

ENGLISH HERITAGE  
PRACTICAL BUILDING CONSERVATION

# METALS

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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

This volume covers both structural and ornamental architectural metalwork, and includes introductions to some specialist fields of architectural metal conservation, but moveable objects such as metal furniture have specifically been omitted. Neither are metal roof coverings or metal reinforcement of concrete discussed in any detail, because these are dealt with in the *Roofing* and *Concrete* volumes of the *Practical Building Conservation* series.

The development of protocols for dealing with architectural metalwork has lagged behind that of other areas of building conservation. Until recently in England it was more common to replace metalwork than it was to treat or even to repair it, and such repairs as were made were more often entrusted to the local fabricator rather than to a specialist smith or conservator. It was rare to consider the possible long-term impacts of these interventions on the metalwork, let alone on the associated building materials. This is rapidly changing, but metalwork conservation remains a complex field. Revolutions in production technology since the Industrial Revolution have meant that some once-familiar materials have become rare, and this complicates both care and repair.

Architectural metalwork is enormously diverse, covering everything from decorative elements and supporting structural members to essential rainwater protection, and there have been almost as many different approaches to conservation as there have been different applications. It is certainly true that every situation is unique, but nevertheless there are some general principles that, thoughtfully applied, will allow the planning of treatment and long-term care. This book brings together the many current approaches to conservation, and formulates some general principles for wider use.

The book itself has four main sections. The first is a general introduction to architectural metalwork, which sets out the history of metal as an architectural material, and the conservation information common to all types of metal. The second section looks at the conservation of the iron-based ('ferrous') metals, such as wrought iron, cast iron and steel, which must be conserved in particular ways. With the one exception of stainless steel, ferrous metals do not develop a surface film which inhibits corrosion, and so will rust if not protected by paints and coatings. This section also includes an excursus on the conservation of corrugated iron. The third section considers the non-ferrous metals, with chapters on the conservation of lead, of copper-based metals such as copper, bronze and brass, of aluminium, and of zinc. These metals all naturally form protective surface films, so they deteriorate in different ways to iron and steel, and the ways they must be conserved are also different.

The final section of the book introduces a number of special topics in architectural metalwork conservation: metal-leaf decoration, statuary, and bells. These are usually the province of specialist conservators, and this section gives very brief introductions to the issues they must deal with, and the materials and methods that they use.