

**THE CAMBRIDGE  
MANUALS OF SCIENCE  
AND LITERATURE. THE  
FERTILITY OF THE SOIL**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649582396

The Cambridge Manuals of Science and Literature. The Fertility of the Soil by Edward J. Russell

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.  
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

[www.triestepublishing.com](http://www.triestepublishing.com)

**EDWARD J. RUSSELL**

**THE CAMBRIDGE  
MANUALS OF SCIENCE  
AND LITERATURE. THE  
FERTILITY OF THE SOIL**



---

The Cambridge Manuals of Science and  
Literature

THE FERTILITY OF THE SOIL

**CAMBRIDGE UNIVERSITY PRESS**

**C. F. CLAY, MANAGER**

**LONDON : FETTER LANE, E.C. 4**



**LONDON : H. K. LEWIS AND CO., LTD.,**  
256 Gower Street, W.C. 1

**LONDON : WILLIAM WESLEY AND SON,**  
25 Essex Street, Strand, W.C. 2

**NEW YORK : THE MACMILLAN CO.**

**BOMBAY**

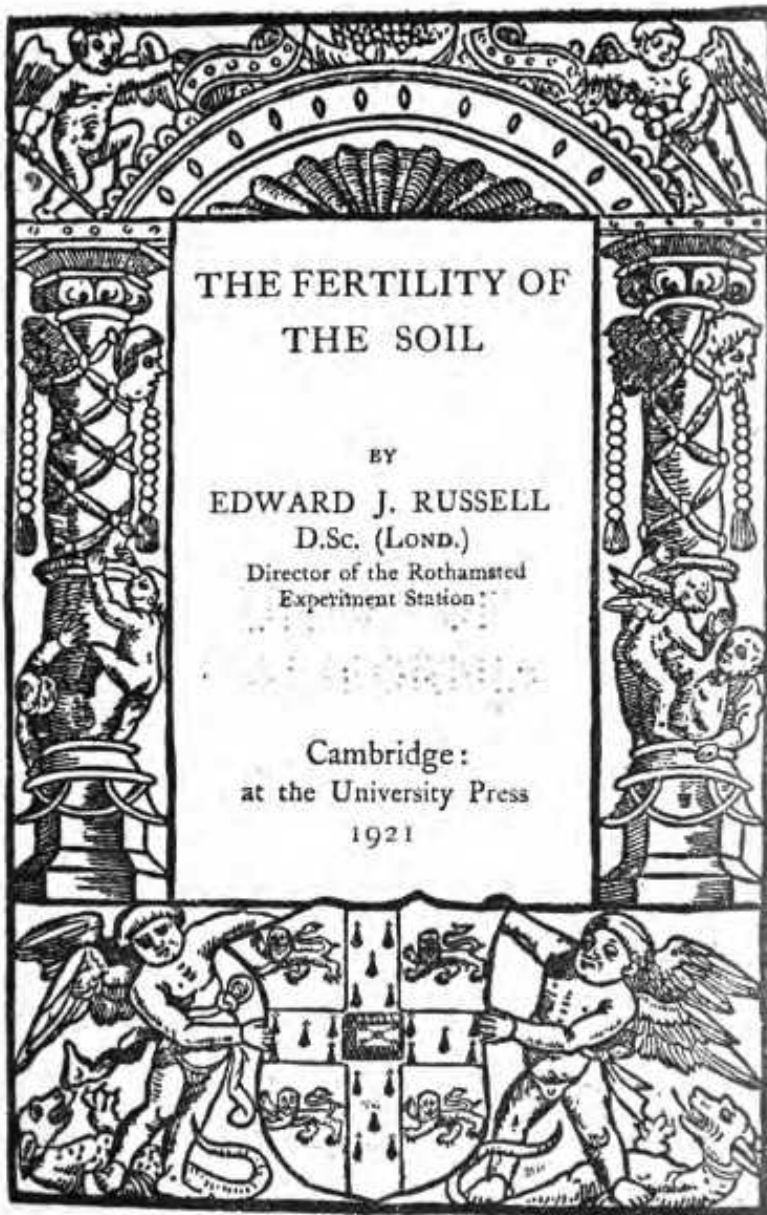
**CALCUTTA } MACMILLAN AND CO., LTD.**

**MADRAS }**

**TORONTO, ; THE MACMILLAN CO. OF**  
**CANADA, LTD.**

**TOKYO : MARUZEN-KABUSHIKI-KAISHA**

**ALL RIGHTS RESERVED**



THE FERTILITY OF  
THE SOIL

BY

EDWARD J. RUSSELL

D.Sc. (LOND.)

Director of the Rothamsted  
Experiment Station

Cambridge:  
at the University Press

1921

## PREFACE

THE following pages contain the substance of talks, lectures and other discourses delivered before all sorts and conditions of men and women and in all kinds of meeting places. Sometimes the listeners were labourers and allotment holders gathered by the schoolmaster at the close of the day in the biggest room of the village inn, or in the adult school on Sunday morning; sometimes they were the more polite but not more interested cultivators of suburban gardens; others were farmers assembled in the market town on market day; others again were professed and serious students of agricultural science. But all had this in common: that they were really keenly interested in the soil they were cultivating, and wanted to know something more about it. It is for such readers that this little book is intended.

E. J. R.

HARPENDEN,

*July 1913.*

996873



1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in the context of public administration and financial management.

2. The second part of the document outlines the various methods and tools used to collect, store, and analyze data. It highlights the need for robust information systems that can handle large volumes of data and provide timely insights into organizational performance and trends.

3. The third part of the document focuses on the role of data in decision-making and strategic planning. It argues that data-driven insights are crucial for identifying opportunities, assessing risks, and making informed choices that align with the organization's mission and goals.

4. The fourth part of the document addresses the challenges and risks associated with data management, such as data quality, security, and privacy. It provides recommendations for mitigating these risks and ensuring that data is used responsibly and ethically.

5. The fifth part of the document discusses the importance of data literacy and training for all employees. It stresses that a data-driven culture can only be achieved if everyone in the organization is equipped with the skills and knowledge to work effectively with data.

6. The sixth part of the document concludes by summarizing the key findings and recommendations. It reiterates the importance of a data-driven approach and encourages ongoing monitoring and evaluation to ensure that the organization remains agile and responsive to changing circumstances.

## CONTENTS

CHAP.	PAGE
I. THE NATURAL HISTORY OF THE SOIL . . . . .	1
II. HOW PLANT FOOD IS MADE IN THE SOIL . . . . .	12
III. WHAT IS SOIL FERTILITY AND HOW MAY IT BE ATTAINED? . . . . .	27
IV. SOIL FERTILITY AND SYSTEMS OF HUSBANDRY . . . . .	43
V. THE RAISING OF THE FERTILITY LIMIT . . . . .	64
VI. THE CHEQUERED CAREER OF THE CLAYS . . . . .	86
VII. THE RISE OF THE SANDS . . . . .	101
VIII. THE MOOR—WHAT SHALL IT BECOME? . . . . .	119
IX. CONCLUSION . . . . .	124
BIBLIOGRAPHY . . . . .	126
INDEX . . . . .	127

## LIST OF ILLUSTRATIONS

FIG.		
1.	Crops grown on partially sterilised soils . . . . .	<i>to face p. 26</i>
2a and 2b.	Experiments with Rock Phosphate, Illinois (Dr Cyril Hopkins) . . . . .	" 47
3.	The Wilderness, Rothamsted (Dr H. B. Hutchinson) . . . . .	" 65
4.	Reclaimed Fenland (Mr E. B. Dixon) . . . . .	" 72
5.	Taking levels for draining in Puritan times . . . . .	" 76
6.	Chalking in Hertfordshire (Dr H. B. Hutchinson) . . . . .	" 82
7.	Ridged land on the clay (Mr H. Cranfield) . . . . .	" 90
8.	Coxheath, near Maidstone . . . . .	" 110
9.	Pot Culture house at Rothamsted . . . . .	" 126