

CONTENTS



Preface	xiii
Acknowledgments	xvii
Prologue	xix
1 Introduction	1
There Is No Reason to Argue about Taste	1
Struggling with Words	2
Source of Pleasure	4
Times Have Changed	6
Setting the Stage	8
Gastronomy, the Science of Flavor and Tasting	10
Chemical Senses and Classification	12
Universal Flavor Factors	14
Mouthfeel	15
Flavor Richness	15
Gastronomy and Hotel Schools	16
Structure of This Book	17
Summary	18
Notes	19
2 Making Sense of Taste	21
Tasting: An Intricate Process	22
Tasting: What Happens in the Mouth?	23
The Gustatory System	25
Papillae, Taste Buds, and Taste Cells	25

VI CONTENTS

Personal Differences	27
Basic Tastes: Problems and Misconceptions	30
The Olfactory System	33
The Olfactory Process	33
Odor Composition and Preferences	35
Olfaction, Age, and Health	36
The Trigeminal System	37
No Flavor without Some Kind of Mouthfeel	37
The Receptors of the Trigeminal System	38
The Versatility of Nociceptors	40
Astringency and Trigeminal Sensitivity	41
There Is More than Meets the Mouth	42
Sensory Thresholds and Time Intensity	42
Adaptation and (De)Sensitization	43
Flavor Enhancement or Suppression	44
Carry-Over Effects	46
Intrinsic and Extrinsic Components of Flavor	48
Synesthesia and Other Forms of Sensory Interaction	50
Are Professionals Able to Taste Better than Amateurs?	51
Summary	53
Notes	54
3 Understanding Flavor	61
Finding Words: Comparing Apples to Oranges	61
Words Do Not Come Easily	63
Universal Flavor Factors	64
Mouthfeel: Types	64
Flavor Intensity	68
The Flavor Type (Fresh or Ripe Flavor Tones)	69
Flavor Richness and Complexity	70
Building the Theoretical Model	72
Description of the Flavor Styles	76
Flavor Styles 1 and 5, Neutral and Robust	76
Flavor Styles 2 and 6, Round and Full	78
Flavor Styles 3 and 7, Fresh and Pungent	78
Flavor Styles 4 and 8, Balanced, from Low to High	78
How to Generate a Flavor Profile	79

Searing, Papillote, Clay Pot, <i>Croûte</i> , <i>Sous-Vide</i>	137
Cold Cooking: Brining, Curing, Smoking	138
Drying, Pickling, Marinating	140
Very Cold Cooking: Liquid Nitrogen and Other Molecular	141
Novelties	143
Cooking Times and the Influence of Altitude and Pressure	144
A Microwave Is Not an Oven	146
Making the Dish Complete: Sauces, Herbs and Spices, Vegetables, Fruits, and Mushrooms	147
The Role and Types of Sauces	149
The Role of Herbs and Spices	150
Vegetables	153
Fruits	155
Mushrooms	156
Seasonality of Vegetables and Fruits	159
Flavor Composition	159
Technique Follows Function	160
The Arithmetic of Flavor and the Art of Omission	161
Details Matter	162
Presentation and Foodpairing	163
Culinary Success Factors	163
Palatability and Liking	165
Factor 1: Name and Presentation Fit the Expectation	165
Factor 2: Appetizing Smell That Fits the Food	166
Factor 3: Good Balance in Flavor Components in Relation to the Food	166
Factor 4: Presence of Umami	167
Factor 5: Combination of Hard and Soft Textures	168
Factor 6: High Flavor Richness	169
Palatability Objectified	170
Summary	172
Appendix: Influence of Preparation	174
Notes	177
5 The Flavor of Beverages	177
Aqueous Solutions	177
Mineral Water or Spring Water	178

Flavor Profiles Are Dynamic	82
The Role of the Basic Flavors	84
Sweet	84
Salt	86
Sour	87
Bitter	88
Umami	90
The Basic Flavors from a Different Perspective	93
The Role of the Big Four Basic Food Molecules	93
Water/Moisture	93
Lipids: Fats and Oils	95
Carbohydrates	98
Proteins	100
Summary	104
Appendix: How Low-Fat Foods Get Their Texture	106
Notes	107
4 Flavor in the Kitchen	111
No Beast Is a Cook	111
Practice or Purpose?	112
Ingredients: Basic Qualities	115
The Influence of Climate and Location on Flavor	118
The Influence of Cultivars, Varietals, and Breeds on Flavor	119
The Influence of Production Methods on Flavor	121
The Influence of Ripeness on Flavor	123
The Essence of Cooking	125
Characteristics of the Principal Techniques	128
Cooking and Blanching	128
Poaching	129
Steaming	130
Frying/Pan Frying/Stir Frying (Bao Technique)	131
Sautéing/Stir Frying (Chao Technique)	132
Roasting/Baking	133
Grilling/Barbecuing	134
Simmering/Braising/Stewing	135
Deep-Frying/Shallow Frying	136
Other Techniques to Get or to Keep Flavor	137

VIII CONTENTS

Searing, Papillote, Clay Pot, <i>Croûte</i> , <i>Sous-Vide</i>	137
Cold Cooking: Brining, Curing, Smoking	138
Drying, Pickling, Marinating	140
Very Cold Cooking: Liquid Nitrogen and Other Molecular Novelties	141
Cooking Times and the Influence of Altitude and Pressure	143
A Microwave Is Not an Oven	144
Making the Dish Complete: Sauces, Herbs and Spices, Vegetables, Fruits, and Mushrooms	146
The Role and Types of Sauces	147
The Role of Herbs and Spices	149
Vegetables	150
Fruits	153
Mushrooms	155
Seasonality of Vegetables and Fruits	156
Flavor Composition	159
Technique Follows Function	159
The Arithmetic of Flavor and the Art of Omission	160
Details Matter	161
Presentation and Foodpairing	162
Culinary Success Factors	163
Palatability and Liking	163
Factor 1: Name and Presentation Fit the Expectation	165
Factor 2: Appetizing Smell That Fits the Food	165
Factor 3: Good Balance in Flavor Components in Relation to the Food	166
Factor 4: Presence of Umami	166
Factor 5: Combination of Hard and Soft Textures	167
Factor 6: High Flavor Richness	168
Palatability Objectified	169
Summary	170
Appendix: Influence of Preparation	172
Notes	174
5 The Flavor of Beverages	177
Aqueous Solutions	177
Mineral Water or Spring Water	178

Mineral Water and the Interaction with Wine and Food	180
Tea	183
Flavor Styles of Tea	184
Other Uses of Tea	187
Coffee	188
From Plant to Bean	188
From Bean to Cup	190
Beer	192
The Process of Brewing	193
Beer Types and Flavor Profiles	196
Wine	198
Demystification Required	199
Focus on Flavor	201
The Effects of Grapes and Grape Growing on the Flavor of Wine	202
Terroir, Climate, and Grape Variety	202
Agricultural Choices and Practices	204
Harvest	207
The Effects of Vinification on the Flavor of Wine	210
The Role of the Skins	210
The Role of Yeast	211
The Role of Temperature	213
The Role of the Lees	214
The Role of Malolactic Fermentation	216
The Role of Wood	217
After Vinification	220
Blending	220
Further Aging	222
Marketing (Bottle, Label, Price, Distribution)	223
Serving	225
Beer and Wine Comparison	226
Summary	228
Notes	229
6 Matching Foods and Beverages: The Fundamentals	231
Taste!	231
Old Guidelines	233

New Guidelines	234
The Dominant Factor	235
Gustatory Effects in Matching Foods and Beverages	237
The Rice Test	237
Acid Observations	239
Sweet Connections	242
Flavor Styles and Descriptions	243
Mouthfeel Effects in Matching Foods and Beverages	245
Types of Coating	245
Fizzy Secrets	246
The Dry Run	247
Spicy Problems	249
Say Cheese	250
Gastronomic Reflections	254
Harmony and Contrast	255
Learning to Like	256
Cultural Context	257
Cooking toward Wine and Precision	258
Expensive Wines	260
Marriages Made in Heaven	261
Regional Wines with Regional Foods and Other Customs	262
Robust and Elegant	263
Beer and Food	265
Summary	267
Notes	268
7 Food Appreciation and Liking	271
Introduction	271
Tasting and the Brain	272
From Receptor to the Brain	272
Synthesizing Neural Information	276
Cross-Modal Interaction	278
Food Liking and Palatability	280
We Like What We Need	280
We Like What We Do Not Need	282
Liking and the Gut	284
Development of Preferences	285

Expectancy and Liking	287
External Influences on Liking	287
Palatability and the Aesthetics of Gastronomy	289
Flavor Styles Revisited	291
The Theorem of Flavor Styles	293
The New Paradigm	294
Is Food the Stimulus or the Response?	296
Where It All Comes Together: The Behavioral Model of Food Choice	298
Introducing: Guestronomy	300
Summary	302
Notes	303
JOURNEY IN GASTRONOMY	
Epilogue	307
Index	311

I cannot guarantee that this book will blow your mind—whenever you give such a guarantee? However, I can assure you that this book will give you a view on gastronomy that is likely to be new. It may even astound you. This view and the subsequent theory have slowly developed and matured for almost 25 years. It started with wine research in 1988 and evolved into a successful school, training sommeliers, producing books, a PhD, and ultimately a chair in gastronomy both at Stenden University in Leeuwarden and at the Hotel Management School of Maastricht. This all happened in the Netherlands.

It is all in the genes—apparently. In 1955, my parents opened a restaurant at a tourist attraction (De Echoput), near Apeldoorn in the Netherlands. It is beautifully situated amidst the Crown forests, and the restaurant's history is a tale in itself. It grew from a simple, family type restaurant into one of the cornerstones of Dutch gastronomy. The restaurant is now housed in a five-star hotel that has been developed at the same location and is still operated by the family. The kitchen is renowned for the preparation of products from the forest: game, berries, and mushrooms. Such a local perspective is popular today but was nothing new to us. We have not done anything else since the early 1960s.

Wine has also been a focus of interest since the early days. It has become a family tradition to handle our own imports. It gave me the