

Preface

The word 'Tropics' conjures up in many people's minds a picture of a dark, steamy and impenetrable jungle, abounding with snakes and poisonous plants. This is a distinctly misleading view to take, and indeed many types of forests exist, as well as savannas, grasslands and deserts, within the tropical regions of the world. However, it is certainly true that it is the rain forest that excites the greatest interest, for scientists no less than for the general public. In a world where space travel and molecular biology open up new horizons, tropical forests still present a baffling and intriguing challenge, the diversity of species and complexity of organisation at times defying both comprehension and classification.

Tropical forests seem so rich and productive that very high yields would appear to be possible when they are cut down and the land used for agriculture. This high potential has, however, proved peculiarly difficult to realise, partly due to inadequate or unsuitable techniques, often relying too much upon experience in temperate regions, but also because of a lack of knowledge and understanding by all concerned of the dynamic structure of the forests and their environments. Many of the biological studies carried out so far have been of the 'exploring', descriptive type, and this basic work must certainly be continued. But it is increasingly being realised that a quantitative and experimental approach is needed, both in order to solve the theoretical riddles posed by the tropical forest, and also to increase the low crop yields in many tropical countries.

The aim of this book is to assemble a dynamic picture of the trees and other plants of the forest, and the climatic and other conditions which surround them. This interacting system of forest and environment is viewed from the two standpoints of plant ecology and physiology, an attempt being made to synthesise the results of experiments carried out in controlled environments with field measurements and observations. Emphasis is laid upon major botanical concepts which are relevant to the whole tropical region, while a number of the detailed studies described are the authors' own, made in West Africa.

Only the briefest indication is given of the broader aspects of plant geography, of metabolic physiology and water relations, and of the role of animals in the forest. It is hoped that the book will be found useful by botanists and foresters, research workers, conservationists and visitors to the tropics. It will also be relevant for courses in plant ecology, whole-plant physiology, forestry and natural resources. If after reading it more students are encouraged to enter this fascinating field, with its unequalled opportunities for research, its purpose will have been achieved.

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