

CONTENTS

Preface	v
I. Brief History of the Chemical Study of Penicillin	3
Hans T. Clarke, John R. Johnson, and Robert Robinson	
II. The Earlier Investigations relating to 2-Pentenylpenicillin	10
E. P. Abraham, W. Baker, W. R. Boon, C. T. Calam, H. C. Carrington, E. Chain, H. W. Florey, G. G. Freeman, R. Robinson, and A. G. Sanders	
III. The Chemistry of <i>n</i> -Amylpenicillin up to December 1943.	38
A. H. Cook, and I. M. Heilbron	
IV. Status of the Research on the Structure of Benzylpenicillin in December 1943	52
Robert L. Peck and Karl Folkers	
V. Isolation and Characterization of the Various Penicillins.	76
O. Wintersteiner, W. R. Boon, H. C. Carrington, D. W. MacCorquodale, F. H. Stodola, J. L. Wachtel, R. D. Coghill, W. C. Risser, J. E. Philip, and O. Touster	
VI. Penillic Acids and Penillamines.	106
A. H. Cook	
VII. Review of Certain Investigations on the Structure of Benzylpenicillin during 1944-1945	144
Robert L. Peck and Karl Folkers	
VIII. Some Inactivation and Degradation Reactions not included in Chapters IV and VII	207
O. Wintersteiner, H. E. Stavely, J. D. Dutcher, and M. S. Spielman	
IX. Desthiobenzylpenicillin and Other Hydrogenolysis Products of Benzylpenicillin.	243
Edward Kaczka and Karl Folkers	
X. The Thiocyanate Derivative of Benzylpenicillin Methyl Ester	269
Vincent du Vigneaud and Donald B. Melville	
XI. The X-Ray Crystallographic Investigation of the Structure of Penicillin.	310
D. Crowfoot, C. W. Bunn, B. W. Rogers-Low, and A. Turner-Jones	
XII. Identification and Crystallography of Penicillins and Related Compounds by X-Ray Diffraction Methods	367
G. L. Clark, W. I. Kaye, K. J. Pipenberg, and N. C. Schieltz	
XIII. Infrared Spectroscopic Studies on the Structure of Penicillin	382
H. W. Thompson, R. R. Brattain, H. M. Randall and R. S. Rasmussen	
XIV. Other Physical Methods.	415
R. B. Woodward, A. Neuberger, and N. R. Trenner	
XV. The Constitution of Penicillins	440
John R. Johnson, Robert B. Woodward and Robert Robinson	
XVI. Penicillamine, Its Analogs and Homologs.	455
Harry M. Crooks	
XVII. Penilloaldehydes and Penaldic Acids.	473
Ellis V. Brown	
XVIII. The Penilloic and Penicilloic Acids and Their Derivatives and Analogs.	535
Ralph Mozingo and Karl Folkers	
XIX. Biosynthesis of Penicillins	657
Otto K. Behrens	
XX. Chemical Modifications of Natural Penicillins.	680
R. D. Coghill, F. H. Stodola, and J. L. Wachtel	

XXI. Oxazoles and Oxazolones	688
J. W. Cornforth	
XXII. Attempted Syntheses of Penicillins.	849
W. E. Bachmann and M. W. Cronyn	
XXIII. The Condensation of Oxazolones and D-Penicillamine and the Resultant Antibiotic Activity.	892
V. du Vigneaud, J. L. Wood, and M. E. Wright	
XXIV. Methyl Benzylpseudopenicillinate	909
J. H. Hunter, J. W. Hinman, and H. E. Carter	
XXV. Thiazolidines.	921
A. H. Cook and I. M. Heilbron	
XXVI. The Chemistry of β -Lactams.	973
S. A. Ballard, D. S. Melstrom, and C. W. Smith	
XXVII. The γ -Lactam of Benzylhomopenicilloic Acid and Related Compounds	1004
Vincent du Vigneaud and Frederick H. Carpenter	
XXVIII. Synthetic Benzylpenicillin.	1018
Vincent du Vigneaud, Frederick H. Carpenter, Robert W. Holley, Arthur H. Livermore, and Julian R. Rachele	
XXIX. Assay of Penicillins.	1025
John V. Scudi and H. B. Woodruff	
XXX. Appendix.	1043