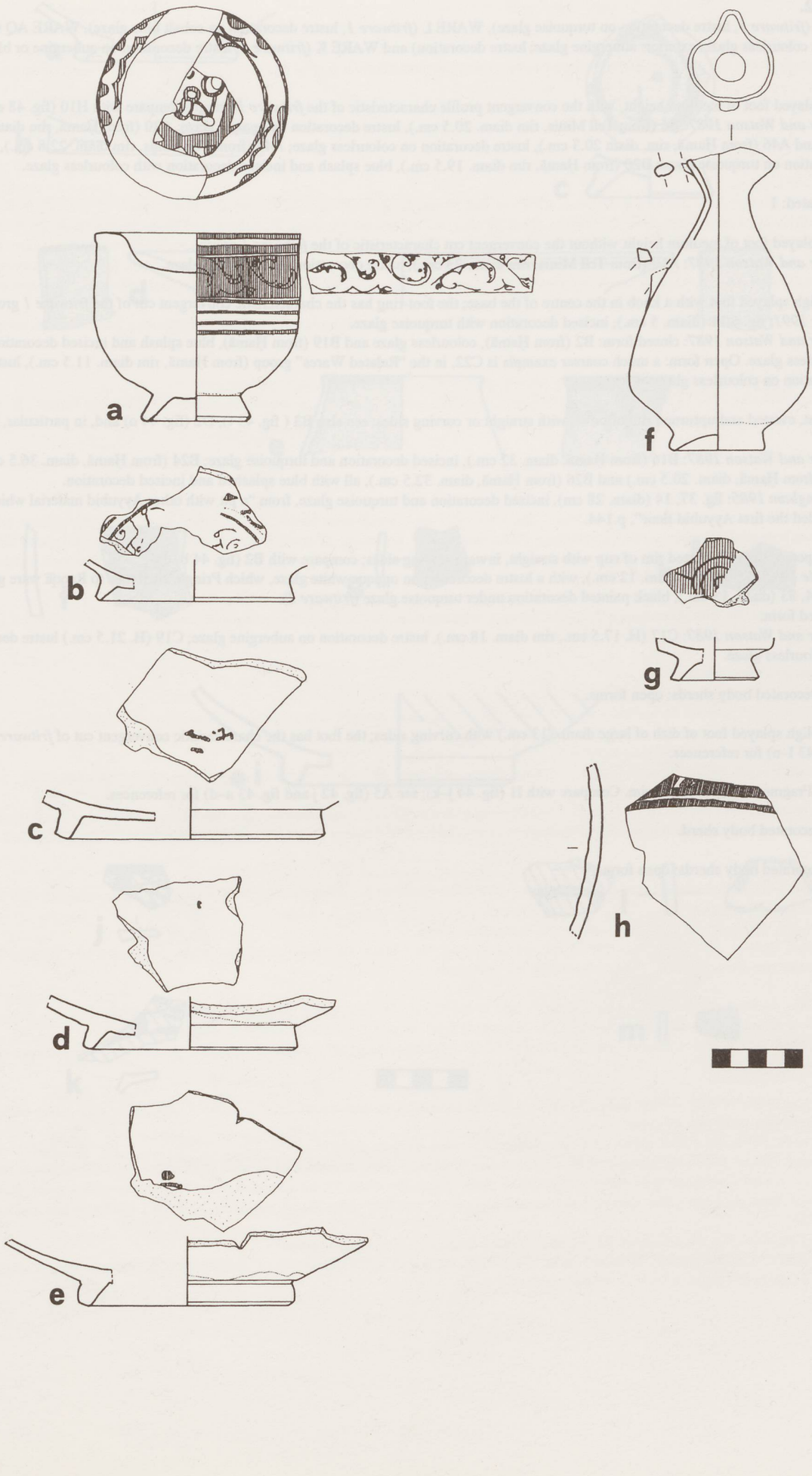

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Figure 52.
WARE M (*fritware 1*, lustre decoration on turquoise glaze), WARE L (*fritware 1*, lustre decoration on cobalt blue glaze), WARE AQ (*fritware 1*, interior: colourless glaze; exterior: aubergine glaze; lustre decoration) and WARE K (*fritware 1*, lustre decoration on aubergine or black glaze)

M1 (a): Splayed foot of medium height, with the convergent profile characteristic of the *fritware 1* group. Compare with H10 (fig. 48 e):
Porter and Watson 1987: A6 (from Tell Minis, rim diam. 20.5 cm.), lustre decoration on opaque glaze; A30 (from Ḥamā, rim diam. 20.4 cm.) and A46 (from Ḥamā, rim. diam 20.3 cm.), lustre decoration on colourless glaze; A48 (from Tell Minis, rim diam. 22.8 cm.), lustre decoration on turquoise glaze; B20 (from Ḥamā, rim diam. 19.5 cm.), blue splash and incised decoration with colourless glaze.

Not illustrated: 1

M3 (b): Splayed foot of medium height without the convergent cut characteristic of the *fritware 1* group:
Porter and Watson 1987: A10 (from Tell Minis, rim diam. 23 cm.), lustre decoration on colourless glaze.

M2 (c): High splayed foot with a knob in the centre of the base; the foot-ring has the characteristic convergent cut of the *fritware 1* group:
Logar 1991: fig. 6/11 (diam. 5 cm.), incised decoration with turquoise glaze.
Porter and Watson 1987: closed form: B2 (from Ḥamā), colourless glaze and B19 (from Ḥamā), blue splash and incised decoration with colourless glaze. Open form: a much coarser example is C22, in the "Related Wares" group (from Ḥamā, rim diam. 11.5 cm.), lustre decoration on colourless glaze.

L1 (d): Flat, everted and upturned rim of bowl, with straight or curving sides; see also B3 (fig. 43 t), D2 (fig. 44 o) and, in particular, E8 (fig. 45 c):
Porter and Watson 1987: B16 (from Ḥamā, diam. 32 cm.), incised decoration and turquoise glaze; B24 (from Ḥamā, diam. 36.5 cm.), B25 (from Ḥamā, diam. 20.5 cm.) and B26 (from Ḥamā, diam. 32.5 cm.), all with blue splashed and incised decoration.
Tushingham 1985: fig. 37, 14 (diam. 28 cm), incised decoration and turquoise glaze, from "a pit with other Ayyubid material which preceded the first Ayyubid floor", p.144.

L3 (e): Tapered, slightly everted rim of cup with straight, inward sloping sides; compare with B2 (fig. 44 b–d):
Pringle 1985: fig. 14, 80 (diam. 12 cm.), with a lustre decoration on opaque white glaze, which Pringle attributes to Raqqa ware group. Fig. 14, 83 (diam. 13 cm.), black painted decoration under turquoise glaze (*fritware 2*).
For a closed form:
Porter and Watson 1987: C17 (H. 17.5 cm., rim diam. 18 cm.), lustre decoration on aubergine glaze; C19 (H. 21.5 cm.) lustre decoration on colourless glaze.

L (f–h): Decorated body sherds: open forms.

AQ1 (i): High splayed foot of dish of large diam. (13 cm.) with curving sides; the foot has the characteristic convergent cut of *fritware 1*; see A10 (fig. 43 l–n) for references.

K1 (j–k): Fragment of flat everted rim. Compare with I1 (fig. 44 j–k); see A5 (fig. 42 j and fig. 43 a–d) for references.

AQ (l): Decorated body sherd.

K (m): Decorated body sherds: open forms.

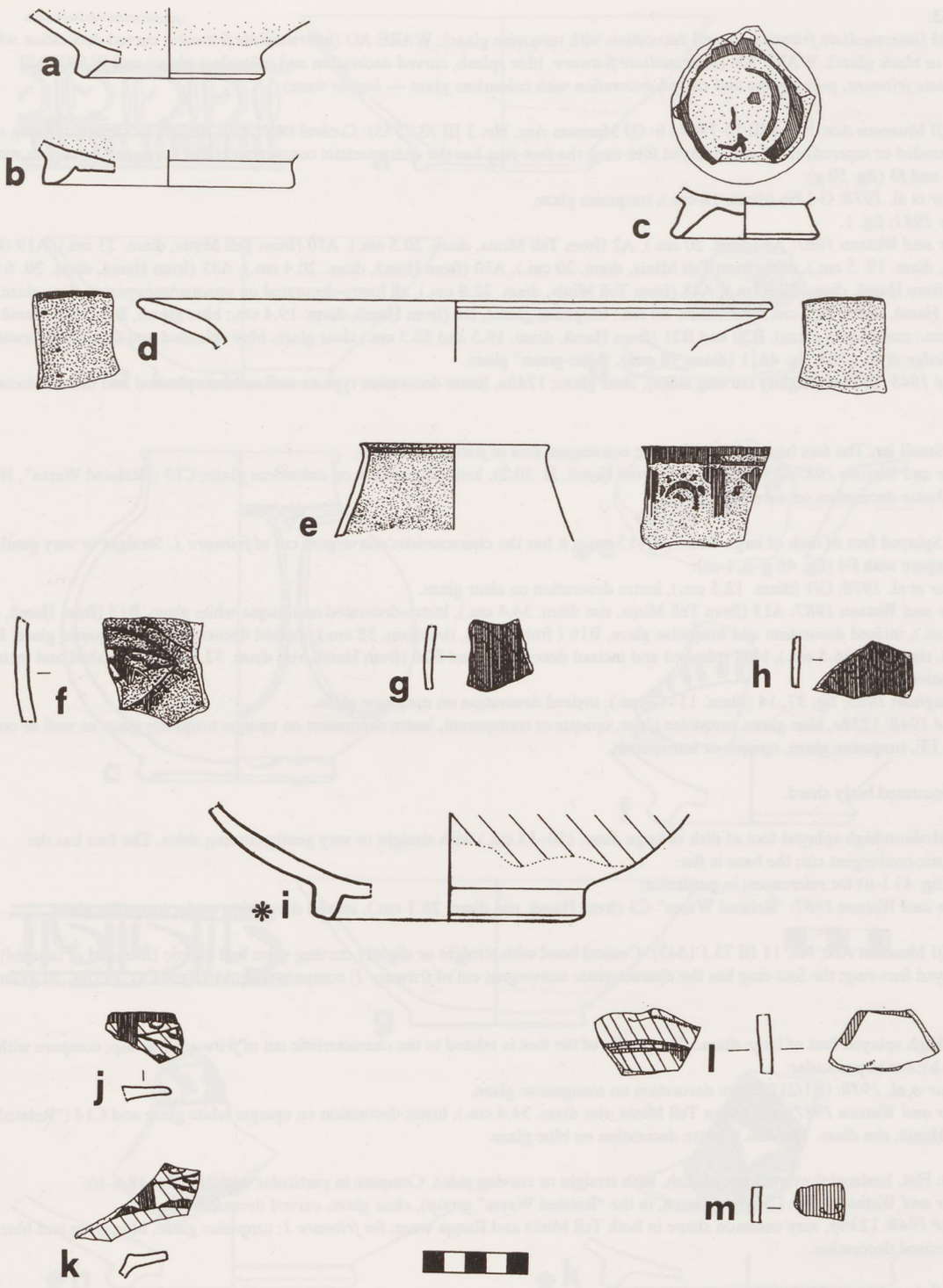

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Figure 53.
WARE AM (*intermediate fritware*, carved decoration with turquoise glaze), WARE AO (*intermediate fritware*, carved decoration with aubergine or black glaze), WARE AV (*intermediate fritware*, blue splash, carved decoration and colourless glaze) and WARE ASI (*intermediate fritware*, polychrome and carved decoration with colourless glaze — *laqabi* ware)

AM1 (a: QJ Museum Acc. No. 4 III 73 7567 ; b: QJ Museum Acc. No. 3 III 73 7555): Conical bowl with straight or slightly curving sides and simple (rounded or tapered) rim. Low, splayed foot-ring; the foot-ring has the characteristic convergent cut of *fritware 1*; compare with A1 (fig. 42 a) and J3 (fig. 50 g):

Grabar et al. *1978*: G-1/6b (diam. 18 cm.), turquoise glaze.
Porter 1981: fig. 1.
Porter and Watson 1987: A1 (diam. 20 cm.), A2 (from Tell Minis, diam. 20.5 cm.), A10 (from Tell Minis, diam. 23 cm.), A19 (from Tell Minis, diam. 19. 5 cm.), A26 (from Tell Minis, diam. 20 cm.), A30 (from Ḥamā, diam. 20.4 cm.), A33 (from Ḥamā, diam. 20. 6 cm.), A46 (from Ḥamā, diam. 20.3 cm.), A48 (from Tell Minis, diam. 22.8 cm.), all lustre-decorated on opaque/transparent clear glaze. B1 (from Ḥamā, diam. 19.2 cm.); B3 (diam. 20 cm.; turquoise glaze), B4 (from Ḥamā, diam. 19.4 cm.; blue glaze), B 6 (from Ḥamā, diam. 12.7 cm.; manganese glaze), B20 and B21 (from Ḥamā, diam. 19.5 and 20.5 cm.; clear glaze, blue splashed and incised decoration).
Northedge et al. *1988*: fig. 46, 1 (diam. 18 cm.), "blue-green" glaze.
Waagé 1948: 1238m (slightly curving sides), clear glaze; 1249a, lustre decoration type as well as blue splashed and incised decoration type.

AM3 (c): Small jar. The foot has the characteristic convergent foot of *fritware 1* group:

Porter and Watson 1987: A56 (*fritware 1*, from Ḥamā, H. 20.2), lustre decoration on colourless glaze; C17 ("Related Wares", H. 17.5 cm.), lustre decoration on aubergine glaze.

AM2 (d): Splayed foot of dish of large diam. (10–13 cm.); it has the characteristic convergent cut of *fritware 1*. Straight or very gently curving sides. Compare with F4 (fig. 46 g–h, l–m):

Grabar et al. *1978*: G/1 (diam. 12.5 cm.), lustre decoration on clear glaze.
Porter and Watson 1987: A15 (from Tell Minis, rim diam. 34.4 cm.), lustre-decorated on opaque white glaze, B15 (from Ḥamā, rim diam. 30.8 cm.), incised decoration and turquoise glaze, B16 (from Ḥamā, rim diam. 32 cm.), incised decoration and turquoise glaze, B24 (from Ḥamā, rim diam. 36.5 cm.), blue splashed and incised decoration, and B26 (from Ḥamā, rim diam. 32.5), blue splashed and incised decoration.
Tushingham 1985: fig. 37, 14 (diam. 11–12 cm.), incised decoration on turquoise glaze.
Waagé 1948: 1238s, blue glaze, turquoise glaze, opaque or transparent, lustre decoration on opaque turquoise glaze as well as on green glaze. EE, turquoise glaze, opaque or transparent.

AO (e): Decorated body sherd.

AO1 (f): Medium/high splayed foot of dish of large diam. (10–13 cm.) with straight or very gently curving sides. The foot has the characteristic convergent cut; the base is flat:
See A10 (fig. 43 l–n) for references; in particular:

Porter and Watson 1987: "Related Wares" C3 (from Ḥamā, rim diam. 28.1 cm.), carved decoration under turquoise glaze.

AV1 (g: QJ Museum Acc. No. 11 III 73 J 1545): Conical bowl with straight or slightly curving sides and simple (rounded or tapered) rim. Low, splayed foot-ring; the foot-ring has the characteristic convergent cut of *fritware 1*; compare with A1 (fig. 42 a), J3 (fig. 50 g) and AM1 above.

AV2 (h): High splayed foot of large diam.. The profile of the foot is related to the characteristic cut of *fritware 1* group; compare with HH4 (fig. 49 e–h); see in particular:

Grabar et al. *1978*: G-1/21f, lustre decoration on manganese glaze.
Porter and Watson 1987: A15 (from Tell Minis, rim diam. 34.4 cm.), lustre decoration on opaque white glaze and C14 ("Related Wares", from Ḥamā, rim diam. 19.6 cm.), lustre decoration on blue glaze.

ASI1 (i–j): Flat, horizontal everted rim of dish, with straight or curving sides. Compare in particular with H5 (fig. 48 a–b):

Porter and Watson 1987: C3 (from Ḥamā, in the "Related Wares" group), clear glaze, carved decoration.
Waagé 1948: 1230p, very common shape in both Tell Minis and Raqqa ware; for *fritware 1*: turquoise glaze, blue glaze and blue splashed and incised decoration.

ASI2 (k): Splayed foot of dish of large diam. (14 cm.); it has the characteristic convergent cut of *fritware 1*; straight or very gently curving sides. Compare with HH4 (fig. 49 e–h):

Grabar et al. *1978*: G/1 (diam. about 12.5 cm.), lustre decoration on clear glaze.
Porter and Watson 1987: A15 (from Tell Minis, rim diam. 34.4 cm.), lustre-decorated on opaque white glaze; B15 (from Ḥamā, rim diam. 30.8 cm.), incised decoration and turquoise glaze; B16 (from Ḥamā, rim diam. 32 cm.), incised decoration and turquoise glaze; B24 (from Ḥamā, rim diam. 36.5 cm.), blue splashed and incised decoration; and B26 (from Ḥamā, rim diam. 32.5 cm.), blue splashed and incised decoration.
Tushingham 1985: fig. 37, 14 (diam. 11–12 cm.), incised decoration on turquoise glaze.
Waagé 1948: 1238s, blue glaze, turquoise glaze, opaque or transparent, lustre decoration on opaque turquoise glaze as well as on green glaze; EE, turquoise glaze, opaque or transparent.

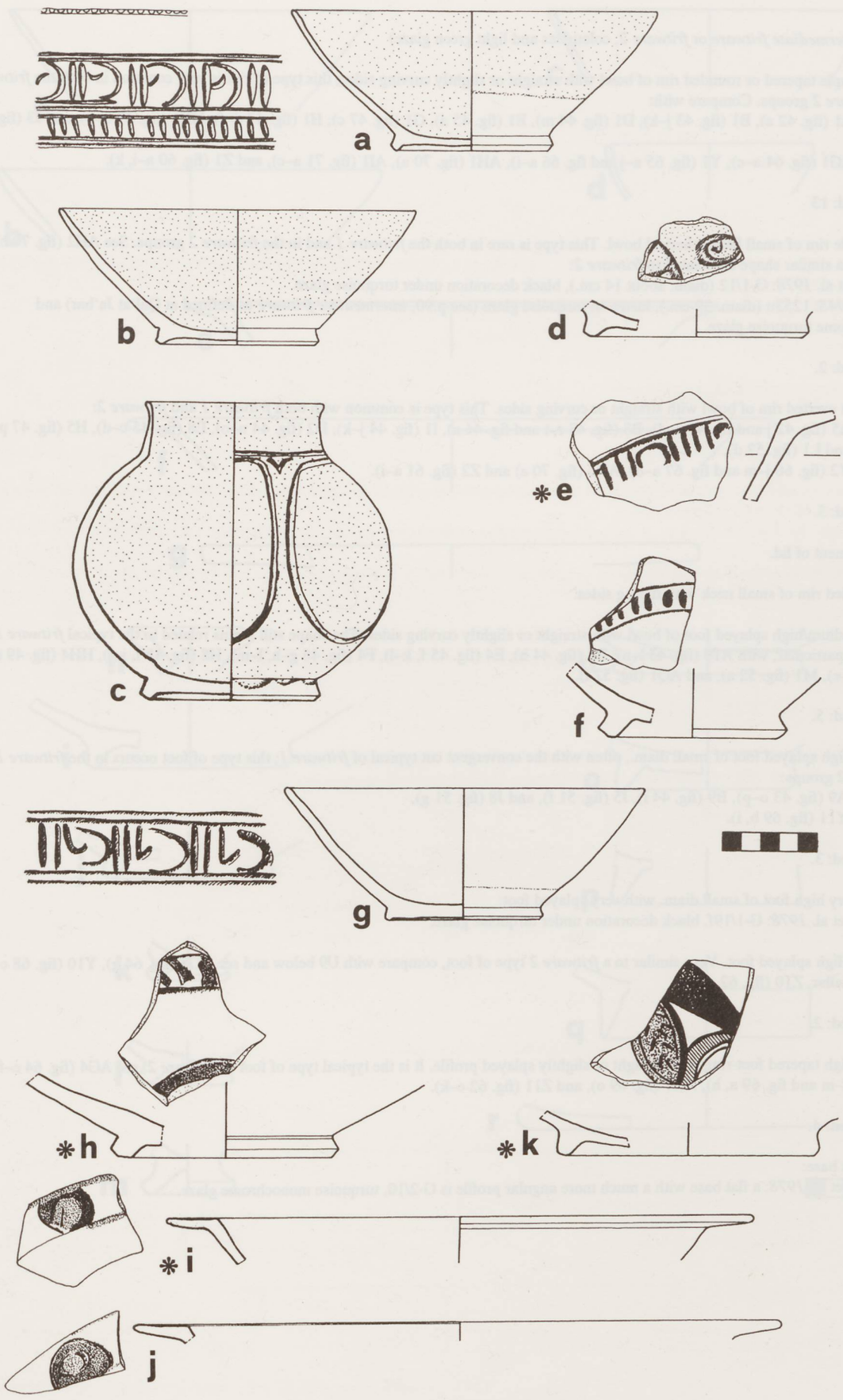

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Figure 54.
WARE U (*intermediate fritware* or *fritware 2*, colourless and light green glaze)

U1 (a–c): Simple tapered or rounded rim of bowl with straight or slightly curving sides; this type of rim is very common in both the *fritware 1* and the *fritware 2* groups. Compare with:
Fritware 1: A1 (fig. 42 a), B1 (fig. 43 j–k), D1 (fig. 44 m), E1 (fig. 45 a), G1 (fig. 47 c), H1 (fig. 47 d–f), HH1 (fig. 49 a–b), and J3 (fig. 50 g).
Fritware 2: AG1 (fig. 64 a–c), Y1 (fig. 65 a–j and fig. 66 a–i), AH1 (fig. 70 a), AI1 (fig. 71 a–c), and Z1 (fig. 60 a–i, k).

Not illustrated: 13

U4 (d): Simple rim of small hemispherical bowl. This type is rare in both the *fritware 1* and in the *fritware 2* groups. See AH2 (fig. 70 b) for references to a similar shape associated to *fritware 2*:
Grabar et al. *1978*: G-1/12 (diam. about 14 cm.), black decoration under turquoise glaze.
Waagé 1948: 1253u (diam. 30 cm.), lustre on turquoise glaze (see p.90, *intermediate fritware* as defined at Qal'at Ja'bar) and monochrome turquoise glaze.

Not illustrated: 2.

U2 (e–f): Flat everted rim of bowl with straight or curving sides. This type is common with both *fritware 1* and *fritware 2*:
Fritware 1: A5 (fig. 42 j and fig. 43 a–d), B3 (fig. 43 r, t and fig. 44 a), I1 (fig. 44 j–k), D2 (fig. 44 n–o), E8 (fig. 45 c–d), H5 (fig. 47 p and fig. 48 a–c) and L1 (fig. 52 d).
Fritware 2: Y2 (fig. 66 j–m and fig. 67 a–d), AH6 (fig. 70 e) and Z2 (fig. 61 a–i).

Not illustrated: 5.

U5 (g): Fragment of lid.

U13 (h): Rolled rim of small neck with flaring sides.

U8 (i–j) : Medium/high splayed foot of bowl with straight or slightly curving sides. The shape still seems related to the typical *fritware 1* foot. Compare, in particular, with A10 (fig. 43 l–n), B8 (fig. 44 h), E4 (fig. 45 f, k–l), F4 (fig. 46 g–h, l–m), H8 (fig. 48 f, i–j), HH4 (fig. 49 e–h), J7 (fig. 51 b–e), M1 (fig. 52 a), and AQ1 (fig. 52 i).

Not illustrated: 5.

U10 (k–l): High splayed foot of small diam., often with the convergent cut typical of *fritware 1*; this type of foot occurs in the *fritware 1* and in the *fritware 2* groups:
Fritware 1: A9 (fig. 43 o–p), B9 (fig. 44 i), J5 (fig. 51 f), and J8 (fig. 51 g).
Fritware 2: Y11 (fig. 69 b, i).

Not illustrated: 3.

U11 (m): Very high foot of small diam. with very splayed foot:
Grabar et al. *1978*: G-1/19f, black decoration under turquoise glaze.

U14 (n–o): High splayed foot. Very similar to a *fritware 2* type of foot, compare with U9 below and see AG5 (fig. 64 g), Y10 (fig. 68 c–e), and, in particular, Z10 (fig. 62 a–d).

Not illustrated: 2.

U9 (p–q): High tapered foot-ring with straight or slightly splayed profile. It is the typical type of foot of *fritware 2*, see AG4 (fig. 64 e–f, h–i), Y9 (fig. 68 f–m and fig. 69 a, h), AK1 (fig. 69 o), and Z11 (fig. 62 e–k).

Not illustrated: 4.

U12 (r): Flat base:
Grabar et al. *1978*: a flat base with a much more angular profile is G-2/10, turquoise monochrome glaze.

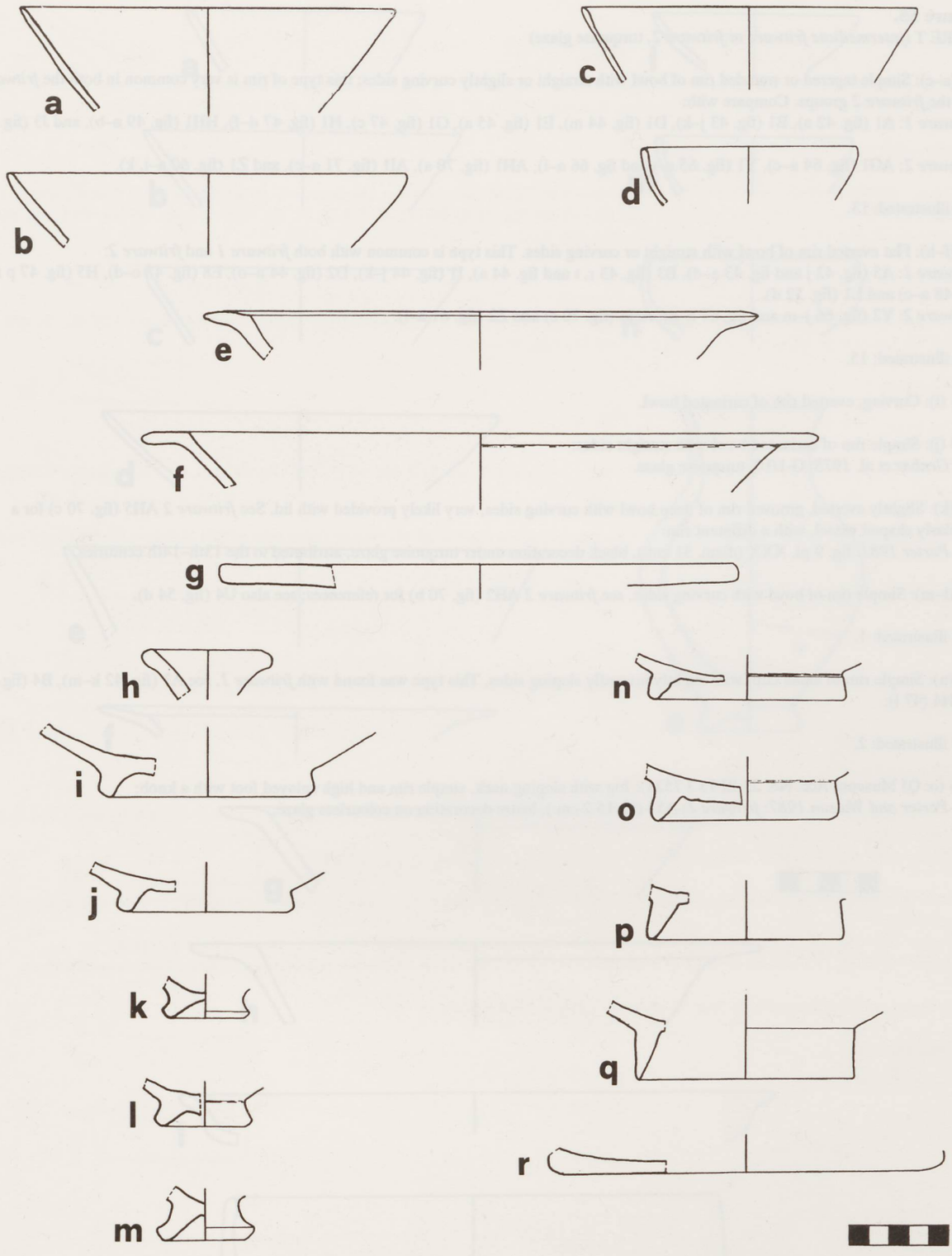

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Figure 55.
WARE T (*intermediate fritware* or *fritware 2*, turquoise glaze)

T1 (a–e): Simple tapered or rounded rim of bowl with straight or slightly curving sides; this type of rim is very common in both the *fritware 1* and the *fritware 2* groups. Compare with:
Fritware 1: A1 (fig. 42 a), B1 (fig. 43 j–k), D1 (fig. 44 m), E1 (fig. 45 a), G1 (fig. 47 c), H1 (fig. 47 d–f), HH1 (fig. 49 a–b), and J3 (fig. 50 g).
Fritware 2: AG1 (fig. 64 a–c), Y1 (fig. 65 a–j and fig. 66 a–i), AH1 (fig. 70 a), AI1 (fig. 71 a–c), and Z1 (fig. 60 a–i, k).

Not illustrated: 13.

T7 (f–h): Flat everted rim of bowl with straight or curving sides. This type is common with both *fritware 1* and *fritware 2*:
Fritware 1: A5 (fig. 42 j and fig. 43 a–d), B3 (fig. 43 r, t and fig. 44 a), I1 (fig. 44 j–k), D2 (fig. 44 n–o), E8 (fig. 45 c–d), H5 (fig. 47 p and fig. 48 a–c) and L1 (fig. 52 d).
Fritware 2: Y2 (fig. 66 j–m and fig. 67 a–d), AH6 (fig. 70 e) and Z2 (fig. 61 a–i).

Not illustrated: 15.

T23 (i): Curving, everted rim of carinated bowl.

T19 (j): Simple rim of carinated bowl with straight sides:
Grabar et al. *1978*: G-1/10, turquoise glaze.

T6 (k): Slightly everted, grooved rim of deep bowl with curving sides, very likely provided with lid. See *fritware 2* AH5 (fig. 70 c) for a similarly shaped vessel, with a different rim:
Porter 1981: fig. 9 pl. XXX (diam. 31 cm.), black decoration under turquoise glaze, attributed to the 13th–14th centuries.

T4 (l–m): Simple rim of bowl with curving sides, see *fritware 2* AH2 (fig. 70 b) for references; see also U4 (fig. 54 d).

Not illustrated: 1.

T3 (n): Simple rim of small cup, with slightly inwardly sloping sides. This type was found with *fritware 1*, see A3 (fig. 42 k–m), B4 (fig. 43 q), H4 (47 l):

Not illustrated: 2.

T26 (o: QJ Museum Acc. No. 22 III 73 J 7524): Jug with sloping neck, simple rim and high splayed foot with a knob:
Porter and Watson 1987: *fritware 1*: A57 (H. 15.2 cm.), lustre decoration on colourless glaze.

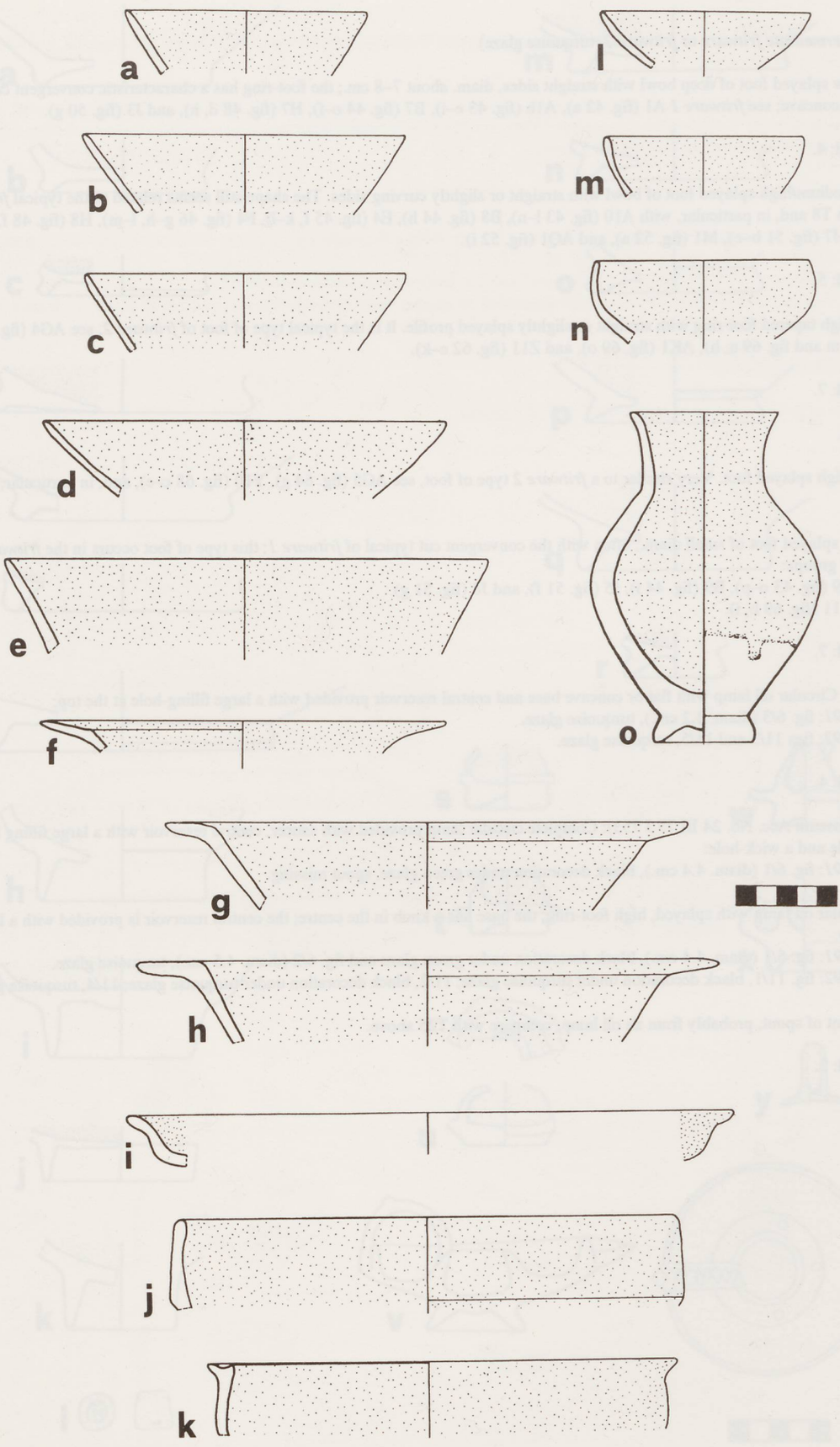

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Figure 56.
WARE T (*intermediate fritware* or *fritware 2*, turquoise glaze)

T8 (a–d): Low splayed foot of deep bowl with straight sides, diam. about 7–8 cm.; the foot-ring has a characteristic convergent cut; the base can be flat or concave; see *fritware 1* A1 (fig. 42 a), A1b (fig. 43 e–i), B7 (fig. 44 e–f), H7 (fig. 48 d, h), and J3 (fig. 50 g).

Not illustrated: 4.

T13 (e–g): Medium/high splayed foot of bowl with straight or slightly curving sides. The shape still seems related to the typical *fritware 1* foot. Compare with T8 and, in particular, with A10 (fig. 43 l–n), B8 (fig. 44 h), E4 (fig. 45 f, k–l), F4 (fig. 46 g–h, l–m), H8 (fig. 48 f, i–j), HH4 (fig. 49 e–h), J7 (fig. 51 b–e), M1 (fig. 52 a), and AQ1 (fig. 52 i).

Not illustrated: 5.

T11 (h–k): High tapered foot-ring with straight or slightly splayed profile. It is the typical type of foot of *fritware 2*, see AG4 (fig. 64 e–f, h–i), Y9 (fig. 68 f–m and fig. 69 a, h), AK1 (fig. 69 o), and Z11 (fig. 62 e–k).

Not illustrated: 7.

T24 (l): Bead.

T10 (m–q): High splayed foot. Very similar to a *fritware 2* type of foot, see AG5 (fig. 64 g), Y10 (fig. 68 c–e), and, in particular, Z10 (fig. 62 a–d).

T12 (r): High splayed foot of small diam., often with the convergent cut typical of *fritware 1*; this type of foot occurs in the *fritware 1* and in the *fritware 2* groups:
Fritware 1: A9 (fig. 43 o–p), B9 (fig. 44 i), J5 (fig. 51 f), and J8 (fig. 51 g).
Fritware 2: Y11 (fig. 69 b, i).

Not illustrated: 7.

T14 (s–u, w): Circular oil lamp with flat or concave base and central reservoir provided with a large filling-hole at the top:
Logar 1991: fig. 6/3 (diam. 4.2 cm.), turquoise glaze.
Logar 1992: figs 11/3 and 11/5, turquoise glaze.

Not illustrated: 4.

T25 (v: QJ Museum Acc. No. 24 III 73 J 753): Complete circular lamp provided with saucer, central reservoir with a large filling hole at the top, one handle and a wick-hole:
Logar 1991: fig. 6/1 (diam. 4.4 cm.), black decoration under green glaze, spout missing.

T15 (x): Circular oil lamp with splayed, high foot-ring; the base has a knob in the centre; the central reservoir is provided with a large filling-hole at the top.
Logar 1991: fig. 6/1 (diam. 4.4 cm.), black decoration under green glaze and fig. 6/2 (diam. 4.5 cm.), turquoise glaze.
Logar 1992: fig. 11/1, black decoration under turquoise glaze; 11/2, black decoration under turquoise glaze; 11/4, turquoise glaze.

T (y): Fragment of spout, probably from an oil lamp, compare with T25 above.

Not illustrated: 2.

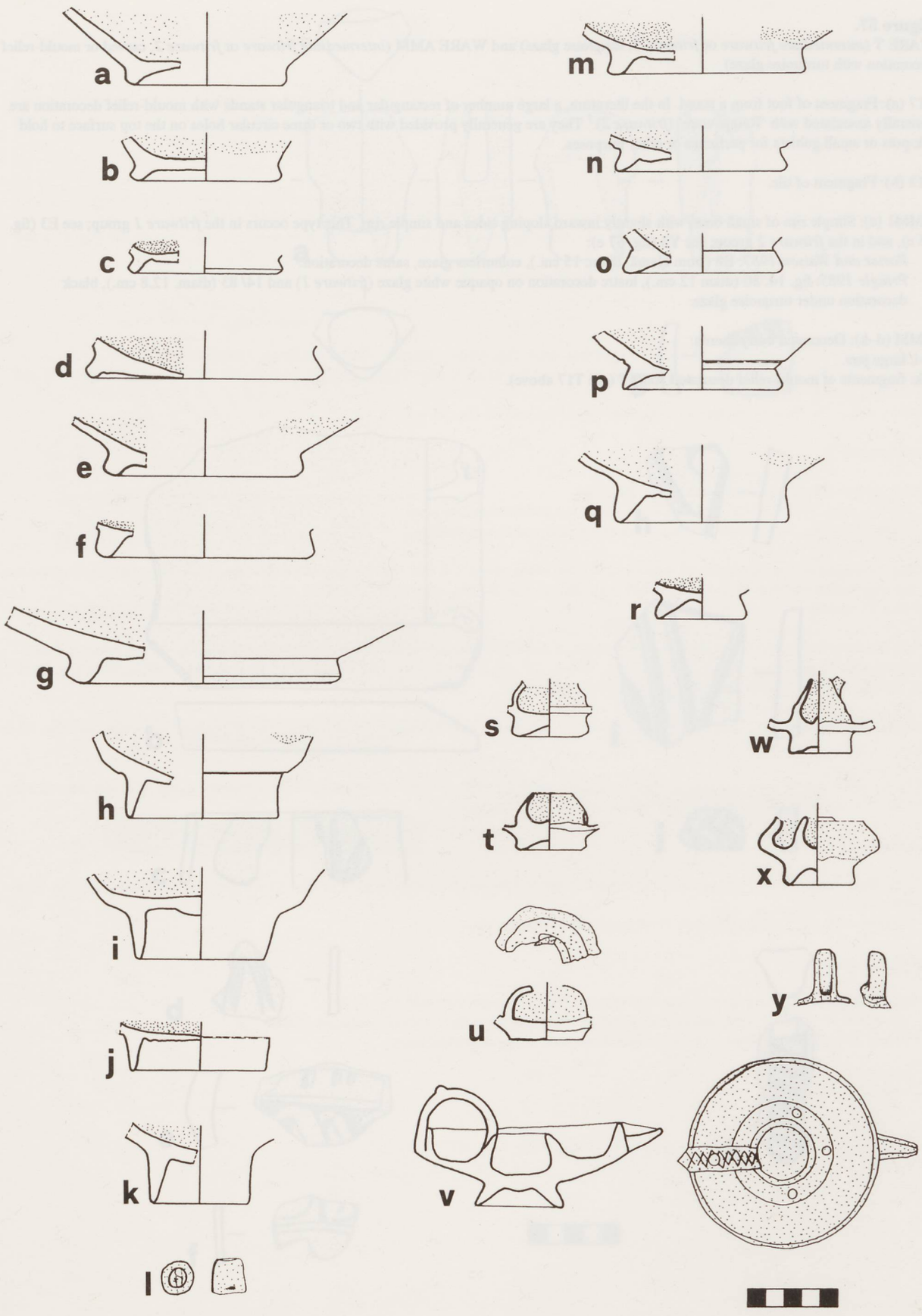

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Figure 57.
WARE T (*intermediate fritware* or *fritware 2*, turquoise glaze) and WARE AMM (*intermediate fritware* or *fritware 2*, carved or mould-relief decoration with turquoise glaze)

T17 (a): Fragment of foot from a stand. In the literature, a large number of rectangular and triangular stands with mould-relief decoration are generally associated with 'Raqqa ware' (*fritware 2*).[1] They are generally provided with two or three circular holes on the top surface to hold ink-pots or small goblets for perfumes or other purposes.

T18 (b): Fragment of tile.

AMM1 (c): Simple rim of small bowl with slightly inward sloping sides and simple rim. This type occurs in the *fritware 1* group; see E3 (fig. 45 e), and in the *fritware 2* group; see Y3 (fig. 67 e):

Porter and Watson 1987: B8 (from Ḥamā, diam. 15 cm.), colourless glaze, same decoration.

Pringle 1985: fig. 14, 80 (diam 12 cm.), lustre decoration on opaque white glaze (*fritware 1*) and 14/ 83 (diam. 12.8 cm.), black decoration under turquoise glaze.

AMM (d–k): Decorated body sherds:
h–i: large jars.
j–k: fragments of mould-relief decorated stand ? (see T17 above).

[1] See, for example, Soustiel 1985, fig. 152 p. 133 and Tonghini 1995b, figs 328–329.

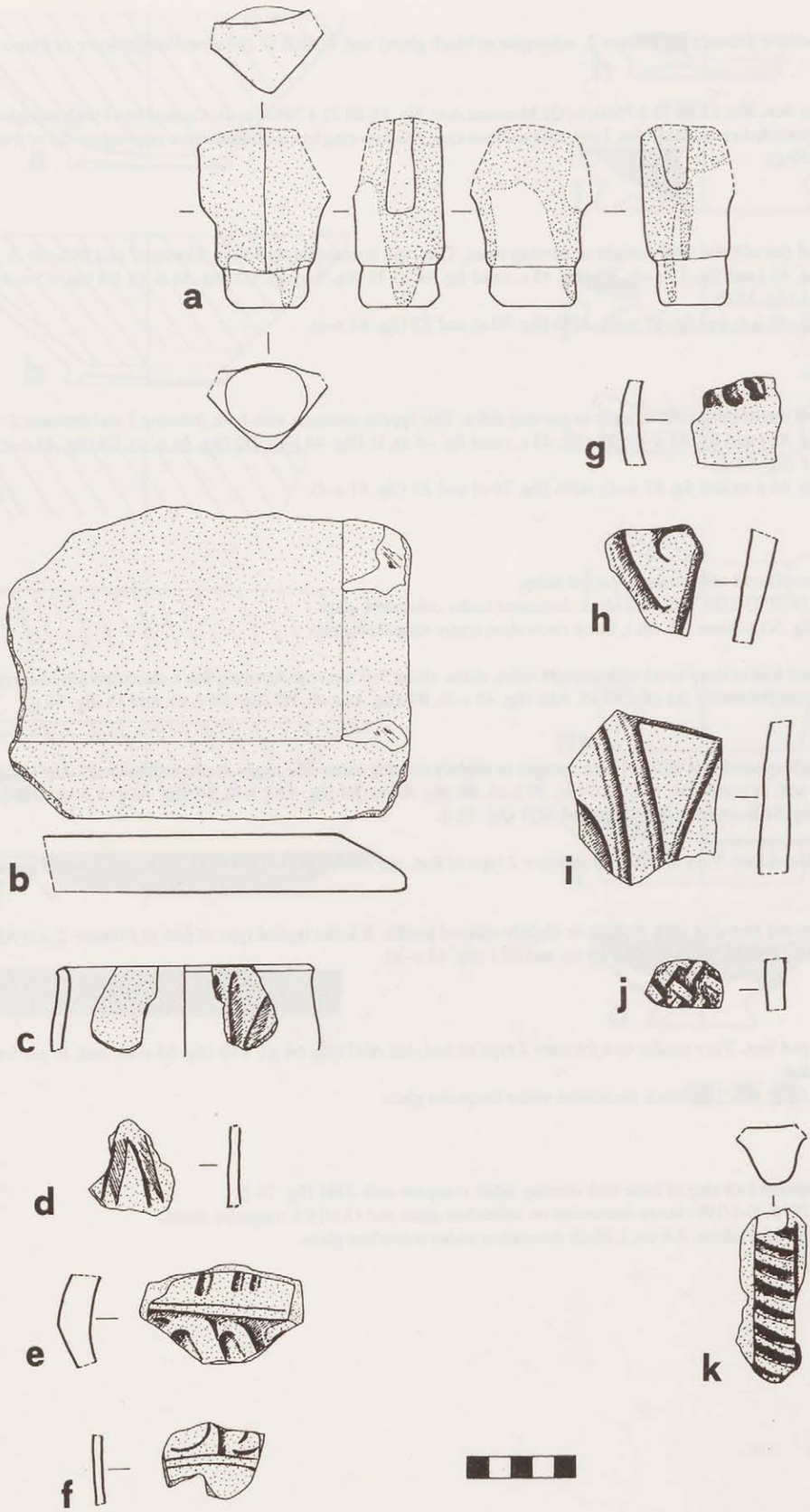

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Figure 58.
WARE V (*intermediate fritware* or *fritware 2*, aubergine or black glaze) and WARE W (*intermediate fritware* or *fritware 2*, cobalt blue glaze)

V1 (a: QJ Museum Acc. No. 13 III 73 J 7560; b: QJ Museum Acc. No. 16 III 73 J 7063; c–d): Conical bowl with straight or slightly curving sides and simple (rounded or tapered) rim. Low, splayed foot-ring; the foot-ring has a characteristic convergent cut of *fritware 1*. See A1 (fig. 42 a) and J3 (fig. 50 g).

Not illustrated: 3

V4 (e): Flat everted rim of bowl with straight or curving sides. This type is common with both *fritware 1* and *fritware 2*:
Fritware 1: A5 (fig. 42 j and fig. 43 a–d), B3 (fig. 43 r, t and fig. 44 a), I1 (fig. 44 j–k), D2 (fig. 44 n–o), E8 (fig. 45 c–d), H5 (fig. 47 p and fig. 48 a–c) and L1 (fig. 52 d).
Fritware 2: Y2 (fig. 66 j–m and fig. 67 a–d), AH6 (fig. 70 e) and Z2 (fig. 61 a–i).

Not illustrated: 11.

W1 (f): Flat everted rim of bowl with straight or curving sides. This type is common with both *fritware 1* and *fritware 2*:
Fritware 1: A5 (fig. 42 j and fig. 43 a–d), B3 (fig. 43 r, t and fig. 44 a), I1 (fig. 44 j–k), D2 (fig. 44 n–o), E8 (fig. 45 c–d), H5 (fig. 47 p and fig. 48 a–c) and L1 (fig. 52 d).
Fritware 2: Y2 (fig. 66 j–m and fig. 67 a–d), AH6 (fig. 70 e) and Z2 (fig. 61 a–i).

Not illustrated: 2.

W2 (g): Simple rim of bowl with straight vertical sides:
Grabar et al. *1978*: G-1/20, blue and black decorated under colourless glaze
Logar 1991: fig. 5/13 (diam. 18 cm.), black decoration under turquoise glaze.

V8 (h): Low splayed foot of deep bowl with straight sides, diam. about 7–8 cm.; the foot-ring has a characteristic convergent cut; the base can be flat or concave; see *fritware 1* A1 (fig. 42 a), A1b (fig. 43 e–i), B7 (fig. 44 e–f), H7 (fig. 48 d, h), and J3 (fig. 50 g).
See also V1 above.

V9 (i): Medium/high splayed foot of bowl with straight or slightly curving sides. The shape seems still related to the typical *fritware 1* foot. Compare with T8 and, in particular, with A10 (fig. 43 l–n), B8 (fig. 44 h), E4 (fig. 45 f, k–l), F4 (fig. 46 g–h, l–m), H8 (fig. 48 f, i–j), HH4 (fig. 49 e–h), J7 (fig. 51 b–e), M1 (fig. 52 a), and AQ1 (fig. 52 i).

V6 (j–k): High splayed foot. Very similar to a *fritware 2* type of foot, see AG5 (fig. 64 g), Y10 (fig. 68 c–e), and, in particular, Z10 (fig. 62 a–d).

V5 (l–m): High tapered foot-ring with straight or slightly splayed profile. It is the typical type of foot of *fritware 2*, see AG4 (fig. 64 e–f, h–i), Y9 (fig. 68 f–m and fig. 69 a, h), AK1 (fig. 69 o), and Z11 (fig. 62 e–k).

Not illustrated: 7.

W3 (n): High splayed foot. Very similar to a *fritware 2* type of foot, see AG5 (fig. 64 g), Y10 (fig. 68 c–e), and, in particular, Z10 (fig. 62 a–d), but more rounded:
Grabar et al. *1978*: G-1/18c, black decoration under turquoise glaze

Not illustrated: 2.

W4 (o): Flaring, tapered foot-ring of base with curving sides; compare with AH4 (fig. 70 f):
Grabar et al. *1978*: G-1/19b, lustre decoration on colourless glaze and G-1/19d, turquoise glaze.
Logar 1991: fig. 6/15 (diam. 4.8 cm.), black decoration under colourless glaze.

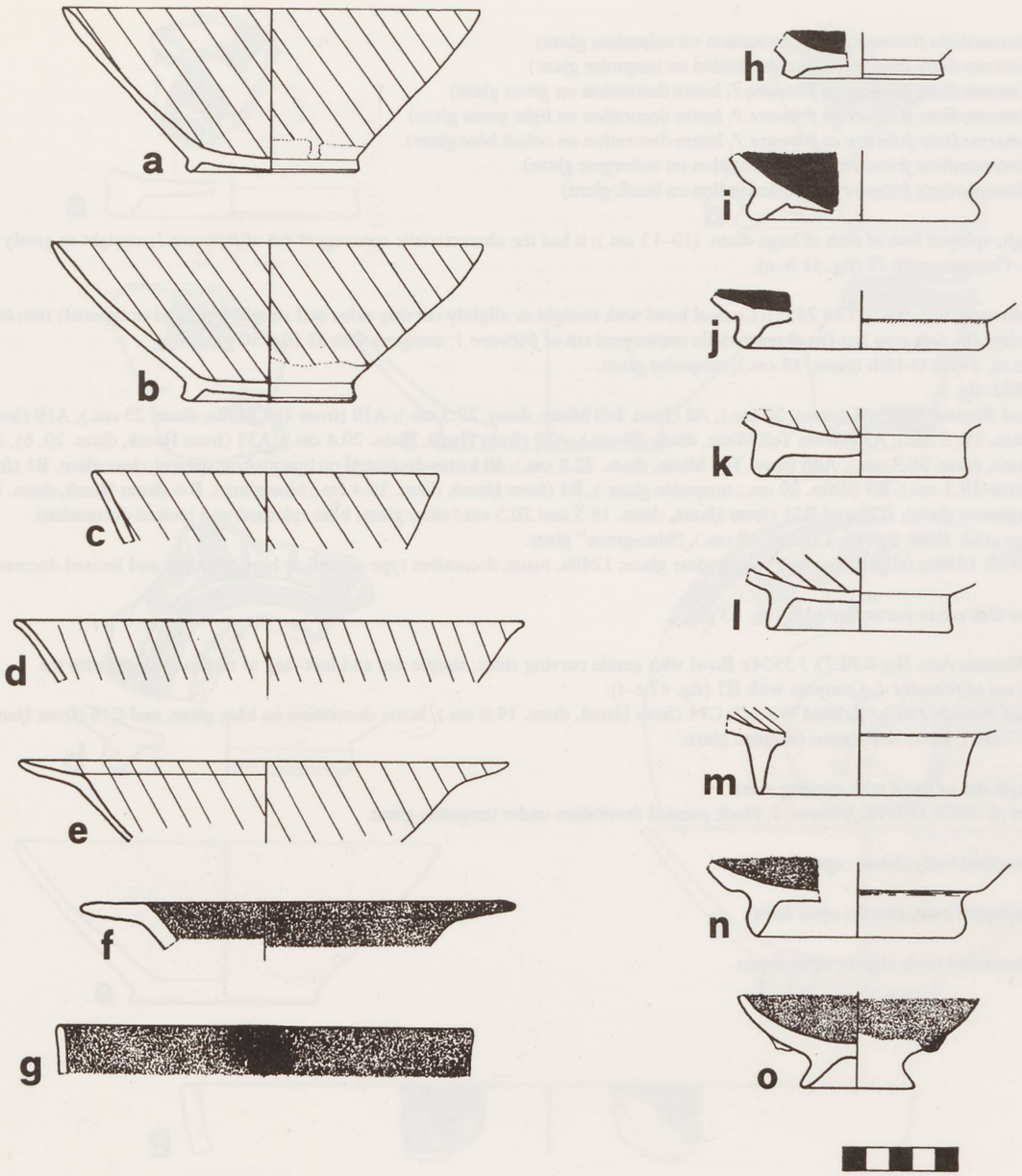

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Figure 59.
WARE JJ (*intermediate fritware*, lustre decoration on colourless glaze)
WARE AA (*intermediate fritware*, lustre decoration on turquoise glaze)
WARE AB (*intermediate fritware* or *fritware ?*, lustre decoration on green glaze)
WARE AE (*intermediate fritware* or *fritware ?*, lustre decoration on light green glaze)
WARE AF (*intermediate fritware* or *fritware ?*, lustre decoration on cobalt blue glaze)
WARE AD (*intermediate fritware*, lustre decoration on aubergine glaze)
WARE AC (*intermediate fritware*, lustre decoration on black glaze)

JJ1 (a–d): High, splayed foot of dish of large diam. (10–13 cm.); it has the characteristic convergent cut of *fritware 1*; straight or gently curving sides. Compare with J7 (fig. 51 b–e).

AA1 (e: QJ Museum Acc. No. 1 73 J 7553): Conical bowl with straight or slightly curving sides and simple (rounded or tapered) rim; low, splayed foot-ring; the foot-ring has the characteristic convergent cut of *fritware 1*; compare with J3 (fig. 50 g):
Grabar et al. *1978*: G-1/6b (diam. 18 cm.), turquoise glaze.
Porter 1981: fig. 1.
Porter and Watson 1987: A1 (diam. 20 cm.), A2 (from Tell Minis, diam. 20.5 cm.), A10 (from Tell Minis, diam. 23 cm.), A19 (from Tell Minis, diam. 19. 5 cm.), A26 (from Tell Minis, diam. 20 cm.), A30 (from Ḥamā, diam. 20.4 cm.), A33 (from Ḥamā, diam. 20. 6), A46 (from Ḥamā, diam. 20.3 cm.), A48 (from Tell Minis, diam. 22.8 cm.), all lustre-decorated on opaque/transparent clear glaze. B1 (from Ḥamā, diam. 19.2 cm.), B3 (diam. 20 cm.; turquoise glaze), B4 (from Ḥamā, diam. 19.4 cm.; blue glaze), B 6 (from Ḥamā, diam. 12.7 cm.; manganese glaze), B20 and B21 (from Ḥamā, diam. 19.5 and 20.5 cm.; clear glaze, blue splashed and incised decoration).
Northedge et al. *1988*: fig. 46, 1 (diam. 18 cm.), "blue-green" glaze.
Waagé 1948: 1238m (slightly curving sides), clear glaze; 1249a, lustre decoration type as well as blue splashed and incised decoration type.
For a very low foot see in particular AV1 (fig. 53 g).

AB1 (f: QJ Museum Acc. No. 6 III 73 J 5554): Bowl with gentle curving sides, simple rim and foot-ring of medium height with the characteristic cut of *fritware 1*. Compare with H1 (fig. 47 e–f):
Porter and Watson 1987: "Related Wares": C14 (from Ḥamā, diam. 19.6 cm.), lustre decoration on blue glaze, and C16 (from Ḥamā, diam. 18.7 cm.), lustre decoration on green glaze.

AE1 (g): Simple rim of bowl with curving sides:
Grabar et al. *1978*: G-1/12, *fritware 2*, black painted decoration under turquoise glaze.

AF (h–j): Decorated body sherds; open forms.

AD (k–l): Decorated body sherds; open form.

AC (m–n): Decorated body sherds; open forms.

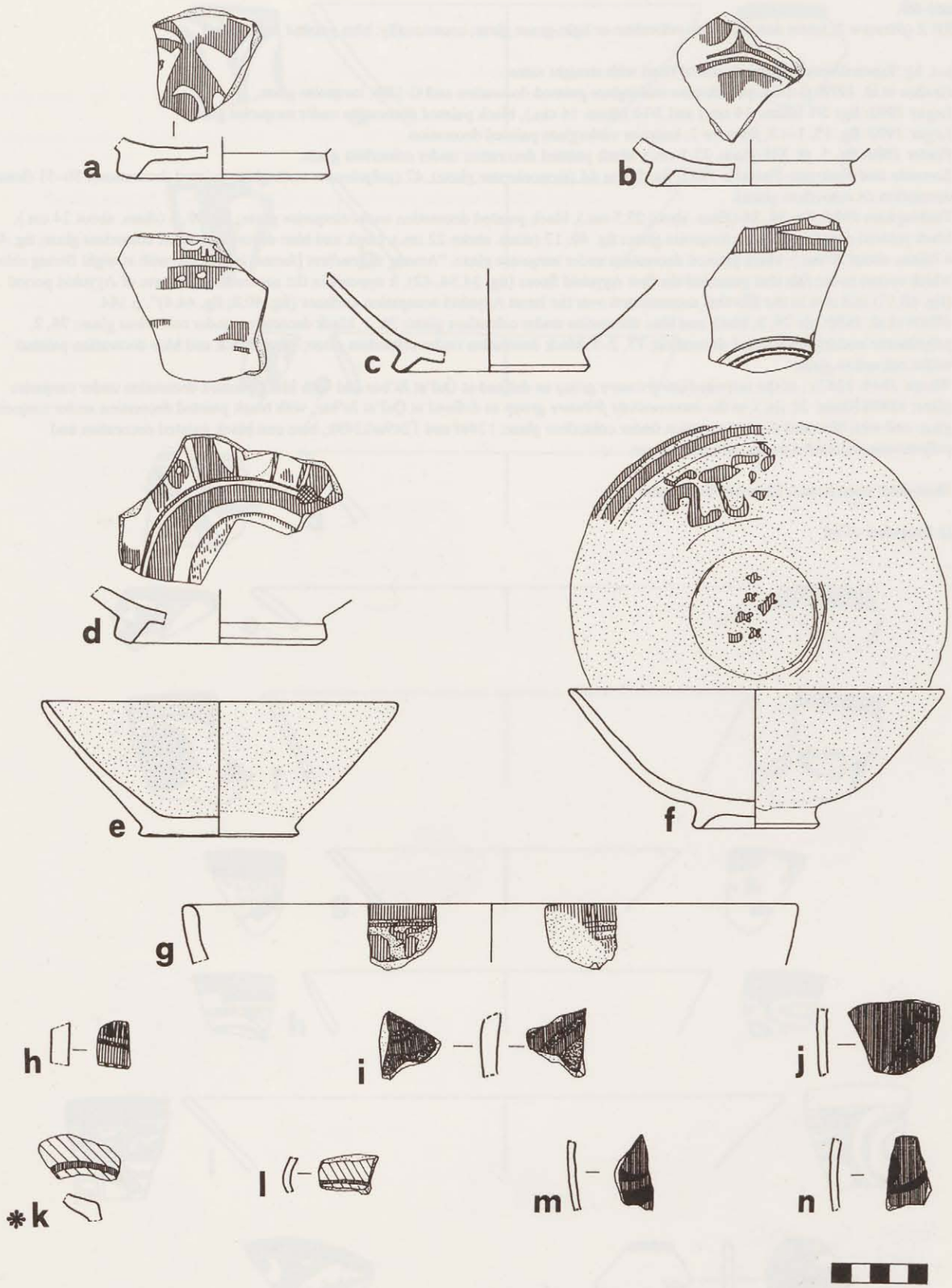

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Figure 60.
WARE Z (*fritware 2*, lustre decoration on colourless or light-green glaze; occasionally: blue painted decoration)

Z1 (a–i, k): Tapered/rounded simple rim of bowl with straight sides:
Grabar et al. *1978*: G-1/6a, polychrome underglaze painted decoration and G-1/6b, turquoise glaze.
Logar 1991: figs 5/1 (diam. 14 cm.) and 5/10 (diam. 16 cm.), black painted decoration under turquoise glaze.
Logar 1992: fig. 15, 1–15, *fritware 2*, lustre or underglaze painted decoration.
Porter 1981: fig. 5, pl. XII (diam. 27.5 cm.), black painted decoration under colourless glaze.
Scerrato and Ventrone-Vassallo 1982: fig. 1, nos 44 (monochrome glaze), 47 (polychrome underglaze painted decoration), 50–51 (lustre decoration on colourless glaze).
Tushingham 1985: fig. 34, 34 (diam. about 22.5 cm.), black painted decoration under turquoise glaze; fig. 40, 8 (diam. about 24 cm.), black painted decoration under turquoise glaze; fig. 40, 17 (diam. about 22 cm.), black and blue decoration under colourless glaze; fig. 44, 4 (diam. about 20 cm.), black painted decoration under turquoise glaze. "Among the earliest [forms] is the type with straight flaring sides, which occurs in the fills that preceded the first Ayyubid floors (fig. 34.34, 42). It appears in the succeeding platform of Ayyubid period (fig. 40.17) and also in the fills that accumulated over the latest Ayyubid occupation surfaces (fig. 40.8; fig. 44.4)", p.144.
Ulbert et al. *1986*: pls 75, 2, black and blue decoration under colourless glaze; 76, 1, black decoration under colourless glaze; 76, 2, polychrome underglaze painted decoration; 77, 2–3, black decoration under colourless glaze; 78, 1, black and blue decoration painted under colourless glaze.
Waagé 1948: 1247a , in the *intermediate fritware* group as defined at Qal'at Ja'bar and with black painted decoration under turquoise glaze; 1249a (diam. 21 cm.), in the *intermediate fritware* group as defined at Qal'at Ja'bar, with black painted decoration under turquoise glaze and with blue and black decoration under colourless glaze; 1249f and 1249a/1249k, blue and black painted decoration and polychrome decoration under colourless glaze.

Not illustrated: open forms: 12; small fragments: 21.

Z5 (j): Fragment of lid.

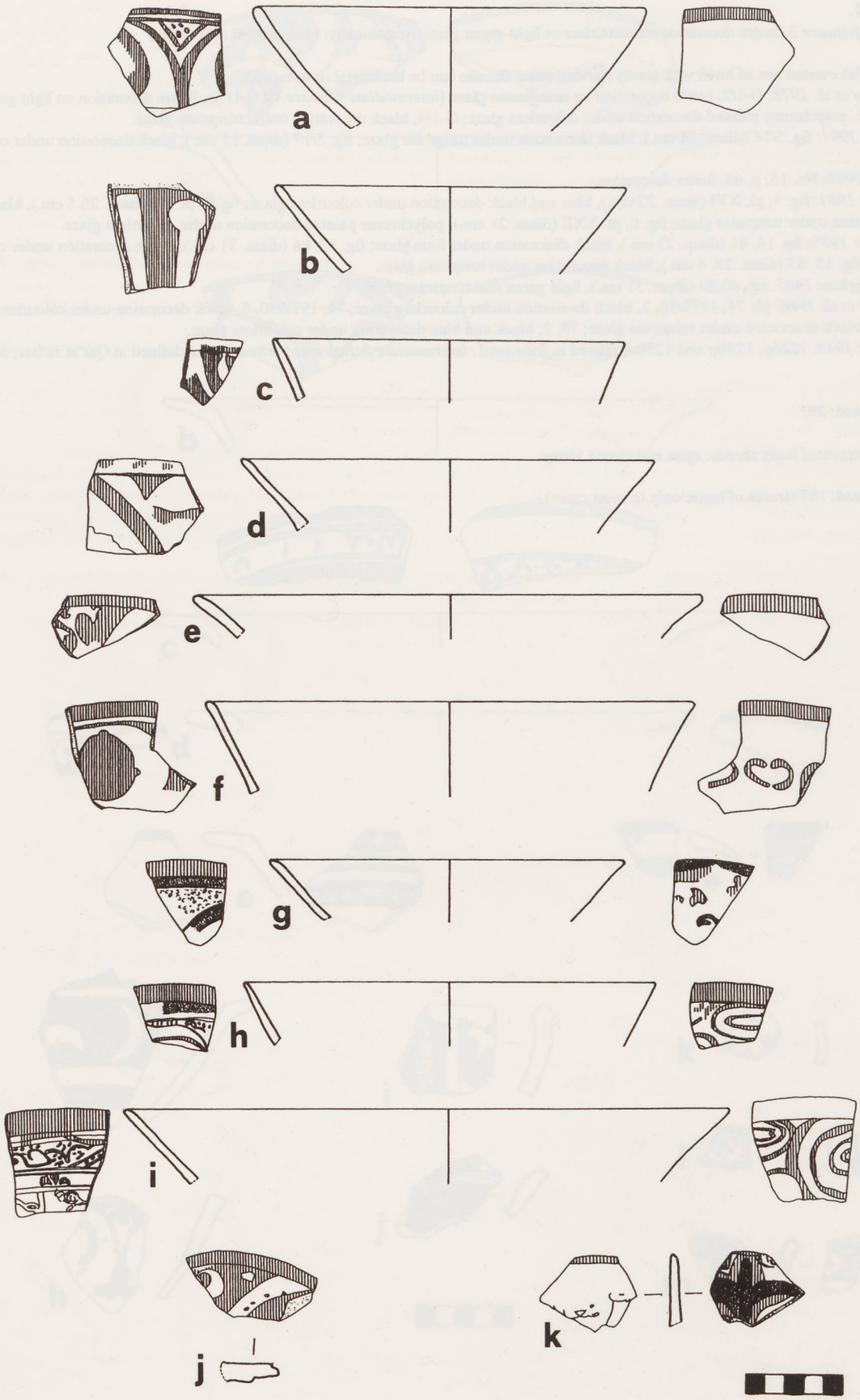

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Figure 61.
WARE Z (*fritware 2*, lustre decoration on colourless or light-green glaze; occasionally: blue painted decoration)

Z2 (a–i): Flat everted rim of bowl with gently curving sides; the rim can be horizontal or upturned:
Grabar et al. *1978*: G-1/2, lustre decoration on manganese glaze (*intermediate fritware* ?); G-1/ 3a, lustre decoration on light green glaze; G-1/3b, polychrome painted decoration under colourless glaze; G-1/4, black decoration under turquoise glaze.
Logar 1991: fig. 5/16 (diam. 28 cm.), black decoration under turquoise glaze; fig. 5/17 (diam. 15 cm.), black decoration under colourless glaze.
Mota 1988: No. 15, p. 68, lustre decoration.
Porter 1981: fig. 3, pl. XVI (diam. 22 cm.), blue and black decoration under colourless glaze; fig. 4, pl. XI (diam. 26.5 cm.), black decoration under turquoise glaze; fig. 6, pl. XXII (diam. 21 cm.), polychrome painted decoration under colourless glaze.
Pringle 1985: fig. 14, 81 (diam. 23 cm.), black decoration under blue glaze; fig. 15, 84 (diam. 31 cm.), black decoration under colourless glaze; fig. 15, 85 (diam. 28. 6 cm.), black decoration under turquoise glaze.
Tushingham 1985: fig. 40,20 (diam. 31 cm.), light green and turquoise glaze.
Ulbert et al. *1986*: pls 74, 1977/30, 3, black decoration under colourless glaze; 74, 1977/30, 5, black decoration under colourless glaze; 77, 1, black decoration under turquoise glaze; 78, 2, black and blue decoration under colourless glaze.
Waagé 1948: 1226p, 1230p and 1230u, related to *fritware 1*, *intermediate fritware* and *fritware 2* as defined at Qal'at Ja'bar; diam. 27–30 cm.

Not illustrated: 20.

Z (j–m): Decorated body sherds: open and closed forms.

Not illustrated: 107 (traces of lustre only in most cases).

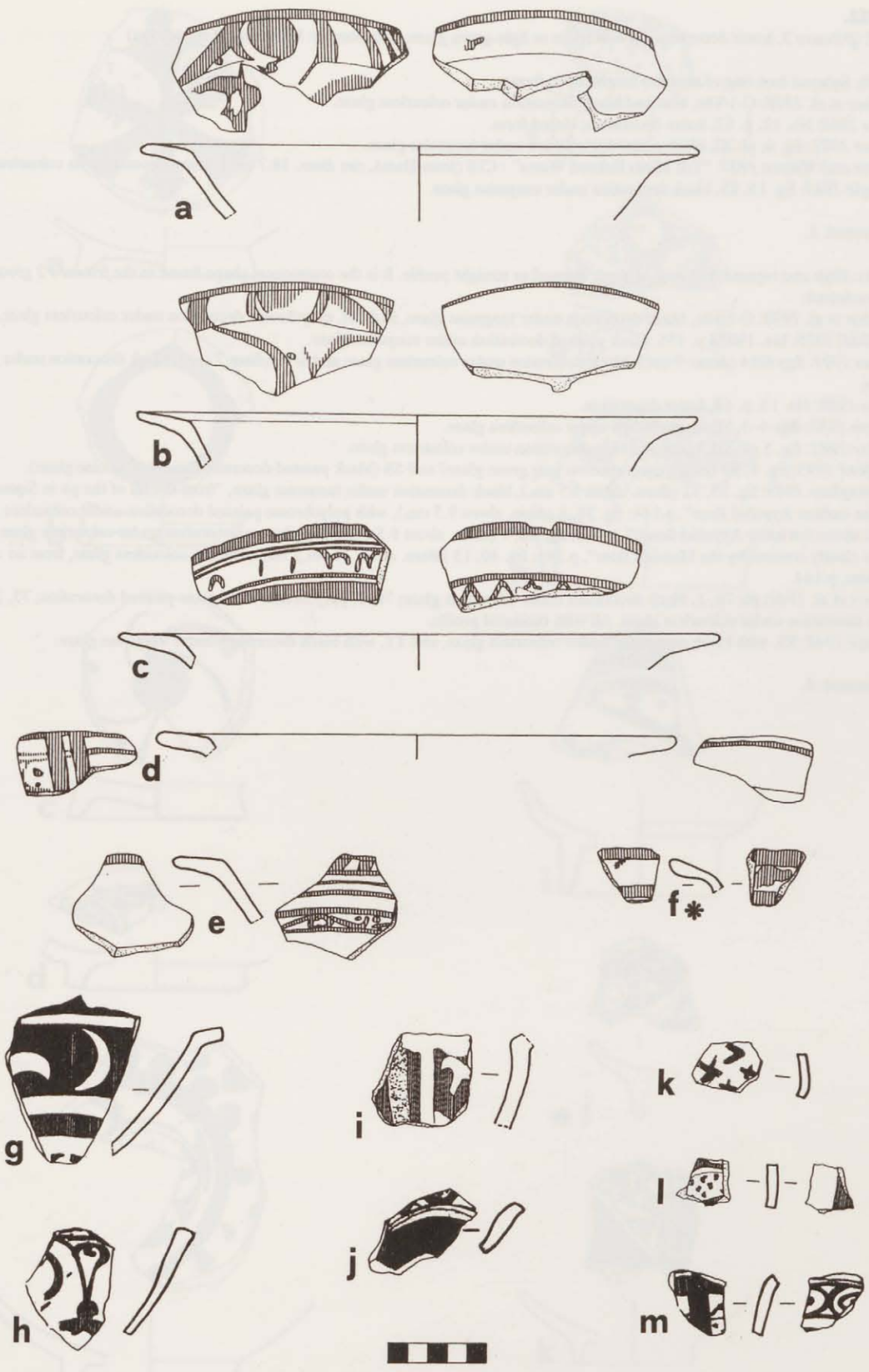

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Figure 62.
WARE Z (*fritware 2*, lustre decoration on colourless or light-green glaze; occasionally: blue painted decoration)

Z10 (a–d): Splayed foot-ring of medium height; open form:

Grabar et al. *1978*: G-1/18c, blue and black decoration under colourless glaze.
Mota 1988: No. 12, p. 62, lustre decoration; closed form.
Porter 1981: fig. 4, pl. XI, black painted decoration under turquoise glaze.
Porter and Watson 1987: "Tell Minis Related Wares" : C10 (from Ḥamā, rim diam. 18.7 cm.), lustre decoration on colourless glaze.
Pringle 1985: fig. 15, 85, black decoration under turquoise glaze.

Not illustrated: 2.

Z11 (e–k): High and tapered foot-ring of bowl; splayed or straight profile. It is the commonest shape found in the *fritware 2* group. The bowl is often carinated:

Grabar et al. *1978*: G-1/18e, black decoration under turquoise glaze, and 18f, polychrome decoration under colourless glaze.
al-Khūlī 1975: Inv. 19054 p. 155, black painted decoration under turquoise glaze.
Logar 1991: figs 6/14 (diam. 7 cm.), black decoration under colourless glaze and 6/16 (diam 7 cm.), black decoration under turquoise glaze.
Mota 1988: No. 15, p. 68, lustre decoration.
Philon 1985: figs 4–5, black decoration under colourless glaze.
Porter 1981: fig. 5 pl. XII, black and blue decoration under colourless glaze.
Redford 1995: fig. 9, PP (lustre decoration on pale green glaze) and SS (black painted decoration under turquoise glaze).
Tushingham 1985: fig. 35, 32 (diam. about 3.5 cm.), black decoration under turquoise glaze, "from the fill of the pit in Square XI sealed by the earliest Ayyubid floor", p.144; fig. 38, 6 (diam. about 9.5 cm.), with polychrome painted decoration under colourless glaze, from "fills above the latest Ayyubid floors", p.144; fig. 40, 7 (diam. about 9.5 cm.), polychrome decoration under colourless glaze from a "fill quite clearly covered by the Mamluk floor", p.144; fig. 40, 13 (diam. about 10 cm.), monochrome colourless glaze, from an Ayyūbid context, p.144.
Ulbert et al. *1986*: pls 76, 1, black decoration under colourless glaze; 76, 2, polychrome underglaze painted decoration; 75, 2, black and blue decoration under colourless glaze. All with carinated profile.
Waagé 1948: SS, with black decoration under colourless glaze, and TT, with black decoration under turquoise glaze.

Not illustrated: 8.

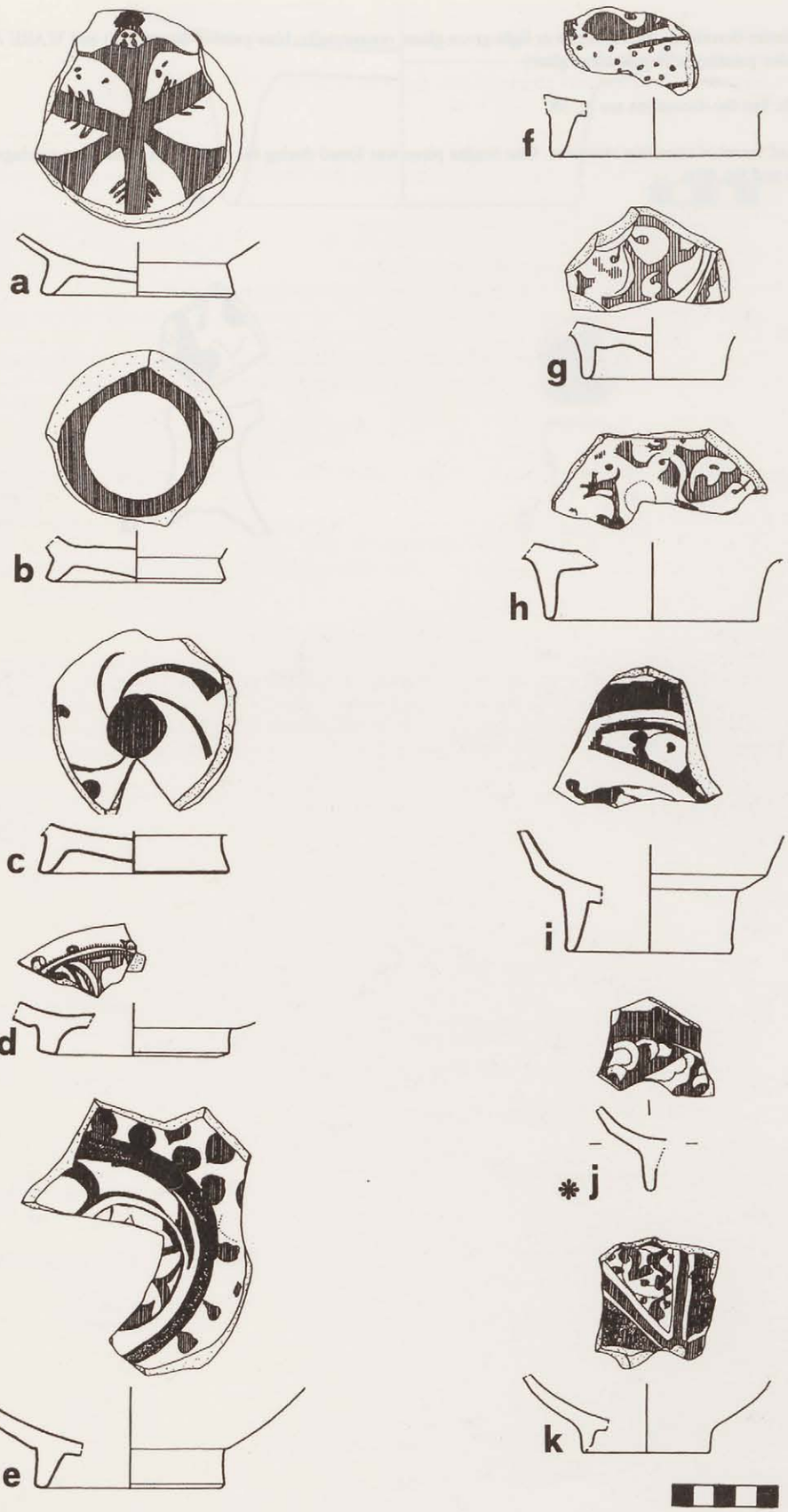

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Figure 63.
WARE Z (*fritware 2*, lustre decoration on colourless or light-green glaze; occasionally: blue painted decoration) and WARE AW (*fritware 2*, lustre decoration and blue painting with colourless glaze)

Z11 (a): See fig. 62 e–k. For the decoration see pl. 38.

AW1 (b–c): High foot of vessel of uncertain character. One similar piece was found during the excavation of the new sondages in phase VI (sondage S2), see p.34 and fig. 40 c.

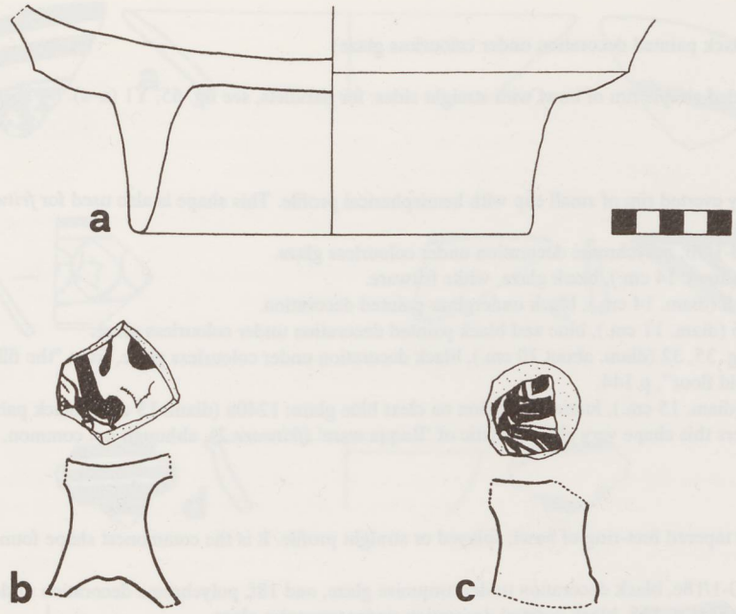

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Figure 64.
WARE AG (*fritware 2*, black painted decoration under colourless glaze)

AG1 (a–c): Tapered/rounded simple rim of bowl with straight sides: for parallels, see fig. 65, Y1 (a–s).

Not illustrated: 6.

AG2 (d): Tapered, slightly everted rim of small cup with hemispherical profile. This shape is also used for *fritware 1*; compare with A2 (fig. 42 f) and AAS2 (fig. 50 a–b):

Grabar et al. *1978*: G-1/7b, polychrome decoration under colourless glaze.
Logar 1991: fig. 5/2 (diam. 14 cm.), black glaze, white fritware.
Logar 1992: fig. 14/18 (diam. 14 cm.), black underglaze painted decoration.
Sarre 1925: fig. 6, 35 (diam. 11 cm.), blue and black painted decoration under colourless glaze.
Tushingham 1985: fig. 35, 32 (diam. about 10 cm.), black decoration under colourless glaze, from "the fill of the pit in Square XI sealed by the earliest Ayyubid floor", p.144.
Waagé 1948: 1240f (diam. 15 cm.), lustre decoration on clear blue glaze; 1240a (diam. 13 cm.), black painted decoration under turquoise glaze. Waagé considers this shape very characteristic of 'Raqqa ware' (*fritware 2*), although not common, p.99.

Not illustrated: 1.

AG4 (e–f, h–i): High and tapered foot-ring of bowl; splayed or straight profile. It is the commonest shape found in the *fritware 2* group. The bowl is often carinated:

Grabar et al. *1978*: G-1/18e, black decoration under turquoise glaze, and 18f, polychrome decoration under colourless glaze.
al-Khūlī 1975: Inv. 19054 p. 155, black painted decoration under turquoise glaze.
Logar 1991: figs 6/14 (diam. 7 cm.), black decoration under colourless glaze and 6/16 (diam. 7 cm.), black decoration under turquoise glaze.
Philon 1985: figs 4–5, black decoration under colourless glaze.
Porter 1981: fig. 5, pl. XII, black and blue decoration under colourless glaze.
Redford 1995: fig. 9, PP (lustre decoration on pale green glaze) and SS (black painted decoration under turquoise glaze).
Tushingham 1985: fig. 35, 32 (diam. about 3.5 cm.), black decoration under turquoise glaze, "from the fill of the pit in Square XI sealed by the earliest Ayyubid floor", p.144; fig. 38, 6 (diam. about 9.5 cm.), with polychrome painted decoration under colourless glaze, from "fills above the latest Ayyubid floors", p.144; fig. 40, 7 (diam. about 9.5 cm.), polychrome decoration under colourless glaze from a "fill quite clearly covered by the Mamluk floor", p.144; fig. 40, 13 (diam. about 10 cm.), monochrome colourless glaze, from an Ayyūbid context, p.144.
Ulbert et al. *1986*: pls 76, 1, black decoration under colourless glaze; 76, 2, polychrome underglaze painted decoration; 75, 2, black and blue decoration under colourless glaze. All with carinated profile.

Not illustrated: 5.

AG5 (g): Splayed foot-ring of medium height; open form:

Grabar et al. *1978*: G-1/18c, blue and black decoration under colourless glaze.
Logar 1992: fig. 16/9 (diam. 11 cm.), black under colourless glaze.
Porter 1981: fig. 4 pl. XI, black painted decoration under turquoise glaze.
Porter and Watson 1987: "Tell Minis Related Wares": C10 (from Ḥamā, rim diam. 18.7 cm.), lustre decoration on colourless glaze.
Pringle 1985: fig. 15, 85, black decoration under turquoise glaze.

AG8 (j): High and straight-sided ring base of closed form. The shape of the foot is very close to AG4 (above, e–f and h–i), which belongs to open forms:

Grabar et al. *1978*: G-2/1b, black decoration under turquoise glaze.

AG7 (k): Fragment of a straight sided bowl, generally provided with one or two handles:[2]

Poulsen 1957: a large number of bowls of this shape were recovered at Ḥamā: for the style of the decoration some of them can be classified as *fritware 2*, and others as *fritware 3*: figs. 521–526, 567, 569–570, 578 (the decoration is the same of fig. 64 k), 617, 647–650, 665, 681.
Tushingham 1985: a bowl of this type, but with concave sides, was recovered from the Mamlūk layer at the Armenian Garden in Jerusalem, attributed to the last quarter of the 14th century, fig. 41, 42 and p.144.

AG6 (l): Fragment of low flattened base from closed form:

Grabar et al. *1978*: G-2/2, black decoration under turquoise glaze.

AG (m): Decorated body sherd; external decoration only.

Not illustrated: internal decoration: 14; external decoration: 6.

[2] The shape is also similar to that of *albarellos*, but the fragment has been considered an open form because of the glazed, well finished interior.

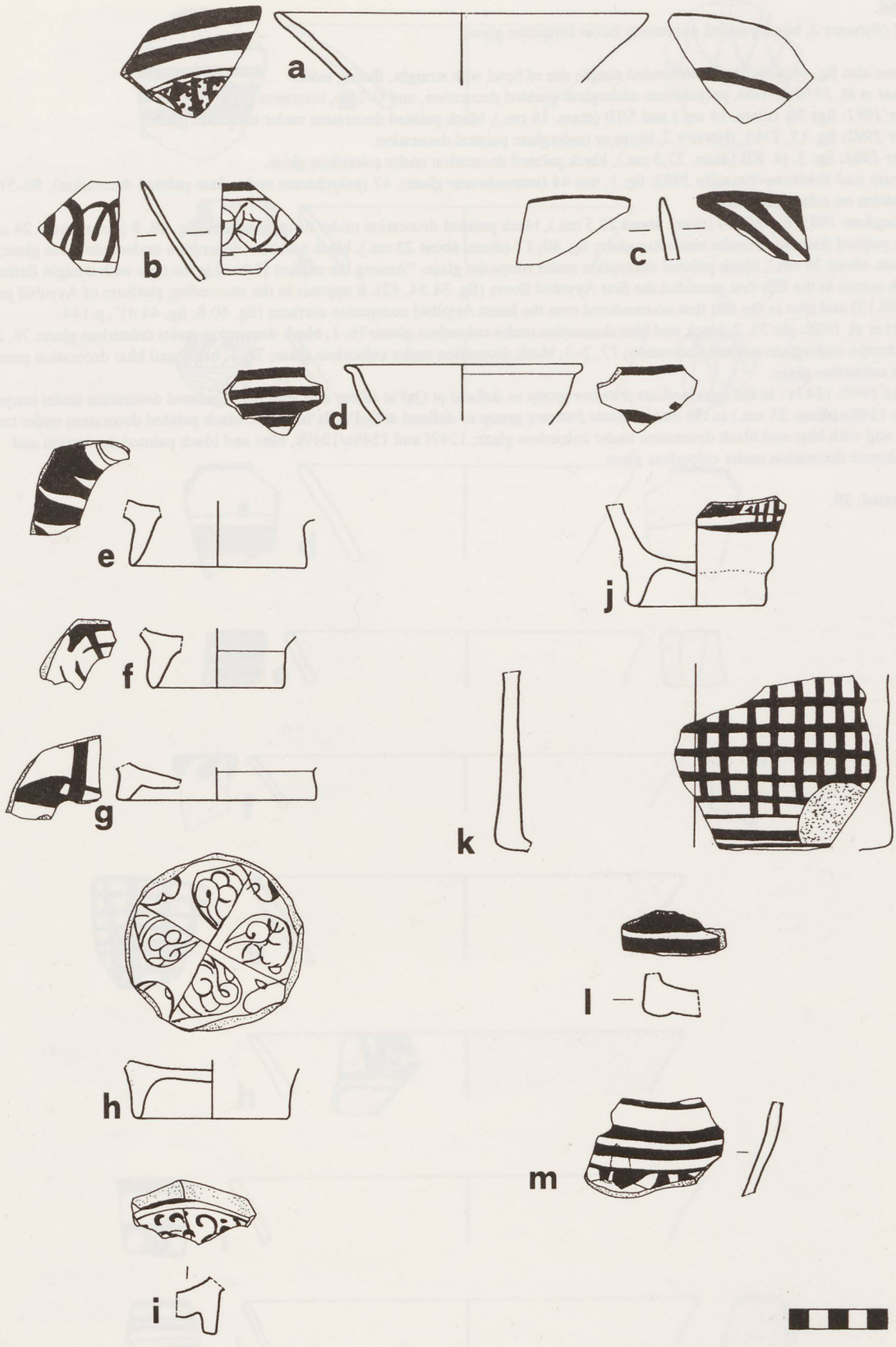

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Figure 65.
WARE Y (*fritware 2*, black painted decoration under turquoise glaze)

Y1 (a–j; see also fig. 66 a–i): Tapered/rounded simple rim of bowl with straight, flaring sides:
Grabar et al. *1978*: G-1/6a, polychrome underglaze painted decoration, and G-1/6b, turquoise glaze.
Logar 1991: figs 5/1 (diam. 14 cm.) and 5/10 (diam. 16 cm.), black painted decoration under turquoise glaze.
Logar 1992: fig. 15, 1–15, *fritware 2*, lustre or underglaze painted decoration.
Porter 1981: fig. 5, pl. XII (diam. 27.5 cm.), black painted decoration under colourless glaze.
Scerrato and Ventrone-Vassallo 1982: fig. 1, nos 44 (monochrome glaze), 47 (polychrome underglaze painted decoration), 50–51 (lustre decoration on colourless glaze).
Tushingham 1985: fig. 34, 34 (diam. about 22.5 cm.), black painted decoration under turquoise glaze; fig. 40, 8 (diam. about 24 cm.), black painted decoration under turquoise glaze; fig. 40, 17 (diam. about 22 cm.), black and blue decoration under colourless glaze; fig. 44, 4 (diam. about 20 cm.), black painted decoration under turquoise glaze. "Among the earliest [forms] is the type with straight flaring sides, which occurs in the fills that preceded the first Ayyubid floors (fig. 34.34, 42). It appears in the succeeding platform of Ayyubid period (fig. 40.17) and also in the fills that accumulated over the latest Ayyubid occupation surfaces (fig. 40.8; fig. 44.4)", p.144.
Ulbert et al. *1986*: pls 75, 2, black and blue decoration under colourless glaze; 76, 1, black decoration under colourless glaze; 76, 2, polychrome underglaze painted decoration; 77, 2–3, black decoration under colourless glaze; 78, 1, black and blue decoration painted under colourless glaze.
Waagé 1948: 1247a , in the *intermediate fritware* group as defined at Qal'at Ja'bar and with black painted decoration under turquoise glaze; 1249a (diam. 21 cm.) in the *intermediate fritware* group as defined at Qal'at Ja'bar, with black painted decoration under turquoise glaze and with blue and black decoration under colourless glaze; 1249f and 1249a/1249k, blue and black painted decoration and polychrome decoration under colourless glaze.

Not illustrated: 29.

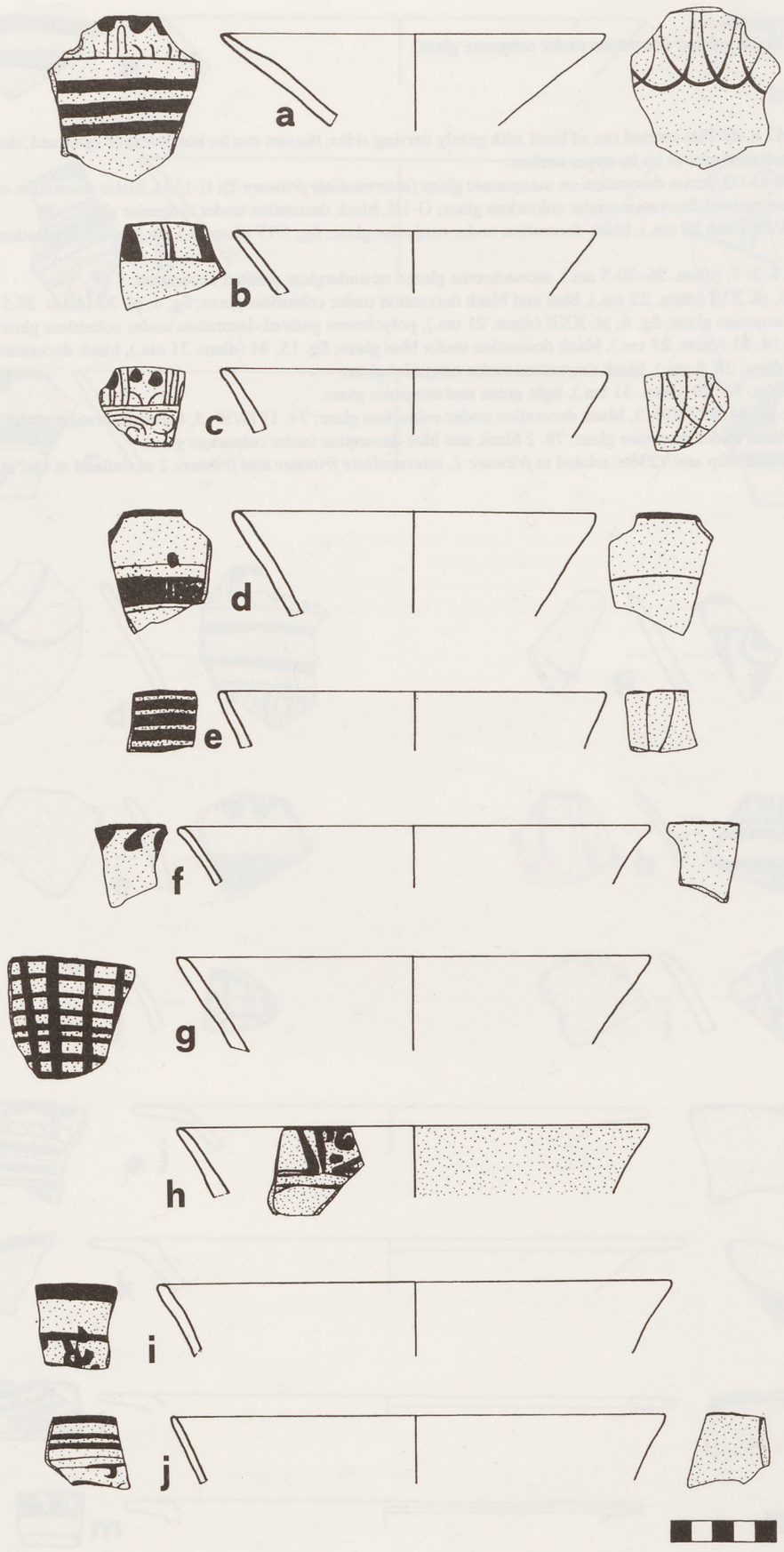

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Figure 66.
WARE Y (*fritware 2*, black painted decoration under turquoise glaze)

Y1 (a–i): See fig. 65 a–j.

Y2 (j–m; see also fig. 67 a–d): Flat everted rim of bowl with gently curving sides; the rim can be horizontal or upturned; the flat rim can occasionally have an indented groove on its upper surface:

Grabar et al. *1978*: G-1/2, lustre decoration on manganese glaze (*intermediate fritware* ?); G-1/ 3a, lustre decoration on light green glaze; G-1/3b, polychrome painted decoration under colourless glaze; G-1/4, black decoration under turquoise glaze.

Logar 1991: fig. 5/16 (diam 28 cm.), black decoration under turquoise glaze; fig. 5/17 (diam. 15 cm.), black decoration under colourless glaze.

Logar 1992: fig. 14, 3–7, (diam. 26–30.5 cm.), monochrome glazed or underglaze painted decoration.

Porter 1981: fig. 3, pl. XVI (diam. 22 cm.), blue and black decoration under colourless glaze; fig. 4, pl. XI (diam. 26.5 cm.), black decoration under turquoise glaze; fig. 6, pl. XXII (diam. 21 cm.), polychrome painted decoration under colourless glaze.

Pringle 1985: fig. 14, 81 (diam. 23 cm.), black decoration under blue glaze; fig. 15, 84 (diam. 31 cm.), black decoration under colourless glaze; fig. 15, 85 (diam. 28. 6 cm.), black decoration under turquoise glaze.

Tushingham 1985: fig. 40, 20 (diam. 31 cm.), light green and turquoise glaze.

Ulbert et al. *1986*: pls 74, 1977/30, 3, black decoration under colourless glaze; 74, 1977/30, 5, black decoration under colourless glaze; 77, 1, black decoration under turquoise glaze; 78, 2 black and blue decoration under colourless glaze.

Waagé 1948: 1226p, 1230p and 1230u, related to *fritware 1*, *intermediate fritware* and *fritware 2* as defined at Qal'at Ja'bar; diam. 27–30 cm.

Not illustrated: 17.

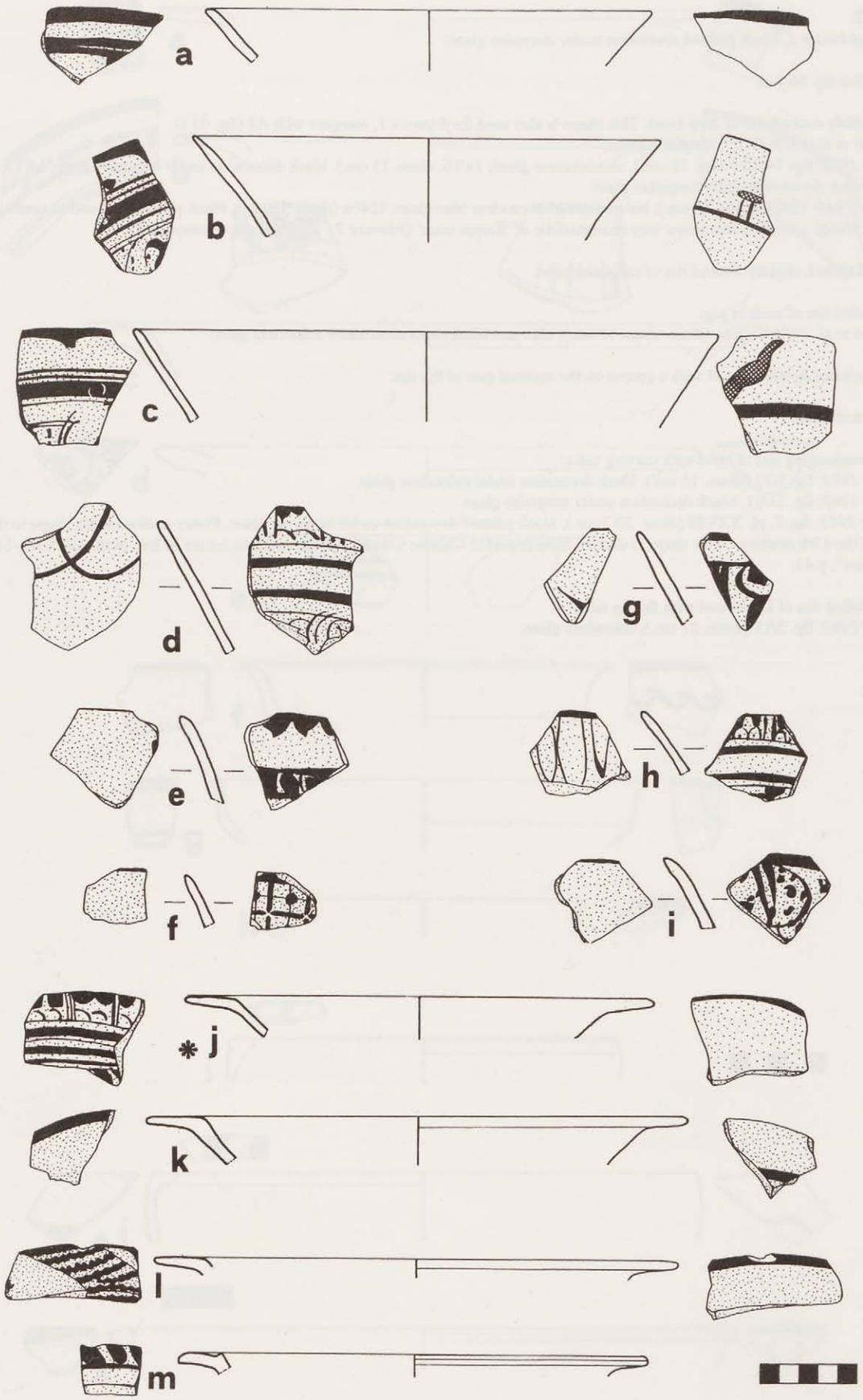

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Figure 67.
WARE Y (*fritware 2*, black painted decoration under turquoise glaze)

Y2 (a–d): See fig. 66 j–m.

Y3 (e): Slightly everted rim of deep bowl. This shape is also used for *fritware 1*; compare with A2 (fig. 42 f):
Grabar et al. *1978*: G-2/9, turquoise glaze.
Logar 1992: figs 14/15 (diam. 12 cm.), monochrome glaze; 14/16, diam. 13 cm.), black decoration under turquoise glaze; 14/17 (diam. 13 cm.), black decoration under turquoise glaze.
Waagé 1948: 1240f (diam. 15 cm.), lustre decoration on clear blue glaze; 1240a (diam. 13 cm.), black painted decoration under turquoise glaze. Waagé considers this shape very characteristic of 'Raqqa ware' (*fritware 2*), although not common, p.99.

Y5 (f–g): Tapered, slightly everted rim of carinated bowl.

Y7 (h): Rolled rim of neck of jug:
Grabar et al. *1978*: G-2/1a (diam. about 12 cm.), blue and black decoration under colourless glaze.

Y6 (i): Overhanging rim of bowl with a groove on the external part of the rim.

Not illustrated: 1.

Y16 (j): Overhanging rim of bowl with curving sides:
Logar 1991: fig. 5/11 (diam. 13 cm.), black decoration under colourless glaze.
Logar 1992: fig. 14/11, black decoration under turquoise glaze.
Porter 1981: fig. 7, pl. XXVIII (diam. 20.7 cm.), black painted decoration under turquoise glaze. Porter attributes this shape to the second half of the 13th century: "This shape is derived from imported Chinese Celadon wares, and also occurs in Iran in the late 13th–14th centuries", p.41.

Y15 (k): Rolled rim of large bowl with flaring sides:
Logar 1991: fig. 5/15 (diam. 27 cm.), colourless glaze.

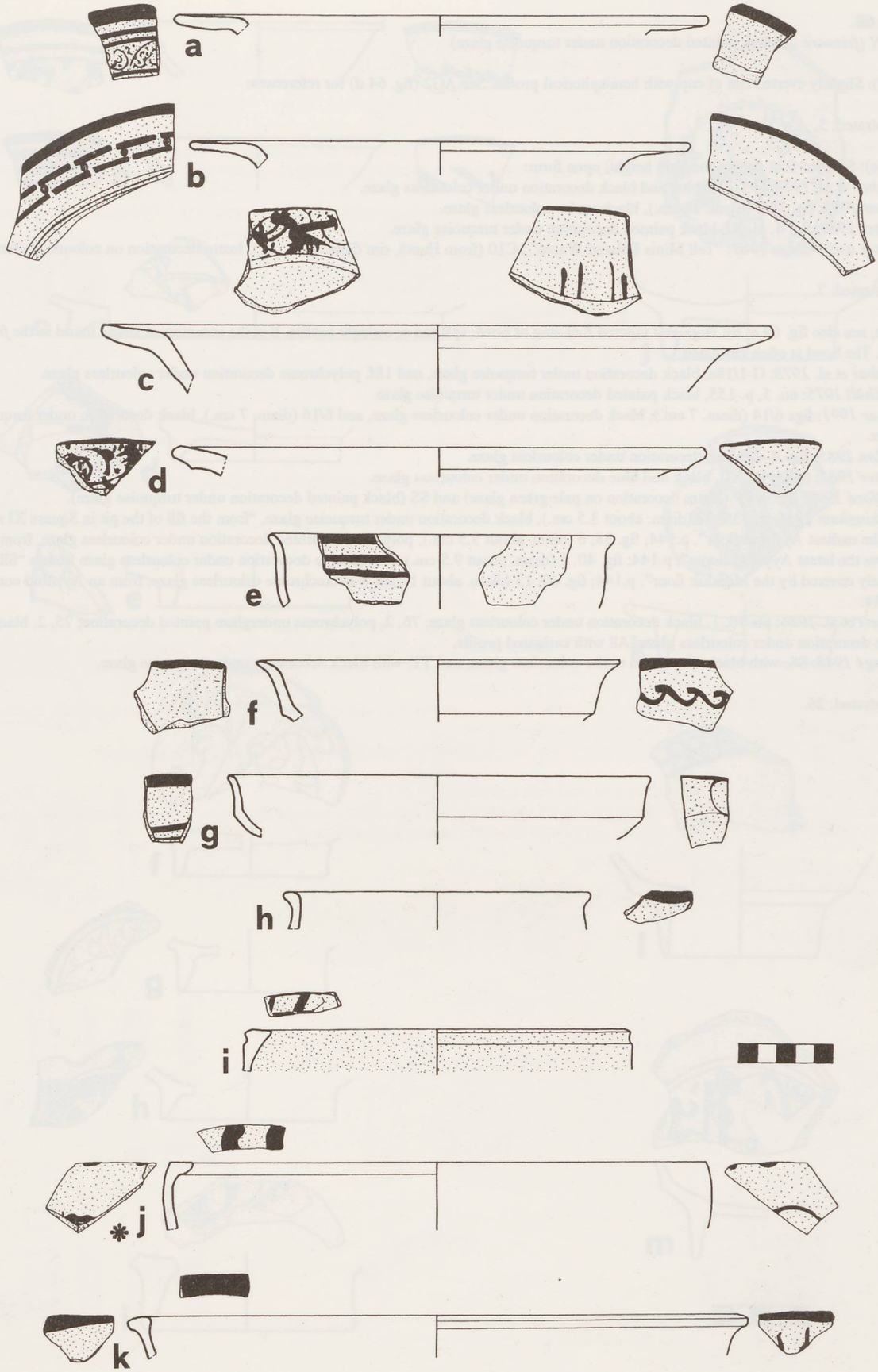

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Figure 68.
WARE Y (*fritware 2*, black painted decoration under turquoise glaze)

Y8 (a–b): Slightly everted rim of cup with hemispherical profile. See AG2 (fig. 64 d) for references:

Not illustrated: 3.

Y10 (c–e): Splayed foot-ring of medium height; open form:
Grabar et al. *1978*: G-1/18c, blue and black decoration under colourless glaze.
Logar 1992: fig. 16/9 (diam. 11 cm.), black under colourless glaze.
Porter 1981: fig. 4, pl. XI, black painted decoration under turquoise glaze.
Porter and Watson 1987: "Tell Minis Related Wares" : C10 (from Ḥamā, rim diam. 18.7 cm.), lustre decoration on colourless glaze.

Not illustrated: 7.

Y9 (f–m; see also fig. 69 a, h): High and tapered foot-ring of bowl; splayed or straight profile. It is the commonest shape found in the *fritware 2* group. The bowl is often carinated:
Grabar et al. *1978*: G-1/18e, black decoration under turquoise glaze, and 18f, polychrome decoration under colourless glaze.
al-Khūlī 1975: no. 5, p. 155, black painted decoration under turquoise glaze.
Logar 1991: figs 6/14 (diam. 7 cm.), black decoration under colourless glaze, and 6/16 (diam. 7 cm.), black decoration under turquoise glaze.
Philon 1985: figs 4–5, black decoration under colourless glaze.
Porter 1981: fig. 5, pl. XII, black and blue decoration under colourless glaze.
Redford 1995: fig. 9, PP (lustre decoration on pale green glaze) and SS (black painted decoration under turquoise glaze).
Tushingham 1985: fig. 35, 32 (diam. about 3.5 cm.), black decoration under turquoise glaze, "from the fill of the pit in Square XI sealed by the earliest Ayyubid floor", p.144; fig. 38, 6 (diam. about 9.5 cm.), polychrome painted decoration under colourless glaze, from "fills above the latest Ayyubid floors", p.144; fig. 40, 7 (diam. about 9.5 cm.), polychrome decoration under colourless glaze from a "fill quite clearly covered by the Mamluk floor", p.144; fig. 40, 13 (diam. about 10 cm.), monochrome colourless glaze, from an Ayyūbid context, p.144.
Ulbert et al. *1986*: pls 76, 1, black decoration under colourless glaze; 76, 2, polychrome underglaze painted decoration; 75, 2, black and blue decoration under colourless glaze. All with carinated profile.
Waagé 1948: SS, with black decoration under colourless glaze, and TT, with black decoration under turquoise glaze.

Not illustrated: 26.

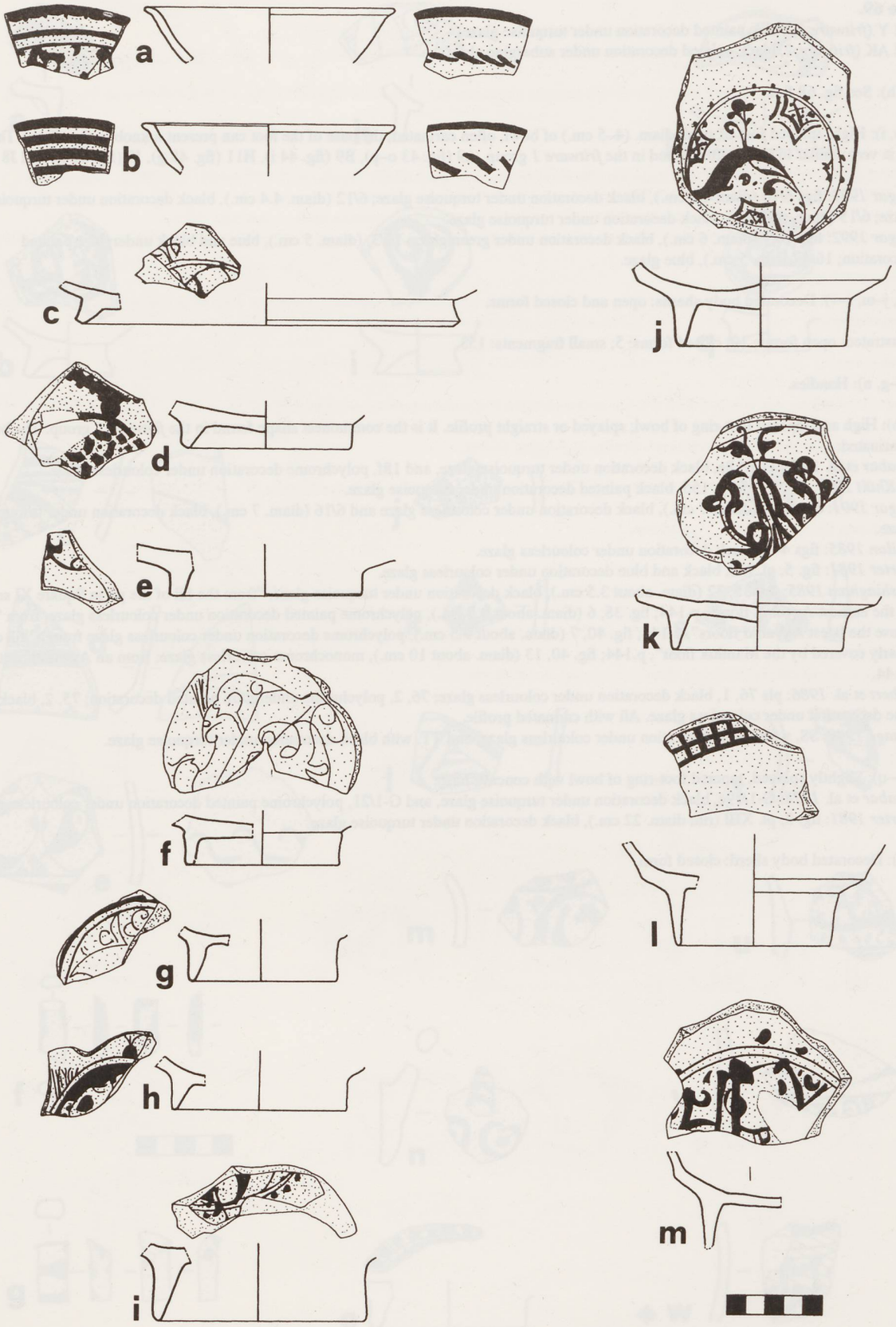

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Figure 69.
WARE Y (*fritware 2*, black painted decoration under turquoise glaze)
WARE AK (*fritware 2*, black painted decoration under aubergine glaze)

Y9 (a, h): See fig. 68 f–m.

Y11 (b, i): High, splayed foot of small diam. (4–5 cm.) of bowl, often carinated; the base of the foot can present a knob in the centre. This type of foot is very similar to a foot often found in the *fritware 1* group, A9 (fig. 43 o–p), B9 (fig. 44 i), H11 (fig. 48 g), J5 (fig. 51 f), and J8 (fig. 51 g):

Logar 1991: figs 6/10 (diam 4.3 cm.), black decoration under turquoise glaze; 6/12 (diam. 4.4 cm.), black decoration under turquoise glaze; 6/15 (diam. 4.8 cm.), black decoration under turquoise glaze.
Logar 1992: figs 16/1 (diam. 6 cm.), black decoration under green glaze; 16/3, (diam. 5 cm.), blue and black underglaze painted decoration; 16/4 (diam. 5 cm.), blue glaze.

Y (c–e, j–m, r–v): Decorated body sherds: open and closed forms.

Not illustrated: open forms: 19; closed forms: 5; small fragments: 153.

Y14 (f–g, n): Handles.

AK1 (o): High and tapered foot-ring of bowl; splayed or straight profile. It is the commonest shape found in the *fritware 2* group. The bowl is often carinated:

Grabar et al. *1978*: G-1/18e, black decoration under turquoise glaze, and 18f, polychrome decoration under colourless glaze.
al-Khūlī 1975: Inv. 19054 p. 155, black painted decoration under turquoise glaze.
Logar 1991: figs 6/14 (diam. 7 cm.), black decoration under colourless glaze and 6/16 (diam. 7 cm.), black decoration under turquoise glaze.
Philon 1985: figs 4–5, black decoration under colourless glaze.
Porter 1981: fig. 5, pl. XII, black and blue decoration under colourless glaze.
Tushingham 1985: fig. 35, 32 (diam. about 3.5 cm.), black decoration under turquoise glaze, "from the fill of the pit in Square XI sealed by the earliest Ayyubid floor", p.144; fig. 38, 6 (diam. about 9.5 cm.), polychrome painted decoration under colourless glaze, from "fills above the latest Ayyubid floors", p.144; fig. 40, 7 (diam. about 9.5 cm.), polychrome decoration under colourless glaze from a "fill quite clearly covered by the Mamluk floor", p.144; fig. 40, 13 (diam. about 10 cm.), monochrome colourless glaze, from an Ayyūbid context, p.144.
Ulbert et al. *1986*: pls 76, 1, black decoration under colourless glaze; 76, 2, polychrome underglaze painted decoration; 75, 2, black and blue decoration under colourless glaze. All with carinated profile.
Waagé 1948: SS, with black decoration under colourless glaze, and TT, with black decoration under turquoise glaze.

Y17 (p–q): Slightly splayed, tapered foot-ring of bowl with concave base:

Grabar et al. *1978*: G-1/19c, black decoration under turquoise glaze, and G-1/21, polychrome painted decoration under colourless glaze.
Porter 1981: fig. 2, pl. XIII (rim diam. 22 cm.), black decoration under turquoise glaze.

AK (w): Decorated body sherd: closed form.


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Figure 70.
WARE AH (*fritware 2*, black painted decoration with blue under colourless glaze)
WARE AJ (*fritware 2*, black painted decoration with turquoise under colourless glaze)

AH1 (a): Tapered/rounded simple rim of bowl with straight sides; see AG1 (fig. 64 a–c) and Y1 (fig. 65 a–g and 66 a–i) for references.

Not illustrated: 3.

AH2 (b): Simple rim of bowl with curving sides; this form seems to be particularly popular in the *fritware 3* group:
Atil 1981: n. 67, p. 154, turquoise and black decoration under colourless glaze, 14th century.
al-Khūlī 1975: p. 157, Inv. 19062 (diam. 25.5 cm.), turquoise and black decoration under colourless glaze.
Porter 1981: fig. 8, pl. XXIX (diam. 25 cm.), blue and black decoration under colourless glaze, attributed to the second half of the 13th or early 14th century.
Sarre 1925: fig. 4, 7.
Waagé 1948: 1253u (diam. 30 cm.), lustre on turquoise glaze (see 90, *intermediate fritware* as defined at Qal'at Ja'bar) and monochrome turquoise glaze.

Not illustrated: 2.

AH5 (c): Overhanging rim of bowl with a ridge on the exterior. For a similar vessel see Y16 (fig. 67 j).

AH3 (d): Simple rim of flaring sided bowl. Similar to Y5 (fig. 67 f–g).

AH6 (e): Fragment of flat everted rim of bowl; see Y2 (fig. 66 j–m and fig. 67 a–d) for references.

Not illustrated: 2.

AH4 (f): Flaring, tapered foot-ring of base with curving sides:
Grabar et al. *1978*: G-1/19b, lustre decoration on colourless glaze and G-1/19d, turquoise glaze.
Logar 1991: fig. 6/15 (diam. 4.8 cm.), black decoration under colourless glaze.
Logar 1992: fig. 16/3, (diam. 5 cm.), blue and black underglaze painted decoration.

AH (g–h, j–k, m–n): Decorated body sherds: open and closed forms.

AJ (i, l, o): Decorated body sherds: open forms.

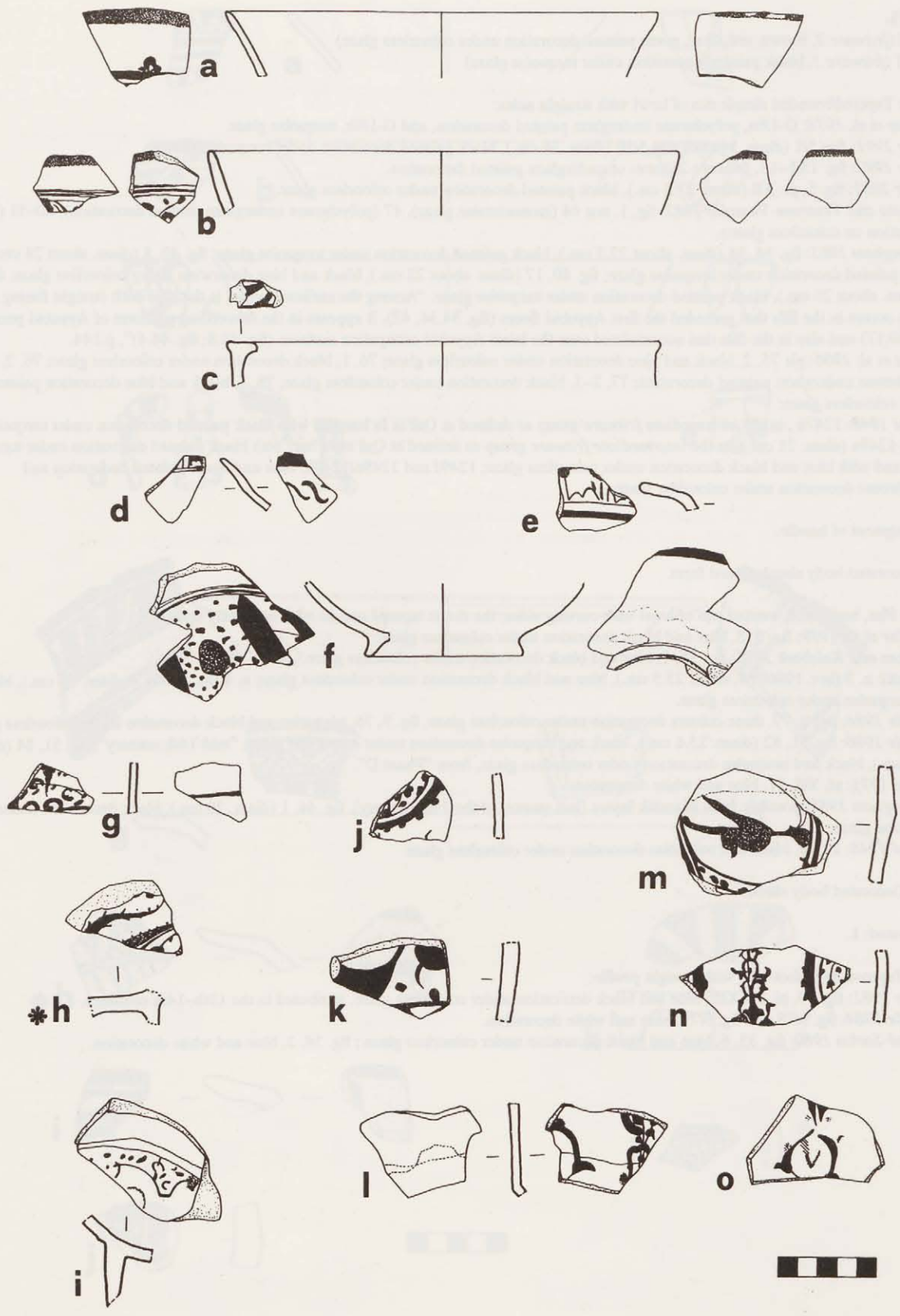

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Figure 71.
WARE AI (*fritware 2*, brown, red, blue, green painted decoration under colourless glaze)
WARE TT (*fritware 3*, black painted decoration under turquoise glaze)

AI1 (a–c): Tapered/rounded simple rim of bowl with straight sides:
Grabar et al. *1978*: G-1/6a, polychrome underglaze painted decoration, and G-1/6b, turquoise glaze.
Logar 1991: figs 5/1 (diam. 14 cm.) and 5/10 (diam. 16 cm.), black painted decoration under turquoise glaze.
Logar 1992: fig. 15/1–15, *fritware 2*, lustre or underglaze painted decoration.
Porter 1981: fig. 5, pl. XII (diam. 27.5 cm.), black painted decoration under colourless glaze.
Scerrato and Ventrone-Vassallo 1982: fig. 1, nos 44 (monochrome glaze), 47 (polychrome underglaze painted decoration), 50–51 (lustre decoration on colourless glaze).
Tushingham 1985: fig. 34, 34 (diam. about 22.5 cm.), black painted decoration under turquoise glaze; fig. 40, 8 (diam. about 24 cm.), black painted decoration under turquoise glaze; fig. 40, 17 (diam. about 22 cm.), black and blue decoration under colourless glaze; fig. 44, 4 (diam. about 20 cm.), black painted decoration under turquoise glaze. "Among the earliest [forms] is the type with straight flaring sides, which occurs in the fills that preceded the first Ayyubid floors (fig. 34.34, 42). It appears in the succeeding platform of Ayyubid period (fig. 40.17) and also in the fills that accumulated over the latest Ayyubid occupation surfaces (fig. 40.8; fig. 44.4)", p.144.
Ulbert et al. *1986*: pls 75, 2, black and blue decoration under colourless glaze; 76, 1, black decoration under colourless glaze; 76, 2, polychrome underglaze painted decoration; 77, 2–3, black decoration under colourless glaze; 78, 1, black and blue decoration painted under colourless glaze.
Waagé 1948: 1247a , in the *intermediate fritware* group as defined at Qal'at Ja'bar and with black painted decoration under turquoise glaze; 1249a (diam. 21 cm.), in the *intermediate fritware* group as defined at Qal'at Ja'bar, with black painted decoration under turquoise glaze and with blue and black decoration under colourless glaze; 1249f and 1249a/1249k, blue and black painted decoration and polychrome decoration under colourless glaze.

AI (d): Fragment of handle.

AI (e): Decorated body sherd: closed form.

TT1 (f–i): Flat, horizontal, everted rim of bowl with curving sides; the rim is tapered and its edge is slightly upturned:
Ben-Tor et al. *1979*: fig. 5, 3, blue and black decoration under colourless glaze.
Franken and Kalsbeek 1975: fig. 38, 1, blue and black decoration under colourless glaze.
al-Khūlī: n. 3 (inv. 19060, 4, diam. 25.5 cm.), blue and black decoration under colourless glaze; n. 4 (in. 19061,4, diam. 27 cm.), black and turquoise under colourless glaze.
Pringle 1984: fig. 9, 77, three colours decoration under colourless glaze; fig. 9, 76, turquoise and black decoration under colourless glaze.
Pringle 1986: fig. 51, 82 (diam. 25.6 cm.), black and turquoise decoration under colourless glaze; "mid-14th century"; fig. 51, 84 (diam. 24.5 cm.), black and turquoise decoration under colourless glaze, from "Phase D".
Toueir 1973: pl. VII, 11, blue and white decoration.
Tushingham 1985: possibly from Mamlūk layers (last quarter of the 14th century), fig. 44, 1 (diam. 20 cm.), black decoration under turquoise glaze.
Waagé 1948: 1230f, black and turquoise decoration under colourless glaze.

TT (j, l): Decorated body sherd.

Not illustrated: 1.

TT2 (k): Tapered, high foot-ring with straight profile:
Porter 1981: fig. 10, pl. XXXIII, blue and black decoration under colourless glaze, attributed to the 13th–14th centuries.
Pringle 1984: fig. 9/78 and fig. 9/79, blue and white decoration.
Salamé-Sarkis 1980: fig. 33, 6, blue and black decoration under colourless glaze.; fig. 34, 2, blue and white decoration.

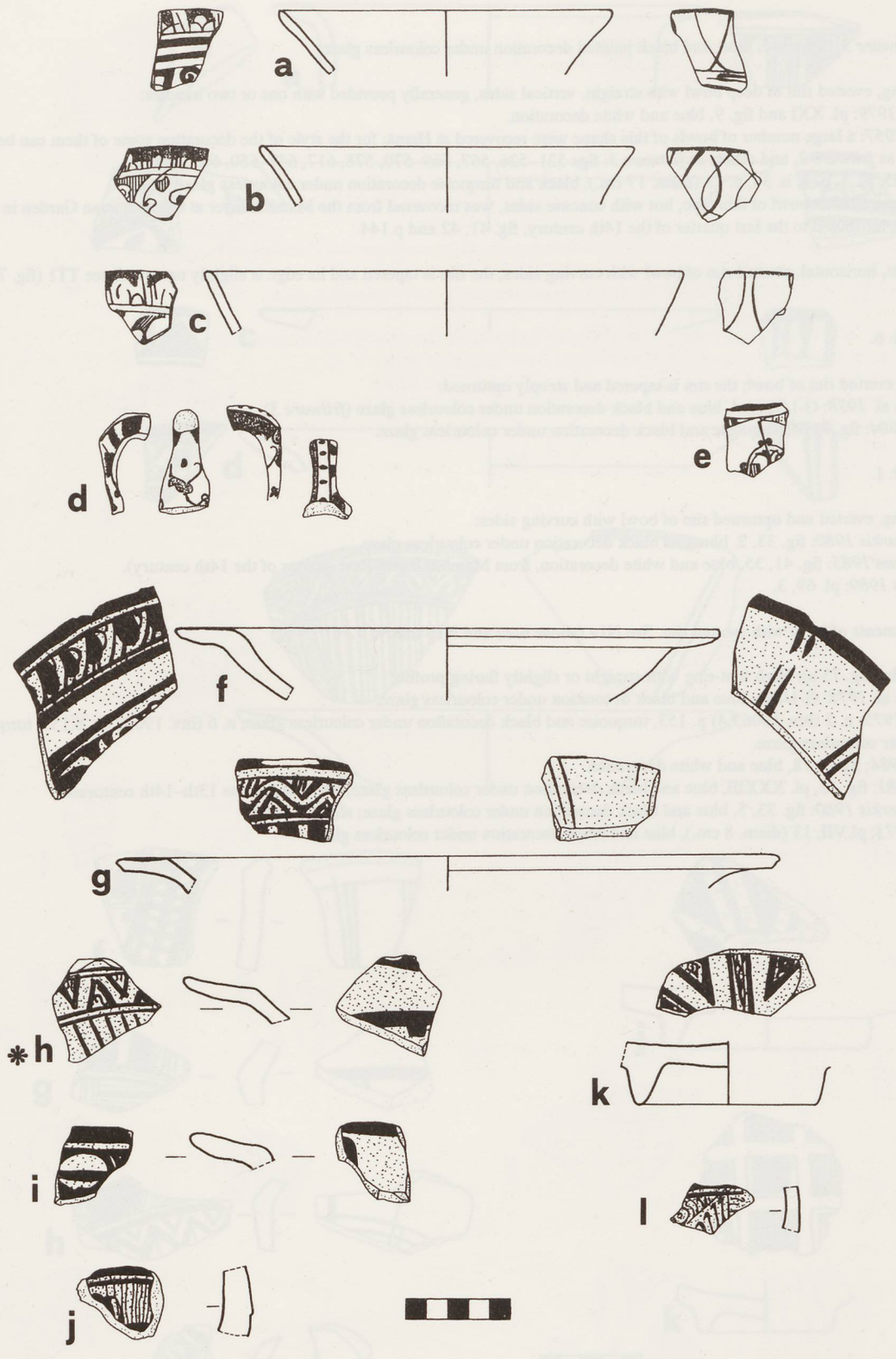

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Figure 72.
WARE N (*fritware 3*, turquoise, blue, and black painted decoration under colourless glaze)

N2 (a): Curving, everted rim of deep bowl with straight, vertical sides, generally provided with one or two handles:
Carswell 1979: pl. XXI and fig. 9, blue and white decoration.
Poulsen 1957: a large number of bowls of this shape were recovered at Ḥamā: for the style of the decoration some of them can be classified as *fritware 2*, and others as *fritware 3*: figs 521–526, 567, 569–570, 578, 617, 647–650, 665, 681.
Sarre 1925: pl. 1, p. 4, n. 34, p. 13 (diam. 17 cm.), black and turquoise decoration under colourless glaze.
Tushingham 1985: a bowl of this type, but with concave sides, was recovered from the Mamlūk layer at the Armenian Garden in Jerusalem, attributed to the last quarter of the 14th century, fig. 41, 42 and p.144.

N1a (b–c): Flat, horizontal, everted rim of bowl with curving sides; the rim is tapered and its edge is slightly upturned; see TT1 (fig. 71 f–i) for references:

Not illustrated: 6.

N1b (d): Flat, everted rim of bowl; the rim is tapered and steeply upturned:
Grabar et al. *1978*: G-1/3b, red, blue and black decoration under colourless glaze (*fritware 3*).
Pringle 1984: fig. 9, 76, turquoise and black decoration under colourless glaze.

Not illustrated: 1.

N3 (e): Curving, everted and upturned rim of bowl with curving sides:
Salamé-Sarkis 1980: fig. 33, 2, blue and black decoration under colourless glaze.
Tushingham 1985: fig. 41, 35, blue and white decoration, from Mamlūk layers (last quarter of the 14th century).
Wightman 1989: pl. 69, 3.

N1 (f–i): Fragments of bowl with everted rim. See N1a (above b–c) and N1b (above 72 d).

N4 (j–k; see also fig. 73 a): High foot-ring with straight or slightly flaring profile:
Grabar et al. *1978*: G-1/18b, blue and black decoration under colourless glaze.
al-Khūlī 1975: n. 2 (inv. 19063,4) p. 153, turquoise and black decoration under colourless glaze; n. 6 (inv. 19062,4), p.157, turquoise and black under colourless glaze.
Pringle 1984: fig. 9, 78, blue and white decoration.
Porter 1981: fig. 10, pl. XXXIII, blue and black decoration under colourless glaze, attributed to the 13th–14th centuries.
Salamé-Sarkis 1980: fig. 33, 5, blue and black decoration under colourless glaze; shallow bowl.
Toueir 1973: pl.VII, 13 (diam. 8 cm.), blue and black decoration under colourless glaze.

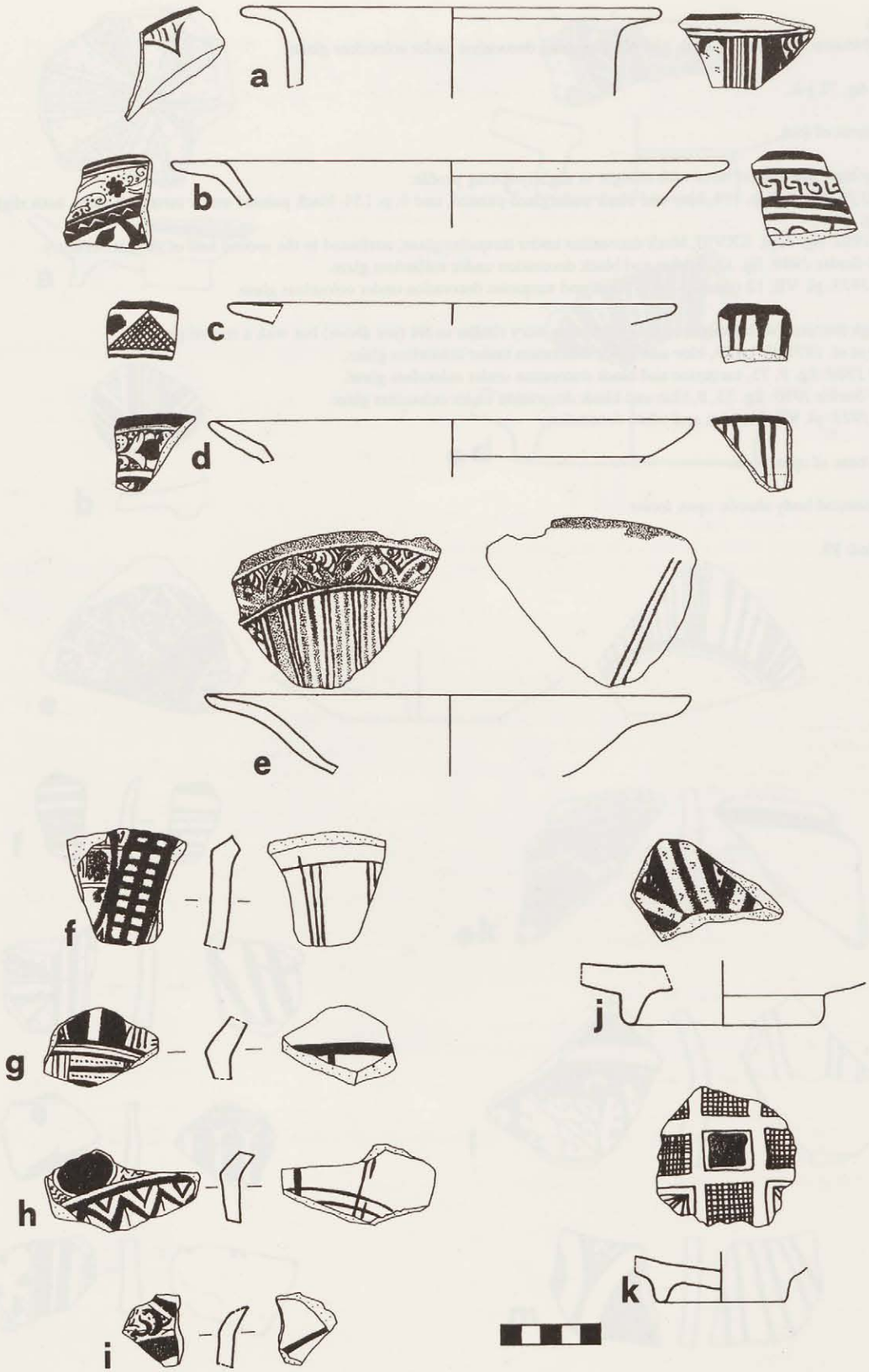

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Figure 73.
WARE N (*fritware 3*, turquoise, blue, and black painted decoration under colourless glaze)

N4 (a): See fig. 72 j–k.

N (b): Fragment of foot.

N5 (c): Very high foot-ring of bowl with straight or slightly flaring profile:
al-Khūlī 1975: nos 3, p. 154, blue and black underglaze-painted, and 4, p. 154, black painted under turquoise glaze, both slightly tapering.
Porter 1981: fig. 7, pl. XXVIII, black decoration under turquoise glaze, attributed to the second half of the 13th century.
Salamé-Sarkis 1980: fig. 33, 7, blue and black decoration under colourless glaze.
Toueir 1973: pl. VII, 12 (diam. 5 cm.), black and turquoise decoration under colourless glaze.

N12 (d): High foot-ring with straight or splayed profile, very similar to N4 (see above) but with a curved profile:
Grabar et al. *1978*: G-1/18b, blue and black decoration under colourless glaze.
Pringle 1984: fig. 9, 75, turquoise and black decoration under colourless glaze.
Salamé-Sarkis 1980: fig. 33, 8, blue and black decoration under colourless glaze.
Toueir 1973: pl. VII, 11, blue and white decoration.

N6 (e): Flat base of open form.

N (f–n): Decorated body sherds: open forms.

Not illustrated: 13.

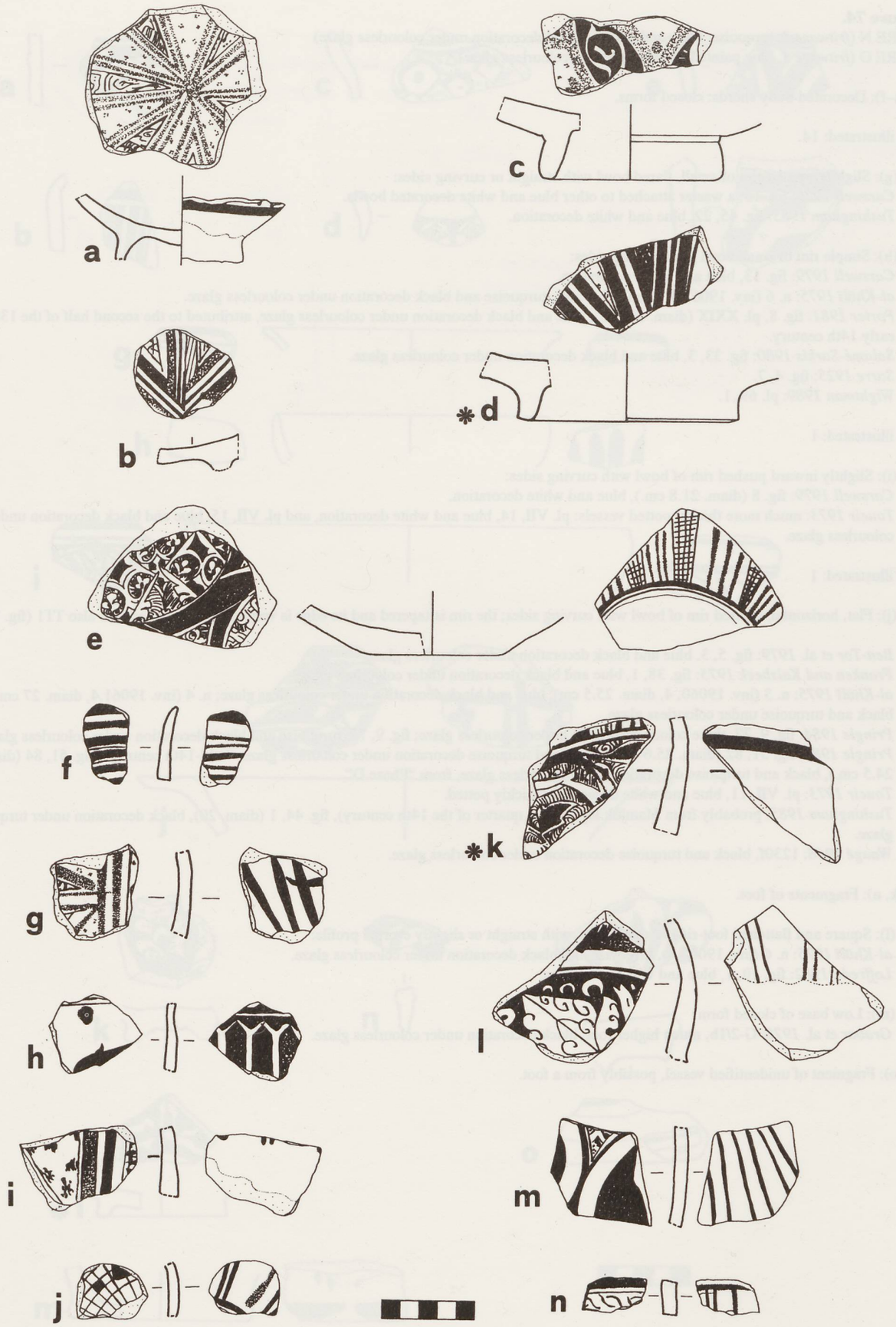

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Figure 74.
WARE N (*fritware 3*, turquoise, blue, and black painted decoration under colourless glaze)
WARE O (*fritware 3*, blue painted decoration under colourless glaze)

N (a–f): Decorated body sherds: closed forms.

Not illustrated: 14.

O1 (g): Slightly everted rim of small, flared bowl with straight or curving sides:
Carswell 1979: fig. 15, a waster attached to other blue and white decorated bowls.
Tushingham 1985: fig. 45, 22, blue and white decoration.

O2 (h): Simple rim of small bowl with curving sides:
Carswell 1979: fig. 13, blue and white decoration.
al-Khūlī 1975: n. 6 (inv. 19067,4, diam. 25.5 cm.), turquoise and black decoration under colourless glaze.
Porter 1981: fig. 8, pl. XXIX (diam. 25 cm.), blue and black decoration under colourless glaze, attributed to the second half of the 13th or early 14th century.
Salamé-Sarkis 1980: fig. 33, 3, blue and black decoration under colourless glaze.
Sarre 1925: fig. 4, 7.
Wightman 1989: pl. 69, 1.

Not illustrated: 1

O3 (i): Slightly inward pushed rim of bowl with curving sides:
Carswell 1979: fig. 8 (diam. 21.8 cm.), blue and white decoration.
Toueir 1973: much more thickly potted vessels: pl. VII, 14, blue and white decoration, and pl. VII, 15, blue and black decoration under colourless glaze.

Not illustrated: 1

O4 (j): Flat, horizontal, everted rim of bowl with curving sides; the rim is tapered and its edge is very slightly upturned; see also TT1 (fig. 71 f–i):
Ben-Tor et al. *1979*: fig. 5, 3, blue and black decoration under colourless glaze.
Franken and Kalsbeek 1975: fig. 38, 1, blue and black decoration under colourless glaze.
al-Khūlī 1975: n. 3 (inv. 19060, 4, diam. 25.5 cm), blue and black decoration under colourless glaze; n. 4 (inv. 19061,4, diam. 27 cm.), black and turquoise under colourless glaze.
Pringle 1984: fig. 9, 77, three colour decoration under colourless glaze; fig. 9, 76, turquoise and black decoration under colourless glaze.
Pringle 1986: fig. 51, 82 (diam. 25.6 cm.), black and turquoise decoration under colourless glaze; "mid-14th century"; fig. 51, 84 (diam. 24.5 cm.), black and turquoise decoration under colourless glaze, from "Phase D".
Toueir 1973: pl. VII, 11, blue and white decoration, thickly potted.
Tushingham 1985: probably from Mamlūk layers (last quarter of the 14th century), fig. 44, 1 (diam. 20), black decoration under turquoise glaze.
Waagé 1948: 1230f, black and turquoise decoration under colourless glaze.

O (k, n): Fragments of foot.

O5 (l): Square and flattened foot-ring of open form, with straight or slightly everted profile:
al-Khūlī 1975: n. 6 (inv. 19067,4), turquoise and black decoration under colourless glaze.
Loffreda 1982: fig. 10, 1, blue and white decoration.

O6 (m): Low base of closed form:
Grabar et al. *1978*: G-2/1b, much higher foot, black decoration under colourless glaze.

O (o): Fragment of unidentified vessel, possibly from a foot.

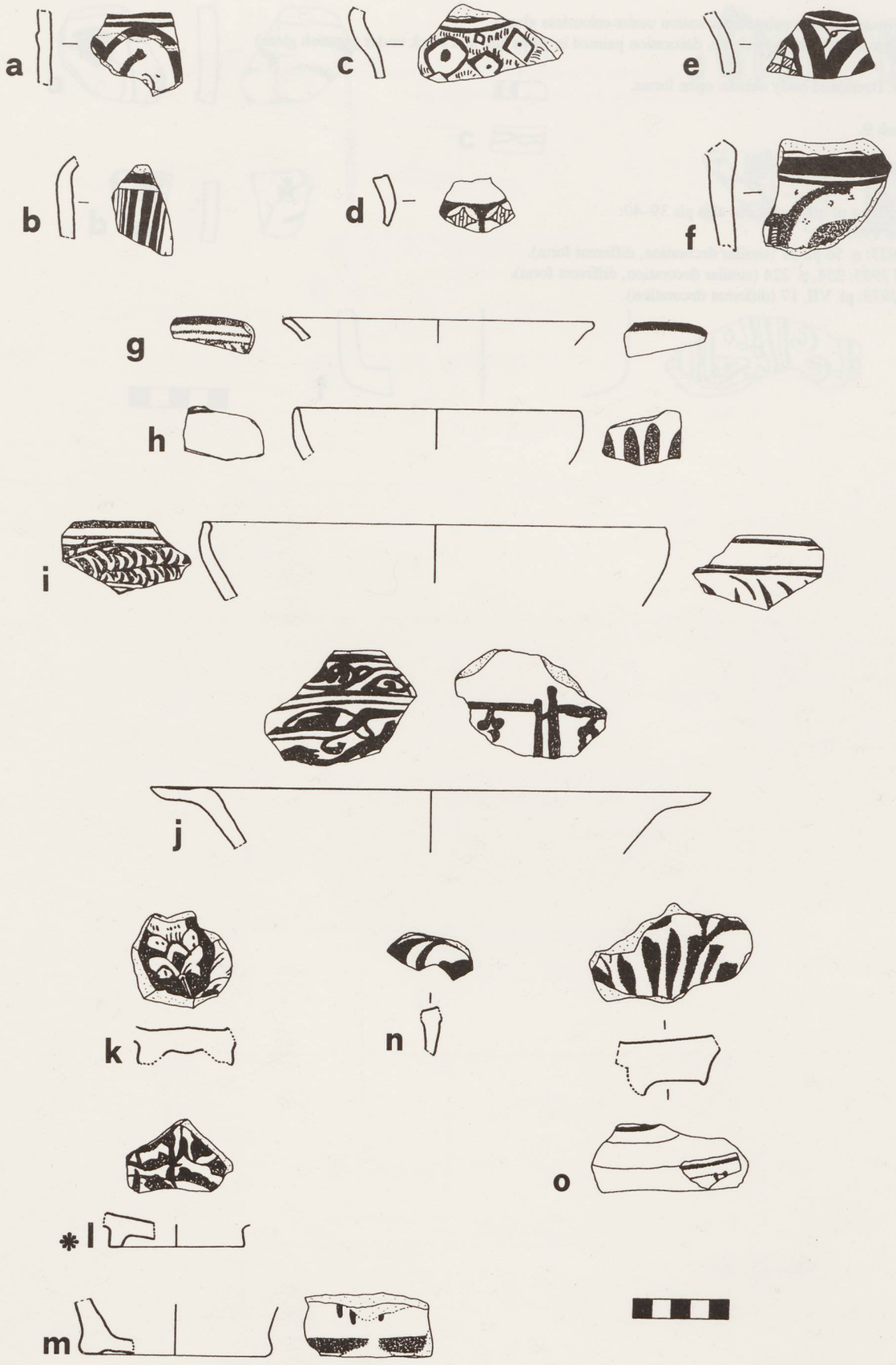

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Figure 75.
WARE O (*fritware 3*, blue painted decoration under colourless glaze)
WARE BR (*fritware 3*, grey/green slip, decoration painted in white slip and black under greenish glaze)

O (a–b, d–e): Decorated body sherds: open forms.

Not illustrated: 9.

O7 (c): Fragment of handle.

BR1 (f): Fragment of *albarello*; see also pls 39–40:
Qaddumi 1987: 72.
Sarre 1925: n. 56 pl. 21 (similar decoration, different form).
Soustiel 1985: 254, p. 224 (similar decoration, different form).
Toueir 1973: pl. VII, 17 (different decoration).

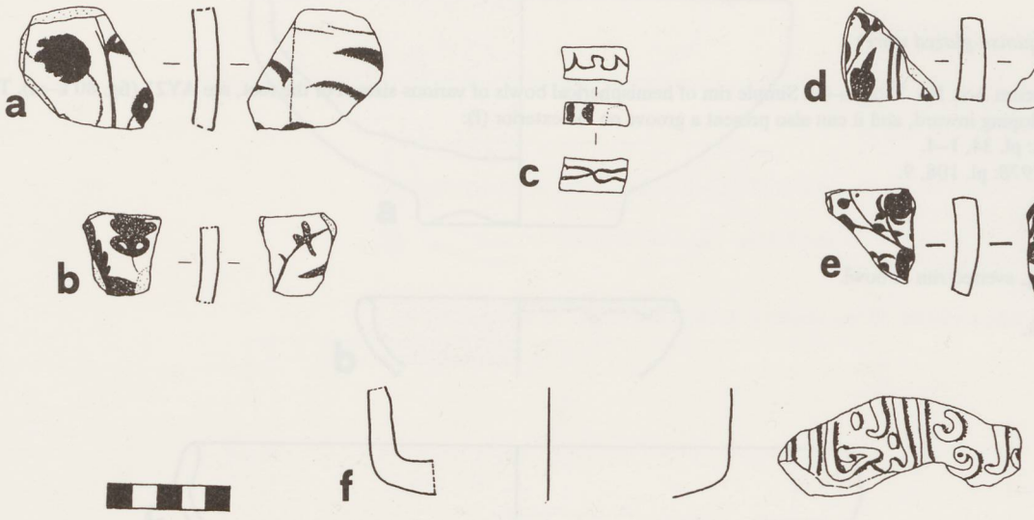

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Figure 76.
WARE AY (*turquoise-glazed ware*)

AY1 (a: QJ Museum Acc. No. 7564; b–h): Simple rim of hemispherical bowls of various sizes. For the foot, see AY21 (fig. 80 k–m). The rim is occasionally sloping inward, and it can also present a groove on the exterior (f):

Bartl 1994a: pl. 34, 1–4.
Mahmoud 1978: pl. 108, 9.

Not illustrated: 1.

AY3 (i): Curving, everted rim of bowl.

Not illustrated: 3.

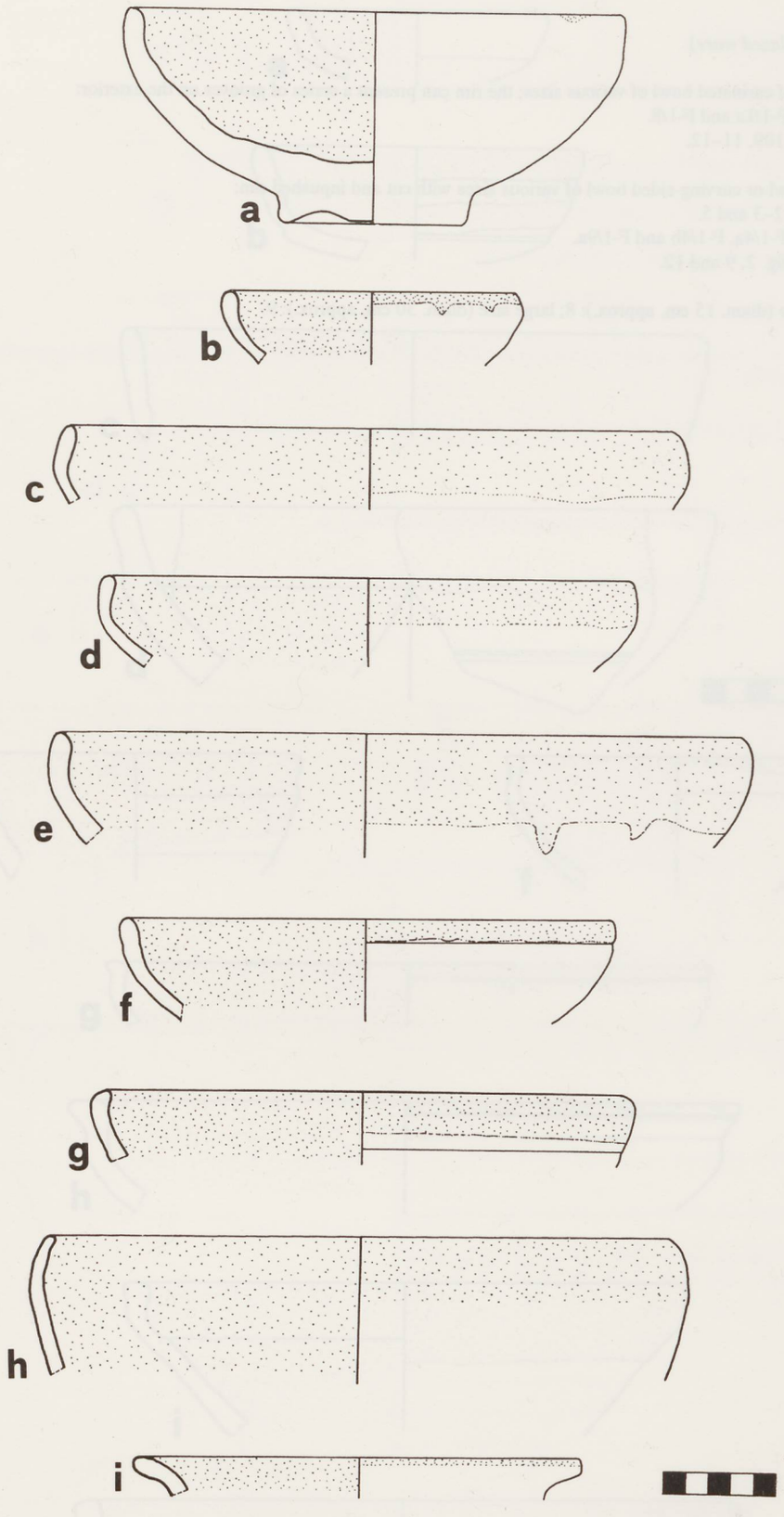

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Figure 77.
WARE AY (*turquoise-glazed ware*)

AY2 (a–d): Simple rim of carinated bowl of various sizes; the rim can present a series of grooves on the exterior:
Grabar et al. *1978*: F-1/1a and F-1/8.
Mahmoud 1978: pl. 109, 11–12.

AY4 (e–j): Carinated bowl or curving-sided bowl of various sizes with cut and inpushed rim:
Bartl 1994a: pl. 33, 2–3 and 5.
Grabar et al. *1978*: F-1/4a, F-1/4b and F-1/9a.
Lebeau et al. *1985*: fig. 2, 9 and 12.

Not illustrated: small size (diam. 15 cm. approx.): 8; large size (diam. 30 cm. approx.): 9.

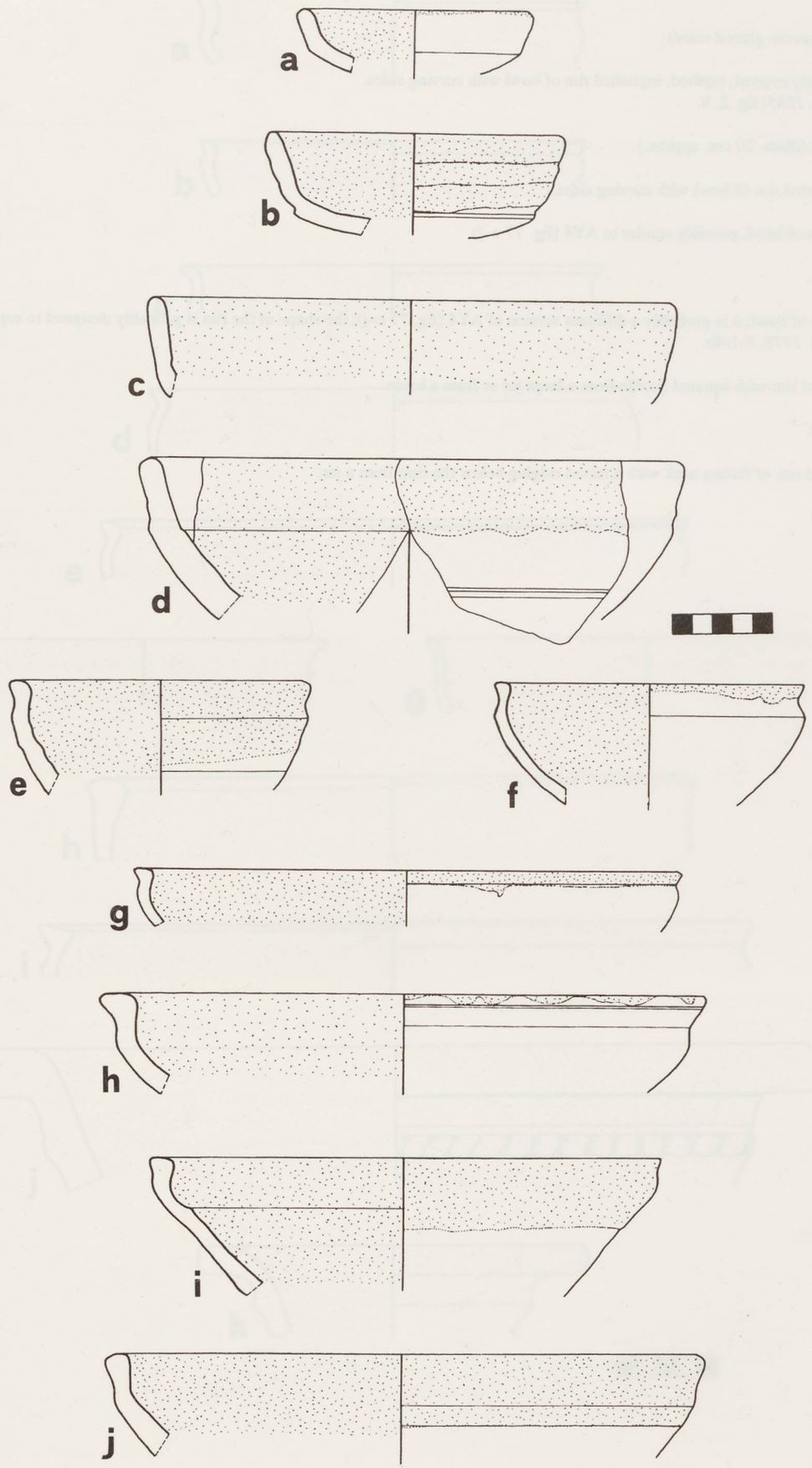

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Figure 78.
WARE AY (*turquoise-glazed ware*)

AY6 (a–e): Slightly everted, tapered, inpushed rim of bowl with curving sides.
Lebeau et al. *1985*: fig. 2, 9.

Not illustrated: 8 (diam. 20 cm. approx.).

AY31 (f–g): Everted rim of bowl with curving sides.

AY5 (h): Cut rim of bowl, possibly similar to AY4 (fig. 77 e–j).

Not illustrated: 1.

AY7 (i): Cut rim of bowl; it is probably a different version of AY4 (fig. 77 e–j); the shape of the rim is probably designed to support a lid:
Grabar et al. *1978*: F-1/4b.

AY10 (j): Everted rim with squared profile from a large jar or from a basin.

Not illustrated: 2.

AY9 (k): Everted rim of flaring neck with a raised ridging below the rim; from a jar.

Not illustrated: 1

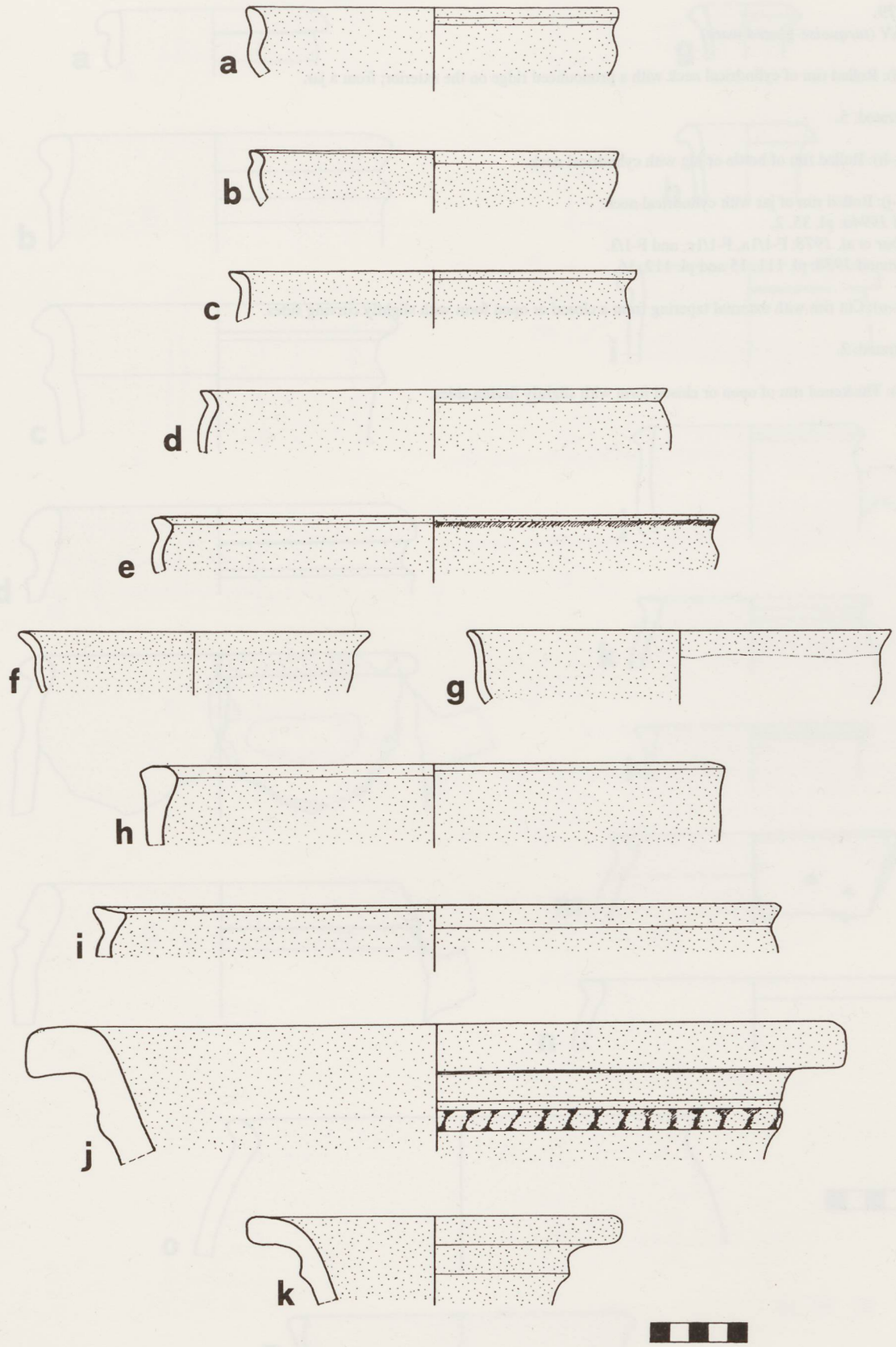

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Figure 79.
WARE AY (*turquoise-glazed ware*)

AY8 (a–f): Rolled rim of cylindrical neck with a pronounced ridge on the exterior; from a jar.

Not illustrated: 5.

AY11 (g–h): Rolled rim of bottle or jug with cylindrical neck.

AY12 (i–j): Rolled rim of jar with cylindrical neck:
Bartl 1994a: pl. 35, 2.
Grabar et al. *1978*: F-1/1a, F-1/1c, and F-1/3.
Mahmoud 1978: pl. 111, 15 and pl. 112, 16.

AY13 (k–o): Cut rim with external tapering from a closed or open form with slightly curving sides.

Not illustrated: 2.

AY14 (p): Thickened rim of open or closed form with slightly flaring sides.

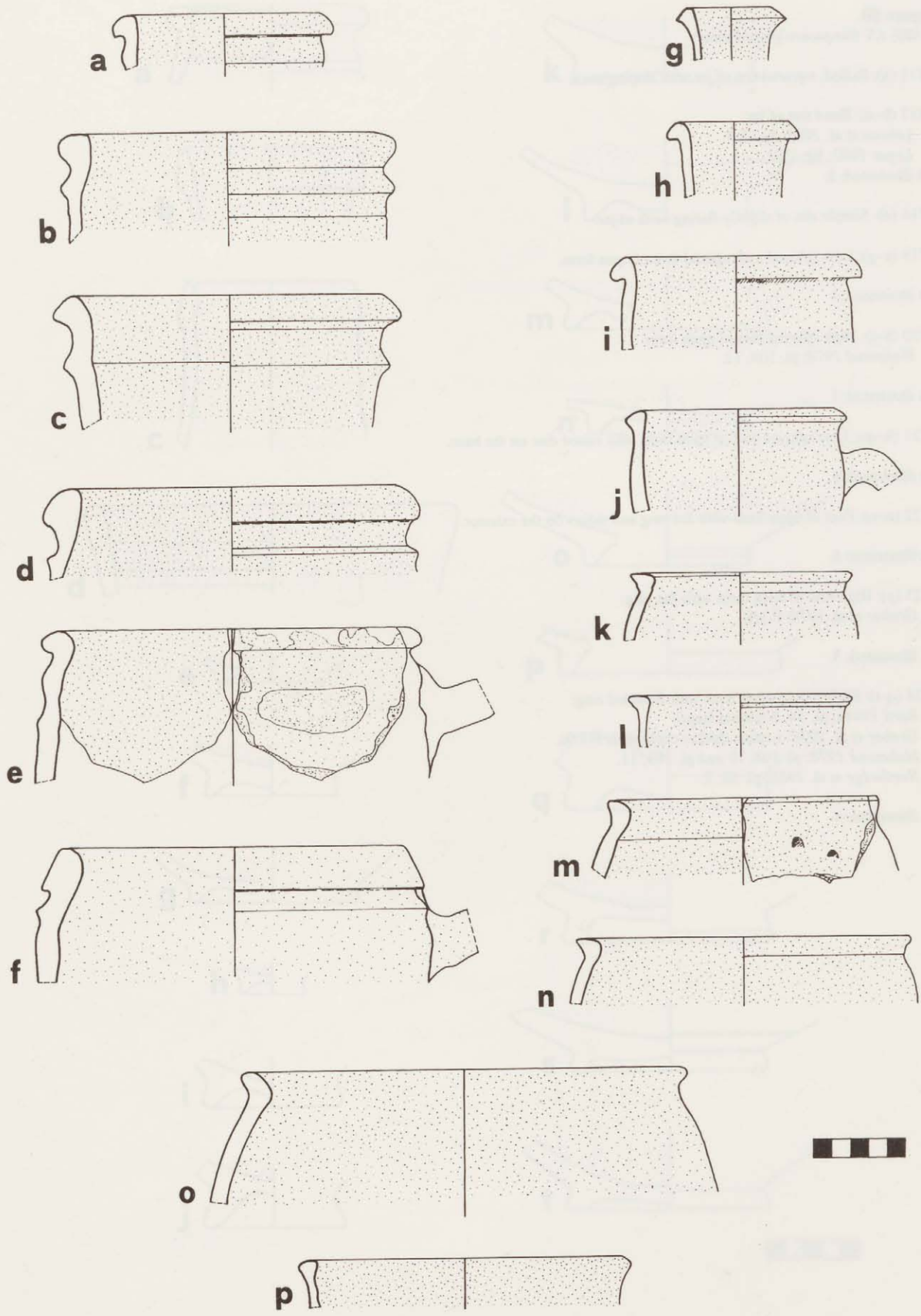

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Figure 80.
WARE AY (*turquoise-glazed ware*)

AY15 (a): Rolled, squared rim of jar with sloping neck.

AY17 (b–c): Band rim of jar:
Lebeau et al. *1985*: fig. 2, 7.
Logar 1992: fig. 12/2.
Not illustrated: 2.

AY16 (d): Simple rim of slightly flaring neck of jar.

AY19 (e–g): Low splayed and tapered foot of open form.

Not illustrated: 1

AY20 (h–j): High splayed foot of open form:
Mahmoud 1978: pl. 109, 12.

Not illustrated: 1.

AY21 (k–m): Low splayed foot of open form with raised disc on the base.

Not illustrated: 6.

AY22 (n–o): Foot of open form with flat ring and ridges on the exterior.

Not illustrated: 6.

AY23 (p): High foot of open form with flat ring:
Grabar et al. *1978*: F-1/8.

Not illustrated: 3.

AY24 (q–t): High foot of open form with flattened ring:
Bartl 1994a: pl. 34, 8 (closed form).
Grabar et al. *1978*: a much thicker example is F-1/9a.
Mahmoud 1978: pl. 108, 10 and pl. 109, 11.
Northedge et al. *1988*: pl. 50, 7.

Not illustrated: 4.

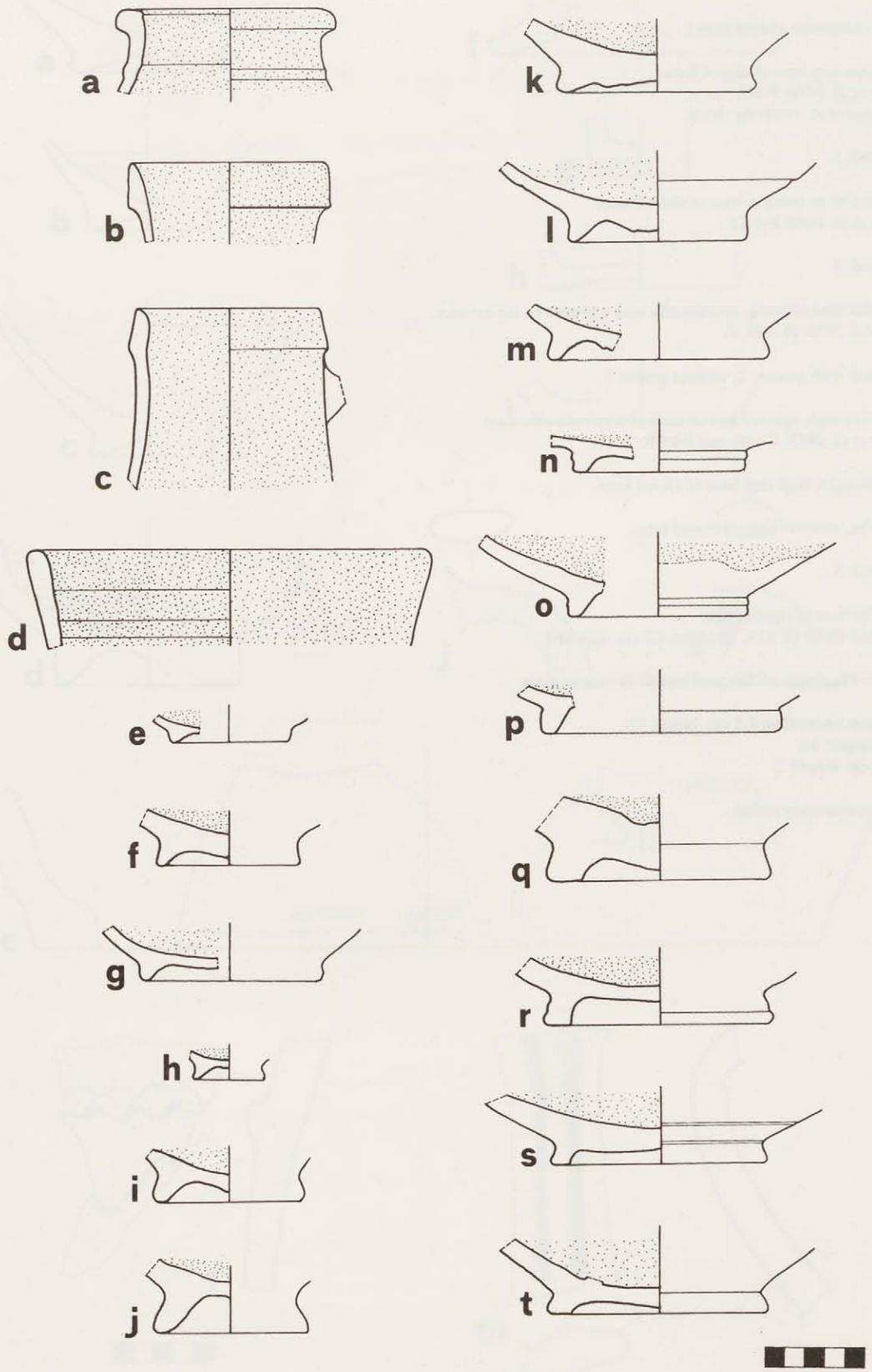

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Figure 81.
WARE AY (*turquoise-glazed ware*)

AY25 (a): Low ring base of closed form:
Grabar et al. *1978*: F-1/5.
Northedge et al. *1988*: fig. 50, 9.

Not illustrated: 1.

AY26 (b–d): Flat or concave base of closed form:
Grabar et al. *1978*: F-1/12.

Not illustrated: 3

AY30 (e): Flat base of basin, occasionally with a groove on the exterior.
Mahmoud 1978: pl. 108, 8.

Not illustrated: with groove: 2; without groove 1.

AY27 (f): Very high, splayed foot of form of uncertain character:
Grabar et al. *1978*: F-1/4b and F-1/9b.

AY29 (g): Straight, high ring base of closed form.

AY28 (h): Flat, concave base of closed form.

Not illustrated: 3.

AY35 (i): Flat base of closed form:
Mahmoud 1978: pl. 113, 18 (diam. 20 cm. approx.).

AY (j–k, m): Fragments of flattened handle of various sizes.

Not illustrated: (more than 4.5 cm. large): 32;
(2–4.5 cm. large): 23;
(less than 2 cm. large): 2.

AY (l): Decorated body sherds.

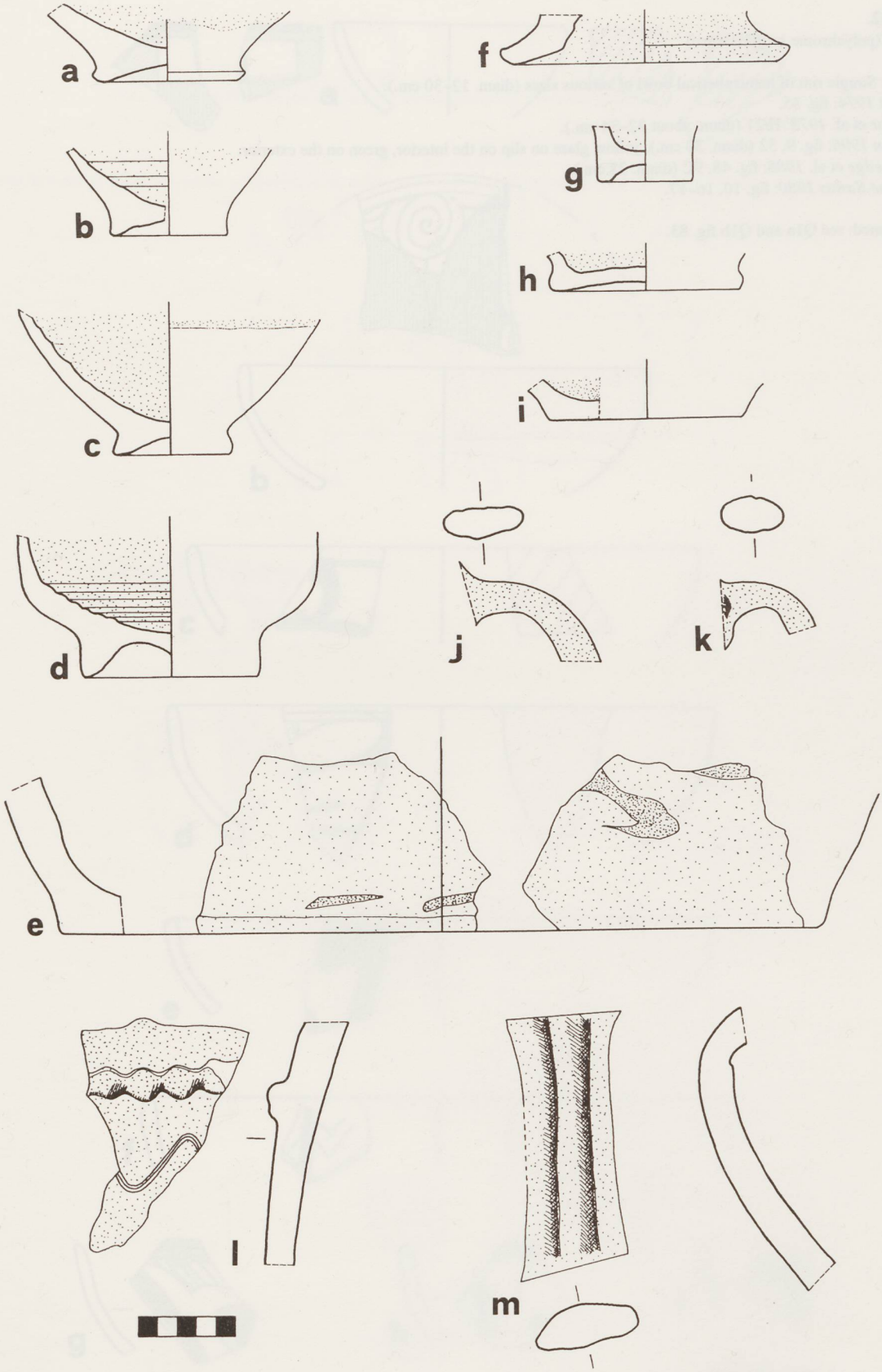

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Figure 82.
WARE Q (polychrome *graffita ware*)

Q1a (a–i): Simple rim of hemispherical bowl of various sizes (diam. 12–30 cm.):
Beirut 1974: fig. 35.
Grabar et al. *1978*: H/21 (diam. about 32–34 cm.).
Guérin 1996: fig. 9, 52 (diam. 30 cm.), yellow glaze on slip on the interior, green on the exterior.
Northedge et al. *1988*: fig. 48, 9C (diam. 22 cm.).
Salamé-Sarkis 1980: fig. 10, 16–17.

Not illustrated: see Q1a and Q1b fig. 83.

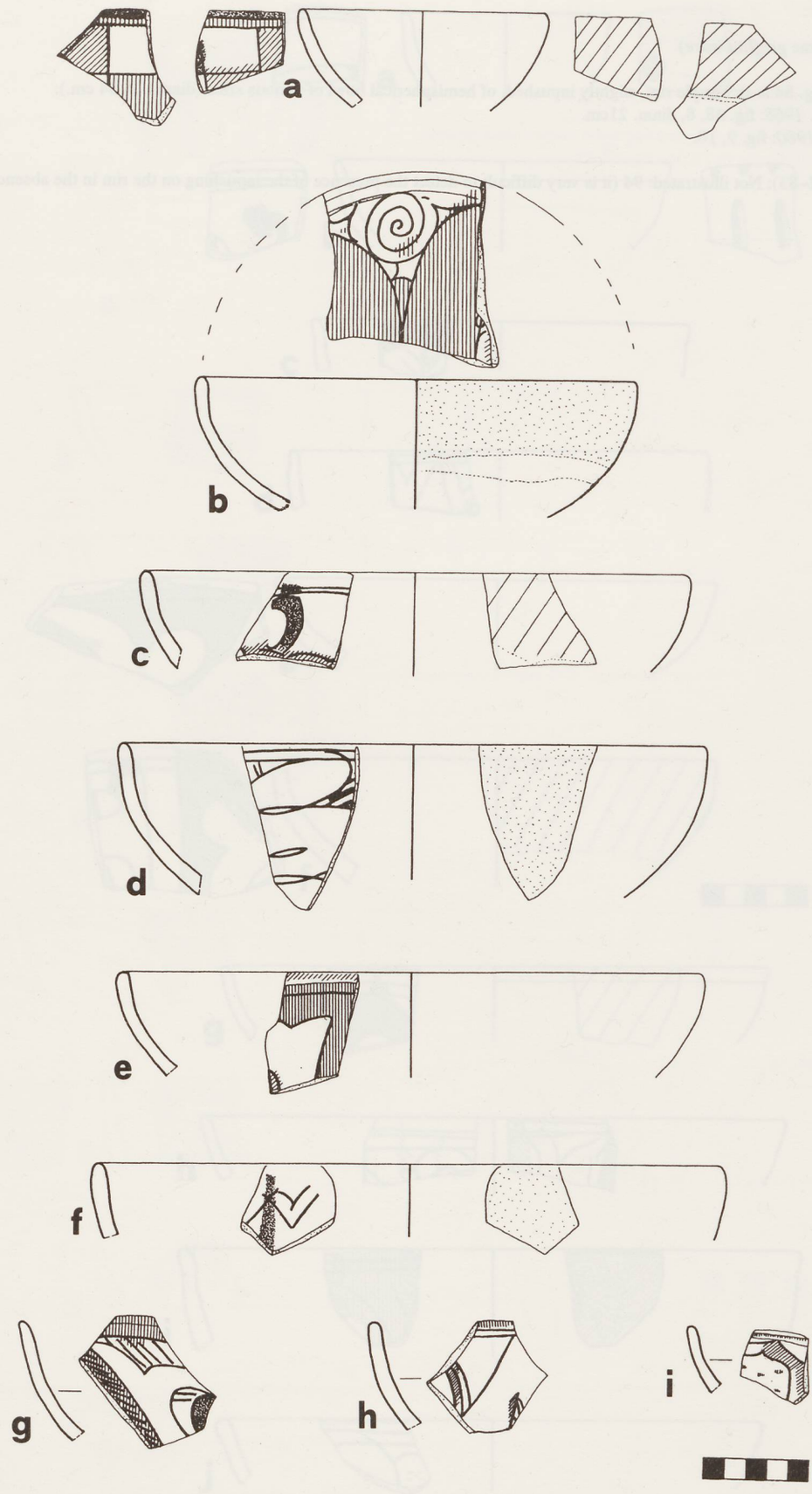

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Figure 83.
WARE Q (polychrome *graffita ware*)

Q1b (a–j; see also fig. 84 a–i): Simple rim, slightly inpushed, of hemispherical bowl of various sizes (diam. 12–34 cm.):
Northedge et al. *1988*: fig. 48, 8, diam. 21cm.
Salamé-Sarkis 1980: fig. 9, 10.

Q1a and Qb (figs 82–83): Not illustrated: 94 (it is very difficult to detect the presence of the inpushing on the rim in the absence of profile drawings).

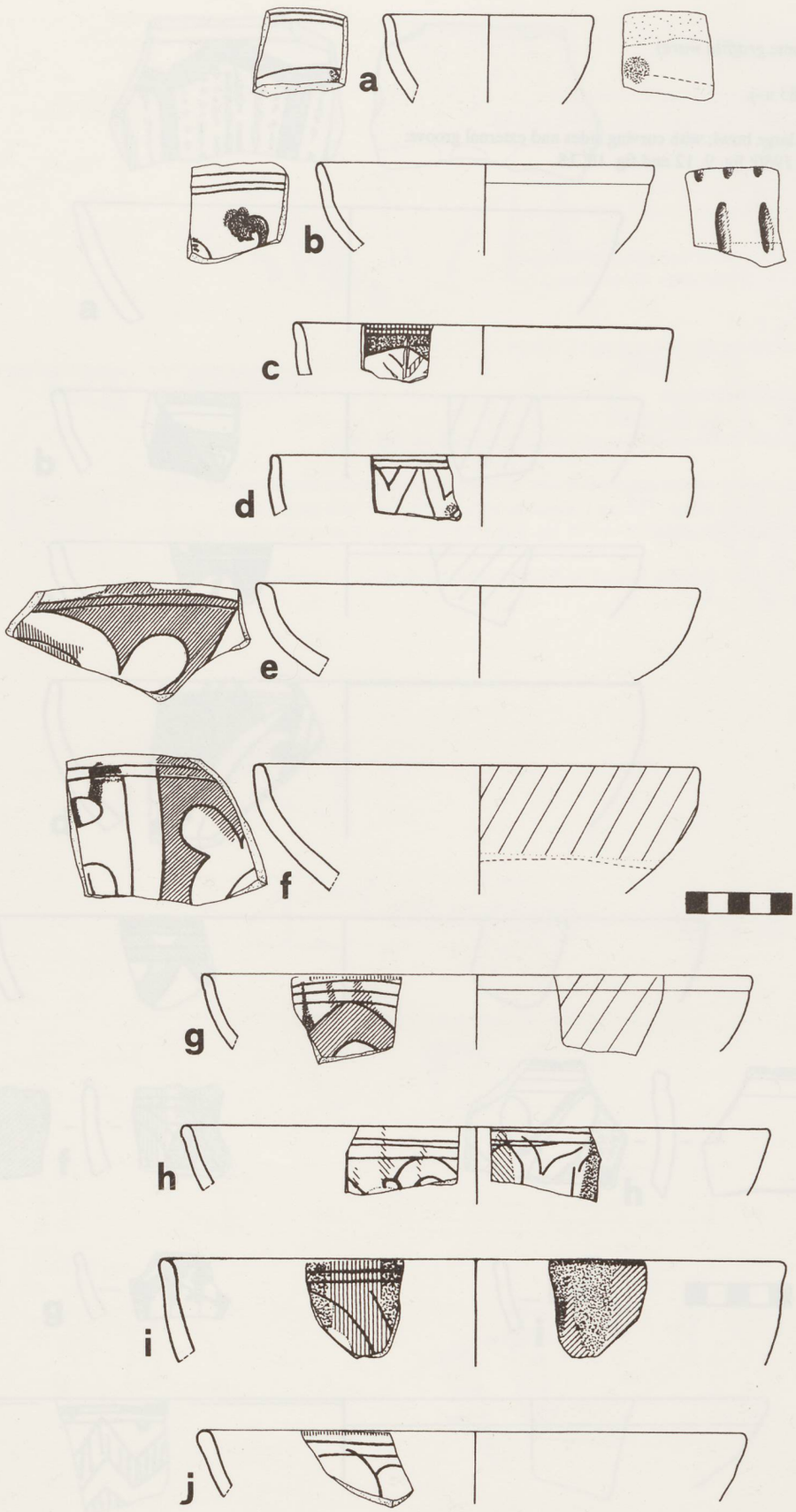

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Figure 84.
WARE Q (polychrome *graffita ware*)

Q1b (a–i): See fig. 83 a–j.

Q22 (j): Cut rim of large bowl; with curving sides and external groove:
Salamé-Sarkis 1980: fig. 9, 12 and fig. 10, 18.

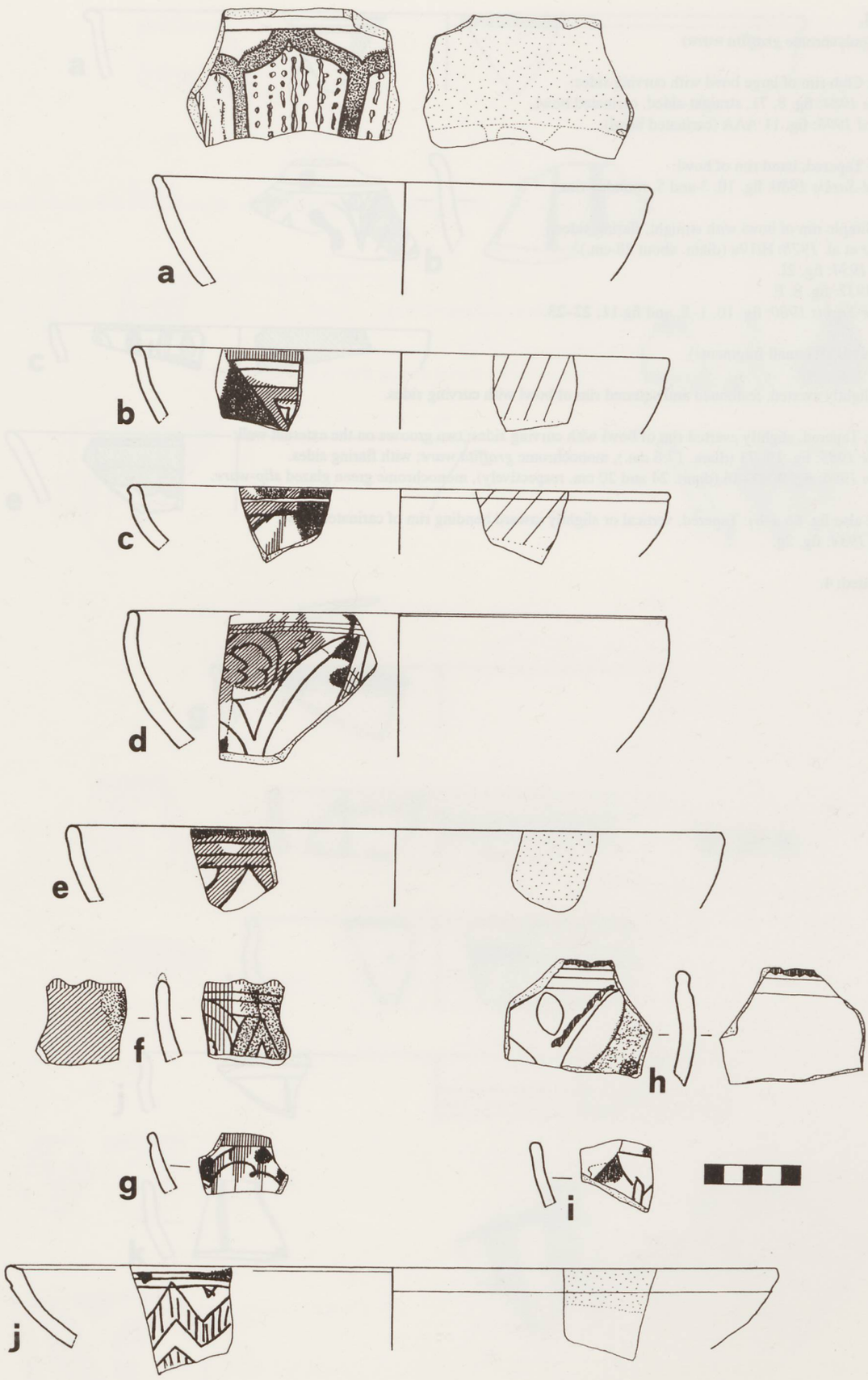

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Figure 85.
WARE Q (polychrome *graffita ware*)

Q17 (a–b): Club rim of large bowl with curving sides:
Pringle 1984: fig. 8, 71, straight-sided, carinated bowl.
Redford 1995: fig. 11 AAA (carinated bowl).

Q21 (c–d): Tapered, band rim of bowl:
Salamé-Sarkis 1980: fig. 10, 3 and 5, rounded rim.

Q3 (e–f): Simple rim of bowl with straight, flaring sides:
Grabar et al. *1978*: H/19a (diam. about 28 cm.).
Johns 1934: fig. 2I.
Lane 1937: fig. 8, F.
Salamé-Sarkis 1980: fig. 10, 1–8, and fig.11, 22–23.

Not illustrated: 19 (small fragments).

Q23 (g): Slightly everted, festooned and squared rim of bowl with curving sides.

Q16 (h–k): Tapered, slightly everted rim of bowl with curving sides; two grooves on the external wall:
Pringle 1985: fig. 13, 73 (diam. 17.6 cm.), monochrome *graffita ware*; with flaring sides.
Guérin 1996: fig. 9, 47–48 (diam. 24 and 20 cm. respectively), monochrome green glazed *slip-ware*.

Q2a (l; see also fig. 86 a–b): Tapered, vertical or slightly inward bending rim of carinated bowl:
Johns 1934: fig. 2g.

Not illustrated: 4.

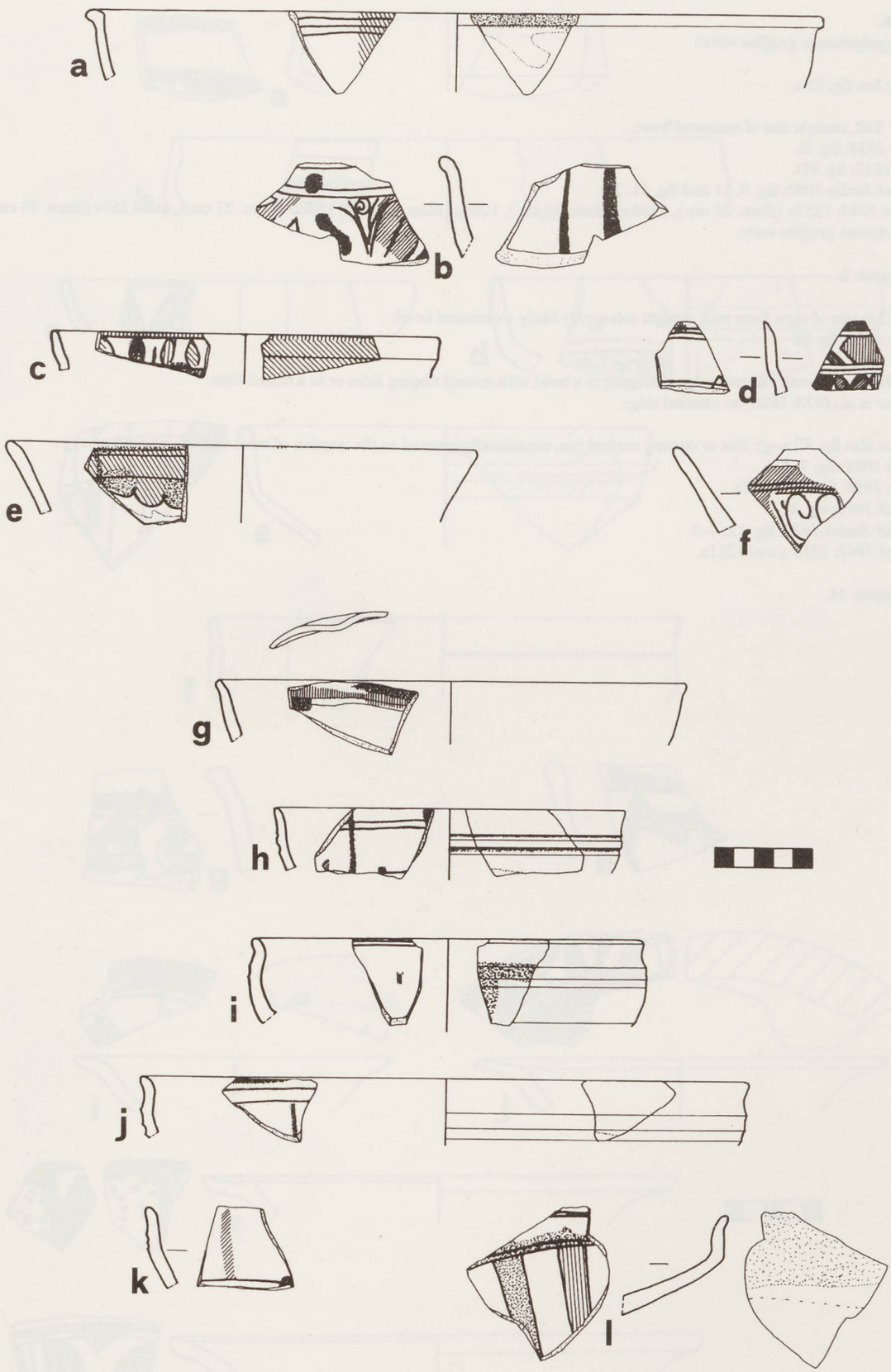

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Figure 86.
WARE Q (polychrome *graffita ware*)

Q2a (a–b): See fig. 85 l.

Q2b (c–f): Tall, straight rim of carinated bowl:
Johns 1934: fig. 2i.
Lane 1937: fig. 8D.
Salamé-Sarkis 1980: fig. 9, 11 and fig. 11, 25.
Waagé 1948: 1255p (diam. 21 cm.), 1260m (diam. 30 cm.), 1260p (diam. 19 cm.), 1260u (diam. 27 cm.), and 1260v (diam. 30 cm.), all monochrome *graffita ware*.

Not illustrated: 2.

Q19 (g): Club rim of open form with straight sides; very likely a carinated bowl:
Johns 1934: fig. 2f.

Q23 (h): Simple rim with external ridge belonging to a bowl with inward sloping sides or to a closed form:
Grabar et al. *1978*: H/20, no external ridge.

Q6 (i–l; see also fig. 87 a–g): Flat or curving everted rim, occasionally grooved on the interior, of bowl with curving sides:
Brosh 1986: fig. 3, 1.
Johns 1934: figs 2d and 2h.
Kubiak 1970: fig. 4e.
Salamé-Sarkis 1980: fig. 12, 7–9.
Waagé 1948: 1210 a and 1211a.

Not illustrated: 44.

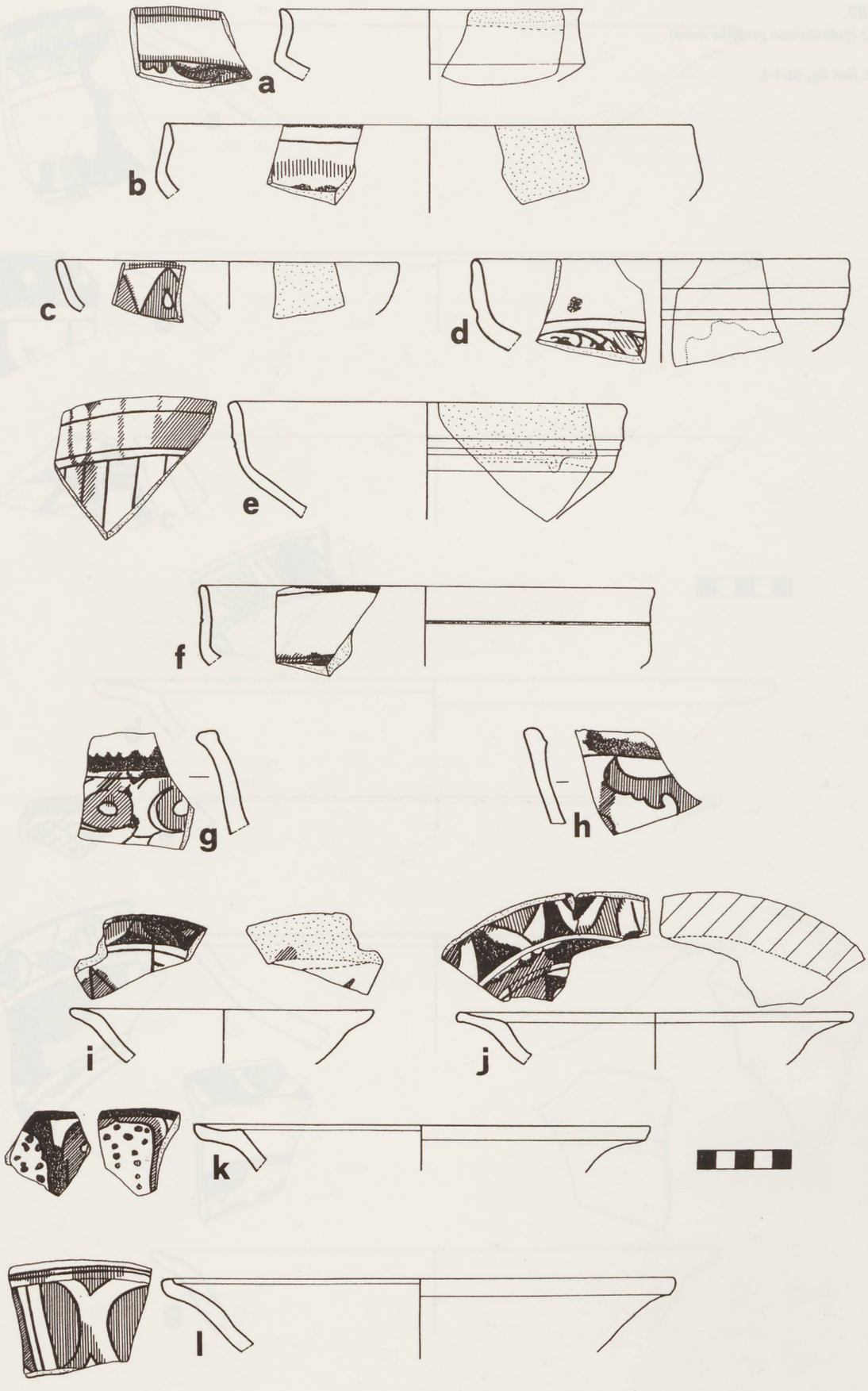

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Figure 87.
WARE Q (polychrome *graffita ware*)

Q6 (a–g): See fig. 86 i–l.

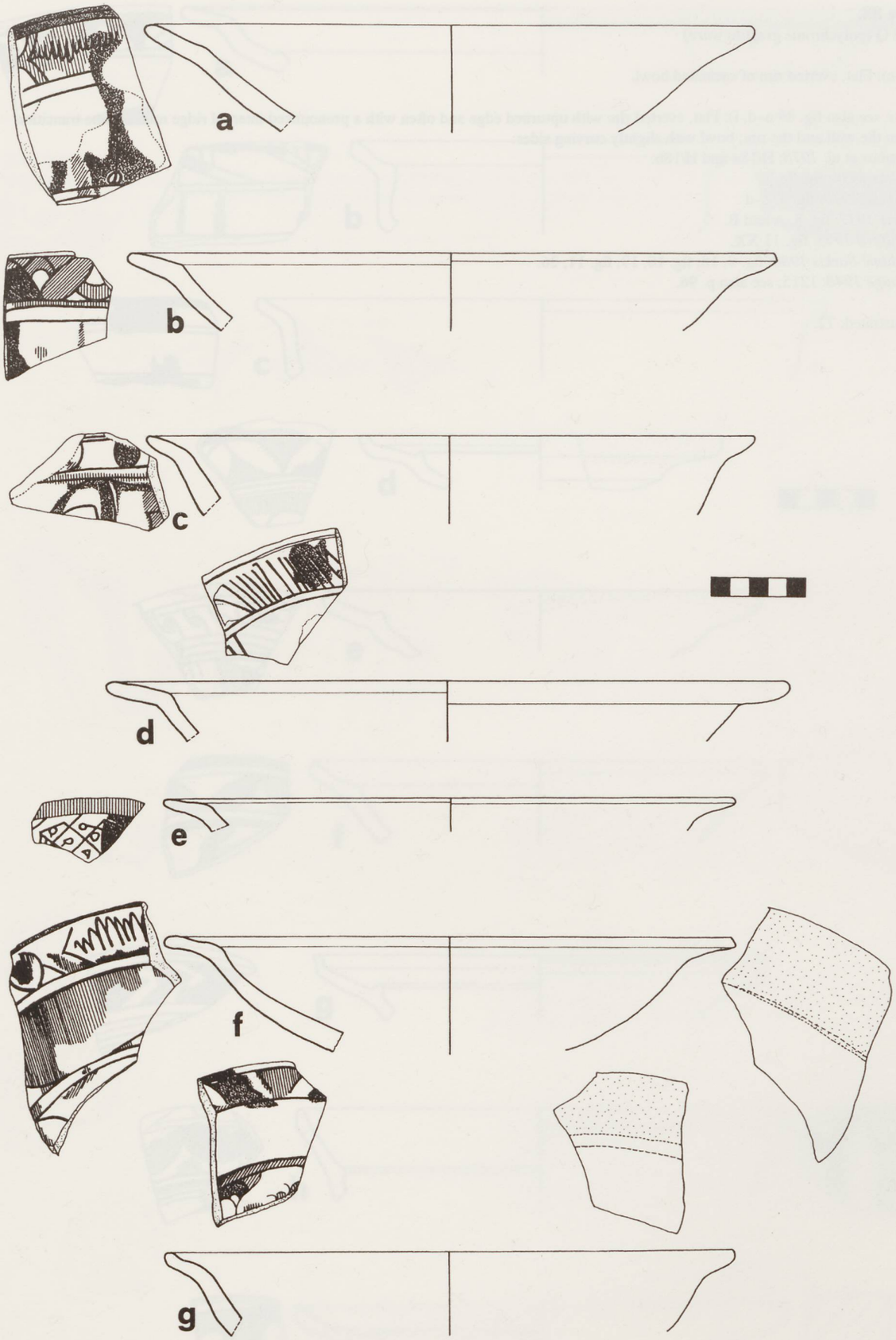

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Figure 88.
WARE Q (polychrome *graffita ware*)

Q5 (a–c): Flat, everted rim of carinated bowl.

Q4 (d–i; see also fig. 89 a–d, i): Flat, everted rim with upturned edge and often with a pronounced internal ridge marking the transition between the wall and the rim; bowl with slightly curving sides:

Grabar et al. *1978*: H/18a and H/18b.
Johns 1934: fig. 2e.
Kubiak 1970: fig. 4, c–d.
Lane 1937: fig. 8, A and B.
Redford 1995: fig. 11 XX.
Salamé-Sarkis 1980: fig. 9, 18; fig. 10, 19; fig. 11, 26.
Waagé 1948: 1215; see also p. 96.

Not illustrated: 72.

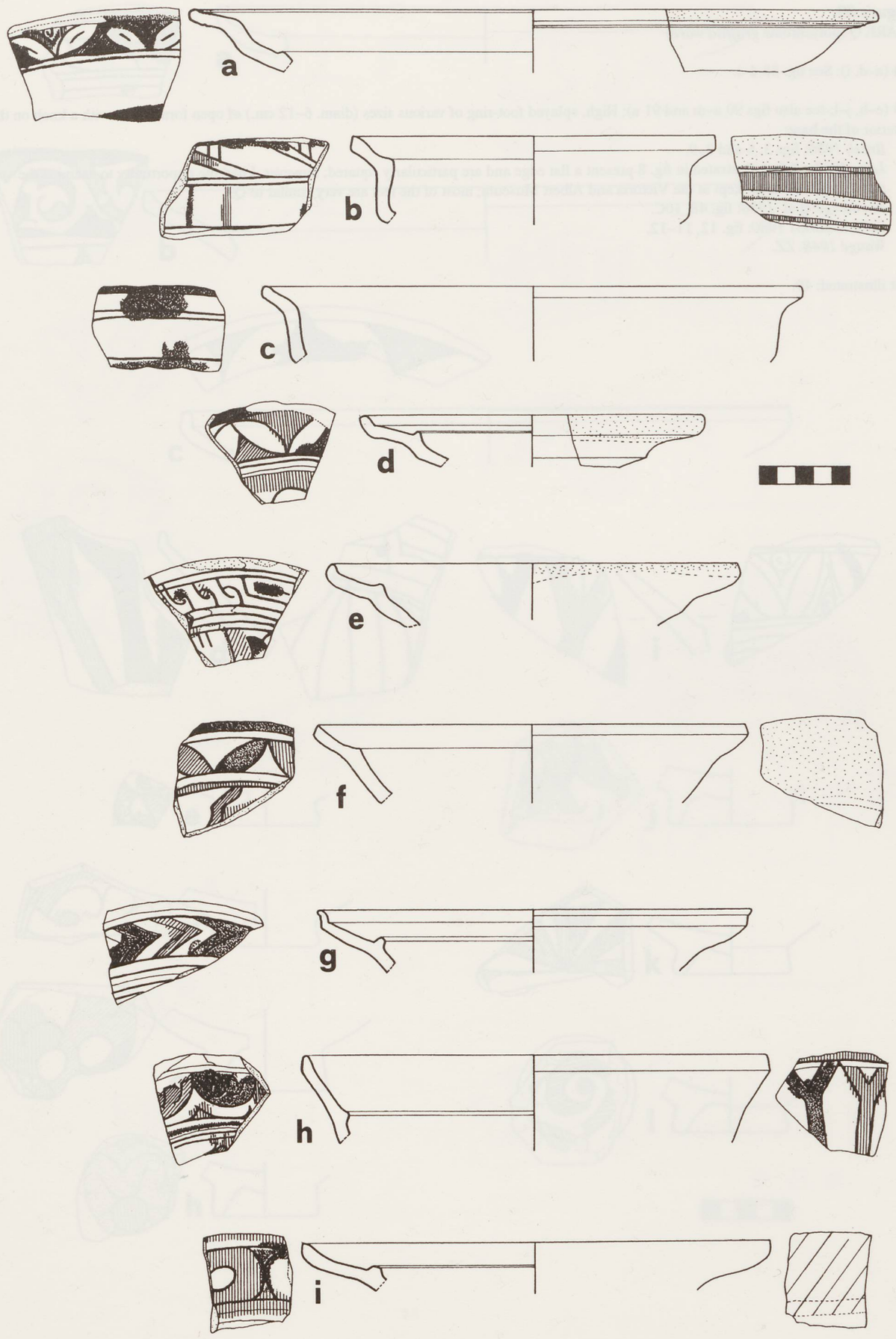

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Figure 89.
WARE Q (polychrome *graffita ware*)

Q4 (a–d, i): See fig. 88 d–i.

Q9 (e–h, j–l; see also figs 90 a–m and 91 a): High, splayed foot-ring of various sizes (diam. 6–12 cm.) of open form; often with a knob on the exterior of the base:

Brosh 1986: figs 3, 6 and 3, 9.
Lane 1937: all feet illustrated in fig. 8 present a flat edge and are particularly squared; however, I had the opportunity to examine the sherds from al-Mīnā' kept at the Victoria and Albert Museum; most of the feet are very similar to Q9.
Northedge et al. *1988*: fig. 48, 10C.
Salamé-Sarkis 1980: fig. 12, 11–12.
Waagé 1948: ZZ.

Not illustrated: 49.

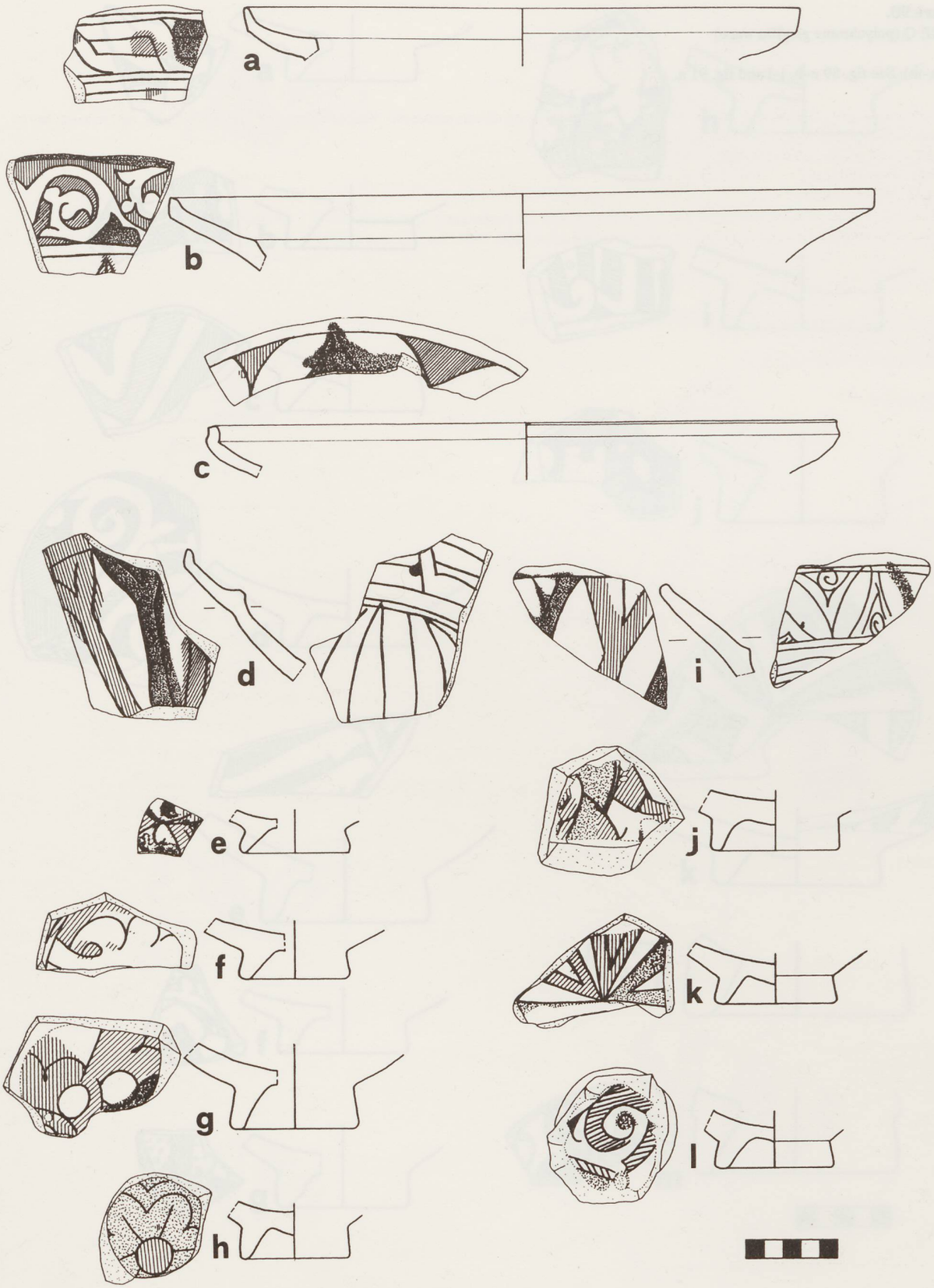

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Figure 90.
WARE Q (polychrome *graffita ware*)

Q9 (a–m): See fig. 89 e–h, j–l and fig. 91 a.

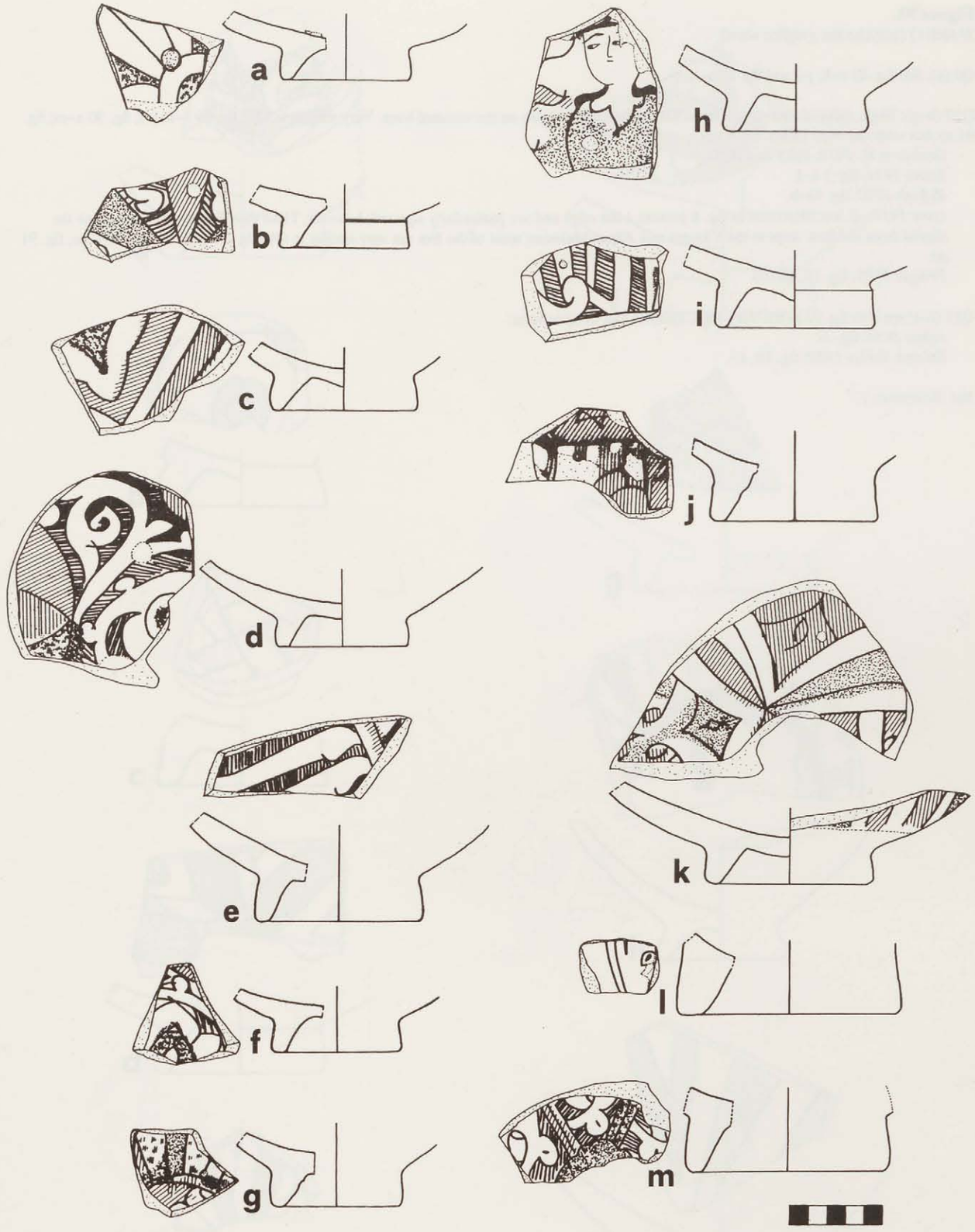

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Figure 91.
WARE Q (polychrome *graffita ware*)

Q9 (a): See fig. 89 e–h, j–l and fig. 90 a–m.

Q10 (b–g): High, splayed foot-ring of open form; often with a knob on the external base. Very similar to Q9 (fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a), but with flat edge (diam. 5–10 cm.):
Grabar et al. *1978*: H/19 and H/20.
Johns 1934: fig. 2 e–f.
Kubiak 1970: fig. 4a–b.
Lane 1937: all feet illustrated in fig. 8 present a flat edge and are particularly squared; however, I had the opportunity to examine the sherds from al-Mīnā' kept at the Victoria and Albert Museum; most of the feet are very similar to Q9 (fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a):
Pringle 1985: fig. 13, 68–69.

Q11 (h–i; see also fig. 92 a–b): Very high, splayed foot of open form:
Johns 1934: fig. 2i.
Salamé-Sarkis 1980: fig. 10, 13.

Not illustrated: 7.

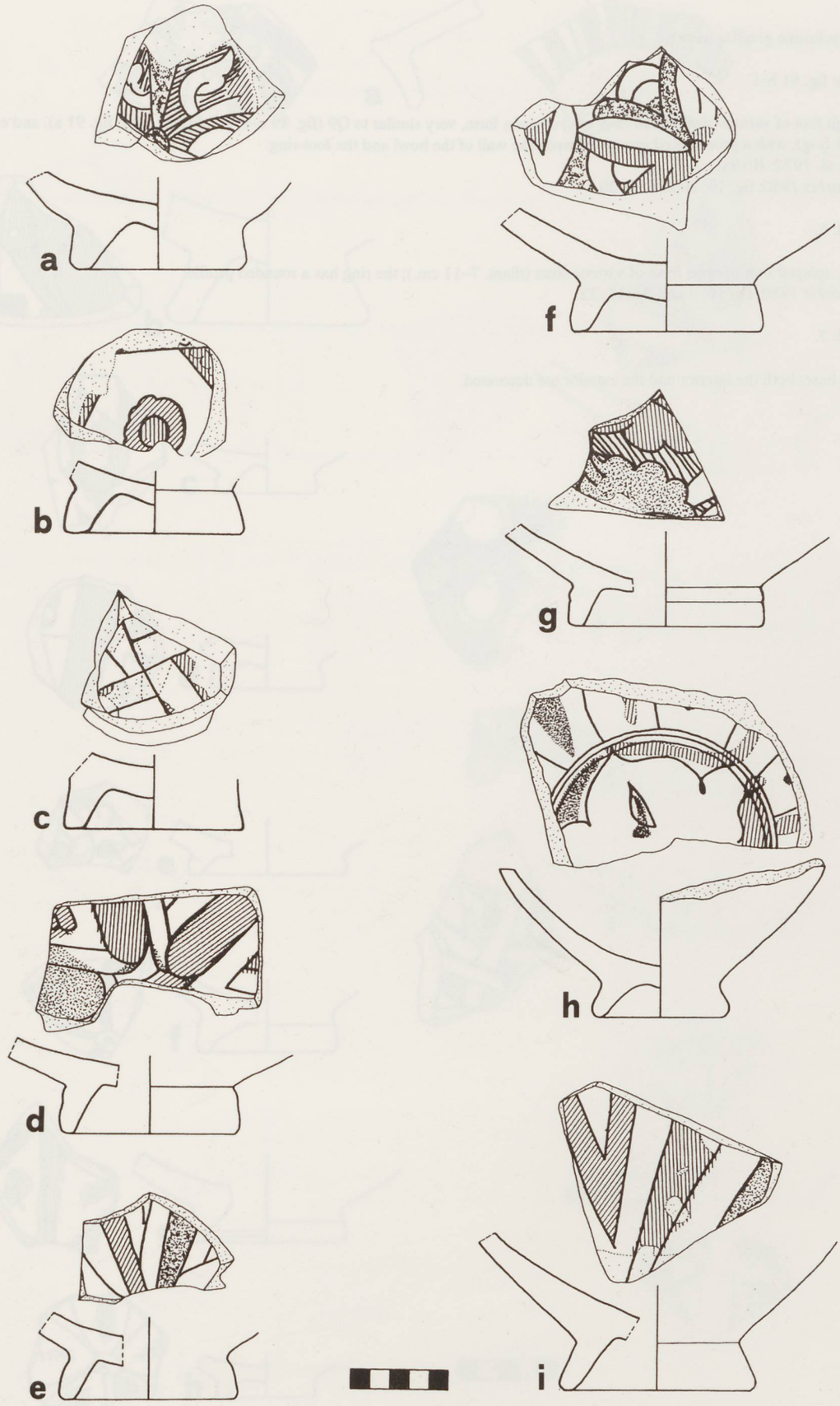

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Figure 92.
WARE Q (polychrome *graffita ware*)

Q11 (a–b): See fig. 91 h–i.

Q12 (c–i): High foot of various sizes (diam. 5–9 cm.) of open form, very similar to Q9 (fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a), and especially to Q10 (fig. 91 b–g), with a pronounced groove between the wall of the bowl and the foot-ring:
Grabar et al. *1978*: H/19a.
Salamé-Sarkis 1980: fig. 10, 10 and 10, 20.

Not illustrated: 3.

Q8 (j–l): Low, splayed foot of open form of various sizes (diam. 7–11 cm.); the ring has a rounded profile:
Salamé-Sarkis 1980: fig. 10, 9 and fig. 11, 32.

Not illustrated: 7.

Q13 (m): Flat base; both the interior and the exterior are decorated.

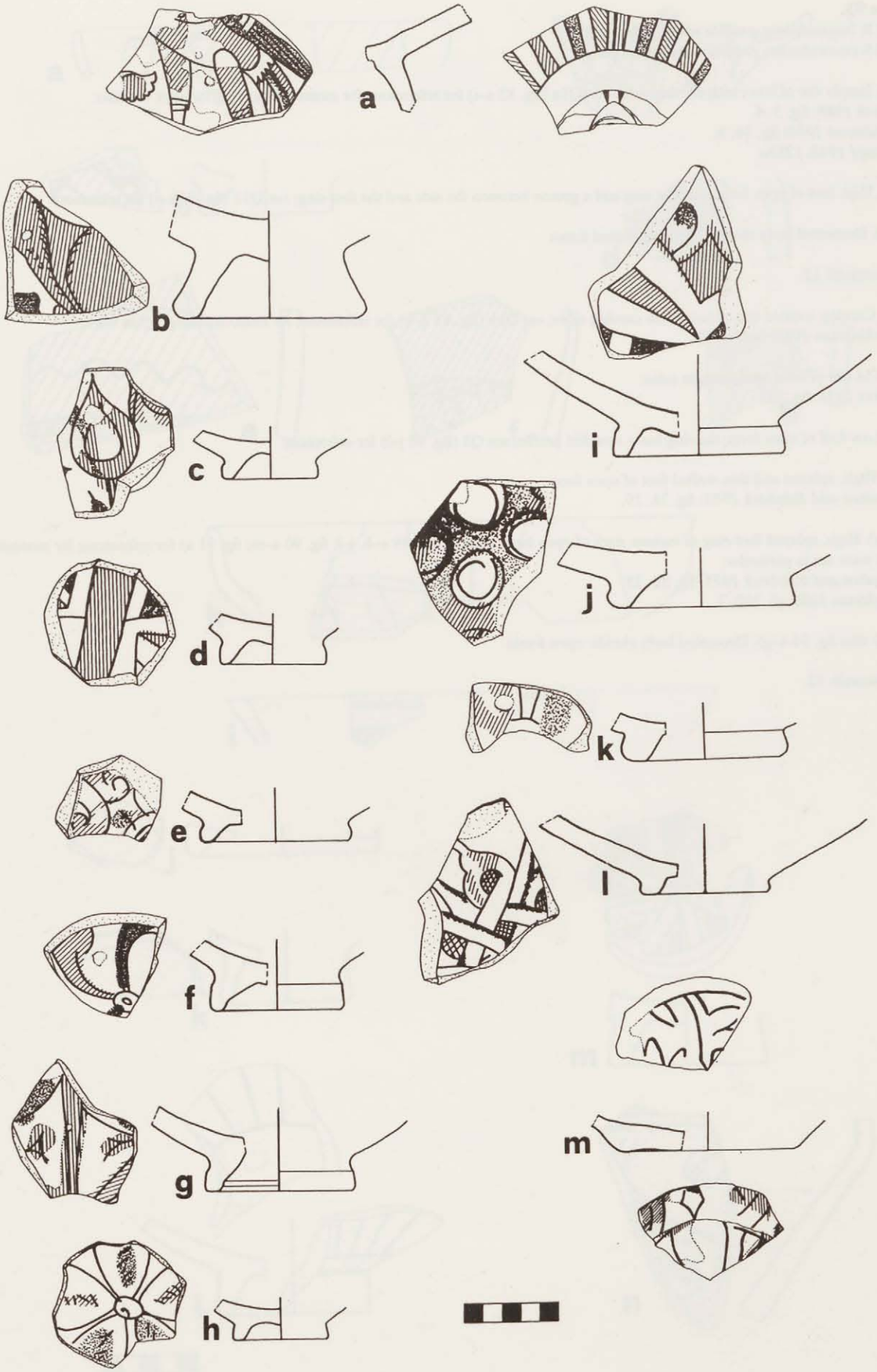

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Figure 93.
WARE R (monochrome *graffita ware*; yellow glaze)
WARE S (monochrome *graffita ware*, green glaze)

R1 (a): Simple rim of bowl with curving sides; see Q1a (fig. 82 a–i) for references; for monochrome *graffita ware* see also:
Brosh 1986: fig. 3, 4.
Thalmann 1978: fig. 36, 3.
Waagé 1948: 1253u.

R2 (b): High foot of open form with flat ring and a groove between the side and the foot-ring: see Q12 (fig. 92 c–i) for references.

R (c–g): Decorated body sherds: open and closed forms.

Not illustrated: 12.

S1 (h): Curving, everted rim of bowl with curving sides; see Q16 (fig. 85 h–k) for references; for monochrome *graffita ware*:
Tushingham 1985: fig. 34, 33.

S2 (i): Cut rim of bowl with straight sides:
Johns 1934: fig. 2h.

S4 (j): Low foot of open form; the ring has a rounded profile; see Q8 (fig. 92 j–l) for references.

S5 (k): High, splayed and thin-walled foot of open form:
Franken and Kalsbeek 1975: fig. 38, 29.

S3 (l–m): High, splayed foot-ring of various sizes of open form; see Q9 (fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a) for references; for monochrome *graffita ware* see in particular:
Franken and Kalsbeek 1975: fig. 38, 25.
Wightman 1989: pl. 262, 7.

S (n; see also fig. 94 a–g): Decorated body sherds: open forms.

Not illustrated: 12.

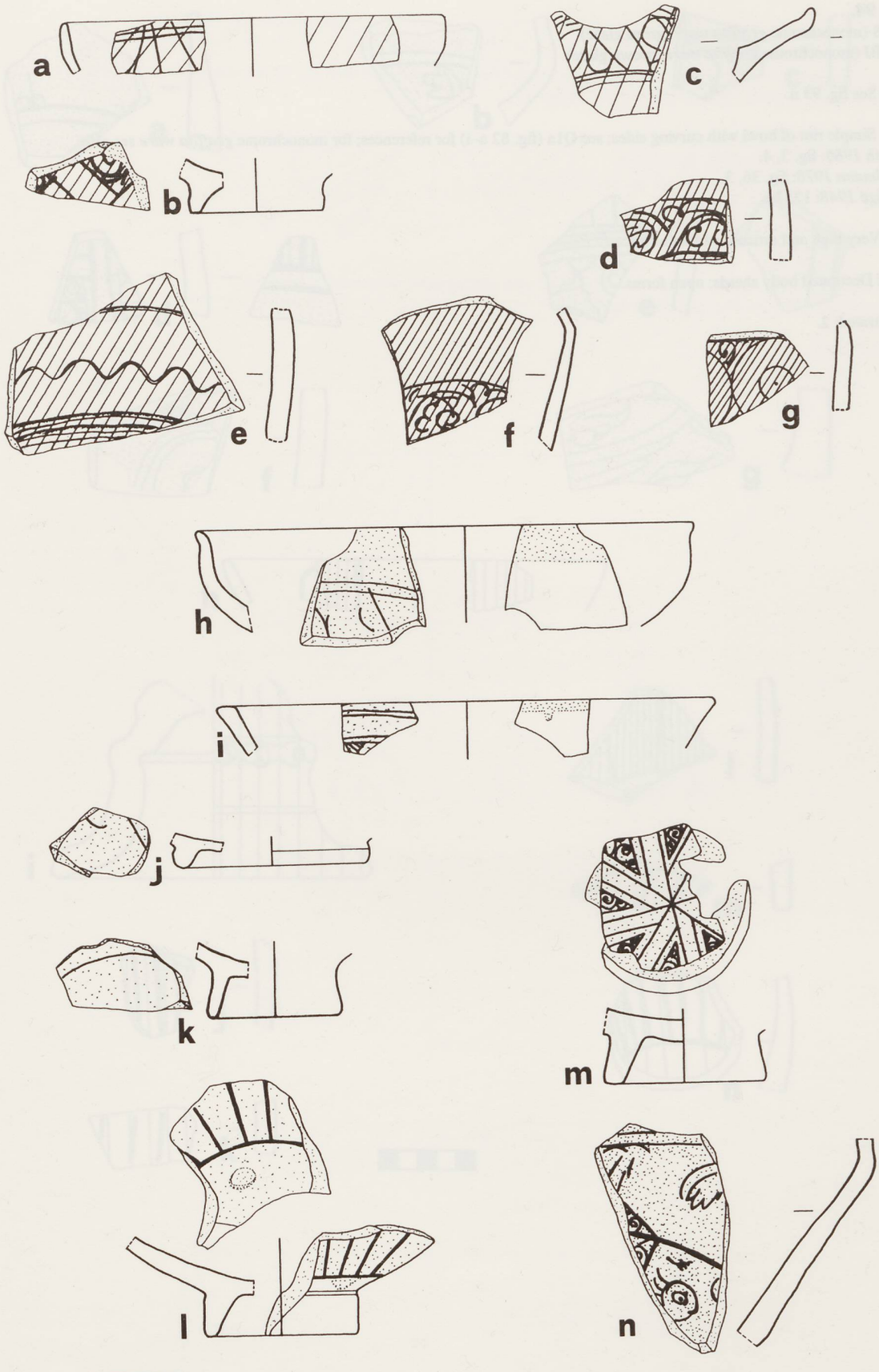

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Figure 94.
WARE S (monochrome *graffita ware*, green glaze)
WARE BJ (monochrome *graffita ware*, brown glaze)

S (a–g): See fig. 93 n.

BJ2 (h): Simple rim of bowl with curving sides; see Q1a (fig. 82 a–i) for references; for monochrome *graffita ware* see also:
Brosh 1986: fig. 3, 4.
Thalmann 1978: fig. 36, 3.
Waagé 1948: 1253u.

BJ1 (i): Very high and articulated foot or lid.

BJ (j–n): Decorated body sherds: open forms.

Not illustrated: 2.

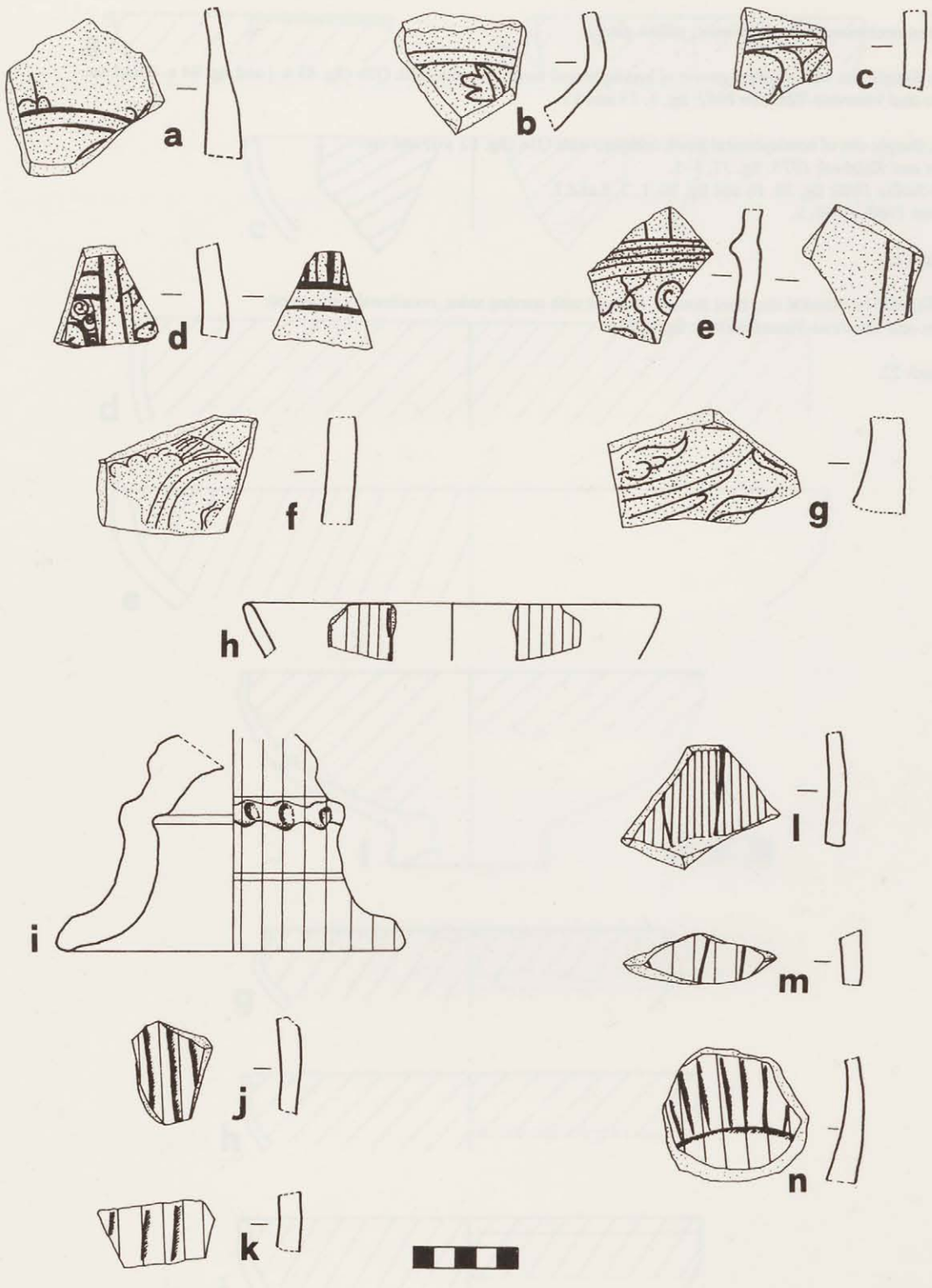

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Figure 95.
WARE BK (monochrome glazed *slip-ware*, yellow glaze)

BK8b (a–b): Simple rim with external groove of hemispherical bowl; compare with Q1b (fig. 83 a–j and fig. 84 a–i) and see:
Scerrato and Ventrone-Vassallo 1982: fig. 1, 13 and 17.

BK8a (c–e): Simple rim of hemispherical bowl; compare with Q1a (fig. 82 a–i) and see:
Franken and Kalsbeek 1975: fig. 37, 3–5.
Salamé-Sarkis 1980: fig. 29, 16 and fig. 30, 1, 3, 5 and 7.
Wightman 1989: pl. 64, 2.

Not illustrated: 12.

BK1 (f–j): Tapered or rounded rim, bent inward, of bowl with curving sides, occasionally carinated:
Scerrato and Ventrone-Vassallo 1982: fig. 1, 21.

Not illustrated: 22.

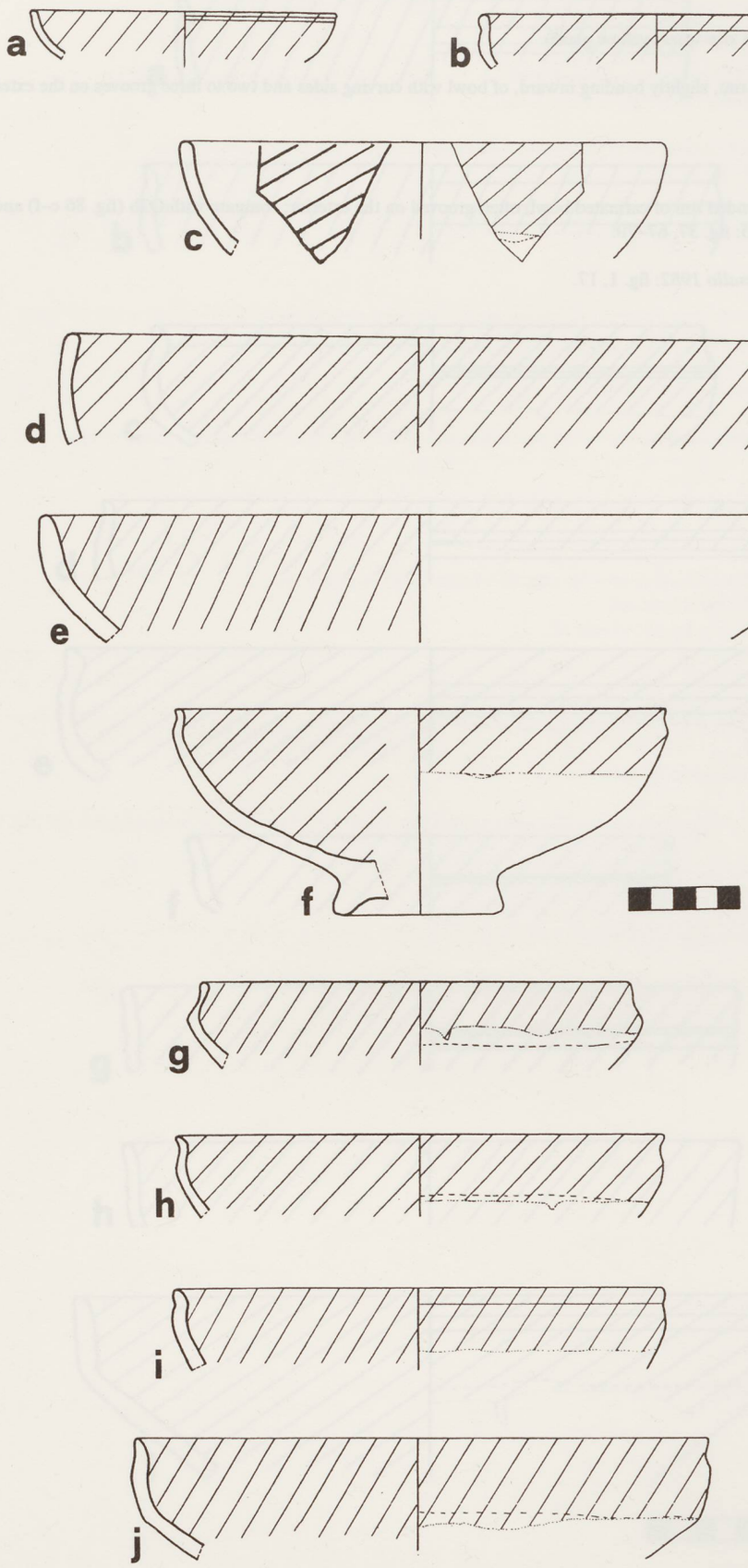

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Figure 96.
WARE BK (monochrome glazed *slip-ware*, yellow glaze)

BK3 (a–e): Tapered or rounded rim, slightly bending inward, of bowl with curving sides and two to three grooves on the exterior; see Q16 (fig. 85 h–k).

Not illustrated: 34.

BK5 (f–i): Tall, straight and rounded rim of carinated bowl, often grooved on the exterior; compare with Q2b (fig. 86 c–f) and see:
Franken and Kalsbeek 1975: fig. 37, 67–70.
Pringle 1986: fig. 49, 52.
Scerrato and Ventrone-Vassallo 1982: fig. 1, 17.
Wightman 1989: pl. 65, 5.

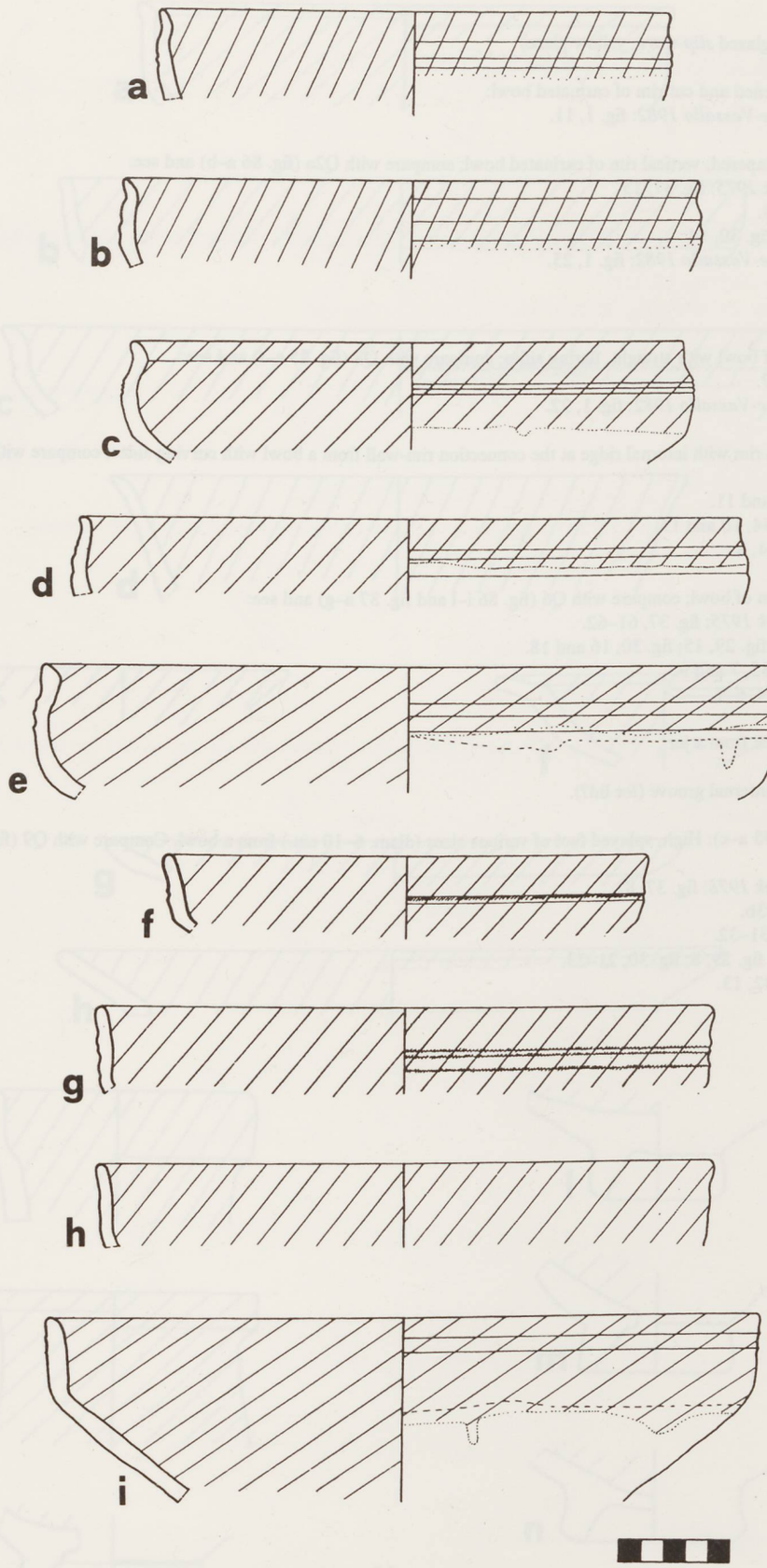

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Figure 97.
WARE BK (monochrome glazed *slip-ware*, yellow glaze)

BK6 (a–b): Vertical, thickened and cut rim of carinated bowl:
Scerrato and Ventrone-Vassallo 1982: fig. 1, 11.

BK2 (c): Slightly everted, tapered, vertical rim of carinated bowl; compare with Q2a (fig. 86 a–b) and see:
Franken and Kalsbeek 1975: fig. 37, 13.
Pringle 1985: fig. 3,13.
Salamé-Sarkis 1980: fig. 30, 14.
Scerrato and Ventrone-Vassallo 1982: fig. 1, 25.

Not illustrated: 4.

BK10 (d–e): Simple rim of bowl with straight, flaring sides; compare with Q3 (fig. 85 e–f) and see:
Grabar et al. *1978*: I/7.
Scerrato and Ventrone-Vassallo 1982: fig. 1, 22.

BK12 (f; g?): Flat, everted rim with internal ridge at the connection rim-wall from a bowl with curving sides; compare with Q4 (fig. 88 d–i and fig. 89 a–d, i) and see:
Brosh 1986: fig. 2, 8 and 11.
Thalmann 1978: fig. 34, 10 and 13.
Wightman 1989: pl. 64, 8.

BK13 (h): Flat, everted rim of bowl; compare with Q6 (fig. 86 i–l and fig. 87 a–g) and see:
Franken and Kalsbeek 1975: fig. 37, 61–62.
Salamé-Sarkis 1980: fig. 29, 15; fig. 30, 16 and 18.
Thalmann 1978: fig. 35, 7 and 9.
Wightman 1989: pl. 64, 6–7.

BK20 (i): Band rim of neck from a jar.

BK21 (j): Band rim with internal groove (for lid?).

BK14 (k–n; see also fig. 98 a–c): High, splayed foot of various sizes (diam. 6–10 cm.) from a bowl. Compare with Q9 (fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a) and see:
Franken and Kalsbeek 1978: fig. 37, 82.
Grabar et al. *1978*: I/3b.
Pringle 1984: fig. 6, 31–32.
Salamé-Sarkis 1980: fig. 29, 8; fig. 30, 21–23.
Wightman 1989: pl. 42, 13.

Not illustrated: 30.

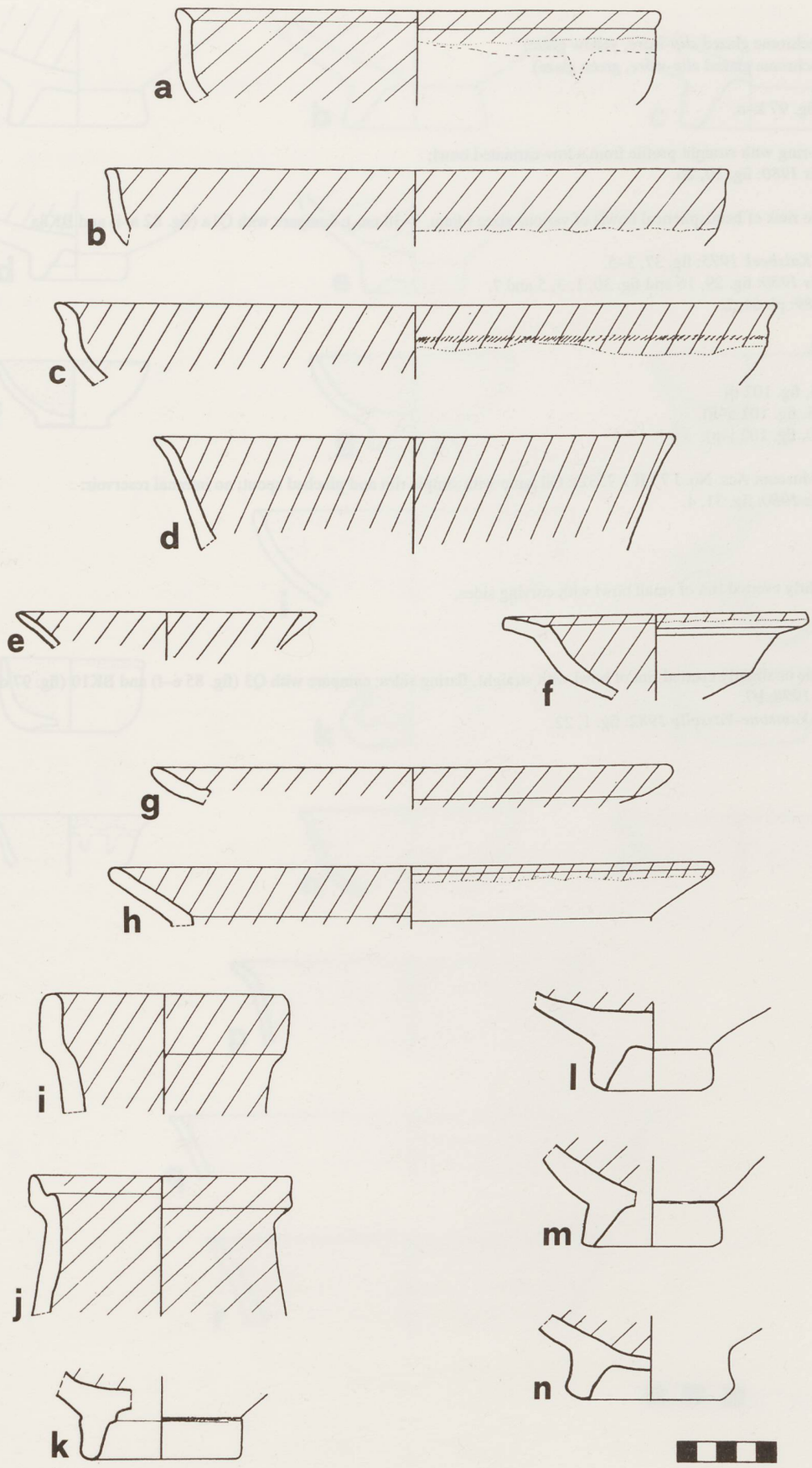

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Figure 98.
WARE BK (monochrome glazed *slip-ware*, yellow glaze)
WARE AZ (monochrome glazed *slip-ware*, green glaze)

BK14 (a–c): See fig. 97 k–n.

BK17 (d–e): Foot-ring with straight profile from a low-carinated bowl:
Salamé-Sarkis 1980: fig. 30, 26.

AZ15 (f–i): Simple rims of hemispherical bowls of various sizes (diam. 7–30 cm.); compare with Q1a (fig. 82 a–i) and BK8a (fig. 95 c–e):
Franken and Kalsbeek 1975: fig. 37, 3–5.
Salamé-Sarkis 1980: fig. 29, 16 and fig. 30, 1, 3, 5 and 7.
Wightman 1989: pl. 64, 2.

Not illustrated: 52.

Foot: f (see AZ33, fig. 102 q).
g (see AZ28, fig. 102 a–h).
h (see AZ30, fig. 102 j–p).

AZ21 (j–k; l: QJ Museum Acc. No. J 73 II 1 7532): Oil lamp with simple rim and pinched spout; no internal reservoir:
Salamé-Sarkis 1980: fig. 31, 4.

Not illustrated: 6.

AZ13 (m–o): Slightly everted rim of small bowl with curving sides.

Not illustrated: 3

AZ14 (p–r): Simple or slightly everted rim of bowl with straight, flaring sides; compare with Q3 (fig. 85 e–f) and BK10 (fig. 97 d–e):
Grabar et al. *1978*: I/7.
Scerrato and Ventrone-Vassallo 1982: fig. 1, 22.

Not illustrated: 3.

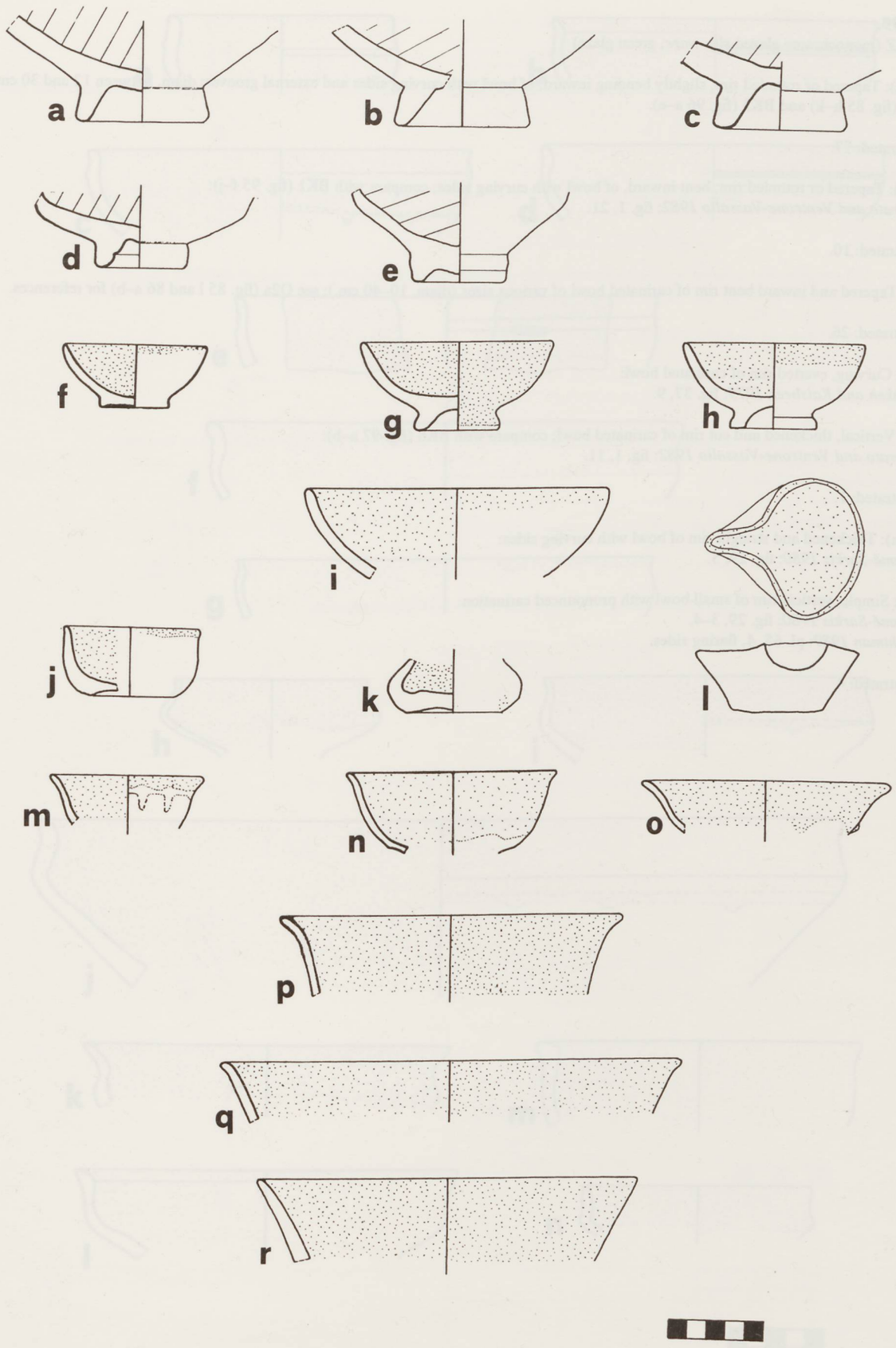

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Figure 99.
WARE AZ (monochrome glazed *slip-ware*, green glaze)

AZ1 (a–e): Tapered or rounded rim, slightly bending inward, of bowl with curving sides and external grooves; diam. between 12 and 30 cm. See Q16 (fig. 85 h–k) and BK3 (fig. 96 a–e).

Not illustrated: 77.

AZ2 (f–i): Tapered or rounded rim, bent inward, of bowl with curving sides; compare with BK1 (fig. 95 f–j):
Scerrato and Ventrone-Vassallo 1982: fig. 1, 21.

Not illustrated: 10.

AZ7 (j): Tapered and inward bent rim of carinated bowl of various sizes (diam. 10–40 cm.); see Q2a (fig. 85 l and 86 a–b) for references.

Not illustrated: 26.

AZ9 (k): Curving, everted rim of carinated bowl:
Franken and Kalsbeek 1975: fig. 37, 9.

AZ5 (l): Vertical, thickened and cut rim of carinated bowl; compare with BK6 (fig. 97 a–b):
Scerrato and Ventrone-Vassallo 1982: fig. 1, 11.

Not illustrated: 1.

AZ10 (m): Thickened and straight rim of bowl with curving sides:
Salamé-Sarkis 1980: fig. 29, 5.

AZ3 (n): Simple, vertical rim of small bowl with pronounced carination:
Salamé-Sarkis 1980: fig. 29, 3–4.
Wightman 1989: pl. 65, 4, flaring sides.

Not illustrated: 4

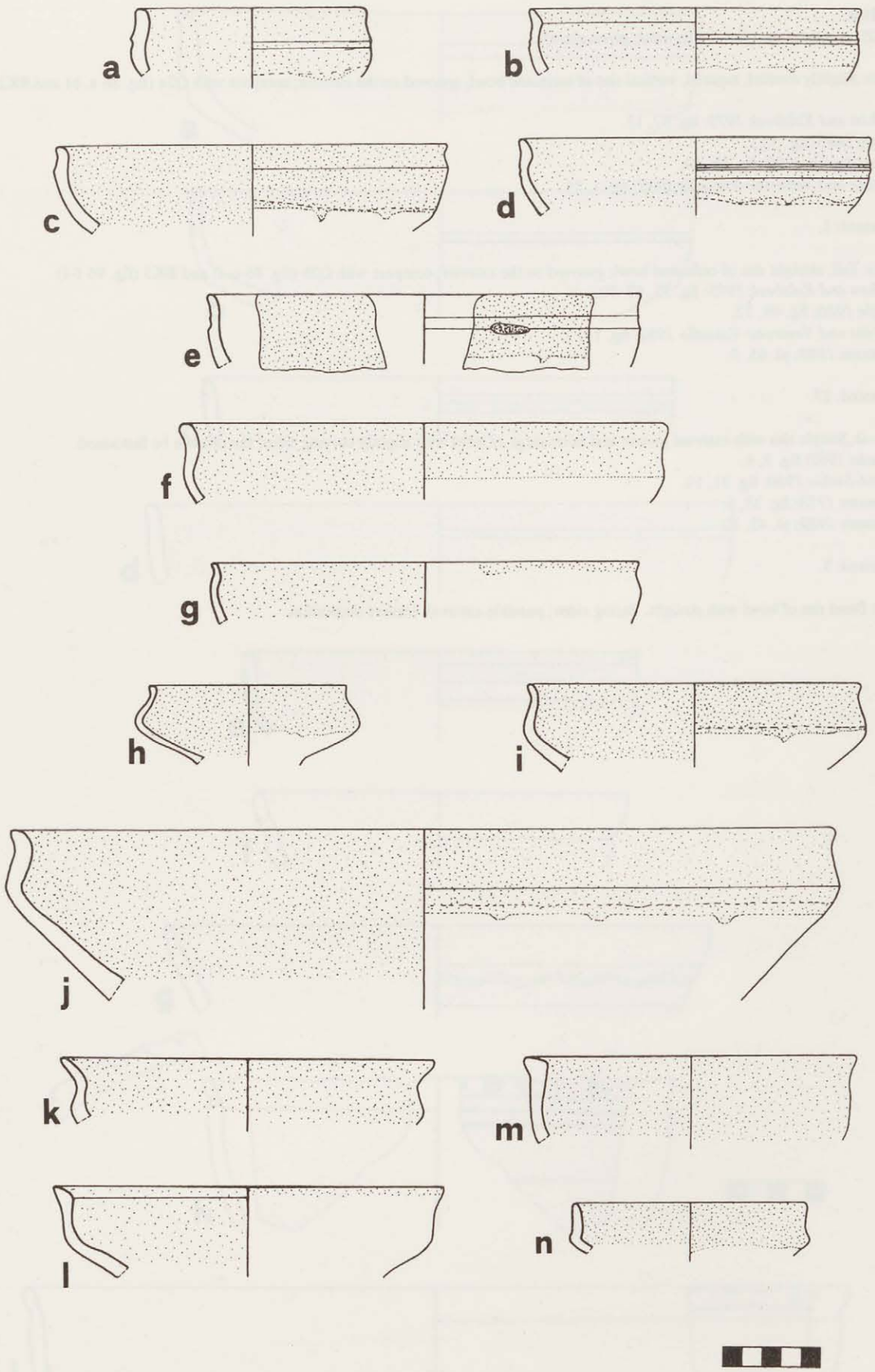

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Figure 100.
WARE AZ (monochrome glazed *slip-ware*, green glaze)

AZ6 (a–b): Slightly everted, tapered, vertical rim of carinated bowl, grooved on the exterior; compare with Q2a (fig. 86 a–b) and BK2 (fig. 97 c):

Franken and Kalsbeek 1975: fig. 37, 13.
Pringle 1985: fig. 3,13.
Salamé-Sarkis 1980: fig. 30, 14.
Scerrato and Ventrone-Vassallo 1982: fig. 1, 25.

Not illustrated: 1.

AZ4 (c–e): Tall, straight rim of carinated bowl, grooved on the exterior; compare with Q2b (fig. 86 c–f) and BK5 (fig. 96 f–i):

Franken and Kalsbeek 1975: fig. 37, 67–70.
Pringle 1986: fig. 49, 52.
Scerrato and Ventrone-Vassallo 1982: fig. 1, 17.
Wightman 1989: pl. 65, 5.

Not illustrated: 27.

AZ8 (f, h–i): Simple rim with external groove and inner ridge of bowl with slightly curving sides; the rim can be fastooned:

Loffreda 1982: fig. 9, 6.
Salamé-Sarkis 1980: fig. 31, 10.
Thalmann 1978: fig. 35, 8.
Wightman 1989: pl. 42, 10.

Not illustrated: 3.

AZ11 (g): Band rim of bowl with straight, flaring sides; possible external, incised decoration.

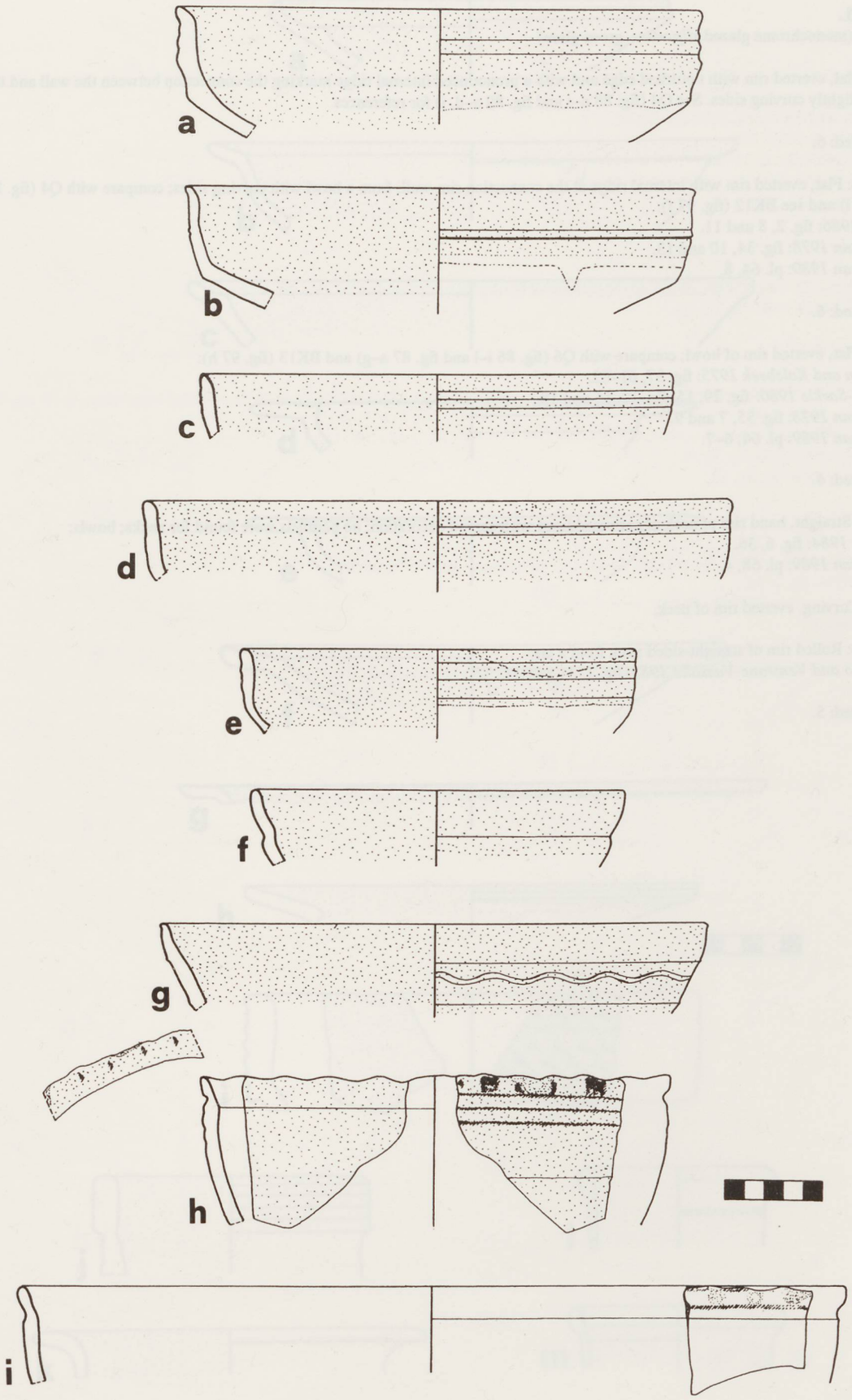

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Figure 101.
WARE AZ (monochrome glazed *slip-ware*, green glaze)

AZ16 (a): Flat, everted rim with upturned edge and with a pronounced internal ridge marking the connection between the wall and the rim; bowl with slightly curving sides. See Q4 (fig. 88 d–i and fig. 89 a–d, i) for references.

Not illustrated: 6.

AZ17 (b–g): Flat, everted rim with internal ridge at the connection rim-wall; from a bowl with curving sides; compare with Q4 (fig. 88 d–i and fig. 89 a–d, i) and see BK12 (fig. 97 f):
Brosh 1986: fig. 2, 8 and 11.
Thalmann 1978: fig. 34, 10 and 13.
Wightman 1989: pl. 64, 8.

Not illustrated: 6.

AZ19 (h): Flat, everted rim of bowl; compare with Q6 (fig. 86 i–l and fig. 87 a–g) and BK13 (fig. 97 h):
Franken and Kalsbeek 1975: fig. 37, 61–62.
Salamé-Sarkis 1980: fig. 29, 15; fig. 30, 16 and 18.
Thalmann 1978: fig. 35, 7 and 9.
Wightman 1989: pl. 64, 6–7.

Not illustrated: 4.

AZ23 (i–j): Straight, band rim of neck or carinated bowl with carved decoration; no parallels were found for necks; bowls:
Pringle 1984: fig. 6, 36.
Wightman 1989: pl. 68, 4.

AZ26 (k): Curving, everted rim of neck.

AZ22 (l–m): Rolled rim of straight-sided neck from a jar:
Scerrato and Ventrone-Vassallo 1982: fig. 1, 31 and 33.

Not illustrated: 5.

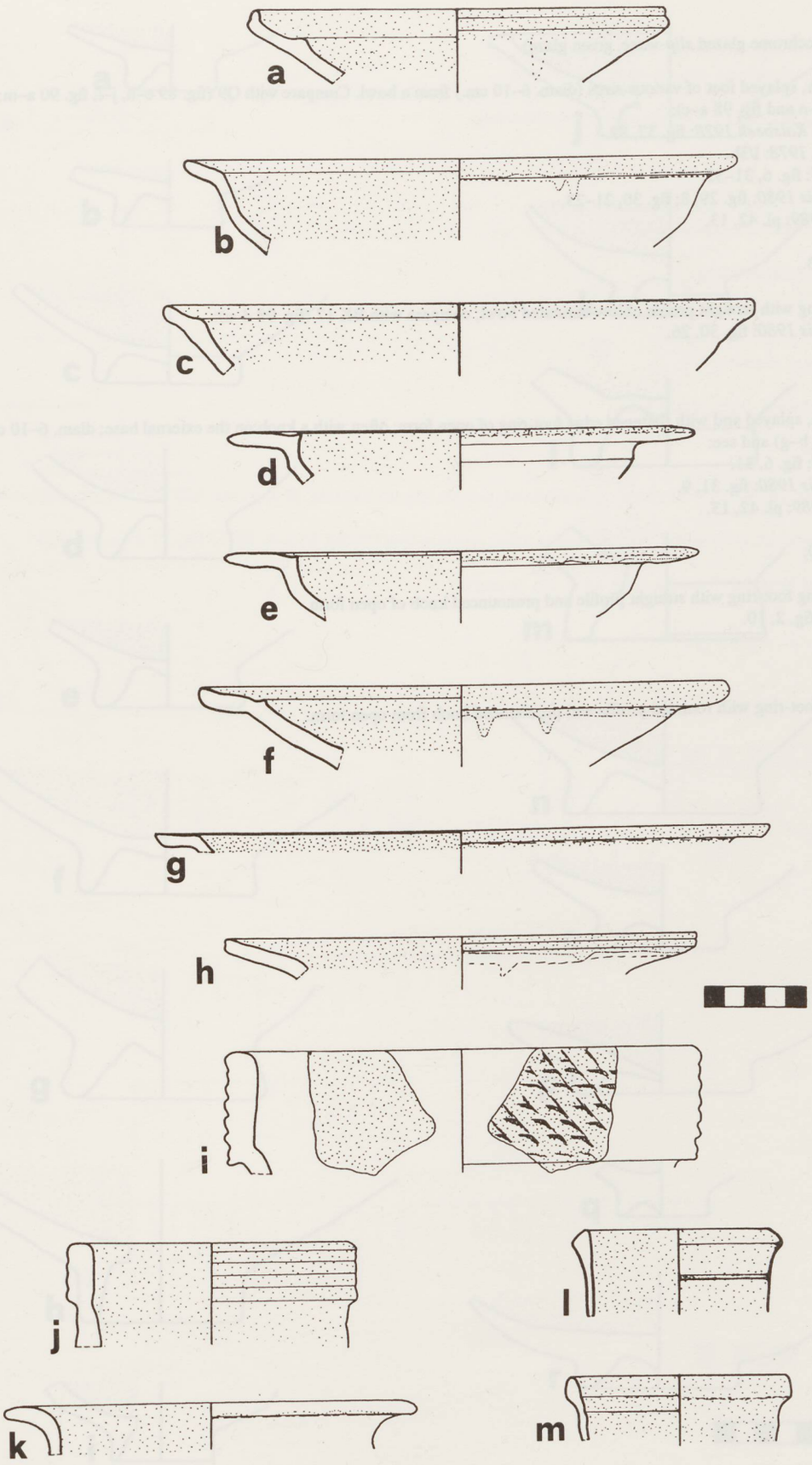

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Figure 102.
WARE AZ (monochrome glazed *slip-ware*, green glaze)

AZ28 (a–h): High, splayed foot of various sizes (diam. 6–10 cm.) from a bowl. Compare with Q9 (fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a) and BK 14 (fig. 97 k–n and fig. 98 a–c):
Franken and Kalsbeek 1978: fig. 37, 82.
Grabar et al. *1978*: I/3b.
Pringle 1984: fig. 6, 31–32.
Salamé-Sarkis 1980: fig. 29, 8; fig. 30, 21–23.
Wightman 1989: pl. 42, 13.

Not illustrated: 63.

AZ29 (i): Foot-ring with straight profile of low-carinated bowl; compare with BK 17 (fig. 98 d–e):
Salamé-Sarkis 1980: fig. 30, 26.

Not illustrated: 2.

AZ30 (j–p): High, splayed and with flattened edge foot-ring of open form; often with a knob on the external base; diam. 6–10 cm. Compare with Q10 (fig. 91 b–g) and see:
Pringle 1984: fig. 6, 31.
Salamé-Sarkis 1980: fig. 31, 9.
Wightman 1989: pl. 42, 13.

Not illustrated: 30.

AZ33 (q): Tapering foot-ring with straight profile and pronounced knob of open form.
Brosh 1986: fig. 2, 10.

Not illustrated: 3.

AZ34 (r): Thick foot-ring with rounded profile and pronounced knob from open form.

Not illustrated: 6.

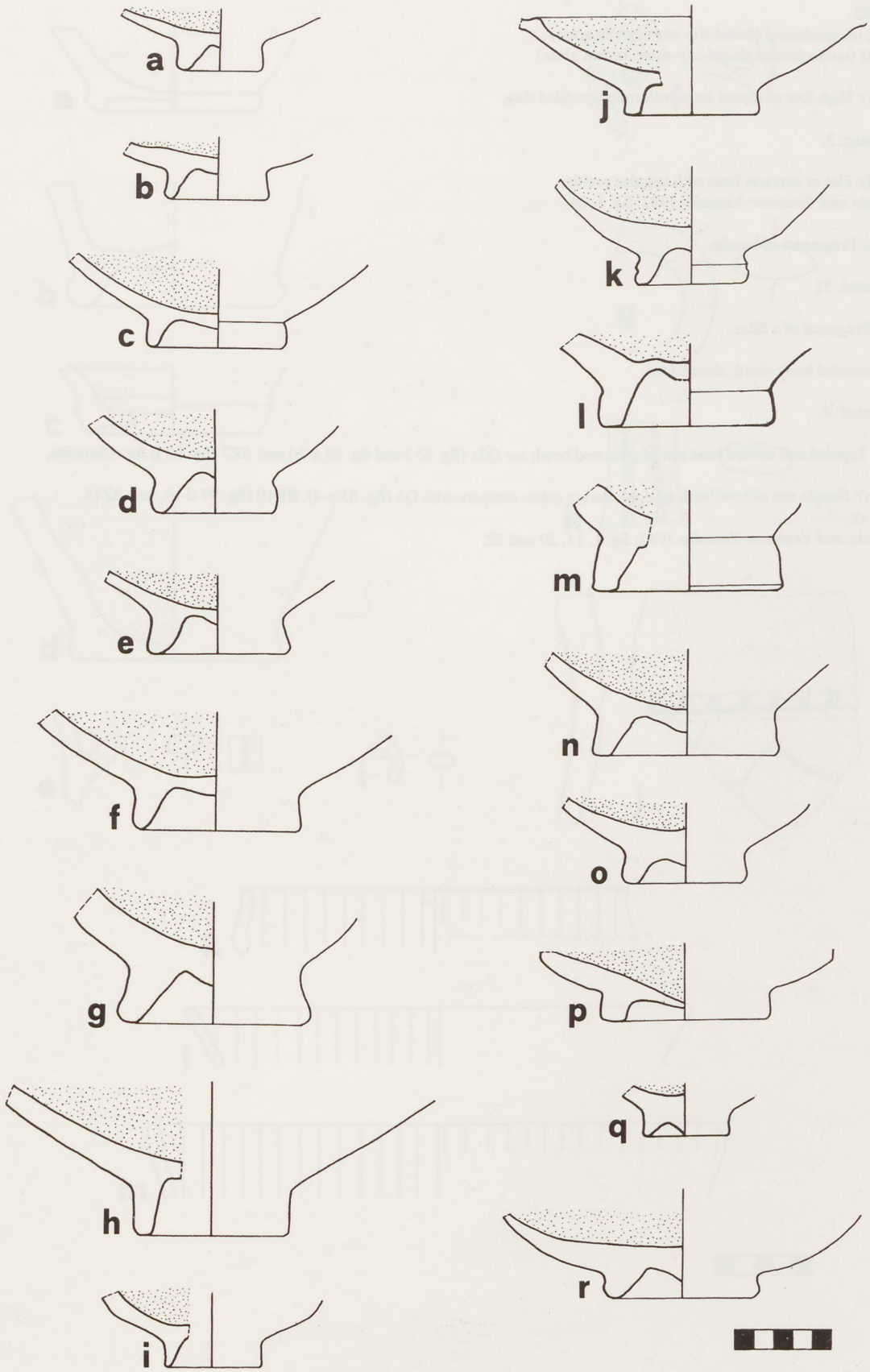

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Figure 103.
WARE AZ (monochrome glazed *slip-ware*, green glaze)
WARE BBJ (monochrome glazed *slip-ware*, brown glaze)

AZ32 (a–b): High foot of closed form with round-profiled ring.

Not illustrated: 3.

AZ31 (c–d): Flat or concave base with angular profile:
Scerrato and Ventrone-Vassallo 1982: fig. 1, 34.

AZ (e, g–i): Fragments of handle.

Not illustrated: 51.

AZ20 (f): Fragment of a filter.

AZ (j): Decorated body sherd, closed form.

Not illustrated: 4.

BBJ4 (k): Tapered and inward bent rim of carinated bowl; see Q2a (fig. 85 l and fig. 86 a–b) and AZ7 (fig. 99 j) for references.

BBJ2 (l–m): Simple rim of bowl with straight, flaring sides; compare with Q3 (fig. 85 e–f), BK10 (fig. 97 d–e), and AZ14 (fig. 98 p–r):
Scerrato and Ventrone-Vassallo 1982: fig. 1, 14, 20 and 22.

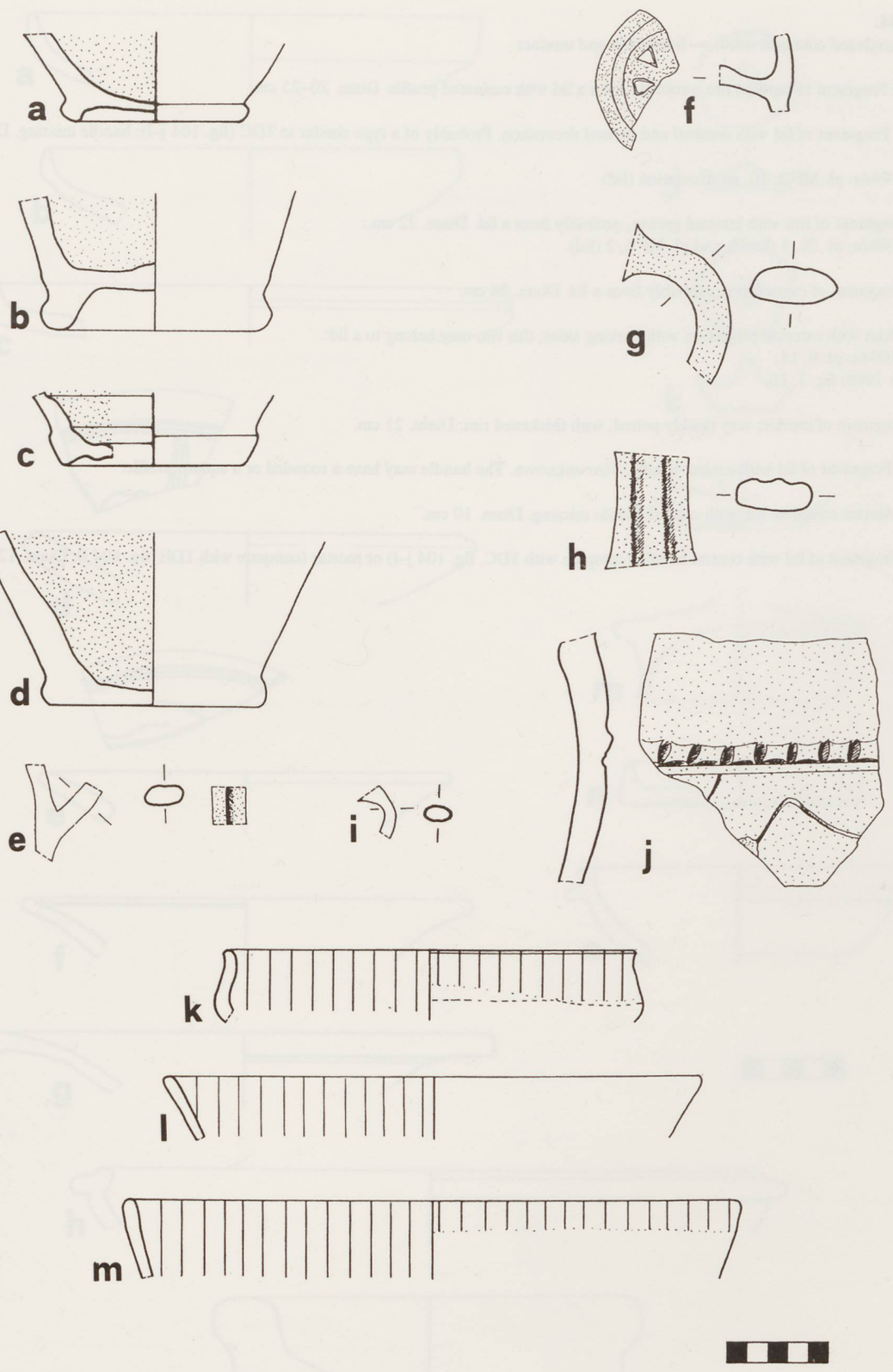

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Figure 104.
WARE 1 (unglazed common ware) — lids/bowls and mortars

1DA (a–c): Fragment of tapered rim, probably from a lid with carinated profile. Diam. 20–25 cm.

1DF (d–e): Fragment of lid with combed and incised decoration. Probably of a type similar to 1DC (fig. 104 j–l); handle missing. Diam. 20–22 cm.:
Bartl 1994a: pl. MF 2, 10, no decoration (lid).

1DH (f): Fragment of rim with internal groove, probably from a lid. Diam. 22 cm.:
Bartl 1994a: pl. 20, 3 (bowl) and pl. MF 6, 2 (lid).

1DG (g): Fragment of everted rim, probably from a lid. Diam. 24 cm.

1O (h, o): Rim with external projection with curving sides; this rim may belong to a lid:
Bartl 1994a: pl. 9, 14.
Guérin 1996: fig. 3, 10.

1DE (i): Fragment of mortar; very thickly potted, with thickened rim. Diam. 21 cm.

1DC (j–l): Fragment of lid with central handle. Size unknown. The handle may have a rounded or a square profile.

1DB (m): Almost complete lid, with central handle missing. Diam. 10 cm.

1DD (n): Fragment of lid with central handle (compare with 1DC, fig. 104 j–l) or mortar (compare with 1DE, fig. 104 i). Diam. 12 cm.

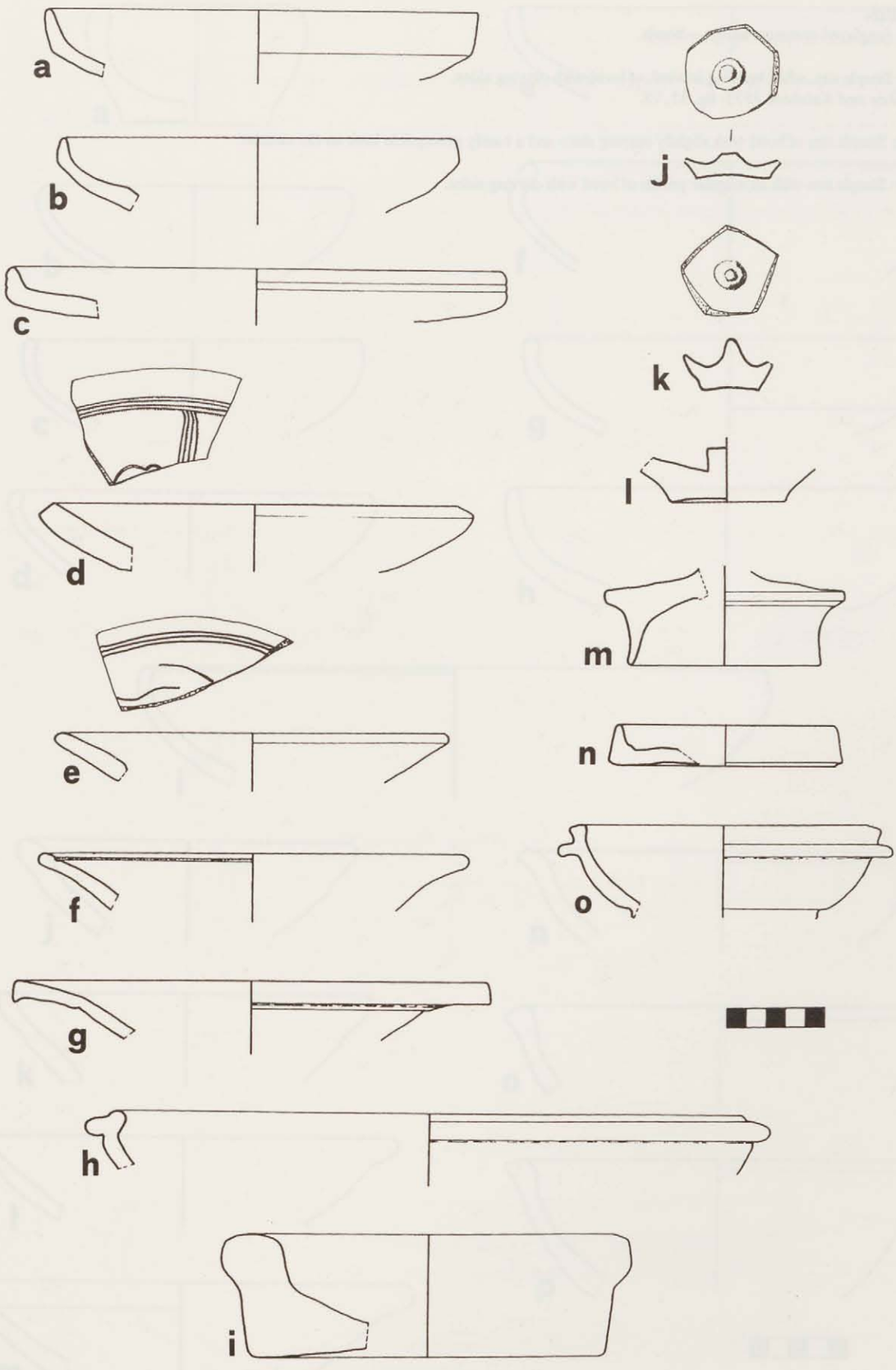

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Figure 105.
WARE 1 (unglazed common ware) — bowls

1A (a–i): Simple rim, often bending inward, of bowl with curving sides:
Franken and Kalsbeek 1975: fig. 35, 78.

1B (j–m): Simple rim of bowl with slightly curving sides and a barely perceptible kink on the exterior.

1C (n–p): Simple rim with an angular profile of bowl with curving sides.

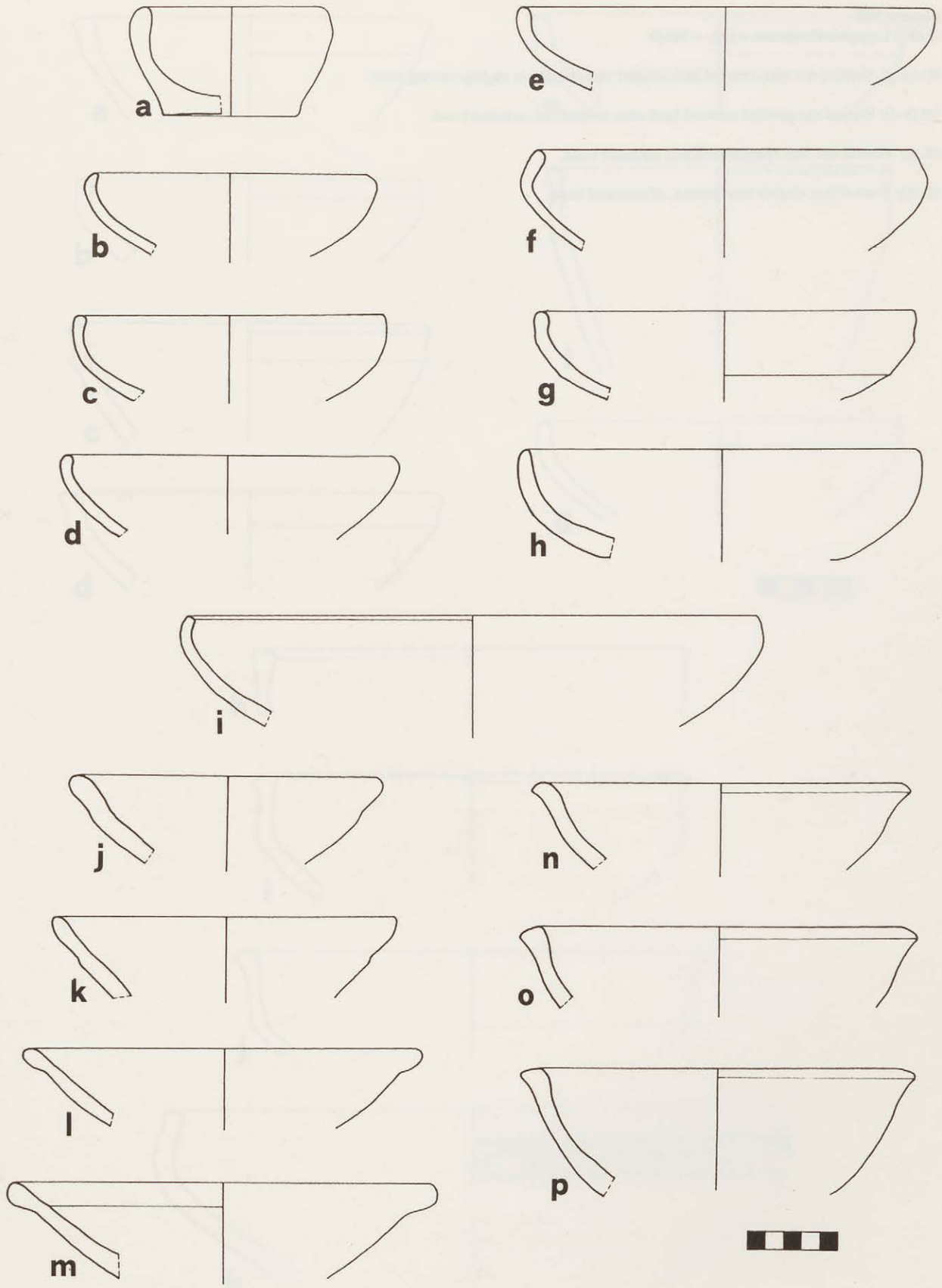

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Figure 106.
WARE 1 (unglazed common ware) — bowls

1D (a–g): Vertical rim with external kink of bowl with straight or slightly curving sides.

1H (h–i): Vertical rim profiled outward (and often inward), of carinated bowl.

1E (j): Vertical rim with angular profile of carinated bowl.

1F (k): Vertical rim, slightly bent inward, of carinated bowl.



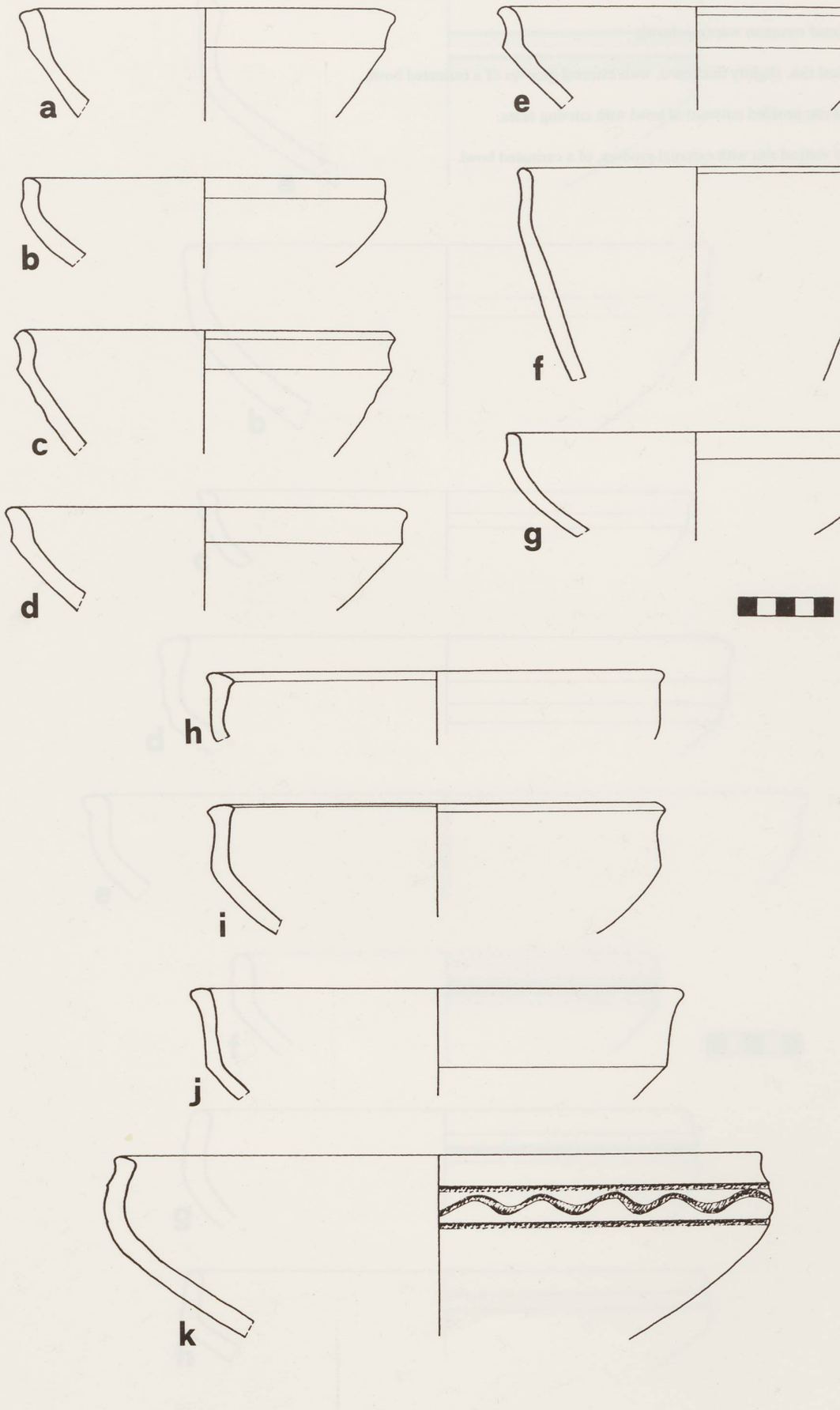
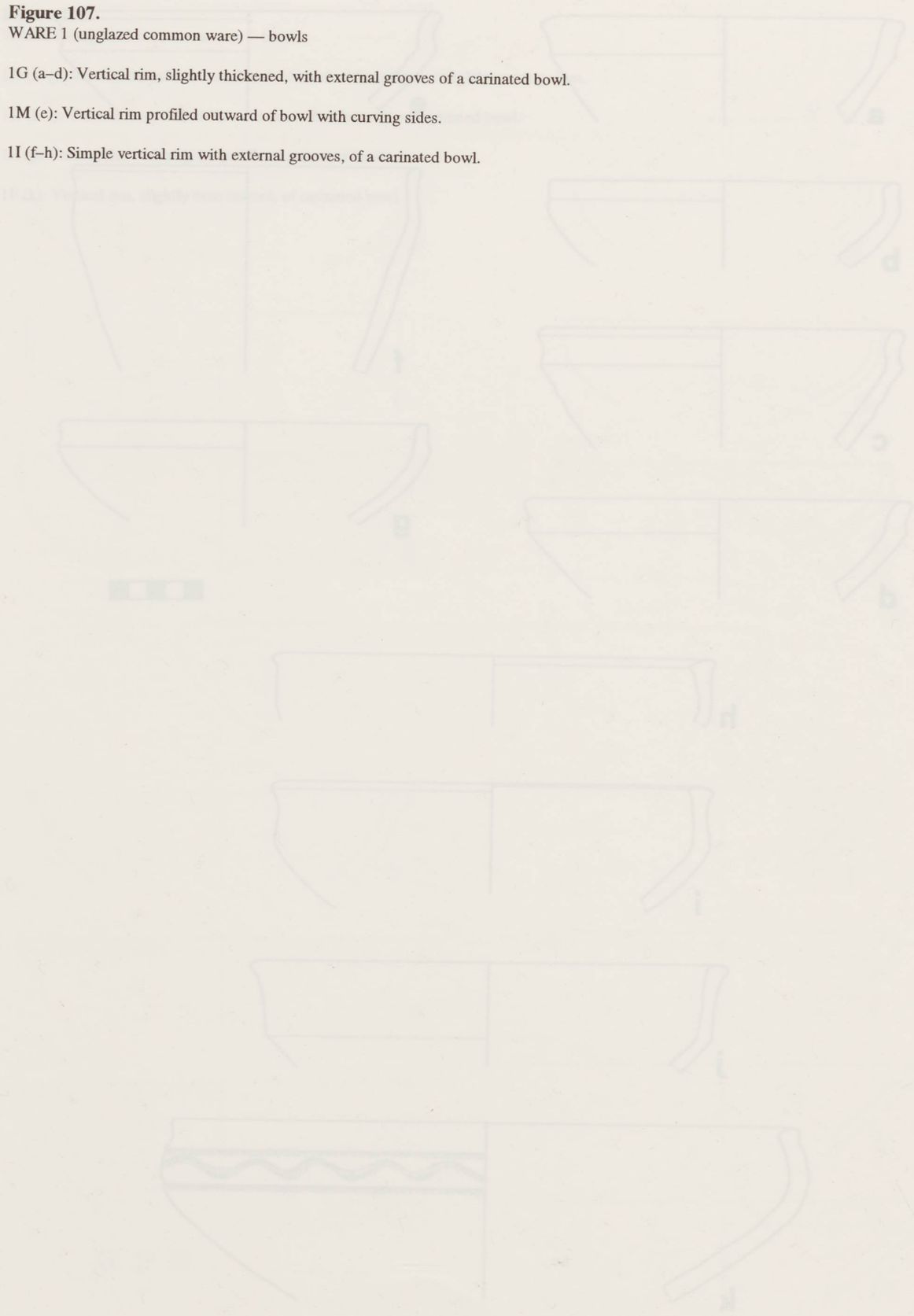

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Figure 107.
WARE 1 (unglazed common ware) — bowls

1G (a–d): Vertical rim, slightly thickened, with external grooves of a carinated bowl.

1M (e): Vertical rim profiled outward of bowl with curving sides.

1I (f–h): Simple vertical rim with external grooves, of a carinated bowl.



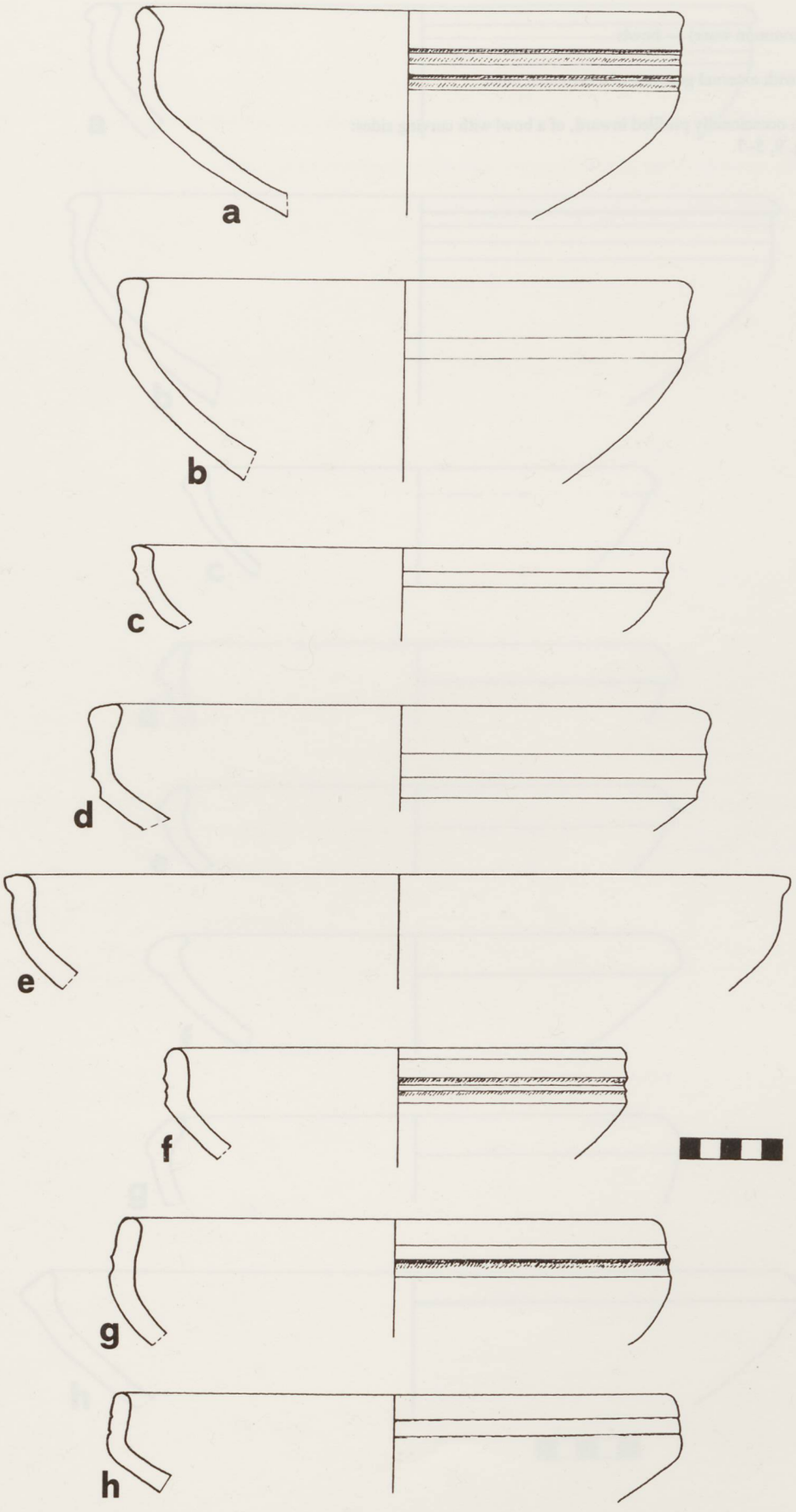
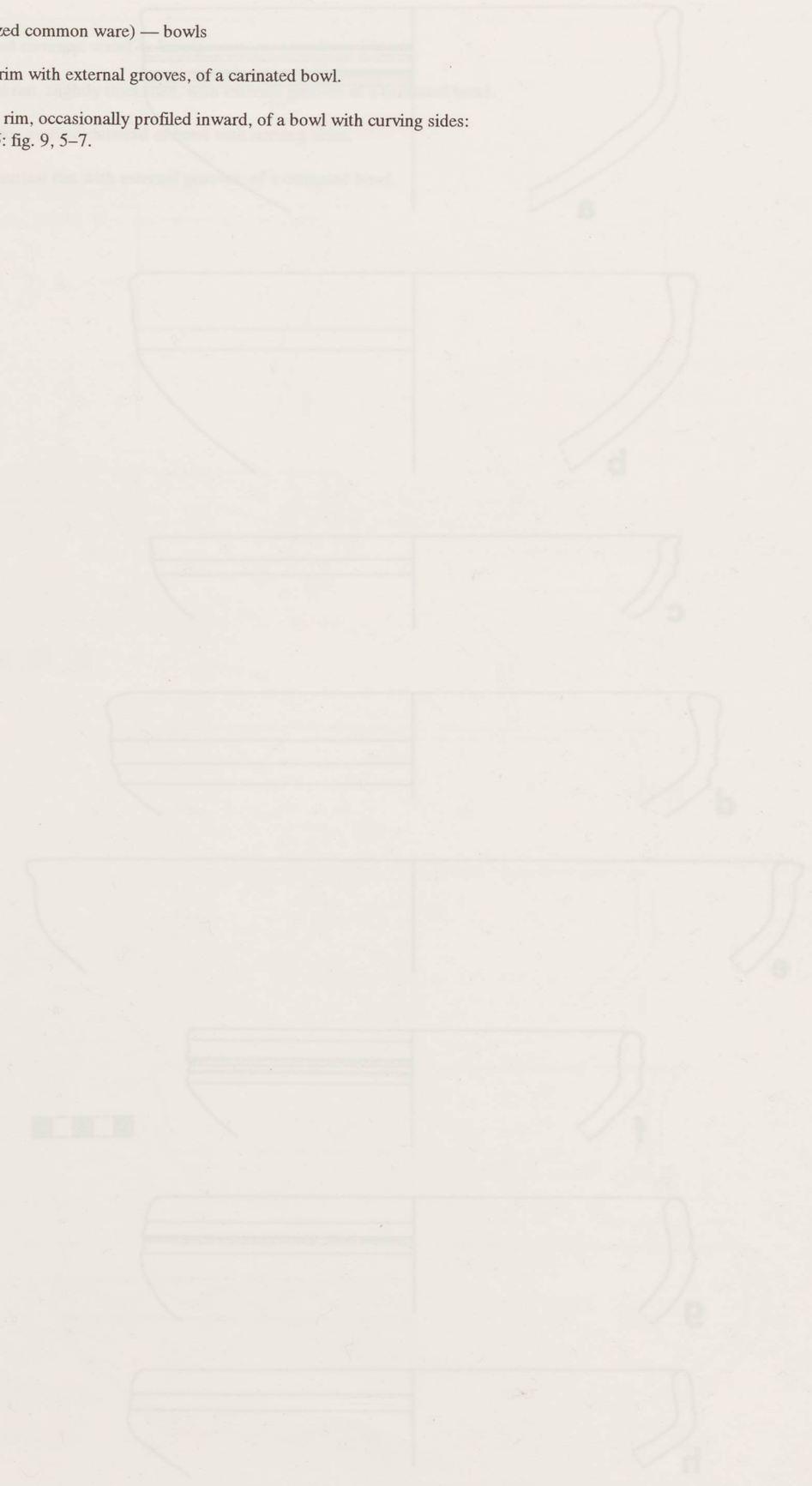

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Figure 108.
WARE 1 (unglazed common ware) — bowls

1J (a–b): Rolled rim with external grooves, of a carinated bowl.

1K (c–h): Rolled rim, occasionally profiled inward, of a bowl with curving sides:
Guérin 1996: fig. 9, 5–7.



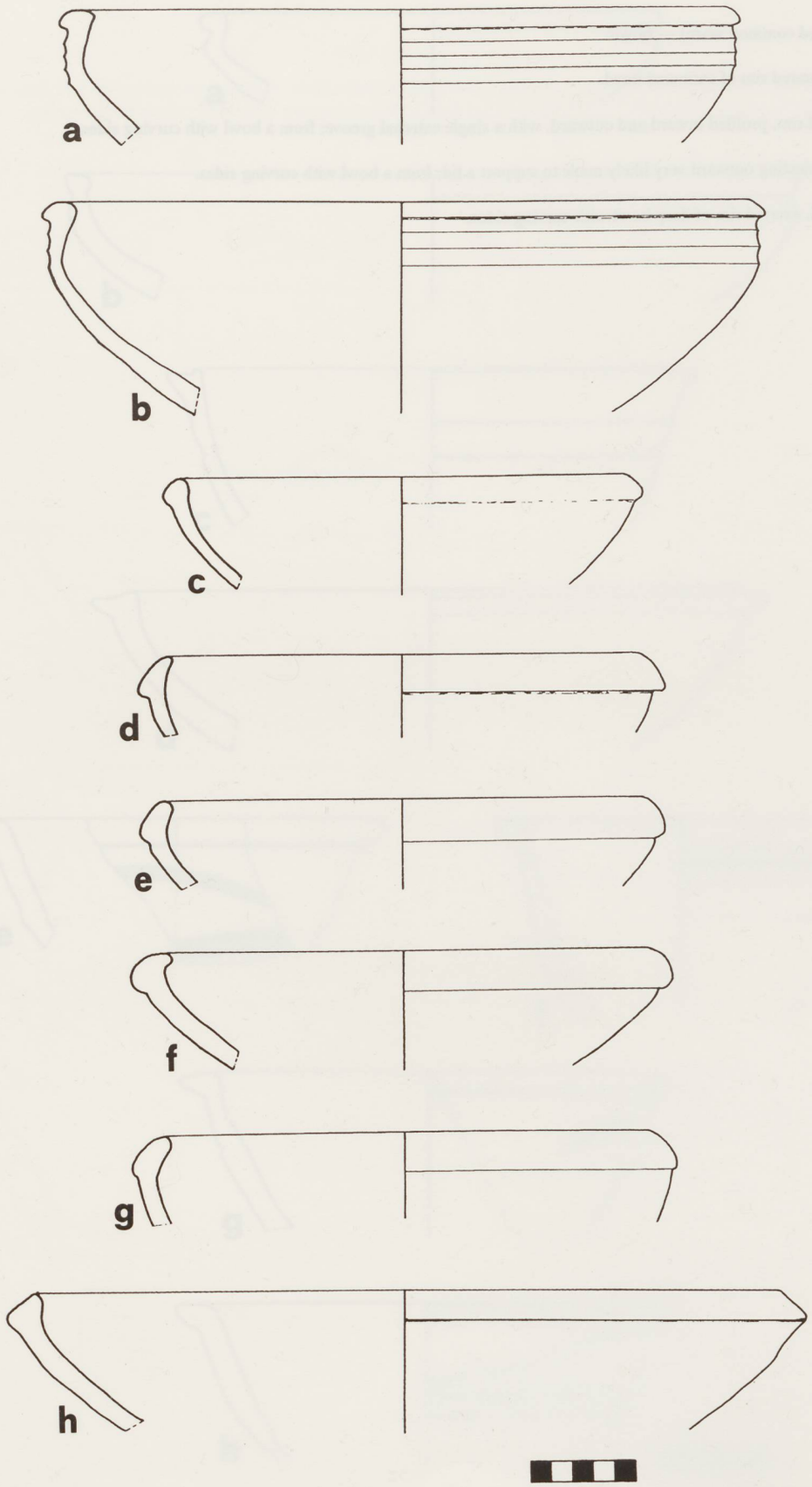

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Figure 109.
WARE 1 (unglazed common ware) — bowls

1L (a): Rolled, squared rim of carinated bowl.

1N (b): Thickened rim, profiled inward and outward, with a single external groove; from a bowl with curving sides.

1R (c–d): Rim projecting outward very likely made to support a lid; from a bowl with curving sides.

1P (e–h): Squared, everted rim of deep bowl with curving sides.



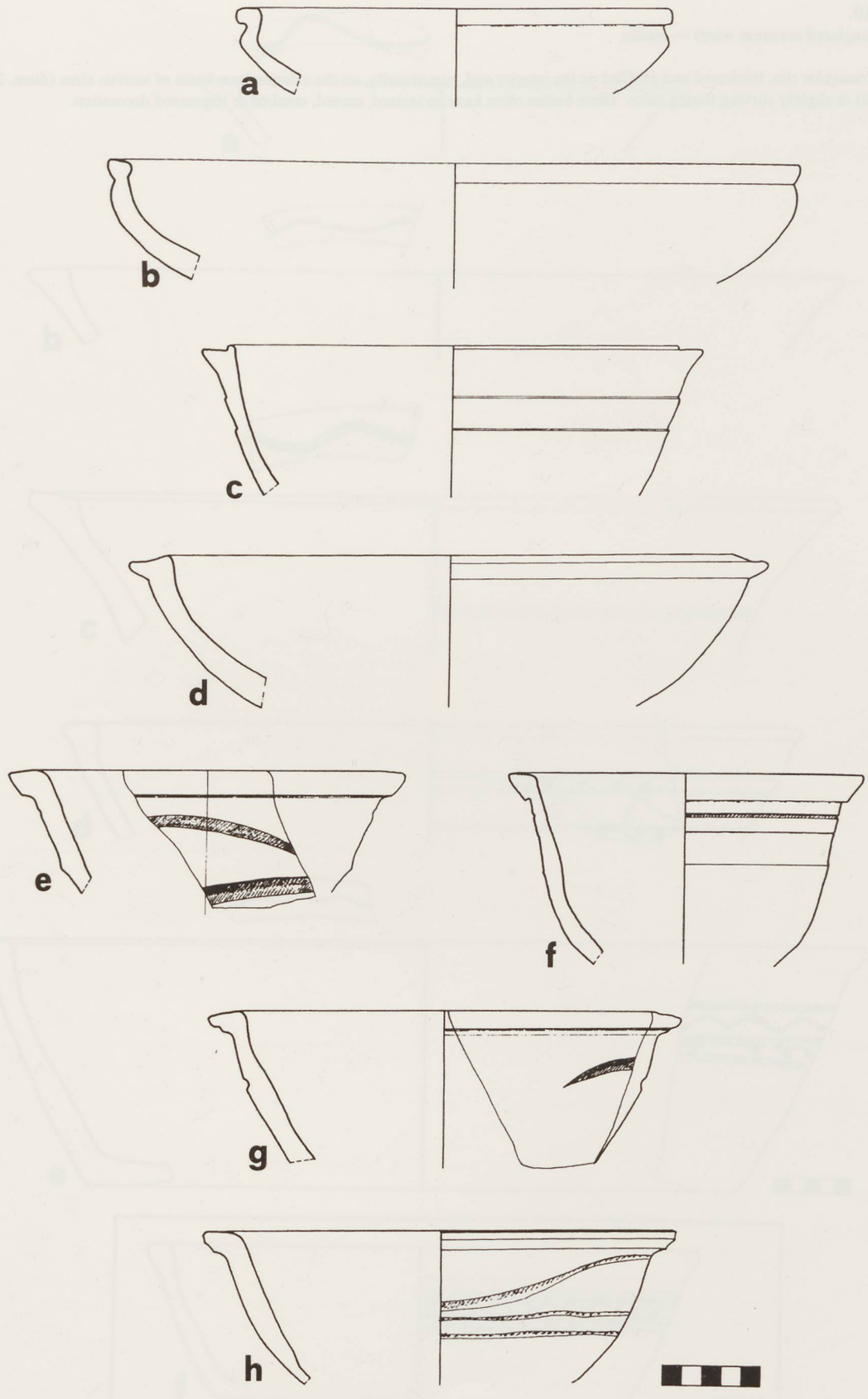
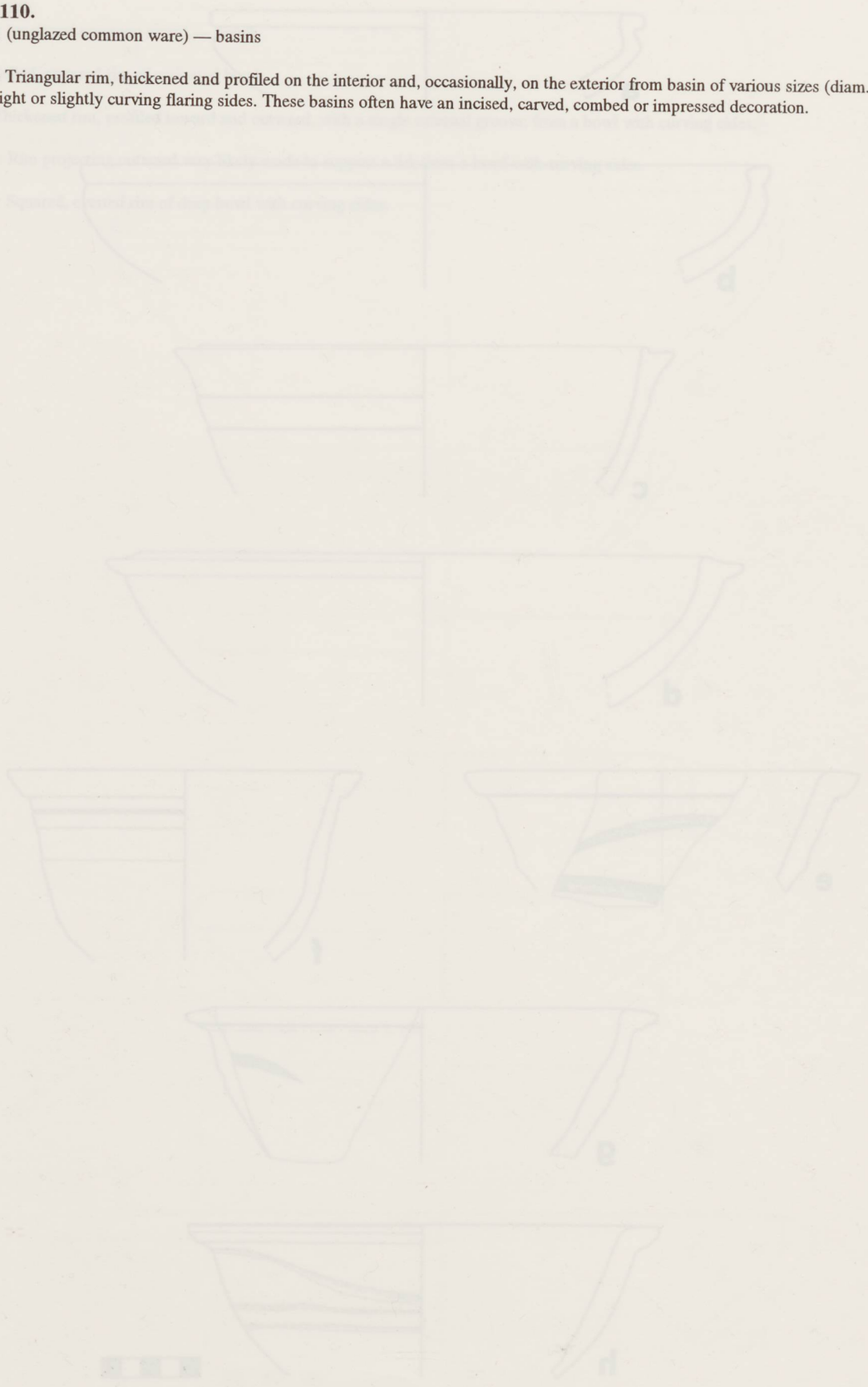

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Figure 110.
WARE 1 (unglazed common ware) — basins

1T (a–f): Triangular rim, thickened and profiled on the interior and, occasionally, on the exterior from basin of various sizes (diam. 24–56 cm.) with straight or slightly curving flaring sides. These basins often have an incised, carved, combed or impressed decoration.



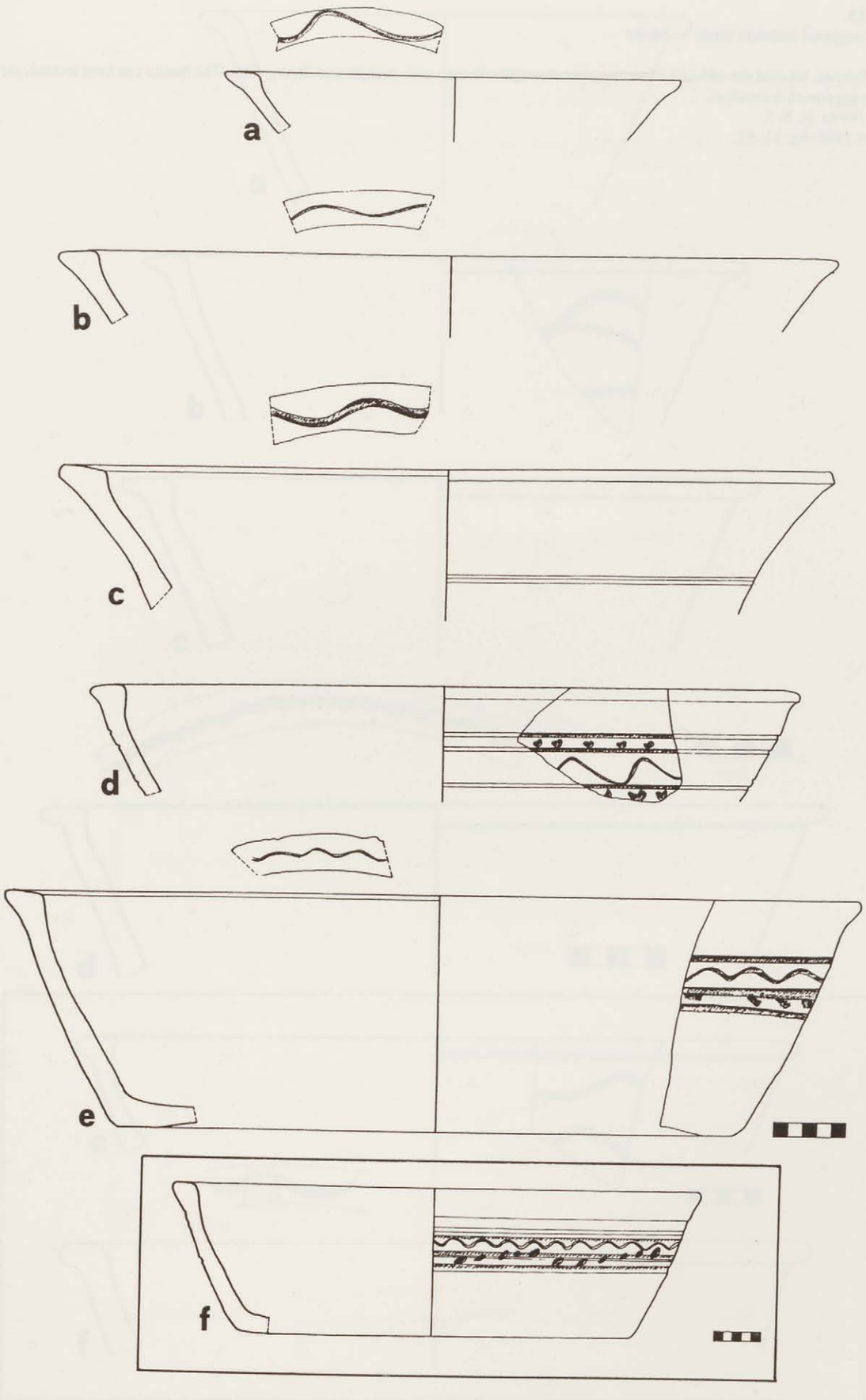

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Figure 111.
WARE 1 (unglazed common ware) — basins

1U (a–f): Everted, tapered rim of basin of various diameters (24–50 cm.) with straight and flaring sides. The basins can have incised, carved, combed or impressed decoration:

Bartl 1994a: pl. 8, 5.
Guérin 1996: fig. 11, 62.



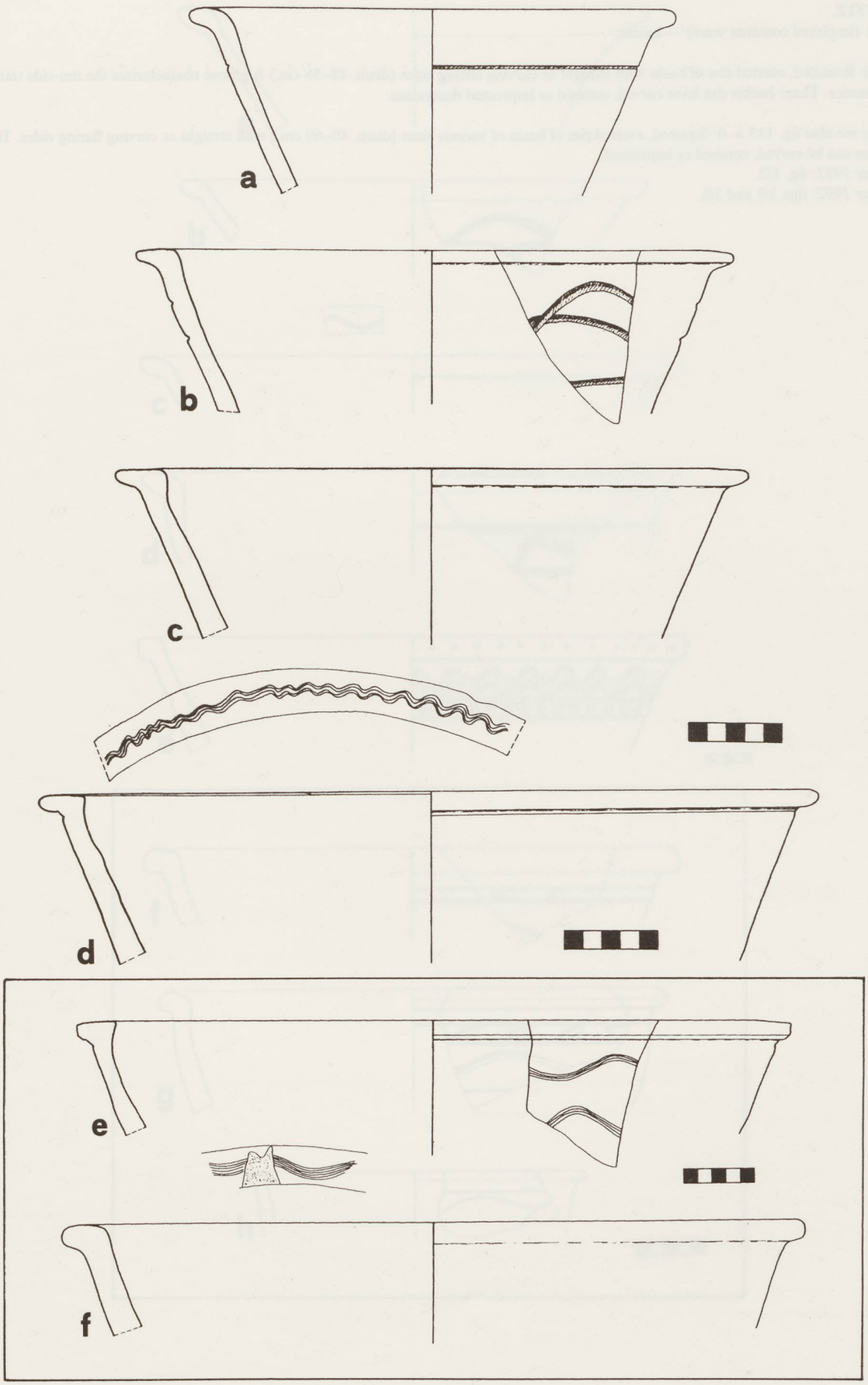

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Figure 112.
WARE 1 (unglazed common ware) — basins

1V (a–d): Rounded, everted rim of basin with straight or curving flaring sides (diam. 48–58 cm.) A groove characterizes the rim-side transition on the exterior. These basins can have carved, combed or impressed decoration.

1W (e–h; see also fig. 113 a–i): Squared, everted rim of basin of various sizes (diam. 40–60 cm.) with straight or curving flaring sides. The decoration can be carved, combed or impressed:

Logar 1991: fig. 1/2.
Logar 1992: figs 3/5 and 3/6.



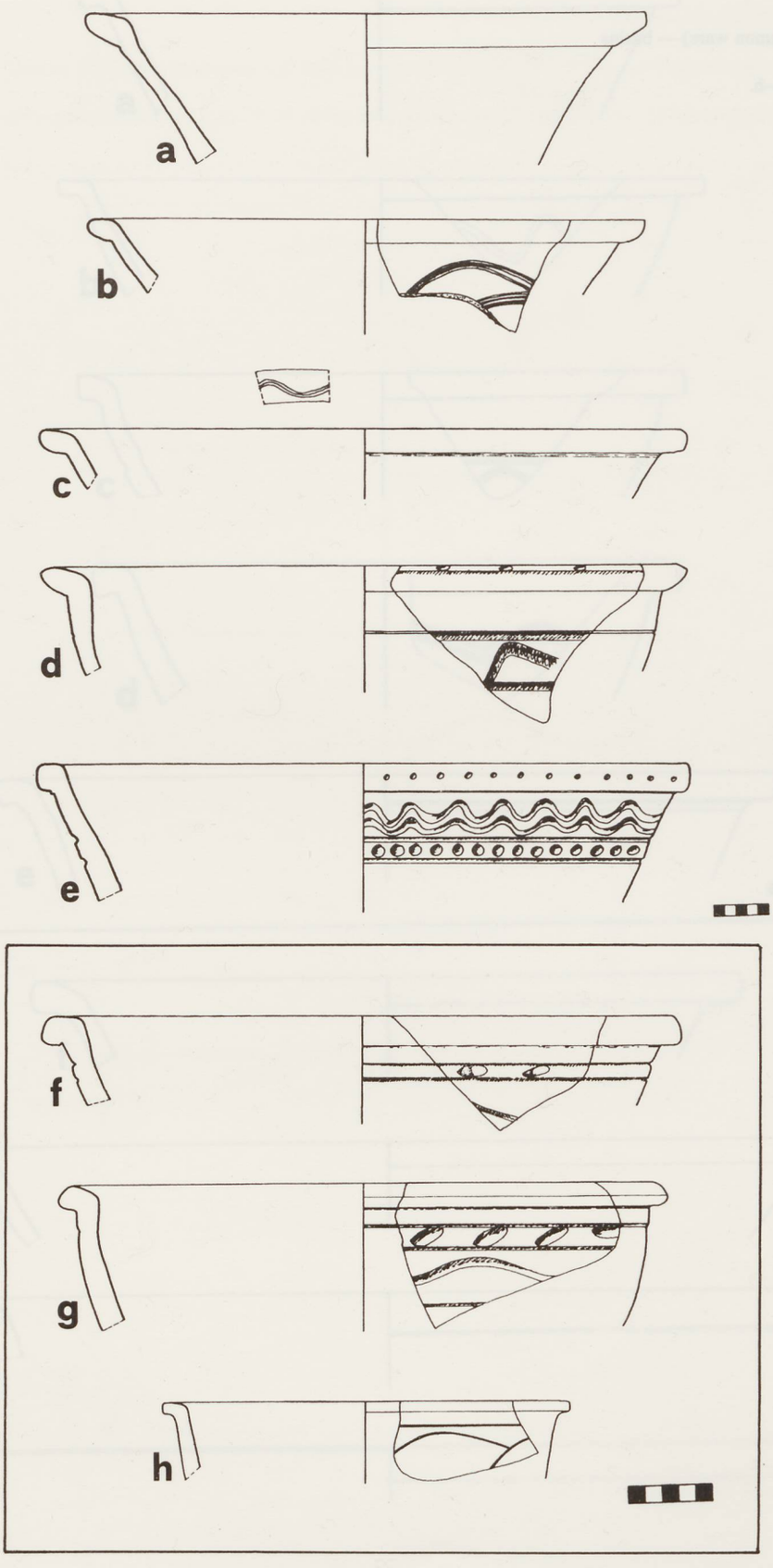

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Figure 113.
WARE 1 (unglazed common ware) — basins

1W (a–i): See fig. 112 e–h.



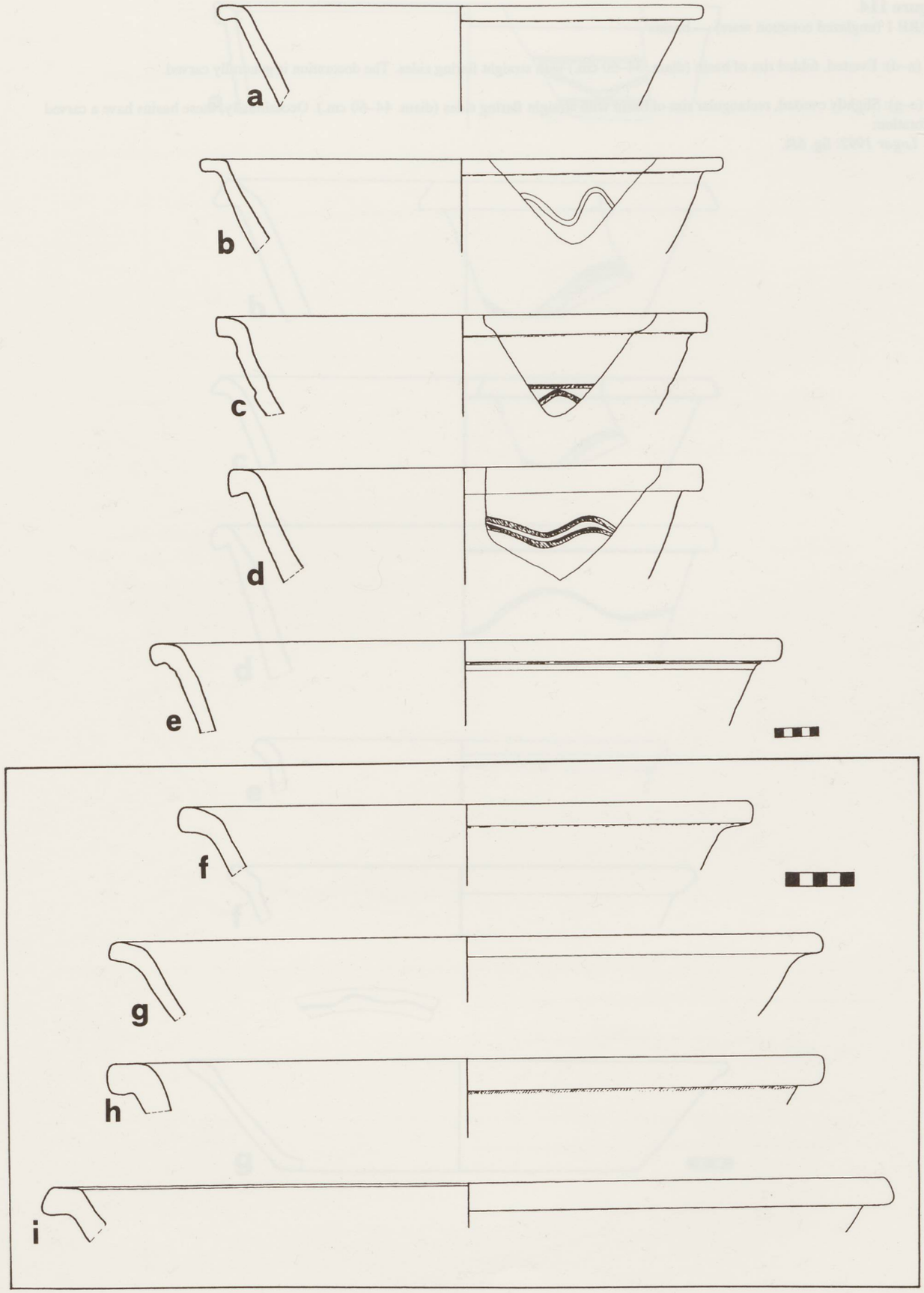

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Figure 114.
WARE 1 (unglazed common ware) — basins

1Y (a–d): Everted, folded rim of basin (diam. 54–60 cm.) with straight flaring sides. The decoration is generally carved.

1Z (e–g): Slightly everted, rectangular rim of basin with straight flaring sides (diam. 44–60 cm.). Occasionally, these basins have a carved decoration:

Logar 1992: fig. 6/4.



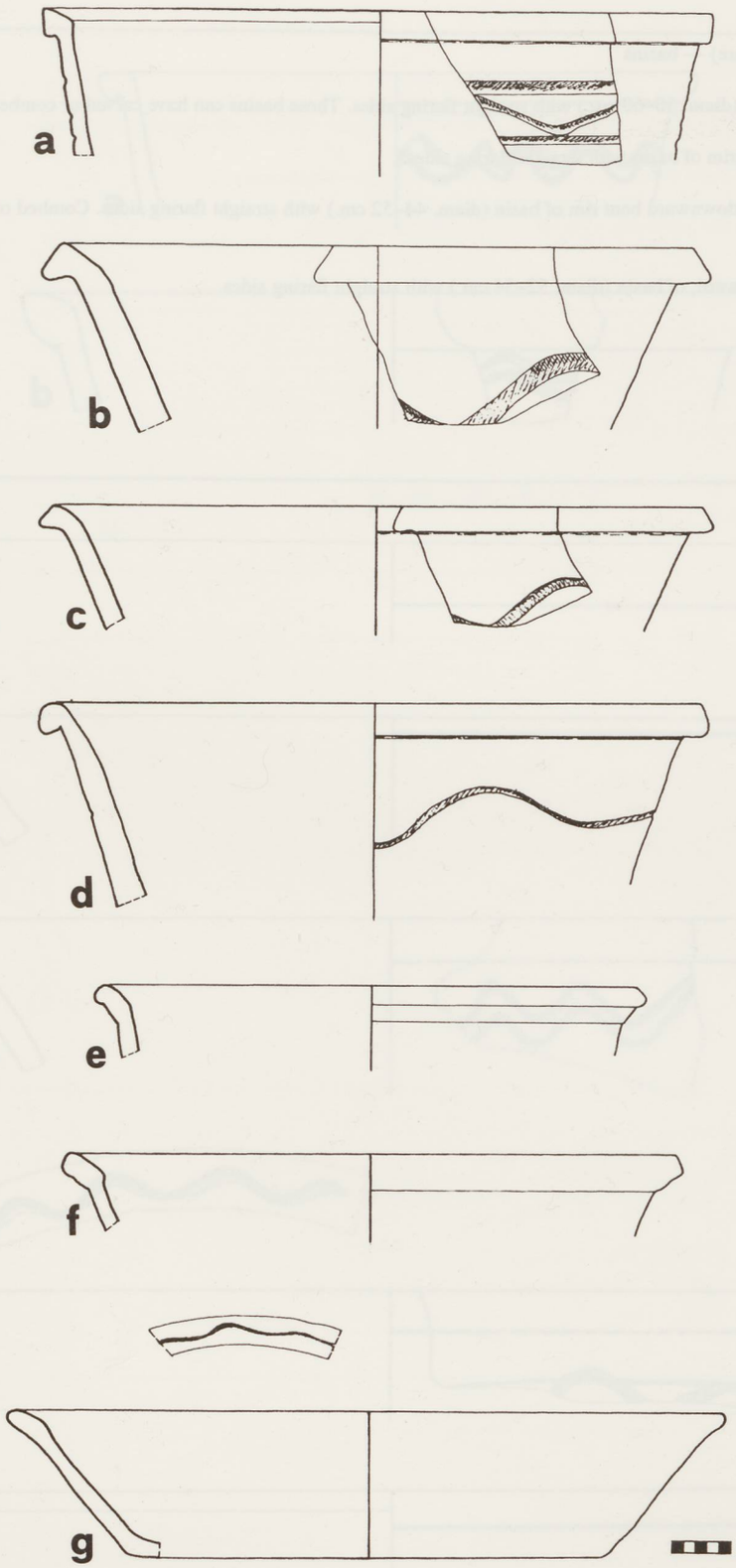

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Figure 115.
WARE 1 (unglazed common ware) — basins

1AA (a–b): Rolled rim of basin (diam. 50–60 cm.) with straight flaring sides. These basins can have carved or combed decoration.

1AC (c–d): Thickened, squared rim of basin with straight flaring sides.

1AE (e–f): Everted and slightly downward bent rim of basin (diam. 44–52 cm.) with straight flaring sides. Combed or carved decoration: *Bartl 1994a*: pl. 6, 4–5.

1AB (g): Rolled rim, profiled inward, of basin (diam. 52–54 cm.) with straight flaring sides.

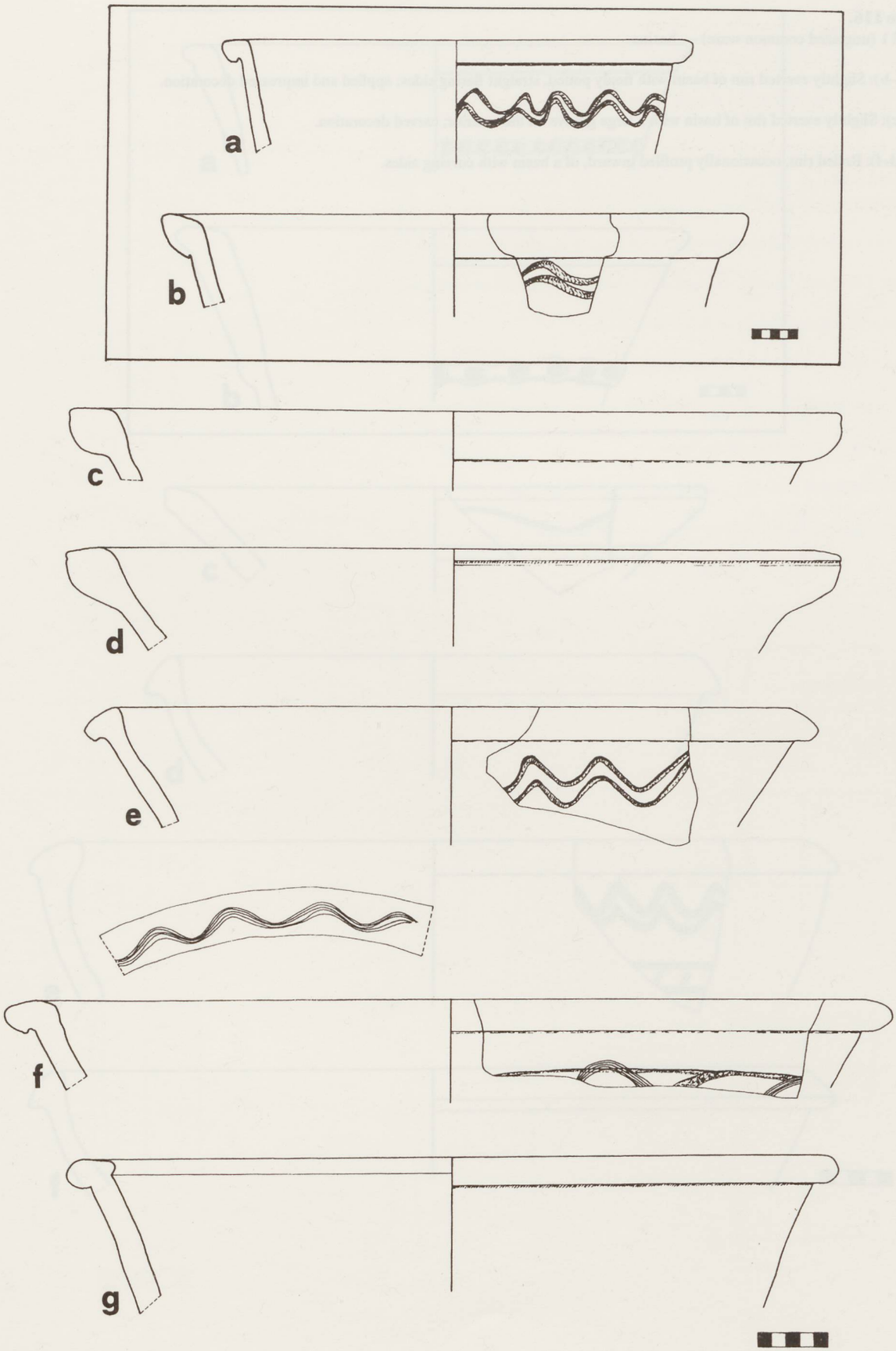
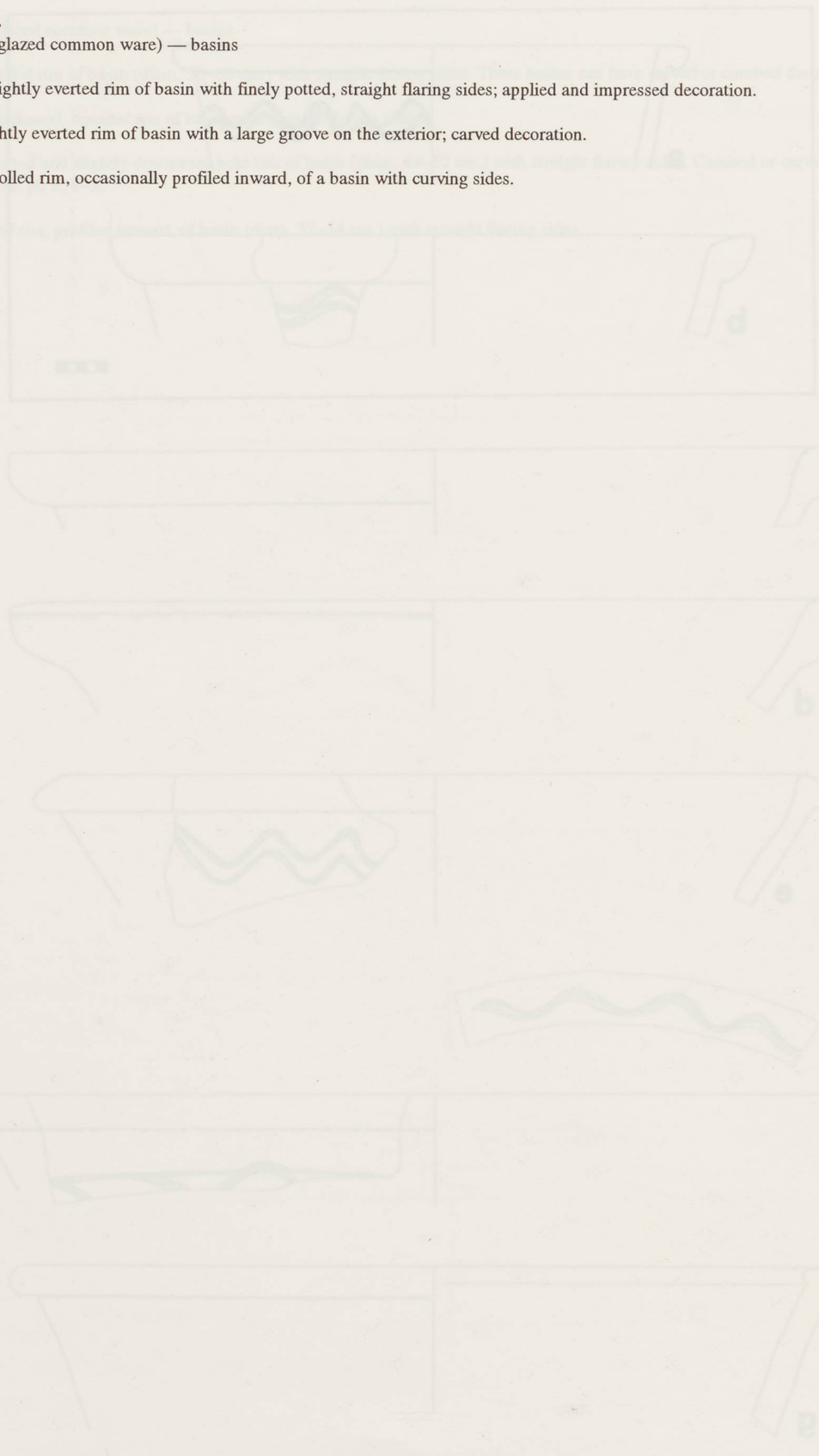

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Figure 116.
WARE 1 (unglazed common ware) — basins

1AJ (a–b): Slightly everted rim of basin with finely potted, straight flaring sides; applied and impressed decoration.

1AK (c): Slightly everted rim of basin with a large groove on the exterior; carved decoration.

1AG (d–f): Rolled rim, occasionally profiled inward, of a basin with curving sides.



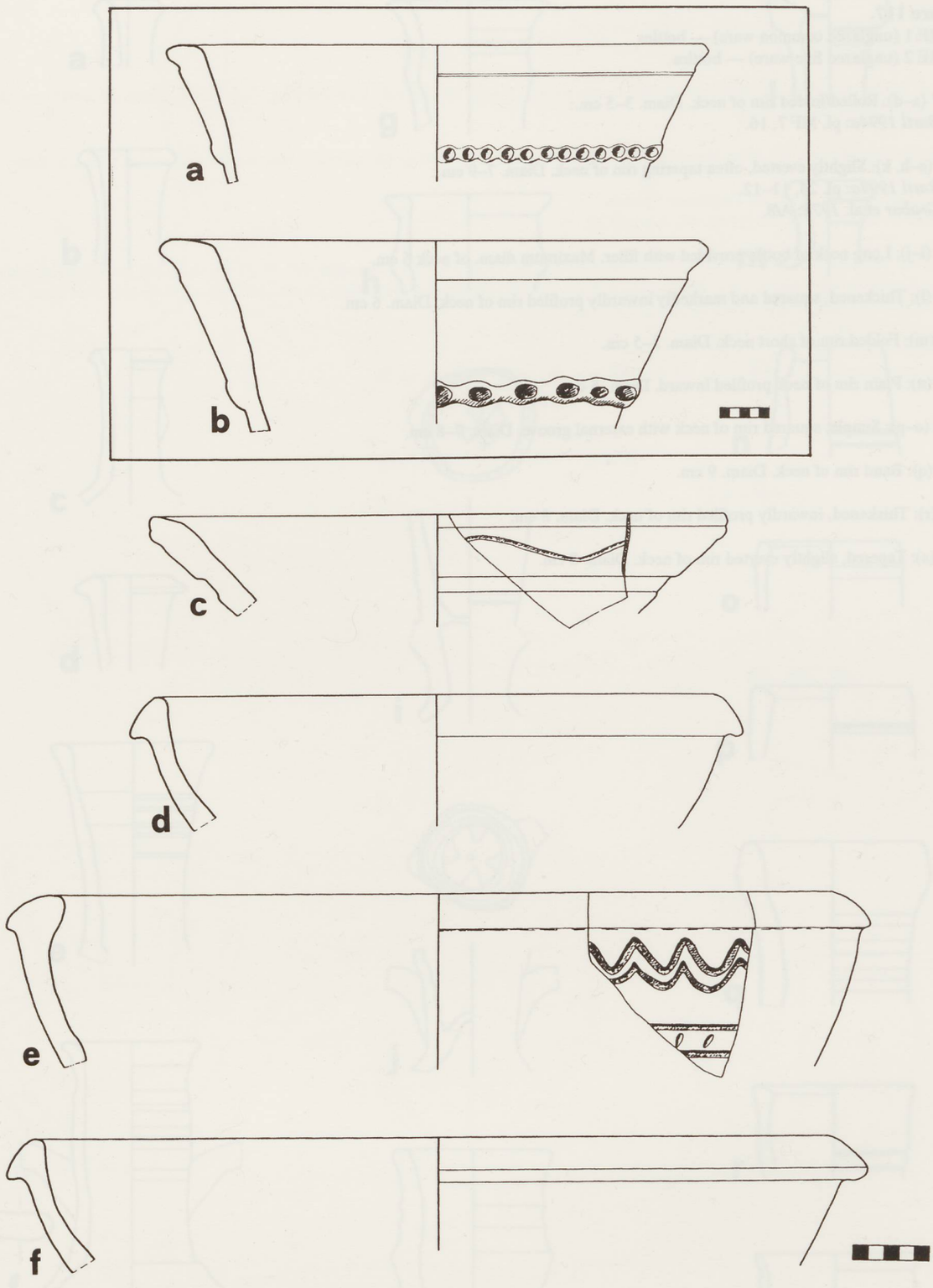

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Figure 117.
WARE 1 (unglazed common ware) — bottles
WARE 2 (unglazed fine ware) — bottles

1AW (a–d): Rolled/folded rim of neck. Diam. 3–5 cm.:
Bartl 1994a: pl. MF 7, 16.

1AT (e–h, k): Slightly everted, often tapering rim of neck. Diam. 7–9 cm.:
Bartl 1994a: pl. 24, 11–12.
Grabar et al. *1978*: A/8.

1AV (i–j): Long neck of bottle provided with filter. Maximum diam. of neck 6 cm.

1AN (l): Thickened, squared and markedly inwardly profiled rim of neck. Diam. 6 cm.

1AP (m): Folded rim of short neck. Diam. 3–5 cm.

1AY (n): Plain rim of neck profiled inward. Diam. 5 cm.

1AM (o–p): Simple, squared rim of neck with external groove. Diam. 7–8 cm.

1AO (q): Band rim of neck. Diam. 9 cm.

1AS (r): Thickened, inwardly profiled rim of neck. Diam. 8 cm.

2AR (s): Tapered, slightly everted rim of neck. Diam. 8 cm.

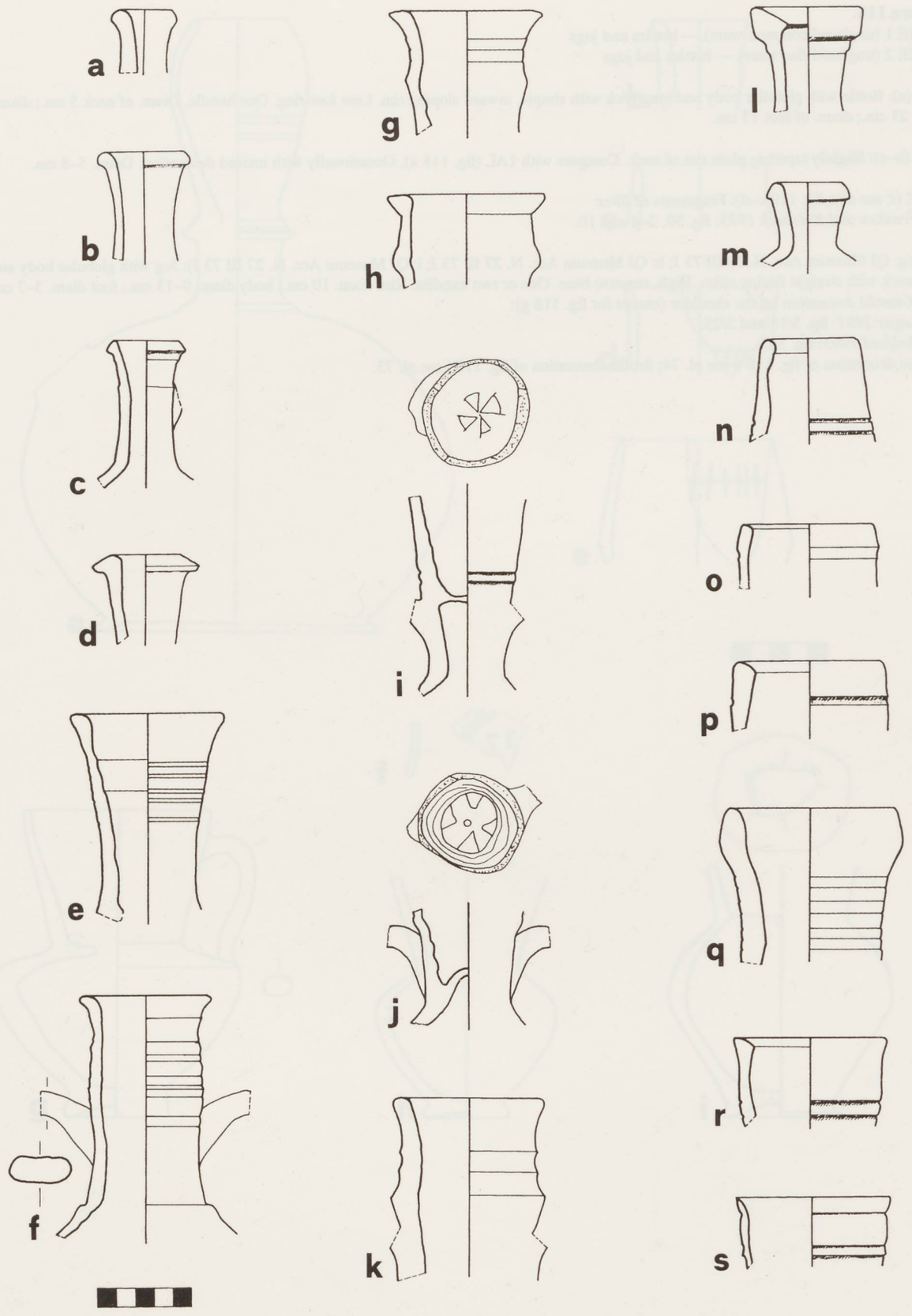

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Figure 118.
WARE 1 (unglazed common ware) — bottles and jugs
WARE 2 (unglazed fine ware) — bottles and jugs

1AL (a): Bottle with globular body and long neck with simple, inward sloping rim. Low foot-ring. One handle. Diam. of neck 5 cm.; diam. of body 23 cm.; diam. of foot 15 cm.

2AQ (b–e): Slightly tapering plain rim of neck. Compare with 1AL (fig. 118 a). Occasionally with incised decoration. Diam. 5–8 cm.

2AZZ (f; see also fig. 119 c–d): Fragments of filter:
Franken and Kalsbeek 1975: fig. 30, 2–4 and 10.

2AZ (g: QJ Museum Acc. N. 26 III 73 J; h: QJ Museum Acc. N. 27 III 73 J; i: QJ Museum Acc. N. 27 III 73 J): Jug with globular body and long neck with straight flaring sides. High, concave base. One or two handles. Rim diam. 10 cm.; body diam. 9–13 cm.; foot diam. 5–7 cm. Relief-mould decoration on the shoulder (except for fig. 118 g):
Logar 1991: fig. 3/15 and 3/23.
Redford 1995: fig. 5 D.
For the decoration of fig. 118 h see pl. 74; for the decoration of fig. 118 i see pl. 73.

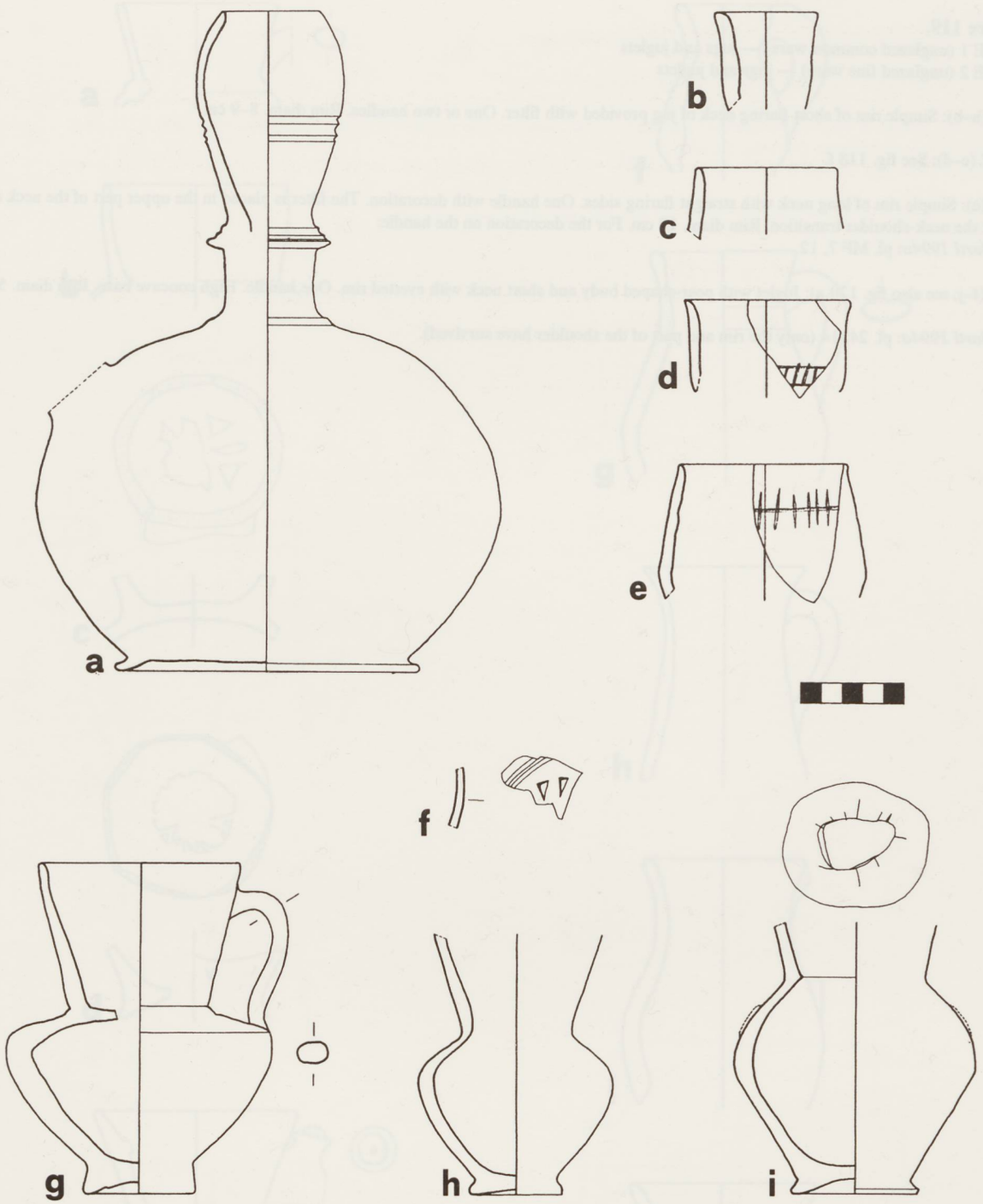

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Figure 119.
WARE 1 (unglazed common ware) — jugs and juglets
WARE 2 (unglazed fine ware) — jugs and juglets

2BA (a–b): Simple rim of short flaring neck of jug provided with filter. One or two handles. Rim diam. 8–9 cm.

2AZZ (c–d): See fig. 118 f.

1BB (e): Simple rim of long neck with straight flaring sides. One handle with decoration. The filter is placed in the upper part of the neck and not at the neck-shoulder transition. Rim diam. 10 cm. For the decoration on the handle:
Bartl 1994a: pl. MF 7, 12.

1BC (f–j; see also fig. 120 a): Juglet with pear-shaped body and short neck with everted rim. One handle. High concave base. Rim diam. 5–10 cm.:
Bartl 1994a: pl. 24, 14 (only the rim and part of the shoulder have survived).

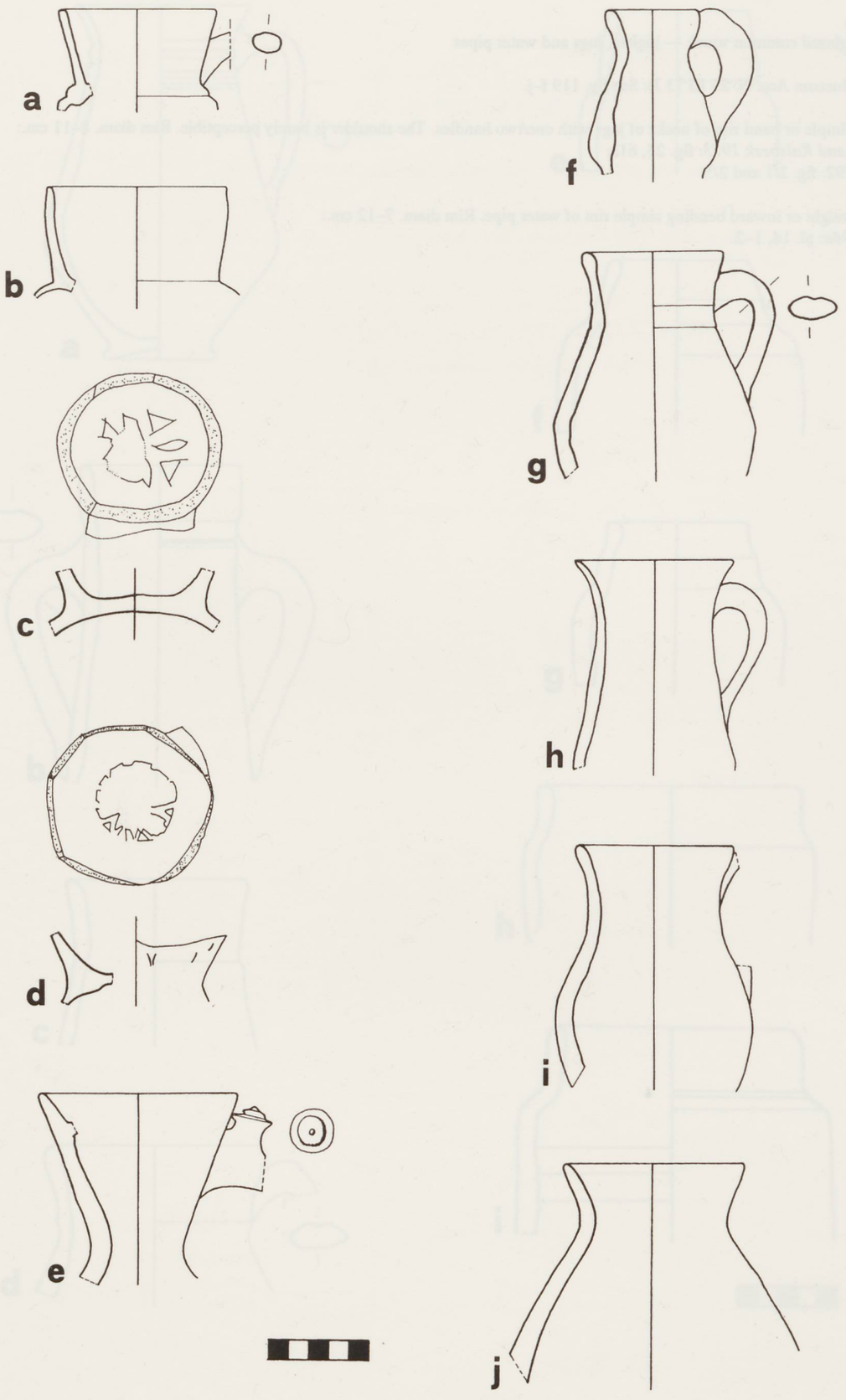

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Figure 120.
WARE 1 (unglazed common ware) — juglets, jugs and water pipes

1BC (a: QJ Museum Acc. N. 25 III 73 J): See fig. 119 f–j.

1BD (b–d): Simple or band rim of necks of jugs with one/two handles. The shoulder is barely perceptible. Rim diam. 8–11 cm.:
Franken and Kalsbeek 1975: fig. 25, 61a.
Logar 1992: fig. 2/1 and 2/5.

1BE (e–i): Straight or inward bending simple rim of water pipe. Rim diam. 7–12 cm.:
Bartl 1994a: pl. 14, 1–2.

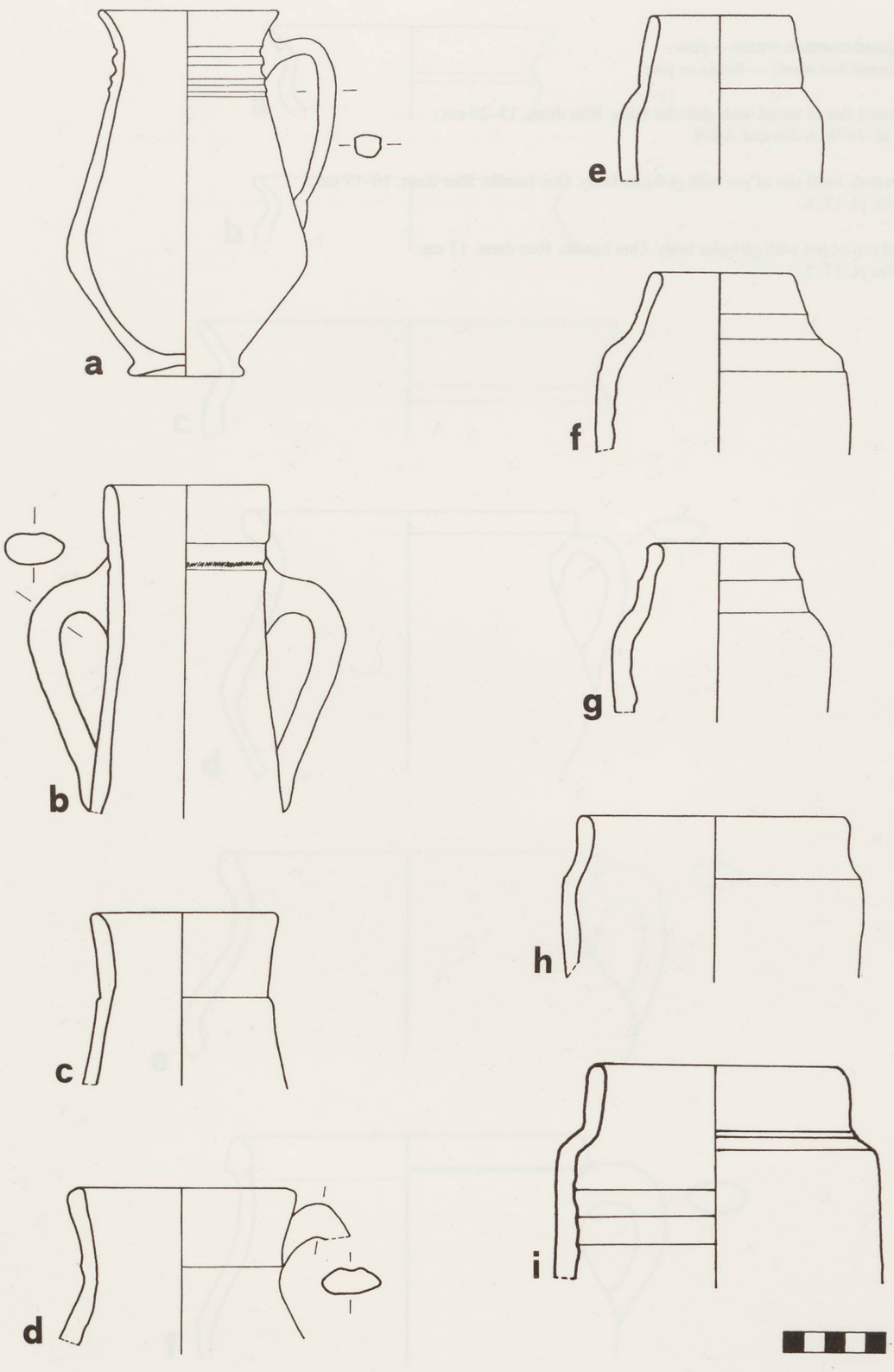

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Figure 121.
WARE 1 (unglazed common ware) — pots
WARE 2 (unglazed fine ware) — bowls or pots

2BF (a–c): Everted rim of vessel with globular body. Rim diam. 15–20 cm.:
Grabar et al. *1978*: A-2/6 and A-2/9.

1BG (d–e): Everted, band rim of pot with globular body. One handle. Rim diam. 16–19 cm.:
Bartl 1994a: pl. 17, 6.

1BH (f): Rolled rim of pot with globular body. One handle. Rim diam. 17 cm.:
Bartl 1994a: pl. 17, 5.

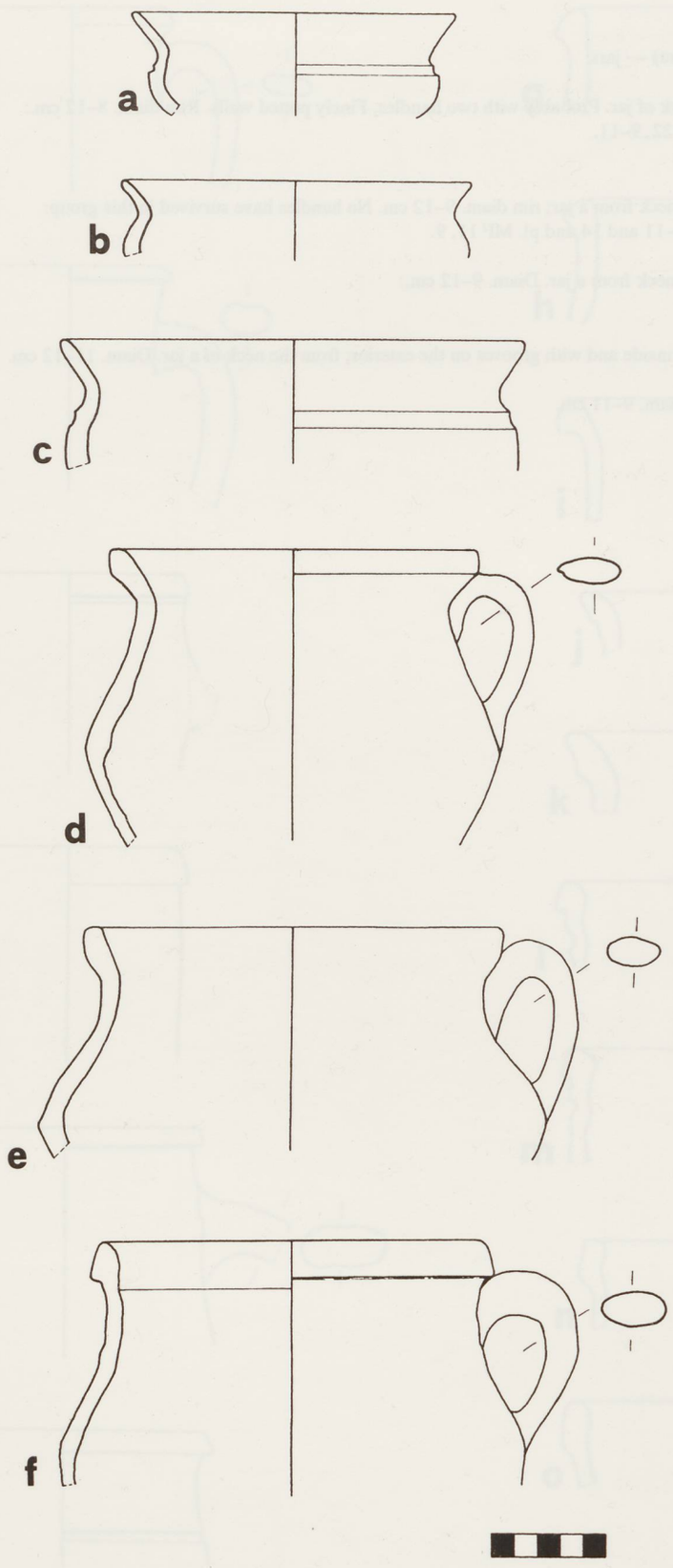

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Figure 122.
WARE 1 (unglazed common ware) — jars

1BI (a–e): Rolled rim of long neck of jar. Probably with two handles. Finely potted walls. Rim diam. 8–12 cm.:
Bartl 1994a: pls 21, 13 and 22, 9–11.
Grabar et al. *1978*: A/4a.

1BJ (f–i): Rolled rim of straight neck from a jar; rim diam. 9–12 cm. No handles have survived in this group:
Bartl 1994a: pl. 21, 7–8, 10–11 and 14 and pl. MF 11, 9.

1BL (j–k): Everted, band rim of neck from a jar. Diam. 9–12 cm.:
Bartl 1994a: pl. 22, 14.

1BM (l–m): Rolled rim, profiled inside and with grooves on the exterior; from the neck of a jar. Diam. 11–12 cm.

1BK (n–o): Band rim of neck. Diam. 9–11 cm.

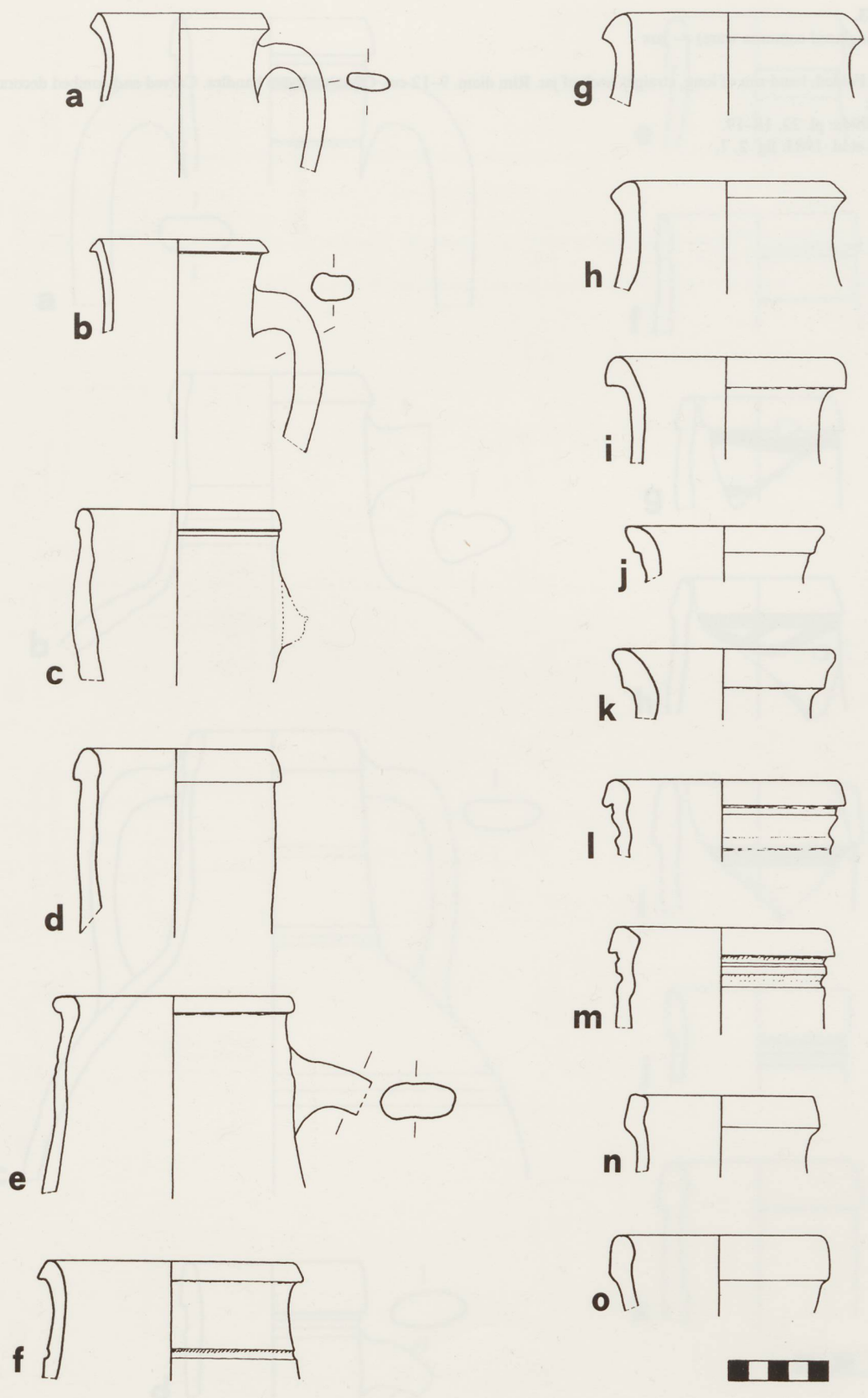

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Figure 123.
WARE 1 (unglazed common ware) — jars

1BN (a–k): Folded, band rim of long, straight neck of jar. Rim diam. 9–12 cm. Often with two handles. Carved and combed decoration are often found:

Bartl 1994a: pl. 22, 18–19.
Lebeau et al. *1985*: fig. 2, 7.


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Figure 124.
WARE 1 (unglazed common ware) — jars

1BP (a–e): Simple rim of straight, long neck of jar. Rim diam. 10–12 cm. Often with a series of grooves on the neck:
Lebeau et al. *1985*: fig. 2, 11.

1BQ (f–h): Thickened rim, profiled inward, of long, straight neck of jar. Rim diam. 10–12 cm. Two handles:
Bartl 1994a: pl. 23, 20.
Logar 1991: fig. 2/7.

1BR (i–j, l–m): Simple rim of long neck with slightly flaring sides; from a jar. Rim diam. 16–20 cm. The neck is often grooved.

1BS (k): Simple rim of ridged neck with straight flaring sides and pinched rim. Rim diam. 18 cm.

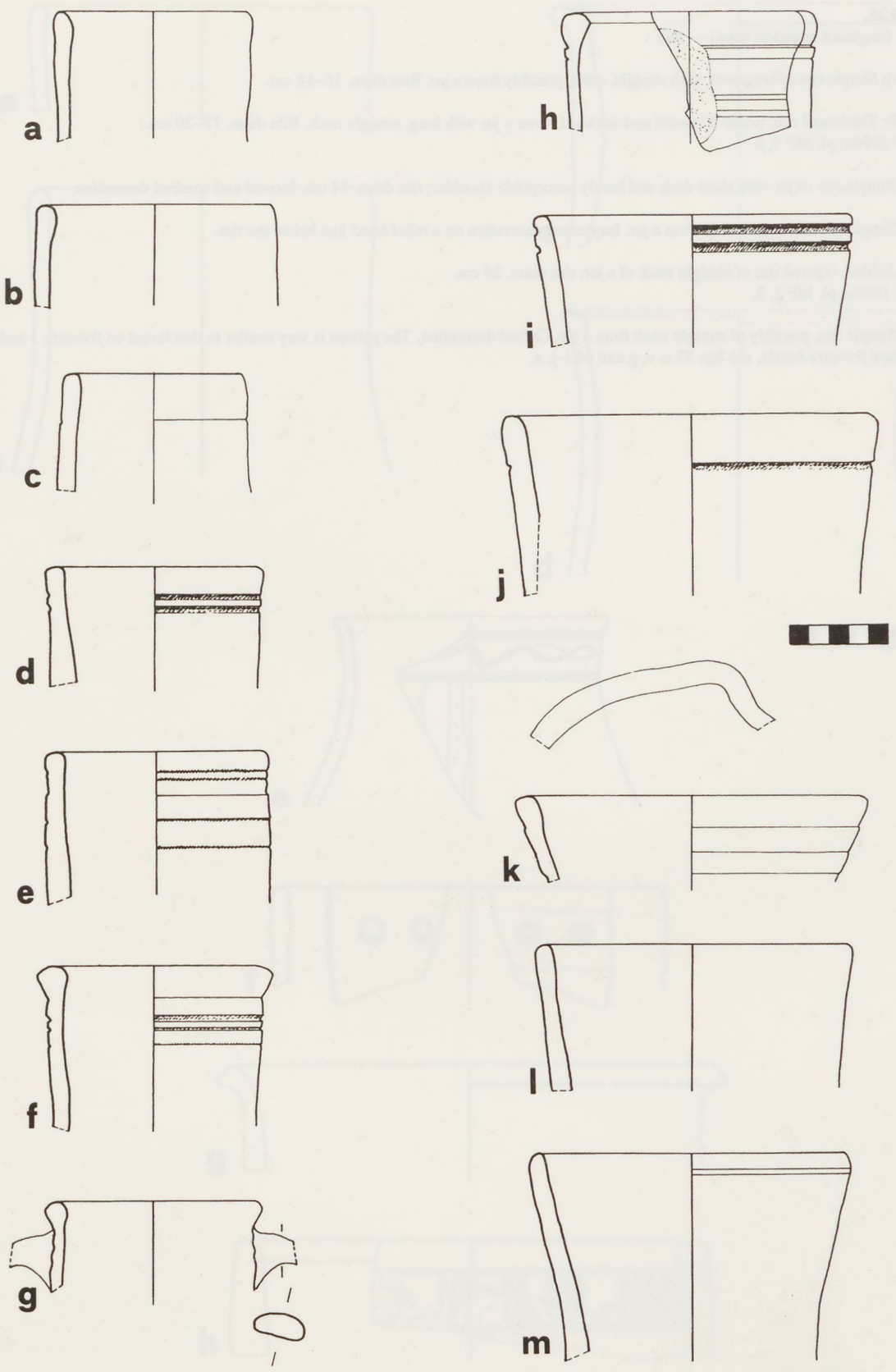

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Figure 125.
WARE 1 (unglazed common ware) — jars

1BT (a–b): Simple rim of long neck with straight sides, possibly from a jar. Rim diam. 16–18 cm.

1CB (c–d): Thickened rim, profiled inward and outward, from a jar with long, straight neck. Rim diam. 18–20 cm.:
Bartl 1994a: pl. MF 5, 3.

1BU (e): Simple rim of jar with short neck and barely perceptible shoulder; rim diam. 14 cm. Incised and combed decoration.

1BV (f): Simple rim of straight neck from a jar. Impressed decoration on a relief-band just below the rim.

1BY (g): Folded, tapered rim of straight neck of a jar; rim diam. 26 cm.
Bartl 1994a: pl. MF 2, 2.

1BZ (h): Simple rim, possibly of straight neck from a jar. Carved decoration. The pattern is very similar to that found on *fritware 1* and *intermediate fritware* bowls, see figs 53 a, e, g and 46 i–j, n.

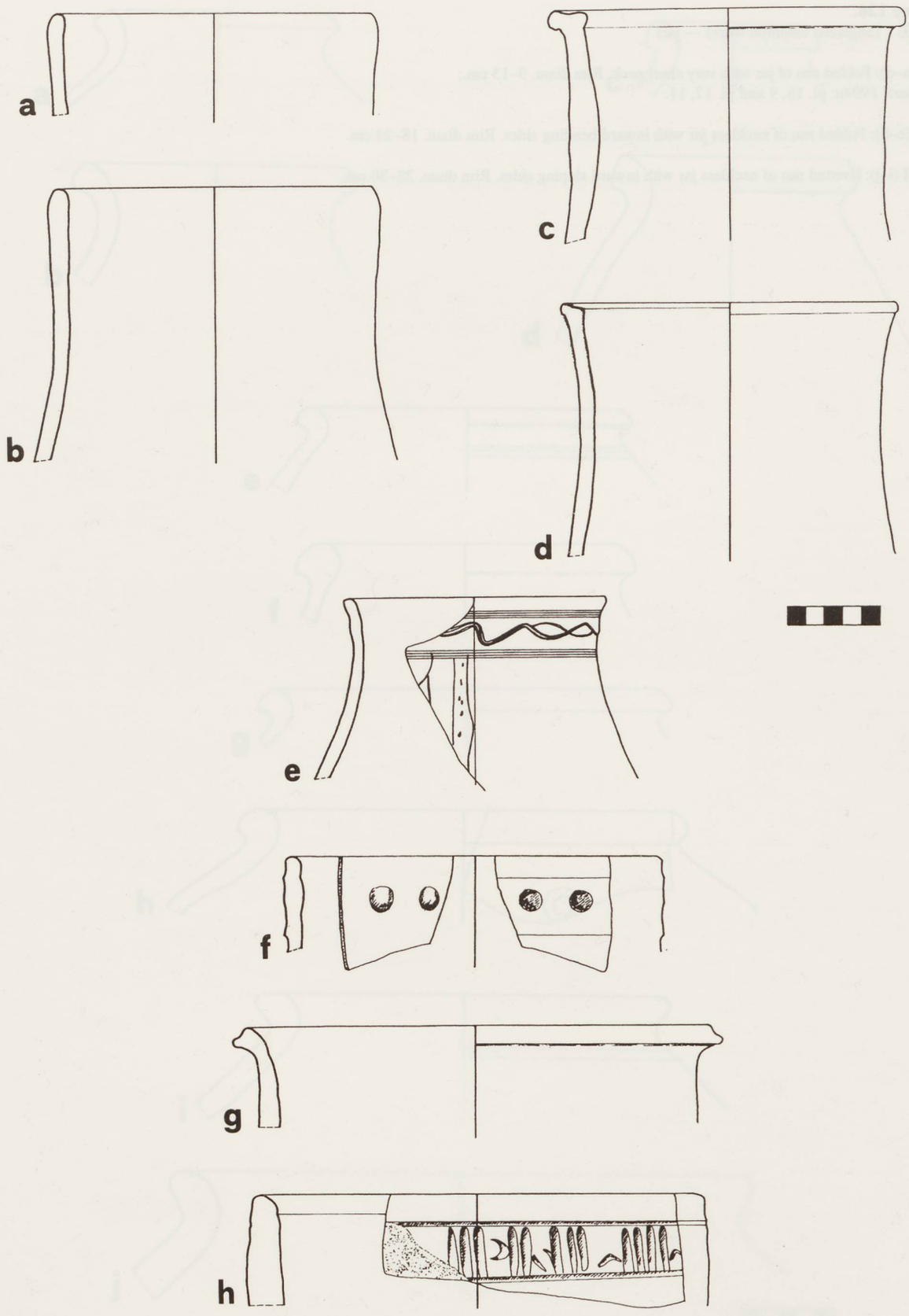

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Figure 126.
WARE 1 (unglazed common ware) — jars

1CJ (a–d): Folded rim of jar with very short neck. Rim diam. 9–13 cm.:
Bartl 1994a: pl. 16, 9 and pl. 17, 11.

1CH (e–h): Folded rim of neckless jar with inward bending sides. Rim diam. 18–24 cm.

1CHH (i–j): Everted rim of neckless jar with inward sloping sides. Rim diam. 22–30 cm.

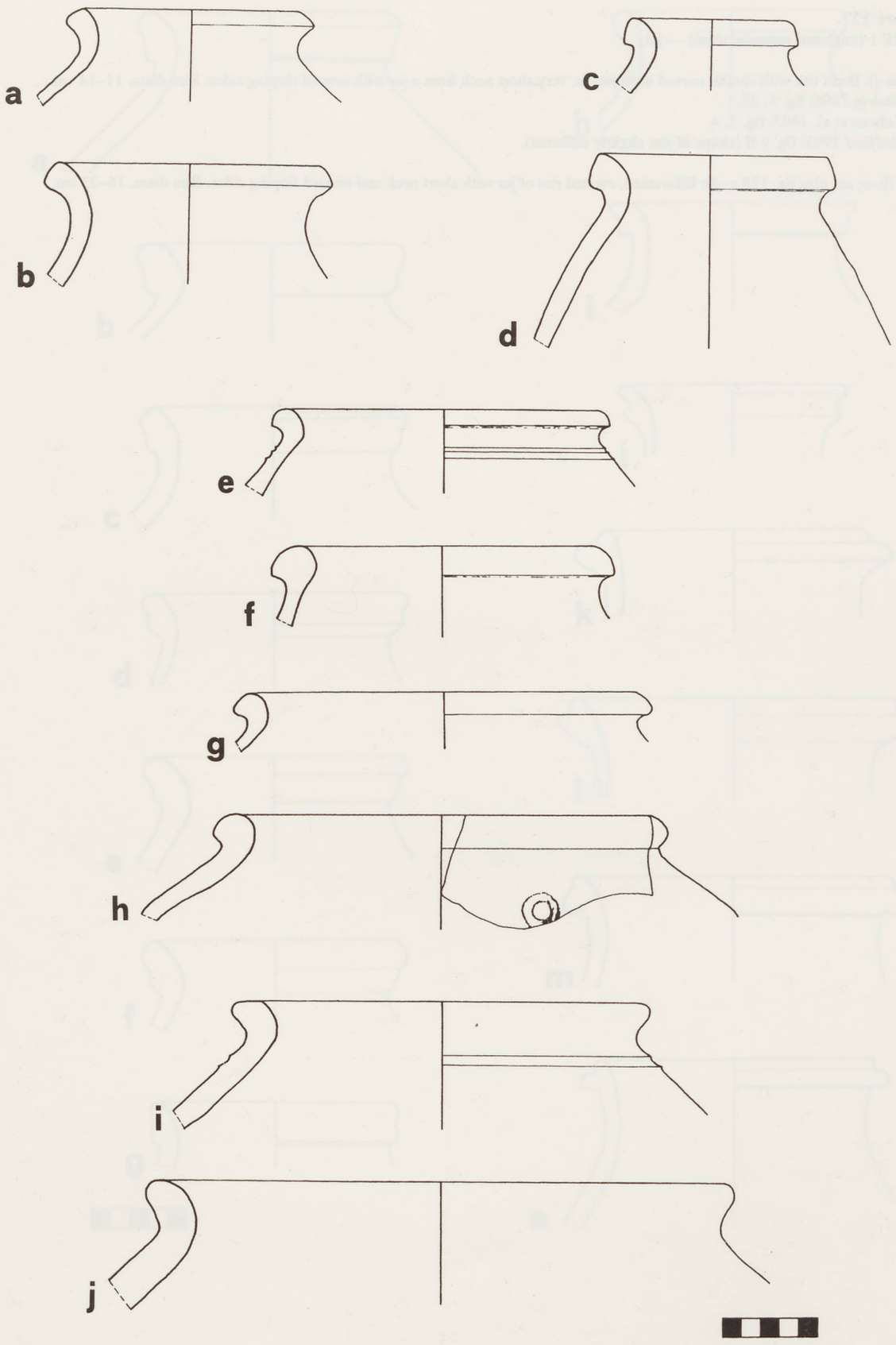

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Figure 127.
WARE 1 (unglazed common ware) — jars

1CI (a–j): Band rim with central curved indentation; very short neck from a jar with inward sloping sides. Rim diam. 11–14 cm.:
Guérin 1996: fig. 5, 23.
Lebeau et al. *1985*: fig. 2, 4.
Redford 1995: fig. 9 II (shape of rim slightly different).

1CK (k–n; see also fig. 128 a–d): Bifurcated, everted rim of jar with short neck and inward sloping sides. Rim diam. 16–23 cm.

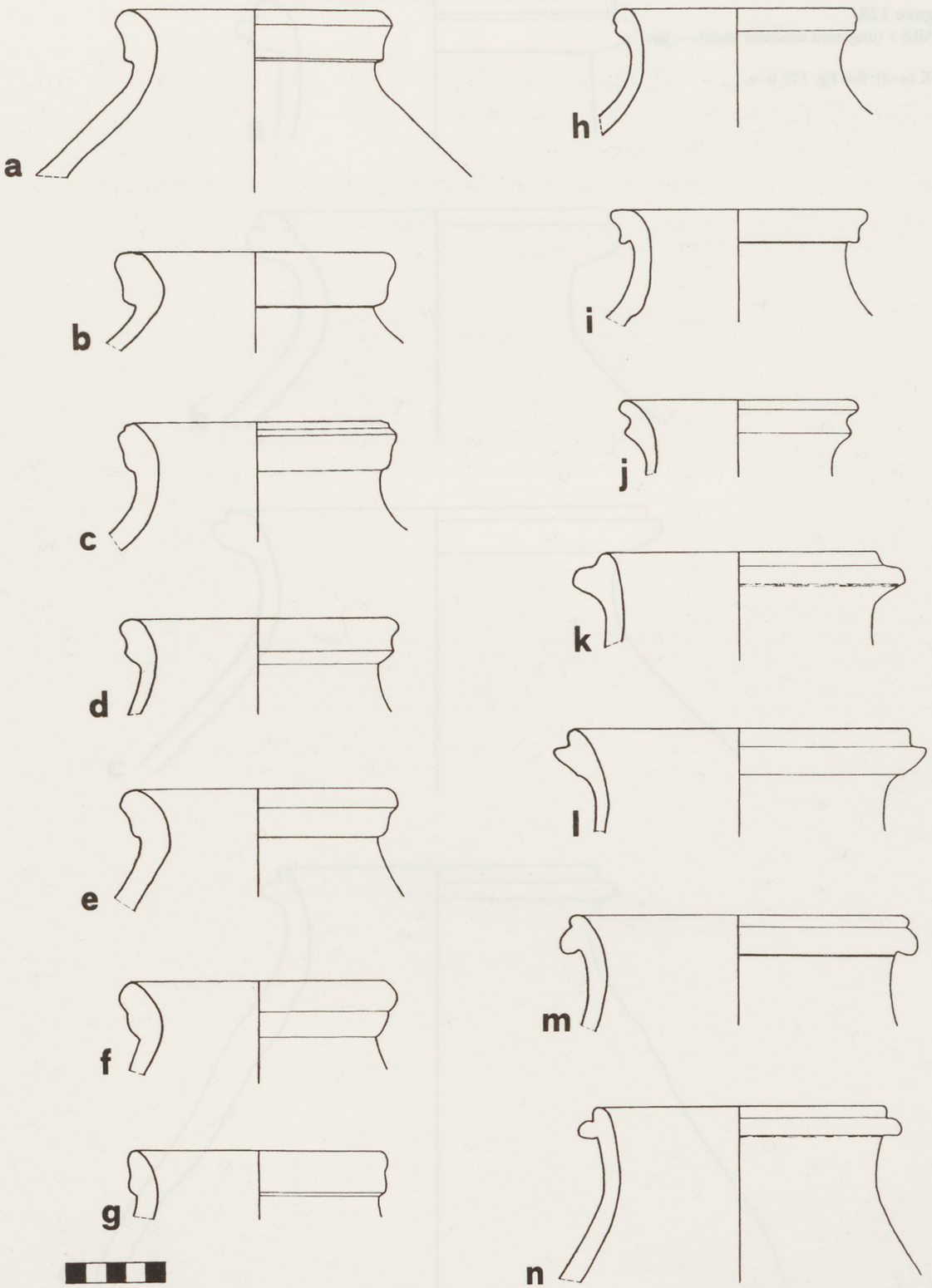

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Figure 128.
WARE 1 (unglazed common ware) — jars

1CK (a–d): See fig. 127 k–n.

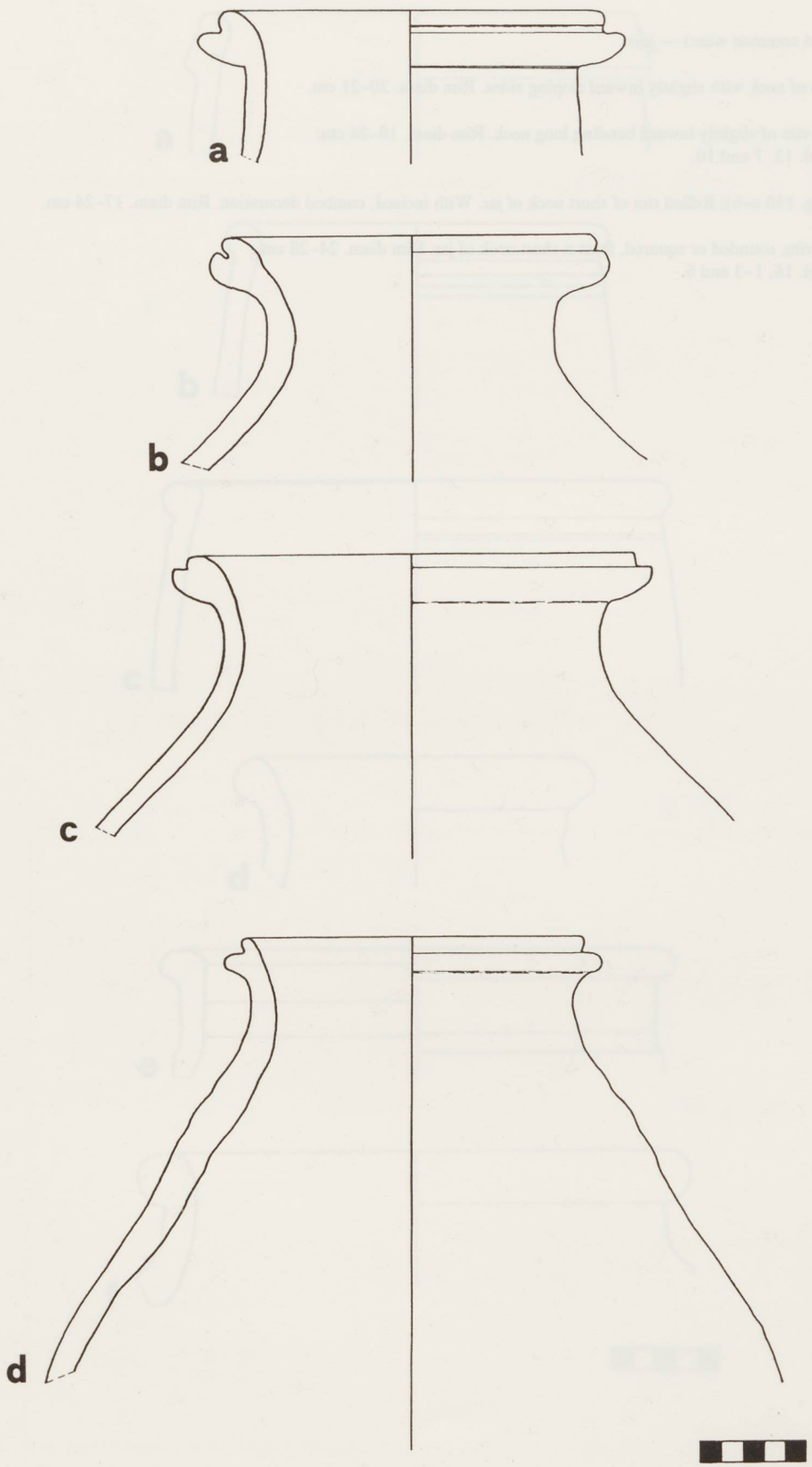

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Figure 129.
WARE 1 (unglazed common ware) — jars

1CC (a): Band rim of neck with slightly inward sloping sides. Rim diam. 20–21 cm.

1CD (b–c): Rolled rim of slightly inward bending long neck. Rim diam. 18–24 cm:
Bartl 1994a: pl. 12, 7 and 10.

1CE (d; see also fig. 130 a–b): Rolled rim of short neck of jar. With incised, combed decoration. Rim diam. 17–24 cm.

1CG (e–f): Rolled rim, rounded or squared, from a short neck of jar. Rim diam. 24–28 cm.:
Bartl 1994a: pl. 16, 1–3 and 6.

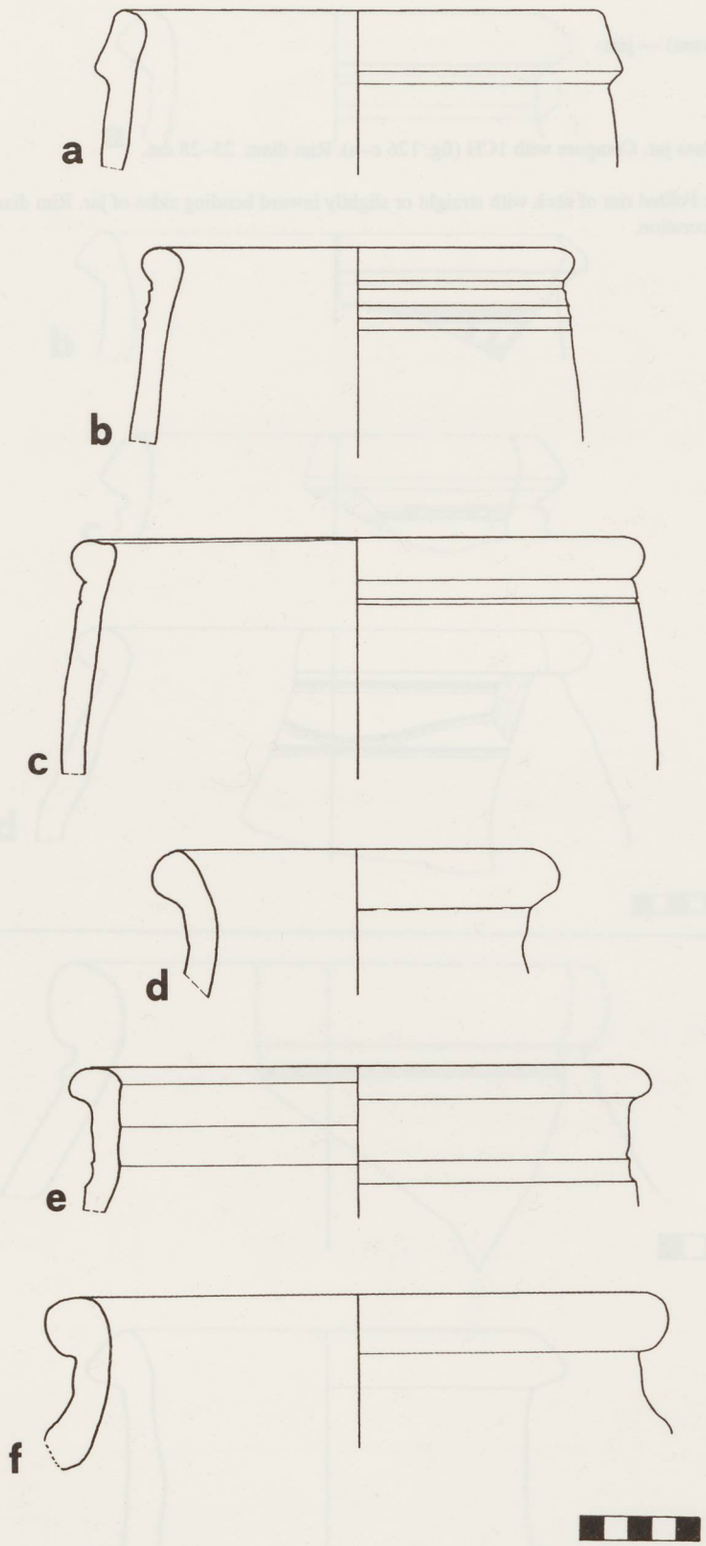

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Figure 130.
WARE 1 (unglazed common ware) — jars

1CE (a–b): See fig. 129 d.

1CL (c–e): Folded rim of neckless jar. Compare with 1CH (fig. 126 e–h). Rim diam. 23–28 cm.

1CEE (f; see also fig. 131 a–f): Folded rim of neck with straight or slightly inward bending sides of jar. Rim diam. 20–38 cm. With combed, incised, carved and pressed decoration.

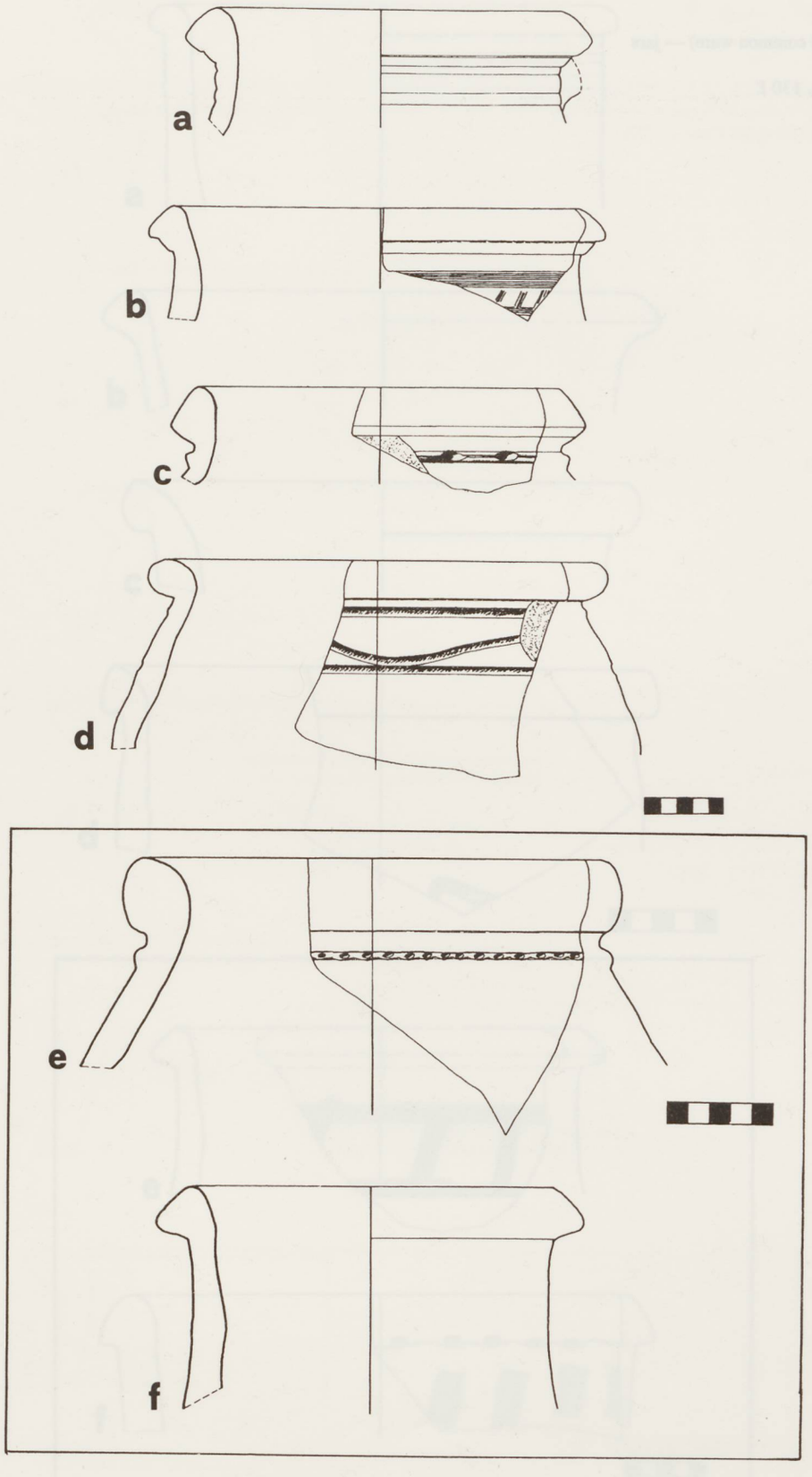

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Figure 131.
WARE 1 (unglazed common ware) — jars

1CEE (a–f): See fig. 130 f.



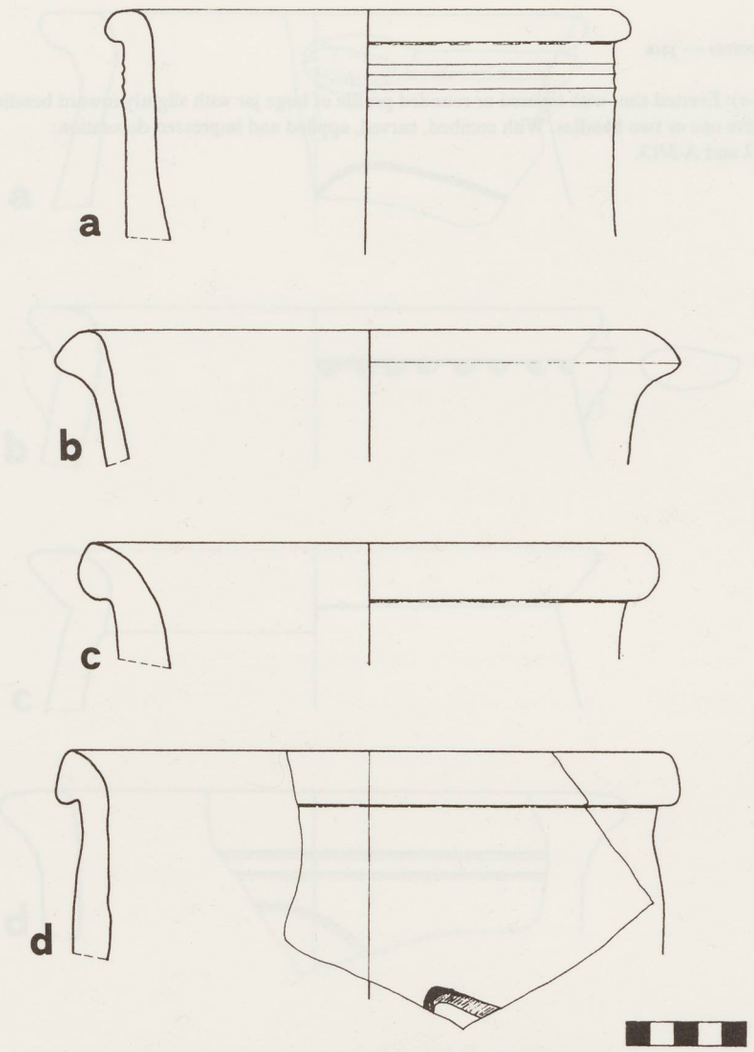

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Figure 132.
WARE 1 (unglazed common ware) — jars

1CM (a–f; see also figs 133 a–e): Everted rim, with tapered or rounded profile of large jar with slightly inward bending sides. Rim diam. 24–44 cm. Some examples may have one or two handles. With combed, carved, applied and impressed decoration:
Grabar et al. *1978*: A-3/12 and A-3/13.



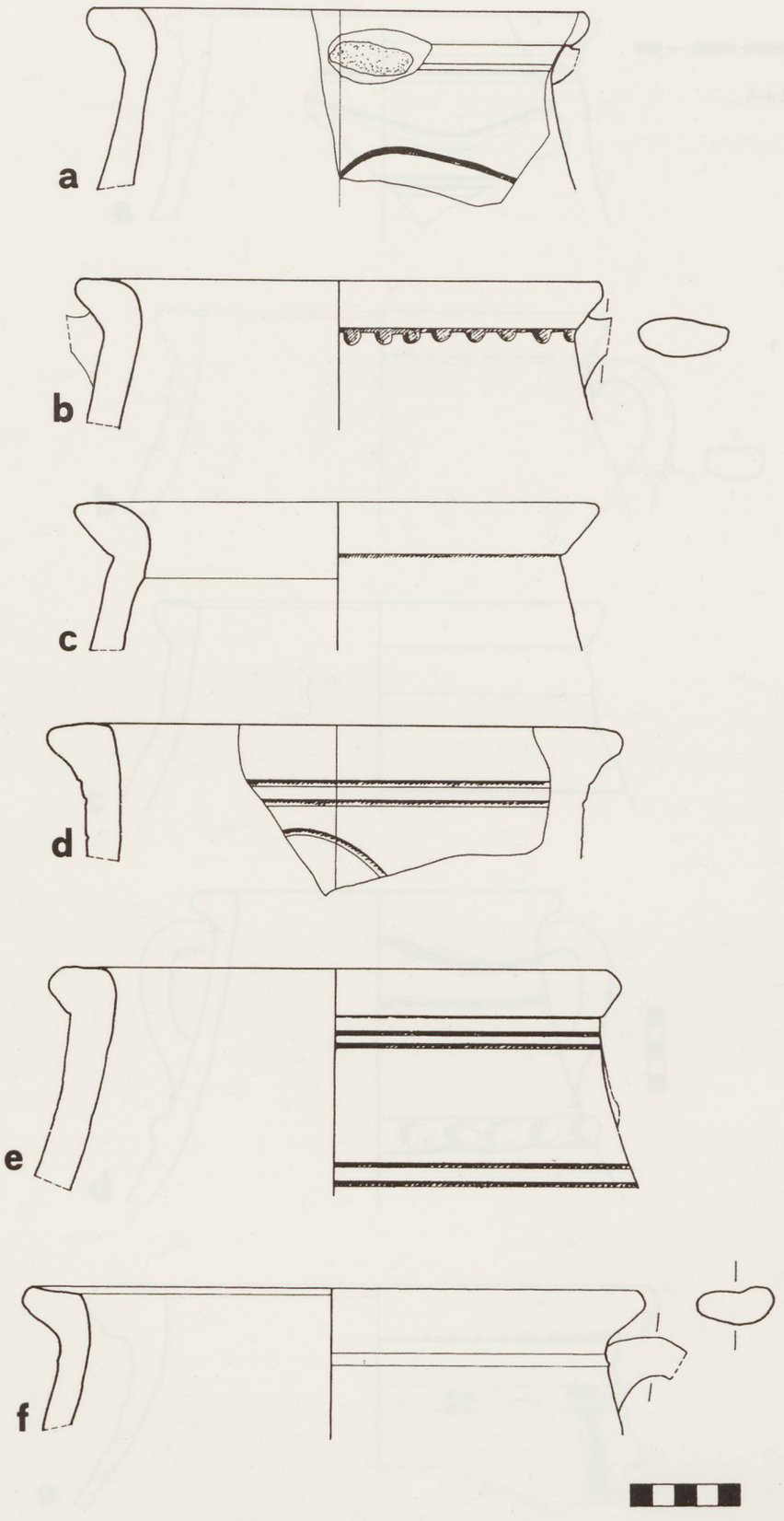

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Figure 133.
WARE 1 (unglazed common ware) — jars

1CM (a–e): See fig. 132 a–f.

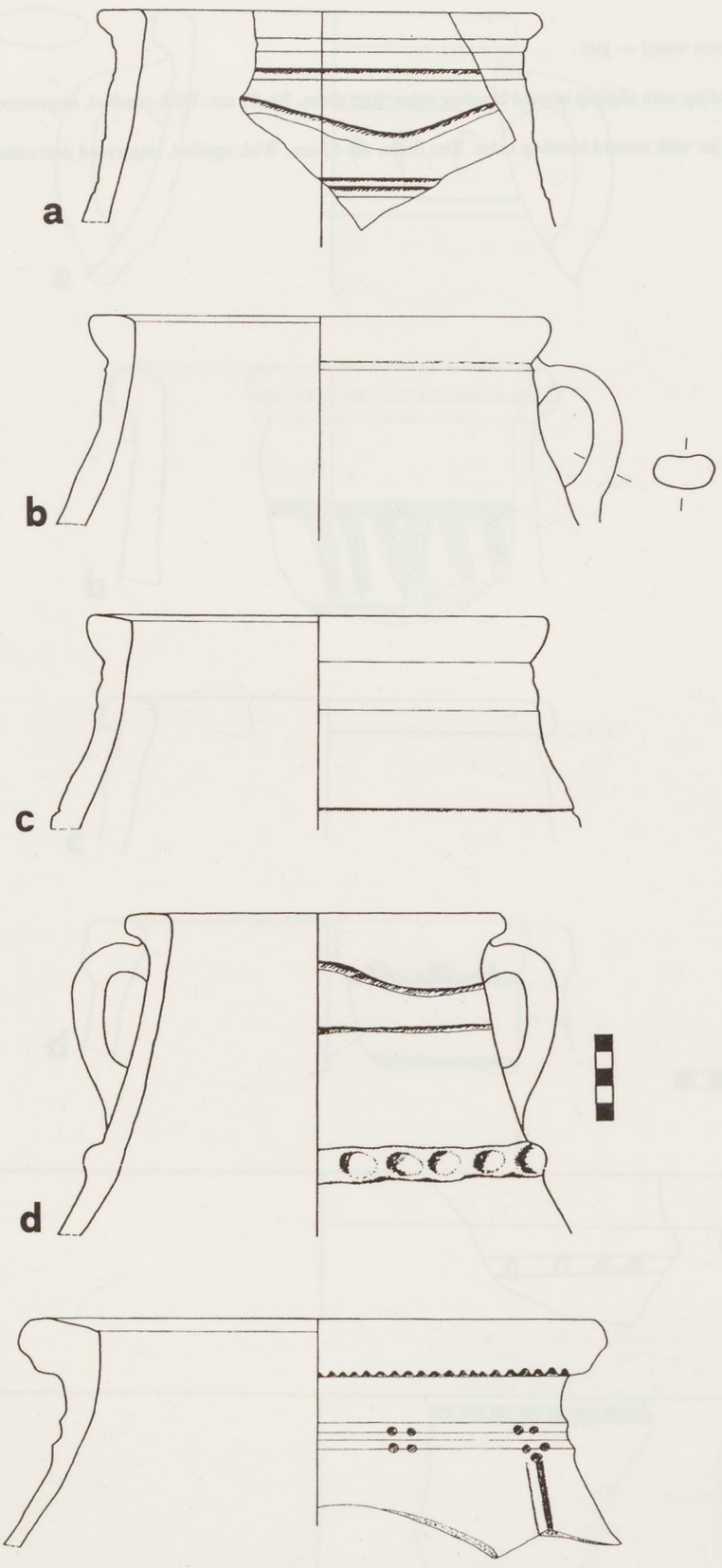

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Figure 134.
WARE 1 (unglazed common ware) — jars

1CN (a–d): Squared rim of jar with slightly inward bending sides. Rim diam. 20–27 cm. With combed, impressed decoration.

1CF (e–f): Everted rim of jar with inward bending sides. Rim diam. 48–52 cm. With applied, impressed decoration.



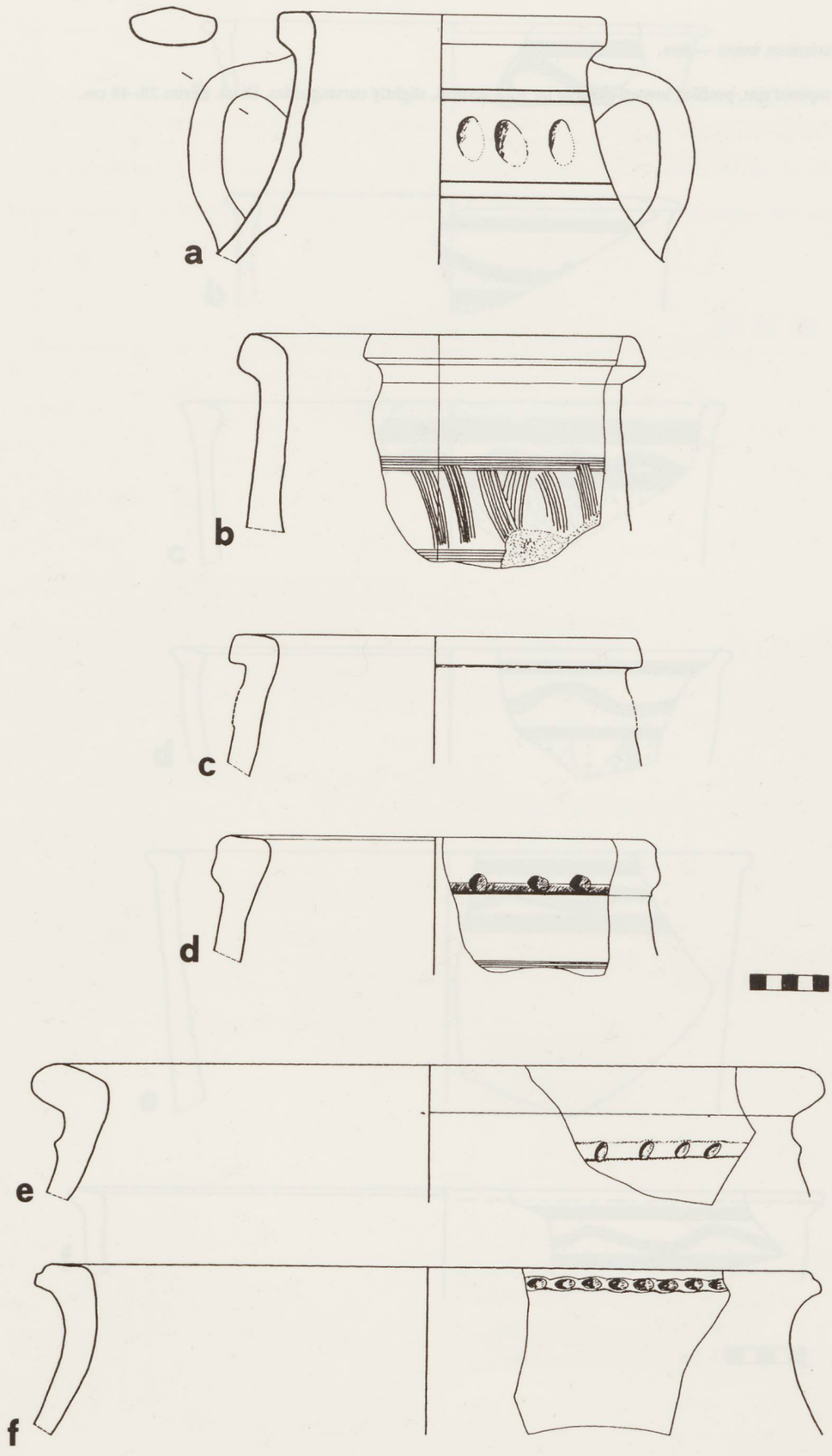

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Figure 135.
WARE 1 (unglazed common ware) — jars

1CA (a–f): Everted, tapered rim, profiled inward of large jar with vertical, slightly curving sides. Diam. of rim 28–48 cm.



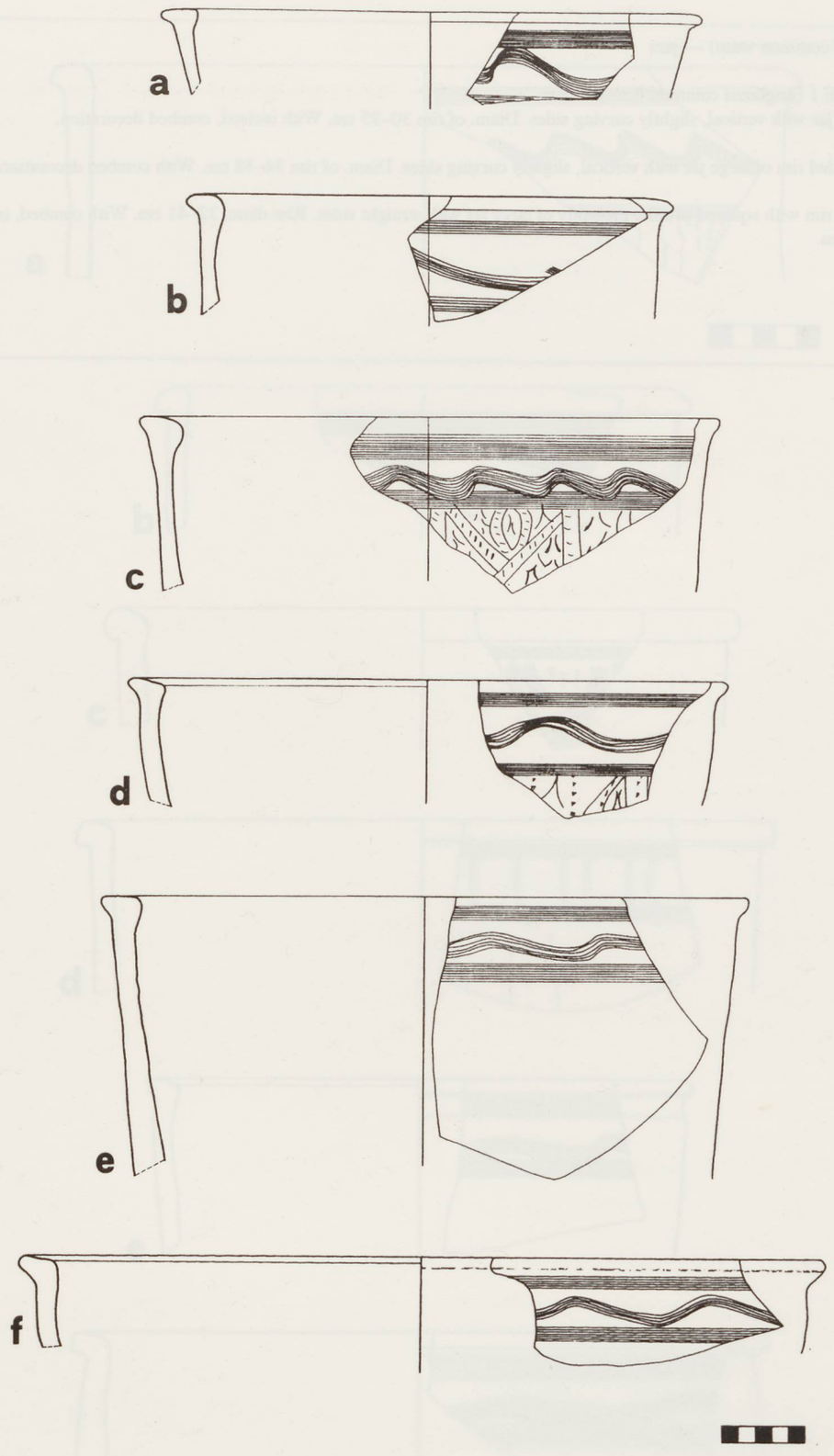

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Figure 136.
WARE 1 (unglazed common ware) — jars

1CAA (a–b): WARE 1 (unglazed common ware) — jars
Folded rim of large jar with vertical, slightly curving sides. Diam. of rim 30–35 cm. With incised, combed decoration.

1CO (c): Thick, folded rim of large jar with vertical, slightly curving sides. Diam. of rim 34–38 cm. With combed decoration.

1CR (d–f): Everted rim with squared profile, probably of large jar with straight sides. Rim diam. 32–41 cm. With combed, incised, carved and impressed decoration.

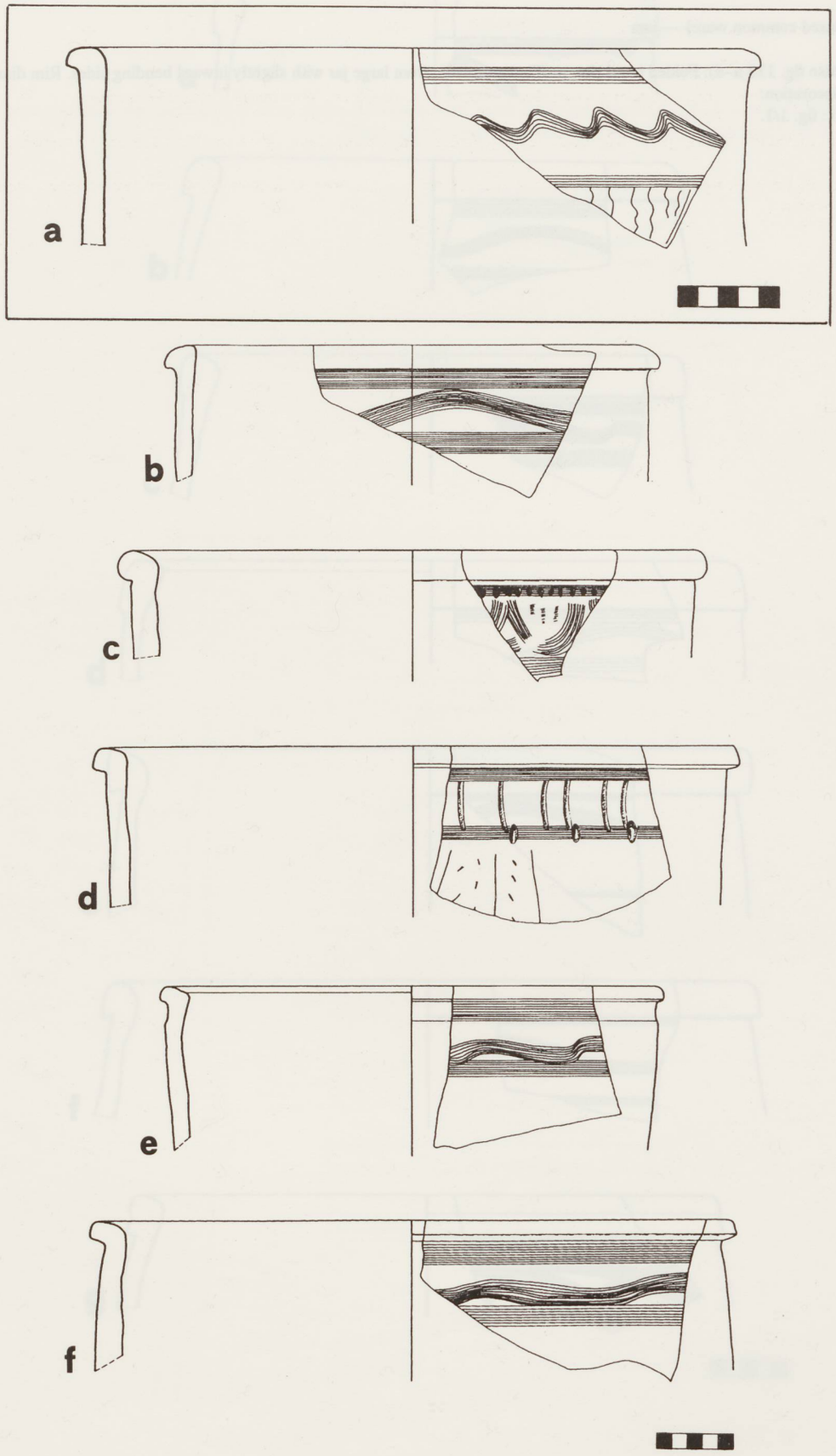

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Figure 137.
WARE 1 (unglazed common ware) — jars

1CP (a–g; see also fig. 138 a–d): Folded band rim, profiled on inside; from large jar with slightly inward bending sides. Rim diam. 28–44 cm. With combed decoration:
Logar 1991: fig. 1/1.

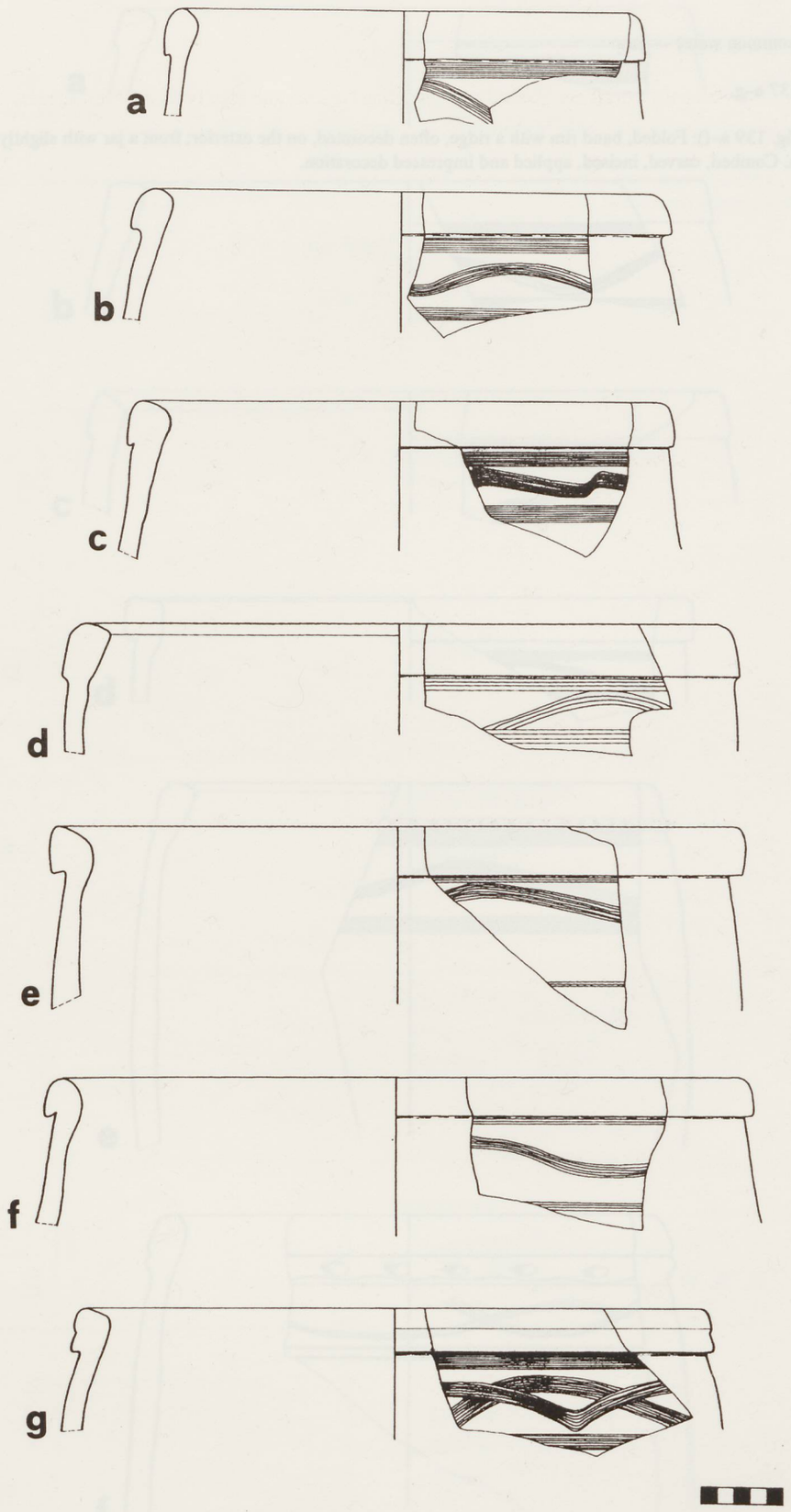

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Figure 138.
WARE 1 (unglazed common ware) — jars

1CP (a–d): See fig. 137 a–g.

1CPP (e–f; see also fig. 139 a–f): Folded, band rim with a ridge, often decorated, on the exterior; from a jar with slightly inward bending sides. Rim diam. 23–38 cm. Combed, carved, incised, applied and impressed decoration.

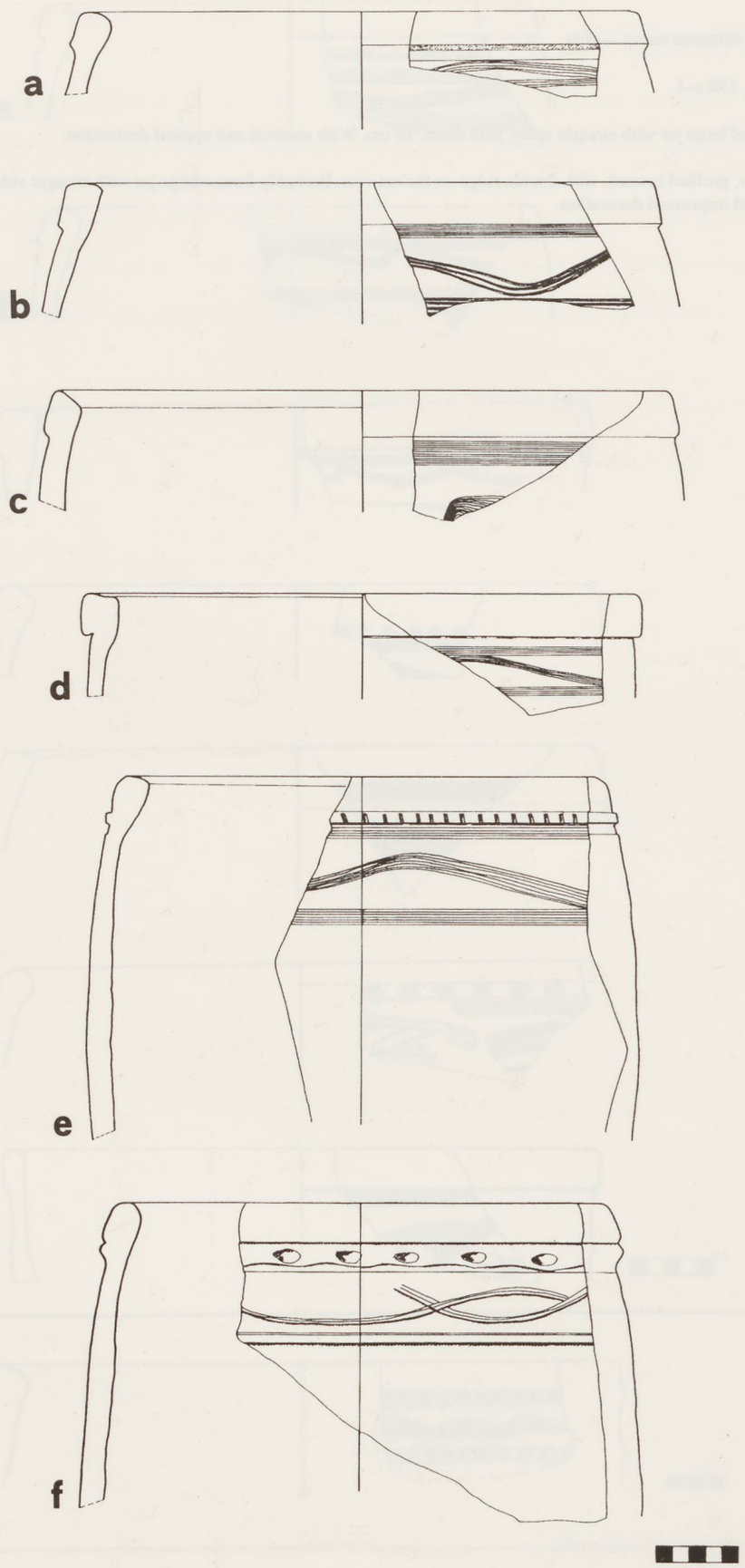

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Figure 139.
WARE 1 (unglazed common ware) — jars

1CPP (a–f): See fig. 138 e–f.

1CQ (g): Band rim of large jar with straight sides. Rim diam. 36 cm. With combed and applied decoration.

1CU (h): Simple rim, profiled inward, with double ridge on the exterior. Probably from a large jar with straight sides. Rim diam. 58 cm. Combed, applied and impressed decoration.

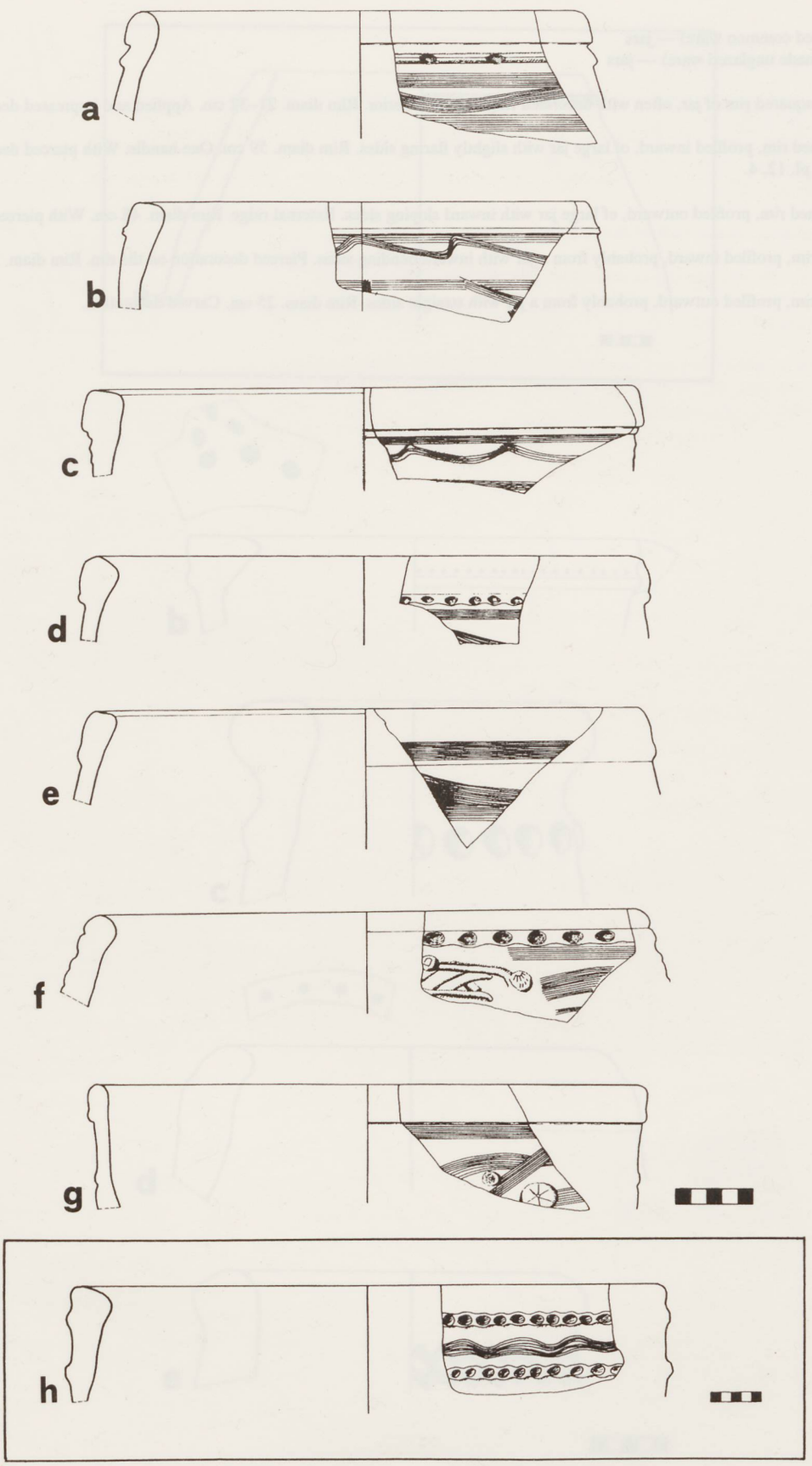

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Figure 140.
WARE 1 (unglazed common ware) — jars
WARE 6 (hand-made unglazed ware) — jars

1CS (a): Simple, squared rim of jar, often with decorated ridge on the exterior. Rim diam. 21–32 cm. Applied and impressed decoration.

6CV (b): Thickened rim, profiled inward, of large jar with slightly flaring sides. Rim diam. 59 cm. One handle. With pierced decoration: *Bartl 1994a*: pl. 12, 4.

6CW (c): Thickened rim, profiled outward, of large jar with inward sloping sides. External ridge. Rim diam. 48 cm. With pierced decoration.

6CZ (d): Simple rim, profiled inward, probably from a jar with inward bending sides. Pierced decoration on the rim. Rim diam. 25 cm.

6CY (e): Simple rim, profiled outward, probably from a jar with straight sides. Rim diam. 25 cm. Carved decoration.

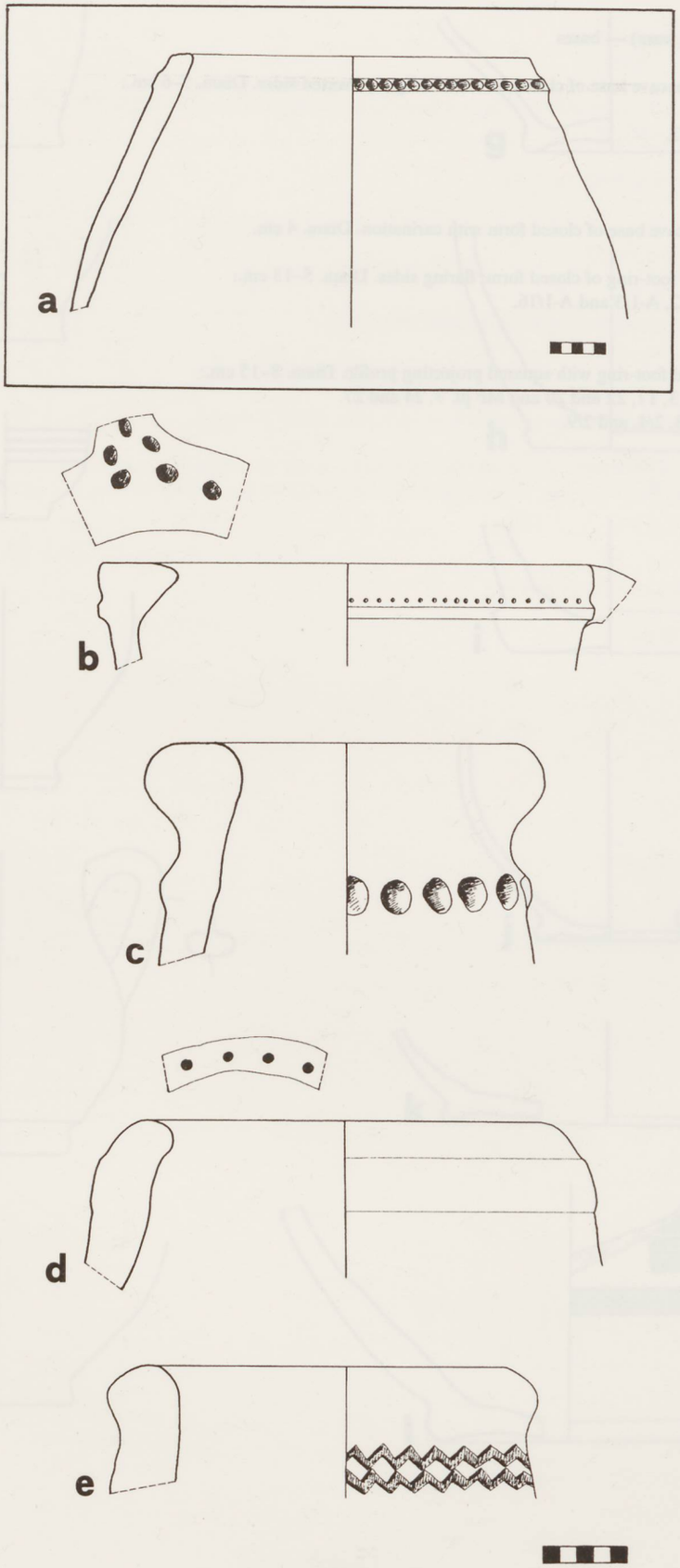

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Figure 141.
WARE 1 (unglazed common ware) — bases

1DL (a–b): Flat or slightly concave base of closed form with slightly everted sides. Diam. 5–6 cm.:
Bartl 1994a: pl. 24, 16.
Grabar et al. *1978*: A-1/7.
Logar 1992: fig. 2/6.
Redford 1995: fig. 5 E.

1DN (c): Flat or slightly concave base of closed form with carination. Diam. 4 cm.

1DO (d–g): Low or very low foot-ring of closed form; flaring sides. Diam. 5–13 cm.:
Grabar et al. *1978*: A-1/2, A-1/3 and A-1/16.
Logar 1992: fig. 2/7.

1DQ (h–l): Very low, splayed foot-ring with squared projecting profile. Diam. 8–15 cm.:
Bartl 1994a: MF pl. 2, 13, 17, 22 and 20 and MF pl. 7, 24 and 27.
Logar 1992: figs 2/1, 2/3, 2/4, and 2/9.

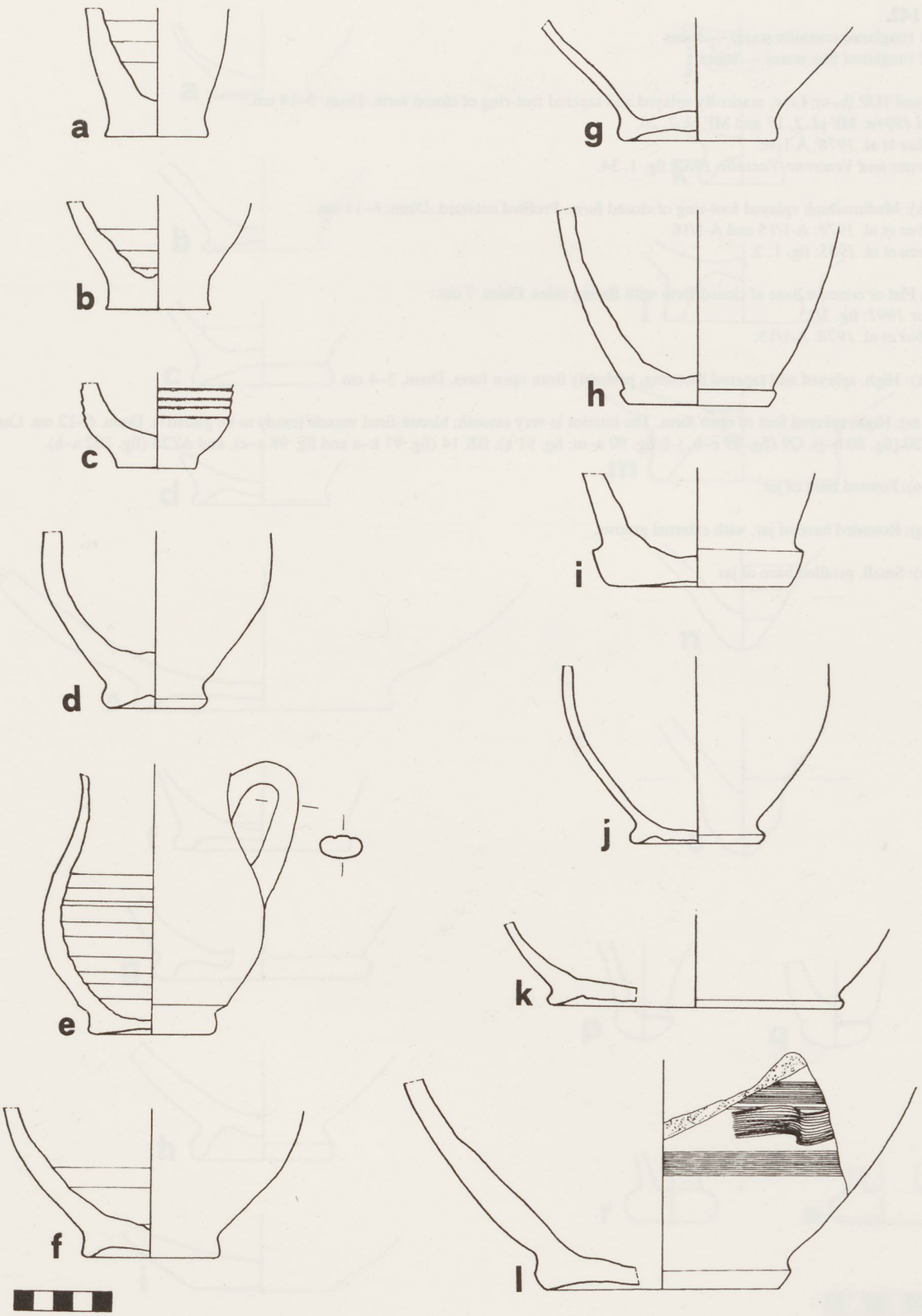

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Figure 142.
WARE 1 (unglazed common ware) — bases
WARE 2 (unglazed fine ware) — bases

2DP (a) and 1DP (b–e): Low, markedly splayed and tapered foot-ring of closed form. Diam. 5–14 cm.:
Bartl 1994a: MF pl. 2, 17 and MF pl. 7, 26.
Grabar et al. *1978*: A-1/4c.
Scerrato and Ventrone-Vassallo 1982: fig. 1, 34.

1DR (f–h): Medium/high splayed foot-ring of closed form. Profiled outward. Diam. 6–11 cm.:
Grabar et al. *1978*: A-1/15 and A-1/16.
Lebeau et al. *1985*: fig. 1, 2.

1DM (i): Flat or concave base of closed form with flaring sides. Diam. 7 cm.:
Logar 1991: fig. 3/25.
Grabar et al. *1978*: A-1/13.

1DU (j–k): High, splayed and tapered foot-ring, probably from open form. Diam. 3–4 cm.

1DW (l–m): High, splayed foot of open form. The interior is very smooth; biscuit-fired vessels (ready to be glazed?). Diam. 6–12 cm. Compare with AY20 (fig. 80 h–j), Q9 (fig. 89 e–h, j–l; fig. 90 a–m; fig. 91 a), BK 14 (fig. 97 k–n and fig. 98 a–c), and AZ28 (fig. 102 a–h).

1ED (n–o): Pointed base of jar.

1EF (p–q): Rounded base of jar, with external groove.

1EE (r–s): Small, profiled base of jar.

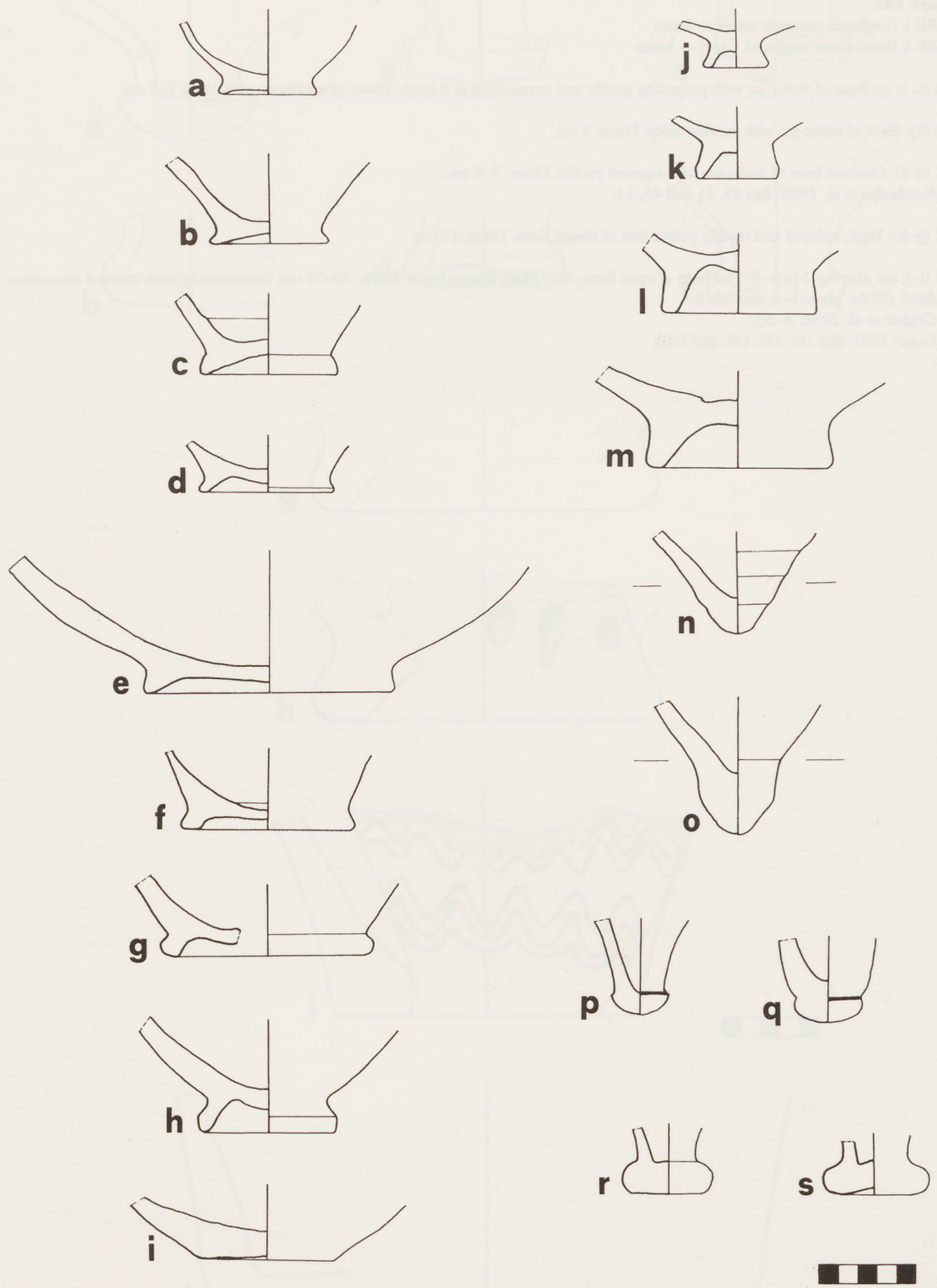

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Figure 143.
WARE 1 (unglazed common ware) — bases
WARE 6 (hand-made unglazed ware) — bases

1EA (a, c, e): Base of water-jar with projecting profile and terminating in a knob. Diam. at maximum projection 7–8 cm.

1EB (b): Base of water-jar with curving sides. Diam. 9 cm.

1EC (d–f): Concave base of water-jar with squared profile. Diam. 7–8 cm.:
Northedge et al. *1988*: figs 45, 11 and 46, 14.

6DZ (g–h): High, splayed and thickly potted foot of closed form. Diam. 18 cm.

1EG (i–j; see also fig. 144 a–f): Flat base of open form, very likely from a basin. Diam. 20–54 cm. Occasionally with combed decoration:
Bartl 1994a: pls 1, 1–2, and 13, 9.
Grabar et al. *1978*: A-2/3.
Logar 1991: figs 1/2, 1/5, 1/6, and 1/13.

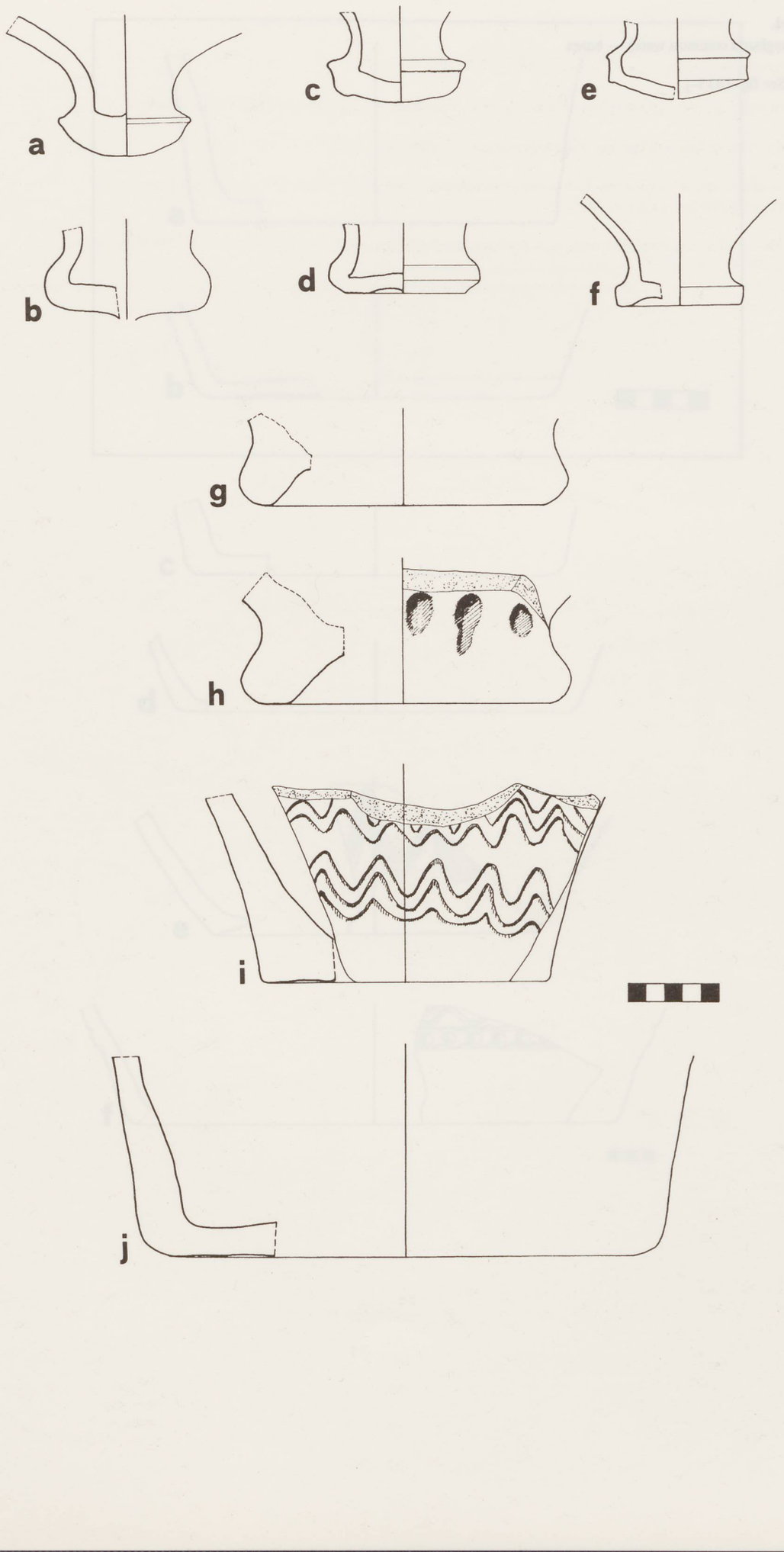

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Figure 144.
WARE 1 (unglazed common ware) — bases

1EG (a–f): See fig. 143 i–j.



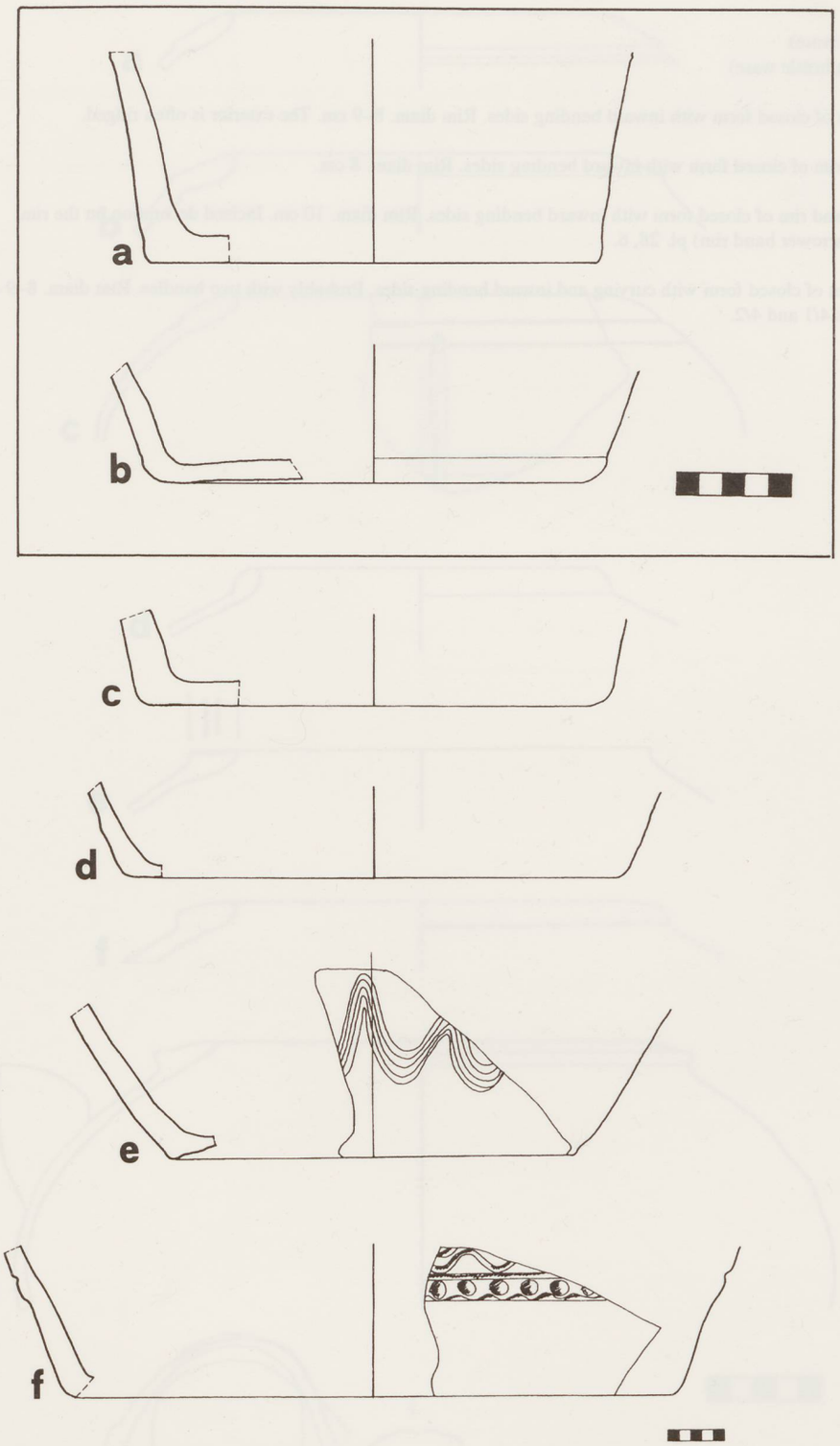

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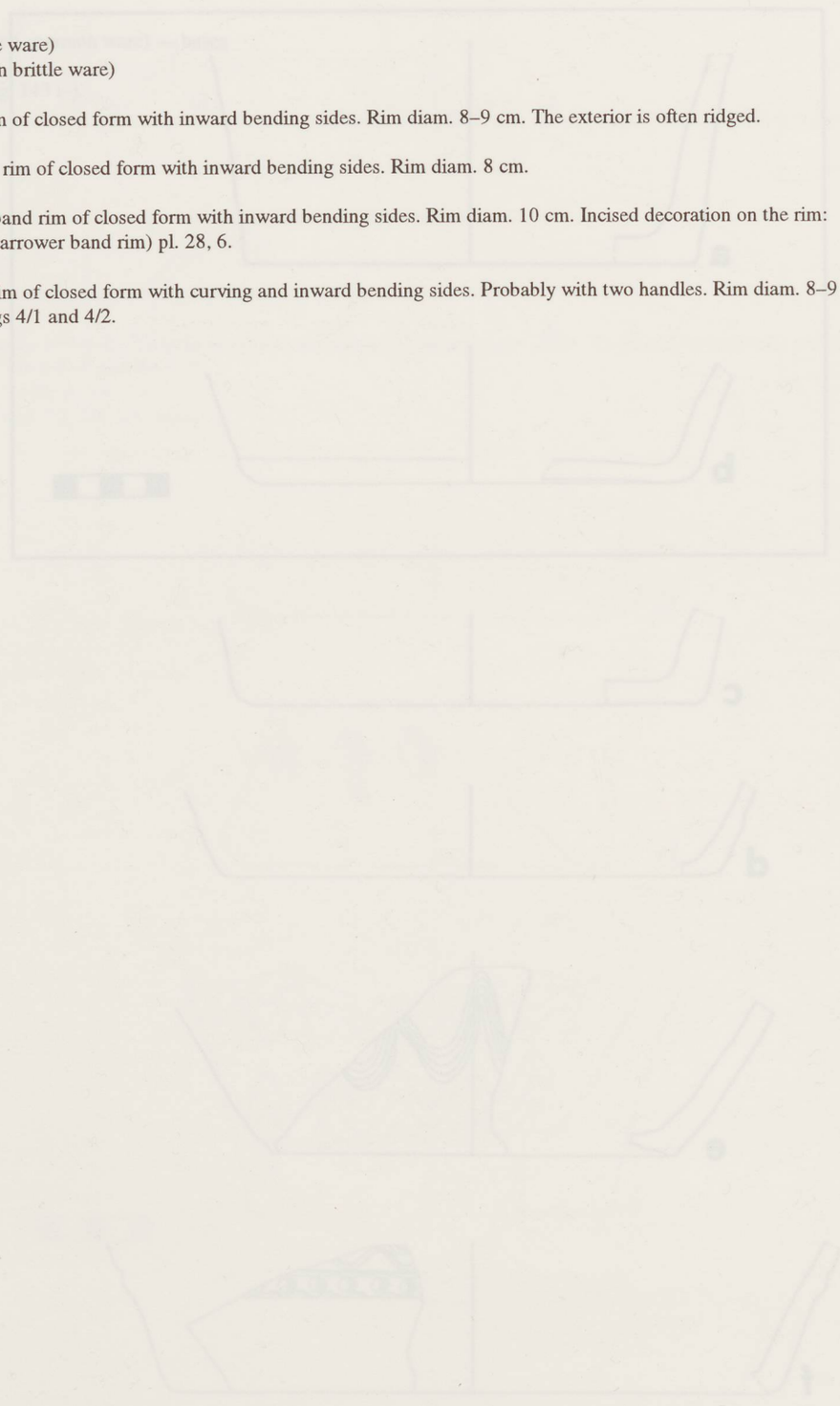
Figure 145.
WARE 3 (red brittle ware)
WARE 4 (red-brown brittle ware)

3FA (a–c): Band rim of closed form with inward bending sides. Rim diam. 8–9 cm. The exterior is often ridged.

3FC (d): Thickened rim of closed form with inward bending sides. Rim diam. 8 cm.

3FB (e): Flattened band rim of closed form with inward bending sides. Rim diam. 10 cm. Incised decoration on the rim:
Bartl 1994a: (narrower band rim) pl. 28, 6.

4FE (f–g): Folded rim of closed form with curving and inward bending sides. Probably with two handles. Rim diam. 8–9 cm:
Logar 1992: figs 4/1 and 4/2.



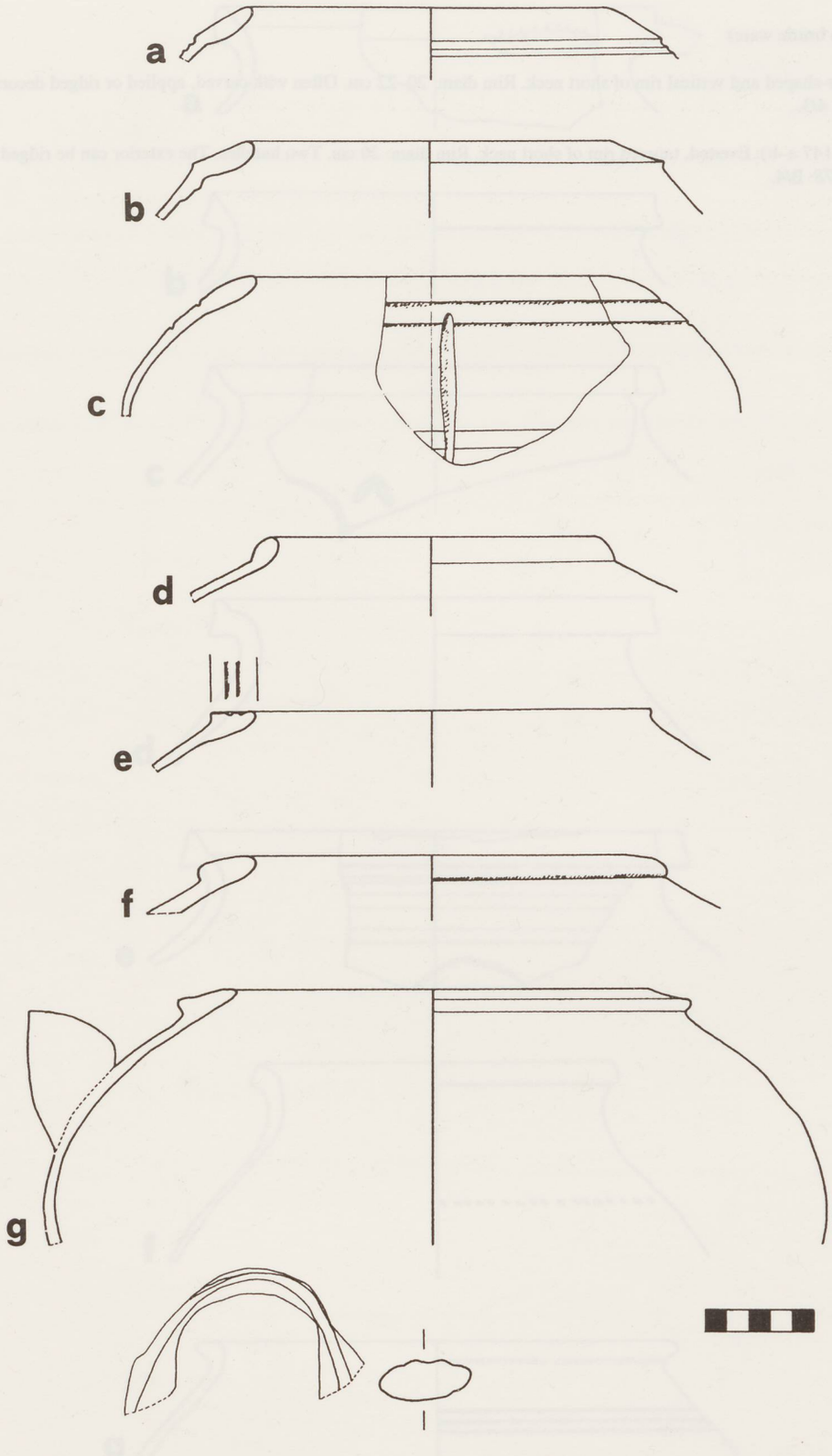

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Figure 146.
WARE 4 (red-brown brittle ware)

4FF (a–f): Triangular-shaped and vertical rim of short neck. Rim diam. 20–22 cm. Often with carved, applied or ridged decoration: *Logar 1992*: fig. 4/3.

4FG (g; see also fig. 147 a–b): Everted, tapered rim of short neck. Rim diam. 20 cm. Two handles. The exterior can be ridged: *Grabar* et al. *1978*: B/4.

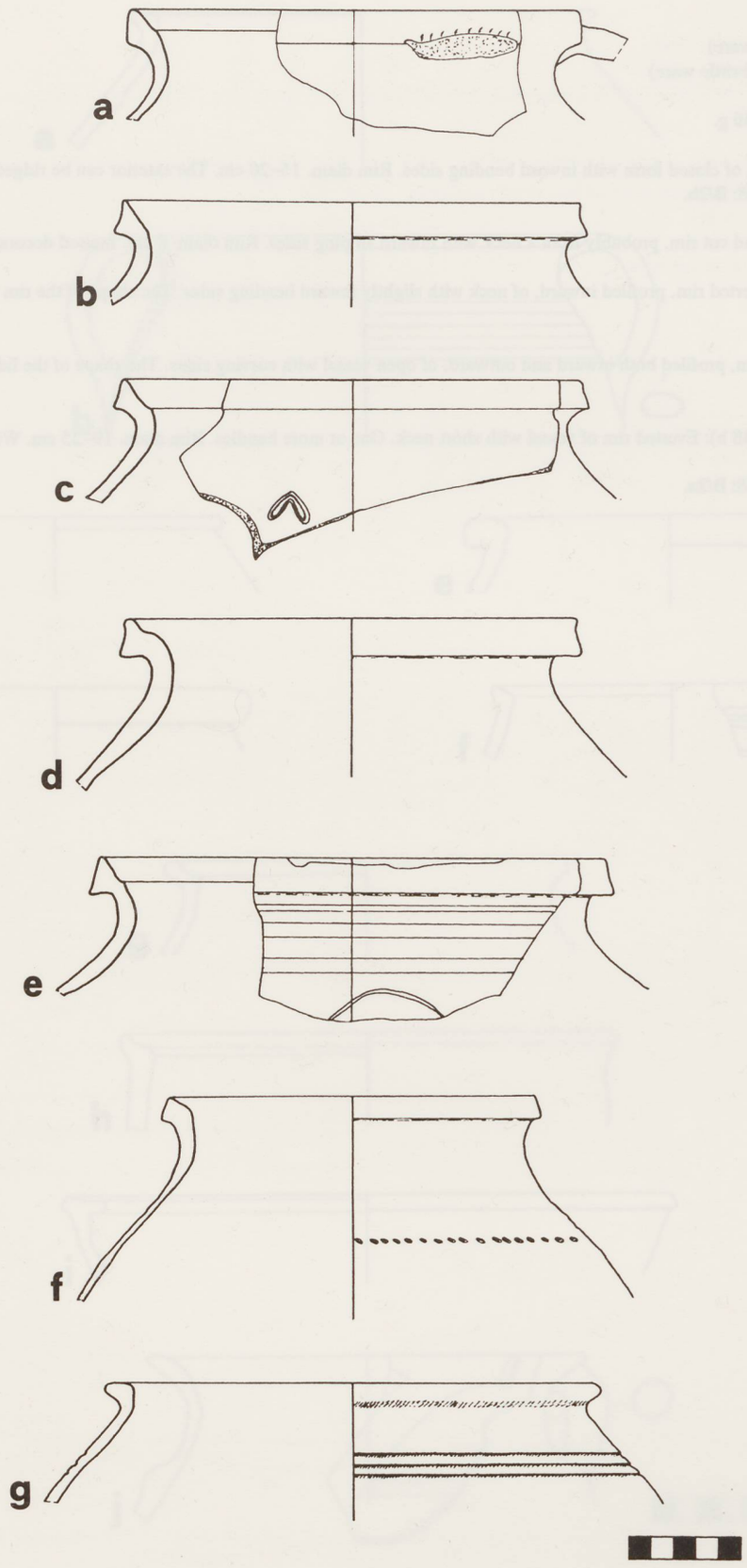

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Figure 147.
WARE 3 (red brittle ware)
WARE 4 (red-brown brittle ware)

4FG (a–b): See fig. 146 g.

4FH (c–e): Rolled rim of closed form with inward bending sides. Rim diam. 15–20 cm. The exterior can be ridged:
Grabar et al. *1978*: B/2b.

3FD (f): Thickened and cut rim, probably from a neck with inward sloping sides. Rim diam. 8 cm. Incised decoration on the exterior.

4FJ (g–h): Slightly everted rim, profiled inward, of neck with slightly inward bending sides. The shape of the rim is probably designed to hold a lid.

4FK (i): Horizontal rim, profiled both inward and outward, of open vessel with curving sides. The shape of the lid is probably designed to hold a lid.

4FL (j; see also fig. 148 b): Everted rim of vessel with short neck. One or more handles. Rim diam. 19–25 cm. With carved, incised and pierced decoration:
Grabar et al. *1978*: B/2a.

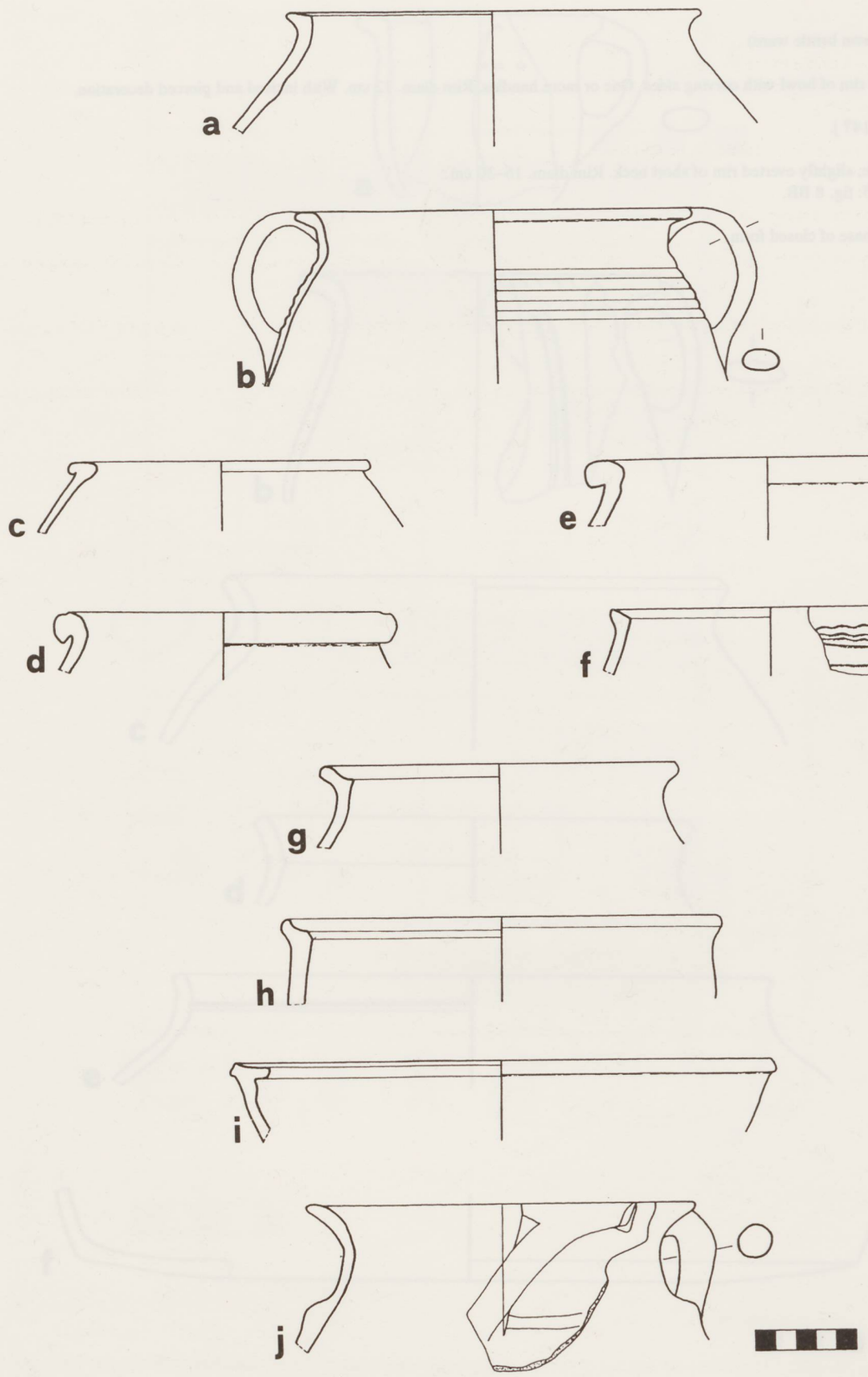

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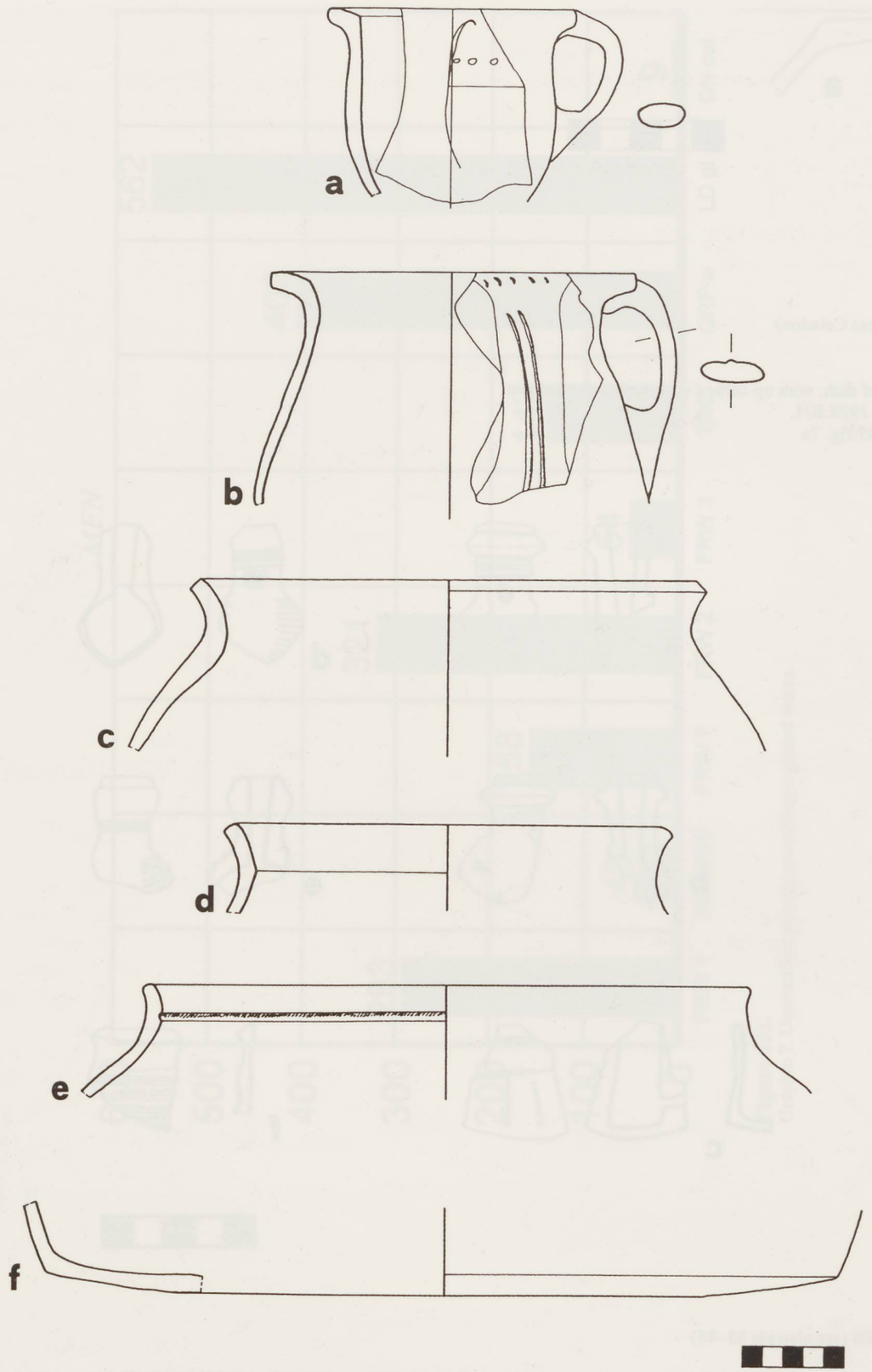
Figure 148.
WARE 4 (red-brown brittle ware)

4FM (a): Everted rim of bowl with curving sides. One or more handles. Rim diam. 12 cm. With incised and pierced decoration.

4FL (b): See fig. 147 j.

4FN (c–e): Simple, slightly everted rim of short neck. Rim diam. 16–30 cm.:
Redford 1995: fig. 8 BB.

4FO (f): Convex base of closed form.


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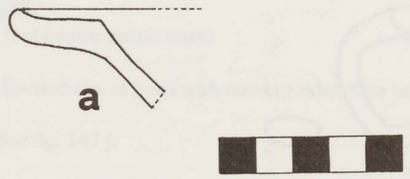


Figure 149.
WARE CC (Chinese Celadon)

CC1 (a)
Flat everted rim of dish; with up-turned edge and festooned rim:
Grabar et al. *1978*:K/1.
Hansman 1985:fig. 7a

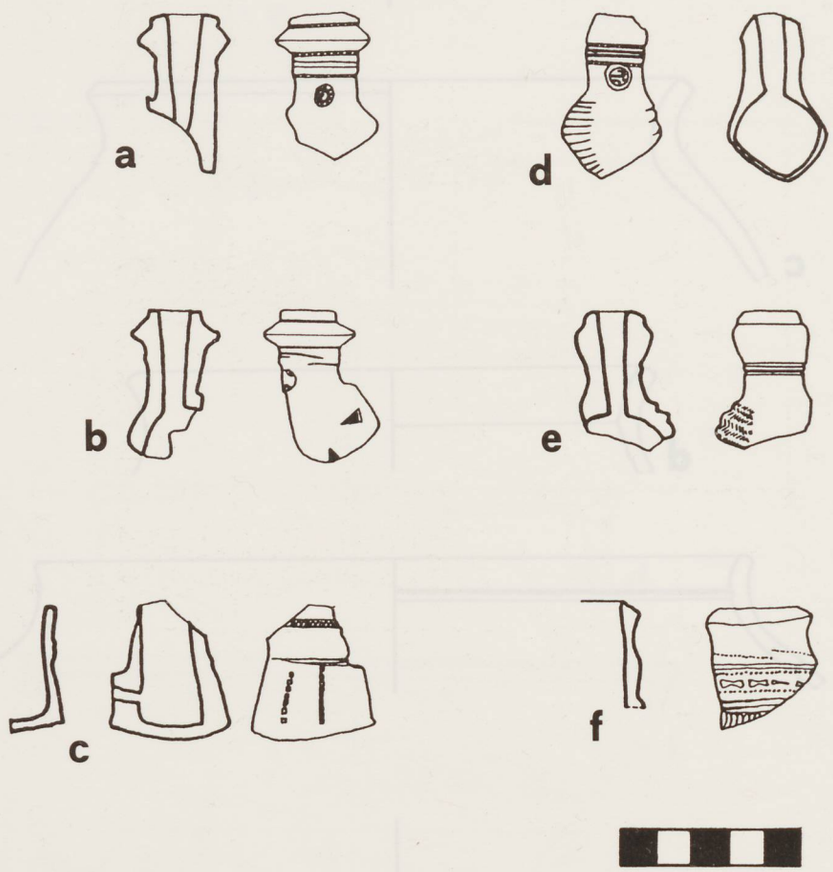


Figure 150.
SMOKERS' PIPES (see also pls 83–88)

In general, the pipes found at Qal'at Ja'bar are similar to the late 19th–early 20th–century pipes published by Robinson 1983, nos 54–55, pl. 56.
See also:
a) *Robinson 1985*: C20–C21, pl. 49 (18th century).
d) *Robinson 1985*: C29, pl. 50. For the decoration of the bowl, see Robinson 1983, no. 8, pl. 52 (late 17th–early 18th century).

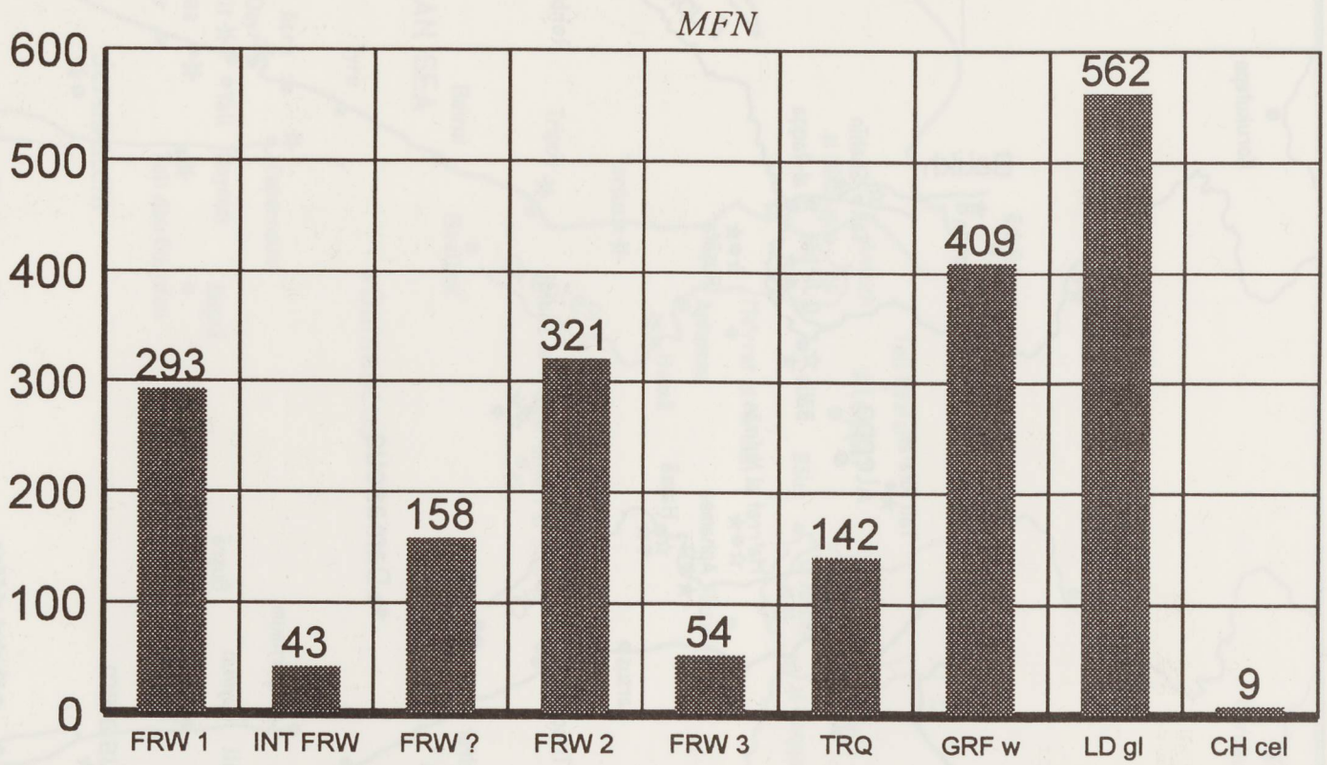


Figure 151.
Graphic 7. Unstratified pottery assemblage: glazed wares.

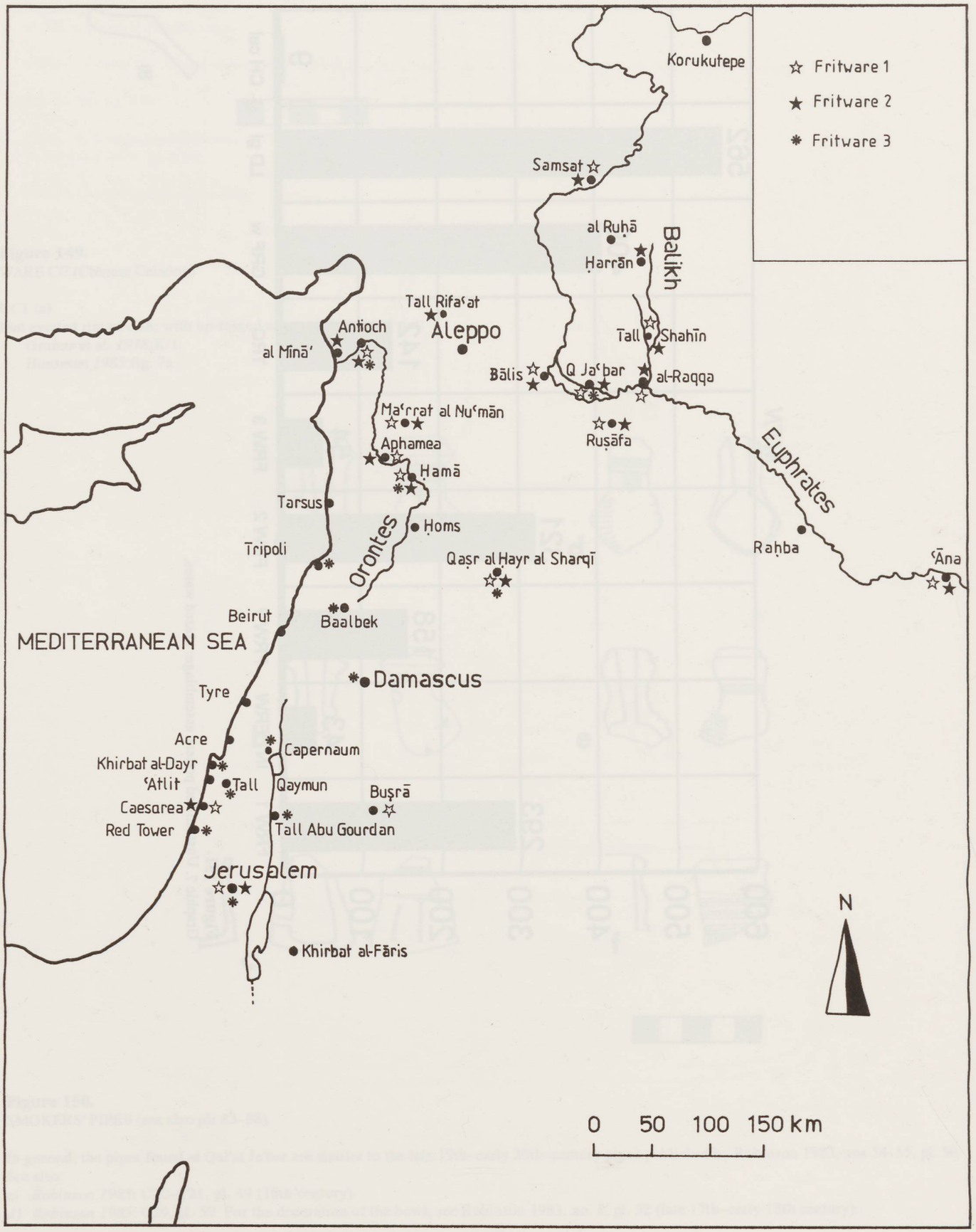


Figure 152.
Distribution map of *fritware 1*, *fritware 2* and *fritware 3* in the Levant. See pp.38–55 and 70–74.

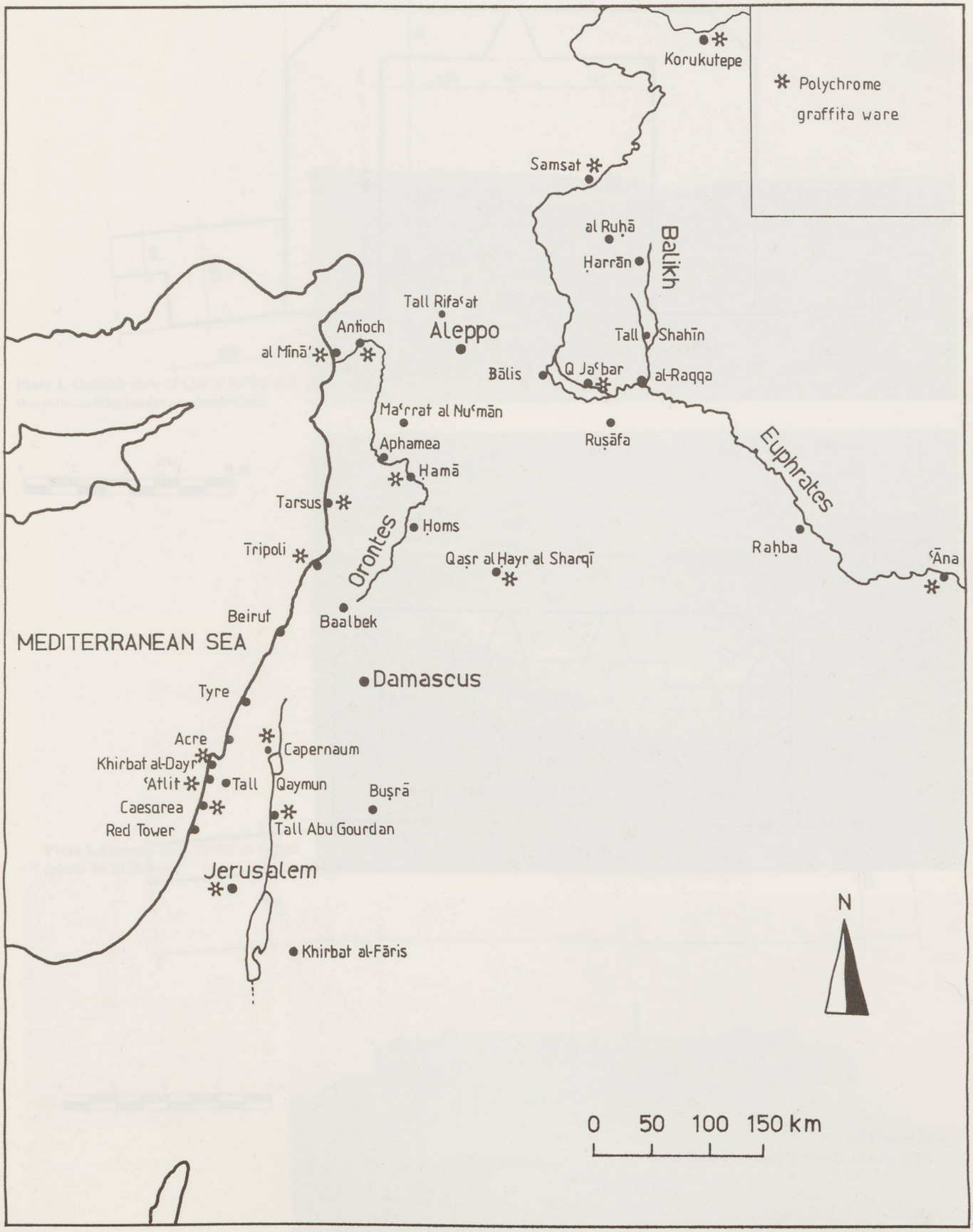


Figure 153.
Distribution map of polychrome *graffita ware* in the Levant. See pp.57–62 and 70–74.

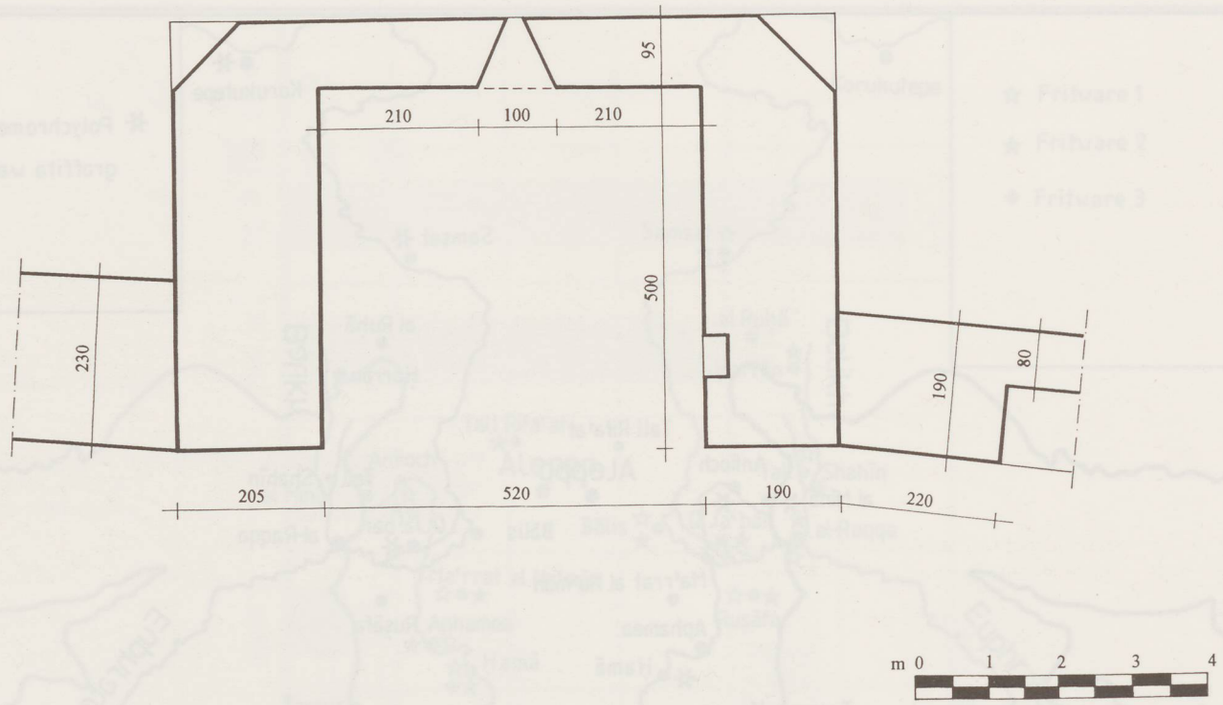


Figure 154.
Appendix H. Tower 2: plan of first floor.

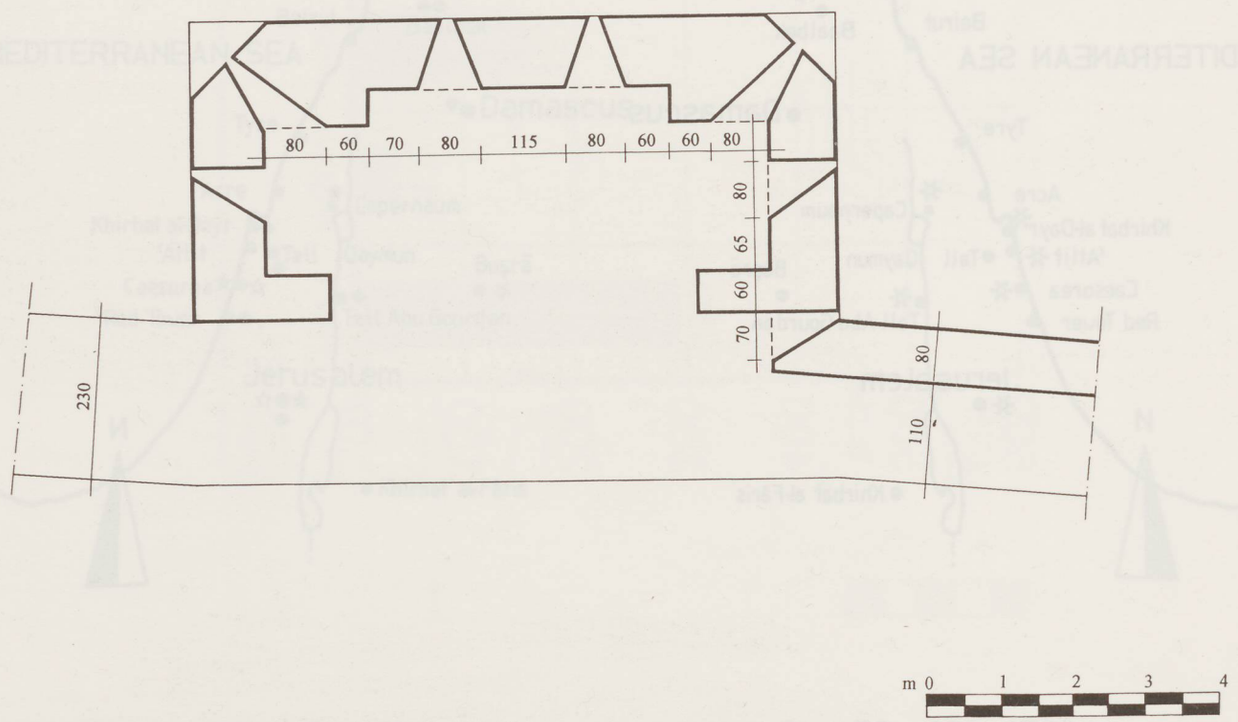


Figure 155.
Appendix H. Tower 2: plan of second floor.



Plate 1. General view of Qal'at Ja'bar and the surrounding landscape from north.



Plate 2. General view of Qal'at Ja'bar (photo M. al-Roumi).



Plate 3. General view from west (after Bell 1911, fig. 29).

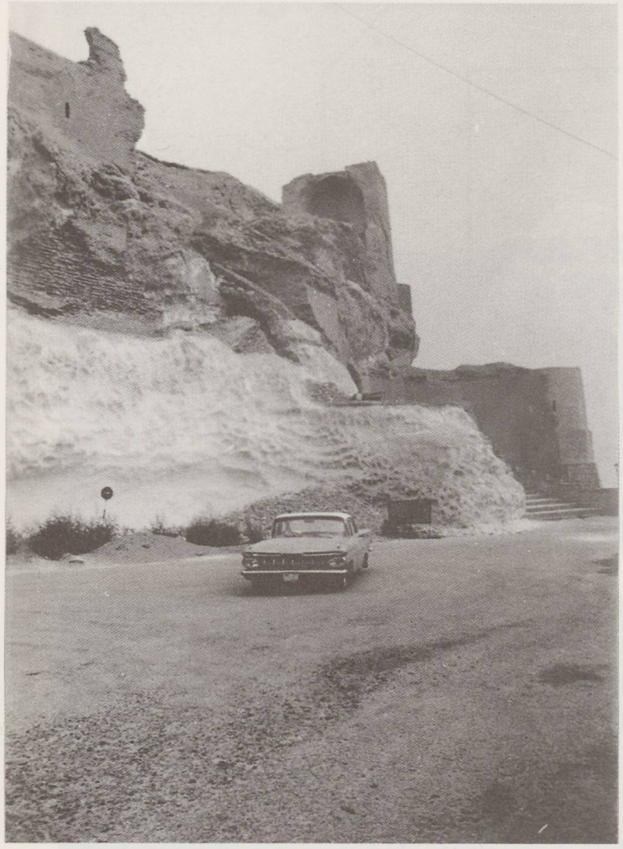


Plate 4. View from north-west showing the present access to the site. The eroded limestone cliff has now lost its brick facing almost entirely. A vaulted building (indicated as D on the map, fig. 2) overlooks the entrance to the west.

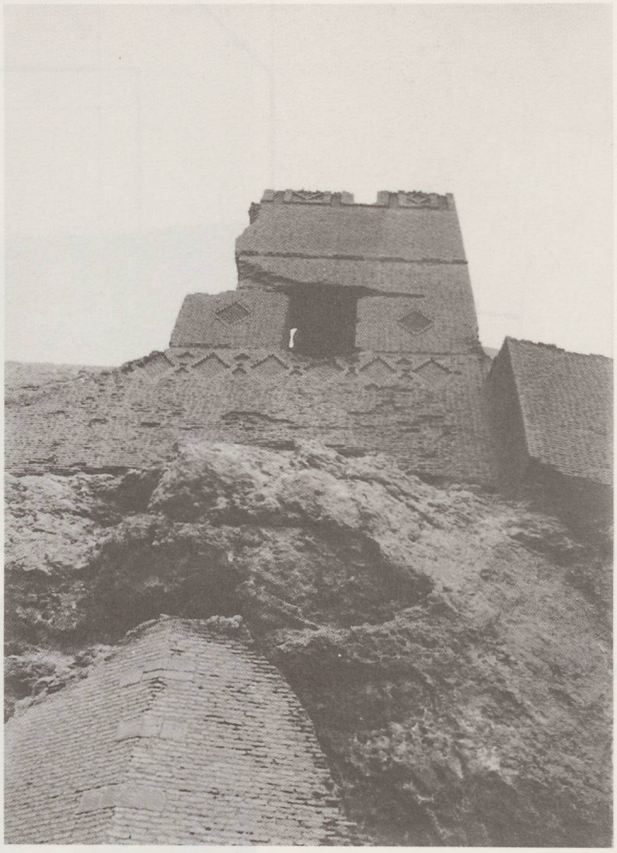


Plate 5. The western exterior wall of the vaulted building. It guards the access to the castle.



Plate 6. The baked brick decoration on the vaulted building guarding the access to the castle.



Plate 7. View from west-north-west showing one of the towers of the external curtain wall, the vaulted building and the erosion suffered by the limestone cliff.



Plate 8. The entrance to the narrow rock carved passage leading to the interior of the citadel; facing north.

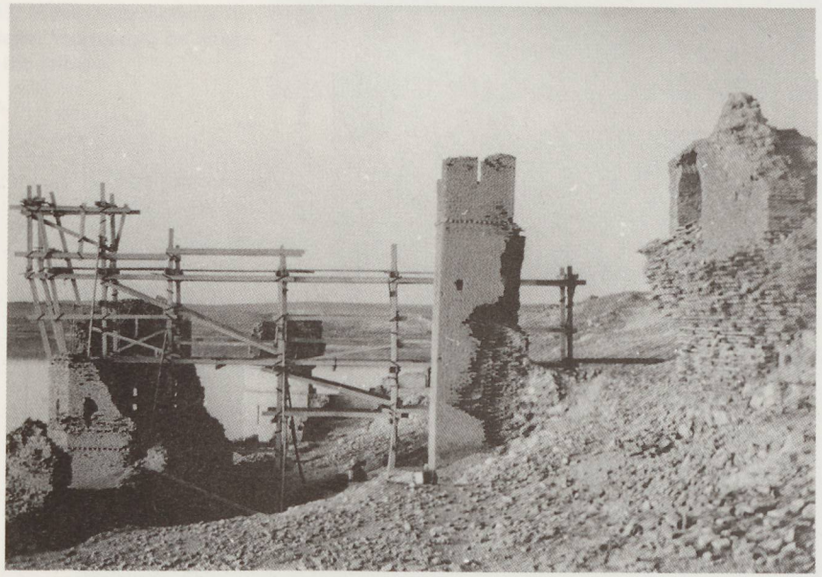


Plate 10. General view (facing north) with the two curtain walls.



Plate 9. The western double curtain wall, facing east.

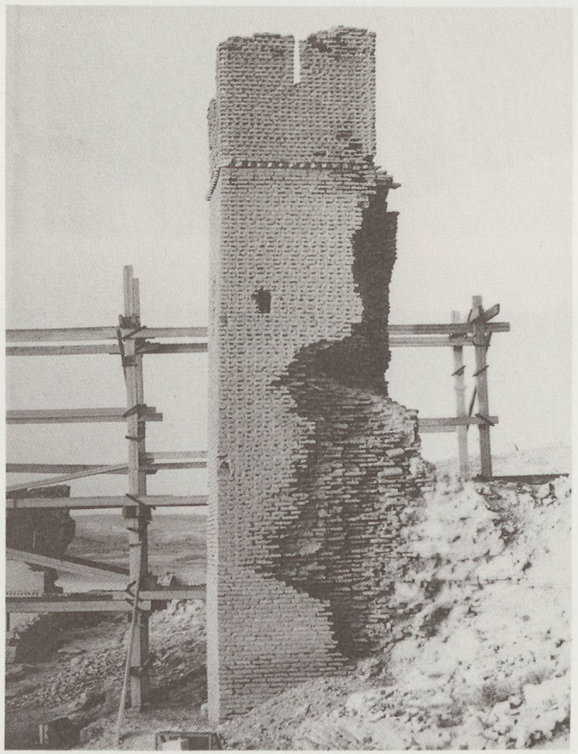


Plate 11. One of the towers of the inner curtain wall, facing north.

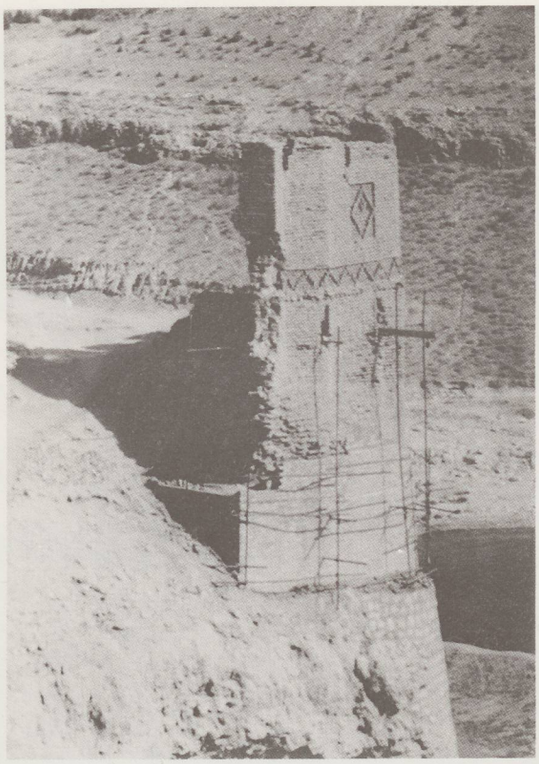


Plate 12. One of the north-eastern towers of the curtain wall; facing north.



Plate 13. Detail of the vaulting system employed in the western tower of the internal western curtain wall.

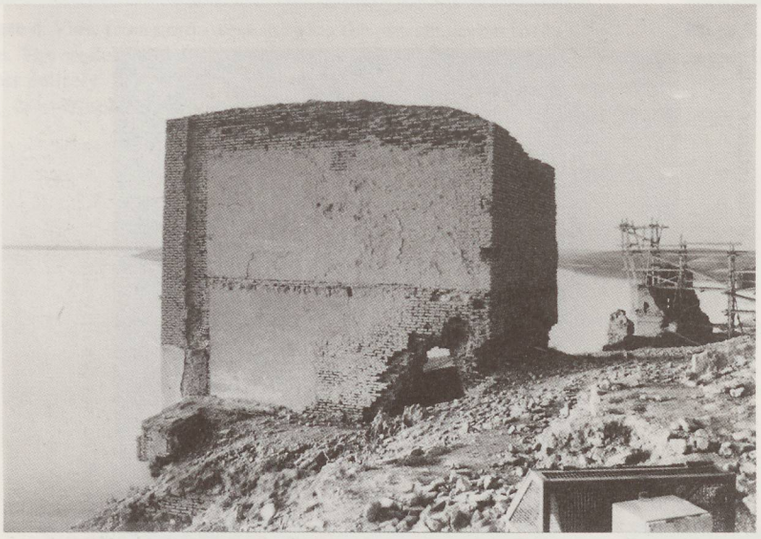


Plate 14. The vaulted building above the entrance to the castle: back of the building, facing north.



Plate 15. The minaret, facing east.



Plate 16. General view (facing south) of the excavations of the mosque, the related buildings and the minaret.



Plate 17. View from the minaret (facing south) of the excavated portion of the mosque.



Plate 18. The mosque interior, showing re-use of the building in later times (the brick wall): view to north.



Plate 19. Detail of the building technique of the mosque, showing courses of bricks and limestone. The plaster facing still survives in some areas.



Plate 20. View of the building with apsidal structures (facing west). It has been identified as a workshop. It is built inside a previous building in the same technique as the mosque.



Plate 21. The south-western complex, facing north-east, with detail of plastered walls and vaults.



Plate 22. The south-western complex (facing south).



Plate 23. Sondage S1, phase V: floor 6.



Plate 24. Sondage S1, phase V: floor 3 and structure 49.



Plate 25. Sondage S1, phase IV: cooking pot in jar 21 with fill 113.

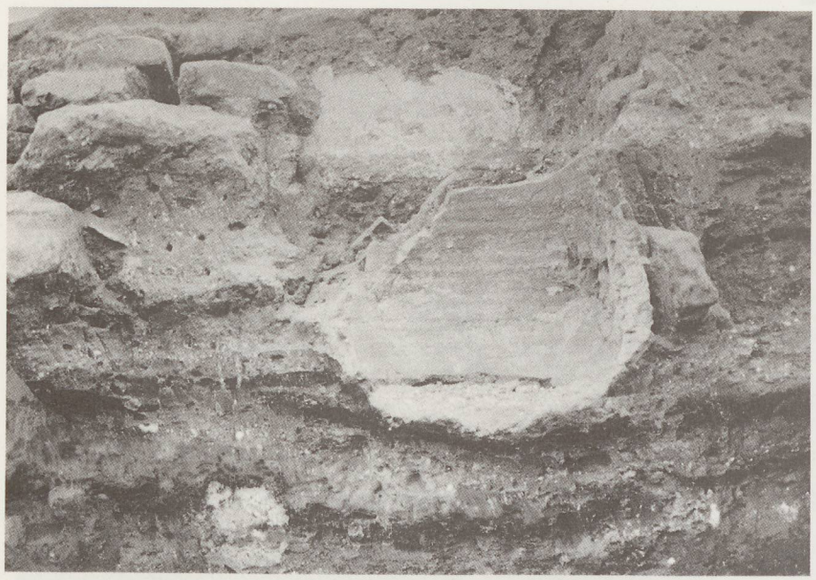


Plate 26. Sondage S1, phase IV: jar 21, associated with plaster floor 106. Jar 21 cuts through the black layers of phase III.



Plate 27. Sondage S1, phase IIa: collapsed mud brick (30A) on wall 30.



Plate 28. Sondage S1, east section and detail of wall 30; see fig. 8 for scale.



Plate 29. Sondage S1, south section; see fig. 9 for scale.



Plate 30. Sondage S2, phase V: plastered floor 58, wall 56 and part of floor 60 (= floor 6 in sondage S1).



Plate 31. View of the excavated area, facing south-east.



Plate 32. Sondage S1, Phase IIa: Ware 1, incised and cut decoration (photo A. 'Abd al-Ghaffūr).



Plate 33. Sondage S1, Phase IIa: Ware 1, incised and cut decoration (photo A. 'Abd al-Ghaffūr).

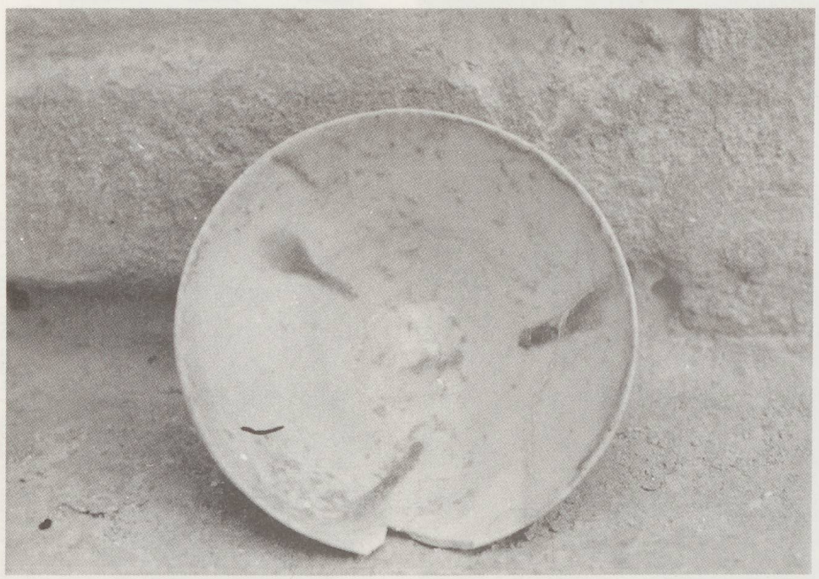


Plate 34. *Fritware 1*, blue decoration, colourless glaze (Ware H, fig. 47 d–f, j–p; fig. 48).



Plate 35. *Fritware 1*, lustre painted decoration on colourless glaze (Ware J: fig. 50 g–j; fig. 51).



Plate 36. *Fritware 1*, lustre painted decoration on colourless glaze (Ware J: fig. 50 g–j; fig. 51).



Plate 37. *Fritware 1*, lustre painted decoration on colourless glaze (Ware J: fig. 50 g–j; fig. 51).



Plate 38. *Fritware 2*, lustre painted decoration on greenish glaze (Ware Z, figs 60–62; 63 a).



Plate 39. *Fritware 3*, grey/green slip, decoration painted in white slip and black under greenish glaze (Ware BR, fig. 75 f).



Plate 40. *Fritware 3*, grey/green slip, decoration painted in white slip and black under greenish glaze (Ware BR, fig. 75 f).

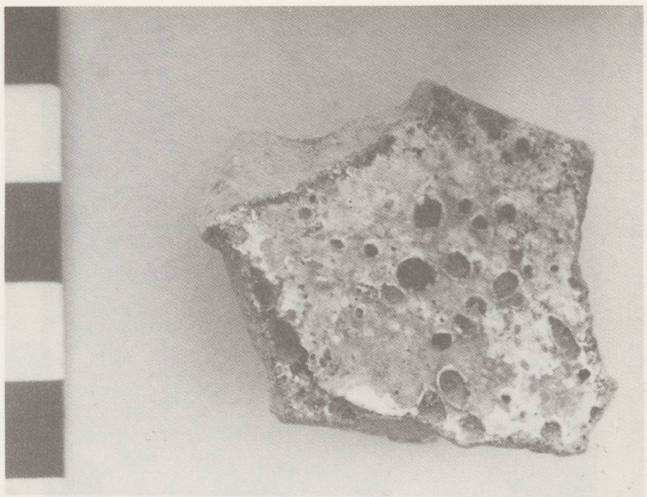


Plate 41. *Fritware 1*, turquoise glaze (Ware B, fig. 43 j–k, q–t; fig. 44 a–i): waster.



Plate 42. *Fritware 1*, blue decoration, colourless glaze (Ware H, fig. 47 d–f, j–p; fig. 48): waster.



Plate 43. *Fritware 2*, black painted decoration under turquoise glaze (Ware Y, figs 65–68; 69 a–n; p–q; r–v,): waster.



Plate 44. *Fritware 2*, black painted decoration under turquoise glaze (Ware Y, figs 65–68; 69 a–n; p–q; r–v,): waster.



Plate 45. *Fritware 2*, black painted decoration under turquoise glaze (Ware Y, figs 65–68; 69 a–n; p–q; r–v,): waster.



Plate 46. *Fritware 2*, lustre painted decoration on greenish glaze (Ware Z, figs 60–62; 63 a): waster.



Plate 47. *Fritware ?* (*intermediate fritware* or *fritware 2*), turquoise glaze (Ware T, figs 55–56; 57 a–b), and *turquoise-glazed ware* (Ware AY, figs 76–81): waster.



Plate 48. *Fritware 1* (see Appendix D): thin section (photo by R. Franchi).

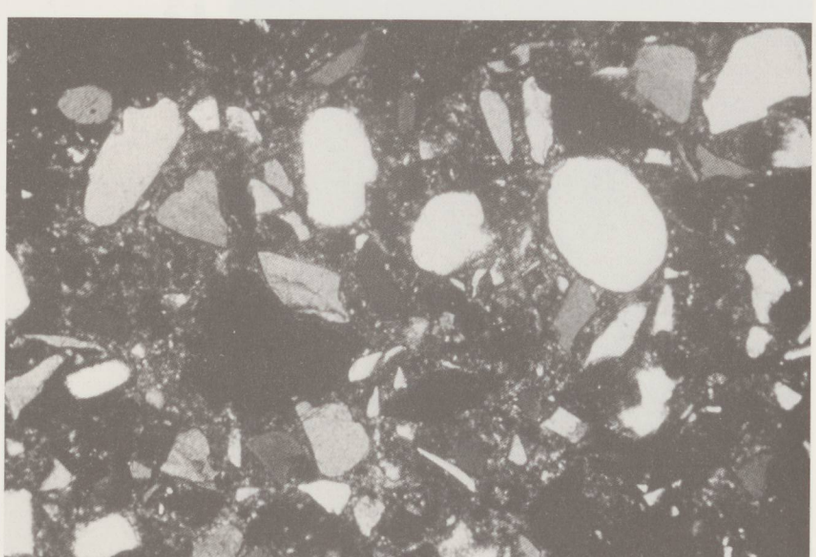


Plate 49. *Fritware 3* (see Appendix D): thin section (photo by R. Franchi).



Plate 50. Polychrome *graffita ware* (Ware Q, figs 82–92): waster or second quality piece.

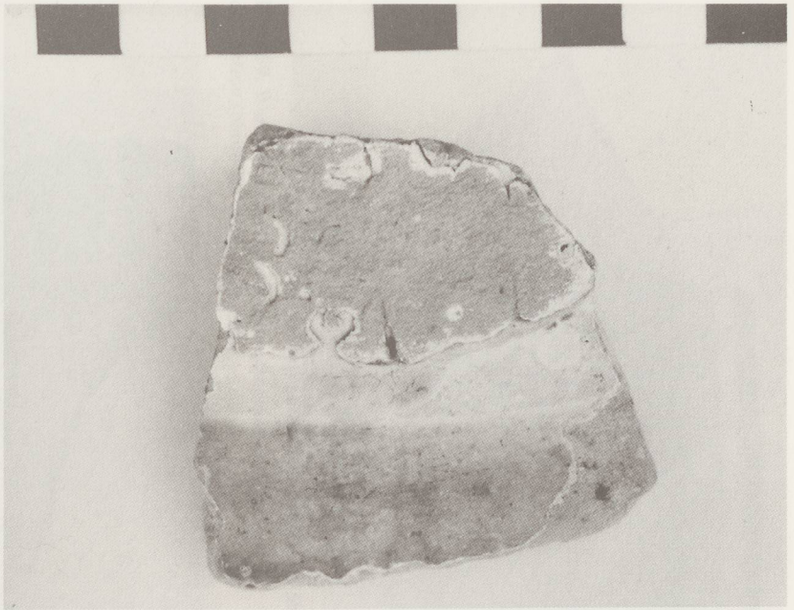


Plate 51. Polychrome *graffita ware* (Ware Q, figs 82–92): exterior of vessel with large fragment of another vessel attached to it.



Plate 52. Kiln waste.



Plate 53. Ware 1. Combed decoration (photo A. 'Abd al-Ghaffūr).

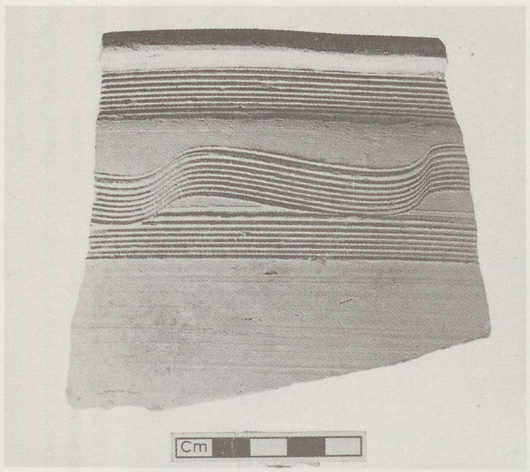


Plate 54. Ware 1. Combed decoration (photo A. 'Abd al-Ghaffūr).

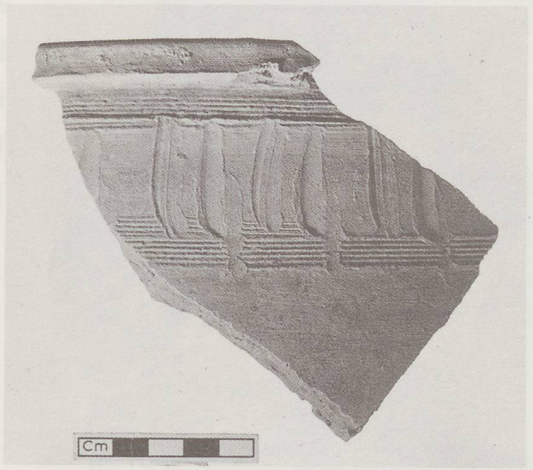


Plate 55. Ware 1. Combed decoration combined with carved decoration (photo A. 'Abd al-Ghaffūr).



Plate 56. Ware 1. Combed decoration combined with carved decoration (photo A. 'Abd al-Ghaffūr).



Plate 57. Ware 1. Combed decoration combined with impressed decoration (photo A. 'Abd al-Ghaffūr).



Plate 58. Ware 1. Combed decoration combined with applied and impressed decoration (photo A. 'Abd al-Ghaffūr).



Plate 59. Ware 1. Combed decoration combined with incised decoration (photo A. 'Abd al-Ghaffūr).



Plate 60. Ware 1. Deeply carved decoration (photo A. 'Abd al-Ghaffūr).



Plate 61. Ware 1. Stylised incised floral decoration (photo A. 'Abd al-Ghaffūr).



Plate 62. Ware 1. Stylised incised and cut floral decoration (photo A. 'Abd al-Ghaffūr).



Plate 63. Ware 1. Stylised incised floral decoration combined with combed decoration (photo A. 'Abd al-Ghaffūr).

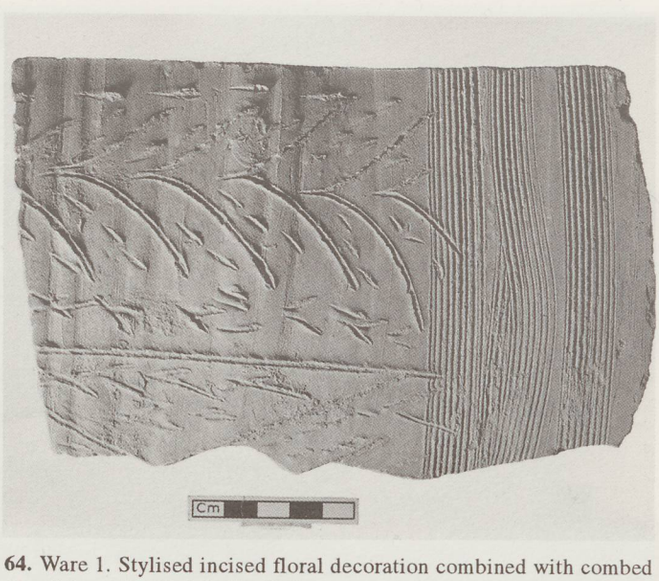


Plate 64. Ware 1. Stylised incised floral decoration combined with combed decoration (photo A. 'Abd al-Ghaffūr).



Plate 65. Ware 1. Incised and cut decoration (photo A. 'Abd al-Ghaffūr).



Plate 66. Ware 1. Incised and cut decoration (photo A. 'Abd al-Ghaffūr).

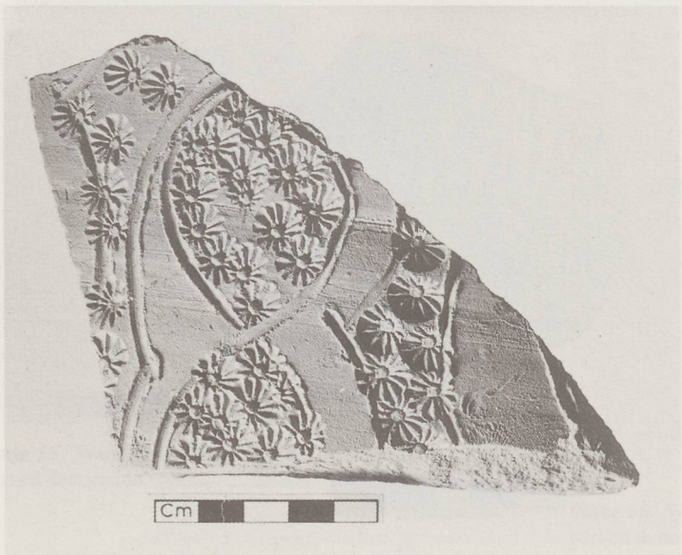


Plate 67. Ware 1. Incised and stamped decoration (photo A. 'Abd al-Ghaffūr).



Plate 68. Ware 1. Incised, applied and stamped decoration (photo A. 'Abd al-Ghaffūr).

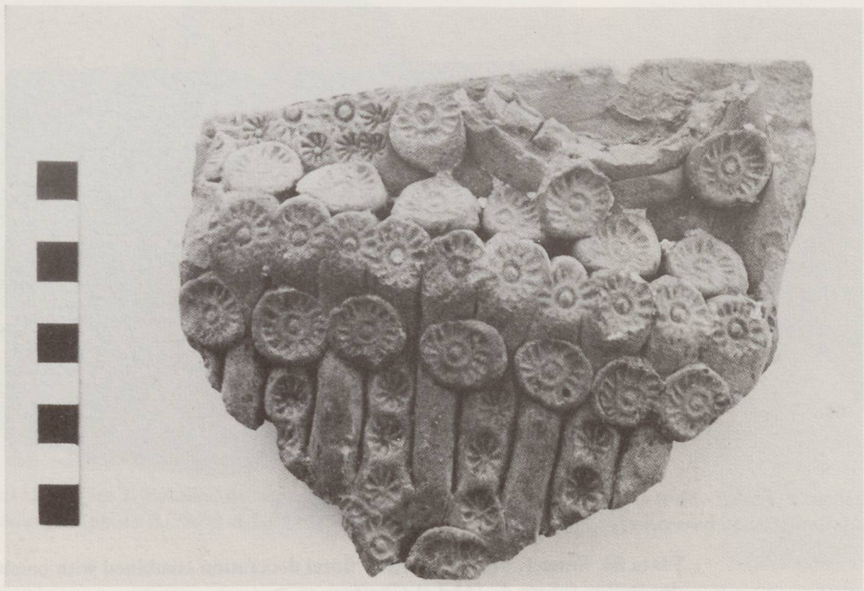


Plate 69. Ware 1. Applied decoration combined with stamped and incised decoration.



Plate 70. Carved decoration. Fragments of fritware are also applied for decorative purpose.



Plate 71. Detail of pl. 70 showing the use of fragments of fritware to decorate unglazed pottery.



Plate 72. Detail of pl. 70 showing the use of fragments of fritware to decorate unglazed pottery.



Plate 73. Ware 2, jug with relief-mould decoration (QJ Museum Acc. No. 27 III 73 J); see fig. 118 i.



Plate 74. Ware 2, jug with relief-mould decoration (QJ Museum Acc. No. 28 III 73 J); see fig. 118 h.



Plate 75. Ware 2. Mould-relief decoration; floral and abstract patterns (photo A. 'Abd al-Ghaffūr).

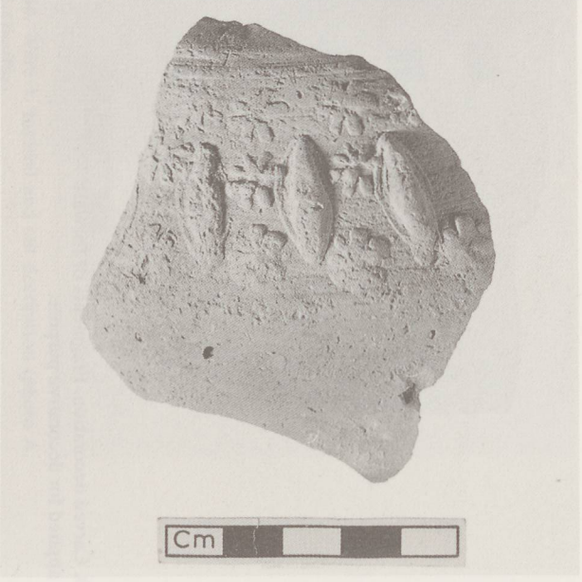


Plate 76. Ware 2. Mould-relief decoration; floral patterns (photo A. 'Abd al-Ghaffūr).



Plate 77. Ware 2. Mould-relief decoration; floral pattern (photo A. 'Abd al-Ghaffūr).



Plate 78. Ware 2. Mould-relief decoration; floral pattern (photo A. 'Abd al-Ghaffūr).



Plate 79. Ware 2. Mould-relief decoration; floral and abstract patterns (photo A. 'Abd al-Ghaffūr).



Plate 80. Ware 2. Mould-relief decoration; abstract patterns (photo A. 'Abd al-Ghaffūr).

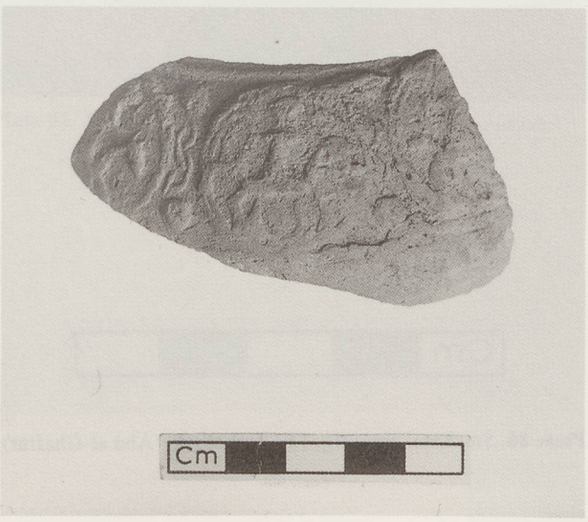


Plate 81. Ware 2. Mould-relief decoration; figural motif (photo A. 'Abd al-Ghaffūr).

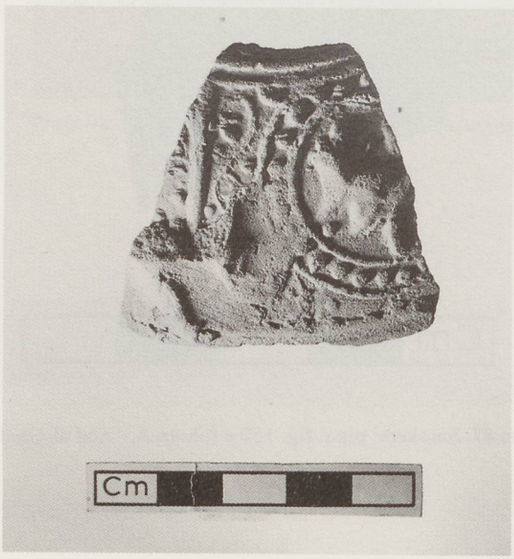


Plate 82. Ware 2. Mould-relief decoration; abstract and floral pattern (photo A. 'Abd al-Ghaffūr).



Plate 83. Smokers' pipe: fig. 150 a (photo A. 'Abd al-Ghaffūr).



Plate 84. Smokers' pipe: fig. 150 b (photo A. 'Abd al-Ghaffūr).



Plate 85. Smokers' pipe: fig. 150 c (photo A. 'Abd al-Ghaffūr).



Plate 86. Smokers' pipe: fig. 150 d (photo A. 'Abd al-Ghaffūr).



Plate 87. Smokers' pipe: fig. 150 e (photo A. 'Abd al-Ghaffūr).



Plate 88. Smokers' pipe: fig. 150 f (photo A. 'Abd al-Ghaffūr).

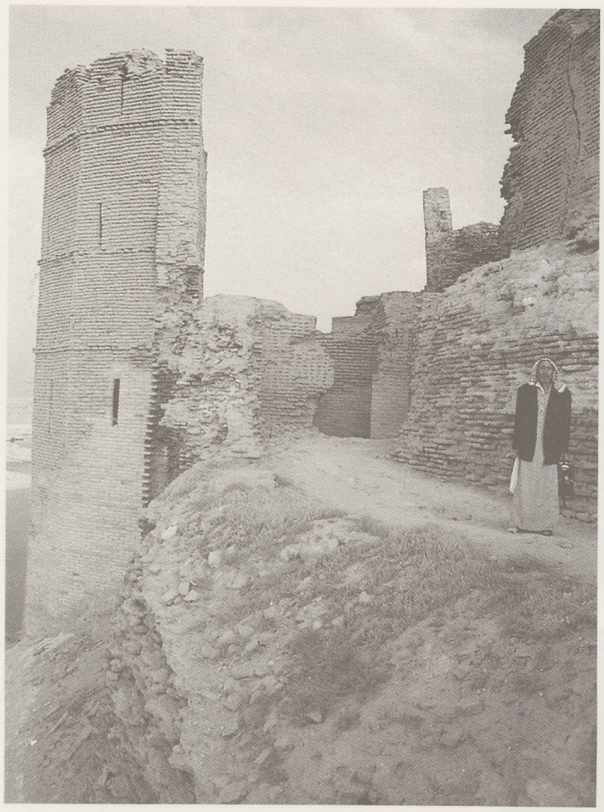


Plate 89. Appendix H: The passage between the two western curtain walls, facing north.



Plate 90. Appendix H: One of the recently restored towers.



Plate 91. Appendix H: An example of a semi-circular tower.



Plate 92. Appendix H: Tower 2, first floor, facing west.



Plate 93. Appendix H: Tower 2, third floor, facing west.



Plate 94. Appendix H: The citadel's gate, facing south-east.

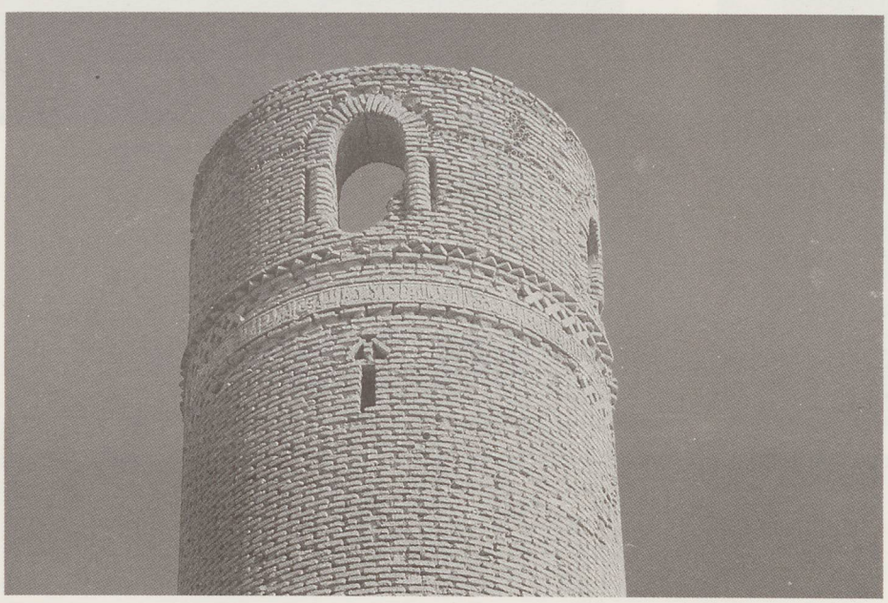


Plate 95. Appendix H: The upper part of the minaret with the inscription.



Plate 96. Appendix H: The House of the Arches, facing north-east.



Plate 97. Appendix H: Detail of the structures in the form of arches.



Plate 98. Appendix H: The tile-paving found in the upper levels of the House of the Arches, facing east.



Plate 99. Appendix H: The House of the Arches: the fourth excavated level, lying directly above bed-rock, and the circular structures still unexcavated. Facing west.



Plate 100. Appendix H: The Tank House: view from the south-south-west.



Plate 101. Appendix H: The Tank House.



Plate 102. Appendix H: The Tank House: interior rooms facing east.



Plate 103. Appendix H: Chinese blue and white porcelain from the third excavated level of the House of the Arches.