

CONTENTS

PART I

WATER PLANTS AS A BIOLOGICAL GROUP, WITH A CON- SIDERATION OF CERTAIN TYPICAL LIFE-HISTORIES

CHAP.		PAGE
I.	WATER PLANTS AS A BIOLOGICAL GROUP	3
	(i) Introduction	3
	(ii) Biological Classification of Hydrophytes	5
II.	THE LIFE-HISTORY OF THE ALISMACEAE	9
III.	THE LIFE-HISTORY OF THE NYMPHAEACEAE AND OF LIMNANTHEMUM	24
IV.	THE LIFE-HISTORY OF <i>HYDROCHARIS</i> , <i>STRATIOTES</i> , AND OTHER FRESH-WATER HYDROCHARITACEAE	42
V.	THE LIFE-HISTORY OF THE POTAMOGETONACEAE OF FRESH WATERS	58
VI.	THE LIFE-HISTORY OF THE LEMNACEAE AND OF <i>PISTIA</i>	73
VII.	THE LIFE-HISTORY OF <i>CERATOPHYLLUM</i>	84
VIII.	THE LIFE-HISTORY OF THE AQUATIC UTRICULARIAS AND OF <i>ALDROVANDIA</i>	91
IX.	THE LIFE-HISTORY OF THE TRISTICHACEAE AND PODOSTEMACEAE	112
X.	THE LIFE-HISTORY OF THE MARINE ANGIOSPERMS	123

PART II

THE VEGETATIVE AND REPRODUCTIVE ORGANS OF WATER PLANTS, CONSIDERED GENERALLY

XI.	LEAF TYPES AND HETEROPHYLLY IN AQUATICS	139
	(i) Types of Leaf in Water Plants	139
	(ii) The Facts of Heterophylly under Natural Conditions	143
	(iii) The Interpretation of Heterophylly	155
XII.	THE ANATOMY OF SUBMERGED LEAVES	163
XIII.	THE MORPHOLOGY AND VASCULAR ANATOMY OF AQUATIC STEMS	172
XIV.	THE AERATING SYSTEM IN THE TISSUES OF HYDRO- PHYTES	183

CONTENTS

CHAP.	PAGE
XV. LAND FORMS OF WATER PLANTS, AND THE EFFECT OF WATER UPON LAND PLANTS	195
XVI. THE ROOTS OF WATER PLANTS	204
XVII. THE VEGETATIVE REPRODUCTION AND WINTERING OF WATER PLANTS	210
XVIII. THE FLOWERS OF WATER PLANTS AND THEIR RELATION TO THE ENVIRONMENT	227
XIX. THE FRUITS, SEEDS AND SEEDLINGS OF WATER PLANTS	239

PART III

THE PHYSIOLOGICAL CONDITIONS OF PLANT LIFE
IN WATER

XX. GASEOUS EXCHANGE IN WATER PLANTS	253
XXI. ABSORPTION OF WATER AND TRANSPIRATION CURRENT IN HYDROPHYTES	260
XXII. THE INFLUENCE OF CERTAIN PHYSICAL FACTORS IN THE LIFE OF WATER PLANTS	273
XXIII. THE ECOLOGY OF WATER PLANTS	285

PART IV

THE STUDY OF WATER PLANTS FROM THE PHYLOGENETIC
AND EVOLUTIONARY STANDPOINTS

XXIV. THE DISPERSAL AND GEOGRAPHICAL DISTRIBUTION OF WATER PLANTS	295
XXV. THE AFFINITIES OF WATER PLANTS AND THEIR SYSTEMATIC DISTRIBUTION AMONG THE ANGIOSPERMS	308
(i) The Affinities of Certain Aquatic Angiosperms	308
(ii) Theoretical Considerations	317
XXVI. THE THEORY OF THE AQUATIC ORIGIN OF MONOCOTYLEDONS	322
XXVII. WATER PLANTS AND THE THEORY OF NATURAL SELECTION, WITH SPECIAL REFERENCE TO THE PODOSTEMACEAE	327
XXVIII. WATER PLANTS AND THE 'LAW OF LOSS' IN EVOLUTION	336
BIBLIOGRAPHY	349
INDEX TO BIBLIOGRAPHY	415
INDEX	422