

CONTENTS

Contributors ix

Preface xiii

I. INTRODUCTION / 1

1. **John Roth's Paths and Pathways / 3**
Kelly T. Hughes and Stanley Maloy
2. **Giving a Seminar: Suggestions for Graduate Students / 9**
John Roth
3. **Phage and Bacterial Genetics at Cold Spring Harbor Laboratory / 23**
Stanley Maloy and Kelly T. Hughes
4. **Reflections of a Beer Auxotroph / 27**
Thomas J. Silhavy

II. GENE EXPRESSION AND GENETIC REGULATION / 33

5. **The Biotin Operon of *Escherichia coli* / 35**
Allan Campbell and Alice del Campillo-Campbell
6. **Why Galactose? The Early Curiosities and the Consequences / 43**
Sankar Adhya
7. **Control of Gene Expression by Compartmentalization: the *put* Operon / 55**
Stanley Maloy
8. **Genetics of the Heme Pathway and Its Regulation / 65**
Thomas Elliott

9. **Regulation of NAD(P) Metabolism in *Salmonella*** / 75
Julianne House Grose

10. **Ethanolamine Utilization in *Salmonella*** / 87
David Roof and David Sheppard

11. **Fishing for Fluke: the Genetics of Flk and the Flagellar Type 3 Secretion Specificity Switch** / 99
Kelly T. Hughes

III. tRNA AND SUPPRESSORS / 115

12. **Souvenirs from My Genetic Initiation** / 117
Lionello Bossi

13. **Complementary Studies in the Histidine Operon and on Frameshifting: a Compliment to What Roth Has Wrought** / 123
John E. Atkins

14. **Adventures with Frameshift Suppressor tRNAs** / 131
Glenn R. Björk

IV. PHYSIOLOGY AND METABOLISM / 141

15. **Microbial Channels: Forbidden Fruit from Missense Rather than Nonsense** / 143
Ian R. Booth

16. **Of Bacteria and Bile** / 153
Josep Casadesús, Sara B. Hernández, Ignacio Cota, and Francisco Ramos-Morales

17. **Swarming Adventures** / 163
Rasika M. Harshey

18. **Using Genetic Approaches To Delineate the Pathway of Contact-Dependent Growth Inhibition** / 173
Stephanie K. Aoki and David A. Low

19. **Covert Operations: the Adaptable Plan of Attack Deployed by Pathogenic Bacteria** / 185
Michael J. Mahan, Robert L. Sinsheimer, William R. Shimp, and Douglas M. Heithoff

20. **Phenotypic Variation and Gene Regulation in the Pathogenesis of *Salmonella* Infection** / 201
Brad T. Cookson

V. GENES, CHROMOSOMES, AND REARRANGEMENTS / 209

21. **DNA Methylation and Mismatch Repair** / 211
Martin G. Marinus

22. *Salmonella* Genetics / 219*Kenneth E. Sanderson***23. Finding Inversions / 227***Molly Schmid***24. Barriers to the Formation of Inversion Rearrangements in *Salmonella* / 233***Lynn Miesel***25. Adventures with Mutation and Selection in Beehive and Cow Country / 245***Diarmaid Hughes and Dan I. Andersson***VI. GENOMES AND EVOLUTION / 255**

26. From Genetics to Genomics / 257*Garret Suen, Frank O. Aylward, Steven C. Slater, and Barry S. Goldman***27. Baltimore and Beyond: from Gene Action to the Postgenomic Era / 267***Robert A. LaRossa***28. Three Histories of Competence and Transformation / 277***Rosemary J. Redfield***29. A Plethora of Putative Phages and Prophages / 291***Sherwood R. Casjens***30. Impact of Horizontal Genetic Transfer on the Evolution of Bacterial Genomes / 307***Jeffrey G. Lawrence***31. Germ Line DNA Parasites That Have Converged on an Altruistic Somatic Excision Strategy / 325***Glenn Herrick***32. Recombineering: Advanced-Advanced Bacterial Genetics / 333***James A. Savitzke***VII. Epilogue / 341**

33. Predicting the Future: a Fish Story / 343*John Roth***Index / 349**