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978-0-521-46773-5 - The Shorter Science and Civilisation in China: An Abridgement of Joseph Needham's Original Text, Volume 5

Colin A. Ronan

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This fifth volume of Colin Ronan's abridgement of Joseph Needham's monumental work is concerned with the staggering engineering feats made in early and medieval China. No other country did more in civil engineering, both as to scale and skill, than China. The book opens with an account of the road system, which compared not unfavourably with that of the Roman Empire. Naturally, the Great Wall of China is covered in some detail within the social context of walls, which mark, more than any other structure, the basic features of the Chinese communities. The Chinese genius of town planning and achievements in hydraulic engineering are covered in later chapters. This book concludes the abridgement of the Chinese engineering, and provides many clues as to the influence of Chinese innovation on Western engineering trends.

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THE SHORTER
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COLIN A. RONAN

Lately of the Needham Research Institute

The Shorter Science and Civilisation in China

AN ABRIDGEMENT OF

JOSEPH NEEDHAM'S ORIGINAL TEXT

Volume 5

THE FIRST SECTION OF VOLUME IV, PART 3

THE FINAL SECTION OF VOLUME IV, PART 2 OF

THE MAJOR SERIES

ROADS

WALLS & THE GREAT WALL

BUILDING TECHNOLOGY

BRIDGES

HYDRAULIC ENGINEERING I – CONTROL,

CONSTRUCTION & MAINTENANCE OF

WATERWAYS

HYDRAULIC ENGINEERING II – WATER-RAISING

MACHINERY & WATER AS A POWER SOURCE



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CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press

The Edinburgh Building, Cambridge CB2 2RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org

Information on this title: www.cambridge.org/9780521462143

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First published 1995

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data

(Revised for volume 5)

Needham, Joseph, 1900–

The Shorter Science and Civilisation in China.

Volume 2 contains Volume III and a section of Volume IV, part 1 of the major series.

Volume 3 contains a section of Volume IV, part 1, and a section of Volume IV, part 3 of the major series;

Volume 5 contains Volume IV, part 3 and the final section of Volume IV, part 2 of the major series.

Includes bibliographies and indexes.

1. China – Civilization. 2. China – Intellectual life. 3. Science – China – History. I. Ronan, Colin A. DS721.N392 951 77–82513

ISBN-13 978-0-521-46214-3 hardback

ISBN-10 0-521-46214-2 hardback

ISBN-13 978-0-521-46773-5 paperback

ISBN-10 0-521-46773-X paperback

Transferred to digital printing 2006

Cambridge University Press

978-0-521-46773-5 - The Shorter Science and Civilisation in China: An Abridgement of Joseph Needham's Original Text, Volume 5

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PREFACE

In this, the fifth volume of Dr Joseph Needham's *Science and Civilisation in China*, we look at various aspects of civil engineering in ancient and medieval China. This involves covering the whole civil engineering section of volume IV, part 3 of Dr Needham's original work, and also that section of his volume IV, part 2, concerned with hydraulic machinery. The text thus covers the vast Chinese road system, walls and the Great Wall, the great Chinese achievements in bridge building, their unique system of canals and inland waterways, together with their machinery for utilising the power of water.

As in previous volumes in the abridgement, I am indebted to Joseph Needham for his encouragement and help; as always, his advice has been invaluable. In keeping with previous volumes, this is no new edition, but some changes are made by use of the Pinyin romanisation. For ease of reading the text, only Pinyin is given, except in those instances where Chinese words themselves are being discussed; on these occasions the Pinyin is accompanied by the modified Wade-Giles system in square brackets. Moreover, we have followed the procedure in the *Cambridge Encyclopedia of China* for place names; that is to give Pinyin only except for such well-known romanisations as Canton and Yangtze. Pinyin is used for all personal and place names in the index (except those where Pinyin and the modified Wade-Giles are the same), but the modified Wade-Giles is also given in square brackets, thus enabling readers who wish to do so to find specific references in Dr Needham's original volumes.

My warmest thanks are due to Mr John Moffett, Librarian of the Needham Research Institute, and to Ms Corrine Richeux, Dr Needham's assistant there, for their kind and unstinting help in various matters. I am also much indebted to Dr Simon Mitton and Ms Fiona Thomson of Cambridge University Press for their ever ready help, as well as to Mrs Irene Pizzie and Mrs Tracey Humphries for copy editing and checking the Pinyin transliterations, respectively. I am also indebted to Ms Liz Granger for compiling the index.

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The preparation of this volume has only been possible due to the receipt of a grant from the Chiang Ching-kuo Foundation for International Scholarly Exchange in Taiwan. For this very valuable help I am most grateful.

Hastings, East Sussex

Colin A. Ronan