

Caves and Karst of the Yorkshire Dales



Edited by Tony Waltham and David Lowe

Volume 1

for the British Cave Research Association

Caves and Karst of the Yorkshire Dales



Volume 2
The Caves

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Volume 1

Front: above: Kilnsey Crag, Wharfedale (Tony Waltham)
below: High-level passage in Boreham Cave (Clive Westlake)
right: Shaft in Hurnel Moss Pot (John Forder)
Back: above: Ingleborough and pavements on Scales Moor (Tony Waltham)
below: Pool in the main streamway of Lancaster Hole (Paul Deakin)

Volume 2

Front: above: High-level gallery in the Ease Gill Cave System (John Dale)
below: Main streamway in Penyghent Pot (Paul Deakin)
right: Lower rift passage in Alum Pot (Paul Deakin)
Back: above: Limestone pavement on Ingleborough (Tony Waltham)
below: Pool in the main streamway of Lancaster Hole (Mark Burkey)

Caves and Karst of the Yorkshire Dales

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Preface

The British Cave Research Association has a double interest in the Yorkshire Dales. Perhaps first as the major area within Britain for sport caving, cave exploration and cave study. But also for the magnificent glaciokarst landscapes of the Dales and the vital role that the caves, in particular their dateable stalagmites, make to regional studies of landscape evolution.

This book covers both the descriptive and the scientific aspects of both the caves and the karst landforms of the Dales. Its writing and editing have then had the double target of maintaining sound academic standards in its data recording and also of presenting its material in a style that is readable and comprehensible by the non-specialist. It is the first in a series of new books that will cover the caves and landforms of all the main karst areas within Britain.

The book has no comprehensive glossary, as readers are directed to the *Dictionary of Karst and Caves*, which is published within the BCRA Cave Studies Series, and was compiled by the two editors of this volume. A few chapters have their own mini glossaries for acronyms and terms that may be unfamiliar to some readers.

Locations of caves and landforms are not described in detail within the text, but the comprehensive Index to Localities contains the National Grid References of all named sites.

Acknowledgements

Credit goes to Phil Murphy for initiating the project to produce this book as a successor to the BCRA's earlier volume *Limestones and Caves of North-West England*, which had been published in 1974 and was long out of print and out of date. Together with David Judson, he gathered authors for various chapters, and they established the broad structure of the book, based largely on the 1974 volume. However, the huge advances in scientific studies of the Dales caves meant that the project grew like Topsy, and grew beyond their means, so they eventually handed over to the present editors. Their initial work is recognised with gratitude, and they remain as contributing authors on chapters within the two volumes into which the project has expanded.

The editors offer their thanks to the many colleagues and friends who have contributed to the preparation of this book in various ways, and to whom due credit is afforded.

Some authors have been with the project from its initiation, while others were invited to join at later stages. Sincere thanks are due to all the authors, as it is they who have provided the material that has made the book both possible and worthwhile.

All chapters have been peer reviewed, and the referees are thanked for their helpful comments. Tim Atkinson, Vanessa Banks, Dave Brook, Andrew Chamberlain, Tony Cooper, John Cordingley, Silvia Dacre, Andy Farrant, Trevor Faulkner, Trevor Ford, Helen Goldie, John Gunn, Ric Halliwell, Alan King, Harry Long, Terry O'Connor, Hannah O'Regan, Martyn Pedley, Richard Shaw, Mike Simms, Graeme Swindles, Chris Thomas, John Thorp, Heather Viles, Paul Wood and Steve Worthington are all thanked for their reviews of individual chapters.

Special thanks are due to four colleagues who have given extensive support that has gone well beyond the call of duty, namely Harry Long and John Cordingley with their encyclopaedic knowledge of the Dales and its caves, John Thorp with his great knowledge of the cave palaeontology and archaeology, and Trevor Faulkner with his archival knowledge of the scientific literature. Also, many thanks to Andrew Rigby who has astutely guided the book into its final printing.

Numerous friends have generously contributed photographs to the book, many in response to request lists sent round by the editors. Thanks are due to all of them; credits for all photographs are given in the captions, though only initials are cited where the credit is to either the chapter authors or the volume editors. Sincere gratitude is also accorded to Jerry Wooldridge, who improved, adjusted and balanced all the photographs where appropriate, and thereby greatly reduced the workload of the editors.

Diagrams and artwork have largely been provided by the chapter authors and then re-worked into house style, with sources credited in the captions where appropriate.

Cave surveys are the work of innumerable cavers, frequently in very cold and very wet conditions underground. Without their efforts, there would be no database for the scientific studies. The many individual cavers are credited by their club names on surveys of specific caves, but the area maps that show numerous caves are compiled from multiple sources and credit is due to too many to name.

Tony Waltham and David Lowe

Preface to Volume Two

This volume is intended to present a definitive description of the main caves that were known, at the time of publication, in and around the Yorkshire Dales. There are still great lengths of cave passage awaiting discovery and exploration, and cavers can suggest where many could lie. Speculation on undiscovered caves has been limited within these pages, but is included where considered particularly useful, and then is clearly qualified as only probable or possible. It is beyond question that more caves will be discovered during the lifetime of this book; indeed it is hoped that these pages might encourage new explorations by improving understanding of the Yorkshire Dales karst.

Coverage within the volume extends outside the Yorkshire Dales in order to include nearly all the significant caves in the North of England. There are chapters on the caves in Carboniferous limestones in the Northern Pennines, and on those in the Jurassic limestones of the North York Moors. Major parts of the Three Counties Cave System lie in Lancashire and Cumbria, though they are now within the Yorkshire Dales National Park (which was extended after publication of Volume One). The caves in the Morecambe Bay karst are not included because there have been no new explorations, nor research, since they were described comprehensively in the 1974 publication (see below).

References to published works are intended to be comprehensive but not exhaustive; they include all the important sources, but omit many earlier sources that are cited within their successors. Automatic reference to some key sources is implied, but to avoid excessive repetition these are cited only where particularly significant. Invaluable details are in the two series of cavers' guides, both under the title of *Northern Caves*; the first series was prepared by Dave Brook and friends, as three volumes published by Dalesman in 1988–1994; the second series is compiled by Sam Allshorn, Paul Swire and friends, with the first volume published by Wild Places in 2017 and two more volumes due to follow. Details of all underwater caves are available in the *Northern Sump Index*, compiled by Elaine Hill and Adrian Hall and published in 2015 by the Cave Diving Group. The on-line cavemaps.org provides invaluable access or source information for most cave surveys.

Cross references to material in Volume One of this book are noted only where especially significant; many other themes and items overlap or are developed further within the chapters of that volume. This book's 1974 predecessor, *Limestones and Caves of North-west England* (edited by Tony Waltham, and published by David and Charles) is not generally cited as background material, but does contain more detailed descriptions of some sites.

The area maps in this volume are not new surveys, but should be regarded only as compilations of the best available data; they have been prepared from multiple sources, and some original cave maps have been slightly distorted and adjusted to achieve a best fit. Topographical data have been extracted from published maps, satellite images and some detailed mapping by cavers. Geological data are largely from maps published by the British Geological Survey and others, and have been simplified and adjusted to relate to the karst geomorphology. Some minor features, above and below ground, have been omitted to improve clarity, and cave passages are shown over roads and streams, even though they are underneath, because they are the primary features

of the maps. Maps are not at standard scales because they have to fit the pages, but pdfs of the area maps at appropriate scales will become available on-line at bcra.org.uk.

On most maps, altitude data are presented only as spot heights. For those not familiar with the terrain, the outline topography is recognisable on the area maps of the Craven Dales (in chapters 18–24 and 26–27), where the limestone is close to horizontal with its shale cover above about 400m altitude and its basement floor below 200m; this does not apply at Malham and in the outlying areas.

The overview maps in this volume show the main limestone unit that is a geomorphological entity with respect to the karst; this consists of the Great Scar Limestone Group together with various limestones in the lower part of the Yoredale Group that are locally contiguous with it, mostly just the Hawes Limestone, but also the Gayle Limestone and the Hardraw Scar Limestone in some areas. The stratigraphy is different in Wensleydale and farther north, where appropriate simplifications are used in their chapters to avoid some highly convoluted terminology (see Chapter 2).

Within this volume, the terms *doline* and *shakehole* are almost interchangeable. Doline is the correct name for a small depression in karst, but shakehole is the locally correct name for a subsidence doline within the till cover (though it should not be applied to collapse dolines in bedrock).

Acknowledgements

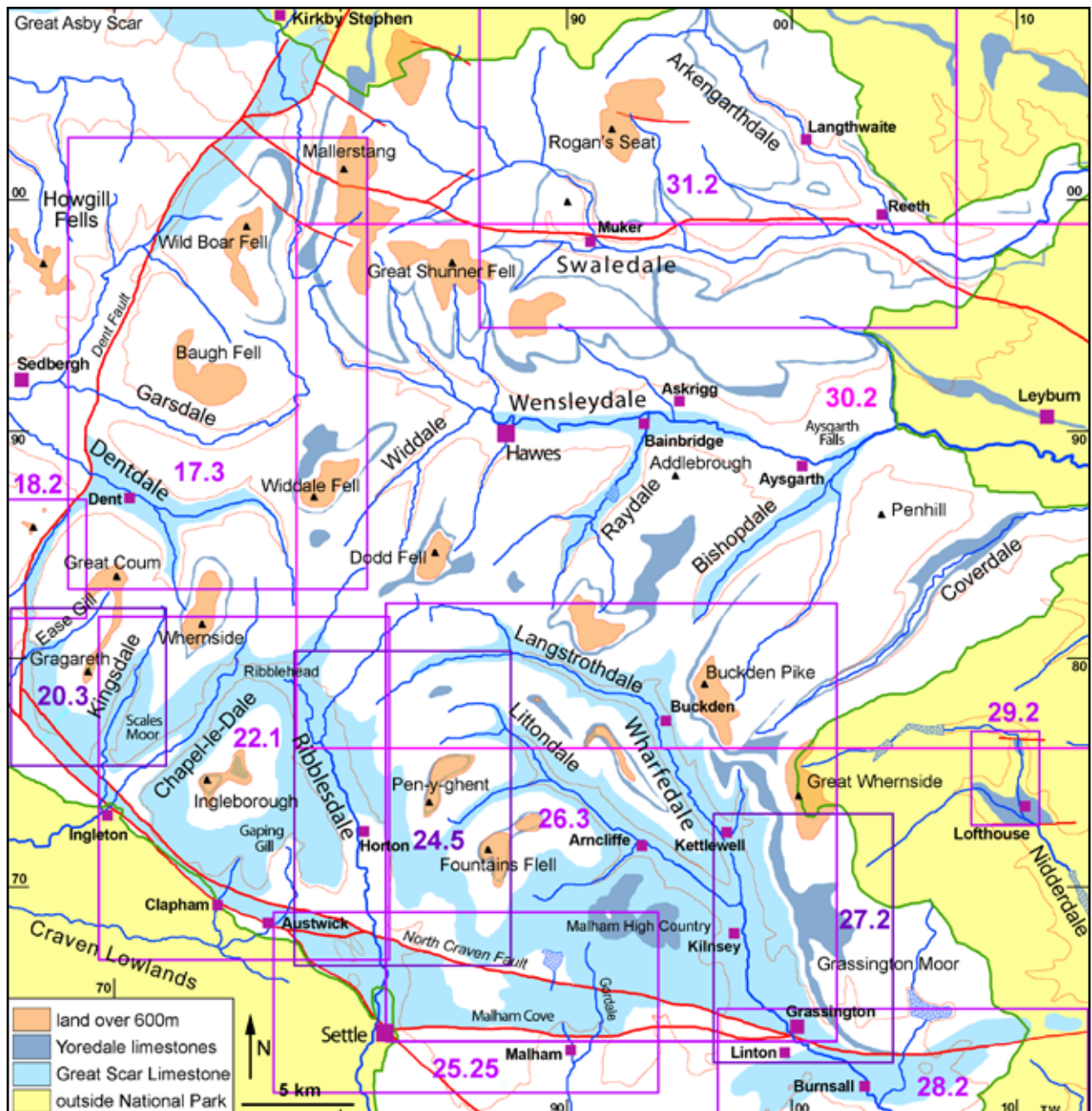
Production of this book has been a team effort, with many uncredited contributions by friends, by authors of other chapters and by the editors. Special thanks go to John Cordingley and Harry Long, who became members of an editorial team, for their invaluable reviews and insightful improvements to all the chapters. Thanks are also due to Andy Walsh, Dave Judson and Dave Carlisle who had significant inputs to chapters 22, 27 and 31 respectively, and to Paul Monico, Graham Proudlove, Phil Murphy, Dave Brook, John Thorp, Tony Harrison and the late Trevor Ford, who each reviewed various chapters.

It would be impossible to list the huge number of cavers who have been involved in surveying the caves, and who are credited only through the names of their clubs; due thanks are accorded for their labours underground, without which the compilation of maps for both volumes of this book would have been impossible. Special thanks go to Becka Lawson and Ray Duffy for their major survey compilations across some of the larger cave systems.

More than 100 cavers have generously contributed photographs to this volume, many in response to request lists circulated by the editors. Thanks are due to all of them; credits for all photographs are given in the captions, though only initials are cited where the credit is to either the chapter authors or the volume editors. Special thanks go to the late Paul Deakin, whose legacy lives on in the great archive of cave photographs that he left to be used freely in BCRA publications, to John Dale who produced so many photographs at the editors' request, and to Jerry Wooldridge, who improved, cleaned, adjusted and balanced all the photographs where necessary and appropriate, and thereby greatly reduced the workload of the editors.

And special thanks to Jan Waltham; this book would never have happened without her unstinting support during the ridiculous amount of time that her husband spent on its compilation.

Tony Waltham and David Lowe



Areas covered in the chapters within Volume Two. The frames and figure numbers in shades of purple show the coverage of the purple maps within each chapter. The Northern Pennines continue directly northwards from the area on this map, and the North York Moors lie 35 km away to the east. The Three Counties Cave System is covered by Figure 20.3, which also appears as Figures 19.2 and 21.3. This map also shows the boundary of the Yorkshire Dales National Park that includes its extension added in 2016.

Acronyms of caving clubs that produced surveys

BCC: Burnley Caving Club.
BCRA: British Cave Research Association.
BPC: Bradford Pothole Club.
BSA: British Speleological Association.
BSD: Black Sheep Diggers.
BUSS: Birmingham University Speleological Society.
CDG: Cave Diving Group.
CPC: Craven Pothole Club.
CUCC: Cambridge University Caving Club.
DHSS: Dent House Speleological Society.
ECC: Eccles Caving Club.
EMRG: Earby Mines Research Group.
EPC: Earby Pothole Club.
GC: Gritstone Club.
HWPCP: Happy Wanderers Cave and Pothole Club.
KCC: Kendal Caving Club.

LUCC: London University Caving Clubs.
LUSS: Lancaster University Speleological Society.
LUST: Loughborough University Speleological Team.
MMMMC: Misty Mountain Mud Miners Corporation.
MSG: Moldywarps Speleological Group.
MUSS: Manchester University Speleological Society.
NCC: Northern Cave Club.
NPC: Northern Pennine Club.
NSG: Northern Speleological Group.
NYMCC: North York Moors Caving Club.
PCC: Preston Caving Club.
RRCPC: Red Rose Cave and Pothole Club.
SUSS: Sheffield University Speleological Society.
ULSA: University of Leeds Speleological Association.
WRPC: White Rose Pothole Club.
YCC: York Caving Club.
YRC: Yorkshire Ramblers' Club.



Caves and Karst of the Yorkshire Dales presents an overview of all aspects of the great cave systems and spectacular karst landforms in the limestone terrains of the Yorkshire Dales.

Nineteen authors, all experts in their own fields, have produced authoritative and up-to-date texts, which have been drawn together by two editors, who each has extensive experience of the Dales both above and below ground. This book is Volume One of a pair, and contains all the overview chapters. A companion Volume Two contains chapters describing all the larger and more important cave systems in each dale and fell across the region's karst.

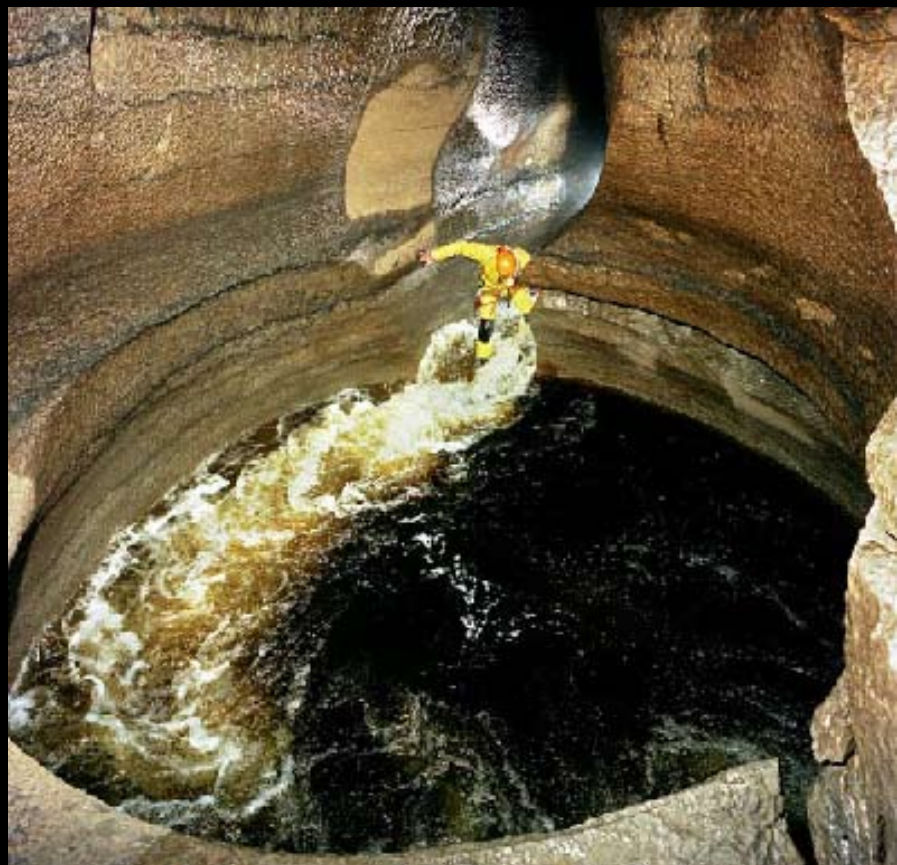
The chapters

Yorkshire Dales
Limestone geology
Quaternary glaciation
Karst geomorphology
Limestone pavements
Travertines
Cave geomorphology
Cave development
Karst hydrogeology
Cave chronology
Palaeoclimates
Holocene environment
Subterranean biology
Cave bats
Cave palaeontology
Cave archaeology

264 pages

165 maps and graphics

354 photographs



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British Cave Research Association





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The caves of -
Dentdale
Barbondale
Ease Gill
Leck and Ireby Fells
Kingsdale
Ingleborough
Gaping Gill
Pen-y-ghent and
Fountains Fell
Malham and Settle
Wharfedale
Grassington Moor
Greenhow to Cracoe
Nidderdale
Wensleydale
Swaledale
Northern Pennines
North York Moors

328 pages
141 maps and graphics
627 photographs



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British Cave Research Association

