

On Cooking

A TEXTBOOK OF CULINARY FUNDAMENTALS | SIXTH EDITION



SARAH R. LABENSKY | ALAN M. HAUSE | PRISCILLA A. MARTEL

On Cooking

SIXTH EDITION



Approach and Philosophy of On Cooking

The sixth edition of *On Cooking* follows the model established in previous editions, which have prepared thousands of students for successful careers in the culinary arts by building a strong foundation based on sound fundamental techniques. Students and instructors alike have praised *On Cooking* for its comprehensive yet accessible coverage of culinary skills and cooking procedures. Chapters **focus on six areas** that are essential to a well-rounded culinary professional:

- 1 Professionalism** Background chapters introduce students to the field and feature material on food history, food safety and menu planning. Updated food safety information reflects the most recent regulations. A new chapter on the basics of nutrition emphasizes the nutritional impact of cooking.
- 2 Preparation** Chapters cover the core subjects all culinary students should be familiar with before stepping into the kitchen. Equipment, basic knife skills and *mise en place* concepts are explained and illustrated. Staple ingredients, such as dairy products, herbs and spices as well as flavor profiles are also presented in this section.
- 3 Cooking** These chapters explain and then demonstrate fundamental cooking techniques with a wide range of recipes. Individual chapters focus on different categories of key ingredients such as meats, poultry, fish, eggs and vegetables.
- 4 Garde Manger** These chapters cover kitchen preparations including salads, sandwich making, charcuterie and hors d'oeuvre preparations. Material is of sufficient depth to support a complete unit on garde manger skills.
- 5 Baking** These chapters cover a range of classic and contemporary breads and pastries that every culinary student should know. The material is sufficient to support a stand-alone unit on breads and dessert preparation.
- 6 Presentation** Revised chapters on plate and buffet presentation demonstrate traditional and contemporary techniques for enhancing the visual presentation of food. The basics of buffet setup and management are also included in this section.

UPDATES

More than 225 new photographs and illustrations clearly show core techniques, equipment and foods.

A new Nutrition chapter complements the revised Healthy Cooking and Special Diets chapter, which now includes expanded information on health-related and vegetarian diets.

Content updates, including new recipes, reflect current trends while a new Basic Procedure feature helps students understand and compare core cooking techniques. Expanded coverage of curing and smoking, *sous vide* cooking and principles of vegetable cookery show students modern cooking techniques widely used in professional kitchens.

New discussions on sustainability and environmental concerns encourage students to consider the impact of their food choices.

Learning objectives, end-of chapter Questions for Discussion and margin definitions are fully linked to competencies required by the American Culinary Federation.

At-a-glance cooking technique callouts highlight core principles, equipment, ingredients and steps. Function of Ingredients sidebars reinforce the science of cooking and baking and explain the uses for certain bakery ingredients.

A greatly enhanced support package includes MyLab Culinary[®], an online instructors' manual featuring performance-based learning activities, an improved text bank and lecture-based PowerPoint slides.

Visual Guide for the Reader

Easy to navigate, *On Cooking* is broken down into bite-size subsections as reflected in the table of contents. We invite you to take the guided tour to capture the flavor of *On Cooking*.

HALLMARK FEATURES

Learning Objectives

Each chapter begins with clearly stated objectives that enable you to focus on what you should achieve by the end of the chapter.

Chapter Introduction

Chapter introductions summarize the main themes in each chapter and help reinforce topics.

After studying this chapter, you will be able to:

- ▶ name key historical figures responsible for developing food service professionalism and describe the contributions of each
- ▶ list and describe the key stages in the development of the modern food service industry
- ▶ explain the organization of classic and modern kitchen brigades
- ▶ identify the attributes a student needs to become a successful culinary professional
- ▶ describe the importance of professional ethics for chefs and list the specific behaviors that all culinary professionals should follow

cooking the art, practice or work of cooking

cooking (1) the transfer of energy from a heat source to a food; this energy alters the food's molecular structure, changing its texture, flavor,

Like any fine art, great cookery requires taste and creativity, an appreciation of beauty and a mastery of technique. Like the sciences, successful cookery demands knowledge and an understanding of basic principles, and like any successful leader, today's professional chef must exercise sound judgment and be committed to achieving excellence in all endeavors.

This book describes foods and cooking equipment, explains culinary principles and cooking techniques and provides recipes using these principles and techniques. No book, however, can provide taste, creativity, commitment and judgment. For these, chefs and other culinary professionals must rely on themselves. This chapter explores the rich history of the restaurant industry and the individuals who influenced the development of the profession. It also outlines the attributes of the professional chef. As you begin your culinary studies, we hope that you find inspiration in the history of the food service industry as you learn about the qualities that will guide you in your chosen career.

CHEFS AND RESTAURANTS

Cooks have produced food in quantity for as long as people have eaten together. For millennia, chefs, whether they be Asian, Native American, European or African, have catered to the often elaborate dining needs of the wealthy and powerful, and for centuries, vendors in China, Europe and elsewhere have sold foods to the public that they prepared themselves or bought from others.

But the history of the professional chef is of relatively recent origin. Its cast is mostly French, and it is intertwined with the history of restaurants—for only with the development of restaurants during the late 18th and early 19th centuries were chefs

Margin Definitions

Important terms appear in the margins to help you master new terminology. There is a helpful phonetic pronunciation guide for non-English terms.

stage [stahzh] a brief, unpaid internship or training session in a professional kitchen; from the French *stagiaire*, meaning apprentice or intern

Safety Alerts

Brief notes remind you of safety concerns and encourage you to incorporate food safety and sanitation into your regular kitchen activities.

Safety Alert

The Temperature Danger Zone

The temperature danger zone is a broad range of temperatures in which most of the bacteria that cause food-borne illnesses multiply rapidly. The 2013 Food Code of the U.S. Food and Drug Administration (FDA), July 2015 supplement, indicates that the temperature danger zone begins at 41°F (5°C) and ends at 135°F (57°C). Regulations in some localities and with some organizations may vary. This text uses the range recommended by the FDA.

From Your Grocer's Shelf

Even the most sophisticated food service operation occasionally uses some prepared condiments or flavorings. The products listed here are widely used and available from grocery stores or wholesale purveyors. Some are brand-name items that have become almost synonymous with the product itself; others are available from several manufacturers. When there is a choice, select brands with all natural ingredients, few thickeners and no preservatives.

Barbecue sauce: Commercial barbecue sauce is a mixture of tomatoes, vinegar and spices used primarily for marinating or basting meat, poultry or fish. A tremendous variety of barbecue sauces are available, with various flavors, textures and aromas. Sample several before selecting the most appropriate for your specific needs.

Chile sauce: Asian chile sauce, also known as *sambol* or *sambol oelek*, varies somewhat depending on the country of origin or style, but all are thick, reddish-orange and extremely pungent and spicy. They usually contain ground chiles with garlic or onion and with less vinegar than Louisiana-style hot

sauce. Asian cuisines incorporate these bottled sauces in curries, soups, stews and other dishes and as table condiments. One of the most popular and widely available brands is the Vietnamese-style chile garlic sauce with a rooster logo on its label, made in California by Huy Fong Foods. Various imported **Sriracha** sauces, named for a port town in southern Thailand, are also widely available.

Hoisin sauce: Hoisin sauce is a dark, thick, salty-sweet sauce made from fermented soybeans, vinegar, garlic and caramel. It is used in Chinese dishes or served as a dipping sauce.

Old Bay brand seasoning: Old Bay is a dry spice blend containing celery salt, dry mustard, paprika and other flavorings. It is widely used in shellfish preparations, especially boiled shrimp and crab.

Oyster sauce: Oyster sauce is a thick, dark sauce made from oyster extract. It has a salty-sweet flavor and a rich aroma. Oyster sauce is often used with stir-fried meats and poultry in Chinese cuisine.

Pickapeppa brand sauce: Pickapeppa sauce is a dark, thick, sweet-hot blend of tomatoes,

onions, sugar, vinegar, mango, raisins, tamarind and spices. Produced in Jamaica, it is used as a condiment for meat, game or fish and as a seasoning in sauces, soups and dressings.

Tabasco brand sauce: Tabasco sauce is a thin, bright-red liquid blended from vinegar, chiles and salt. Its fiery flavor is widely used in sauces, soups and prepared dishes; it is a popular condiment for Mexican, southern and southwestern cuisines. Tabasco sauce has been produced in Louisiana since 1868. Other "Louisiana-style" hot sauces (containing only peppers, vinegar and salt) may be substituted.

Worcestershire sauce: Worcestershire sauce is a thin, dark brown liquid made from a variety of fermented ingredients including anchovies, malt vinegar, tamarind, molasses and spices. It is used as a condiment for beef and as a seasoning for sauces, soups, stews and prepared dishes. Its flavor should be rich and full, but not salty. Vegetarian and kosher versions made without anchovies are also available.

◀ Flavor Sidebars

These sidebars show how flavoring ingredients may be used to change the character of a dish.

Procedure for Rolling and Shaping Pie Dough



1 Dough for a typical pie crust or tart shell should be rolled to a thickness of approximately 1/8 inch (3 millimeters); it should be at least 2 inches (5 centimeters) larger in diameter than the baking pan.



2 When you have rolled the dough to the desired thickness, carefully roll the dough up onto a rolling pin. Position the pin over the pie pan or tart shell and unroll the dough, easing it into the pan or shell.

3 Press the dough into the pan. For a single crust pie, trim the edge. Use the index finger and thumb on one hand and the index finger on the other to create a scalloped edge. Bake or fill as desired.

Product Identification ▶

Hundreds of original color photographs help you recognize and identify ingredients. You can explore a huge variety of items such as fruits, berries, chocolates, fresh herbs, fish, dried spices, game, meats and fine cheeses.

◀ Procedures

Step-by-step color photographs of various stages in the preparation of ingredients and dishes help you visualize unfamiliar techniques and encourage you to review classroom or kitchen activities whenever necessary.

Herbs

Fragrant herbs are available fresh or dried. Because drying alters their flavors and aromas, fresh herbs are generally preferred and should be used if possible. **Microherbs** are the first true leaves of virtually any edible herb, such as basil or chervil. Micro greens are very fragile and must be hand-picked and carefully packaged for delivery. They are bursting with intense flavor; chefs use them as garnishes, especially on entrées and canapés.

Basil (*Fr. basilic*) is one of the great culinary herbs. It is available in a variety of "flavors"—cinnamon, garlic, lemon, even chocolate—but the most common is sweet basil. Sweet basil has light green, tender leaves and small white flowers. Its flavor isn't actually sweet, but rather strong, warm and slightly peppery, with a hint of anise and cloves. Basil is used in Mediterranean and some Southeast Asian cuisines and has a special affinity for garlic and tomatoes. When purchasing fresh basil, look for bright green leaves; avoid flower buds and wilted or rust-colored leaves. Dried sweet basil is readily available but has a decidedly weaker flavor than fresh.

Opal basil is named for its vivid purple color. It has a tougher, crinkled leaf and a medium-strong flavor. Opal basil may be substituted for sweet basil in cooking, and its appearance makes it a distinctive garnish.

Thai sweet basil (*Th. bai boraphu*) has a narrow leaf and purple stem. It has a slight licorice flavor and is used in both raw and cooked dishes in Southeast Asian cuisines.

Bay (*Fr. laurier*), also known as sweet laurel, is a small tree that produces tough, glossy leaves with a sweet balsamic aroma and



MISE EN PLACE

- Cut beef shank into pieces.
- Peel and chop onions, carrots and celery for mirepoix.
- Wash and peel turnips and leeks and chop into medium dice.
- Wash, peel, seed and dice tomatoes.
- Prepare herb sachet.

◀ Mise en Place

French for "put in place," this feature accompanying in-chapter recipes provides a list of what you must do before starting a recipe, such as preheating the oven, chopping nuts or melting butter.

▼ Icons

Icons identify recipes that are vegetarian, vegan or good choices for health-conscious diners.

♥ Good Choice ♻️ Vegan

🌿 Vegetarian

Line Drawings ▶

Detailed line drawings illustrate tools and equipment without brand identification. Other drawings depict the skeletal structure of meat animals, fish and poultry.

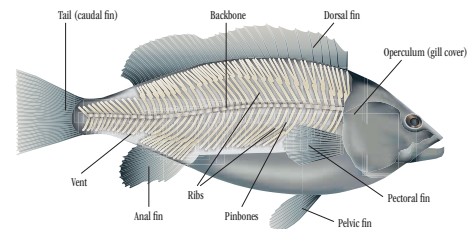


Figure 20.1 Bone structure of a round fish.

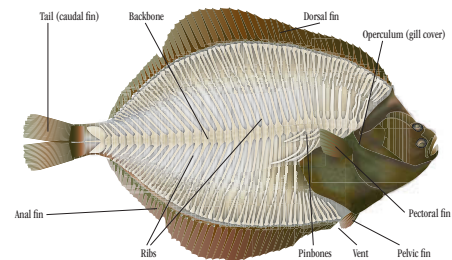


Figure 20.2 Bone structure of a flatfish.

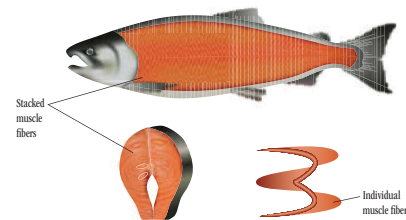


Figure 20.3 Muscle fibers in a round fish.

Recipes

Measurements

All recipes include both U.S. and metric measurements. To aid in teaching scaling and consistent baking practices, we also provide metric equivalents for all temperatures, pan sizes and length measurements throughout the text. Baking recipes also include measurements in baker's percentage.

Illustrations

Recipes are illustrated with both sequential photos showing the preparation of dishes and many finished-dish photos that show you the authors' finished food created while testing the recipes.

Variations

Recipe variations show you how to modify recipe ingredients to create new dishes.

Nutritional Analysis

All recipes include a nutritional analysis prepared by a registered dietician.



Finished dish photos illustrate ways to present the recipe.

Sidebars

Sidebars present information on food history, food in culture and the background of professional foodservice. These sidebars help you understand the culinary arts in a wider social context.

Questions for Discussion

Questions for Discussion, which appear at the end of each chapter, encourage you to integrate theory and technique into a broader understanding of the material.

Chocolate Cherry Scones

Houston Community College, Houston, TX
Pastry Chef Eddy Van Damme

YIELD 24 Scones, approx. 4¼ oz. (130 g) each		METHOD Biscuit	
Unsalted butter, cold	14 oz.	420 g	44%
Granulated sugar	4 oz.	120 g	12.5%
Buttermilk	8 fl. oz.	240 ml	25%
Sour cream	1 lb.	480 g	50%
Salt	0.6 oz. (1 Tbsp.)	18 g	2%
Vanilla extract	0.5 fl. oz. (1 Tbsp.)	15 ml	1.5%
All-purpose or pastry flour	2 lb.	960 g	100%
Baking powder	2 oz.	60 g	6%
Dried cherries	1 lb.	480 g	50%
Chocolate chunks	9 oz.	270 g	28%
Powdered sugar	as needed	as needed	
Total dough weight:	6 lb. 6 oz.	3063 g	319%

- Chill a mixer bowl and paddle attachment in the freezer for at least 15 minutes before mixing.
- Cut the butter into 1-inch (6-millimeter) cubes. Set aside in the refrigerator.
- Whisk together the sugar, buttermilk, sour cream, salt and vanilla extract in a bowl until smooth. Set aside in the refrigerator.
- Put the flour and baking powder in the chilled mixer bowl. Place the butter on top. Mix on low speed using the paddle attachment until the mixture resembles coarse meal.
- Add the buttermilk mixture to the dry ingredients and mix very briefly, until just combined. Mix in the cherries and chocolate until just combined.
- Scale the dough into three uniform pieces. On a lightly floured surface, press each piece of dough out into an 8-inch (20.5-centimeter) disk using a metal torte ring or other form as a guide.
- Cut each disk of dough into eight wedges. Position the wedges of dough spaced 2 inches (5 centimeters) apart on parchment-lined baking sheets. Bake at 375°F (190°C) until light golden brown, approximately 18–24 minutes. When cool, dust with powdered sugar if desired.

Variation:
Cinnamon Orange Scones—Omit the sun-dried cherries and chocolate chunks. Add 0.5 ounce (2 tablespoons/15 grams/1.5%) ground cinnamon and 0.2 ounce (1 tablespoon/6 grams/0.6%) grated orange zest in Step 3. Yield is reduced to 4 pounds 15 ounces (2313 grams).

Approximate values per 4¼-oz. (130-g) scone: **Calories** 430, **Total Fat** 21 g, **Saturated fat** 13 g, **Cholesterol** 45 mg, **Sodium** 550 mg, **Total carbohydrates** 58 g, **Protein** 6 g, **Vitamin A** 25%, **Calcium** 20%, **Iron** 15%

1 Mixing in the chilled butter.

2 Adding the chilled buttermilk mixture.

3 Placing the portioned dough on baking sheets.

Comprehensive Learning and Teaching Package

MyLab Culinary

FOR THE STUDENT

MyLab Culinary, a dynamic online tool, supports the many ways students learn. MyLab Culinary enables the student to study and master the content online on their own time and at their own pace. Media-rich personalized study plans are based on the student's performance using the site's interactive testing and games.

- UPDATED! Pearson Kitchen Manager has been redesigned and rebuilt for an improved customer experience and better connection to the Learning Objectives. With this collection of *On Cooking* recipes, you can quickly perform simple tasks such as recipe scaling, recipe costing and recipe conversions.
- NEW! Chapter 0, Culinary Math Fundamentals, with one model problem for 20 identified math concepts, with 10 practice problems for each concept (220 total problems).

The following updated chapter resources are included:

- Short Writing Assignments for each chapter build critical analysis and problem solving skills and send students to Pearson Kitchen Manager (when appropriate).
- Multiple Choice Questions in the form of Chapter Quizzes and Tests are in alignment with each Learning Objective, reinforcing the content in *On Cooking*.
- Videos align with *On Cooking* or current American Culinary Federation Standards.
- Video Assessment Questions are included with each video.
- Culinary Rubrics and Correlation Guides align with current American Culinary Federation Standards.

FOR THE INSTRUCTOR

Manage Your Course with MyLab Culinary

MyLab Culinary is an easy-to-use online resource designed to supplement a traditional lecture course. It provides instructors with basic course management capabilities in the areas of course organization, grades, communication and personalization of content. Instructors benefit from course management tools such as a robust grade book, integrated course email and reporting tools. MyLab Culinary also includes grading rubrics; these downloadable documents that can be used to grade and assess kitchen skills. Reporting features include data tracking and reporting for students.

Qualified adopters can download the following instructor supplements by registering at our Instructors' Resource Center at www.pearsoned.com.

Online Instructor's Manual

The Instructor's Manual includes chapter outlines, examination questions and answers, performance-based learning activities, answers to end-of-chapter questions for discussion and maps to ACF skill standards and competencies. (ISBN-10: 0-13-445365-4)

PowerPoint Lecture Presentations

This comprehensive set of slides can be used by instructors for class presentations or by students for lecture preview or review. There is a presentation for each chapter, including a selection of full-color photographs from the book. (ISBN-10: 0-13-444293-8)

TestGen (Computerized Test Bank)

TestGen contains text-based questions in a format that enables instructors to choose questions in order to create their own examinations. (ISBN-10: 0-13-444297-0)

For additional information on media resources or instructor materials, please contact Pearson Education faculty services at 1-800-526-0485.

This page intentionally left blank

On Cooking

A TEXTBOOK OF CULINARY FUNDAMENTALS | SIXTH EDITION



SARAH R. LABENSKY | ALAN M. HAUSE | PRISCILLA A. MARTEL

Photographs by Richard Embery and Debby Wolvos

Drawings by Stacey Winters Quattrone and William E. Ingram



330 Hudson Street, NY, NY 10013

Vice President, Portfolio Management: Andrew Gilfillan
Portfolio Manager: Pamela Chirls
Editorial Assistant: Lara Dimmick
Development Editor: Erin Mulligan
Senior Vice President, Marketing: David Gesell
Field Marketing Manager: Bob Nisbet
Marketing Coordinator: Elizabeth MacKenzie-Lamb
Director, Digital Studio and Content Production: Brian Hyland
Managing Producer: Cynthia Zonneveld
Manager, Rights Management: Johanna Burke
Operations Specialist: Deidra Smith
Creative Digital Lead: Mary Siener

Managing Producer, Digital Studio: Autumn Benson
Content Producer, Digital Studio: Leslie Brado
Full-Service Management and Composition:
iEnergizer Aptara[®], Ltd.
Full-Service Project Manager: Kelly Ricci
Interior Design: John Christiana
Cover Design: John Christiana
Cover Image: Topseller/Shutterstock
Printer/Binder: LSC/Willard
Cover Printer: Phoenix Color/Hagerstown
Text Font: ITC Garamond Std Light

Copyright © 2019, 2015, 2007, 2003, 1999 by Pearson Education, Inc. or its affiliates. All Rights Reserved.

Manufactured in the United States of America. This publication is protected by copyright, and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise. For information regarding permissions, request forms, and the appropriate contacts within the Pearson Education Global Rights and Permissions department, please visit www.pearsoned.com/permissions/.

Acknowledgments of third-party content appear on page 1183, which constitutes an extension of this copyright page.

PEARSON, ALWAYS LEARNING, and MyCulinaryLab[®] are exclusive trademarks owned by Pearson Education, Inc. or its affiliates in the U.S. and/or other countries.

Unless otherwise indicated herein, any third-party trademarks, logos, or icons that may appear in this work are the property of their respective owners, and any references to third-party trademarks, logos, icons or other trade dress are for demonstrative or descriptive purposes only. Such references are not intended to imply any sponsorship, endorsement, authorization or promotion of Pearson's products by the owners of such marks, or any relationship between the owner and Pearson Education, Inc., or its affiliates, authors, licensees or distributors.

Library of Congress Cataloging-in-Publication Data

Names: Labensky, Sarah R., author. | Hause, Alan M., author. | Martel, Priscilla, author.

Title: On cooking : a textbook of culinary fundamentals/Sarah R. Labensky,

Alan M. Hause, Priscilla A. Martel; photographs by Richard Embery
and Debby Wolvos; drawings by Stacey Winters Quattrone, William E. Ingram.

Description: Sixth edition. | Hoboken : Pearson, [2018] | Includes
bibliographical references and index.

Identifiers: LCCN 2017050522 | ISBN 9780134441900 | ISBN 0134441907

Subjects: LCSH: Cooking.

Classification: LCC TX714 .L29 2018 | DDC 641.5—dc23 LC record available at <https://lcn.loc.gov/2017050522>

About the Authors



SARAH R. LABENSKY

Chef Sarah is a culinary educator and academic administrator with an extensive background as a restaurateur and caterer, textbook author and dedicated advocate for culinary professionalism. She is currently a professor at Woosong University's Sol International Culinary Arts School in Daejeon, Korea. Previously Chef Sarah was Founding Director of the Culinary Arts Institute at Mississippi University for Women (MUW) in Columbus, Mississippi. While living in Mississippi, she also owned two restaurants and worked as food and beverage director for a country club. Chef Sarah has also taught culinary arts at Scottsdale (Arizona) Community College and before teaching she spent many years as a working pastry cook and caterer.

In addition to *On Cooking*, Sarah Labensky is also co-author of *On Baking*, *Webster's New World Dictionary of Culinary Arts* and *Applied Math for Food Service*. She is a past president of the International Association of Culinary Professionals (IACP).

Sarah's passions include travel and mentoring young people to develop their own professional paths. To combine those interests, she has conducted culinary training programs in Russia, Korea, Moldova and Jamaica.



ALAN M. (SKIP) HAUSE

Chef Skip is a graduate of the Culinary Institute of America in Hyde Park, New York. Upon graduation, Chef Skip worked in both restaurants and hotels before settling in Arizona. For the past 20 years, he has owned and operated Fabulous Food Fine Catering and Events. He also launched and operates Gertrude's restaurant at the Desert Botanical Garden in Phoenix, Arizona. Chef Skip is involved in day-to-day food production, planning and execution of catered events as well as overseeing restaurant operations. A longtime member of the American Culinary Federation, Chef Skip is passionate about all aspects of food and cooking. He enjoys teaching and mentoring students and cooks, is active in the Careers through Culinary Arts Program (C-Cap) and is a board member of the East Valley Institute of Technology Culinary Program.

When not working in the kitchen, Chef Skip pursues his passions entertaining friends, traveling, hiking, biking (both motor and pedal) and, of course, anything to do with food. Chef Skip resides in Scottsdale, Arizona and summers in Kalispell, Montana, with his wife, Chantal, and sons, Logan and Grayson.



PRISCILLA A. MARTEL

Priscilla Martel is a professional chef, educator and food writer with a special interest in Mediterranean cuisines and artisan baking. She honed her cooking skills at Restaurant du Village, a country French restaurant she opened in Chester, Connecticut, in 1979. Today she operates All About Food, which holds several baking patents and collaborates with food manufacturers and restaurants to create innovative products, menus and marketing programs.

She is a visiting instructor at Boston University's certificate program in the culinary arts and in the Hospitality Management Program at Gateway Community College in New Haven, Connecticut. She is also a contributing writer for *Gourmet Retailer* among other food trade publications and the culinary director of American Almond, a leading baking-industry ingredient manufacturer. To honor her commitment to help young people prepare for their culinary careers, Priscilla Martel advises Pro Start Culinary teams in Connecticut. She is co-author of *On Baking* and *Math for Bakers* (DVD).

This page intentionally left blank

Contents

1 Professionalism	1	3 Nutrition	39
CHEFS AND RESTAURANTS 2		NUTRITION BASICS 40	
The 18th Century—Boulangier’s Restaurant 2		Essential Nutrients 41	
The Early 19th Century—Carême and <i>Grande Cuisine</i> 3		Carbohydrates 41	
The Late 19th Century—Escoffier and <i>Cuisine Classique</i> 4		Lipids 42	
The Mid-20th Century—Point and <i>Nouvelle Cuisine</i> 5		Proteins 43	
The Late 20th and Early 21st Centuries—An American Culinary Revolution 5		Vitamins 44	
Modernist Cuisine 6		Minerals 46	
MODERN FOOD SERVICE OPERATIONS 7		Water 46	
Culinary Technologies 7		Phytochemicals 46	
Food Supplies 8		TOOLS FOR HEALTHY EATING 47	
Consumer Concerns 9		Dietary Guidelines for Americans 48	
THE MODERN KITCHEN BRIGADE 11		MyPlate 48	
THE PROFESSIONAL CHEF 13		Nutrition Labeling 48	
Knowledge 13		Menu Labeling 49	
Skill 14		Government Oversight 49	
Taste 14		NUTRITION, EATING OUT AND THE CHEF 50	
Judgment 14		Healthful Cooking Techniques 51	
Dedication 14		Nutritional Analysis of Recipes 52	
Professional Ethics 15			
Pride 15			
Careers 15			
2 Food Safety and Sanitation	17	4 Menus and Recipes	53
SANITATION 18		THE MENU 54	
DIRECT BIOLOGICAL CONTAMINANTS 18		Types of Menus 54	
Bacteria 19		Menu Language 55	
Parasites 23		STANDARDIZED RECIPES 56	
Viruses 24		MEASUREMENTS AND CONVERSIONS 56	
Fungi 25		Measurement Formats 56	
DIRECT CHEMICAL CONTAMINANTS 25		Measurement Systems 58	
Residual Chemicals 25		Converting Grams and Ounces 58	
Food Service Chemicals 26		RECIPE CONVERSIONS 59	
Toxic Metals 26		Converting Total Yield 60	
DIRECT PHYSICAL CONTAMINANTS 26		Converting Portion Size 60	
CROSS-CONTAMINATION 26		Additional Conversion Problems 61	
Personal Cleanliness 27		CALCULATING UNIT COSTS, RECIPE COSTS AND SELLING PRICES 62	
Dish and Equipment Cleanliness 28		Unit Costs 62	
Food Storage 30		Yield Percentage 63	
Food Labeling 31		Recipe Costs 64	
Pest Management 31		Selling Prices 65	
HAZARD ANALYSIS CRITICAL CONTROL POINTS (HACCP) SYSTEMS 32		CONTROLLING FOOD COSTS 66	
FOOD ALLERGIES AND INTOLERANCES 35		Menu 67	
THE SAFE WORKER 36		Purchasing and Ordering 67	
Personal Safety 36		Receiving 67	
Fire Safety 37		Storing 67	
First Aid 37		Issuing 67	
		Kitchen Procedures: Establishing Standard Portions 67	
		Kitchen Procedures: Managing Waste 68	
		Sales and Service 68	
		RECIPE WRITING 101 68	
		Elements of a Recipe Written for Publication 69	
		Other Considerations When Crafting a Recipe for Publication 70	

5 Tools and Equipment 71**STANDARDS FOR TOOLS AND EQUIPMENT** 72**KNIVES** 73

- Knife Construction 73
- Knife Shapes and Sharpening Equipment 73
- Japanese Knives 75

HAND TOOLS 75**MEASURING AND PORTIONING DEVICES** 76**COOKWARE** 78

- Cookware Metals and Heat Conduction 78
- Other Cookware Materials 79
- Nonstick Coatings 80
- Common Cookware 80

STRAINERS AND SIEVES 81**PROCESSING EQUIPMENT** 83**STORAGE CONTAINERS** 85**HEAVY EQUIPMENT** 85**SPECIALIZED EQUIPMENT FOR MODERN CULINARY TECHNIQUES** 89**BUFFET EQUIPMENT** 90**SAFETY EQUIPMENT** 90**ENERGY CONSERVATION IN THE PROFESSIONAL KITCHEN** 92**6 Knife Skills** 93**USING KNIVES SAFELY** 94**CARING FOR AND SHARPENING YOUR KNIVES** 94**GRIPPING YOUR KNIFE** 96**CONTROLLING YOUR KNIFE** 96**USING YOUR KNIFE** 97

- Slicing 97
- Chopping 99
- Cutting Sticks and Dicing 100
- Mincing 104
- Turning Vegetables 104
- Making Parisiennes 105

USING A MANDOLINE 105

- Using a Spiral Slicer 105

7 Flavors and Flavorings 107**FLAVOR AND TASTE** 108

- Tastes: Sweet, Sour, Salty, Bitter and Umami 108
- Factors Affecting Perception of Flavors 110

FLAVORING FOOD 112

- Flavor Profiles 112
- Describing Aromas and Flavors in Food 113
- Classic Flavor Combinations 113
- Amplifying Flavors 115
- Experimenting with Flavor 115

INTERNATIONAL FLAVOR PRINCIPLES 116**HERBS AND SPICES** 117

- Herbs 117
- Spices 120
- Herb and Spice Blends 126
- Storing Herbs and Spices 127
- Using Herbs and Spices 127

SALT 128**OILS** 129**VINEGARS** 130**CONDIMENTS** 131**WINES, BEERS AND DISTILLED SPIRITS** 133

- Wines 134
- Beers 137
- Distilled Spirits 138
- Guidelines for Cooking with Alcoholic Beverages 140

8 Dairy Products 143**MILK AND MILK PRODUCTS** 144

- Milk-Processing Techniques 144
- Concentrated Milks 145
- Cream 145
- Cultured Dairy Products 146
- Butter 147
- Margarine 147
- Storage of Milk and Milk Products 148

CHEESE 148

- Natural Cheeses 148
- Cheese Varieties 149
- Processed Cheeses 158
- Serving Cheeses 158
- Storing Cheeses 159
- Cooking with Cheese 159

9 Mise en Place 161**MISE EN PLACE** 162

- Creating a Prep List 163
- Quantity Planning 164

SELECTING TOOLS AND EQUIPMENT 165**MEASURING INGREDIENTS** 165**PREPARING INGREDIENTS** 166

- Clarifying Butter 166
- Toasting Nuts and Spices 167
- Making Bread Crumbs 167

FLAVORING FOODS 167

- Bouquets Garni and Sachets 168
- Marinades 168
- Brines 169
- Rubs and Pastes 169
- Steeping 169

PREPARING TO COOK 170

- Breading 170
- Battering 171
- Blanching and Parboiling 171
- Making an Ice Bath 172

10 Principles of Cooking _____ 173

HEAT TRANSFER 174

- Conduction 174
- Convection 175
- Radiation 175

THE EFFECTS OF HEAT 176

- Proteins Coagulate 176
- Starches Gelatinize 177
- Sugars Caramelize 178
- Water Evaporates 178
- Fats Melt 178

DETERMINING DONENESS 178

INTRODUCTION TO COOKING METHODS 179

DRY-HEAT COOKING METHODS 179

- Broiling 181
- Grilling 182
- Roasting and Baking 183
- Barbecuing and Smoking 184
- Sautéing 184
- Stir-Frying 186
- Pan-Frying 187
- Deep-Frying 188
- Oven-Frying 190

MOIST-HEAT COOKING METHODS 191

- Poaching 191
- Simmering 193
- Boiling 193
- Steaming 194

COMBINATION COOKING METHODS 195

- Braising 196
- Stewing 196
- Sous Vide* 197

11 Stocks and Sauces _____ 201

STOCKS 202

INGREDIENTS FOR STOCKS 203

- Bones 203
- Mirepoix 203
- Seasonings 204

PRINCIPLES OF STOCK MAKING 204

- White Stock 206
- Brown Stock 208
- Remouillage 210
- Fish Stock and Fish Fumet 210
- Vegetable Stock 211
- Court Bouillon 212
- Nage 213
- Glaze 213
- Infusion 214

SAUCES 215

- Thickening Agents for Sauces 215
- Finishing Techniques for Sauces 219

CLASSIC SAUCE FAMILIES 219

- The Béchamel Family 220
- The Velouté Family 222
- The Espagnole Family 224
- The Tomato Sauce Family 227
- The Hollandaise Family 229

TRADITIONAL SAUCES 231

- Beurre Blanc and Beurre Rouge 231
- Compound Butters 233

- Pan Gravy 234
- Pan Sauces 235
- Coulis 235

CONTEMPORARY SAUCES 236

- Salsa and Relish 237
- Vegetable Juice Sauces 237
- Broths 239
- Foams 239
- Flavored Oils 240

USING SAUCES 242

12 Soups _____ 255

CHARACTERISTICS OF SOUP 256

CLEAR SOUPS 257

- Broths 257
- Broth-Based Soups 259
- Consommés 260

THICK SOUPS 263

- Cream Soups 263
- Purée Soups 266
- Adjusting the Consistency of Thick Soups 267

OTHER SOUPS 267

- Bisques 267
- Chowders 269
- Cold Soups 270

GARNISHING SOUPS 274

- Guidelines for Garnishing Soups 274
- Garnishing Suggestions 274

SOUP SERVICE 274

- Temperatures 275
- Portion Sizes 275

13 Principles of Meat Cookery _____ 291

MUSCLE COMPOSITION OF MEATS 292

INSPECTION AND GRADING OF MEATS 293

AGING MEATS 294

- Wet Aging 294
- Dry Aging 295

PURCHASING AND STORING MEATS 295

- Purchasing Meats 295
- Storing Meats 296

PREPARING MEATS 297

- Tying and Trussing 297
- Barding 297
- Larding 298

DRY-HEAT COOKING METHODS FOR MEATS 298

- Broiling and Grilling 298
- Roasting 301
- Barbecue 306
- Sautéing 309
- Pan-Frying 311
- Deep-Frying 313

MOIST-HEAT COOKING METHODS FOR MEAT 313

- Simmering 313

COMBINATION COOKING METHODS FOR MEATS 316

- Braising 316
- Stewing 318
- Cooking *Sous Vide* 322

14 Beef 325**PRIMAL AND SUBPRIMAL CUTS OF BEEF** 326**FOREQUARTER PRIMAL CUTS OF BEEF** 326

- Chuck 326
- Brisket and Shank 328
- Rib 328
- Short Plate 328

HINDQUARTER PRIMAL CUTS OF BEEF 329

- Short Loin 329
- Sirloin 329
- Flank 330
- Round 330

BEEF ORGAN MEATS 331**NUTRITION INFORMATION FOR BEEF** 331**BUTCHERING PROCEDURES FOR BEEF** 331**15 Veal** 349**PRIMAL AND SUBPRIMAL CUTS OF VEAL** 350**FORESADDLE PRIMAL CUTS OF VEAL** 350

- Veal Shoulder 350
- Veal Foreshank and Breast 350
- Veal Rib 351

HINDSADDLE PRIMAL CUTS OF VEAL 352

- Veal Loin 352
- Veal Leg 352

VEAL ORGAN MEATS 353

- Sweetbreads 353
- Calves' Liver 353
- Veal Kidneys 353

PURCHASING VEAL 353**NUTRITION INFORMATION FOR VEAL** 353**BUTCHERING PROCEDURES FOR VEAL** 354**16 Lamb** 371**PRIMAL AND SUBPRIMAL CUTS OF LAMB** 372

- Lamb Shoulder 372
- Lamb Breast 372
- Lamb Rack 372
- Lamb Loin 373
- Lamb Leg 373

PURCHASING LAMB 374

- Domestic vs. Imported Lamb 374
- Goat 374

NUTRITION INFORMATION FOR LAMB 375**BUTCHERING PROCEDURES FOR LAMB** 375**17 Pork** 391**PRIMAL AND SUBPRIMAL CUTS OF PORK** 392

- Pork Shoulder 392
- Boston Butt 392
- Pork Belly 393
- Pork Loin 394

- Fresh Ham 395
- Hocks and Trotters 395

PURCHASING PORK 395**NUTRITION INFORMATION FOR PORK** 396**BUTCHERING PROCEDURES FOR PORK** 396**18 Poultry** 413**MUSCLE COMPOSITION OF POULTRY** 414**IDENTIFYING POULTRY** 416

- Chicken 416
- Duck 418
- Goose 418
- Guinea Fowl 418
- Pigeon 418
- Turkey 418
- Ratites 418
- Livers, Gizzards, Hearts and Necks 419
- Foie Gras 419

NUTRITION INFORMATION FOR POULTRY 419**INSPECTION AND GRADING OF POULTRY** 419**PURCHASING POULTRY** 420

- Free-Range Poultry 420
- Air-Chilled Poultry 421

STORING POULTRY 421**BUTCHERING PROCEDURES FOR POULTRY** 421**MARINATING POULTRY** 426**COOKING METHODS FOR POULTRY** 426**DRY-HEAT COOKING METHODS FOR POULTRY** 427

- Broiling and Grilling Poultry 427
- Roasting Poultry 429
- Poêléng Poultry 436
- Sauténg Poultry 437
- Pan-Frying Poultry 440
- Deep-Frying Poultry 442

MOIST-HEAT AND COMBINATION COOKING METHODS FOR POULTRY 443

- Moist-Heat Cooking Methods: Poaching and Simmering Poultry 443
- Combination Cooking Methods: Braising and Stewing Poultry 445

19 Game 467**FURRED OR GROUND GAME** 468

- Antelope 468
- Bison (American Buffalo) 468
- Deer 469
- Rabbit 469
- Wild Boar 470

FEATHERED OR WINGED GAME 470

- Partridge 471
- Pheasant 471
- Quail 471

NUTRITION INFORMATION FOR GAME 471**PURCHASING AND STORING GAME** 471**MARINATING FURRED GAME** 472

20 Fish and Shellfish 479**STRUCTURE AND MUSCLE COMPOSITION OF FISH AND SHELLFISH** 480**IDENTIFYING FISH** 482

- Round Fish 482
- Flatfish 487

IDENTIFYING SHELLFISH: MOLLUSKS 488

- Bivalves 489
- Cephalopods 490

IDENTIFYING SHELLFISH: CRUSTACEANS 491**NUTRITION INFORMATION FOR FISH AND SHELLFISH** 494**INSPECTION AND GRADING OF FISH AND SHELLFISH** 494**PURCHASING AND STORING FISH AND SHELLFISH** 494

- Determining Freshness of Fish and Shellfish 495
- Purchasing Fish and Shellfish 496
- Storing Fish and Shellfish 497

FABRICATING PROCEDURES FOR FISH AND SHELLFISH 498**COOKING FISH AND SHELLFISH** 507

- Substituting Fish 507
- Determining Doneness 508

DRY-HEAT COOKING METHODS FOR FISH AND SHELLFISH 508

- Broiling and Grilling 508
- Baking 510
- Sautéing 512
- Pan-Frying 514
- Deep-Frying 515

MOIST-HEAT COOKING METHODS FOR FISH AND SHELLFISH 517

- Steaming 517
- Poaching 519
- Simmering 522

COMBINATION COOKING METHODS FOR FISH AND SHELLFISH 524**SERVING RAW FISH AND SHELLFISH** 525

- Raw Fish and Shellfish Dishes 525
- Sushi and Sashimi 525

21 Eggs and Breakfast 551**EGGS** 552

- Egg Storage and Sanitation 553
- Egg Products 554

NUTRITION INFORMATION FOR EGGS 554**WHIPPED EGG WHITES** 555**COOKING METHODS FOR EGGS** 555**DRY-HEAT COOKING METHODS FOR EGGS** 555

- Baking 555
- Sautéing 557
- Pan-Frying 561
- Griddling 562

MOIST-HEAT COOKING METHODS FOR EGGS 563

- In-Shell Cooking (Simmering) 563
- Poaching 563

BREAKFAST AND BRUNCH 564

- Breakfast Meats 565

- Griddlecakes 565
- Crêpes 566
- Cereals and Grains 567

COFFEE 569

- Roasting Coffee 569
- Grinding Coffee 570
- Brewing Coffee 570
- Tasting Coffee 572
- Flavored Coffees 572
- Decaffeinated Coffee 573

TEA AND TISANES 573

- Tea Varieties 573
- Tasting Tea 574
- Tisanes (Herbal Teas) 574
- Brewing Tea 575

22 Vegetables 585**IDENTIFYING VEGETABLES** 586

- Cabbages 586
- Fruit Vegetables 589
- Gourds and Squashes 594
- Greens 596
- Mushrooms and Truffles 598
- Onions 599
- Pods and Seeds 601
- Roots and Tubers 604
- Stalk Vegetables 607
- Baby Vegetables 610

NUTRITION INFORMATION FOR VEGETABLES 610**PURCHASING AND STORING FRESH VEGETABLES** 610

- Grading Vegetables 611
- Purchasing Vegetables 611
- Ripening Vegetables 611
- Storing Vegetables 611

PURCHASING AND STORING PRESERVED VEGETABLES 612

- Irradiated Vegetables 612
- Canned Vegetables 612
- Frozen Vegetables 613
- Dried Vegetables 613

COOKING METHODS FOR VEGETABLES 613

- Fiber Content and Vegetable Cookery 613
- Acid/Alkali Reactions and Vegetable Cookery 614
- Guidelines for Vegetable Cookery 615
- Determining Doneness of Vegetables 615
- Preserving Nutritional Qualities in Vegetables 616

DRY-HEAT COOKING METHODS FOR VEGETABLES 616

- Broiling and Grilling 616
- Roasting and Baking 618
- Sautéing 619
- Stir-Frying 621
- Pan-Roasting 622

MOIST-HEAT COOKING METHODS FOR VEGETABLES 625

- Blanching and Parboiling 625
- Boiling 625
- Steaming 629
- Microwaving 630
- Combination Cooking Methods: Braising and Stewing Vegetables 631
- Puréeing Vegetables 632

PRESERVING VEGETABLES 634

23 Potatoes, Grains and Pasta 653**POTATOES 654**

- Identifying Potatoes 654
- Nutrition of Potatoes 655
- Purchasing and Storing Potatoes 656
- Cooking Methods for Potatoes 657

GRAINS 665

- Identifying Grains 665
- Nutrition of Grains 670
- Purchasing and Storing Grains 670
- Cooking Methods for Grains 670

PASTA 675

- Identifying Pasta 675
- Nutrition of Pasta 678
- Purchasing and Storing Pasta 678
- Making Fresh Pasta 678
- Cooking Method for Pasta 682

24 Healthy Cooking and Special Diets 705**PRINCIPLES OF HEALTHY COOKING 706**

- Portion Size 706
- Rethinking the Center of the Plate 707

RECIPE MODIFICATION 708

- Reduce, Replace or Eliminate 708
- Modifying Recipes 709

ACCOMMODATING SPECIAL DIETS 711

- Low-Sodium Diets 711
- Low-Sugar Diets 712
- Low-Fat Diets 713
- Dairy-Free Diets 714
- Gluten-Free Diets 715
- Allergen-Free Diets 716

VEGETARIAN AND VEGAN DIETS 717

- Ingredients for Vegetarian and Vegan Diets 718
- Vegetarian and Vegan Cuisine: Focusing on Plant-Based Ingredients 721

25 Salads and Salad Dressings 731**IDENTIFYING SALAD GREENS 732**

- Lettuce 732
- Chicory 733
- Other Salad Greens and Ingredients 734
- Nutrition of Salads 735
- Purchasing and Storing Salad Greens 736

PREPARING SALAD GREENS 736

- Tearing and Cutting Salad Greens 736
- Washing Salad Greens 737
- Drying Salad Greens 738

SALAD DRESSINGS 739

- Vinaigrette Dressings 739
- Mayonnaise-Based Dressings 741
- Emulsified Vinaigrette Dressings 743

SALAD PREPARATION METHODS 744

- Tossed Green Salads 745
- Composed Green Salads 746
- Bound Salads 747
- Vegetable Salads 749

- Fruit Salads 750
- Gelatin Salads 750

26 Fruits 773**IDENTIFYING FRUITS 774**

- Berries 774
- Citrus 776
- Exotic Fruits 778
- Grapes 780
- Melons 781
- Pomes 783
- Stone Fruits 785
- Tropical Fruits 786

NUTRITION OF FRUITS 790**PURCHASING FRESH FRUITS 790**

- Grading 790
- Ripening 791
- Purchasing 791
- Storing 791

PRESERVING FRUITS 792

- Irradiation 792
- Acidulation 792
- Canning 792
- Freezing 792
- Drying 793

JUICING FRUITS 793**COOKING METHODS FOR FRUITS 794**

- Determining Doneness 794
- Dry-Heat Cooking Methods for Fruits 794
- Moist-Heat Cooking Methods for Fruits 798
- Making Fruit Preserves 800

27 Sandwiches 809**INGREDIENTS FOR SANDWICHES 810**

- Sandwich Breads 810
- Sandwich Spreads 810
- Sandwich Fillings 811

TYPES OF SANDWICHES 813

- Hot Sandwiches 813
- Cold Sandwiches 814

SANDWICH MISE EN PLACE 817**PRESENTING AND GARNISHING SANDWICHES 817****28 Charcuterie** 831**FORCEMEATS 832****EQUIPMENT FOR PREPARING FORCEMEAT 832****FORCEMEAT INGREDIENTS 833**

- Meats 833
- Fats 834
- Binders 834
- Seasonings 834
- Garnishes 835

PREPARING FORCEMEATS 835

- Country-Style Forcemeats 835
- Basic Forcemeats 837
- Mousseline Forcemeats 839
- Quenelles 840

USING FORCEMEATS 841

- Aspic Jelly 841
- Terrines 842
- Pâtés en Croûte 845
- Galantines 847
- Sausages 849

SALT CURING, BRINING AND SMOKING 851

- Salt Curing 851
- Brining 851
- Smoking 851
- Cured Pork Products 855
- Other Cured Meat Products 856

SAUCE CHAUD-FROID 856**29 Hors d'Oeuvre** _____ 869**COLD HORS D'OEUVRE 870**

- Canapés 870
- Crudités 874
- Dips 874
- Caviar 875
- Other Cold Hors d'Oeuvre 876

HOT HORS D'OEUVRE 876

- Filled Pastry Shells 876
- Skewers 877
- Meatballs 878
- Hors d'Oeuvre Wrapped in Cheese, Meat or Vegetables 878
- Hors d'Oeuvre Wrapped in Dough 879
- Other Hot Hors d'Oeuvre 882

ANTIPASTI, MEZZE, TAPAS AND ZAKUSKI 882**SERVING HORS D'OEUVRE 882**

- Butler Service 883
- Buffet Service 883
- Buffet Platters 884

30 Principles of the Bakeshop _____ 899**BAKESHOP TOOLS AND EQUIPMENT 900****BAKESHOP INGREDIENTS 901**

- Flours 901
- Sugar and Sweeteners 905
- Fats 909
- Chemical Leavening Agents 910
- Thickening Agents 911
- Flavorings 912
- Nuts 916

MEASURING INGREDIENTS IN THE BAKESHOP 919

- Baker's Percentage 920
- Calculating Baker's Percentage 921

MIXING METHODS 923**THE BAKING PROCESS 924**

- Gases Form 924
- Gases Are Trapped 924
- Starches Gelatinize 924
- Proteins Coagulate 924
- Fats Melt 925
- Water Evaporates 925
- Sugars Caramelize 925
- Carryover Baking 925
- Staling 925

31 Quick Breads _____ 927**MIXING METHODS FOR QUICK BREADS 928**

- Biscuit Method 929
- Muffin Method 931
- Creaming Method 933

QUALITIES OF QUICK BREADS 935**32 Yeast Breads** _____ 943**YEAST 944**

- Types of Yeast 944
- Substituting Yeasts 945
- Natural Yeast Leaveners: Sourdough Starter 946

ARTISAN BREAD 947**PRODUCTION STEPS FOR YEAST BREADS 948**

- Step 1: Scaling the Ingredients 948
- Step 2: Mixing and Kneading the Dough 948
- Step 3: Fermenting the Dough 949
- Step 4: Punching Down the Dough 950
- Step 5: Portioning the Dough 950
- Step 6: Rounding the Portions 950
- Step 7: Make-Up: Shaping the Portions 950
- Step 8: Proofing the Products 952
- Step 9: Baking the Products 952
- Step 10: Cooling and Storing the Finished Products 953

ROLLED-IN DOUGHS 957**QUALITIES OF BREAD 959****33 Pies, Pastries and Cookies** _____ 977**PIES AND TARTS 978**

- Crusts 978
- Fillings 985
- Assembling Pies and Tarts 991
- Storing Pies and Tarts 991

CLASSIC PASTRIES 991

- Puff Pastry 991
- Éclair Paste 995
- Meringue 997

COOKIES 999

- Mixing Methods for Cookie Dough 999
- Make-Up Methods for Cookies 1000
- Storing Cookies 1002

34 Cakes and Frostings _____ 1025**CAKE INGREDIENTS 1026****MIXING METHODS FOR CAKES 1027**

- Creamed-Fat Cakes 1027
- Whipped-Egg Cakes 1030

PANNING, BAKING AND COOLING CAKES 1036

- Preparing Cake Pans 1037
- Filling Cake Pans 1037
- Baking Temperatures 1038
- Altitude Adjustments for Baking 1039
- Determining Doneness of Cakes 1039
- Cooling Cakes 1039

FROSTINGS 1040

- Buttercream 1041
- Foam Frosting 1044
- Fudge Frosting 1044
- Fondant 1045
- Glaze 1046
- Royal Icing 1047
- Ganache 1047

ASSEMBLING AND DECORATING CAKES 1049

- Assembling Cakes 1050
- Simple Decorating Techniques 1050
- Piping Techniques 1051

STORING CAKES 1055

35 Custards, Creams, Frozen Desserts and Dessert Sauces _____ 1065

CUSTARDS 1066

- Stirred Custards 1066
- Baked Custards 1070
- Soufflés 1073

CREAMS 1075

- Crème Chantilly 1075
- Bavarian Cream 1076
- Chiffon 1077
- Mousse 1078

FROZEN DESSERTS 1079

- Ice Cream and Gelato 1080
- Sorbet and Sherbet 1082
- Still-Frozen Desserts 1082

DESSERT SAUCES 1083

- Fruit Purées 1083
- Caramel Sauce 1083
- Chocolate Syrup 1084

ASSEMBLING DESSERTS 1085

36 Plate Presentation _____ 1095

PRESENTATION TECHNIQUES FOR FOOD 1096

- Preparing Foods Properly 1096
- Cutting Foods 1097
- Molding Foods 1098

PRESENTATION TECHNIQUES FOR THE PLATE 1099

- Choosing Plates 1099
- Arranging Foods on Plates 1100
- Decorating Plates 1104

SMALL PLATES 1107

37 Buffet Presentation _____ 1111

BUFFETS 1112

- Planning the Buffet 1112
- Communicating the Plan 1114

DESIGNING THE BUFFET 1115

- Arranging the Tables 1115
- Arranging Food on Serving Pieces 1119
- Arranging Items on the Buffet Table 1120

PRESENTING AND MAINTAINING THE BUFFET 1121

- Controlling Costs 1121
- Keeping Hot Foods Hot 1122
- Keeping Cold Foods Cold 1123
- Replenishing Foods 1123
- Serving the Guests 1124

Appendix I _____ 1127

MEASUREMENT AND CONVERSION CHARTS 1127

Appendix II _____ 1129

**FRESH, LOCALLY GROWN PRODUCE AVAILABILITY
CHART 1129**

Glossary _____ 1133

Bibliography and Recommended Reading _____ 1153

Index _____ 1157

Recipes

8 Dairy Products

Crème Fraîche	146
Herb Cheese Spread	150
Ricotta Cheese	151
Fromage Fort	156
Classic Cheese Fondue	159

11 Stocks and Sauces

White Stock	207
Brown Stock	209
Fish Stock	210
Fish Fumet	211
Vegetable Stock	212
Court Bouillon	212
Dashi	214
Béchamel	220
Small Béchamel Sauces	
Cheese	222
Cream Sauce	222
Mornay	222
Nantua	222
Soubise (Modern)	222
Velouté	222
Small Fish Velouté Sauces	
Bercy	223
Cardinal	223
Normandy	223
Allemande Sauce	223
Small Allemande Sauces	
Aurora	224
Horseradish	224
Mushroom	224
Poulette	224
Suprême Sauce	224
Small Suprême Sauces	
Albufera	224
Hungarian	224
Ivory	224
Espagnole (Brown Sauce)	225
Demi-Glace	225
Vegetable Jus Lié	226
Small Brown Sauces	
Bordelaise	226
Chasseur (Hunter's Sauce)	227
Châteaubriand	227
Chevreuil	227
Madeira or Port	227
Marchand De Vin	227
Mushroom	227
Périgueux	227
Piquant	227
Poivrade	227
Robert	227
Tomato Sauce	228

Small Tomato Sauces	
Creole	229
Spanish	229
Milanaise	229
Hollandaise	230
Small Hollandaise Sauces	
Béarnaise	231
Choron	231
Foyot	231
Grimrod	231
Maltaise	231
Mousseline (Chantilly Sauce)	231
Beurre Blanc	232
Beurre Rouge	233
Lemon-Dill	233
Herb Butter Sauce	233
Recipes for Compound Butters	
Basil Butter	234
Herb Butter	234
Chile Lime Butter	234
Lobster or Crayfish Butter	234
Maitre d'Hôtel Butter	234
Red Pepper Butter	234
Shallot Butter	234
Red Pepper Coulis	236
Pico de Gallo (Tomato Salsa)	237
Carrot Juice Sauce	238
Wild Mushroom Foam	240
Basil Oil	241
Rich Brown Vegetable Stock	244
Hollandaise, Blender Method	244
Horseradish Cream Sauce	245
Duxelles Sauce	245
Fresh Tomato Sauce for Pasta	246
Fresh Tomato Vinaigrette for Pasta	246
Mole	247
Bolognese Sauce	248
Orange Gastrique	248
Citrus Gastrique	249
Orange Butter Sauce	249
Basil Pesto Sauce	249
Walnut Pesto	249
Sun-Dried Tomato Pesto	249
Arugula and Pecan Pesto	249
Citrus Beurre Blanc	250
Barbecue Sauce	250
Southeast Asian-Style Peanut Sauce	251
Vegetarian Peanut Sauce	251
Coconut Sauce	251
Tomatillo Salsa	252
Spanish Romesco Sauce	252
Mignonette Sauce	253
Nuoc Cham	
(Vietnamese Dipping Sauce)	253
Persillade	254

12 Soups

Beef Broth	258
Hearty Vegetable Beef Soup	260
Beef Consommé	262
Cream of Broccoli Soup	265
Cream of asparagus, cauliflower, corn, pea or spinach soup	265
Purée of Split Pea Soup	266
Shrimp Bisque	268
New England-Style Clam Chowder	270
Vichyssoise (Cold Potato-Leek Soup)	271
Chilled Melon Soup	272
Crisp Prosciutto Chips	272
Gazpacho	273
Chicken and Sausage Gumbo	276
Chicken Soup with Matzo Balls	277
Matzo Balls	277
French Onion Soup	278
Miso Soup	279
Phô Bo (Hanoi Beef and Noodle Soup)	280
Minestrone	281
Posole	282
Cream of Tomato Soup	283
Cheddar and Leek Soup	284
Mulligatawny Soup	284
Potato Chowder with Hot Smoked Salmon	285
Sausage, White Bean and Kale Soup	286
Callaloo with Crab	287
Roasted Corn Chowder	288
Borsch (Chilled Beet Soup)	289
Chilled Cucumber and Yogurt Soup	290

13 Principles of Meat Cookery

Grilled Lamb Chops with Herb Butter	300
Roast Prime Rib of Beef au Jus	303
Pulled Pork Sandwiches	308
Sautéed Veal Scallops with White Wine Lemon Sauce	311
Breaded Veal Cutlets	312
New England Boiled Dinner	315
Aunt Ruthie's Pot Roast	318
Brown Beef Stew	320
Sous Vide Short Ribs	324

14 Beef

Flat Iron Steak with Coffee Beans	335
Marinated London Broil	336
Châteaubriand	336
Beef Wellington	337
Home-Style Meatloaf	338
Italian Country Meatballs	338
Minute Steak Dijonaise	339

Beef Stroganoff	340
Entrecôtes Bordelaise	340
Pepper Steak	341
Beef Fajitas	342
Thai Beef Salad	342
Braised Oxtails and Barley Stew	343
Swiss Steak	344
Braised Short Ribs of Beef	344
Orange-Scented Braised Short Ribs of Beef	345
Ginger Braised Short Ribs of Beef	345
Hungarian Goulash	345
Beef Bourguignon	346
Chili Con Carne	347
Chili with Beans	347
Venison Chili	347
Chili-Stuffed Baked Sweet Potatoes	347
Chili-Stuffed Bread Bowl	347
Carpaccio	348

15 Veal

Wood-Grilled Veal Chops with Basil Butter	361
Weisswurst with Braised Red Cabbage and Rösti Potatoes	361
Sautéed Veal Scallops with Calvados	362
Veal Marsala	363
Wild Mushroom Veal Marsala	363
Veal Cordon Bleu	364
Turkey Cordon Bleu	364
Veal Pojarski	365
Sweetbreads Grenoble	366
Sautéed Calves' Liver with Onions	367
Veal Marengo	368
Osso Buco	369
Veal Fricassee	370

16 Lamb

Turkish Spicy Lamb Kebabs	380
Chimichurri Sauce	380
Shish Kebab	381
Rack of Lamb with Mustard and Hazelnuts	382
Rack of Lamb Persillé	382
Rack of Spring Lamb with Mint Pesto	383
Honey Mustard Denver Ribs	383
Stuffed Leg of Lamb	384
Blanquette of Lamb	384
Saffron and Spice Braised Lamb Shanks	386
Irish Lamb Stew	387
Lamb in Indian-Style Coconut Curry Sauce	388
Goat in Indian-Style Coconut Curry Sauce	388
Moroccan-Style Lamb Tagine with Preserved Lemon	389
Moroccan-Style Preserved Lemons	389
Lamb Navarin	390

17 Pork

Carolina Barbecued Ribs	401
Beer-Marinated Pork Tenderloin	401
Pork Chimichurri Kabobs	402
Fresh Roasted Ham	403
Chinese-Style Barbecued Spareribs	403
Pork Loin with Prunes	404
<i>Sous Vide</i> Rosemary Garlic Pork Tenderloin	405
Escalope de Porc à la Normande (Pork Scallops with Apples)	406
Nataing (Cambodian-Style Red Pork)	407
Cambodian-Style Red Vegetarian Stir-Fry	407
Pan-Fried Herb-Brined Pork Chops with Black Pepper Cream Gravy	408
Stuffed Pork Chops	409
Carnitas Tostada (Mexican Pulled Pork and Corn Tortillas)	410
Jambalaya	411
Cajun Spice Mix	411
Thai-Style Tea-Smoked Ribs	412

18 Poultry

White Wine Marinade	426
Grilled Chicken Breast with Red Pepper Butter	428
Grilled Marinated Chicken Breasts	429
Roast Turkey with Chestnut Dressing and Giblet Gravy	432
Poêlé of Chicken with Pearl Onions and Mushrooms	436
Chicken Sauté with Onions, Garlic and Basil	439
Pan-Fried Chicken with Pan Gravy	441
Spicy Fried Chicken Tenders with Herb Buttermilk Dressing	442
Poached Breast of Chicken with Tarragon Sauce	444
Chicken Fricassee	447
Jamaican-Style Jerk Chicken	449
Chicken Yakitori	450
Grilled Cornish Game Hens with Basil Butter	450
Roast Cornish Game Hen with Wild Rice Stuffing	451
Chicken Leg Stuffed with Mushrooms and Prosciutto	452
<i>Sous Vide</i> Chicken Legs Stuffed with Mushrooms and Prosciutto	452
Roast Chicken with Mashed Potatoes and Natural Pan Gravy	453
Chicken Stuffed with Spinach and Ricotta Cheese in Saffron Sauce	454
Lemongrass Chicken Lettuce Wrap	455
Chicken and Mushroom Crêpes with Sauce Mornay	456
Chicken Curry	456
Coq au Vin	457

Chicken Pot Pie	458
Individual Chicken Pot Pies	458
Turkey Pot Pie	458
Lavender and Spice-Crusted Duck Breast with Apricot Compote	459
Duck Confit	460
Roast Duckling	461
Turkey Meatloaf	462
Turkey Scallopine with Capers and Lemon	463
Sautéed Chicken Livers	463
Spiced Ostrich Tenderloin	464
Bangkok-Style Deep-Fried Chicken Wings	465
Asian-Style Chile Dipping Sauce	466
Sautéed Foie Gras on Wild Mushroom Duxelles with Toasted Brioche	466

19 Game

Red Wine Marinade	472
Grilled Rosemary Quail	474
Venison Medallions Grand Veneur	474
Braised Rabbit with Orecchiette Pasta	475
Braised Rabbit with Chorizo	476
Roast Pheasant with Cognac and Apples	477
Venison and Black Bean Chili	478

20 Fish and Shellfish

Broiled Black Sea Bass with Herb Butter and Sautéed Leeks	510
Baked Tilapia	511
Sautéed Halibut with Three-Color Peppers and Spanish Olives	513
Pan-Fried Trout	515
Deep-Fried Catfish Fillets with Tartar Sauce	516
Steamed Salmon with Lemon and Olive Oil	518
Red Snapper <i>en Papillote</i>	519
Whole Poached Salmon	521
Fillets of Sole Bonne Femme	522
Boiled Lobster	523
Arctic Char with Orange Beurre Blanc	524
Nigiri Sushi	526
Zushi (Sushi Rice)	527
Roasted Monkfish with Bacon and Garlic	528
Teriyaki Salmon	529
Oven-Fried Pecan Catfish	529
Tropical Oven-Fried Catfish	529
Cha Ca (Hanoi-Style Fish with Dill)	530
Macadamia Nut-Crusted Halibut with Red Onion, Tomato and Balsamic Salsa	531
Red Onion, Tomato and Balsamic Salsa	531
Blue Crab Cakes	532
Miso-Glazed Broiled Black Cod	533
Salmon Croquettes	534

Poached Halibut with Chanterelles, Fiddlehead Ferns and Wild Mushroom Foam	535
Paupiettes of Sole with Mousseline of Shrimp	536
Clams Casino	537
Oysters Rockefeller	538
Pan-Seared Diver Scallops with Squash Three Ways	539
Kabocha Squash Purée	540
Bouillabaisse (Provençal Fish Stew)	540
Rouille	541
Fried Oysters with Rémoulade Sauce	541
Fried Calamari with Lemon, Olive and Pepper Relish	542
Maryland-Style Steamed Blue Crabs	542
Steamed Mussels with Leeks and Carrots	543
Paella	544
Crawfish Étouffée	545
Soft-Poached Salmon with Root Vegetables and Pernod Beurre Blanc	546
Pickled Shrimp	548
Seviche	549
Fin Fish Carpaccio with Lemon Thyme Vinaigrette	549
Norimaki Zushi	550

21 Eggs and Breakfast

Shirred Eggs with Ham	556
Quiche Lorraine	557
Scrambled Eggs	558
Shrimp and Avocado Omelet	559
Asparagus Frittata with Goat Cheese and Parsley Radish Salad	561
Poached Eggs	564
Buttermilk Pancakes	566
Blueberry Pancakes	566
Apple-Pecan Pancakes	566
Crêpes	567
Cheese Blintz	567
Savory Crêpes	567
Savory Crêpes Florentine	567
Crunchy Granola	568
Shakshuka Eggs	577
Eggs Benedict	578
Poached Eggs Florentine	578
Poached Eggs Norwegian Style	578
Poached Eggs Princess Style	578
Poached Eggs Sardou	578
Avocado, Bacon and Red Rice Breakfast Salad	579
Fried Egg BLT Sandwich	579
Scotch Eggs	580
Corned Beef Hash	580
Tortilla Española (Spanish Egg and Onion Omelet)	581
Cheese Soufflé	581
Waffles	582
Pecan Waffles	582

Cinnamon French Toast	583
Baked Banana Praline French Toast	583
Popovers	584
Onion Popovers	584

22 Vegetables

Grilled Vegetable Skewers	618
Grilled Sliced Vegetables	618
Baked Butternut Squash, Cumin Yogurt and Pumpkin Seeds	619
Sautéed Mushrooms with Garlic and Thyme	620
Stir-Fried Asparagus with Shiitake Mushrooms	621
Fried Green Tomatoes with Shrimp and Creole Rémoulade	622
Pan-Roasted Brussels Sprouts	623
Beer-Battered Onion Rings	624
Green Beans with Herbed Vinaigrette and Toasted Hazelnuts	626
White Bean Salad	628
Broccoli Amandine	630
Braised Celery with Basil	632
Parsnip Purée	633
Turnip or Sunchoke Purée	633
Winter Squash Purée	633
Giardiniera (Pickled Vegetables)	635
Grilled Portabella Mushrooms	637
Garlic Timbales	637
Broccoli or Cauliflower Timbales	637
Oven-Roasted Garlic	638
Fennel Gratin	638
Baked Beans	639
Boston-Style Baked Beans	639
Mushroom and Leek Tart	640
Maple-Glazed Carrots	641
Duxelles	641
Ratatouille	642
Beet and Corn Salad	643
Sautéed Broccoli Rabe	643
Pan-Fried Eggplant with Tomato Sauce	644
Stir-Fried Snow Peas	644
Tempura Vegetables with Dipping Sauce	645
Panko Crust Tempura	645
Shrimp Tempura	645
Deep-Fried Carrots or Leeks for Garnishing	646
Glazed Pearl Onions	646
Red Beet Purée	647
Carrot Ginger Purée	647
Collard Greens	648
Warm Zucchini, Red Pepper and Chickpea Salad	648
Red Beans and Rice with Andouille	649
Refried Beans	649
Braised Red Cabbage with Apples	650
Butter-Braised Honey Carrots	650
Artichokes Hollandaise	651
Baechu-Kimchee (Korean Spicy Cabbage)	652

23 Potatoes, Grains and Pasta

Baked Potatoes	658
Twice-Baked Potatoes	658
Gratin Dauphinois	659
Potato and Celery Root Gratin	659
Lyonnais Potatoes	660
Deep-Fried Potatoes	662
Mashed Potatoes	664
Garlic Mashed Potatoes	664
Horseradish Mashed Potatoes	664
Mashed Sweet Potatoes or Rutabagas	664
Simmered Rice	672
Risotto Milanese	673
Risotto with Radicchio (al Radicchio)	673
Risotto with Four Cheeses (al Quattro Formaggi)	673
Farro Risotto	673
Classic Rice Pilaf	674
Spanish Rice	675
Red Rice Pilaf	675
Bulgur Pilaf	675
Barley Pilaf	675
Basic Pasta Dough	680
Garlic-Herb Pasta Dough	680
Spinach Pasta Dough	680
Tomato Pasta Dough	680
Château Potatoes	685
Parisienne Potatoes and Noisette Potatoes	685
Roasted Fingerling Potatoes	686
Scalloped Potatoes	686
Delmonico Potatoes	687
German-Style Potato Salad	687
Potato Pancakes	688
Rösti Potatoes	688
Cheddar Cheese Rösti Potatoes	688
Duchesse Potatoes	689
Potato Croquettes	689
Dauphine Potatoes	690
Lorette Potatoes	690
Potato Gnocchi	691
Polenta	692
Creamy Polenta with Wild Mushrooms	693
Oatmeal with Bananas and Cinnamon	693
Grits and Cheddar Soufflé	694
Saffron Rice	695
Pilau (Indian-Style Rice Pilaf)	695
Thai-Style Fried Rice	696
Chinese-Style Fried Rice	696
Forbidden Fried Rice	696
Wild Rice and Cranberry Stuffing	697
Hoppin' John	697
Quinoa, Beet, Squash and Spinach Salad	698
Fettuccine Alfredo	698
Fettuccine Carbonara	699
Macaroni and Cheese	700
Baked Macaroni and Cheese	700
Macaroni and Cheese with Ham and Tomato	700

Baked Ziti with Fresh Tomato Sauce	701
Vegetable Lasagna	702
Soba Noodles with Chicken and Green Onions	703
Spaetzle	704

24 Healthy Cooking and Special Diets

Modified Beef Stroganoff (Low-Calorie, Low-Fat)	711
Vegan Stroganoff	723
Southwestern Black Bean Soup (Gluten-Free, Vegan)	725
Falafel (Vegetarian)	726
Tofu and Walnut Tabouli (Gluten-Free, Vegan)	726
Mushroom Bolognese (Vegan)	727
Polenta Vegetable Tart (Vegan)	728
Dal Bhat (Indian-Style Lentil Stew with Rice) (Gluten-Free, Vegan)	729
Pan-Seared Tofu Provençal (Gluten-Free, Vegan)	730
Chia Pudding (Gluten-Free, Vegan)	730

25 Salads and Salad Dressings

Basic Vinaigrette Dressing	740
Dijon Vinaigrette	740
Herb Vinaigrette	740
Mayonnaise	742
Aioli (Garlic Mayonnaise)	742
Caesar Dressing	744
Mesclun Salad with Raspberry Vinaigrette	746
Salad Niçoise	747
Chutney Chicken Salad	748
Tomato and Asparagus Salad with Fresh Mozzarella	750
Molded Gazpacho Salad	752
Molded Gazpacho Salad with Shrimp	752
Garlic Croutons	753
Carrot Ginger Miso Dressing	753
Raspberry Vinaigrette	754
Fat-Free Vinaigrette	754
Blue Cheese Vinaigrette	755
Poppy Seed Dressing	755
Sauce Gribiche	756
Thousand Island Dressing	756
Herb Buttermilk Dressing	757
Roquefort Dressing	757
Low-Fat Blue Cheese Dressing	758
Tartar Sauce	758
Rémoulade Sauce	759
Creole Rémoulade	759
Sherry Walnut Vinaigrette	759
Khira Raita (Cucumber-Yogurt Salad)	760
Carrot Salad	760
Spinach and Edamame Salad	761
Ribbon Salad of Zucchini, Carrots, Green Beans and Tomatoes	761

Wilted Spinach Salad with Warm Bacon Dressing	762
Curly Endive, Apple and Gorgonzola Salad	763
Caprese Salad	763
Cobb Salad	764
Greek Salad	764
New Potato Salad with Mustard and Dill	765
Potato Salad	765
Creamy Coleslaw	766
Egg Salad	766
Tuna Salad	767
Farro, White Bean and Cucumber Salad with Spiced Dressing	767
Couscous Salad	768
Tabouli	769
Raw Kale and Avocado Salad with Carrots, Raisins and Lemon Dressing	770
Panzanella (Italian Bread Salad)	771
Cranberry Orange Gelatin Salad	772

26 Fruits

Broiled Grapefruit	795
Warm Baked Peaches or Nectarines	795
Savory Fruit Compote	796
Apple Fritters	797
Banana Fritters	797
Pears Poached in Red Wine	798
Dried Fruit Compote	799
Mango, Pineapple and Strawberry Salad with Coconut Cream	801
Pineapple Papaya Salsa	801
Watermelon and Cherry Salad with Fresh Mint Syrup	802
Baked Apples	802
Grilled Fruit Kebabs	803
Cherry Confit	803
Braised Rhubarb	804
Berry Compote	804
Applesauce	805
Fresh Cranberry-Orange Relish	805
Jalapeño-Cranberry Relish	805
Mango Chutney	806
Candied Citrus Rind	807
Compressed Fresh Watermelon	808

27 Sandwiches

Grilled Vegetable Sandwich	819
Club Sandwich	820
Mahi-Mahi Fish Taco	821
Hamburger	822
Cheeseburger	822
Bacon Blue Cheeseburger	822
Mushroom Burger	822
California Burger	822
Blended Mushroom Burger	822
Turkey Burger	823

Arugula, Capicola Ham and Provolone Panino	824
Cubano (Cuban Grilled Ham and Pork Sandwich)	824
Grilled Chicken, Avocado and Vegetable Wrap	825
Grilled Cheese with Arugula, Sun-Dried Tomatoes and Bacon	825
Reuben Sandwich	826
Monte Cristo Sandwich	826
Kentucky Hot Brown Sandwich	827
Muffuletta Sandwich	828
Pan Bagnat (Provençal Tuna Sandwich)	829
Saucisson Tartine	830
Radish and Butter Tartine	830
Grilled Asparagus Tartine	830

28 Charcuterie

Pâté Spice	834
Country-Style Forcemeat	836
Basic Forcemeat	838
Mousseline Forcemeat	840
Pâté Dough	846
Hot Smoked Trout	854
Hot Smoked Salmon	854
Mayonnaise Chaud-Froid	856
Basic Game Forcemeat	859
Liver Terrine	860
Pork Rillettes	861
Salmon and Sea Bass Terrine with Spinach and Basil	862
Vegetable Terrine	863
Vegetable Terrine in Brioche	864
Roasted Red Pepper Mousse	865
Broccoli Mousse	865
Salmon Mousse	865
Chopped Chicken Liver	866
Breakfast Sausage Patties	866
Spicy Italian Sausage	867
Mild Italian Sausage	867
Maple Sage Sausage	867
Thai Basil and Ginger Sausage	867
Chorizo	867
Gravlax	868

29 Hors d'Oeuvre

Hummus	875
Lamb Satay	877
Swedish Meatballs	878
Rumaki	879
Spanakopita	880
Stuffed Wontons with Apricot Sauce	881
Apricot Sauce	881
Buckwheat Blini	885
Baked Wonton Crisps	885
Tortilla Cups with Grilled Chicken Pico de Gallo	886
Pimento Cheese	887
Pimento Cheese and Olive Crostini	887
Baba Ghanoush	887

Tapenade	888	Garlic Naan	966	Linzer Cookies	1019
Guacamole	888	Challah	967	Sugar Cookies	1020
Spinach and Artichoke Dip	889	Brioche	968	Decorative Cookie Icing	1020
Brandade de Morue (French Salt Cod Spread)	890	Large Brioche à Tête	969	Gingerbread Cookies	1021
Sautéed Garlic Croutons	890	Raisin Brioche	969	Spritz Cookies	1022
Date and Chorizo Rumaki	891	Brioche for Sandwiches	969	Lacy Pecan Cookies	1023
Stuffed Figs with Taleggio and Orange Basil Glaze	891	Savory Cheese and Herb Brioche	969	Tulipe Cookies	1024
Stuffed Mushroom Caps	892	Jumbo Cinnamon Buns	970		
Escargots in Garlic Butter	892	Powdered Sugar Glaze	970	34 Cakes and Frostings	
Rosemary and Garlic Grilled Shrimp	893	Pecan Sticky Buns	971	American Poundcake	1028
Chèvre Tarts	894	Danish Pastries	972	French-Style Fruitcake	1029
Arancini (Deep-Fried Rice Balls)	895	Fillings for Danish Pastries	974	High-Ratio Yellow Cake	1030
Tuna Tartar	895	Cream Cheese Filling	974	Classic Genoise	1031
Samosas (Deep-Fried Indian Turnovers)	896	Apricot Filling	975	Chocolate Genoise	1031
Vegetarian Samosas	896	Ricotta Filling	975	Classic Spongecake	1032
Cha Gio (Deep-Fried Vietnamese Spring Rolls)	897	Almond Paste Filling	975	Swiss Jelly Roll	1033
Stuffed Cherry Tomato Bites	898	Kugelhopf	976	Chocolate Spongecake	1033
				Chocolate Angel Food Cake	1034
31 Quick Breads		33 Pies, Pastries and Cookies		Vanilla Angel Food Cake	1035
Country Biscuits	930	Basic Pie Dough	980	Lemon Angel Food Cake	1035
Blueberry Muffins	932	Sweet Dough	981	Orange Chiffon Cake	1036
Cranberry Orange Muffins	932	Basic Cream Pie	986	Lemon Chiffon Cake	1036
Pecan Spice Muffins	932	Chocolate Cream Pie	986	Gluten-Free Orange Chiffon Cake	1036
Cinnamon Sugar Muffins	933	Banana Cream Pie	986	Pan Coating	1037
Sour Cream Muffins	934	Coconut Cream Pie I	986	Simple Buttercream	1041
Streusel Topping	935	Coconut Cream Pie II	986	Light Chocolate Buttercream	1041
Chocolate Cherry Scones	937	Apple-Cranberry Pie	987	Lemon Buttercream	1041
Cinnamon Orange Scones	937	Apple-Rhubarb Pie	987	Italian Buttercream	1042
Cream Scones	938	Blueberry Pie Filling	988	Chocolate Italian Buttercream	1043
Morning Glory Muffins	938	Cherry Pie	989	Coffee Italian Buttercream	1043
Basic Bran Muffins	939	Pumpkin Pie	990	French Mousseline Buttercream	1044
Lemon Poppy Seed Muffins	939	Puff Pastry	993	Chocolate Mousseline Buttercream	1044
Irish Soda Bread	940	Éclair Paste (Pâte à Choux)	996	Basic Fudge Frosting	1045
Basic Corn Muffins	940	Italian Meringue	999	Cocoa Fudge Frosting	1045
Southern-Style Cornbread	940	Shortbread Tart Dough (Pâte Sablée)	1003	Basic Sugar Glaze	1046
Tijuana Cornbread	940	Quiche Dough (Pâte Brisée)	1004	Flavored Sugar Glaze	1046
Zucchini Bread	941	Lemon Meringue Pie	1004	Royal Icing	1047
Hush Puppies (Deep-Fried Cornbread)	941	Fresh Strawberry Pie	1005	Chocolate Ganache	1048
Sour Cream Coffeecake	942	Freeform Apple Pies	1006	Dark Chocolate Truffles	1049
		Blackberry Crumble	1007	Carrot Cake with Cream Cheese Frosting	1056
		Fresh Berry Tart	1007	Cream Cheese Frosting	1056
		French Apple Tart	1008	Marble Cake	1057
		Almond Cream	1008	Marble Cupcakes	1057
		Rustic Vegetable Galettes	1009	German Chocolate Cake	1058
		Strawberry Napoleon	1009	Coconut Pecan Frosting	1058
		Palmiers	1010	Sacher Torte	1059
		Chocolate Éclairs	1011	Dark Chocolate Glaze	1059
		Baked Meringue	1012	Tres Leches Cake	1060
		Chocolate Délice	1012	Flourless Chocolate Cake	1061
		Classic Dacquoise	1013	Fudge Brownies	1062
		Candied Almonds	1013	German Chocolate Layered Brownies	1063
		Apple Strudel	1014	Banana Bars with Brown Butter Icing	1064
		Chocolate-Mint Crinkle Cookies	1015	Chocolate Banana Bars	1064
		Oatmeal Raisin Cookies	1016		
		Peanut Butter Sandies	1016		
		Chocolate Chip Cookies	1017	35 Custards, Creams, Frozen Desserts and Dessert Sauces	
		Biscotti	1018	Vanilla Custard Sauce	1068
		Orange Biscotti	1018	Chocolate Custard Sauce	1068
		Anise Biscotti	1018	Coffee Custard Sauce	1068
		Chocolate Biscotti	1018		
		Lemon or Lime Bars	1019		

Hazelnut Custard Sauce	1068	White Chocolate Hazelnut		Passion Fruit Crème Brûlée	1087
Ginger Custard Sauce	1068	Bavarian	1077	Chocolate Pots de Crème	1087
Pistachio Custard Sauce	1068	Lime Chiffon	1078	New York Cheesecake	1088
Pastry Cream	1069	Lemon Chiffon	1078	Bread Pudding with Bourbon Sauce	1089
Chocolate Pastry Cream	1069	Orange Chiffon	1078	Chocolate Bread Pudding	1089
Coconut Pastry Cream	1069	Classic Chocolate Mousse	1079	Bourbon Sauce	1089
Coffee Pastry Cream	1069	Ice Cream Base	1081	Cherry Clafouti	1090
Mousseline Pastry Cream	1069	Chocolate Ice Cream	1081	Lemon Curd	1090
Champagne Sabayon	1070	Cappuccino Ice Cream	1081	Lime Curd	1090
Sabayon Mousseline	1070	Brandied Cherry Ice Cream	1081	Buttermilk Panna Cotta	1091
Toffee Caramel Flan	1071	Grapefruit Sorbet	1082	Caramel Buttermilk Panna Cotta	1091
Baked Crème Brûlée	1072	Lemon Sorbet	1082	Raspberry Mousse	1091
Chocolate Soufflés	1074	Mango Sorbet	1082	Coffee Granita	1092
Crème Chantilly (Chantilly Cream)	1075	Raspberry Sorbet	1082	Chocolate Hazelnut Marquise	
Stabilized Whipped Cream	1075	Raspberry Sauce	1083	with Hazelnut Sauce	1093
Chocolate Chantilly	1075	Caramel Sauce	1084	Fruit Coulis	1093
Bavarian Cream	1076	Dark Chocolate Syrup	1084	Butterscotch Sauce	1094
Charlotte Bavarian	1077	Crème Brûlée	1087	Chocolate Fudge Sauce	1094

Preface

Learning to cook is much more than simply learning to follow a recipe. Consequently, *On Cooking*, Sixth Edition, is not a cookbook or a collection of recipes. It is a carefully designed text intended to teach you the fundamentals of the culinary arts and to prepare you for a rewarding career in the food service industry.

The goal of *On Cooking* is to focus your attention on general procedures, highlighting fundamental principles and skills, whether it be for preparing a yeast bread or grilling a piece of fish. Both the how and why of cooking are discussed, emphasizing culinary principles first, not recipes. Only after the principles are introduced and explained are specific applications and sample recipes given. The content is extensively illustrated with photographs and line drawings to help you identify foods and equipment. Most recipes include photographs of the finished dish ready for service. Many procedures are illustrated with step-by-step photographs as well.

In order to provide you with a sense of the rich traditions of cookery, informative sidebars on food history, chef biographies and other topics are located throughout the book. Sidebars that relate to flavors and flavorings also appear throughout the material to enhance your understanding of key cooking ingredients and possible variations. Safety Alerts are shown in red, to remind you of conditions or situations that might pose a danger to you or to diners. Electronic resources accompanying this text enhance the learning experience while encouraging your use of computer technology in contemporary kitchens.

We wish you much success in your future career and hope that this text will continue to inform and inspire you long after graduation.

A NOTE ON RECIPES

Recipes are important and useful as a means of standardizing food preparation and recording information. In *On Cooking*, Sixth Edition, recipes are designed primarily to reinforce and explain techniques and procedures presented in the text. Many recipe yields are intentionally low in order to be less intimidating to beginning cooks and more useful in small schools and kitchens.

All ingredients are listed in both U.S. and metric measurements. The metric equivalents are rounded off to even, easily measured amounts. You should consider the ingredient lists as separate recipes or formulas; do not measure some ingredients according to the metric amounts and other ingredients according to the U.S. amounts or the proportions will not be accurate and the intended result will not be achieved. Throughout this book, unless otherwise noted:

- *mirepoix* refers to a preparation of 2 parts onion, 1 part celery and 1 part carrot by weight
- *pepper* refers to ground black pepper, preferably freshly ground
- *butter* refers to whole unsalted butter
- *milk* refers to whole or reduced fat (not nonfat) milk
- *yogurt* refers to whole plain (unsweetened) yogurt
- *TT* means “to taste”

Detailed procedures for standard techniques are presented in the text and generally are not repeated in each recipe (e.g., in a recipe, the instruction will be simply “deglaze the pan” or “monté au beurre”). Variations appear at the end of selected recipes. These variations illustrate how one set of techniques or procedures can be used to prepare different dishes with only minor modifications.

A mise en place feature is included for recipes that appear in the front sections of each recipe chapter. Ingredients that require preparation before the recipe is begun are listed in

the margin under the *Mise en Place* heading. Consult this brief checklist after you read the recipe but before you begin to cook. Some recipes also include headnotes that describe the cultural or historical background of a dish or the unique techniques used in its preparation. This short text will enhance your understanding of a cuisine or cooking technique.

No matter how detailed the written recipe, however, we assume that you are acquiring certain knowledge, skills and judgment. It becomes a judgment call to know, for example, when a loaf of bread or a casserole is properly cooked. Ovens and cookware may vary in efficiency. For these reasons, recipes and formulas describe alternate tests for doneness, requiring you to use your developing skills to determine when a dish is fully cooked. You should also rely upon the knowledge and skills of your instructor for guidance. Although some skills and an understanding of theory can be acquired through reading and study, no book can substitute for repeated hands-on preparation and observation.

A registered dietician analyzed all the recipes in this book using nutritional analysis software that incorporates data from the U.S. Department of Agriculture, research laboratories and food manufacturers. The nutrient information provided here should be used only as a reference, however. A margin of error of approximately 20 percent can be expected because of natural variations in ingredients. Preparation techniques and serving sizes may also significantly alter the values of many nutrients. For the nutritional analysis, if a recipe offers a choice of ingredients, the first-mentioned ingredient is the one used. Ingredients listed as “to taste” (TT) and “as needed” are omitted from the analysis. It is assumed that corn oil and whole milk are used when a recipe calls for “vegetable oil” and “milk,” respectively. In cases of a range of ingredient quantities or numbers of servings, the average is used.

Good Choice

Throughout this book various recipes are marked with a Good Choice icon. This symbol identifies dishes that are particularly low in calories, fat, saturated fat or sodium; they may also be a good source of vitamins, protein, fiber or calcium.

Vegetarian

Vegetarian dishes are indicated with a green leaf symbol. These recipes do not contain meat, fish, shellfish or poultry, but may contain dairy products and/or eggs. (This symbol is not used in the baked goods recipes in Chapters 31–35, however, because none of them contains meat, fish, shellfish or poultry.)

Vegan

Vegan dishes are indicated with the blue V symbol. These recipes do not contain any animal products. Vegetarian and vegan dishes are not necessarily low in calories, fat or sodium; nor are they necessarily good sources of vitamins, protein, fiber or calcium.

Acknowledgments

This book would not have been possible without the assistance and support of many people. Special thanks to our photographers, Richard Embery, Debby Wolvos and Debby's assistants, Elizabeth Barry and Jenelle Bonifield, for their talent, professionalism and commitment to quality. The nutritional analysis for this edition was prepared by Mindy Hermann, MS, RD, whose thoroughness and prompt replies were greatly appreciated. Thanks also to Bill Ingram for his artistry.

Alan thanks his wife, Chantal, for her patience and guidance not only with this edition but since the book's conception 25 years ago, and his sons, Logan and Grayson, for pulling him away from work and reminding him that it's okay to just play and goof off sometimes. He is blessed to work with Priscilla Martel. She is not only a partner, but a friend. She is knowledgeable in all things food and cooking and she writes like a fiend. He thanks Sarah for working so hard on the project from halfway around the world. Her strong opinions and attention to detail have kept the text consistent through every edition.

Alan also acknowledges his many friends and coworkers who have been invaluable to the success of the text: Gregory Reynolds, Reynalda Montes, Davie Gabayan, Mark Bookhamer, Bob Tam, Declan Spears, Christina Brogan, Rosalino Morales, Estella Morales, Juan Soto, Jimmy Curry, Stephanie Bookhamer, Emily Phillips, Devin Rogers, Toni Connor, Luis Montes, Damian Montes and Raul Cinceros.

Sarah welcomes portfolio manager Pamela Chirls to the team with this edition. Pam, who is an icon in the world of cookbook publishing, added fresh insights and steady guidance to this revision. Sarah sends many thanks to Steve Labensky, Richard Embery and Robin Baliszewski for their hard work and participation over the years. She especially thanks Skip for always producing gorgeous and delicious food, and Priscilla for being the leader who pulls everything together with her breadth of knowledge and attention to detail. Finally Sarah thanks Woosong University and its Sol International Culinary Arts program in Daejeon, Korea for their support during this revision. The many wonderful students she has worked with over the years, both in Korea and the United States are the real reason that books such as this are written.

Priscilla would like to acknowledge the contributions of Carole Pierce and J. Patrick Truhn, two fine writers and editors, and the support of Chef Jeffrey Lizotte, Present Company, Chef Bryan Miller and the staff at On20 Restaurant, Chef Michel Nischan and Chef Eddy Van Damme. Special thanks go to Sheila Bowman, Seafood Watch Manager of Culinary and Strategic Initiatives at the Monterey Bay Aquarium, who provided key insights incorporated in this revision. She would like to sincerely thank Sarah and Skip for the extra effort it took to refresh this book, which honors our commitment to provide fundamental culinary knowledge to our student readers in a clear and inspiring manner.

The authors wish to thank the following companies for their generous donations of equipment and supplies: Zwilling J.A. Henckels AG and Parrish's Cake Decorating Supplies, Inc. We also wish to thank Demarle USA, Shamrock Foods Company, Peddlers Son Produce, KitchenAid Home Appliances, Taylor Environmental Instruments, Hobart Corporation, James Fagan, Degrenne North America, LLC., Elizabeth Jones of ISF International, Fairtrade International and Kristine Cueto, Manager Hotel Operations of Rosenthal USA, Ltd.

We also wish to thank everyone involved in this project at Pearson Education, including, Pamela Chirls, portfolio manager; Elizabeth Mackenzie-Lamb, marketing coordinator; Bob Nisbet, field marketing manager; Kelly Ricci, senior project manager; John Christiana, manager of design development; Erin Mulligan, developmental editor; and, Julianna Scott Fein, copy editor.

We are grateful for the outstanding quality of the responses to our review questionnaires and surveys. The excellent suggestions for improving the text and refining the recipes played a critical role in the preparation of this revision as well as previous revisions of

On Cooking. The following reviewers provided many excellent suggestions and ideas for improving the text:

G. Allen Akmon, Sullivan University
 Karin Allen, Utah State University
 Chris Argento, Nassau Community College
 Mike Artlip, Kendall College
 Victor Bagan, Odessa College
 Jeff Bane, Clearly University
 Todd Barrios, Stephen F. Austin State University
 David Barrish, Reynolds Community College
 Leslie Bartosh, Alvin Community College
 Bea Beasley, Santa Rosa Junior College
 Erica Beirman, Iowa State University
 Carol Bennett, Central Arizona College
 Frank Benowitz, Mercer County Community College
 Paul John Bernhardt, Diablo Valley College
 Ben Black, Culinary Institute of Charleston at Trident Technical College
 LeRoy Blanchard, Los Angeles Trade Technical College
 Patricia Bowman, Johnson & Wales University
 Eric Breckoff, Piedmont Virginia Community College
 Scott Bright, Quest Food Management Services
 Tracey Brigman, University of Georgia
 Stephen Burgeson, Buffalo State College
 Angelo Camillo, Woodbury University
 Kristina Campbell, Columbus Technical College
 Mary Ann Campbell, Trenholm State Community College
 Michael Carmel, Trident Technical College
 Paul Carrier, Milwaukee Area Technical College
 Melinda Casady, Portland's Culinary Workshop
 Dorothy Chen-Maynard, California State University, San Bernardino
 Susan Ciriello, Art Institute of Washington
 Jeffrey Coker, Salt Lake Community College
 Jerry Comar, Johnson & Wales University
 Matt Cooper, Mott Community College
 Anne Corr, Cook Like A Chef Camp
 Sylvia Crixell, Texas State University, San Marcos
 Chris Crosthwaite, Lane Community College
 Cathy Cunningham, Tennessee Technological University
 Chris Currier, Sandhills Community College
 Jacqueline deChabert-Rios, East Carolina University
 Richard Donnelly, East Stroudsburg University
 Michael Downey, St. Louis Community College at Forest Park
 Charles Drabkin, Edmonds Community College
 Jodi Lee Duryea, University of North Texas
 Tuesday Eastlack, Northwest Arkansas Community College
 Sari Edelstein, Simmons College
 Kimberly Emery, SUNY-Plattsburgh
 Thom England, Ivy Tech Community College
 Naomi Everett, University of Alaska
 Melanie Ewalt, Kirkwood Community College
 Richard Exley, Scottsdale Culinary Institute
 Stephen Fernald, Lake Tahoe Community College
 Edward Fernandez, Kapiolani Community College
 Doug Flick, Johnson County Community College
 Deborah Foster, Ball State University
 Thomas Gaddis, Pellissippi State Community College
 Wendy Gordon, SUNY Rockland Community College
 Debra Gourley, Ivy Tech Community College
 Clarke Griffin, St. Louis Community College
 Lauri Griffin, Ivy Tech Community College
 Kristen Grissom, Daytona State College
 Marian Grubor, West Virginia Northern Community College
 Jeff Hamblin, Brigham Young University-Idaho
 Lois Hand, Bob Jones University
 Brandon Harpster, Southeast Community College
 Joe Harrold, Florida State College at Jacksonville
 Kathleen Hassett, Horry-Georgetown Technical College
 Ed Hennessy, Delaware Technical and Community College
 Michael Herbert, Northern Virginia Community College
 Travis Herr, Pensacola State College
 Vern Hickman, Renaissance Culinary Center
 Martina Hilldorfer, Kauai Community College
 Carol Himes, Pueblo Community College
 David Hoffman, Mohawk Valley Community College
 David Horsfield, Kirkwood Community College
 Thomas Hosley, Carteret Community College
 John Hudoc, Robert Morris College
 Robert Hudson, Pikes Peak Community College
 Robert "Miles" Huff, Culinary Institute of Charleston at Trident Technical College
 Sharon Hunt, Fort Valley State University
 Barry Infuso, Pima Community College
 Bruce Johnson, Salt Lake City Community College
 Dorothy Johnston, Erie Community College
 Melodie Jordan, Keystone College
 Wendy Jordan, Rosemary's Restaurant
 Thomas Kaltenecker, McHenry County College
 Deborah Karasek, Bob Jones University
 Debbie Kern, Delgado Community College
 Mary Ann Kiernan, Syracuse University
 Linda Kinney, University of Massachusetts
 Kathy Knight, University of Mississippi
 Chris Koch, Cooking or Whatever
 Christopher Koch, Drexel University
 Cindy Komarinski, Westmoreland County Community College
 Julie Hosman Kulm, Boise State University
 Jackson Lamb, Metropolitan State University of Denver
 Claude Lambertz, University of Nevada-Las Vegas
 Steve Lammers, Olympic College
 Barbara Lang, Cornell University College of Agriculture and Life Sciences
 Heinz Lauer, Culinaria Cuisine
 Joseph LaVilla, San Francisco State University
 Julie Lee, Western Kentucky University
 Peter Lehmuller, Johnson & Wales University
 Warren Leigh, Holyoke Community College
 Larry Lewis, San Diego Culinary Institute
 Dean Louie, University of Hawaii Maui College
 Beth Lulinski, Northern Illinois University

George Macht, College of DuPage
Sylvia H. Marple, University of New Hampshire
Nicole Martinelli, Keiser University
Dean Massey, Clover Park Technical College
Lawrence Matson, The Art Institute of Dallas
Mark Mattern, M & M Enterprises, Inc.
James McGuinness, Keiser University
Paula McKeehan, Tarleton State University
Fiona McKenzie, Sandhills Community College
Ken Mertes, Robert Morris College
Brenden Mesch, The Art Institute of San Antonio
Deborah Miller, Keiser University
Maria Montemagni, College of the Sequoias
Judy Myhand, Louisiana State University
Andrea Nickels, Robert Morris College
Adrienne O'Brien, Luna Community College
Darla O'Dwyer, Stephen F. Austin State University
Lisa O'Neill, East Central Community College
Erich Ogle, Hinds Community College
Charlie Olawsky, Grand Rapids Community College
Shelly Owens, Metropolitan State College of Denver
Clarence Pan, Daytona State College
Joel Papcun, Great Lakes Culinary Institute
Patrick Parmentier, L'Ecole Culinaire, Kansas City
Jayne Pearson, Manchester Community College
Donna Pease, Technical College of the Lowcountry
Sean M. Perrodin, San Jacinto College-North Campus
Ellen Piazza, Saint Louis Community College
Christine Piccin, Santa Rosa Junior College
Tony Pisacano, Ogeechee Technical College
Toussaint Potter, AT&T
Joan E. Quinn, Northern Illinois University
Charles Robertson, Illinois Central College
Colin Roche, Johnson & Wales University
Linda Rosner, Lexington College
Charles Rossi, Atira Hotels
Scott Rudolph, California State Polytechnic University-Pomona
Carl Sandberg, Gwinnett Technical College
Janet Saros, Montgomery College
Craig Schmantowsky, Lynn University
Jules Schmitz, Cascade Culinary Institute
David Schneider, Indian River State College
Bridget Schwartz, George Washington University
Janet Shaffer, Lake Washington Technical College
Jeffrey Sheldon, Midwest Culinary Institute at Cincinnati State
Gregg Shiosaki, Seattle Central Community College
Cherie Simpson, The University of Alabama
Curtis Smith, Spokane Community College
Wayne Smith, Western Colorado Community College
Rupert Spies, Rupert Spies Consulting
Brian Stahlsmith, Mercyhurst College
Wendy Stocks, Purdue University-Calumet
Linda Sullivan, Indiana University of Pennsylvania
James Swenson, MilitaryChefs.com
Jim Switzenberg, Harrisburg Area Community College
Janis Taylor, Freed-Hardeman University
Klaus Tenbergen, Columbia College
Katie Thomas, Blackhawk Technical College
George Thompson, Oregon Culinary Institute
Peter Tobin, Inland Northwest Culinary Academy at Spokane
Community College
Arthur Tolve, Bergen Community College
James Trebbien, The Institute for the Culinary Arts at Metropolitan
Community College
Mary G. Trometter, Pennsylvania College of Technology
Armando Trujillo, Northern Arizona University
Anna Turner, Bob Jones University
Katrina Warner, Tarrant County College
Diana Watson-Maile, East Central University
Boo Wells, Jefferson Community College
Seunghye Wie, California State University-Sacramento
Brenda Wilkening, Estrella Mountain Community College
Lorna Williams, Bob Jones University
Josef Wollinger, Blackhawk Technical College
Chris Woodruff, Lake Michigan College
Louis Woods, Anne Arundel Community College
Mark Wright, Erie Community College-State University of New
York
Kimberly Youkstetter, Worcester Technical High School
Charles Ziccardi, Drexel University

This page intentionally left blank

Professionalism 1



After studying this chapter, you will be able to:

- ▶ name key historical figures responsible for developing food service professionalism and describe the contributions of each
- ▶ list and describe the key stages in the development of the modern food service industry
- ▶ explain the organization of classic and modern kitchen brigades
- ▶ identify the attributes a student needs to become a successful culinary professional
- ▶ describe the importance of professional ethics for chefs and list the specific behaviors that all culinary professionals should follow

cookery the art, practice or work of cooking

cooking (1) the transfer of energy from a heat source to a food; this energy alters the food's molecular structure, changing its texture, flavor, aroma and appearance; (2) the preparation of food for consumption

professional cooking a system of cooking based on a knowledge of and appreciation for ingredients and procedures

Like any fine art, great **cookery** requires taste and creativity, an appreciation of beauty and a mastery of technique. Like the sciences, successful cookery demands knowledge and an understanding of basic principles, and like any successful leader, today's professional chef must exercise sound judgment and be committed to achieving excellence in all endeavors.

This book describes foods and cooking equipment, explains culinary principles and **cooking** techniques and provides recipes using these principles and techniques. No book, however, can provide taste, creativity, commitment and judgment. For these, chefs and other culinary professionals must rely on themselves. This chapter explores the rich history of the restaurant industry and the individuals who influenced the development of the profession. It also outlines the attributes of the professional chef. As you begin your culinary studies, we hope that you find inspiration in the history of the food service industry as you learn about the qualities that will guide you in your chosen career.

CHEFS AND RESTAURANTS

Cooks have produced food in quantity for as long as people have eaten together. For millennia, chefs, whether they be Asian, Native American, European or African, have catered to the often elaborate dining needs of the wealthy and powerful; and for centuries, vendors in China, Europe and elsewhere have sold foods to the public that they prepared themselves or bought from others.

But the history of the professional chef is of relatively recent origin. Its cast is mostly French, and it is intertwined with the history of restaurants—for only with the development of restaurants during the late 18th and early 19th centuries were chefs expected to produce, efficiently and economically, different dishes at different times for different diners.

The 18th Century—Boulangier's Restaurant

The word *restaurant* is derived from the French word *restaurer* ("to restore"). Since the 16th century, the word *restorative* had been used to describe rich and highly flavored soups or stews capable of restoring lost strength. Restoratives, like all other cooked foods offered and purchased outside the home during this period of history, were made by guild members. Each guild had a monopoly on preparing a category of food items. For example, during the reign of Henri IV of France (r. 1589–1610), there were separate guilds for *rôtisseurs* (who cooked *la grosse viande*, the main cuts of meat), *pâtisseries* (who cooked poultry, pies and tarts), *tamisiers* (who baked breads), *vinaigriers* (who made sauces and some stews, including some restoratives), *traiteurs* (who made meat stews) and *porte-chapes* (caterers who organized feasts and celebrations).

The French claim that the first modern restaurant opened one day in 1765 when a Parisian tavern keeper, a Monsieur Boulangier, hung a sign advertising the sale of his special restorative, a dish of sheep feet in white sauce. His establishment closed shortly thereafter as the result of a lawsuit brought by a guild whose members claimed that Boulangier was infringing on their exclusive right to sell prepared dishes. Boulangier triumphed in court and later reopened.

Boulangier's establishment differed from the inns and taverns that had existed throughout Europe for centuries. These inns and taverns served foods prepared (usually off premises) by the appropriate guild. The food—of which there was little choice—was offered by the inn or tavern as incidental to the establishment's primary function: providing sleeping accommodations or drink. Customers were served family style and ate at communal tables. Boulangier's contribution to the food service industry was serving a variety of foods prepared on premises to customers whose primary interest was dining.

Several other restaurants opened in Paris during the succeeding decades, including the Grande Taverne de Londres in 1782. Its owner, Antoine Beauvilliers (1754–1817), was the former steward (chief of the household staff) to the Comte de Provence, later King Louis XVIII of France. Beauvilliers advanced the development of the modern restaurant by offering his wealthy patrons a menu listing available dishes during fixed hours. Beauvilliers’s impeccably trained wait staff served patrons at small, individual tables in an elegant setting.

The French Revolution (1789–1799) had a significant effect on the budding restaurant industry. Along with the aristocracy, the revolution generally abolished guilds and their monopolies. The revolution also allowed the public access to the skills and creativity of the well-trained, sophisticated chefs who previously had worked exclusively in the aristocracy’s private kitchens. Although many of the aristocracy’s chefs either left the country or lost their jobs (and some their heads), a few opened restaurants catering to the growing urbanized middle class.

The Early 19th Century—Carême and *Grande Cuisine*

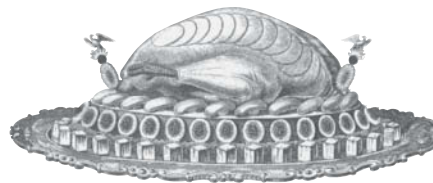
As the 19th century progressed, more restaurants opened, serving a greater selection of items and catering to a wider clientele. By midcentury, several large, grand restaurants in Paris were serving elaborate meals, reminiscent of the *grande cuisine* (also known as *haute cuisine*) of the aristocracy. *Grande cuisine*, which arguably reached its peak of perfection in the hands of Antonin Carême was characterized by meals consisting of

grande cuisine the rich, intricate and elaborate cuisine of the 18th- and 19th-century French aristocracy and upper classes; it was based on the rational identification, development and adoption of strict culinary principles; by emphasizing the how and why of cooking, *grande cuisine* was the first to distinguish itself from regional cuisines, which tend to emphasize the tradition of cooking

Marie-Antoine (Antonin) Carême (1783–1833)

Antonin Carême, known as the “cook of kings and the king of cooks,” was an acknowledged master of French *grande cuisine*. Abandoned on the streets of Paris as a child, he worked his way from cook’s helper in a working-class restaurant to become one of the most prestigious chefs of his (or, arguably, any other) time. During his career, he was chef to the famous French diplomat and gourmand Prince de Talleyrand, the Prince Regent of England (who became King George IV), Tsar Alexander I of Russia and Baron de Rothschild, among others.

Carême’s stated goal was to achieve lightness, grace, order and perspicuity in the preparation and presentation of food. As a pâtissier, he designed and prepared elaborate and elegant pastry and confectionery creations, many of which were based on architectural designs. (He wrote that “the fine arts are five in number, namely: painting, sculpture, poetry, music, architecture—the main branch of which is confectionery.”) As a showman, he garnished his dishes with ornamental *hâtelets* (skewers) threaded with colorful ingredients, such as crayfish and intricately carved vegetables, and presented his creations on elaborate *socles* (bases). As a saucier, he standardized the use of the flour and butter mixture called *roux* as a thickening agent, perfected recipes and devised



A poultry illustration from Carême showing *hâtelets* (skewers) used as a garnish.

a system for classifying sauces. As a garde-manger, Carême popularized cold cuisine, emphasizing molds and aspic dishes. As a culinary professional, he designed kitchen tools, equipment and uniforms.

As an author, Carême wrote and illustrated important texts on the culinary arts, including *Le Maitre d’hotel français* (c. 1822), describing the hundreds of dishes he personally created and cooked in the capitals of Europe; *Le Pâtissier royal parisien* (c. 1825), containing fanciful designs for *les pieces montées*, the great decorative centerpieces that were the crowning glory of grand dinners; and his five-volume masterpiece on the state of his profession, *L’Art de la cuisine française aux XIXe siècle* (1833), the last two volumes of which were completed after his death by his associate, Plumerey. Carême’s writings almost single-handedly refined and summarized five hundred years of culinary evolution. But his treatises were not mere cookbooks. Rather he analyzed cooking, old and new, emphasizing procedure and order and covering every aspect of the art known as *grande cuisine*.

Carême died before age 50, burnt out, according to French poet and essayist Laurent Tailhade, “by the flame of his genius and the coal of the spits.”

restaurateur a person who owns or operates an establishment serving food, such as a restaurant

gourmand a connoisseur of fine food and drink, often to excess

gastronomy the art and science of eating well

gourmet a connoisseur of fine food and drink

gourmet foods foods of the highest quality, perfectly prepared and beautifully presented

classic cuisine a late 19th- and early 20th-century refinement and simplification of French *grande cuisine*. Classic (or classical) cuisine relies on the thorough exploration of culinary principles and techniques and emphasizes the refined preparation and presentation of superb ingredients.

dozens of courses of elaborately and intricately prepared, presented, garnished and sauced foods. Other **restaurateurs** blended the techniques and styles of *grande cuisine* with the simpler foods and tastes of the middle class (*cuisine bourgeoise*) to create a new cuisine simpler than *grande cuisine* but more complex than mere home cooking, which often centered around bread.

The Late 19th Century—Escoffier and *Cuisine Classique*

Following the lead set by the French in both culinary style and the restaurant business, restaurants opened in the United States and throughout Europe during the 19th century. Charles Ranhofer (1836–1899) was the first internationally renowned chef of an American restaurant—Delmonico’s in New York City. In 1893, Ranhofer published his “Franco-American” encyclopedia of cooking, *The Epicurean*, which contained more than 3500 recipes.

One of the finest restaurants outside France was the dining room at London’s Savoy Hotel, opened in 1898 under the directions of César Ritz (1850–1918) and Auguste Escoffier (1846–1935). There they created a restaurant that attracted royalty and aristocratic women, a group rarely seen dining in public at the time. Escoffier is generally credited with refining the *grande cuisine* of Carême to create *cuisine classique* or **classic cuisine**. He invented such dishes as *Suprêmes de soles à l’aurore* (or “fillet of sole at dawn”) in a blushing pink sauce and *Pêche Melba* (or “Peach Melba”), named after Austrian singer Nellie Melba, a guest at the hotel. By doing so, he brought French cuisine into the 20th century.

Auguste Escoffier (1846–1935)

Auguste Escoffier’s brilliant culinary career began at age 13 in his uncle’s restaurant and continued until his death at age 89. Called the “emperor of the world’s kitchens,” he is perhaps best known for defining French cuisine and dining during La Belle Époque (also referred to as the “Gay Nineties”).

Unlike Antonin Carême, Escoffier never worked in an aristocratic household. Rather he exhibited his culinary skills in the dining rooms of the finest hotels in Europe, including the Place Vendôme in Paris and the Savoy and Carlton hotels in London.

Escoffier did much to enhance *grande cuisine* as defined by Carême. Crediting Carême with providing the foundation for great—that is, French—cooking, Escoffier simplified the profusion of flavors, dishes and garnishes typifying Carême’s work. For example, Carême would present elaborate displays of as many as 150 dishes for guests at a private function. In contrast, Escoffier would offer 11 dishes served tableside to each guest individually. Escoffier also streamlined some of Carême’s overly elaborate and fussy procedures and classifications. For example, he reduced Carême’s elaborate system of classifying



Tournedos Rossini, a dish created by Escoffier, as it might be served today.

saucers into the five families of sauces still recognized today. Escoffier sought simplicity and aimed for the perfect balance of a few superb ingredients. Some consider his refinement of *grande cuisine* to have been so radical as to credit him with the development of a new cuisine referred to as *cuisine classique* (classic or classical cuisine).

Escoffier’s many writings include *Le Livre des menus* (1912), in which, discussing the principles of a well-planned meal, he analogizes a great dinner to a symphony with contrasting movements that should be appropriate to the occasion, the guests and the season, and *Ma cuisine* (1934), surveying *cuisine bourgeoise*. But his most important contribution is a culinary treatise intended for the professional chef titled *Le Guide culinaire* (1903). Still in use today, it is an astounding collection of more than 5000 classic cuisine recipes and garnishes. In it, Escoffier emphasizes the mastery of techniques, the thorough understanding of cooking principles and the appreciation of ingredients—attributes he considered to be the building blocks professional chefs should use to create great dishes.

The Mid-20th Century—Point and *Nouvelle Cuisine*

The mid-20th century witnessed a trend toward lighter, more naturally flavored and more simply prepared foods. Fernand Point was a master practitioner of this movement. But this master's goal of simplicity and refinement was carried to even greater heights by a generation of French chefs Point trained: principally Paul Bocuse, Jean and Pierre Troisgros, Alain Chapel, François Bise and Louis Outhier. They, along with Michel Guérard and Roger Vergé, were the pioneers of *nouvelle cuisine* in the early 1970s. Their contemporary, Gaston Lenôte, modernized the classic pastries of *grande cuisine*, infusing them with the bright, fresh flavors of *nouvelle cuisine*.

Their culinary philosophy was principled on the rejection of overly rich, needlessly complicated dishes and an emphasis on healthful eating. The ingredients must be absolutely fresh and of the highest possible quality; the cooking methods should be simple and direct whenever possible. The accompaniments and garnishes must be light and contribute to an overall harmony; the completed plates must be elegantly designed and decorated. Following these guidelines, traditional cooking methods were applied to nontraditional ingredients, and ingredients were combined in new and previously unorthodox fashions.

The Late 20th and Early 21st Centuries—An American Culinary Revolution

During the last 30–40 years, broad changes launched in the United States have affected the global culinary landscape. Two such trends are bold, ethnic flavors and fresh food, simply prepared.

The popularity of **ethnic cuisine** is due, in large part, to an unlikely source: the Immigration and Nationality Act of 1965. Under its provisions, a large number of Asians immigrated to the United States. They brought with them their rich culinary traditions and ignited America's love affair with fiery hot cuisines. By the late 1970s many Americans were no longer content with overly salty pseudo-Chinese dishes. They demanded authenticity and developed cravings for spicy dishes from the Szechuan and Hunan provinces of China, Vietnam and Thailand. In the 1970s Mexican food also left the barrio and became mainstream. Now authentic regional Mexican dishes are commonplace throughout America.

During this same time period, restaurateurs and chefs began Americanizing the principles of French *nouvelle cuisine*. When Alice Waters opened Chez Panisse in Berkeley, California, in 1971, her goal was to serve fresh food, simply prepared. Rejecting the growing popularity of processed and packaged foods, Waters used fresh, seasonal and locally grown produce in simple preparations that preserved and emphasized the foods' natural flavors. Chez Panisse and the many chefs who passed through its kitchen launched a new style of American cuisine that became known as **California** or **New American cuisine**. As the culinary movement launched by Waters's philosophy spread across the United States, farmers and chefs began working together to make fresh, locally grown foods available, and producers and suppliers began developing domestic sources for some of the high-quality ingredients that were once available only from overseas.

These chefs ushered in a period of bold experimentation. American chefs and chefs working in America, such as Wolfgang Puck, began to combine ingredients and preparation methods from a variety of cuisines. Their work resulted in **fusion cuisine**. Fusion cuisine combines ingredients or preparation methods associated with one ethnic or **regional cuisine** with those of another. A fillet of Norwegian salmon might be grilled over hickory wood and then served on a bed of Japanese soba noodles, for example, or a traditional French duck confit may be seasoned with lemongrass, ginger and chiles. Pizzas with untraditional toppings, such as smoked salmon and caviar, which had never been conceived of before, launched Wolfgang Puck's career in Los Angeles, California, in the early 1980s. Today such fusion is commonplace from the creations of Kogi BBQ's Korean Mexican tacos in Southern California to the subtle use of Asian seasonings in the classic sauces prepared by Jean-Georges Vongerichten at his restaurant Jean-Georges in New York City. But in the 1970s and 1980s, fusion represented a breakthrough in cooking and helped establish Puck as the first celebrity chef.

nouvelle cuisine French for “new cooking”; a mid-20th-century movement away from many classic cuisine principles and toward a lighter cuisine based on natural flavors, shortened cooking times and innovative combinations

ethnic cuisine the cuisine of a group of people having a common cultural heritage, as opposed to the cuisine of a group of people bound together by geography or political factors

California or **New American cuisine** a late 20th-century movement that first became popular in California and spread across the United States; it stresses the use of fresh, locally grown, seasonal produce and high-quality ingredients simply prepared in a fashion that preserves and emphasizes natural flavors

fusion cuisine the blending or use of ingredients and/or preparation methods from various ethnic, regional or national cuisines in the same dish; also known as transnational cuisine

regional cuisine a set of recipes based on local ingredients, traditions and practices; within a larger geographical, political, cultural or social unit, regional cuisines are often variations of one another that blend together to create a national cuisine

global cuisine foods (often commercially produced items) or preparation methods that have become ubiquitous throughout the world; for example, curries and French-fried potatoes

national cuisine the characteristic cuisine of a nation



Smoked salmon and caviar pizza, a dish created by Wolfgang Puck in the early 1980s.



A dish composed of olive oil poached turnips and mushrooms, potatoes and red cabbage from the vegetable menu of Charlie Trotter's, a Michelin-starred restaurant that operated in Chicago from 1987 to 2012.



Sauce spooned over a dish at a meal prepared in New York City by Thomas Keller and his staff.

farm-to-table or **locavore movement** an awareness of the source of ingredients with an emphasis on serving locally grown and minimally processed foods in season

molecular gastronomy a contemporary scientific movement that investigates the chemistry and physics of food preparation

modernist cuisine a term that refers to science-inspired techniques for food preparation; an avant-garde approach to food preparation, sanitation and health concerns based on science-inspired techniques



Roast foie gras with almond fluid gel cherry chamomile prepared by Heston Blumenthal at The Fat Duck in Bray, England.

Other chefs who were instrumental in changing the way Americans dine imported the exacting standards and culinary techniques of European chefs. In so doing these chefs elevated the style and quality of food served in the United States. Charlie Trotter opened his eponymous restaurant in Chicago in 1987 after several apprenticeships in France. Trotter is noteworthy for introducing the multicourse tasting menus that are a signature of fine dining today. Among the first to dedicate as much attention to vegetables as to meat or fish, Trotter also explored raw food preparations, writing a book on raw foods in 2003. Chef Thomas Keller, who started cooking in restaurants in his teens, worked at renowned restaurants Guy Savoy and Le Taillevent in Paris before opening his own restaurant in 1994. Today experts regard Keller's restaurants, The French Laundry in Yountville, California, and Per Se in New York City among the finest in the world. His cuisine, based on traditional French and modern cooking techniques, utilizes only foods in season, many grown on premises or sourced from local farmers. Known for producing lengthy tasting menus of food with clean flavors as well as his obsessive attention to detail, Keller develops professionalism in his staff who are encouraged to be mindful, organized and "work clean."

The fluidity of international borders, the accessibility of global travel and the Internet have radically changed the way we cook and the foods we eat. Today the world's pantries are available to chefs and home cooks everywhere. Chefs are sourcing ingredients globally as well as working in tandem with farmers to supply their diners with fresh flavors while preserving local agriculture and heirloom varieties. As we discuss in detail later in this chapter, the concern for locally raised ingredients, referred to as the **farm-to-table** or **locavore movement**, has influenced chefs to serve fresh seasonal foods, such as wild greens or seafood from day boat fishermen, that is grown or harvested within a few miles of their restaurants.

Modernist Cuisine

During the 1990s scientists, particularly in the United States, England, France and Spain, began to see food preparation as a distinct and worthy field of exploration. Chefs and scientists wanted to understand why food behaved as it did, why traditional cooking techniques sometimes failed and how to improve culinary methods. Scientists began seeking answers to these questions under the umbrella of **molecular gastronomy**, a term coined by the British physicist Nicholas Kurti and French chemist Hervé This in 1988. Inspired by the experiments of molecular gastronomy, early 21st-century chefs reinvented the notion of cooking by employing ingredients and machinery more common in industrial food manufacturing than in restaurant kitchens. This offshoot of molecular gastronomy is now referred to as **modernist cuisine**, first defined by Nathan Myhrvold (former Chief Technology Officer at Microsoft, co-founder of Intellectual Ventures and the principal author of *Modernist Cuisine*). Among those following modernist techniques is a group of daring, innovative chefs practicing a form of *haute cuisine* that integrates classic French cuisine with the highest-quality ingredients and previously unthinkable presentations such as liquids solidified into spheres and powders.

The founding chef of this movement is Ferran Adrià of elBulli in Spain (1962–). Current practitioners include Heston Blumenthal at The Fat Duck in Bray, England, Gaggan Anand at Gaggan in Bangkok and Grant Achatz at Alinea in Chicago. The hallmarks of this high-tech cuisine include dehydrators, edible menus, gels and spheres, intensely flavored smoke and -30°F antigrididdles that "cook" liquefied food. These chefs produce foods that look like one thing, taste like something totally different and smell like childhood memories. Take Heston Blumenthal's bacon and egg ice cream as one example. It is a plated dessert consisting of ice cream made from a bacon-infused custard. All the elements of the savory breakfast appear on the plate including a cup of tea, served as a sweet jelly, and toast in the form of sweet, caramelized brioche. As Blumenthal says, his goal is to make food exciting by overturning expectations. Although few restaurants are going to the extreme of replacing their cooktops with water baths and chemical freezers, many of the tools and techniques that these avant-garde chefs perfected are now being used and appreciated on a smaller scale by chefs who may add a gelled garnish or spheres of sauce to a traditional dish.

Ferran Adrià (1962–)

Cooking is a language through which all the following properties may be expressed: harmony, creativity, happiness, beauty, poetry, complexity, magic, humor, provocation and culture.

—Ferran Adrià

Ferran Adrià is an experimental Spanish chef called the Salvador Dalí of the kitchen. Adrià's prestigious restaurant elBulli (slang for "the bulldog"), was voted number one on The World's 50 Best Restaurants™ list four times. ElBulli also earned three Michelin stars, the highest Michelin rating, an award it maintained from 1997 until it closed in 2011.

Born near Barcelona, this food futurist planned a business career before a temporary dishwashing job redirected his path. Inspired by classic cuisine and an encouraging chef, Adrià began his self-education, reading *El Práctico*, a cooking manual edited by a Spanish chef heavily influenced by Auguste Escoffier, from cover to cover. A month working at elBulli was an experience so stimulating that he returned there upon completion of his military service in 1984.

At the time, the cuisine at elBulli was heavily influenced by *nouvelle cuisine*, then at its height of popularity. Working alongside the restaurant's chef, Adrià created new versions of acclaimed French dishes, earning the restaurant its first star in the influential Michelin Guide.



Liquid olives, created by Chef Ferran Adrià.

He enhanced his skills and knowledge of classic technique through brief apprenticeships in top kitchens in France. But in 1987 Adrià heard an expression that was to change his direction as a chef; "Creativity means not copying," said Jacques Maximin, then chef of Le Chantecler in

Nice, France. At that moment Adrià and his team committed themselves to reinventing cuisine as we know it.

The food served at elBulli engaged all of one's senses. Dinner was a tasting menu of up to 35 bite-sized dishes. What appeared to be cooked may actually have been flash frozen. An herb clipped to a spoon allowed guests to smell the aroma before tasting the herb in the dish. Warm foam that tasted of carrots or mushrooms, hot gelatin, encapsulated mango purée that resembled egg yolks and ravioli filled with liquid were some of the show-stopping techniques for which Adrià became known. At the vanguard of experimental cooking, Adrià and staff spent six months each year working with food technologists, industrial designers and artists experimenting with new techniques. The chef and his staff documented their style of cooking in a 23-point style guide, "Synthesis of elBulli Cuisine." Using the freshest ingredients and mastery of technique are givens, they write. But also all foods are of equal gastronomic value, with a preference for vegetables and seafood to create a "light, harmonic cuisine" based on classic and modern technologies.

Adrià continues his experimentation and research into gastronomy, sharing his knowledge through the Internet and at elBulli Foundation.

MODERN FOOD SERVICE OPERATIONS

From Monsieur Boulanger's humble establishment, a great industry has grown. Today more than one million public dining facilities operate in the United States alone. The dramatic growth and diversification of the food service industry is due in part to the Industrial Revolution in the 19th century and the social and economic changes it brought, including the introduction of new culinary technologies, food supplies and consumer concerns.

Culinary Technologies

Technology has always had a profound effect on cooking. For example, the development of clay and, later, metal vessels that could contain liquids and withstand and conduct heat offered prehistoric cooks the opportunity to stew, make soups and porridge, pickle and brine foods and control fermentation. But it was not until the rapid technological advances fostered by the Industrial Revolution that anything approaching the modern kitchen was possible.

One of the most important advancements was the introduction of the cast-iron stove. Prior to the 19th century, most cooking was done on spits or grills or in cauldrons or pots set on or in a wood- or coal-burning hearth. Hearthside cooking did not lend itself

well to the simultaneous preparation of many items or to items requiring constant and delicate attention. With the introduction of cast-iron stoves during the 1800s, cooks could more comfortably and safely approach the heat source and control its temperatures. On the new cook stoves, they could also prepare foods in the small quantities needed to serve individual diners on demand.

Also of great importance were developments in food preservation and storage techniques. For thousands of years food had been preserved by sun-drying, salting, smoking, pickling, sugar-curing or fermenting. Salt-cured codfish and salmon have been staples in Scandinavia for millennia, and the earliest household records and cookery manuscripts from medieval Britain include inventories of bacon and salted meats. Although useful, these ancient procedures dramatically change the appearance and flavor of most foods. By the early 19th century, preserving techniques began to emerge that had minimal effect on appearance and flavor. For example, by 1800 the Frenchman Nicolas François Appert successfully “canned” foods by subjecting foods stored in sterilized glass jars to very high heat. An early mechanical refrigerator was developed by the mid-1800s; soon reliable iceboxes, refrigerators and, later, freezers were available. During the 20th century freeze-drying, vacuum-packing and irradiation became common preservation techniques.

Developments in transportation technology were also underway. During the 19th century steam-powered ships and railroads brought foods quickly to market from distant suppliers. Since the mid-20th century temperature-controlled cargo ships, trains, trucks and airplanes have all been used as part of an integrated worldwide food transportation network. Combined with dependable food preservation and storage techniques, improved transportation networks freed chefs from seasonal and geographic limitations in their choice of foods and expanded consumers’ culinary horizons.

Advancements in technology also facilitated or even eliminated much routine kitchen work. Since the 19th century chefs have relied increasingly on mechanical and motorized food processors, mixers and cutters as well as a wealth of sophisticated kitchen equipment from high-carbon stainless steel knife blades to infrared thermometers and ultrasonic homogenizers.

Food Supplies

Modern food preservation, storage and transportation techniques have made both fresh and exotic foods regularly available to chefs and consumers. Because of advances in packaging and transportation, foodstuffs grown or made virtually anywhere in the world are now available to restaurants regardless of season or location.

Last century’s advancements in agriculture, such as the switch from organic to chemical fertilizers and the introduction of pesticides and drought- or pest-resistant strains, increased yields of healthy crops. Traditional hybridization techniques and, more recently, genetic engineering have produced new varieties of grains, such as soybeans, corn, rapeseeds and rice, which are resistant to herbicides or insects. Although scientists may argue that such engineering simply speeds up the process of natural selection, consumers are often more concerned about the unforeseen impact on consumer health and unintended consequences to the environment. Governments around the world regulate, restrict or outright ban the sale of foodstuffs containing **genetically modified organisms (GMOs)** on a case-by-case basis.

Additionally, advancements in animal husbandry and aquaculture have led to a more reliable supply of leaner meat, poultry and fish. Foods found traditionally only in the wild (for example, game, wild rice and many mushrooms) are now being raised commercially and are routinely available. The commercialization of foodstuffs has created a backlash among some consumers and chefs, however. New concerns about sustainability and support for local farmers and food producers present the industry with new challenges and new opportunities for chefs to revise their menus and adopt ecologically-based business practices.

genetically modified organism (GMO) refers to a plant, microorganism or animal in which genetic material (segments of DNA) have been modified or engineered in a laboratory in order to change inheritable characteristics, such as resistance to insects or herbicides

Consumer Concerns

Consumer concerns about nutrition and diet have fueled changes in the food service industry. Obviously what we eat affects our health. Adequate amounts of certain nutrients promote good health by preventing deficiencies; studies show that good nutrition also helps prevent chronic diseases and increases longevity. Chefs must now understand human nutritional needs and the various special diets followed by customers. Beyond simply reducing fat and sugar for weight control, chefs must accommodate customers' allergies, specialized diets due to illnesses and ethical or social dining concerns of groups such as vegetarians and locavores.

The public is also rightfully concerned about food safety. Federal, state and local governments help promote food safety by inspecting and grading meats and poultry, regulating label contents for packaged foods and setting sanitation standards. The last line of defense, however, are the restaurant workers who prepare and serve food. It is up to you, as a culinary professional, to follow sanitation and food safety guidelines to protect others from injury or illness.

As noted earlier in this chapter, concerns about nutrition and food safety have also resulted in renewed interest in local and organically grown fruits and vegetables and free-range-raised animals. The local food movement and the concern for sustainable food production are leading chefs to find new sources for ingredients and expand their community involvement.

Local Production

Fresh foods travel from the producer to the consumer by two basic methods: 1) the industrial, commercial system, which operates huge, consolidated farms and global transportation networks; and 2) small local or regional systems. One key difference is how far the food travels from where it is grown or produced to the end consumer. Local systems distribute food items over short distances. These local farms are often family farms, which are defined by the United States Department of Agriculture (USDA) as those operated by the people who own the land or the animals and have sales of less than \$350,000 per year.

While the word *local* indicates that the food item is being sold close to where it was grown or produced, there is no consistent definition for it. Many consumers and organizations working in this field, such as farmer's markets, cite a radius of 50–100 miles (80–160 km) from production to point of sale as the determining factor. Weather conditions, urbanization or production capacity of the area also have an impact on the definition of *local*, sometimes extending the acceptable zone into a larger regional area. In 2010 the USDA began using a definition that implies food can be marketed as local or regional if the total distance the product was transported is less than 400 miles (640 km) from where it originated.

Chefs are using the public's interest in eating locally produced foods to create restaurant menus featuring such products. Some chefs, like their pre-industrial predecessors, now grow their own produce, raise their own pigs or chickens and forage from nearby forests for ingredients. They may contract with local farmers, beekeepers, cheese makers or fishermen to supply products, building their menus according to product availability, rather than serving out-of-season items or those transported long distances. In its purest version, farm-to-table means that the foods served come directly from a local farm, without passing through a market, distributor or grocery store. It implies a relationship between the chef and the farmer, with the chef serving the farm's products at their peak of freshness, ripeness and flavor. Farm-to-table menus may change daily due to product availability, and preparation techniques focus on retaining nutrients and freshness.

Sustainability

It is important to keep in mind that coming from nearby or being produced on a small farm does not necessarily mean the foods themselves are healthier, organic or in any

A Very Big Business Indeed

The National Restaurant Association, which closely monitors the economic impact of the U.S. food service industry, issued the following statistics for 2016:

- There are over one million restaurant locations in the United States; total annual sales were approximately \$783 billion.
- Eighty percent of restaurant customers ate ethnic cuisine at least once per month.
- The food service industry captured 47% of the U.S. food dollar.
- More than 14.4 million people were employed in the restaurant industry.
- Nearly half of all American adults have worked in the food service industry at some time during their lives.



Chef Raymond Blanc samples radishes grown in the greenhouse at Belmond Le Manoir aux Quat'Saisons, Oxford, England.