

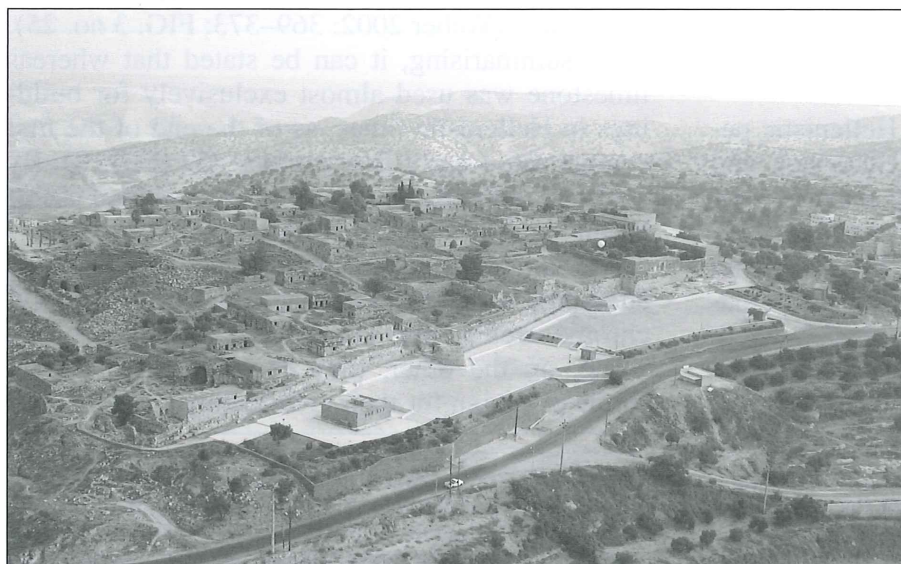
Urban Building Policy in Gadara Polychrome Architecture Built Merely with Local Building Material?

The ancient city of Gadara, present day Umm Qays, is located in the northwest of the modern state of Jordan, on the border to Syria and Israel.

The core of the fortified Hellenistic settlement (second century BC) itself lies at the highest point atop a hill, at the edge of the fertile high plateau of Arḍ al-‘Ulā, which borders in the west on the Jordan valley, in the south on the Wādī al-‘Arab and in the north on the Yarmūk valley (FIG. 1). Due to this topographical location and geomorphological conditions, further expansion of the city was only possible towards the west. Whereas the fortified settlement was limited to the hilltop, an East-West oriented axis began to emerge as early as the first century AD. that would become the backbone of the city and in turn have its affect upon the structure of the entire urban space. The city developed along this axis continuously towards the west, well into the fertile high plateau (Bührig 2008a: esp. 3-7,

173-193, 2008b: 97-114; Hoffmann 2002: 98-124).

Because of advantageous conditions in the surroundings – the presence of four springs in the adjoining valleys (Schumacher 1890: 84-85), fertile soils, immediately accessible building material – the region was a favoured habitation area since the Bronze Age. Principal settlement areas from the Bronze Age until the beginning of the Hellenistic period are located rather more in Wādī al-‘Arab (Mittmann 1970: 6–132; Kerestes *et al.* 1977/1978: 108–135; Hanbury-Tenison *et al.* 1984: 385 – 424. 494 – 496; Lenzen and McQuitty 1988: 265–274), for example at Tall Zar‘ā in Wādī al-‘Arab (Dijkstra *et al.* 2009; Vieweger and Häser 2009: 483 – 492) and on the west slope of the Arḍ al-‘Ulā (Riedl 1999: 485 – 487).¹ Further hints of early settlement activity were confirmed by a survey in 2010 in the hill country north and east of Gadara/Umm Qays. The aim of this survey was to clarify the history



1. Southern flank of the Hellenistic city wall (Günther Schauerte).

¹ As attested by the survey on the Arḍ al-‘Ulā. This information was kindly provided by Nadine Riedl.

of settlement and usage of Gadara's surroundings from the Prehistoric to the Islamic period.²

The Ancient City of Gadara and its Building Materials

The Hellenistic city of Gadara (second century BC) was built atop a limestone hill (FIG. 1). Due to its dominant strategic location and founding upon the long existent and continuous agriculture practiced in the settlement chamber, the summit was a preferred place for habitation since Antiquity.

For the spatially limited settlement on the hill, the easily accessible main transit route from east to west was a very important factor in Roman period. During the Roman Imperial period Gadara was a member of the Decapolis (Wenning 1994: 1–35; Bietenhardt 1977: 220–261). The city developed into a central exchange point on a long-distance trade network between important ports on the Mediterranean coast in the west and Bostra, an important business crossroad for caravans from the east. The course of the East-West axis was an integral part of this supra-regional route, from which the city of Gadara profited exceedingly. In Antonine times this axis counted as one of the major road networks between Bostra among others and Mediterranean ports (Bührig and Riedl 2001: 263–272; (FIG. 2). All of these factors together rendered considerable economic stability as well as certain independence in the region and also secured its inner autonomy to the city of Gadara during the Roman Imperial age.

On the basis of research conducted for some four decades in Gadara, the continuous structural metamorphosis from a Hellenistic hilltop settlement to a Roman and Byzantine urban structure can be differentiated (Bührig 2008a: 97–114).

Numerous monuments from the Hellenistic period to Late Antiquity have been excavated and documented (FIG. 3). The building material employed in Hellenistic and Roman-Byzantine structures in Gadara was primarily local limestone and basalt. Only in exceptional buildings was local material partly combined with imported marble.

Numerous stone quarries could be localized in and around Gadara, in which basalt and limestone

of varying quality were exploited (Bührig 2008a: 43–60; Schumacher 1890: 17–26, 88; FIG. 4). Both materials were sought for construction purposes. In some cases the stone served as necessary tectonic components, in others rather for aspects of design, polychrome facades or ornamental stonework, which led to the use of the respective material in Gadara buildings.

Around 200BC the city's fortifications were constructed exclusively of well-joined and stratified limestone ashlar (FIGS. 1,3 no. 3), whereas at the beginning of the third century BC the core of the Monumental Gate *extra muros* was built of basalt and limestone, while three different qualities of limestone were used specifically for decorative architecture (FIG. 3 no. 3, and FIG. 5).

During the Imperial Roman period the city's link with long-distance trade routes were of advantage for bringing imported stone to Gadara. This is attested by elaborately designed facades with marble constructional elements, among others the Roman Nymphaeum, the West Theatre, the octagonal building, probably a Marcellum and the great bath complex, all equipped with imported white and grey marble for the bases and the Corinthian capitals, Cipollino marble for the shafts and varieties of marble for incrustation (FIG. 3 nos. 9. 12. 21. 33. 34).

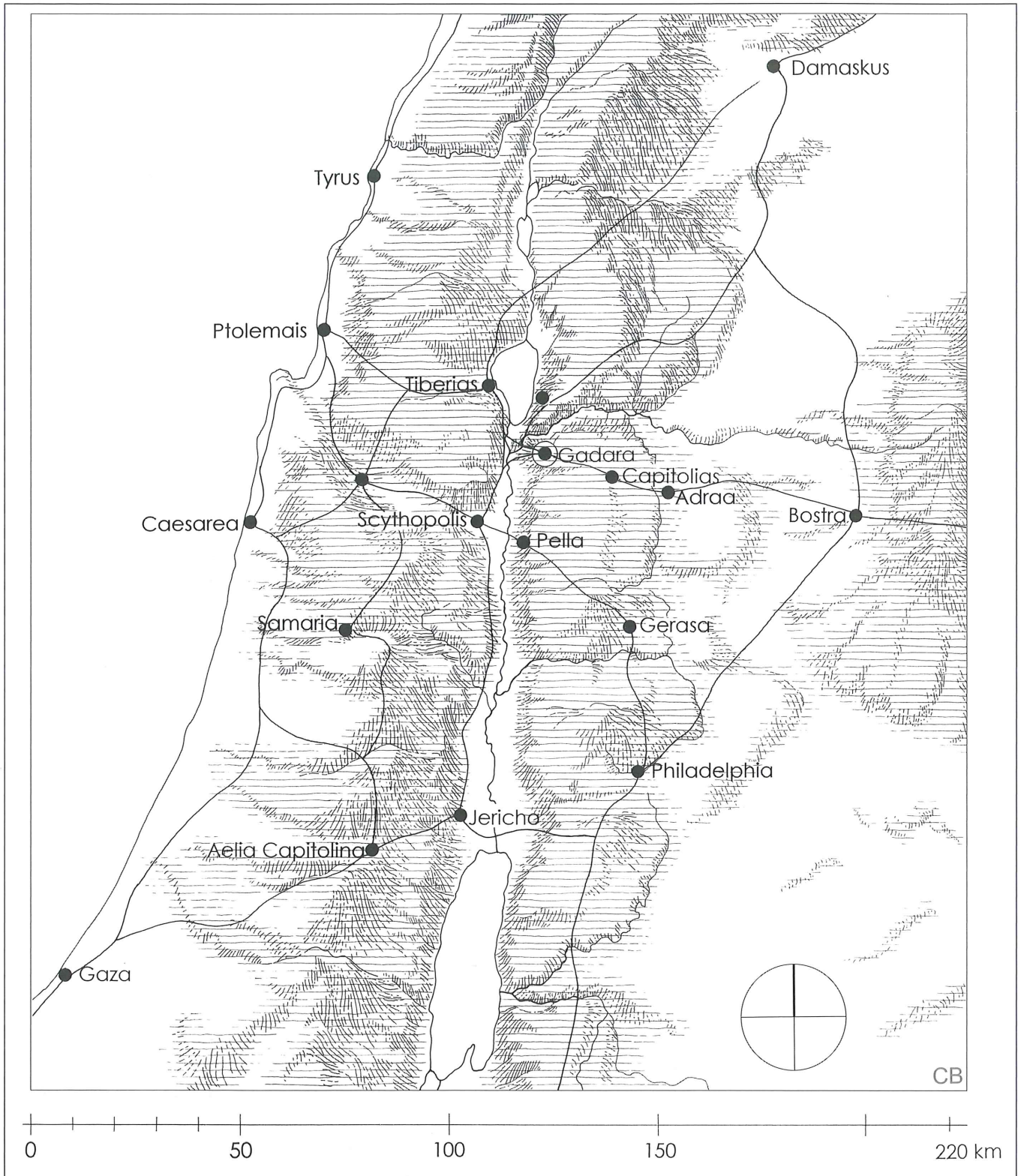
The building material for the five-aisled basilica with an adjoining atrium, dated to the mid fourth century A.D., consists of local basalt and costly imported Proconnesian marble for the bases and the Corinthian capitals and Troadic granite for the column shafts (Weber 2002: 369–373; FIG. 3 no. 25).

In summarising, it can be stated that whereas limestone was used almost exclusively for buildings in Hellenistic times, as of the end of the first century BC / early first century AD (FIG. 3). By contrast, in the Roman period the combined use of basalt and limestone prevailed.

On one hand, the ancient Gadarene builders attempted at times to imitate urban Roman polychrome architecture using local stone resources, while, on the other, they experimented in local forms of design for their architecture.

² The *Orient-Department* of the *German Institute of Archaeology*, Berlin (DAI) in collaboration with the *Institute of Archaeology* of the *University of Hamburg* has started a survey "Gadara and its urban hinterland" in the hill country north, east and south of Gadara/Umm Qays in September 2010 under the direction of the author. We would like to

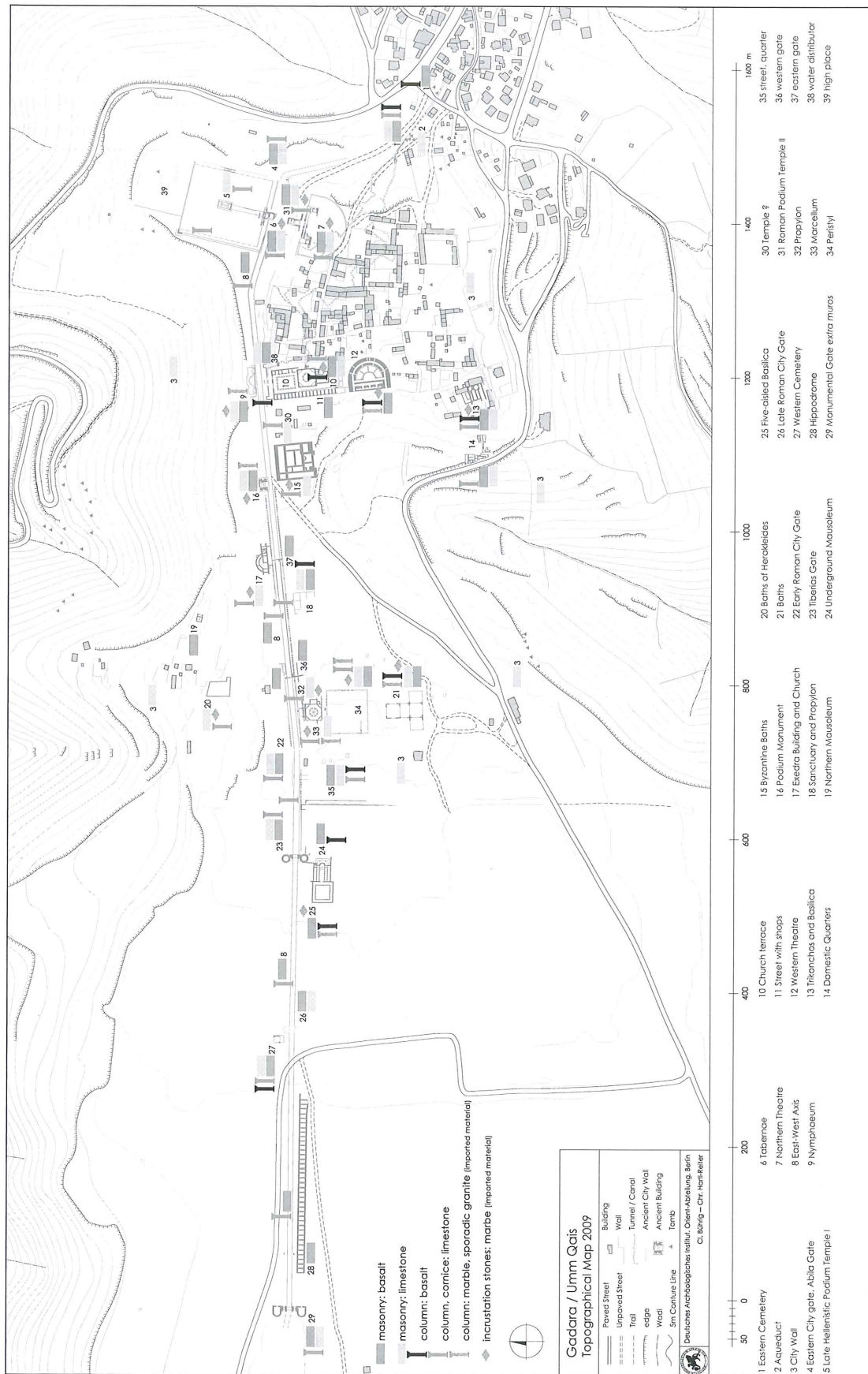
thank Director General his Excellency Dr. Ziad al Saad and the local representative Lina Mahmood Mohammed Al-Bakkar of the Jordanian Department of Antiquities for their support. One of the initial aims of the first campaign was to identify the quarries in the region that were exploited for building material.



2. Roman Palestine. Major trade routes (DAI Orient-Department/Claudia Bührig).

The question as to when, where and how limestone, basalt and imported stone material were used inside the urban area still remains unanswered. Can

long-term alterations or changing combinations of material be discerned? Are tendencies in the use of specific materials noticeable, for example, those





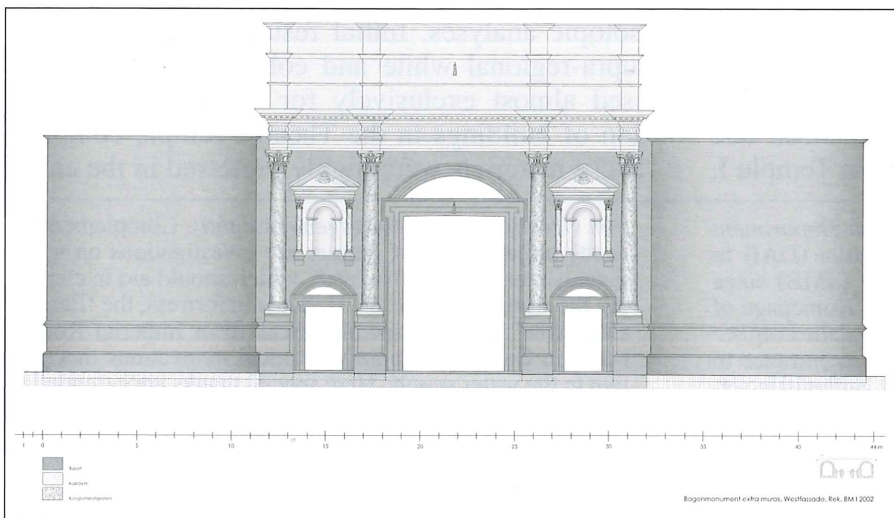
4. Limestone quarries in the area east of Gadara/Umm Qays.
A. Overview. B. Detail of some ashlars in the quarry (DAI Orient-Department/Christian Hartl-Reiter).

oriented towards current trends in Rome at that time? At what point in time were imported stones

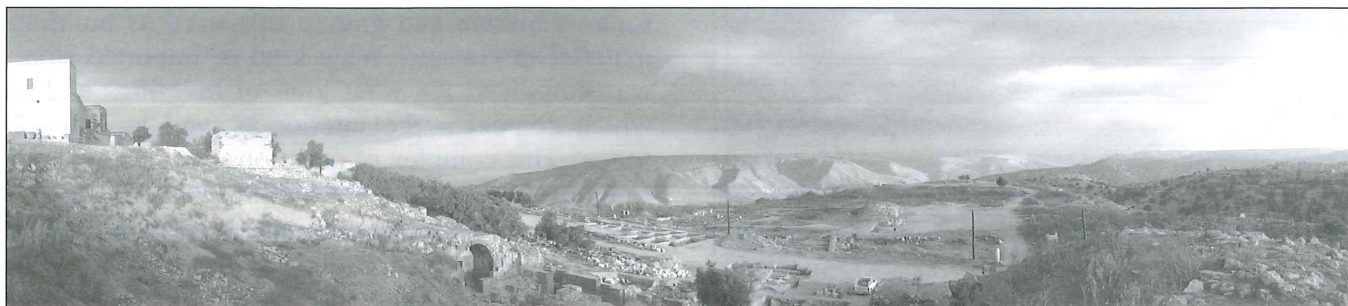
such as marble and granite first used as building material in Gadara? What kind of imported stone was employed for what kind of buildings and in which context – the interior as well as exterior space? This complex of questions can be answered foremost by means of scientific analyses on the imported stones commonly used in Gadara; such analyses, however, are still lacking.

Therefore, in 2009 the Orient-Department of the German Institute of Archaeology, Berlin began with analysis of incrustation stones found in the so called ‘Eastern City Area’ with the Theatre-Temple complex (FIG. 6). These analyses are of great significance from economic and sociological aspects. The determination of the origin of the imported material enables concrete statements to be made about trade relations, which were very intensive due to Gadara’s position within a long-distance commercial network (FIG. 2).

Concerning the state of research at present, during the second and third century AD the import and use of marble became representative in concepts of architectural planning and decoration in the cities of almost all Roman provinces, Roman Palestine and Syria included, at least as confirmed by investigations in recent years. After the foundation of the Roman province of Syria-Palestine, the major cities in the region were embellished with marble brought from Asia Minor, Greece and Italy (Studio Marmo 2008; Romano and Fischer 2009: 401–403, 412; Fischer 1999: 235–237, 1998; Ward-Perkins 1992). One of the main characteristics of this monumental architecture was the use of marble, primarily for ornamental purposes, but in some cases even as tectonic components (bases, columns).



5. Monumental Gate *extra muros*. Mapping of the used building materials: dark grey – basalt, light grey – varieties of limestone (DAI Orient-Department/Claudia Bührig).



6. View from the southeast towards the Theatre-Temple complex, showing the North Theatre and the settlement hill in the foreground and the main sanctuary with Temple I in the background (DAI Orient-Department/Christian Hartl-Reiter).

Case Study: Scientific Analysis of Incrustation Stones from the Theatre-Temple Complex in the 'Eastern City Area'

Within the framework of the research activities in Gadara/Umm Qays the German Institute of Archaeology pursued questions on the urban development of Gadara, with special reference to the cultural and technical history as well as sociological studies on urban areas.³ A focal point within the urban development of Gadara in general is the Theatre-Temple complex, located in the east of the city (Bührig 2009a: 162–207, 2009b: 369–376; FIG. 3 nos. 4–7. 31. 39, FIG. 6).⁴ In particular, the significance and interaction of natural environmental and social determinants in the urban development of Gadara can be demonstrated convincingly as well as the multiple adaptation and use of the urban space (or areas therein) thus created.

The recent investigations in Gadara were focussed on the analysis of the architectural history and urban context of the Theatre-Temple complex (FIG. 7). As of the first half of the second century BC a complex of sacred and civil buildings, unique to the region, arose at the eastern entrance to Gadara in the course of urban expansion. The Theatre-Temple complex encompasses in the south the North Theatre, which can be dated to the first century AD, and in the north the large-sized late Hellenistic temple precinct with Podium Temple I.

The conjoining open space in between these two building complexes is intersected by the East-West oriented main axis of the city. In the east it is bound by the city's fortification including the East Gate. Directly to the north of the Theatre is a second Podium Temple situated, which dates to the second century AD (Bührig 2009a: 178, 2009 b: 373).

Excavations in the Theatre-Temple complex revealed sequences of layers from the Hellenistic to Byzantine period. They contained an abundance of well datable finds, including marble incrustations (FIG. 8) and other decorative stones, which will be analysed as part of the project by Vilma Gezeviciute (*Lehrstuhl für Geodynamik und Geomaterialforschung / Department of Geodynamics and Geomaterial Research*, Würzburg). The aim of investigations – on example of Gadara – is to clarify the provenance of the incrustation stones that were utilised in the Theatre-Temple complex.⁵

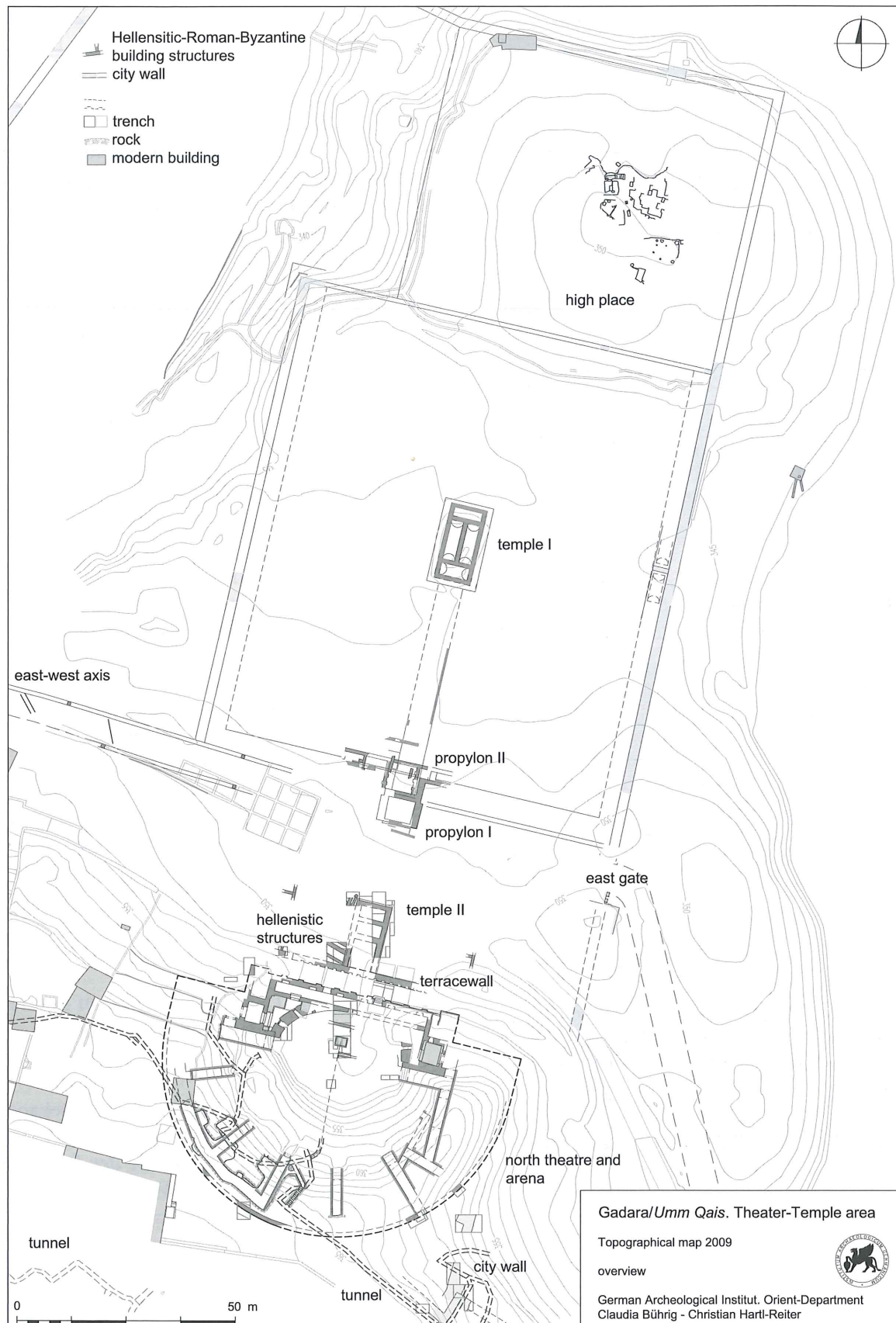
In the course of determining the origin of the material used for incrustation, diverse methods were applied, including thin-section microscopy, electron beam microprobe, powder x-ray diffraction, x-ray fluorescence, and carbon- and oxygen isotopic analyses. Initial results have shown that supra-regional white and coloured marbles were used almost exclusively for the interior decoration of buildings in the Theatre-Temple complex. These materials were highly preferred in the entire

³ The project has been conducted by the *Orient-Department* of the *German Institute of Archaeology*, Berlin (DAI) in cooperation with the *State Museums Berlin* (SMB) since 2002. Cp. bibliography for the project in the Homepage of the DAI under 'Projekt Gadara' ><http://www.dainst.org/><.

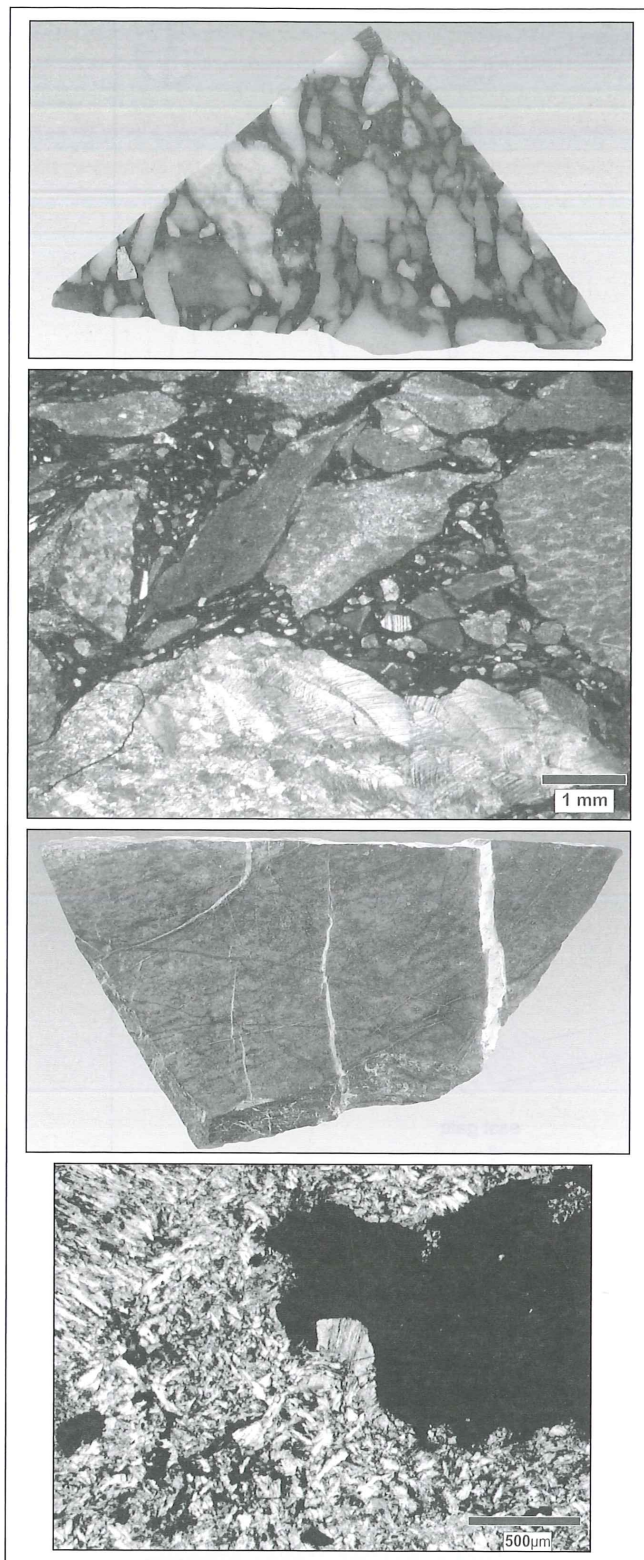
⁴ The investigated area encompasses the eastern entrance to the city, bordering directly on the fortified Hellenistic settlement on the summit. This area was the political and sacred center of the city since the first century BC. The author is director of this part of the project, which is kindly funded by the *Orient-Department* of the DAI and supported by two research grants from the *German Research Founda-*

tion (Deutsche Forschungsgemeinschaft). Complementary to the project's line of inquiry are investigations on water management in the urban area, which should aid in clarifying the water supply to the Hellenistic fortress, the 'Eastern City Area' and also specific areas from Imperial Roman times in Gadara, including technical innovations that pertain to the water supply. Here special thanks are extended to all of the participants in these investigations.

⁵ This part of the project is kindly funded by a research grant from the *German Research Foundation (Deutsche Forschungsgemeinschaft)*; Cp. note 3 and 4.



7. Topographical map of the Theatre-Temple complex (DAI Orient-Department/Claudia Bührig, Christian Hartl-Reiter).



8. Examples of marble incrustation from the Theatre-Temple complex. A. Semesanto, a breccia-like variety of *breccia di Settebasi*. Fragment. B. Semesanto, a breccia-like variety of *breccia di Settebasi*. Thin-section microscopy. C. *Verde antico*. Fragment. D. *Verde antico*. Thin-section microscopy (DAI Orient-Department/ Vilma Gezeviciute).

Roman Empire (see Studio Marmo 2008): *Breccia di Settebasi* (marble *Scyrium*), from the island of Skyros (Greece); *Semesanto*, a breccia-like variety of *breccia di Settebasi*, island of Skyros (Greece; FIG. 8, A–B); *Portasanta* (marble *Chium*), island of Chios (Greece); Breccia-like variety of marble *Iassense*, Caria (Turkey); Marble *Iassense* / marble *carium* (the Turkish *rosso antica* variety, from Iasos in Caria (Turkey); *Cipollino verde*, from the island of Euboea (Greece); *Verde antico*, from Larisa in Thessaly, Greece (FIG. 8, C–D); Yellow limestone with fossils, possibly Turkish provenience.

The provenance of limestone that is most likely local will be determined precisely by means of further analyses and investigations at local quarries.

Representational public buildings like the North Theatre along with Podium Temples I and II as well as presumed private houses of higher ranking persons in society were decorated with works in *opus sectile* (FIG. 3). Hence, the development in marble imports particularly reflects the degree of the city's prosperity. Our investigations succeeded in revealing the first known source material pertaining to incrustation marble used in Gadara. Thereby, of special significance is that the finds under study can be reliably assigned to one single, well-dated building and, therefore, provide an important element for the presentation of changes in the use of this material throughout time.

It should be mentioned, however, that the investigations presented here are initially exemplary in character; a conclusive picture of the use of decorative marble in Gadara can only be gained after further find complexes from other buildings in the city have been evaluated.

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