

ENGLISH HERITAGE
PRACTICAL BUILDING CONSERVATION

STONE

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David Odgers, the main author of this book, is a stone conservator with over 30 years' experience as a practitioner and teacher. He was a founder and later managing director of a leading company specialising in the conservation of masonry buildings, and left to set up his own consultancy providing advice on the care of historic buildings. David is an accredited member of The Institute of Conservation and chair of its Stone and Wall Paintings Section, a consultant to English Heritage, and lectures widely on stone conservation.

Alison Henry, who contributed extensively to this book, is a Senior Architectural Conservator in the Building Conservation and Research Team at English Heritage. She was previously a local authority conservation officer; as well as running her own business as a stone conservator, she also lectured on the subject at Weymouth College.

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Colin Burns, David Jefferson and Graham Lott are all advisors to English Heritage, and the volume editors would like to take this opportunity to thank them for their help and support with this book, as well as the information and images they have so generously provided.

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THE PRACTICAL BUILDING CONSERVATION SERIES

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This series of *Practical Building Conservation* technical handbooks supersedes the original five volumes written by John and Nicola Ashurst, and published in 1988.

The series is aimed primarily at those who look after historic buildings, or who work on them. The ten volumes should be useful to architects, surveyors, engineers, conservators, contractors and conservation officers, but also of interest to owners, curators, students and researchers.

The contents reflect the work of the Building Conservation and Research Team, their colleagues at English Heritage, and their consultants and researchers, who together have many decades of accumulated experience in dealing with deteriorating building materials and systems of all types. The aim has been to provide practical advice by advocating a common approach of firstly understanding the material or building element and why it is deteriorating, and then dealing with the causes. The books do not include detailed specifications for remedial work, neither do they include a comprehensive coverage of each subject. They concentrate on those aspects which are significant in conservation terms, and reflect the requests for information received by English Heritage.

Building conservation draws on evidence and lessons from the past to help understand the building, its deterioration and potential remedies; this encourages a cautious approach. New techniques, materials and treatments often seem promising, but can prove disappointing and sometimes disastrous. It takes many years before there is sufficient experience of their use to be able to promote them confidently. Nonetheless, understanding increases with experience and building conservation is a progressive discipline, to which these books aim to contribute.

The volumes also establish continual care and maintenance as an integral part of any conservation programme. Maintenance of all buildings, even of those that have deteriorated, must be a priority: it is a means of maximising preservation and minimising costs.

Most of the examples shown in the books are from England: however, English Heritage maintains good relations with conservation bodies around the world, and even where materials and techniques differ, the approach is usually consistent. We therefore hope the series will have a wider appeal.

Dr Simon Thurley
Chief Executive, English Heritage

ABOUT THIS BOOK

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Stone is one of the oldest and most versatile building materials. Its use ranges from providing essential support and protection to sophisticated embellishment. There is an enormous range of different stones, methods of working and uses, which contributes to our architectural heritage.

Approaches to caring for stonework have changed over time and continue to evolve as we learn more about the material and the way it interacts with its environment. This volume covers some of the approaches taken to stone conservation and it includes general principles that provide a framework for formulating proposals for care and repair, whilst recognising that every stone building is unique.

All types of building stonework are addressed and much of the content applies also to stone used in other structures such as bridges, ruined buildings, boundary walls and churchyard monuments. For simplicity, throughout the book the word 'building' is generally used to refer to all these stone-built structures. However the specialist subject of stone sculpture conservation is not included.

The book begins with an outline of the history of stone building in England and describes the methods of working and finishing stone. The properties that govern its appearance and performance over time are described in the final section of this chapter.

The second chapter explains the main processes responsible for stone deterioration. In the third chapter the methods of understanding historic buildings and assessing and recording the condition of stone are addressed. A condition table is included which identifies many of the symptoms of stone decay and suggests possible causes. Specialist techniques for diagnosing the causes of deterioration are also included.

The fourth chapter describes a range of conservation treatments and repair methods, drawing on English Heritage's research in this field and illustrated with reference to case studies.

Ongoing maintenance, which is vital to the long-term preservation of stone buildings, is covered in the fifth chapter. Although this chapter comes towards the end of the book, maintenance should by no means be an afterthought to repair. Effective maintenance can obviate the need for more disruptive and costly interventions and, by helping to prolong the life of historic fabric, it sustains the heritage values of the building: a principal aim of conservation.

The final chapter is devoted to the special topic of conserving ruins, and an appendix is included on typical mortars used in stone conservation.