

ARID ZONE ARCHAEOLOGY

7 2018

MONOGRAPHS

Arid Zone Archaeology, Monographs

Series Editor

Savino di Lernia Sapienza Università di Roma, Italy

Editorial Board

Joanne Clarke University of East Anglia, Norwich, UK
Mauro Cremaschi Università degli Studi di Milano, Italy
Mario Liverani Sapienza Università di Roma, Italy
Sonja Magnavita Ruhr-University, Bochum, Germany
Giorgio Manzi Sapienza Università di Roma, Italy
David J. Mattingly University of Leicester, UK
Anna Maria Mercuri Università di Modena e Reggio Emilia, Italy
Peter Mitchell University of Oxford, UK
Michael D. Petraglia Max Planck Institute for the Science of Human History, Jena, Germany
Karim Sadr University of the Witwatersrand, Johannesburg, South Africa
Mustafa Turjman Department of Antiquities, Tripoli, Libya
Robert Vernet Institut Mauritanien de Recherches Scientifiques, Nouakchott, Mauritania

Advisory Board

Maria Carmela Gatto University of Leicester, UK
Kathleen Nicoll University of Utah, USA
Andrea Zerboni Università degli Studi di Milano, Italy

Copy Editor

Cecilia Parolini

Volume published with financial assistance of the Italian "Ministry of Foreign Affairs and International Cooperation" (DGPS).

ISSN 2035-5459

ISBN 978-88-7814-861-1

e-ISBN 978-88-7814-862-8

© 2018, All'Insegna del Giglio s.a.s.

Edizione e distribuzione All'Insegna del Giglio s.a.s.

via del Termine, 36; 50019 Sesto Fiorentino (FI)

tel. +39 055 8450216; fax +39 055 8453188

e-mail redazione@insegnadelgiglio.it; ordini@insegnadelgiglio.it

sito web www.insegnadelgiglio.it

Stampato a Firenze nel marzo 2018

Andersen spa

SAPIENZA UNIVERSITÀ DI ROMA
DIPARTIMENTO DI SCIENZE DELL'ANTICHITÀ

Marina Gallinaro

Mobility and pastoralism
in the Egyptian Western Desert
Steinplätze in the Holocene regional settlement patterns



All'Insegna del Giglio

to Chicchi and Tin, my guides

*Meslen, meslen: ibaraden-in karad, s-iyen as igla wer di-toqqal,
iyen adjiwenket ittatu, iyen wer ifil aghiwan,
ma imos? - ehu, temse, ekadewen**

* *“Guess what, guess what: of my three children, the first leaves and does not come back, the second returns and wastes away, the third never leaves the field. What are they? - The smoke, the fire, the hearth stones”. Tuareg riddle (Bernus 1981: 206)*

Contents

List of FiguresIX
List of Tables	XIII
List of Appendices	XIII
Foreword, <i>Savino di Lernia</i>	XV
Commentary, <i>Peter Mitchell</i>	XVII
Acknowledgements	XIX
1. Research objectives, materials and methods	1
2. Egyptian Western Desert: palaeoclimatic background and human occupation	9
3. <i>Steinplätze</i> in the Egyptian Western Desert	57
4. <i>Steinplätze</i> in the Farafra Oasis	95
5. Conclusions and Prospects for Future Research	141
Appendices	157
References	175

List of Figures

Fig. 1.1 – Map of North Africa showing the location of the research area.	p. 2	Fig. 2.22 – Diagram, proposed by Bubenzer and Riemer, of human occupation in Eastern Sahara, based on calibrated ¹⁴ C chronology (modified after Bubenzer and Riemer 2007: fig. 2)..	p. 51
Fig. 1.2 – Map of North Africa showing the massifs with major concentration of rock art (names in bold).	p. 3	Fig. 2.23 – Model proposed by Manning and Timpson for the Neolithic Saharan sites: a) Summed Probability Distribution (MCSPD) curve (modified after Manning and Timpson 2014: fig. 2); b) Summed Probability Distribution (MCSPD) curves by macro-regions (modified after Manning and Timpson 2014: fig. 3)..	p. 52
Fig. 2.1 – Map of North African annual average rainfall (from GeoNetwork project: www.fao.org/geonetwork).	p. 10	Fig. 2.24 – Cumulative calibrated dating probability of radiocarbon data from the Egyptian Western Desert. The dates are calculated and plotted using CalPal by B. Weninger (January 2018 – http://www.calpal.de) and IntCal13 dataset. Dataset: Appendix 1.	p. 53
Fig. 2.2 – Geographic setting of Darb El Arba'in Desert between Egypt and Sudan.	p. 14	Fig. 2.25 – Cumulative calibrated dating probability of radiocarbon data from the Egyptian Western Desert (see Fig. 2.24) matched with the proposed climatic phases.. . . .	p. 54
Fig. 2.3 – Sketch map of northern Sudan, with West Nubian Palaeolake, Wadi Howar and adjacent areas (modified after Hoelzmann <i>et al.</i> 2001: fig. 1).	p. 15	Fig. 3.1 – Distribution of <i>Steinplätze</i> in the Sahara as mapped by Gabriel (modified after Gabriel 1977: 10)..	p. 58
Fig. 2.4 – Synthetic diagram correlating West Nubian Palaeolake phases, archaeological sites and pottery phases (modified after Hoelzmann <i>et al.</i> 2001: fig. 9).	p. 16	Fig. 3.2 – <i>Steinplätze</i> surveyed by Gabriel in different stage of erosion (Gabriel 1977: 37).	p. 59
Fig. 2.5 – The modeled Tushka watershed, with four sub-basins (A, B, C, D) superimposed on Landsat ETM+ mosaic (modified after Ghoneim and El-Baz 2007: fig. 3)..	p. 17	Fig. 3.3 – Circular stone structure interpreted by Gabriel as structure for the watering of animals (Gabriel 2002: fig. 11).	p. 59
Fig. 2.6 – Sketch map of the basins south of Wadi Howar (modified after Pachur and Wünnemann 1996: 4)..	p. 18	Fig. 3.4 – Erosion process of <i>Steinplätze</i> (modified after Caton-Thompson 1952: fig. 36)..	p. 60
Fig. 2.7 – Synthetic diagram of the cultural phases of Wadi Howar area (modified after Jesse and Keding 2007: 43).	p. 19	Fig. 3.5 – Nabta Playa, Site E-75-6. Reconstruction of the Feature 1/90 Hut with central hearth and pot holes (modified after Wendorf <i>et al.</i> 2001: fig. 7.8).	p. 61
Fig. 2.8 – Comparison of the high/low stand curves of Fayum Moeris lake, as proposed by Wendorf and Schild 1976 (narrow black line) and Hassan 1986b (wide grey line).	p. 22	Fig. 3.6 – Nabta Playa, Site E-75-6. Plan of Hut 1/90, with hearths, pot holes and postholes (modified after Wendorf <i>et al.</i> 2001: fig. 7.5)..	p. 62
Fig. 2.9 – Pollen diagram from El Atrun Oasis (modified after Ritchie and Haynes 1987: fig. 2b)..	p. 24	Fig. 3.7 – Map of Nabta area (modified after Wendorf <i>et al.</i> 2001: fig. 1.2).	p. 64
Fig. 2.10 – Map of Nabta and Kiseiba region (modified after Wendorf <i>et al.</i> 2001: fig. 1.1).	p. 25	Fig. 3.8 – Nabta Playa, Site E-91-1. Plan view (modified after Wendorf <i>et al.</i> 2001: fig. 8.1)..	p. 65
Fig. 2.11 – Map of Gilf Kebir (modified after Schön 1996: 20).	p. 28	Fig. 3.9 – Nabta Playa, Site E-94-2 and E-92-7. Plan view (modified after Wendorf <i>et al.</i> 2001: fig. 9.1).	p. 67
Fig. 2.12 – Map of the depression of Kharga Oasis (modified after McDonald 2006b: fig. 4).	p. 30	Fig. 3.10 – Nabta Playa, Site E-92-7. Late Neolithic occupation. <i>Steinplätze</i> typology: a. Area A Hearth 1 (group II); b. Site E-92-7, Area A Hearth 8 (group IIIa); c. Site E-92-7, Area A Hearth 9 and 10 (group IIIa); d. Site E-92-7, Area A Hearth 4 (group IIIb); e. Site E-92-7, Area C Hearth 15 (group IIIc). Source: Królik and Fiedorczuk 2001: 342-345.	p. 68
Fig. 2.13 – Map of the depression of Dakhla Oasis (modified after Churcher and Mills 1999: fig. 1.1).	p. 31	Fig. 3.11 – Nabta Playa, Site E-77-1 and E-94-3. Plan view (modified after Wendorf <i>et al.</i> 2001: fig. 13.1).	p. 69
Fig. 2.14 – Map of the depression of Farafra Oasis (modified after Hassan <i>et al.</i> 2014: fig. 5.1).	p. 33	Fig. 3.12 – Map of Kiseiba area (modified after Wendorf <i>et al.</i> 1984: fig. 1.2).	p. 71
Fig. 2.15 – Topographic contour map of the Hidden Valley basin (modified after Hamdan 2014b: fig. 10.1)..	p. 35	Fig. 3.13 – Kiseiba area, Site E-79-4. Late Neolithic evidence (modified after Wendorf <i>et al.</i> 1984: fig. 8.1).	p. 72
Fig. 2.16 – Hidden Valley Village, general map (modified after Barich 2014a: fig. 11/1.3).	p. 37	Fig. 3.14 – Kiseiba area, Site E-79-4. Final Neolithic evidence (modified after Wendorf <i>et al.</i> 1984: fig. 8.2).	p. 72
Fig. 2.17 – Map of the depression of Bahariya Oasis (modified after Fakhry 2003: fig. 5).	p. 38	Fig. 3.15 – Kiseiba area, sites in the El Balaad playa (modified after Wendorf <i>et al.</i> 1984: fig. 9.2)..	p. 73
Fig. 2.18 – Map of the depression of Siwa Oasis (modified after Hassan 1978: fig. 1).	p. 39	Fig. 3.16 – Kiseiba area, Site E-79-5B. Plan of the site (modified after Wendorf <i>et al.</i> 1984: fig. 9.12).	p. 73
Fig. 2.19 – Map of Egypt showing the regions and sites mentioned in the text for the areas of Abu Ballas (1. Eastpans, 2. Mudpans, 3. Westpans), Great Sand Sea (4. Abu Minqar, 5. Regenfeld, 6. Glass Area), Abu Muhariq (7. Seton Hill, 8. Djara, 9. Abu Gerara, 10. El Kharafish) (modified after Gehlen <i>et al.</i> 2002: fig. 1).	p. 40	Fig. 3.17 – Map of Kiseiba Plateau and Bir Murr area, with transects and main sites (modified after Wendorf <i>et al.</i> 1984: fig. 16.1).	p. 74
Fig. 2.20 – Synthetic diagram with the correspondence between palaeoenvironmental changes, cultural associations and notable events from the region west of the Nile River Valley in Egypt and Sudan (modified after Nicoll 2004: fig. 3).	p. 48	Fig. 3.18 – Map of Bir Murr basin, with main sites (modified after Wendorf <i>et al.</i> 1984: fig. 16.15)..	p. 75
Fig. 2.21 – Diagram, proposed by Kuper and Kröpelin, of human occupation in Eastern Sahara, based on calibrated ¹⁴ C chronology (modified after Kuper 2006: fig. 2)..	p. 50		

Fig. 3.19 – Site Bir Murr I. Plan of the site (modified after Wendorf <i>et al.</i> 1984: fig. 16.16).	p. 75
Fig. 3.20 – Site Bir Murr II. Plan of the site (modified after Wendorf <i>et al.</i> 1984: fig. 16.17).	p. 76
Fig. 3.21 – Map of the depression of Dakhla Oasis with the main sites (modified after Churcher and Mills 1999: fig. 1.1).	p. 78
Fig. 3.22 – Dakhla, Site 385. <i>Steinplatz</i> type 1 (modified after McDonald 2002b: fig. 1a).	p. 79
Fig. 3.23 – Dakhla, Site 385. <i>Steinplatz</i> type 2 (modified after McDonald 2002b: fig. 1b).	p. 79
Fig. 3.24 – Dakhla, Site 385a. Slab structure – Feature 29 – (modified after McDonald 2002b: fig. 2).	p. 79
Fig. 3.25 – Dakhla, Site 385. Oval-shaped stone structure (modified after McDonald 2002b: fig. 1c, d).	p. 79
Fig. 3.26 – Dakhla, Site 264: a. general view of the structures at the west end of the site; b. plan of the site with the slab structures (modified after McDonald 2009: fig. 4, 8).	p. 80
Fig. 3.27 – Dakhla, Site 270. Plan of the site with the slab structures and investigated grids (modified after McDonald 2009: fig. 12).	p. 80
Fig. 3.28 – Kharga, Wadi Midauwara with the location of main sites (modified after McDonald 2009: fig. 14).	p. 82
Fig. 3.29 – Kharga, Site MD-18. Slab structures and clusters of fire-cracked stones (modified after McDonald 2009: fig. 16).	p. 83
Fig. 3.30 – Map of Egyptian Western Desert with the Great Sand Sea and surrounding areas.	p. 83
Fig. 3.31 – Great Sand Sea, map of the Meri area with the main archaeological evidence (modified after Riemer 2006: fig. 3).	p. 84
Fig. 3.32 – Djara depression. General map with archaeological sites and geomorphological units (modified after Kindermann 2010: fig. 85).	p. 85
Fig. 3.33 – Djara depression. Map of Site 90/1 (modified after Kindermann 2010: fig. 87).	p. 87
Fig. 3.34 – Djara. Site 90/1: map and profile of <i>Steinplatz</i> 90/1-8 (modified after Kindermann 2010: fig. 112).	p. 88
Fig. 3.35 – Djara. Site 90/1: map of <i>Steinplatz</i> 90/1-5 with the distribution of lithic artefacts (modified after Kindermann 2010: fig. 153).	p. 88
Fig. 3.36 – Djara. Site 90/1: map of <i>Steinplatz</i> 90/1-6 with the distribution of lithic artefacts (modified after Kindermann 2010: fig. 156).	p. 88
Fig. 3.37 – Djara. Site 90/1: map of <i>Steinplatz</i> 90/1-11 with the distribution of lithic artefacts (modified after Kindermann 2010: fig. 179).	p. 88
Fig. 3.38 – Djara. Site 90/1: map and profile of <i>Steinplatz</i> 90/1-12 (modified after Kindermann 2010: fig. 182-183).	p. 89
Fig. 3.39 – Djara. Site 90/1: map of excavated area 90/1-13 with <i>Steinplätze</i> (modified after Kindermann 2010: fig. 186).	p. 89
Fig. 3.40 – Southern Abu Muhariq Plateau. General map of Abu Gerara area with the surveyed sites (modified after Riemer 2010: fig. 11).	p. 90
Fig. 3.41 – Abu Gerara. Map of Site 98/5 (modified after Riemer 2010: fig. 11).	p. 91
Fig. 3.42 – Abu Gerara. Site 98/5 excavated <i>Steinplätze</i> : a. map and profile of <i>Steinplatz</i> 98/5-3; b. map and profile of <i>Steinplatz</i> 98/5-4 (modified after Riemer 2010: fig. 41).	p. 92
Fig. 3.43 – Abu Gerara. Site 02/47: <i>Steinplatz</i> made of fossil molluscs (modified after Riemer 2010: fig. 99).	p. 93
Fig. 3.44 – Farafra Sand Sea. Site 02/8 excavated <i>Steinplätze</i> : a. map and profile of <i>Steinplatz</i> 02/8-1; b. map and profile of <i>Steinplatz</i> 02/8-3 (modified after Riemer 2010: fig. 115, 117).	p. 93
Fig. 4.1 – Map of the depression of Farafra Oasis with the location of sites (modified after Hassan <i>et al.</i> 2014: fig. 5.1). Dashed rectangle: cf. detail in Fig. 4.2.	p. 96
Fig. 4.2 – Detail of the depression of Farafra Oasis with the archaeological sites mentioned in the text. Base map: Aster DEM elaborated by U. Fabiani (Fabiani and Lucarini 2010) for the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt (Aster image, Cartographic Reference System: WGS84-UTM35 North; Spatial resolution: 15 x 15 m - Altimetry reference: EGM 96).	p. 98
Fig. 4.3 – El Bahr basin. General view of the area (photo by the author, under permission of the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO).	p. 98
Fig. 4.4 – El Bahr basin. DEM of the depression with the archaeological features; contour lines elevation = 2 m.	p. 99
Fig. 4.5 – El Bahr basin. <i>Steinplatz</i> h-3gg before the excavation (photo by the author, under permission of the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO).	p. 100
Fig. 4.6 – El Bahr basin. <i>Steinplatz</i> h-4f: a. structure during the excavation; b. profile: 1 fire-cracked stones; 2 aeolian sand; 3 fire-cracked stones embedded in the playa; 4 burned stones and playa filling; 5 ash and charcoal; 6 charcoal; 7 sand, charcoal and ash; 8 bedrock (photo by the author, under permission of the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO). Modified after Gallinaro 2014a: fig. 9.3.	p. 101
Fig. 4.7 – El Bahr basin. <i>Steinplatz</i> h-4g a. structure during the excavation; b. profile: 1 fire-cracked stones; 2 aeolian sand; 3 fire-cracked stones embedded in the playa, with charcoals; 4 sandy sediment with charcoal; 5 playa. Modified after Gallinaro 2014a: fig. 9.4.	p. 101
Fig. 4.8 – El Bahr basin. Map showing the density of <i>Steinplätze</i> (red = maximum concentration) and the position of radiometric datings. In the rectangle the areas identified by Barich <i>et al.</i> 1991).	p. 102
Fig. 4.9 – Cumulative calibrated dating probability of radiocarbon data from El Bahr basin. The dates are calculated and plotted using CalPal by B. Weninger (January 2018 - http://www.calpal.de) and IntCal13 dataset.	p. 103
Fig. 4.10 – Hidden Valley. Panoramic view of the basin with the location of investigated features: a. <i>Steinplatz</i> HV-h-06-02; b. <i>Steinplatz</i> feature 1; the white frame marks the location of Hidden Valley 2 (modified after Gallinaro 2014b: fig. 11/7.1).	p. 105
Fig. 4.11 – Hidden Valley Village. General map (modified after Barich 2014a: fig. 11/1.3).	p. 106
Fig. 4.12 – Hidden Valley Village. Stone slab structure - feature 1, Sector F/3 (photo: archive of the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO).	p. 107
Fig. 4.13 – Hidden Valley Village. Example of fireplace in a pit: fireplace in sector F/1 (photo archive of the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO) (cf. Barich 2014a: fig. 11/1.16).	p. 107
Fig. 4.14 – Hidden Valley Village. Example of structured fireplace: fireplace in sector E/1 (photo archive of the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO).	p. 108
Fig. 4.15 – Hidden Valley basin, Area A-IV. Investigated features 1a, 1b, 1c: a. plan and excavation trench; b. feature 1b profile: 1 aeolian sand and scattered fire-cracked stones; 2 playa covering the fire-cracked stones; 3 sandy sediment rich in charcoal and ash; 4 grayish sand; 5 grayish sand with gravel; 6 cemented playa (modified after Gallinaro 2014b: fig. 11/7.2-3).	p. 108
Fig. 4.16 – Hidden Valley. DEM of the basin with archaeological features and location of radiocarbon datings.	p. 109
Fig. 4.17 – Hidden Valley basin. Grinding equipment displaced by tourists (photo by the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO).	p. 109
Fig. 4.18 – Hidden Valley basin. <i>Steinplatz</i> HV-h-06-02: a. before the excavation; b. profile (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO).	p. 109
Fig. 4.19 – Hidden Valley basin. DEM of the whole area, including Hidden Valley 2 with archaeological features.	p. 110
Fig. 4.20 – Hidden Valley basin. Map showing the density of <i>Steinplätze</i> (red = maximum concentration) and the position of radiometric datings.	p. 111
Fig. 4.21 – Sheikh el Obeiyid area. Geological cross section showing the main geological bedrock and geomorphological features (modified after Hamdan and Lucarini 2013: fig. 2).	p. 113
Fig. 4.22 – Sheikh el Obeiyid, Valley 1. General view of the basin with scattered <i>Steinplätze</i> (photo: archive of the Italian Archaeological Mission in the Farafra Oasis, Western Desert, Egypt, formerly Sapienza University of Rome and now ISMEO).	p. 114

Fig. 4.23 – Sheikh el Obeiyid, Valley 1. DEM of the basin with archaeological features and location of the detailed mapping area.	p. 114	Fig. 4.40 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the distribution of cores.	p. 126
Fig. 4.24 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-2: a. during the excavation; b. profile: 1 fire-cracked stones; 2 aeolian sand; 3 sand with ashes and charcoals; 4 playa with ashes and fire-cracked stones; 5 playa (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 115	Fig. 4.41 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the distribution of lithic tools.	p. 126
Fig. 4.25 – Sheikh el Obeiyid Valley 1 <i>Steinplatz</i> h-06-3: a. during the excavation, dashed square shows the location of b; b. detail of the eastern part with fire-cracked stones; c. profile: 1 fire-cracked stones; 2 aeolian sand; 3 ashes and charcoals; 4 sand with ashes and charcoals; 5 charcoals; 6 sand and ashes; 7 playa (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 115	Fig. 4.42 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the base grid for the point pattern analysis; the numbers are used to name the grid squares.	p. 127
Fig. 4.26 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-4: a. plan of the feature; b. profile: 1 fire-cracked stones; 2 aeolian sand; 3 sand with ashes and charcoals; 4 charcoals; 5 playa with charcoals; 6 playa (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 115	Fig. 4.43 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the main clusters identified through cluster analysis and PCA	p. 127
Fig. 4.27 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-5 before the excavation (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 116	Fig. 4.44 – Sheikh el Obeiyid Valley 1. Bar charts showing the composition of the identified clusters: a) cluster 3; b) cluster 4; c) cluster 1; d) cluster 2 (cf. data table in Appendix 2).	p. 131
Fig. 4.28 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-7: a. before the excavation; b. profile: 1 fire-cracked stones; 2 fire-cracked stones, playa and charcoals; 3 sand, ash, charcoal and fragments of fire-cracked stones; 4 burned stones; 5 laminar sand; 6 playa (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 117	Fig. 4.45 – Sheikh el Obeiyid Valley 1. Bar charts showing the composition of sub-clusters inside cluster 2: a) sub-cluster 2a; b) sub-cluster 2b; (cf. data table in Appendix 2).	p. 132
Fig. 4.29 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-8: a. before the excavation; b. playa with embedded fire-cracked stones and charcoals; c. bottom of the <i>Steinplatz</i> , embedded in a playa layer (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 117	Fig. 4.46 – Sheikh el Obeiyid Valley 1. Bar charts showing the composition of sub-clusters inside cluster 1: a) sub-cluster 1a; b) sub-cluster 1b; (cf. data table in Appendix 2).	p. 133
Fig. 4.30 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-9: a. during the excavation; b. profile: 1 fire-cracked stones; 2 aeolian sand; 3 fire-cracked stones embedded in playa; 4 charcoal; 5 laminar sand; 6 playa (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 118	Fig. 4.47 – Sheikh el Obeiyid Valley 1. Bar charts showing the cluster composition obtained according to the percentage frequency of each class, by square: a) cluster A; b) cluster B; c) cluster C; d) cluster D (cf. data table in Appendix 3).	p. 134
Fig. 4.31 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-24: a. before the excavation; b. profile: 1 fire-cracked stones; 2 aeolian sand; 3 fire-cracked stones embedded in playa; 4 sand, ash and charcoal; 5 charcoal; 6 playa (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 118	Fig. 4.48 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the main clusters identified through the cluster analysis based on the percentage frequency of each class of objects, by square.	p. 135
Fig. 4.32 – Sheikh el Obeiyid Valley 1. <i>Steinplatz</i> h-06-26 before the excavation (photo: archive of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 118	Fig. 4.49 – Sheikh el Obeiyid Valley 3. DEM of the basin with the archaeological features and location of radiocarbon datings.	p. 135
Fig. 4.33 – Sheikh el Obeiyid Valley 1. Feature 1 located in the eastern side of the valley (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 120	Fig. 4.50 – Sheikh el Obeiyid Valley 3. <i>Steinplatz</i> h-06-133 before the excavation (photo by the author under permission of The Italian Archaeological Mission in the Farafra Oasis, Sapienza University of Rome and now ISMEO).	p. 136
Fig. 4.34 – Sheikh el Obeiyid Valley 1. DEM of the basin with the archaeological features and location of radiocarbon datings.	p. 120	Fig. 4.51 – Sheikh el Obeiyid Village. Example of slab structures (modified after Barich and Lucarini 2014a: fig. 21.4b).	p. 137
Fig. 4.35 – Sheikh el Obeiyid Valley 1. Map showing the density of <i>Steinplätze</i> (red = maximum concentration).	p. 121	Fig. 4.52 – Bir el Obeiyid playa. DEM with density analysis of <i>Steinplätze</i> (modified after Fabiani and Lucarini 2010: fig 7).	p. 137
Fig. 4.36 – Sheikh el Obeiyid Valley 1. Map showing the location and density of grinding stones.	p. 122	Fig. 5.1 – Cumulative calibrated dating probability of radiocarbon data from <i>Steinplätze</i> of the Egyptian Western Desert. The dates are calculated and plotted using CalPal by B. Weninger (January 2018 - http://www.calpal.de) and IntCal13 calibration curve. Dataset: Appendix 1.	p. 142
Fig. 4.37 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the distribution of the archaeological artefacts.	p. 122	Fig. 5.2 – Comparison between the complete cumulative calibrated dating probability of radiocarbon data from the Egyptian Western Desert (top) and the selection of radiocarbon data from <i>Steinplätze</i> . The two lower curves present the percentages of dated features recorded as <i>Steinplätze</i> (in black) and huts+wells (in grey), along the chronological period considered; the percentages have been calculated by 300-years periods (cf. text).	p. 142
Fig. 4.38 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the distribution of ostrich eggshell fragments.	p. 124	Fig. 5.3 – Comparative chronology of the cultural units proposed for the different areas of the Egyptian Western Desert.	p. 147
Fig. 4.39 – Sheikh el Obeiyid Valley 1. Detail of the mapping area with the distribution of debitage items.	p. 124	Fig. 5.4 – Seasonal occupation models proposed for the the area of Djara (modified after Kindermann 2010: fig. 78).	p. 151
		Fig. 5.5 – Seasonal occupation model proposed for the mid-Holocene in the southern Abu Muhariq Plateau (modified after Riemer 2010: fig. 17).	p. 151
		Fig. 5.6 – Seasonal occupation model proposed for the mid-Holocene in the Farafra Oasis. Top: climatic optimum phase (ca. 6150-5450 cal BC) with winter and summer villages, integrated by <i>Steinplatz</i> -using locations. Bottom: post climatic optimum phase (ca. 5450-4950 cal BC) with <i>Steinplatz</i> -using locations, tethered upon the Oasis core, with possible sporadic use of more structured features.	p. 154
		Fig. 5.7 – Simplified overall model of mobility in the Farafra Oasis during the climatic optimum (ca. 6150-5450 cal BC). The sections of the community occupying the marginal areas can periodically reunite in the Oasis core, during dry seasons.	p. 155

List of Tables

Tab. 2.1 – Comparison of ¹⁴ C dates obtained on ostrich eggshells vs other organic materials (Freundlich <i>et al.</i> 1989: tab. 1).	p. 11	Tab. 2.6 – Synthesis of the proposed palaeoclimatic phases, with calibration of the ¹⁴ C uncal BP dates, quoted both as cal BP and cal BC (calibrated using CalPal by B. Weninger – January 2018 – http://www.calpal.de – and IntCal13 dataset Reimer <i>et al.</i> 2013).	p. 48
Tab. 2.2 – Radiocarbon analysis of assumed contemporary pairs of ostrich eggshell (oes), carbonate and charcoal from Later Stone Age sites in the northern Cape, South Africa (Vogel <i>et al.</i> 2001: tab. 1).	p. 12	Tab. 4.1 – Radiocarbon datings from El Bahr basin.	p. 97
Tab. 2.3 – Specimen counts of the fauna from the Hidden Valley Village (after Gautier 2014: tab. 14.1).	p. 36	Tab. 4.2 – Radiocarbon datings from Sheikh el Obeiyid area.	p. 119
Tab. 2.4 – List of botanic taxa from the Hidden Valley Village (after Fahmy 2014: tab. 12.2).	p. 36	Tab. 4.3 – List of lithic artefacts from Sheikh el Obeiyid Valley 1.	p. 125
Tab. 2.5 – Hydrological phases of the considered areas of Darb El Arba'in Desert; the left columns present resp. the ¹⁴ C cal BC dates; the ¹⁴ C uncal BP dates; the sequence of proposed climatic phases. The colours of the phases correspond to the colours used in Fig. 2.25. The colours used for each area range from cyan to blue, in relation with the relative humidity of the period; pink marks dry events; green corresponds to phases testified only by human occupation (attested through ¹⁴ C dates); yellow indicates lack of data, or erosion of the sequence. The numbers correspond to the text notes (here above), containing chronological and stratigraphic informations.	p. 42	Tab. 4.4 – Scores of the point pattern analysis results: the highest values are highlighted in gray to black tones.	p. 128
		Tab. 4.5 – Correlation of the most representative elements according to the point pattern analysis. The most significant correlations are highlighted in gray tones.	p. 130
		Tab. 4.6 – Cluster analysis of the grid squares, performed on the basis of point pattern analysis results.	p. 130
		Tab. 4.7 – Principal components analysis of the grid squares, based on principal components 1 and 2.	p. 132
		Tab. 5.1 – Number of available dates by types of structures in the different periods considered.	p. 141

List of Appendices

Appendix 1. List of the radiocarbon datings of the Egyptian Western Desert. . .	p. 157	Appendix 3. Table showing the composition of clusters (A-D) resulting from the cluster analysis of Sheikh el Obeiyid Valley 1.	p. 171
Appendix 2. Table showing the composition of clusters (1-4) and subclusters (1a, 1b, 1c, 2a, 2b) resulting from the cluster analysis of Sheikh el Obeiyid Valley 1. . .	p. 170		

Foreword

Although initially imagined as a series of monographs devoted to the archaeology of arid zones of North African and South-West Asia, the first books of AZA remained focussed on our own research in SW Libya, with the exception of the proceedings of a conference held in Rome in 2001 (AZA 4, *Arid lands in Roman times*, edited by M. Liverani, 2003). This choice was motivated by the need to create a data-set of fully published information on our study region, virtually absent until then in Libya. For this reason the first books were devoted to the exhaustive publication of the new season of research started in the early 1990s in the Tadrart Acacus and surrounding, such as the excavations at Uan Afuda Cave (AZA 1, edited by S. di Lernia, 1999) and Uan Tabu rockshelter (AZA 2, edited by E. Garcea, 2001), as well as the territorial program of research in the Wadi Tanezzuft: the study on the archaeology of death of the latest prehistoric pastoral phases (AZA 3, edited by S. di Lernia and G. Manzi, 2002) and the focus on the Garamantian contexts, such as Aghram Nadharif (AZA 5, edited by M. Liverani, 2005) and Fewet (AZA 6, edited by L. Mori, 2013). Although the pace of publication has been quite uneven (mostly for the lack of fieldwork in many regions of North Africa and in Libya in particular after the beginning of the war in 2011), the corpus of published data made available to the scientific community is in any case relevant.

Nonetheless, our interest to open our Series to other regions has remained strong: I am delighted to present here the new monograph of the Arid Zone Archaeology Series, which is centred on the research carried out by Marina Gallinaro in the Eastern Sahara, in the frame of the Farafra project, Egypt, directed by Barbara Barich and Giulio Lucarini. In a sense, this book marks a new phase in our editorial line – following the constitution of the new Editorial Board in 2013 – having for the first time a single-authored book (and not an edited collection of several contributions), whose research and analysis is also out of our traditional core area (SW Libya). Although stemmed from her doctoral research, this book is a completely original, fine and updated piece of research on a particular feature of Saharan archaeology – the *Steinplätze*, a form of fireplace –, that has at-

tracted the interest of travellers and scientists since the second half of 20th century. Despite their ubiquitous presence, and the enduring scientific attention, no systematic synthesis was available so far. And never these features have been connected – by means of radiometric, spatial and statistical analyses – to other specific features of the Early to Middle Holocene Egyptian Western Desert, such as pits and huts.

This book is also particularly timely, since the effects of the Arab Spring still hamper the field work in much part of North Africa, and particularly in the desert stretches of Al-Wahat – halfway between Farafra and Bahariya where 12 tourists were tragically killed and 10 wounded by Egyptian military force during an anti-IS military operation (September 2015). Since then, it has been progressively more difficult to undertake any activity that hopefully will resume once safety will be guaranteed again. Hence, this book has the merit to keep vivid our attention to this crucial region of North Africa, as for the monograph edited by Barich *et al.* (2014) a few years ago.

I am pleased to thank here the Advisory Board of this book: Maria Carmela Gatto, Kathleen Nicoll and Andrea Zerboni, for their comments and revisions on the original manuscript. I am also glad to thank here Peter Mitchell, University of Oxford, for his commentary to the book. In a workshop recently organized in Rome by Marina Gallinaro and myself (December 2017) on “*Archaeology in Africa. Potentials and perspectives on laboratory & fieldwork research*”, Peter has drawn an enlightening picture on the future of our discipline “*Carpe Diem. Building African Archaeology for the Twenty-First Century*”, raising attention to many aspects of our research, from the relations with the local communities to the need of integrating different dimensions of analysis.

I believe that this book by Marina Gallinaro, and others hopefully forthcoming, are exactly in that direction, and I hope they can help to remain attentive to the African cultural heritage.

Savino di Lernia
Series Editor
Arid Zone Archaeology

Commentary

Cattle have held great symbolic and practical importance from one end of Africa to the other for millennia. The continent's northeastern corner is particularly important for understanding how this came about. Whether, as Fred Wendorf and Romuald Schild have argued, cattle were independently domesticated there from wild aurochs early in the Holocene, or whether – as now seems more likely after decades of critical review of their arguments and the latest genetic research – they were introduced from Southwest Asia around the same time as sheep and goats, the region's pre-eminence as the first part of Africa in which cattle were kept is clear. So, too, is its significance for documenting the antiquity of *Bos taurus*' ritual and ceremonial importance, something amply demonstrated by Wendorf and Schild's excavations of elaborate cattle burials at the famous site of Nabta Playa. The early and mid-Holocene archaeological record of Egypt's Western Desert, home to Nabta Playa and many other key archives, is thus central to understanding how pastoralism emerged and spread and how it started to develop into a quintessentially African mode of existence.

A well-established feature of those archives is the phenomenon known as *Steinplätze*, concentrations of burned pebbles or fragments of stone that are frequently found slightly raised above the level of the surrounding terrain. Recognised already by Gertrude Caton-Thompson in the mid-twentieth century, *Steinplätze* were first studied intensively by Baldur Gabriel. Given the frequent paucity of any associated finds and an absence of obvious dwellings, he interpreted them as the ephemeral traces of fireplaces left by mobile pastoralists. Yet although they are among the most distinctive of the Sahara's archaeological features, *Steinplätze* have received little systematic attention in recent decades. Marina Gallinaro's work thus marks a new phase in their study, one that draws them back into discussions of how early livestock-keeping populations in Northeast Africa used the resources and landscapes to the west of the Nile along a trajectory of increasing aridification that eventually culminated in the desert we see today.

To do this, Gallinaro draws together a varied set of evidence — palaeoenvironmental as well as more strictly archaeological — to produce a volume that is synthetic in covering the Western Desert as a whole and simultaneously specific in its detailed exploration of the more local context of Farafra Oasis, scene of much other Italian archaeological research over the past forty years under the auspices of Barbara Barich and Giulio Lucarini. In doing this, she not only presents a wealth of hitherto unpublished data, but also offers new interpretations of the behaviour of those responsible for creating the *Steinplätze*, interpretations developed by close reference to relevant archaeological theory and ethnographic analogy.

Chapter 1 defines the importance of *Steinplätze* as a class of archaeological feature, while also establishing the significance of Northeast Africa as a whole for the emergence of pastoral, and specifically cattle-based, ways of life. Gallinaro emphasizes that the low number and frequently poor quality of the available faunal samples, coupled with the likelihood that people who kept livestock may not always and everywhere have left their bones behind for the convenience of future archaeologists, renders problematic too strict a distinction between herders and those who combined herding with hunting and gathering. Precisely this issue, of course, recurs across African archaeology, whether in the Pastoral Neolithic of East Africa or the continuing (I am tempted to write 'never-ending') debate over how best to understand the late Holocene record of South Africa's Western Cape. Neatly sidestepping some of the semantics that these topics involve, Gallinaro focuses on the significance of mobility as an adaptive strategy for all those living in the Western Desert, regardless of whether, or how many, livestock they possessed. This forms the main interpretative platform for the model that she eventually develops, while the remainder of the chapter briefly presents the structure of the rest of the monograph.

Chapter 2 focuses on the palaeoclimatic and archaeological background to *Steinplätze* as a whole and those of Farafra in particular. Most of the relevant evidence takes the form of geomor-

phological studies, complemented where possible by analysis of botanical and faunal samples from archaeological sites and of patterning in the spatiotemporal distribution of radiocarbon dates employed as a proxy for past climatic conditions. As we are quickly made aware, however, complete stratigraphic sequences are lacking and organics only rarely preserved. Radiocarbon determinations, too, have their problems: produced from samples of widely varying kinds and quality, pre-treated in different ways and to different standards, and cited in formats that variously employ calibrated and uncalibrated timescales or BC and BP ages. Spelling out the challenges that these biases introduce – and what can be done to overcome them – is achieved with refreshing clarity and honesty. This done, it becomes possible to identify a sequence of phases across the Western Desert that track the initial return of wetter conditions early in the Holocene, the climatic optimum between 8000 and 6600 BP, and successively worsening circumstances as the region became more arid. The sequence ends with the southward retreat of the Inter-Tropical Convergence Zone and the dessication of all the basins west of the Nile (except the Fayum) around 5000 years ago. This palaeoenvironmental record then forms the context in which no fewer than 664 (chronometrically house-cleaned) radiocarbon dates are interrogated to explore patterning in the presence of people in the Western Desert from before 9500 cal BC to as late as 2600 cal BC.

After a reprise of Gabriel's work and a brief discussion of how *Steinplätze* may have formed, Chapter 3 explores their distribution across the various sub-regions of the Western Desert, from Nabta Playa and Bir Kiseiba in the south to Abu Muhariq and the Great Sand Sea in the north. The level of detail provided for each site, including not just associated features and dates, but also artefacts and faunal and botanical remains, means that this chapter will become an essential reference point for future studies of Western Desert archaeology. Chapter 4 then focuses on Farafra Oasis itself, outlining the methodologies employed there (topographic survey, mapping of individual sites, selective excavation, GIS analysis of artefact and feature distributions) before exploring three localities in depth: the El Bahr Basin, the Hidden Valley Basin, and the Sheikh el Obeiyid Plateau. Supported, as elsewhere, by high quality illustrations, the result is a detailed picture of the oasis' *Steinplätze* and their associated archaeology over almost 5000 years. Though a few are older, it is around 6500 cal BC that *Steinplätze* begin occurring here in number, marking ephemeral camps that permitted people to exploit areas on the periphery of more permanently occupied, architecturally more complex settlements. Likely located with respect to the availability

of water, they document activities that were both commonplace (stone tool production, plant-processing) and more specialized (e.g. ostrich eggshell bead manufacture, arrow-making), all tied together within a pattern of mobile and periodic occupation.

The nature of that occupation constitutes Gallinaro's final chapter. Two models, in particular, serve as the basis of the interpretations offered: Lewis Binford's well-known juxtaposition of forager and collector behaviour and Kimball Banks' contrast between tethered and linear settlement strategies, which, while based on a varied ethnographic dataset, was specifically developed in the context of eastern Saharan archaeology. Gallinaro uses these ideas to frame a discussion of movement, group composition, and economic strategy with reference to the communities that constructed *Steinplätze* in the various regions of the Western Desert. Though data are fragmentary, she is able to detect a persistent pattern of middle and late Neolithic landscape use, one focused around playas and springs that was combined with more far-ranging mobility beyond individual study areas like Farafra, as signalled by access to exotic materials and widely shared details of stone artefact production. Gathering and hunting, as well as herding, were undertaken at the localities where *Steinplätze* occur, all within an economy that only gradually came to emphasize the herding of domestic livestock. Collectively, this forms a nuanced and well-substantiated argument, one that is supported by detailed evidence, but at the same time one that identifies challenges for the future: engagement in further large-scale studies; acquisition of better quality palaeoecological data; employment of experimental archaeology to determine the precise purposes for which *Steinplätze* were built; and more effective integration of geomorphological and archaeological research.

Lucidly written, Gallinaro's volume will, I believe, help inspire individuals to take up the research agenda she sets out. At a time when so much of the Sahara is off-limits to archaeological fieldwork, it is deeply gratifying to see here yet more evidence of the thoroughness and high quality that have characterized the work of Italian archaeologists in this region of Africa over many decades. The continuing publication of their research, Marina Gallinaro's included, in the *Arid Zone Archaeology* monograph series will surely help sustain widespread interest in Saharan archaeology until it becomes possible to excavate and survey again free of current geopolitical restrictions. May that day come soon!

Peter Mitchell
University of Oxford

Acknowledgements

This volume is the result of a long process of research started in 2001 when I took part for the first time, as a student, in the Archaeological Mission in the Farafra Oasis, at that time directed by Barbara Barich and since 2006 jointly by herself and Giulio Lucarini. This process continued with my PhD on data from Farafra, concluded in 2008, and finally matured in the following through work in the Central Sahara, as a member of the Italian-Libyan Archaeological Mission in the Acacus and Messak (now Mission in the Sahara), directed by Savino di Lernia.

I am deeply indebted with several Institutions and colleagues that more or less directly supported me since the first steps of the work, during the PhD period and during the long way of the final writing of the book. My deep thanks go to Barbara Barich and Giulio Lucarini, directors of the Archaeological Mission in the Farafra Oasis. They allowed me to carry out my research providing scientific, logistical, financial and institutional support, including Egyptian Institutions – in particular the Supreme Council of Egyptian Antiquities –, the Italian Ministry of Foreign Affairs, the Italian Cultural Institute and its Archaeological Centre. Permits to access the area and facilities have been granted by the Supreme Council of Egyptian Antiquities to Sapienza University of Rome. This research project was carried out in the frame of the PhD in African Studies at the University of Naples "l'Orientale", with a three-year full tuition scholarship. To all the Italian and Egyptian colleagues and friends that took part to the fieldwork seasons, including the workmen, drivers and guides I express my warmest thanks. Giulio Fratini and Francesco Moriconi of the Italian Acanthus Company, Sabatino Laurenza, Emanuele Mariotti and Augusto Palombini allowed me to manage the topographic survey and the GIS. The study of the lithic artefacts of Sheikh el Obeiyid Valley 1 carried out by Giulio Lucarini and Giuseppina Mutri allowed me to perform the related analyses and will be the object of a specific publication. Ilaria Venir supported me in the excavations and sampling of *Steinplätze* and her friendship is one of desert's gifts. Abdurabbo Abdel Nour and his family in the Farafra Oasis, as well as

Mohamed and Ahmed Serwi and their families in Cairo, opened their houses and their hearts becoming part of my family. Both "Abdu" continue to be in my thoughts.

The research and compilation of the manuscript and its publication have been possible thank to the financial support of the Archaeological Mission in the Sahara, directed by Savino di Lernia and the administrative support of the Dipartimento di Scienze dell'Antichità, until few days ago directed by Enzo Lippolis that I will remember with affection and esteem, and to its administrative staff, now led by Maria Daniela Salvati. Orietta Giuliani, Massimiliano Masotti, Anna Moreno, Salvatore Tricoli, Ugo Pierallini and Angela Chiaranza supported me with patience and helpfulness. Alessandro Sabbatini, in charge of the Sapienza library of Palaeoethnology, provided me whatever request, with unequalled kindness. I am deeply indebted with Savino di Lernia for his precious scientific support and friendship, and for the generous opportunity to publish this work in the AZA series.

Large part of the text was translated from the Italian by Erika Louise Milburn; any remaining language problems are certainly caused by my final revision.

I would like to thank Bernhard Weninger for his kind support with CalPal and Andrea di Renzoni for his useful IT's support. I am deeply grateful for the discussions and precious comments and suggestions to Alessandro Vanzetti; parts of our discussions are in the pages of this book.

Maria Carmela Gatto, Kathleen Nicoll, and Andrea Zerboni kindly accepted to revise parts of this manuscript, and their comments and suggestions significantly improved the text: to all of them my warmest thanks. I really appreciated the generosity of Peter Mitchell who carefully revised the manuscript and accepted to comment the book.

Cecilia Parolini helped me in the copy-editing, and Lucia Mori kindly read and commented the final version of the manuscript. Their friendship, as well as those of Enza and Stefano, supported me during the long period of research and writing.

Finally, I thank my parents and my family for the time taken away from them to follow my way. No words are enough to Alessandro, thanks to support me and broaden my perspectives.

My last thanks to the people I met during my researches in the core of the Sahara region, that welcomed me sharing their knowledge and their friendship.

Marina Gallinaro