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### **Types of British Vegetation**

Distinguished plant ecologist A.G. Tansley (1871–1955) is widely considered to be the father of British ecology. During his career he edited two important journals on the subject: *The New Phytologist* and the *Journal of Ecology*, and he was one of the founding members of the British Ecological Society. He was also part of a committee formed in 1904 to survey systematically the vegetation of the British Isles. This book, edited by Tansley and first published in 1911, is the result of that survey. It contains contributions by leading botanists of the early twentieth century, and detailed maps, photographs and figures. The physical characteristics and climate of Britain are outlined early in the book and later the plant communities of particular areas such as moors, fens and the coast are discussed. This is a significant work that will appeal to both plant ecologists and natural historians.



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# Types of British Vegetation

By Members of the Central Committee for the Survey and Study of British Vegetation

EDITED BY A.G. TANSLEY





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Tansley's Vegetation

### ERRATA

Plate IX. Omit Heath Moor of Pennine (August)
,, XXXI, for Phot. F. F. Blackman
read Phot. T. G. Hill

p. 51 footnote, for tracks read tracts





### TYPES OF BRITISH VEGETATION



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### TYPES OF BRITISH VEGETATION

BY MEMBERS OF THE CENTRAL COMMITTEE
FOR THE SURVEY AND STUDY OF
BRITISH VEGETATION

### EDITED BY

A. G. TANSLEY, M.A., F.L.S.

UNIVERSITY LECTURER ON BOTANY IN THE UNIVERSITY OF CAMBRIDGE

With 36 Plates and 21 Figures in the Text

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то

## PROFESSOR EUGENIUS WARMING THE FATHER OF MODERN PLANT ECOLOGY AND TO

PROFESSOR CHARLES FLAHAULT
WHO THROUGH HIS PUPIL
ROBERT SMITH

INSPIRED THE BOTANICAL SURVEY OF THIS COUNTRY

THIS FIRST ATTEMPT
AT A SCIENTIFIC

DESCRIPTION OF BRITISH VEGETATION

IS DEDICATED

IN ALL GRATITUDE AND ADMIRATION  ${\tt BY\ THE\ AUTHORS}$ 



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### PREFACE

THIS book offers an account of British vegetation from a standpoint which has not hitherto been adopted in any general treatment of the plant-life of this country. An endeavour is made to recognise and describe the different types of plant-community existing in the natural vegetation of these islands, and to trace their relations, so far as these have been elucidated, to climate and soil, and to one another—in other words to present a scientific classification and a balanced picture of British vegetation as it exists to-day.

The work of systematically surveying vegetation and recording the results on vegetation maps was begun in Scotland by the late Robert Smith in the closing years of last century, and continued by his brother, W. G. Smith, and various other workers. In 1904 these workers formed a committee, with the somewhat ponderous title of "The Central Committee for the Survey and Study of British Vegetation," to organise and facilitate work on these lines.

The memoirs and vegetation maps published by these workers, of which the titles will be found in the Bibliography on p. 367, have formed the nucleus of the material dealt with in the present book, which is thus a direct outcome of the work of the Central Committee. Its composition would have been impossible but for the



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close co-operation secured by the existence of such an organisation. Since it was clearly out of the question for a committee as a whole actually to write a book, it was necessary for someone to undertake the task of correlating the contributions of various authors and securing uniformity of treatment. The editor undertook this task on the understanding that he should be allowed a free hand in editing the work of the authors, and this was in nearly every case most willingly accorded. result of this loyal co-operation has been, it is hoped, to secure a consistent treatment of the whole subject. It is not to be expected that all the members of a large committee should agree in every detail, and each author is of course responsible only for his own contributions. The parts of the book to which authors' names are not attached have been written by the editor.

To the following gentlemen, not members of the committee, who have most kindly contributed sections or helped in other ways, the editor expresses his cordial thanks: to Professor Grenville Cole, F.R.S., of the Royal College of Science, Dublin, who contributed the section on the Soils of Ireland; to Professor G. S. West, of the University of Birmingham, who contributed the section on the British Freshwater Phyto-plankton; to Dr Horne, F.R.S., and Mr Crampton (the latter a member of the committee), of the Scottish Geological Survey, who revised the section on the Soils of Scotland; to Dr J. E. Marr, F.R.S., of the University of Cambridge, who read the proofs of the section on the Soils of England and Wales and contributed a paragraph on the East Anglian Heaths as representing a survival of steppe-conditions; to Dr Reginald Scully, of Dublin, who contributed the information on the vegetation of the Killarney woods; and to Mr J. A. Wheldon, of Liverpool, who kindly contributed



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information on the bryophytic flora of the Lancashire sand dunes.

The following gentlemen, other than members of the committee, have very kindly contributed photographs: Messrs W. Ball, F. F. Blackman, C. J. P. Cave, R. H. Compton, F. H. Graveley, F. F. Laidlaw, S. Mangham, R. Welch, and A. Wilson.

The information on the distribution of crops is mainly taken from the official "Returns of the Board of Agriculture and Fisheries" and from the Agricultural Statistics of the Irish Department of Agriculture and Technical Education; to the officials of the Board the editor is indebted for most courteously given supplementary information, involving considerable trouble, with regard to changes in the area of wheat land.

The editor also desires to express his special indebtedness to his colleague, Dr C. E. Moss, who, besides contributing important sections of the book, has given constant help and advice throughout<sup>1</sup>; and to Dr W. G. Smith, the Secretary of the Committee, who has read a considerable part of the proofs and contributed many valuable suggestions. The editor is indebted to his wife for undertaking the laborious task of constructing the general index.

The treatment adopted in Part II is first to give a general account of the various formations and associations recognised, with lists of species occurring in them. The plant-communities are then, in some cases, illustrated by descriptions of special instances.

<sup>1</sup> It is right also to mention that the concept of the plant-formation and of its relation to the association, which forms the logical basis on which the scheme of classification embodied in the book is constructed, owes its present form to Dr Moss. Cf. "The Fundamental Units of Vegetation," New Phytologist, Vol. Ix. p. 18, 1910.

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Cambridge University Press 978-1-108-04506-3 - Types of British Vegetation: By Members of the Central Committee for the Survey and Study of British Vegetation Edited by A.G. Tansley Frontmatter More information

Preface

The imperfections of the book will be sufficiently obvious to the reader. Some are at present unavoidable owing to the unequal development of our knowledge of the vegetation of different parts of the British Isles. While some regions have been carefully explored and their vegetation analysed, others have been only "reconnoitred," and of others again, such as Wales and considerable parts of Ireland, the plant-communities, as distinct from the flora, are almost unknown.

Most of the continental work on plant-communities similar to or identical with British ones has been deliberately neglected. A serious attempt, which will eventually have to be made, to correlate British with continental plant-communities would have involved a task extending far beyond the immediate object in view.

The Bryophyta, and the lower plants generally, are, for the most part, mainly through want of knowledge, very inadequately treated, and in the case of many plant communities, ignored altogether. This is greatly to be regretted, since these plants are frequently of the first importance in differentiating plant-communities. The algal associations of the freshwater aquatic formation are scarcely touched upon.

In a book of this nature, involving the correlation of a great mass of unequally developed material from many sources, it is inevitable that there will be numerous errors and omissions. Great improvements will be possible in a second edition, especially having regard to the fact that the subject is advancing very rapidly; and the editor will be grateful for all criticisms and suggestions.

The treatment of the ecological effect of the different soils almost wholly lacks the basis which can only be afforded by careful quantitative analysis and comparison. Data of this kind are now being accumulated, but are not,



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as yet, sufficiently extensive to be of use. It is believed, nevertheless, that the statements made about the relation of soils to the different types of vegetation, which are partly based on analysis and partly inferred, are essentially accurate, and afford a sound basis of classification. It is believed, in fact, that the classification of vegetation and the treatment of the genetic relations of plant-communities are in advance of anything hitherto attempted, though modifications are of course to be expected as knowledge advances.

The field of analytical and experimental ecology lies widely open to workers able and willing to devote themselves to the laborious tasks involved in the attack on the various problems underlying the phenomena of vegetation.

The chief obstacle to the rapid development of ecology on fundamental lines is the laborious and time-consuming nature of the work and the chemical and physical training required for its prosecution. It is hoped that this book will serve to call attention to many of the more immediate problems.

Nomenclature of specific names. The nomenclature of species and the order in which they are placed in the general lists for the most part follow the 10th edition of the London Catalogue (1908). To continental readers the adherence to the system of Bentham and Hooker will seem an anachronism, but the convenience of following a recognised standard list of British plants dictated this course.

Symbols denoting frequency. The symbols denoting the frequency of species in the general lists of the



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composition of associations are as follows: d = dominant, ld = locally dominant, lsd = locally subdominant, a = abundant, la = locally abundant, f = frequent, o = occasional, r = rare, vr = very rare. It is to be understood of course that these symbols refer to frequency within each association as a whole, and have no reference to frequency in the country at large.

A. G. T.

Grantchester, Cambridge, July, 1911.



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