

THE ORIGIN OF THE BRITISH FLORA

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The origin of the British flora by Clement Reid

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CLEMENT REID

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THE BRITISH FLORA**

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THE ORIGIN
OF THE
BRITISH FLORA

BY
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PREFACE.

WHILE embodying in this book the results which I have accumulated during the past twenty years, I should like to take the opportunity of thanking the many friends who have assisted me. The first to do so were Mr. Carruthers and Professor A. G. Nathorst, whose work, in fact, led me to undertake these studies. In the troublesome work of determining the plants I have been greatly aided by the constant courtesy and assistance of the officers of the Botanical Department of the British Museum, especially of my friends Mr. E. G. Baker and Mr. A. B. Rendle. At Kew also I have received every facility for the work, and to Mr. J. G. Baker, the late keeper of the Herbarium, I owe much. Messrs. G. and H. Groves have also assisted me at various times with specimens of recent plants which I was unable to obtain for myself, and others have been received from friends whose names are too numerous to mention.

With regard to the geological material that I have obtained from others, specimens have been

received from so many sources that I must leave the reference at the head of each locality to speak for itself, only acknowledging the special aid that has been given by Mr. James Bennie, in collecting the plants of the ancient silted-up lakes of the Scottish Lowlands. For the constant encouragement of Sir Archibald Geikie, Director-General of the Geological Survey, I am also very grateful.

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THE ORIGIN OF THE BRITISH FLORA.

CHAPTER I.

Introduction.

IN the year 1876, happening to be engaged on the Geological Survey of East Norfolk, I was led to commence observation on the plants of the Preglacial 'Cromer Forest-bed.' At first I confined my efforts to collecting the animals and plants, some of the latter being afterwards determined by Mr. Carruthers. But it soon became obvious that, in order to obtain any satisfactory knowledge of the subject, it was necessary to collect and study the ripe seeds and fruits of our British plants, and to devote much of my leisure to the work of comparison; fossil seeds had seldom been collected in this country, and recent plants with perfectly ripe seeds were seldom to be found in our herbaria.

From a study of the plants of the Cromer Forest-bed, the work gradually expanded into an examination of any Newer Tertiary plants that could be found in Britain, and as during the past twenty years my employment on the Geological Survey of England has necessitated a close scrutiny of our Newer Tertiary deposits, especially in the south and east of England, I have been brought continually face to face with the problems of the origin of our

fauna and flora, and the relations these bear to the climatic changes through which this country has passed.

Moreover, this life spent principally in field, and moor, and forest has forced me to observe how each changing season is marked by corresponding adaptations in the animals and plants, such as enable the species to preserve themselves, to multiply, and to spread; or, if adaptation fails at any point, through some climatic irregularity, how sweeping and rapid may be the extermination of all except some few accidentally favoured individuals. While collecting seeds and fruits for comparison with the fossils I was compelled particularly to observe their many adaptations for dispersal, and also their times of ripening, and the abundance or scarcity of ripe seeds.

It was impossible under such circumstances to avoid seeing the close connexion which must exist between the present geographical distribution of plants and animals and bygone changes in climate and in physical geography. Edward Forbes' * essay was read and read again; but it soon became apparent that his brilliant generalisations, though far in advance of the date when they were written, were only partially true. Much of his reasoning was fallacious.

To explain the presence of Arctic and of Iberian plants in Britain, he showed that outliers of the Arctic flora stranded on our mountain peaks could be accounted for by an appeal to the climatic conditions of former days, when a similar flora covered the whole of our Islands, and was not confined to isolated mountains. He did not see, apparently, that the use of this reasoning precluded the use of the

* 'On the Connexion between the Distribution of the existing Fauna and Flora of the British Isles, and the Geological Changes which have affected their area, especially during the epoch of the Northern Drift.'—*Mem. Geol. Survey*, Vol. I., pp. 336-432 (1846).