

**OUTLINES OF FORESTRY: OR, THE
ELEMENTARY PRINCIPLES
UNDERLYING THE SCIENCE OF
FORESTRY. BEING A SERIES OF
PRIMERS OF FORESTRY**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649665907

Outlines of Forestry: Or, the Elementary Principles Underlying the Science of Forestry. Being a Series of Primers of Forestry by Edwin J. Houston

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

EDWIN J. HOUSTON

**OUTLINES OF FORESTRY: OR, THE
ELEMENTARY PRINCIPLES
UNDERLYING THE SCIENCE OF
FORESTRY. BEING A SERIES OF
PRIMERS OF FORESTRY**

OUTLINES OF FORESTRY;

OR,

THE ELEMENTARY PRINCIPLES
UNDERLYING THE SCIENCE
OF FORESTRY.

BEING A SERIES OF PRIMERS OF FORESTRY.

BY
EDWIN J. HOUSTON, A.M.,

MEMBER OF THE PENNSYLVANIA FORESTRY ASSOCIATION, PROFESSOR OF PHYSICS
IN THE FRANKLIN INSTITUTE OF THE STATE OF PENNSYLVANIA, PRO-
FESSOR OF NATURAL PHILOSOPHY AND PHYSICAL GEOGRAPHY IN
THE CENTRAL HIGH SCHOOL OF PHILADELPHIA, ETC., ETC.

PHILADELPHIA:

J. B. LIPPINCOTT COMPANY.

1893.

COPYRIGHT, 1893,
BY
J. B. LIPPINCOTT COMPANY.



PRINTED BY J. B. LIPPINCOTT COMPANY, PHILADELPHIA.

Forestry
Weigel
6-17-29
19657

PREFACE.

WHEN from any cause a necessity exists in any country for the removal of its forests from extended areas, unless care be taken as to the manner in which such removal is made, and some parts are left wooded, irreparable injuries will inevitably follow.

In the United States, where the enormous increase in population has resulted in the removal of the forests from extended areas, such intelligence and care have unfortunately, in most cases, not been exercised. The timber lands have generally been purchased at figures based almost entirely on the value of the standing wood. The trees have been cut down in a reckless manner, and fires, carelessly started, have often been left indifferently to burn themselves out. No attempts have been made to protect the soil that has been denuded of its natural protective covering by the axe or the fire. Before the forest has been made to yield its entire harvest, the greed of the

speculator has too often led him to abandon to the destructive action of the elements the area he has thus despoiled, in order to seek another, as yet unbroken, forest area.

Instead of carefully removing some of the trees from the forest, and leaving the area in such a condition as to enable it to produce a new growth, in the United States it has too frequently been the case that the virgin forest is thoughtlessly attacked, its best trees cut down in so careless a manner that the harvested crop amounts to, perhaps, but a third, or even less, of the total growth, and the remaining part abandoned to certain destruction by the elements.

The irreparable loss caused by such greed should be prevented by the enactment of judicious penal laws.

It is often very difficult to persuade the general public that evil results following any course of action, which do not come immediately, are not thereby prevented from coming eventually. Because the evil day draws not nigh quickly, there is a tendency to believe that it will never come at all.

An attempt has been made in the "Outlines of Forestry" to point out to the general public, in

simple, non-technical language, the character of the effects, both on the general climate of a country and on the distribution of its rainfall, which inexorably follow the unsystematic removal of its forests.

It is only necessary to give the public some little insight into the effects produced by the destruction of the forest to arouse it to a conviction of the necessity for the existence of "Forestry Associations," for the enactment of laws regulating the manner in which the forests shall be removed, and for the setting aside of certain districts on which forests shall be perpetually maintained.

In order to enable the readers of this little book to carry their reading beyond the elementary principles which it discloses, appropriate extracts, taken from standard authors, and published by permission of the authors or publishers, have been added at the end of each primer. In all cases the exact title of the book has been given, as well as the names of its publishers.

For general aid in remembering the principles discussed in each primer, a concise review has been given at the close of the book in the form of a primer of primers.

The author has not hesitated to consult freely

all standard authorities in matters pertaining to the general subject of forestry.

There have been added to the book, in the shape of an appendix, lists of trees suitable for planting in different sections of the United States, as furnished by eminent authorities on the subject.

The author desires to express his thanks to the gentlemen who have responded to his circular letter of inquiry as to lists of trees suitable for replanting in various sections of the United States, and to his friend Professor Charles S. Dolley for revision of the manuscript of this book.

EDWIN J. HOUSTON.

CENTRAL HIGH SCHOOL, PHILADELPHIA, PA.,
January, 1893.

CONTENTS.

	PAGE
I.—FORESTRY	9
II.—CONDITIONS NECESSARY FOR THE GROWTH OF PLANTS	20
III.—THE WIDE DISTRIBUTION OF PLANT GERMS	32
IV.—CONDITIONS NECESSARY FOR THE GROWTH OF TREES	42
V.—THE FORMATION OF SOIL	50
VI.—THE INANIMATE ENEMIES OF THE FOREST	61
VII.—THE ANIMATE ENEMIES OF THE FOREST	71
VIII.—THE DESTRUCTION OF THE FOREST	81
IX.—THE EARTH'S OCEAN OF VAPOR	90
X.—RAIN	100
XI.—DRAINAGE	109
XII.—CLIMATE	119
XIII.—CLIMATE AS INFLUENCED BY THE PRESENCE OF THE FOREST	127
XIV.—PURIFICATION OF THE ATMOSPHERE	140
XV.—HAIL	147
XVI.—REFORESTATION AND TREE-PLANTING	155
XVII.—THE BALANCE OF NATURE	164
XVIII.—PRIMER OF PRIMERS	177
APPENDIX	209
INDEX	245