Preface ix Acknowledgments xiii

1 The Complex Universe of Taste and Flavor

The Mouth and the Nose: Where It All Begins 1

Mouthfeel: A Central Element of the Total Flavor Experience 8

Astringency and Kokumi: Not Exactly Mouthfeel, but Something Like It 15

Sensory Confusion 16

The Interplay Between Mouthfeel and Other Sensory Impressions 19

Neurogastronomy: Flavor Is All in the Brain 22

What Makes Up Our Food? 33

Food from the Tree of Life 34

Edible Molecules 52

Biological Soft Materials 59

Water: Both Stable and Versatile 60

Processed Food 66

Synthetic Food: "Note-by-Note Cuisine" 67

The Physical Properties of Food: Form, Structure, and Texture

Structure and Texture 72

Foods as Solids, Liquids, and Gases 73

More Complex States 74

When Food Changes Form, Structure, and Texture 91

4 Texture and Mouthfeel 95

When We Chew, We Are Using the "Taste Muscles" 95

What Is Texture? 98

How to Describe Texture 102

Changing Texture 111

Transforming Raw Ingredients 114

Heat and Temperature 115

Texture in a Bottle or a Can 121

Starch: A Very Particular Kind of Thickener 122

Emulsions and Emulsifiers 126

Gels and Gelation 126

Gums 141

The Effect of Enzymes on Texture 144

Sugars in Food 146

Fats in Food 148

The Surprisingly Diverse Textures of Milk 150

Amazing Eggs 162

Glassy, Glossy Foods 169

Particles in Food 178

Bubbles in Food 188

From Soft to Hard and Back Again 196

6

Making Further Inroads into the Universe of Texture 207

Legumes, Soybeans, and Sprouts 207

Vegetables with a Bit of Bite 212

Grains and Seeds with a Multitude of Textures 219

The Secrets of Sauces 229

The Mouthfeel of Soups 235

Transforming Chewy Dough into Crisp Bread 238

Crispy Skin and Crunchy Bones 243

The Texture of Perishability 261

A Taste Challenge: Some Special Seafood 268

Frozen Desserts: From Granular and Creamy to Chewy 280

Texture That Releases Big Bursts of Taste 284

7

Why Do We Like the Food That We Do? 299

Enjoyment and Hedonism 299

Food and Taste Adventurousness 300

Texture, the Choice of Foods, and Tolerance for Texture 302

The Perfect Meal 303

Epilogue: Mouthfeel and a Taste for Life 307

Glossary 311
Bibliography 335
Illustration Credits 339
Index 341

RECIPES

Extra-Dry Champignons, Endive, and Umami Crème with Grated, Smoked, and Frozen Egg Yolks and Roquefort 39

Grilled Beef Heart 42

Apple "Fudge" 88

Crisp French Fries, Peel and All 92

Six Types of Jelly with Vegetables, Fruit, and Water 101

Laminar Coffee Shots with Celeriac 107

Entrecôte de Boeuf 120

Slow-Cooked Sous Vide Beef Brisket 121

Really Crisp Old-Fashioned Crullers 153

Amy's Apple Pie 154

Cultured Butter 159

Instant Churned Butter 160

Parmesan-Flavored Smoked Cheese with Dried Radishes 164

Peppery, Chewy, Chocolaty Caramel 170

Caramelized Potatoes 171

Candied Seaweed 173

Old-Fashioned Crispy Spice Cookies 175

Crisp-Fried Bull Testicle with Sprouts and Parsnip Emulsion 177

An Experiment: Two Types of Ketchup 180

Pesto 181

Sago Soup with Raisins 182

Arctic Textures 186

Kidney Bean and Crisp Vegetable Salad 209

Duck Tongues with Beans and Artichokes 210

Succulent Daikon 216

Vegetables, Prepared So That Children Love Them 217

Kohlrabi Tsukemono 220

Japanese Cucumber Salad 221

Muesli with a Difference 222

Crisp Risotto Balls with Mushrooms, Broad Beans, and Mussel Powder 225

Ceviche with Chile Peppers and Popcorn, Sprinkled with Nutritional Yeast 230

Seriously Old-Fashioned Sourdough Bread with a Crisp Crust 240

Pretzels 242

Tarte Flambée with Chorizo and Onions 244

Croutons 246

Morimoto's 22-Step Recipe for Perfect Duck Breast 252

Crisp Pig-Tail Confit 256

Grilled Cod-Skin Snacks 258

Dried, Crisp Eel Skin 258

Snack Made from Cod Air Bladder 259

Crisp Sprats 261

Crunchy Skate Wing 263

Grilled Skate Wing with Swiss Chard 264

Aged Pork Loin Roast with Asparagus and "Béarnaise in Parts" 266

Fish Soup with Fried Squid and Sautéed Starfish Roe 270

Dehydration of Jellyfish 275

Jellyfish Salad with Seaweed, Kohlrabi, Horseradish Juice, and Black Garlic 276

Jellyfish "Popsicles": Where Licorice Meets the Sea 277

Ice Cream with Sugar-Cured Dulse 282

Chewy Almond-Milk Ice Cream 283