Contents

Contributors	IX
Preface	XIX
Photograph of Warren L. Butler	XXII
Warren L. Butler; a tribute to a friend and fellow scientist by Norman I. Bishop	[1]
Publications of Warren L. Butler on Photosynthesis compiled by Govindjee	, [5]
I. Photosynthetic Unit; the Antenna System; and the Photosynthetic Pigments	•
*1. The Optical Cross Section and Absolute Size of a Photosynthetic Unit by David Mauzerall	[17]
*2. Organization of the Photosynthetic Units, and Onset of Electron Transport and Excitation Energy Distribution in Greening Leaves by Akoyunoglou and J.H. Argyroudi-Akoyunoglou	ı
*3. Chlorophyll-Protein Complexes by Kimiyuki Satoh	[35]
4. Relationships among Cell Chlorophyll Content, Photosystem II Light-harvesting and the Quantum Yield for Oxygen Production in <i>Chlorella by Arthur C. Ley</i>	
5. A Consideration of the Organization of Chloroplast Photosystem I by R. Malkin	[51]
6. A High Molecular Weight Terminal Pigment "Anchor Polypeptide") and a Minor Blue Polypeptide from Phycobilisomes of the Cyanobacterium <i>Nostoc</i> sp. (Mac): Isolation and Characterization by Mamoru Mimuro and Elisabeth Gantt	S
7. Exciton Interactions in Phycoerythrin by Karoly Csatorday, Sharon Campbell and Barbara A. Zilinskas	[63]
8. The Light-harvesting Chlorophyll a/b Protein Acts as a Torque Aligning Chloroplasts in a Magnetic Field by J.G. Kiss, Gy. I. Garab, Zs. M. Toth and A. Faludi-Daniel	

9. Relative Sensitivity of Various Spectral Forms of Photosynthetic Pigments to Leaf Senescence in Wheat (<i>Triticum Aestevum</i> L.) by A. Grover, S.C. Sabat and P. Mohanty	[77]
II. Excitation and Energy Migration; Regulation of Energy Transfer; State Transition; and Variable Chlorohyll α Fluorescence	
*10. Energy Migration and Exciton Trapping in Green Plant Photosynthesis by Nicholas E. Geacintov, Jacques Breton and Robert S. Knox	[87]
*11. Regulation of Energy Transfer by Cations and Protein Phosphorylation in Relation to Thylakoid Membrane Organization by J. Barber	[97]
*12. Mono-Di-Tri- and Polypartite Models in Photosynthesis by Reto J. Strasser	[109]
13. Influence of Thylakoid Protein Phosphorylation and Photosynthetic Electron Transport and Photophosphorylation <i>by Giorgio Forti</i> and <i>Paola M.G. Grubas</i>	[131]
14. Energy Distribution in the Photochemical Apparatus of <i>Porphyridium cruentum:</i> Picosecond Fluorescence Spectroscopy of Cells in State 1 and State 2 at 77K by Doug Bruce, Cheryl Hanzlik, Lucia A. Hancock, John Biggins and Robert S. Knox	[137]
15. Analysis of Emerson Enhancement under Conditions Where Photosystem II is Inhibited: Are the Two Photosystems indeed separated? <i>by S. Malkin, O. Canaani</i> and <i>M. Havaux</i>	[145]
16. Observation of Enhancement and State Transitions in Isolated Intact Chloroplasts by P. Horton and P. Lee	[151]
17. Energy-Dependent Quenching of Dark-level Chlorophyll Fluorescence in Intact Leaves by W. Bilger and U. Schreiber	[157]
18. Mechanisms of Chlorophyll Fluorescence Revisited: Prompt or Delayed Emission from Photosystem II with Closed Reaction Centers <i>by G.H. Schatz</i> and <i>A.R. Holzwarth</i>	[163]
19. Evidence that the Variable Chlorophyll Fluorescence in Chlamydomonas reinhardtii is not Recombination Fluorescence by I. Moya, M. Hodges, J.M. Briantais and G. Hervo	[173]
20. Radiationless Transitions as a Protection Mechanism	

1	David C. Fork, Salil Bose and Stephen K. Herbert	[181]	
III. Reaction Centers; Primary Photochemistry; and Early Acceptors and Donors			
	21. Electron Donors and Acceptors in Photosynthetic Reaction Centers by <i>J. Amesz</i> and <i>L.N.M. Duysens</i>	[191]	
F	22. Influence of Magnetic Fields on the P-870 Triplet State in Rps. sphaeroides Reaction Centers by M.H. Vidal, R. Setif and P. Mathis	[201]	
7	23. Photoreduction of Pheophytin in Photosystem II of the Whole Cells of Green Algae and Cyanobacteria by V.V. Klimov, S. I. Allakhverdiev and V.G. Ladygin	[209]	
IV.	Electron Transfer in Photosynthesis; Components		
	24. Electron Transfer through Photosystem II Acceptors: Ineractions with Anions by Govindjee and J.J. Eaton-Rye	[219]	
b	25. Inhibitors of Photosystem II and the Topology of the Herbicide and Q_B Binding Polypeptide in the Thylakoid Membrane by A. Trebst and W. Draber	[235]	
	26. On the Structure and Function of Cytochrome <i>b</i> -559 by W.A. Cramer, S.M. Theg and W.R. Widger	[247]	
	27. Reverse Electron Flow in Chloroplasts by Yosepha Shahak and Mordhay Avron	[259]	
F	28. Multidisciplinary Research in Photosynthesis: A Case History Based on <i>Chlamydomonas by R.K. Togasaki</i> and <i>J. Whitmarsh</i>	[269]	
Z	29. ENDOR Characterization and D_2O Exchange in the $Z^+./D^+$ Radical in Photosystem II by T.K. Chandrashekar, P.J. O'Malley, I. Rodriguez and G.T. Babcock	[277]	
F	30. pH Dependent Stabilization of $S_2Q_A^-$ and $S_2Q_B^-$ Charge Pairs Studied by Thermoluminescence by Imre Vass and Yorino Inoue	[285]	
	31. pH Dependent Conformational Changes and Electrostatic Effects in Plastocyanin by E.L. Gross, J.E. Draheim, G.P. An-		

against Photoinhibition in Higher Plants and a Red Alga by

	32. Stimulation and Inhibition of Photosystem II Electron Transport in Cyanobacteria by Ions Interacting with Cytoplasmic Face of Thylakoids by G. Sotiropoulou and G.C. Papageorgiou	[299]		
V.	Oxygen Evolution; Components; and Mechanisms			
	*33. Reaction Sequences from Light Absorption to the Cleavage of Water in Photosynthesis by H.T. Witt, E. Schlodder, K. Brettel and O. Saygin	[307]		
	*34. Modification of Oxygen Evoling Center by Tris-Washing by T. Yamashita	[327]		
	35. Characterization of a Photosystem II Reaction Center Complex Isolated by Exposure of PSII Membranes to a Non-Ionic Detergent and High Concentrations of NaCl by Demetrios F. Ghanotakis and Charles F. Yocum	[337]		
	36. Light-dependent Inactivation of Photosynthetic Oxygen Evolution During NaCl Treatment of Photosystem II Particles: the Role of the 24KDa Protein <i>by M. Miyao</i> and <i>N. Murata</i>	[343]		
	37. The Relation between the Chloride Status of the Photosynthetic Water Splitting Complex and the Inhibitory Effectiveness of Amines <i>by Peter H. Homann</i>	[351]		
VI. Photosynthetic Bacteria: Metabolism				
	*38. Active Transport in Phototrophic Bacteria by David B. $Knaff$	[361]		
	39. Accumulation of Silver by <i>Chromatium vinosum</i> from Solutions Containing Silver Thiosulfate <i>by Masao Kitajima</i>	[369]		

[291]

derson, D.A. Sanderson and S.L. Ketchner

^{*} Indicates overviews, others are original papers.