

Contents

Vorwort des Herausgebers.....	IX
Preface by Author.....	X
Acknowledgements.....	XI
Abbreviations	XIV
Names and Transcription	XIV
Figures and Tables	XV
List of Plates.....	XV
1. Introduction	1
1.1 History of Research	2
1.2 Bani Sayyar, al-Jarud and the Problem of Historical Identification.....	6
1.3. Historic Framework.....	6
2. Water and Agriculture	11
2.1 Recent Geography	11
2.2 Modern Agriculture In and Around Kharab Sayyar	12
2.3 Countrywide and Regional Water Resources and Their Use.....	13
2.4 Water, Agriculture and Irrigation in Modern Day Kharab Sayyar.....	14
2.5 The Steppe—an Unstable Environment.....	16
2.6 Sources on the Historic Landscape and Economy	18
3. Private and Communal Hydraulic Architecture <i>intra muros</i>	19
3.1 Hydraulic Architecture of the Bath in Area D.....	19
3.1.1 The Basin	19
3.1.2 The Well.....	19
3.1.3 A Canal South of the Bath	20
3.2 Hydraulic Architecture in Mansions of North-Eastern Neighbourhood.....	20
3.2.1 Runoff Collection	22
3.2.2 The Hydraulic Installations in House 3	22
3.2.3 The Cistern Underneath Room BN in House 2	23
3.2.3 Toilets and Bathrooms	25
3.2.4 Toilet and Bath in Room AP, House 1	25
3.2.5 Toilet and Bath in Room T	25
3.2.6 A Fully Furnished Bathroom in the North-Eastern Town	26
3.3 Hydraulic Architecture in the Mosque	26
3.3.1 Water Supply and Storage in the Mosque.....	27
3.3.2 The Well or Cistern in the Courtyard of the Mosque	29
3.3.3 Basin in the Courtyard of the Mosque.....	30
3.3.4 Roof-Tiles and Runoff Collection	30
3.4 The Hydraulic Architecture in the <i>Bazaar</i>	31
3.4.1 Hydraulic Installations Along the Mosque's Eastern Gate	31

3.4.2 A Cistern or Well Underneath the Bazaar.....	32
3.4.3 Waste-Water Removal in the Bazaar	32
3.4.4 The Inner City Khan and its Hydraulic Installations.....	33
3.5 Communal Hydraulic Architecture <i>intra Muros</i>	33
3.5.1 The Birkeh in the North-Eastern Town	33
3.5.2 The Small Basins in the North-Eastern Town.....	33
4. Communal Hydraulic Architecture <i>extra Muros</i>	35
4.1 The Basins Along the Western Ramparts	35
4.2 The Cistern in the Eastern Moat	36
4.2.1 The Outer Sidewalls.....	36
4.2.2 The Arcades.....	36
4.2.3 Construction of the Vault	37
4.2.4 Plaster	37
4.2.5 Capacity.....	37
4.3 Searching Conduits in the Landscape	37
4.3.1 Excavation of a Shaft in the Northern Annex.....	37
4.3.2 Hydraulic Features in the Geomagnetic Images.....	38
4.3.3 The Linear Anomalies in the North, West and East	38
5. Technology and Materials	39
5.1. Stone Masonry	39
5.2 Backed Brick Masonry	39
5.3 Pisé.....	40
5.4 Mud-Brick.....	40
5.5 Plaster and Sealing of Walls and Floors.....	40
5.6 Materials and Their Relevance for Dating.....	41
5.7 Technology of Hydraulic Architecture	41
5.7.1 Conduit Construction and Cleaning.....	41
5.7.2 Pipes	42
5.7.3 Wells	42
5.7.4 Protection from Erosion and Drainage.....	42
6. The Western Gate and the Fortifications.....	43
6.1 Excavations on the Western Gate	44
6.2 The Northern Trench, Section 1	44
6.2.1 Section 1 A.....	44
6.2.2 Section 1 B	44
6.2.3 Sections 1 C and D: Wall and Inner Rampart.....	44
6.2.4 Section 1E: The Canal and the Western Rampart	45
6.2.5 Section 1 F The Basin	45
6.2.6 Phases of Construction in the Northern Trench	45
6.3 The Southern Trench: Gate and Bastions.....	46
6.3.1 The Gatehouse, Southern Wall.....	46

6.3.2 Gatehouse, Northern Wall	46
6.3.3 The Gate	46
6.3.4 The Floor in the Gatehouse.....	47
6.3.5 The Space Between Gate and Bridge	47
6.3.6 The Southern Bastion.....	47
6.3.7 The Inner Moat and the Wall	48
6.4 The Bridge.....	48
6.4.1 The Eastern Abutment.....	48
6.4.2 The Middle Pier	49
6.4.3 The Western Abutment	49
6.4.4 A Predecessor of the Stone-Built Bridge.....	49
7. The Urban Structure	51
7.1 The Data	51
7.2 Possibilities and Limitations of the Process	52
7.3 Visual Identification of Micro-Structures	53
7.4 Visual Identification of Type	54
7.5 Organizational Elements.....	56
7.5.1 The Northern Extension.....	56
7.5.2 The North-Western Quarters	56
7.5.3 North-Central Neighbourhood	57
7.5.4 North-Eastern Neighbourhood	57
7.5.5 South-Central Neighbourhood	57
7.5.6 The South-Western Neighbourhood	57
7.5.7 The Citadel.....	57
7.5.8 Southeast—the “Campground”	58
7.5.9 The Eastern Neighbourhood	58
7.5.10 The Bazaar.....	58
8. Conclusion	61
8.1 The Town During the Sāmarrā'-Caliphate	61
8.2 The Hydraulic Architecture and Water Supply of Kharab Sayyar	62
8.3 Urban Form	66
8.4. From Hamlet to Town—Possible Predecessors of the Sāmarrā'-Era Town	68
8.5. Dating of a Possible Pre-Sāmarrā' Settlement	69
8.6. Decline	70
Bibliography	71
Plates	
Catalogues	