Permian and Triassic red beds and the Penarth Group of Great Britain

Title page and preliminaries

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Published by the Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY, UK

First edition 2002

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Typeset in 10/12pt Garamond ITC by JNCC Printed in Great Britain by CLE Print Limited on Huntsman Velvet 100 gsm.
ISBN 1 86 107 493 X

A catalogue record for this book is available from the British Library.

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Recommended example citations

Benton, M.J., Cook, E. and Turner, P (2002) *Permian and Triassic Red Beds and the Penarth Group of Great Britain,* Geological Conservation Review Series, No. 24, Joint Nature Conservation Committee, Peterborough.

Benton, M.J., Cook, E. and Turner, P (2002) Lossiemouth Shore and Quarries. In *Permian and Triassic Red Beds and the Penarth Group of Great Britain,* Geological Conservation Review Series, No. 24, Joint Nature Conservation Committee, Peterborough, pp. 112–16.

Contents

Acknowledgements

Work on this volume was initiated by the Nature Conservancy Council and has been seen to completion by the Joint Nature Conservation Committee on behalf of the three conservation agencies, the Countryside Council for Wales (CCW), English Nature, and Scottish Natural Heritage (SNH). The late Dr George Black, then Head of the Geology and Physiography Section of the Nature Conservancy Council, initiated the GCR project in 1977 and Peter Turner is grateful to him for the invitation to participate in the 'Permian and Triassic Red Beds' part of the project. Thanks are also due to Dr Bill Wimbledon (then Head of the GCR Unit) for his help and support during the site-selection phase of the GCR. Many specialists in addition to the authors have been involved in the assessment and selection of sites; in particular Dr D.I. Whiteside who compiled the 'Rhaetian' GCR site lists. This vital work is gratefully acknowledged.

The present authors were inivited to prepare the text for this volume by JNCC in 1998. In this work, numerous peer reviewers and colleagues made helpful suggestions about drafts, or gave helpful advice, information or permission to use photographs or diagrams. In particular, special thanks go to David Thompson (University of Keele) and Derek Laming, both of whom had previously provided detailed information about the location and interpretation of many key sites in Cheshire and South Devon respectively. Kevin Page (English Nature) provided much useful information for the Styrrup Quarry account. We also thank country conservation agency Earth scientists for their advice: David Evans (English

Nature), Colin MacFadyen (SNH), Stewart Campbell and Jon Davies (both CCW).

We also owe grateful thanks to Geoff Warrington who made a tremendous effort in editing and checking the whole text and who gave us invaluable advice throughout the project.

Thanks are also due to the JNCC GCR Publications Editorial and Production Team: Mr Neil Ellis, Publications Manager, Miss Emma Durham and Miss Anita Carter, Production Editors. The diagrams were produced by Xipress IT Solutions of Newmarket by Drs Susanne White and Chris Pamplin.

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Information on conservation matters, including site ownership, relating to Sites of Special Scientific Interest (SSSIs) or National Nature Reserves (NNRs) in particular counties or districts may be obtained from the relevant country conservation agency headquarters listed below:

Countryside Council for Wales, Plas Penrhos, Ffordd Penrhos, Bangor, Gwynedd LL57 2LQ.

English Nature, Northminster House, Peterborough PE1 1UA.

Scottish Natural Heritage, 12 Hope Terrace, Edinburgh EH9 2AS.

Preface

There is such a diversity of rocks, minerals, fossils and landforms packed into the piece of the Earth's crust we call 'Britain' that it is difficult not to be impressed by the long, complex history of geological change to which they are testimony. But if we are to improve our understanding of the nature of the geological forces that have shaped our islands, further unravel their history in 'deep time' and learn more of the history of life on Earth, we must ensure that the most scientifically important of Britain's geological localities are conserved for future generations to study, research and enjoy. Moreover, as an educational field resource and as training grounds for new generations of geologists on which to hone their skills, it is essential that such sites continue to remain available for study. The first step in achieving this goal is to identify the key sites, both at national and local levels.

The GCR, launched in 1977, is a world-first in the systematic selection and documentation of a country's best Earth science sites. No other country has attempted such a comprehensive and systematic review of its Earth science sites on anything near the same scale. After over two decades of site evaluation and documentation, we now have an inventory of over 3000 GCR sites, selected for 100 categories covering the entire range of the geological and geomorphological features of Britain.

This volume, detailing the Permian and Triassic 'Red Bed' and Penarth Group GCR sites, is the 24th to be published in the intended 42-volume GCR series. Not only does it contain the descriptions of key localities that will be conserved for their contribution to our understanding of the stratigraphy of rocks of this age, but also provides an excellent summary of the sedimentological features and palaeogeographical significance to be found in them, and it outlines the research that has been undertaken on them. The book will be invaluable as an essential reference book to those engaged in the study of these rocks and will provide a stimulus for further investigation. It will also be helpful to teachers and lecturers and for

those people who, in one way or another, have a vested interest in the GCR sites: owners, occupiers, planners, those concerned with the practicalities of site conservation and indeed the local people for whom such sites are an environmental asset. The conservation value of the sites is mostly based on a specialist understanding of the stratigraphical, palaeontological and sedimentological features present and is therefore, of a technical nature. The account of each site in this book ends, however, with a brief summary of the geological interest, framed in less technical language, in order to help the non-specialist. The first chapter of the volume, used in conjunction with the glossary, is also aimed at a less specialized audience. This volume is not intended to be a field guide to the sites, nor does it cover the practical problems of their ongoing conservation. Its remit is to put on record the scientific justification for conserving the sites.

This volume deals with the state of knowledge of the sites available at the time of writing, in 1998–2001, and must be seen in this context. Stratigraphy, like any other science, is an ever-developing pursuit with new discoveries being made, and existing models are subject to continual testing and modification as new data come to light. Increased or hitherto unrecognized significance may be seen in new sites, and it is possible that further sites worthy of conservation will be identified in future years. Indeed, during the writing of this volume, a small number of sites were identified by the authors as potential GCR sites that should be considered for conservation in order to more fully represent the Permian-Triassic geological history of Britain. These sites are described in this volume and are being investigated for formal addition to the GCR.

There is still much more to learn and the sites described in this volume are as important today as they have ever been in increasing our knowledge and understanding of the geological history of Britain. This account clearly demonstrates the value of these sites for research, and their important place in Britain's scientific and natural heritage. This, after all, is the *raison d'être* of the GCR Series of publications.

N.V. Ellis

GCR Publications Manager May 2001

References