

CONTENTS

Preface and Acknowledgements	VII
<i>Gemma C.M. Jansen, Ann Olga Koloski-Ostrow & Eric M. Moormann</i>	
1. Introduction	1
<i>Gemma C.M. Jansen, Ann Olga Koloski-Ostrow & Eric M. Moormann</i>	
1.1. History of Research on Sanitation	2
1.2. The Need for a Book on Roman Toilets and the Roman Toilet Workshop (Rome, June 23-25, 2007)	3
1.3. Observations about Stylistic Choices and How to Use this Book	4
2. Archeaeometry: Methods and Analysis	7
<i>Elly Heirbaut, Andrew K.G. Jones & Kathleen Wheeler</i>	
2.1. Introductory comments	7
2.2. Multi-Disciplinary Research Questions and Methods, Taphonomy	7
2.3. Logistics for the Recognition and Excavation of Toilets	11
2.4. Analysis	14
<i>Case study: Earlier Studies Done Well and What We Can Learn – Carnuntum</i>	18
3. Non-Roman Forerunners	21
<i>Aude Gräzer, Stefanie Hoss, Eddy Owens, Gabriel Zuchtriegel & Monika Trümper</i>	
3.1. Latrines domestiques d'époque pharaonique: tentative de reconstitution des dispositifs et des pratiques	21
3.2. Five Early Stone Toilet Seats in Jerusalem	24
3.3. Greek Toilets and Waste Management	25
4. Roman Sources	43
<i>Stefanie Hoss & Günther Thüry</i>	
4.1. Das römische Latrinewesen im Spiegel der literarischen Zeugnisse	43
4.2. Jewish and Christian Texts on Ancient Latrines	47
5. Design, Architecture and Decoration of Toilets	51
<i>Stefanie Hoss, Ann Olga Koloski-Ostrow, Antonella Merletto & Eric M. Moormann</i>	
5.1. Design and Architecture	51
5.2. Decorations on Roman Toilets	55
<i>Case study: The Latrine near the Western Baths in Kos</i>	64
<i>Case study: Rottenburg Latrine</i>	67
6. Toilets in the Urban and Domestic Water Infrastructure	71
<i>Domenico Camardo, Elly Heirbaut, Gemma C.M. Jansen, Anne-Marie Jouquand-Thomas, Antonella Merletto, Jacques Seigne & Jeroen Van Vaerenberg</i>	
6.1. Introduction	71
6.2. Water Supply into the City and to the Toilets in the Town and Houses	71
6.3. Water Use and Flushing Activities	73
6.4. Waste Disposal from Toilets	76
6.5. Flush Water for Toilets in and near Baths	78
6.6. Disposal from Baths and Malfunctioning of the System	84
<i>Case study: First-Century Roman Cesspits in Oppidum Batavorum (Nijmegen, NL)</i>	87
<i>Case study: Poitiers antique: latrines publique et chasse d'eau</i>	89
<i>Case study: Ercolano: la ricostruzione dei sistemi fognari</i>	90
7. Urination and Defecation Roman-Style	95
<i>Beatrix Petznek, Silvia Radbauer, Roman Sauer & Andrew Wilson</i>	
7.1. Introduction	95
7.2. Children	95
7.3. Chamberpots	95
<i>Case study: Chamberpots from the Civil-Town of Carnuntum. Excavations at the 'Weststrasse'</i>	97

<i>Case study:</i> Mineralogical Analyses of Incrustations Found on the Interior Part of Some Chamberpots	99
7.4. Toilets	99
7.5. Conclusion	105
<i>Case study:</i> The Latrines by the Forum at Timgad	106
<i>Case study:</i> The Latrines of the Baths of the Cyclops at Thugga	109
8. Location and Contexts of Toilets	113
<i>Jesus Acero Pérez, Miko Flohr, Barry Hobson, Jens Koehler, Ann Olga Koloski-Ostrow, Silvia Radbauer & Jeroen Van Vaerenbergh</i>	
8.1. Location and Context of Public Latrines	113
8.2. Locations of Toilets within Baths	115
<i>Case study:</i> Public latrines in <i>Augusta Emerita</i> (Mérida)	119
<i>Case study:</i> Toilets in Roman Spa Baths: The Terme Taurine	121
<i>Case study:</i> Street Latrine in the Civil-Town of <i>Carnuntum</i>	122
8.3. Location of Private Toilets	123
9. Users of the Toilets: Social Differences	131
<i>Adam Goldwater, Ann Olga Koloski-Ostrow & Richard Neudecker</i>	
9.1. Einführung	131
9.2. Öffentliche Latrinen	131
9.3. The Roman Military in Britain	135
9.4. Domestic Toilets - Behaviors and Users	139
<i>Case study:</i> Villa Hadriana	141
10. The Economy of Ordure	147
<i>Miko Flohr & Andrew Wilson</i>	
10.1. Introduction	147
10.2. The Uses and Value of Excrement	147
10.3. The Uses and Value of Urine	148
10.4. The Financing of Public Latrines	154
10.5. Conclusion	155
11. Toilets and Health	157
<i>Horst Aspöck, Ingrid Feureis, Gemma C.M. Jansen & Silvia Radbauer</i>	
11.1. Modern Concepts of Hygiene and Roman Medical Thoughts	157
11.2. Recent Research	158
11.3. Hygiene in Roman Baths?	158
11.4. Were Roman Toilets Hygienic?	159
11.5. Conclusion	162
<i>Case study:</i> Detection of Eggs of the Intestinal Parasite <i>Ascaris Lumbricoides</i> in Samples from the Roman Sewers of <i>Carnuntum</i>	163
12. Cultural Attitudes	165
<i>Adam Goldwater, Stefanie Hoss, Gemma C.M. Jansen, Zena Kamash, Ann Olga Koloski-Ostrow, Carlo Molle, Eric M. Moormann & Andrew Wilson</i>	
12.1. Interpreting Images and Epigraphic Testimony	165
<i>Case study:</i> Graffiti in a Toilet of Hadrian's Villa	176
<i>Case study:</i> The Painting of Philosophers in the Baths of the Seven Sages in Ostia	178
12.2. Interpreting the Archaeological Evidence: Latrines and the Senses	181
12.3. Regional diversity in latrine use	183
12.4. Perceptions of latrines: socio-cultural, moral and religious issues	186
<i>Case study:</i> The red marble thrones of the Lateran: the cultural afterlife of Roman toilet seats	187
Bibliography	195
List of Authors and Addresses	207
Index	213