

Contents

Acknowledgments xi

Introduction 1

Biology, Computers, Data 6

Biology Transformed 8

Naturalists vs. Experimentalists? 11

The Laboratory and Experimentalism 21

The Museum and Natural History 24

1 Live Museums 29

Microbes at the American Museum of
Natural History 33

The Industrialization of Mice 40

Corn in an Agricultural Station 44

Sharing Flies 49

Viruses, Bacteria, and the Rise of Molecular Genetics 54

Putting Stock Centers on the Federal Agenda 58

Biological Collections Become Mainstream 63

2 Blood Banks 67

Measuring Species, ca. 1900 69

Alan A. Boyden's Serological Systematics 74

A Museum in a Laboratory 81

	Between Field and Laboratory: Charles G. Sibley	89
	Collecting in the Field	92
	Hybridization, Not Invasion	105
3	Data Atlases	113
	Understanding How Proteins Work	117
	Cracking the Genetic Code	121
	From the Field to the Laboratory	124
	Margaret O. Dayhoff, Computers, and Proteins	127
	<i>The Atlas of Protein Sequence and Structure</i>	135
	A Work of Compilation?	139
	The Gender of Collecting	146
	Research with the <i>Atlas</i>	147
	Whose Data? Whose Database?	151
4	Virtual Collections	155
	From Physical to Virtual Models	159
	The Systematic Study of Protein Structures	163
	The Creation of the Protein Data Bank	169
	The Natural History of Macromolecules	174
	Privacy, Priority, and Property	181
	A New Tool for Research	189
5	Public Databases	195
	Information Overload on the Horizon	197
	Margaret O. Dayhoff vs. Walter B. Goad	202
	Europe Takes the Lead	205
	Mobilizing the National Institutes of Health	212
	Collecting Data, Negotiating Credit and Access	214
	Distributing Data, Negotiating Ownership	219
	A Conservative Revolution	224
6	Open Science	227
	Databases, Journals, and the Gatekeepers of Scientific Knowledge	228
	Databases and the Production of Experimental Knowledge	237

Sequence Databases, Genomics, and Computer Networks	239
The Rise of Open Science	244
Databases, Journals, and the Record of Science	252
 Conclusion	 255
The End of Model Organisms?	256
The New Politics of Knowledge	263
 <i>Archives Consulted</i>	 273
<i>Bibliography</i>	275
<i>Notes</i>	317
<i>Index</i>	387

