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# British Middle Jurassic stratigraphy

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The present volume has been seen to completion by the JNCC on behalf of the three conservation agencies, the Countryside Council for Wales, English Nature, and Scottish Natural Heritage. Thanks are due to the JNCC GCR Publications Editorial and Production Team: Neil Ellis (GCR Publications Manager), Emma Durham and Anita Carter (Production Editors). The diagrams were produced by J S Publications of Newmarket. Where the content of illustrations has been replicated or modified from the work of others, appropriate acknowledgements are given in the captions. The National Grid is used on diagrams with the permission of the Controller of Her Majesty's Stationery Office, © Crown copyright licence no. GD 27254X/01/00. Photographs are accredited in the captions.

## **Access to the countryside**

This volume is not intended for use as a field guide. The description or mention of any site should not be taken as an indication that access to a site is open. Most sites described are in private ownership, and their inclusion herein is solely for the purpose of justifying their conservation. Their description or appearance on a map in this work should not be construed as an invitation to visit. Prior consent for visits should always be obtained from the landowner and/or occupier.

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:

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English Nature, Northminster House, Peterborough PE1 1UA.

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

## Preface

Frontispiece. Portraits of William Smith, Sydney Saory Buckman, Lindall Richardson and William Jocelyn Arkell

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 Middle Jurassic stratigraphy GCR sites, is the 26th 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 it also provides an excellent summary of the palaeontological and sedimentological features, and palaeogeographical significance to be found in them; it also 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: land owners and 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 1995–2001, 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.

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.

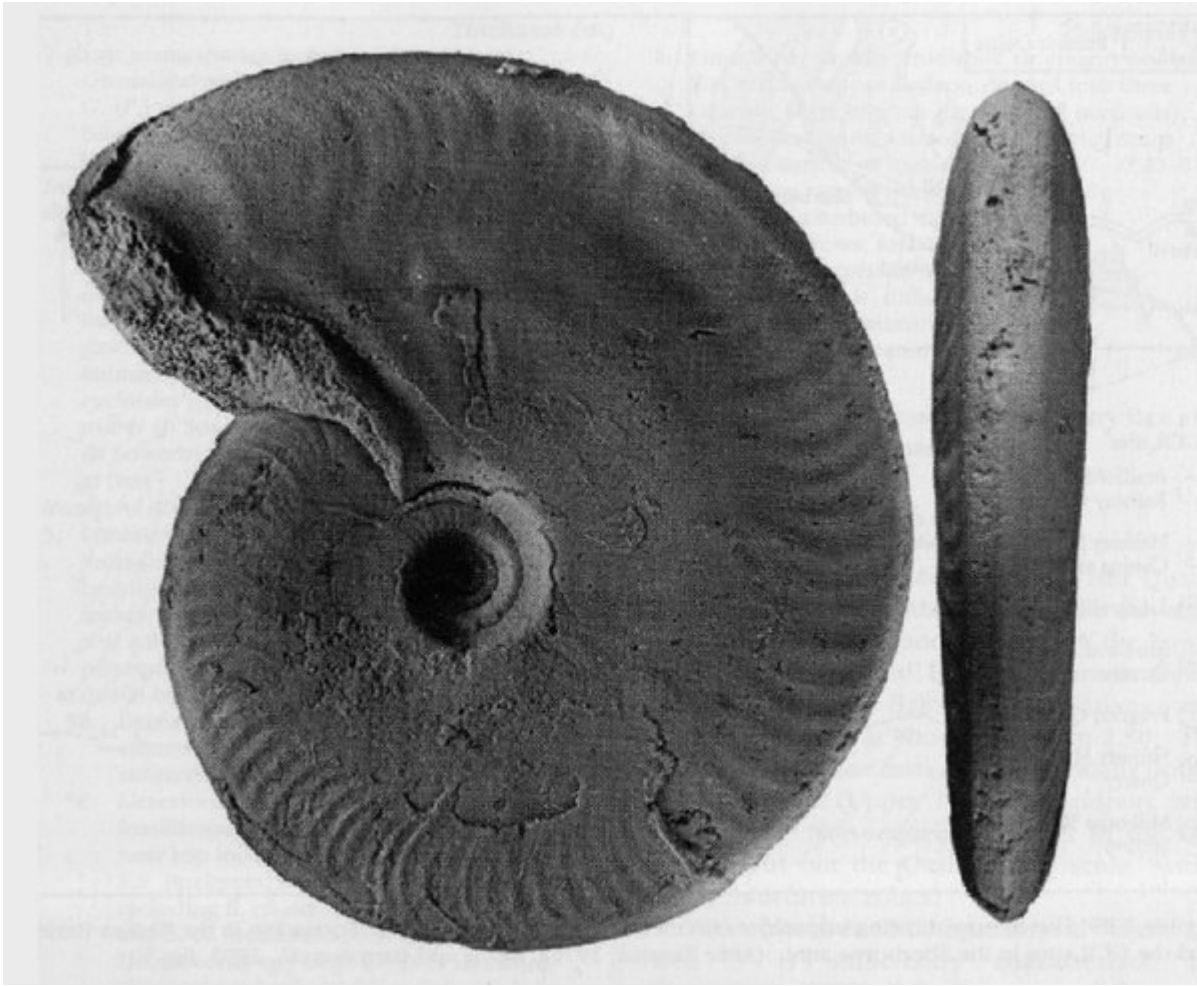
N.V. Ellis, GCR Publications Manager May 2002

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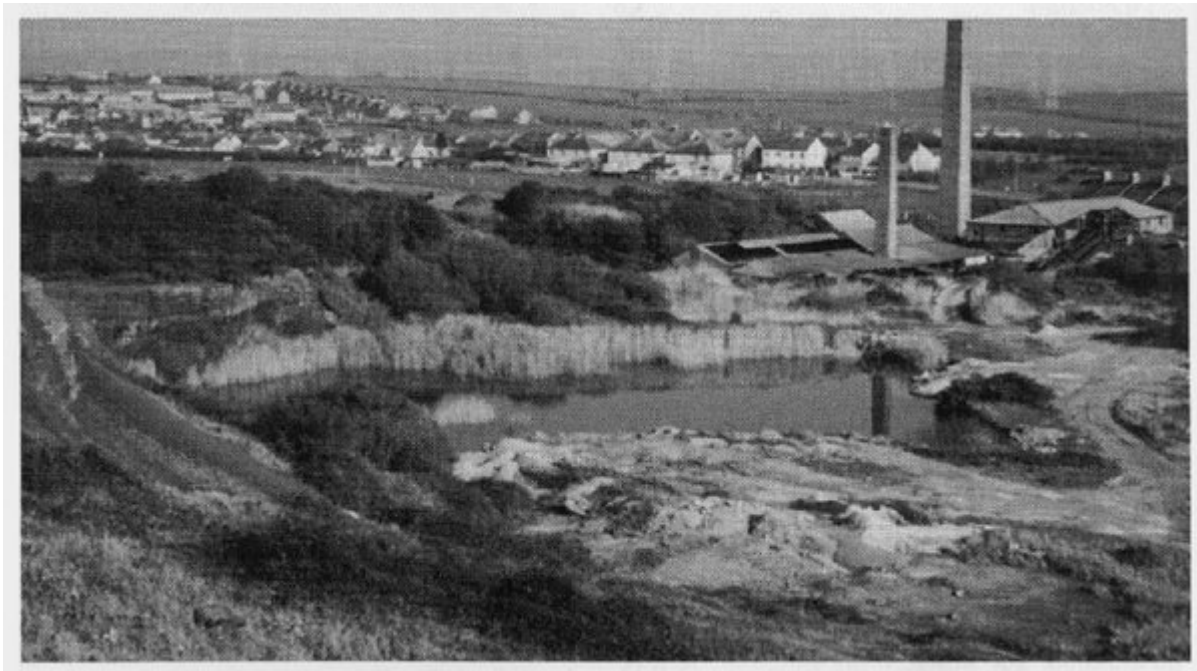




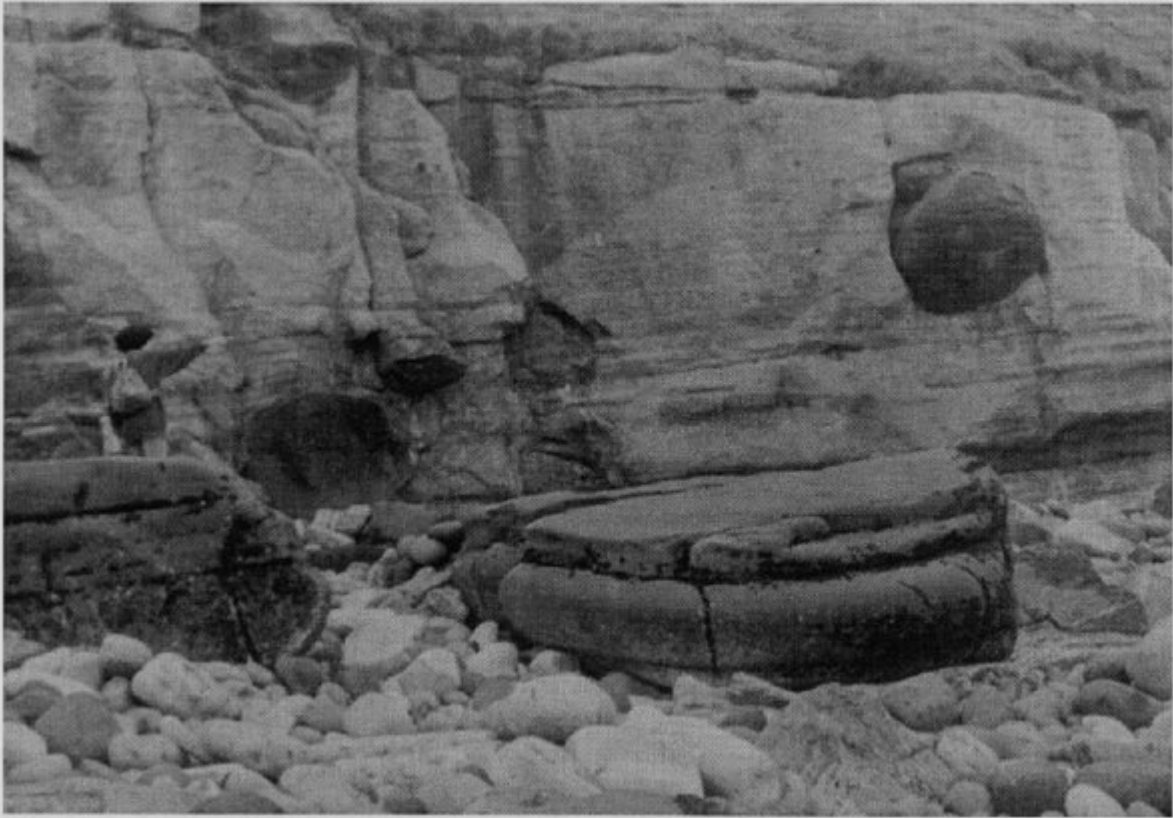
(Figure 2.19) Surface of the Horn Park Ironshot Bed (Bed 5a) with the graphoceratid ammonite *Brasilia*. The ruler at the bottom right is 15 cm long. (Photo: R.B. Chandler.)



(Figure 2.28) *Graphoceras concavum* O. Sowerby) (Sedgwick Museum, Cambridge, X27846) — eponymous ammonite of the Aalenian Concavum Zone — from Bed 6a of the Bradford Abbas Railway Cutting GCR site as illustrated by Chandler and Sole (1996, p1. 2, figs 1a,b). The specimen is shown at natural size. (Photo: R.B. Chandler.)



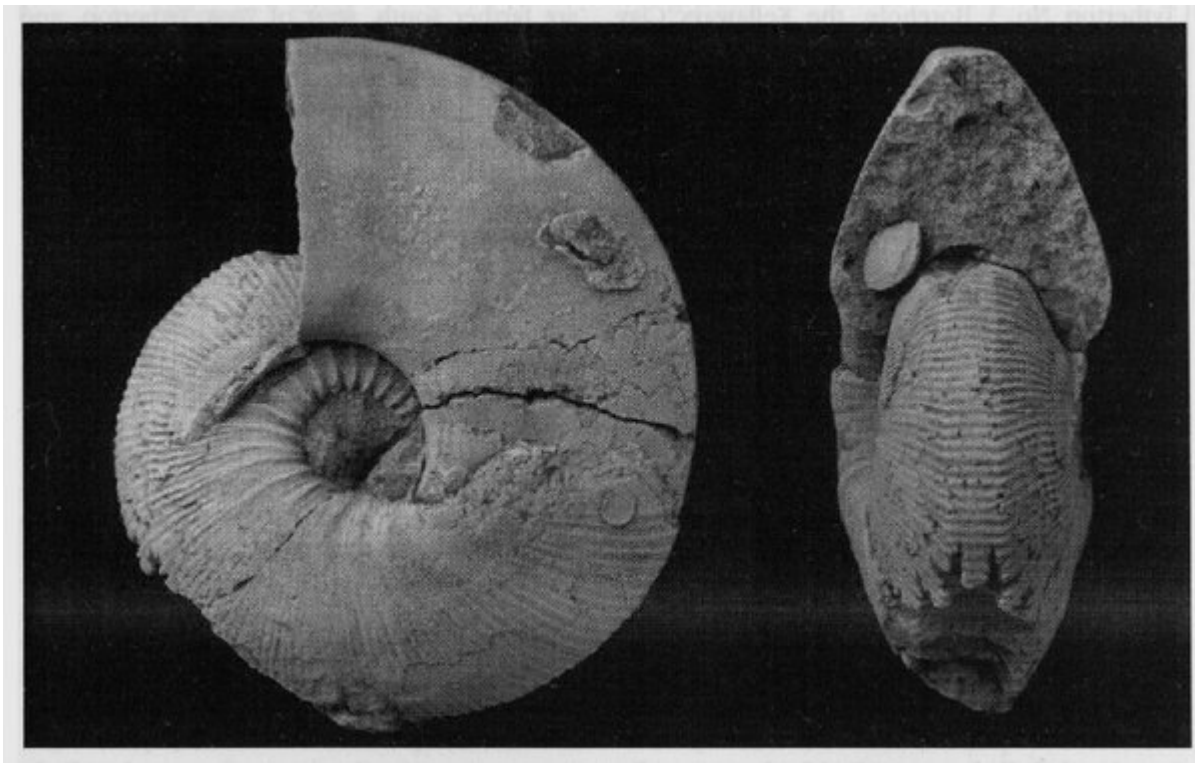
(Figure 2.8) General view of the Crookhill Brickpit GCR site. (Photo: K.L. Duff.)



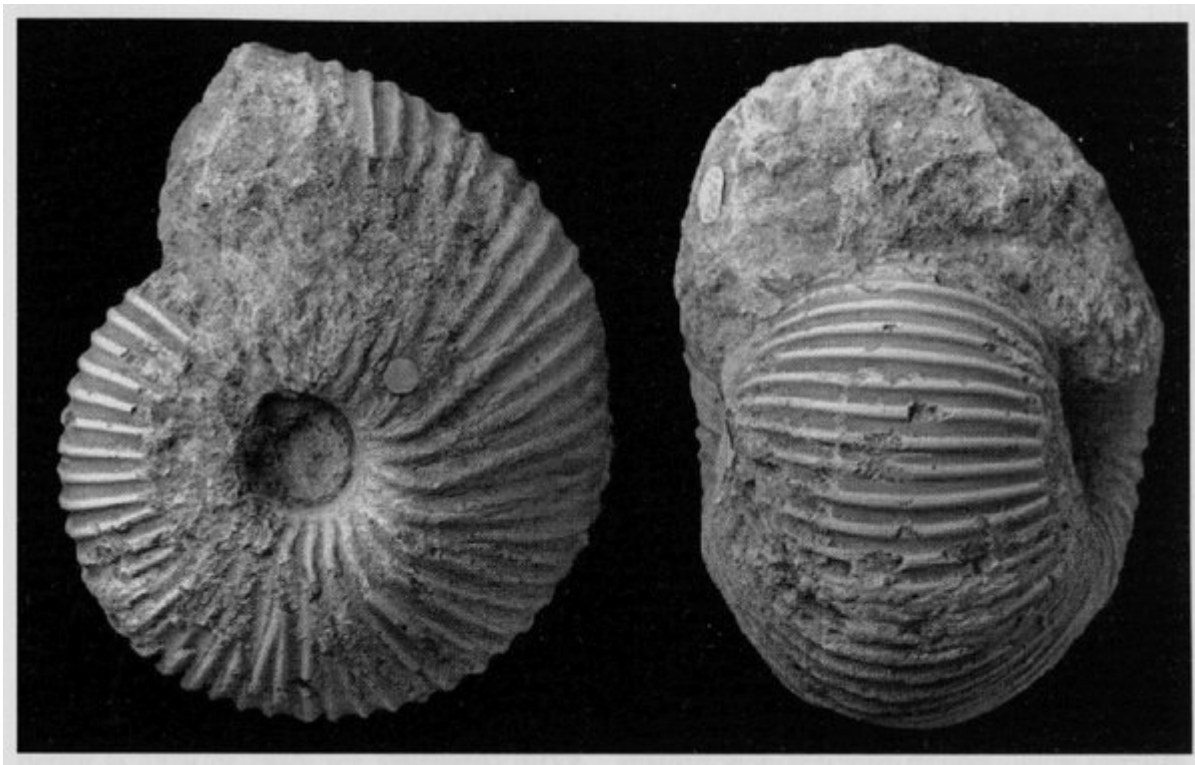
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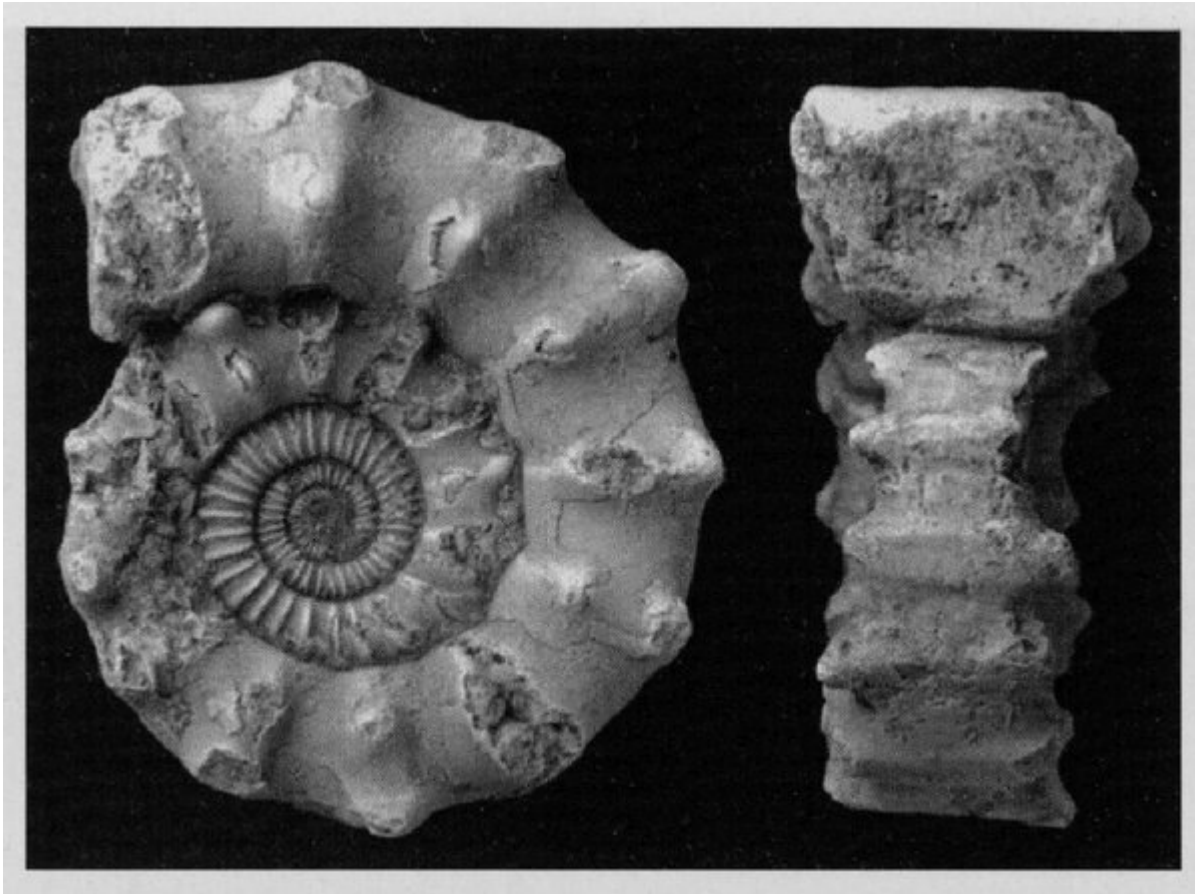
(Figure 2.22) Type specimen of *Proplanulites koenigi* (J. Sowerby), chorotypes of which occur at the Ryewater GCR site; The Natural History Museum, London, specimen No. 43891C). The specimen is shown at natural size. (Photo: © The Natural History Museum.)



(Figure 3.12) Lectotype of *Sigaloceras calloviense* (J. Sowerby); The Natural History Museum, London, specimen No. 43924a; c. 95% natural size. (Photo: © The Natural History Museum.)



(Figure 5.18) Neotype of *Macrocephalites terebratus* (Phillips); The Natural History Museum, London, specimen No. 39566; natural size. (Photo: © The Natural History Museum.)



(Figure 5.19) Neotype of *Peltoceras athleta* (Phillips); The Natural History Museum, London, specimen No. 89052; approximately natural size. (Photo: © The Natural History Museum.)



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