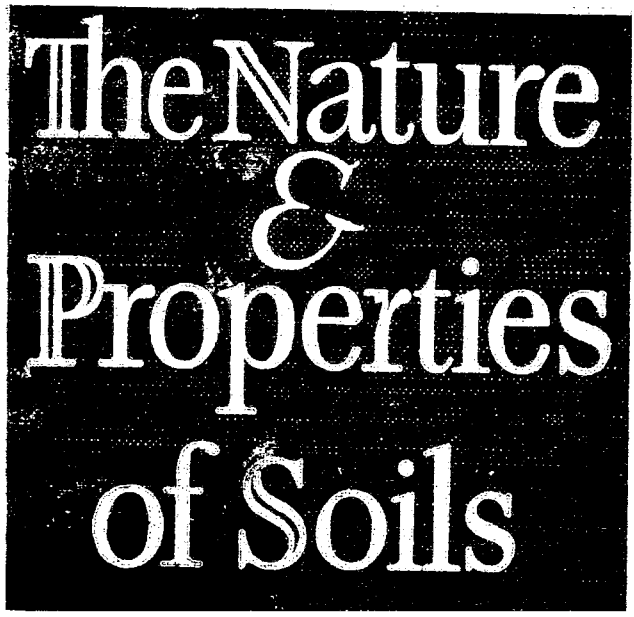
The Nature
&
Properties
of Soils

Agricultural Science Series

L. H. BAILEY, EDITOR

THE NATURE AND PROPERTIES OF SOILS

THE MACMILLAN COMPANY
NEW YORK • BOSTON • CHICAGO • DALLAS
ATLANTA • SAN FRANCISCO

MACMILLAN AND CO., LIMITED
LONDON • BOMBAY • CALCUTTA • MADRAS
MELBOURNE

THE MACMILLAN COMPANY
OF CANADA, LIMITED
TORONTO

THE NATURE AND PROPERTIES OF SOILS

A COLLEGE TEXT OF EDAPHOLOGY

by T. LYTTLETON LYON
Late Professor of Soil Technology, Emeritus, Cornell University
and HARRY O. BUCKMAN
Professor of Soil Technology, Cornell University

FOURTH EDITION
Revised by
HARRY O. BUCKMAN

NEW YORK · THE MACMILLAN COMPANY · 1950

Fourth Edition

Printed in the United States of America. Published May, 1943.
Tenth Printing, 1950.

Preface to the Third Edition

This volume is designed for the student who is interested in the nature and properties of soils and their relationships to higher plants. A working knowledge of inorganic chemistry and elementary physics is presupposed as well as some understanding of the colloidal state of matter. A background of general geology and biology will be exceedingly helpful.

References are cited for two purposes, to establish authority and to assist the student who may wish to verify or read more deeply into the various phases of pedology and edaphology. Further than this, citations from the exceedingly voluminous literature are not attempted.

T. L. L. and H. O. B.

Cornell University
February, 1937.

Preface to the Fourth Edition

Because of the rapid advances in soil science the author has found it increasingly difficult to cover, even in an introductory text, so broad a field. The additional attention required by the physics of soil moisture, by the chemistry of the colloidal state, and by soil genesis and classification, have of necessity lessened the emphasis on topics that once were deemed worthy of more extended consideration. It is hoped that in bringing the book abreast of research, the viewpoint presented is still a well-balanced one.

This volume is dedicated to the memory of T. Lyttleton Lyon, the late senior author, to whose judgment and scholarly discrimination the modest success of the previous editions of this book was due in no small part. It is the hope of the present author that this, the fourth edition, is as well received.

H. O. B

Cornell University
February, 1943.

Table of Contents

Author Index

Subject Index