Mary J. Thornbush Sylvia E. Thornbush

Heritage Stone
Conservation in Urban
Churchyards
Merging
Necrogeography,
Historical Archaeology,
and Geomorphology



## SpringerBriefs in Geography

SpringerBriefs in Geography presents concise summaries of cutting-edge research and practical applications across the fields of physical, environmental and human geography. It publishes compact refereed monographs under the editorial supervision of an international advisory board with the aim to publish 8 to 12 weeks after acceptance. Volumes are compact, 50 to 125 pages, with a clear focus. The series covers a range of content from professional to academic such as: timely reports of state-of-the art analytical techniques, bridges between new research results, snapshots of hot and/or emerging topics, elaborated thesis, literature reviews, and in-depth case studies.

The scope of the series spans the entire field of geography, with a view to significantly advance research. The character of the series is international and multidisciplinary and will include research areas such as: GIS/cartography, remote sensing, geographical education, geospatial analysis, techniques and modeling, landscape/regional and urban planning, economic geography, housing and the built environment, and quantitative geography. Volumes in this series may analyze past, present and/or future trends, as well as their determinants and consequences. Both solicited and unsolicited manuscripts are considered for publication in this series.

SpringerBriefs in Geography will be of interest to a wide range of individuals with interests in physical, environmental and human geography as well as for researchers from allied disciplines.

More information about this series at http://www.springer.com/series/10050

# Heritage Stone Conservation in Urban Churchyards

Merging Necrogeography, Historical Archaeology, and Geomorphology



Mary J. Thornbush Oriel College University of Oxford Oxford UK Sylvia E. Thornbush School of History, Classics and Archaeology University of Edinburgh Edinburgh UK

ISSN 2211-4165 ISSN 2211-4173 (electronic) SpringerBriefs in Geography ISBN 978-3-319-76362-0 ISBN 978-3-319-76363-7 (eBook) https://doi.org/10.1007/978-3-319-76363-7

Library of Congress Control Number: 2018934380

#### © The Author(s) 2018

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Printed on acid-free paper

This Springer imprint is published by the registered company Springer International Publishing AG part of Springer Nature

The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

### **Preface**

World heritage monuments located in urban environments are susceptible to degradation and deterioration from exposure to pollution. There is much that can be gleaned from headstones as surviving heritage stone that contain historical information, and they have already been used to decipher trends in air pollution. This brief is based on field research since 2006 in urban churchyards located along a transect towards the British East Coast. It examines urban parish churchyards in a selection of cities to capture the remaining record, as well as record and investigate the existing contemporary record, based on inscriptions and motifs appearing on headstone panels. The work was performed by a cross-disciplinary team comprising a historical archaeologist and geomorphologist (physical geographer) interested in collaborating on a joint effort to examine not only what remains of the material record but also to assess the current state of this record and its likelihood of survival and sustainability as part of heritage stone for England and Scotland, UK. A long-term project spanning a decade (2006-2017) allowed for some crosstemporal comparisons of the condition of the headstones and the integrity of the overall record. The findings indicate that sites located in polluted parts of urbanscapes are more susceptible to damage, but a variety of environmental factors contribute to the current state of the headstones examined in this study. This is especially evident when coastal and interior (inland) sites are compared and when central locations are compared with more remote churchyards situated within city centres. Age, of course, plays a part in the breakdown of these rock monuments and is considered alongside evidence of soiling and weathering. In addition, lithology and stone type affect decay, with limestone markers apparent in England and Scotland mainly comprising sandstone headstones. The sustainability of these markers as part of cultural stone is questionable, with evidence of change at the annual scale that can easily be augmented at longer temporal scales.

Oxford, UK Edinburgh, UK Mary J. Thornbush Sylvia E. Thornbush

## Acknowledgements

The authors are grateful to various people during the fieldwork at the parish churches mentioned in this study, who granted us access permission and provided us with valuable inputs and materials.

## **Contents**

1	Intr	oduction	1		
	1.1	Research Context	2		
	Refe	erence	3		
2	Urban Sites				
	2.1	Introduction to the Sites	5		
		2.1.1 City Sampling	5		
	2.2	Methods Used in this Research	7		
		2.2.1 Data Analysis	7		
	2.3	Sites	8		
		2.3.1 Oxford, England	8		
			11		
			13		
	2.4	,	14		
			14		
3		<del></del>	17		
	3.1		21		
	3.2		22		
	3.3	Other Research	24		
	Refe	erences	24		
4	Asse	essing the Record	29		
	4.1	Site Selection	30		
	4.2	Field Methods	30		
	4.3	Analysis	31		
			31 32		
5	Refe	erences			
5	Refe	istic Trends	32		

x Contents

	5.3 Conclusion	44 44
6		47
	6.1 Oxford Churchyards	48
	6.2 Old High Kirk, Inverness	51
	6.3 St. Mary's Churchyard, Scarborough	54
	References	63
7	Conservation Issues	65
	References	72
8	Conclusion	75
	References	77
In	dex	79