

# TEXTBOOK OF THEORETICAL BOTANY

R.C. McLEAN  
AND  
W.R. IVINEY COOK



# CONTENTS

CHAPTER

|                                                                                                                        | PAGE |
|------------------------------------------------------------------------------------------------------------------------|------|
| I. INTRODUCTION . . . . .                                                                                              | 1    |
| II. CYTOLOGY . . . . .                                                                                                 | 7    |
| III. THE BASIS OF PLANT CLASSIFICATION . . . . .                                                                       | 38   |
| IV. THE ALGAE: EUGLENOPHYCEAE, CHLOROPHYCEAE AND<br>CYANOPHYCEAE . . . . .                                             | 51   |
| V. THE ALGAE: PHAEOPHYCEAE, BACILLARIOPHYCEAE AND<br>RHODOPHYCEAE . . . . .                                            | 110  |
| VI. THE FUNGI: ARCHIMYCETES AND PHYCOMYCETES . . . . .                                                                 | 187  |
| VII. THE FUNGI: ASCOMYCETES AND BASIDIOMYCETES . . . . .                                                               | 249  |
| VIII. THE BACTERIA AND VIRUSES . . . . .                                                                               | 343  |
| IX. THE LICHENS . . . . .                                                                                              | 365  |
| X. THE CHAROPHYTA . . . . .                                                                                            | 378  |
| XI. THE BRYOPHYTA: HEPATICAE, THE LIVERWORTS . . . . .                                                                 | 388  |
| XII. THE BRYOPHYTA: MUSCI, THE MOSSES . . . . .                                                                        | 415  |
| XIII. INTRODUCTION TO PLANT HISTOLOGY . . . . .                                                                        | 449  |
| XIV. THE PTERIDOPHYTA: FILICALES, THE FERNS . . . . .                                                                  | 478  |
| XV. THE PTERIDOPHYTA: LYCOPODIALES, ISOETALES, PSILOTALES<br>AND EQUISETALES, THE CLUB MOSSES AND HORSETAILS . . . . . | 566  |
| XVI. THE SPERMATOPHYTA. GENERAL INTRODUCTION WITH AN<br>OUTLINE OF EVOLUTIONARY MORPHOLOGY . . . . .                   | 637  |
| XVII. THE GYMNOSPERMAE: CONIFERALES AND <u>TAXALES</u> , THE <u>PINES</u><br>AND YEWs . . . . .                        | 657  |
| XVIII. THE GYMNOSPERMAE: <u>CYCADALES</u> , GINKGOALES AND<br>GNETALES . . . . .                                       | 707  |
| XIX. THE ANGIOSPERMAE: <u>INTRODUCTION TO THE HIGHER</u><br><u>FLOWERING PLANTS</u> . . . . .                          | 780  |
| XX. THE ANGIOSPERMAE: <u>ROOTS</u> . . . . .                                                                           | 785  |
| XXI. THE ANGIOSPERMAE: <u>STEMS</u> . . . . .                                                                          | 832  |
| XXII. THE ANGIOSPERMAE: <u>LEAVES</u> . . . . .                                                                        | 946  |
| INDEX . . . . .                                                                                                        | 1049 |