MASTERING

CATERING THEORY

MACMILLAN MASTER SERIES

Accounting	German
Arabic	German 2
Astronomy	Hairdressing
Australian History	Italian
Background to Business	Italian 2
Basic Management	Japanese
Biology	Keyboarding
British Politics	Marketing
Business Communication	Mathematics
Business Law	Modern British History
Business Microcomputing	Modern European History
Catering Science	Modern World History
Catering Theory	Nutrition
Chemistry	Office Practice
COBOL Programming	Pascal Programming
Commerce	Philosophy
Computer Programming	Physics
Computers	Practical Writing
Data Processing	Principles of Accounts
Economic and Social History	Restaurant Service
Economics	Social Welfare
Electrical Engineering	Sociology
Electronics	Spanish
English as a Foreign Language	Spanish 2
English Grammar	Spreadsheets
English Language	Statistics
English Literature	Statistics with your
Financial Accounting	Microcomputer
French	Study Skills
French 2	Typewriting Skills
	Word Processing

MASTERING CATERING THEORY

EUNICE TAYLOR

BSc(Hons), MIFST, MCFA, CertEd

and

JERRY TAYLOR

BA, MEd, FCHIMA, FCFA, LCG

M
MACMILLAN

© Eunice Taylor and Jerry Taylor 1990

All rights reserved. No reproduction, copy or transmission of this publication may be made without written permission.

No paragraph of this publication may be reproduced, copied or transmitted save with written permission or in accordance with the provisions of the Copyright, Designs and Patents Act 1988, or under the terms of any licence permitting limited copying issued by the Copyright Licensing Agency, 33-4 Alfred Place, London WC1E 7DP.

Any person who does any unauthorised act in relation to this publication may be liable to criminal prosecution and civil claims for damages.

First edition 1990

Published by
MACMILLAN EDUCATION LTD
Houndmills, Basingstoke, Hampshire RG21 2XS
and London
Companies and representatives
throughout the world

British Library Cataloguing in Publication Data
Taylor, Eunice

Mastering catering theory

1. Catering

I. Title II. Taylor, Jerry

642'.4

ISBN 978-0-333-47191-3 ISBN 978-1-349-20616-2 (eBook)

DOI 10.1007/978-1-349-20616-2

To our daughters, Joanne and Shelley

CONTENTS

<i>List of Plates</i>	<i>xi</i>
<i>List of Figures</i>	<i>xii</i>
<i>List of Tables</i>	<i>xv</i>
<i>Acknowledgements</i>	<i>xviii</i>

1 The catering industry	1
1.1 The history and development of catering	1
1.2 The structure of the catering industry	4
1.3 Branches of the catering industry	8
1.4 Career structure and vocation	9
1.5 Working conditions and pay	11
1.6 History and development of cookery	12
1.7 Portrait of the chef	14
1.8 Gastronomy	17
2 Catering operations	18
2.1 Traditional operations	18
2.2 Contract catering	18
2.3 Franchise catering	21
2.4 Popular catering	22
2.5 Systems catering	23
2.6 Function catering	23
3 Catering styles	25
3.1 Introduction	25
3.2 Cuisine classique	26
3.3 Cuisine bourgeoise	26
3.4 Nouvelle cuisine	27
3.5 Other movements and cuisine principles	33
4 Kitchen organisation	40
4.1 Kitchen size	40
4.2 Personnel of the kitchen and its ancillary departments	40
4.3 Function	46
4.4 Partie system and adaptations	48
4.5 Other types of kitchen operation	51
4.6 Daily routine	52
4.7 Production schedules	53
4.8 Other support staff	54

CONTENTS

5 Purchasing, storing and issuing goods	55
5.1 Buying	55
5.2 Storing	56
5.3 Storeroom organisation	56
5.4 Storage records	59
5.5 Quantity requirements	67
5.6 Weights, measures and units	70
6 Food costing	75
6.1 Elements of costs	75
6.2 Determining the break-even point	76
6.3 Establishing profit margins	78
6.4 Recipe-costing	79
6.5 Standard recipes	80
6.6 Portion control	81
7 The menu	83
7.1 Definition of menu	83
7.2 Types of menu	83
7.3 Examples of menus	85
7.4 Menu compilation	88
7.5 Pricing policy based on costs	88
7.6 Clientele	88
7.7 Staff capability	89
7.8 Facilities for cooking and service	89
7.9 Balance	89
7.10 Business promotion and marketing	91
7.11 Availability and season of supplies	92
7.12 The blueprint for operations	92
7.13 Classical terminology	93
7.14 Consumer preferences	93
7.15 National eating habits	96
7.16 The influence of race and religion	97
7.17 Gastronomic considerations	97
8 Cookery methods	100
8.1 Introduction	100
8.2 Mise en place	100
8.3 Fonds de cuisine	102
8.4 Stocks	102
8.5 Sauces	106
8.6 Basic mixtures	107
8.7 Soups	108
8.8 Hors-d'oeuvre, salads, savouries	110
8.9 Eggs, pasta, gnocchi and rice	113

8.10 Fish and shellfish	117
8.11 Meat, poultry and game	120
8.12 Vegetables and potatoes	123
8.13 Pastries, sweets and desserts	124
9 Cooking processes	125
9.1 The cooking process	125
9.2 Boiling	130
9.3 Poaching	135
9.4 Stewing	139
9.5 Braising	142
9.6 Steaming	146
9.7 Baking	151
9.8 Roasting	156
9.9 Grilling	165
9.10 Deep-frying	169
9.11 Shallow-frying	177
9.12 Microwave cookery	183
10 Kitchen equipment	193
10.1 Kitchen equipment and machinery	193
10.2 Small kitchen utensils and their uses	218
10.3 Personal equipment and utensils	230
10.4 Kitchen planning – space	236
10.5 Kitchen planning – layout	237
10.6 Kitchen equipment terminology	239
11 New technology	241
11.1 Introduction	241
11.2 Cook–chill	241
11.3 Sous-vide	249
11.4 Cook–freeze	252
11.5 Information technology	253
12 Commodities	256
12.1 Commodities: the foods we eat	256
12.2 Food from animals	257
12.3 Food from plants	292
13 Nutrition at work	327
13.1 Introduction	327
13.2 The nutrients and a healthy diet	327
13.3 Malnutrition	336
13.4 Nutritional status in the UK	336
13.5 The role of the caterer	338

CONTENTS

13.6	Community nutrition	339
13.7	Food quality – reading the label	346
14	Hygiene at work	350
14.1	Introduction	350
14.2	Food-poisoning: symptoms and causes	351
14.3	Microbial food-poisoning	352
14.4	Bacteria	355
14.5	Contamination of food with bacteria	355
14.6	Cross-contamination	356
14.7	The multiplication of bacteria	359
14.8	The control of the multiplication of bacteria	360
14.9	Effective cleaning of food premises and equipment	366
14.10	The food-poisoning bacteria	369
14.11	Hygiene rules for caterers	379
14.12	Food hygiene legislation	380
15	Health and safety at work	385
15.1	Legislation	385
15.2	Reporting accidents	386
15.3	Accident prevention	387
15.4	Publications	388
15.5	Working methods	389
15.6	Fire prevention	389
15.7	First Aid	392
15.8	Role of the environmental health officer	395
	<i>Appendix: Glossary of technical terms</i>	396
	<i>Questions</i>	409
	<i>Answers</i>	424
	<i>Index</i>	429

LIST OF PLATES

1.1	Auguste Escoffier	2
3.1	Nouvelle cuisine: a picture on a plate	28
7.1	Function menu	85
7.2	Table d'hôte and à la carte menus	86
7.3	A vegetarian menu	87
9.1	Traditional spit-roasting	157
10.1	Ovens	196
10.2	Boiling equipment	199
10.3	Deep-frying equipment	201
10.4	Grills	203
10.5	Low pressure steam oven	205
10.6	Bratt pan	206
10.7	Bain-marie	208
10.8	Holding equipment for cold food	210
10.9	Food preparation equipment	213
10.10	Washing-up equipment	219
10.11	Waste-disposal unit	220
10.12	Examples of aluminium items	221
10.13	Examples of copper items	222
10.14	Examples of larger copper items	223
10.15	Examples of china and earthenware items	224
10.16	Examples of iron and steel items	225
10.17	Examples of stainless steel items	227
10.18	Examples of other metal items	229
11.1	Temperature probes	243
11.2	The sous-vide product	251
13.1	Menu with nutritional data	340
14.1	<i>Salmonella enteritidis</i> , the bacterium associated with food poisoning related to eggs	353

LIST OF FIGURES

1.1	Sectors of the catering industry	5
1.2	Relationship between catering and other aspects of UK tourist industry (1986)	7
1.3	Chefs' uniforms	16
2.1	Contract catering: typical organisational chart	20
3.1	Heartbeat Award Scheme	39
4.1	Food order check	46
4.2	Kitchen service operation	47
4.3	Partie system – large brigade	49
4.4	Partie system – small brigade	50
5.1	The ideal storage requirements of commodities	57
5.2	Temperature differences in small refrigerators	60
5.3	Flow-chart for requisition, purchases and invoices	62
5.4	Sample purchase order as sent to a supplier	63
5.5	Sample delivery note	64
5.6	Bin card	65
5.7	Requisition book/sheets	66
5.8	Stock sheet	67
5.9	Comparison between pint and litre	72
8.1	Basic stocks	102
8.2	Fish stock and its basic derivations	103
8.3	White meat stock and its basic derivations	104
8.4	Brown meat stock and its basic derivations	105
8.5	Basic sauces	106
8.6	Basic soups and their derivations	109
8.7	Basic hors-d'oeuvre	110
8.8	Basic salads and their derivations	111
8.9	Basic savouries and their derivations	112
8.10	Basic egg-dishes and their derivations	113
8.11	Basic pasta dishes and their derivations	115
8.12	Gnocchi and its derivations	116
8.13	Basic rice dishes and their derivations	117
8.14	Round-fish classification	118
8.15	Flat-fish classification	118
8.16	Shellfish classification	119
8.17	Meat classification	120
8.18	Poultry classification	122
8.19	Game classification	123
8.20	Vegetable classification	123
8.21	Types of pastry	124

9.1	Types of radiation	127
9.2	Dry and moist cooking processes	130
9.3	The boiling process	131
9.4	Boiling techniques	132
9.5	Blanching techniques	133
9.6	The poaching process	135
9.7	Shallow poaching	137
9.8	Deep poaching	137
9.9	Poaching procedures	137
9.10	The stewing process – in the oven	139
9.11	Stewing techniques	141
9.12	The braising process	142
9.13	Braising types	144
9.14	The braising procedure	145
9.15	Steaming without pressure	147
9.16	Steaming procedures	149
9.17	Baking process	152
9.18	Baking methods	153
9.19	Baking procedures	153
9.20	Individual egg custards in a bain-marie	155
9.21	Traditional pot-roasting	158
9.22	The process of roasting	159
9.23	Roasting meat	161
9.24	Larding	162
9.25	Barding	162
9.26	The process of grilling	165
9.27	Grilling procedures	167
9.28	Heat transfer during deep-frying	169
9.29	The main components of modern fryers	170
9.30	Deep-frying	174
9.31	Shallow-frying techniques	177
9.32	Equipment for shallow-frying	178
9.33	Shallow-frying	180
9.34	The general procedure for shallow-frying	181
9.35	Microwave cookery	184
9.36	A microwave oven	186
9.37	Microwave temperature probe	187
9.38	Microwave cooking techniques	190
10.1	Knives	231
10.2	Small tools	234
10.3	Gastronorm shapes	240
11.1	Traditional catering	242
11.2	Cook–chill system	242
11.3	A central production cook–chill system	244
11.4	Flow-chart of a cook–chill production system	245
11.5	The cook–freeze system	253

LIST OF FIGURES

11.6	Cook–chill, cook–freeze and sous-vide summarised	254
12.1	Proportions of main nutrients in stewing beef	261
12.2	Primal cuts of beef	266
12.3	Primal cuts of veal	271
12.4	Primal cuts of lamb	273
12.5	Primal cuts of pork	274
12.6	Bacon	276
12.7	Proportions of main nutrients in cooked chicken	281
12.8	Proportions of main nutrients in cod fillets	285
12.9	Proportion of main nutrients in fresh whole cows' milk	286
12.10	Cheese production	290
12.11	Proportions of main nutrients in cheese	291
12.12	Proportions of main nutrients in raw eggs	293
12.13	Proportions of main nutrients in fresh cabbage	299
12.14	Proportions of main nutrients in baked beans	301
12.15	Proportions of main nutrients in apple	306
12.16	Proportions of main nutrients in almonds	309
12.17	Grain and the milling process	310
12.18	Proportions of the main nutrients in white flour	311
12.19	Proportions of the main nutrients in wholemeal flour	311
12.20	Nutritional value of sugar	314
12.21	Main components of oil from vegetable source	316
12.22	Main components of fat from animal source	316
12.23	Proportions of main nutrients in chocolate	317
12.24	The production of cocoa	319
12.25	The production of chocolate couverture	320
12.26	Processes in making chocolate products	320
13.1	A balanced diet	337
13.2	Computer nutritional analysis	339
13.3	Additive safety details from London Food Commission	349
14.1	Main types of micro-organisms	354
14.2	Examples of cross-contamination – chef's tea-towel	357
14.3	Examples of cross-contamination – chopping boards and knives	358
14.4	Example of binary fission	359
14.5	Temperature and microbial growth	364
14.6	Bacterial spore formation	365
14.7	Safe handling procedures	366
15.1	Fire extinguishers	392

LIST OF TABLES

1.1	Overview of some developments in Britain relevant to catering	3
1.2	The Standard Industrial Classification (SIC)	6
1.3	Analysis of hotel and catering industry	7
1.4	Specialist areas of work	8
1.5	Staff turnover: kitchen	10
1.6	Employment patterns	11
1.7	Personal qualities of the chef	17
3.1	Religious connotations of food and drink	35
3.2	Acceptable animal-food replacements	36
3.3	Health problems	37
3.4	<i>Dietary Guidelines</i> (1983)	37
4.1	Kitchen staff analysis	50
4.2	Hospital and in-flight staff	51
5.1	Storage: general points	58
5.2	Additional points: dry stores	59
5.3	Additional points: cold storage	60
5.4	Commodity classification	61
5.5	Average portion sizes	68
5.6	Weight	70
5.7	Length	71
5.8	Area	71
5.9	Volume	71
5.10	Temperature	72
5.11	Conversion chart	73
6.1	Elements of costs	76
6.2	Example of cost breakdown	77
6.3	Percentages of cost breakdown	77
6.4	Percentages of cost with lower sales	78
6.5	Selling price: calculation chart	79
6.6	Recipe-costing example	80
6.7	Standard recipe	81
7.1	Summary comparison of menus	84
7.2	Examples of menu balance	91
7.3	Different states in which food is available	92
7.4	Examples of origin of names and dishes	94
7.5	Garnish names	95
7.6	Examples of dishes worldwide	98
8.1	Examples of mise en place	101
9.1	Approximate poaching times/temperatures	138

LIST OF TABLES

9.2	A comparison of traditional with high-pressure cooking times	150
9.3	Examples of cooking times and temperatures of baked foods	155
9.4	Cooking times for roast poultry	164
9.5	Degrees of cooking for meat	164
9.6	A comparison of frying media	171
9.7	Time and temperatures for shallow-frying	183
9.8	Microwave power controls	189
9.9	Examples of approximate cooking times	189
9.10	Advantages and disadvantages of microwave	192
10.1	Gastronorm sizes	239
11.1	Government guidelines (1980)	247
11.2	Advantages and disadvantages of the sous-vide system	252
11.3	Advantages and disadvantages of cook-freeze	254
11.4	Overview of some computer applications	255
12.1	Characteristics of animals bred for meat	258
12.2	Offal	262
12.3	Beef: forequarter	268
12.4	Beef: hindquarter	269
12.5	Veal	270
12.6	Lamb	272
12.7	Pork	275
12.8	Poultry	278
12.9	Game	281
12.10	Animals commonly fished from seas and rivers	283
12.11	Fish: quality points	284
12.12	Liquid milks	288
12.13	Milk products	289
12.14	Egg sizes	292
12.15	Foods from plants: a summary	294
12.16	Fresh vegetables	295
12.17	Pulses: catering facts	300
12.18	Fresh fruit: catering facts	302
12.19	Nuts: catering facts	308
12.20	Cereal products	309
12.21	Sugars	313
12.22	Sources and characteristics of fats and oils	315
12.23	Types of tea	322
12.24	Herb chart	323
12.25	Spice chart	324
12.26	Alcoholic beverages	325
13.1	Sugars, starches, fats, proteins, fibre: a catering guide	328
13.2	Vitamins and minerals: a catering guide	330
13.3	Types of additives	347
14.1	Preservation techniques	362

14.2	The effect of reduced temperature on microbial growth	364
14.3	Cleaning methods	368
14.4	Characteristics of bacteria commonly causing food poisoning	370
14.5	Effective personal food hygiene for food-handlers	381
14.6	Safe food-handling procedures	383
14.7	Summary of Food Hygiene Regulations	384
15.1	Safe working methods	390
15.2	First-aid box contents	393

ACKNOWLEDGEMENTS

The authors would like to thank the following:

Martin Brito LCG, ACF, CertEd
Dillip Banerjee MBBS, PhD, MD, FRCPath
Kamlesh Banerjee BSc, MSc, PhD, CertEd
Harry L Cracknell FHCIMA, FCFA, ARSH
Mostyn Davey BA(Oxon), MSc, PhD, CertEd
Tony Deag BSc(Hons), DMS, MIEHO
Rev Dr Peter C Graves ThM, CEEd
Terry Pugh MHCIMA, MCFA
Ken Melsom JP, FHCIMA, MBIM, MRIPHH
Linda Redding BSc(Hons)
Ann Walker BSc, PhD, DipTropAgr, AIFST
B. S. Ward FHCIMA, MCFA
Ian Woods CertEd
Mary Withall BSc, MIBiol, AMHCIMA, MRSH, MAHE
Ken Woodward LHCIMA, MRIPHH, ACF

The author and publishers wish to acknowledge the following photographic sources: The Anthony Blake Photo Library; Mary Evans Picture Library. And grateful thanks go to Compeat Nutritional Analysis System Life Line Services Ltd, London, for permission to use copyright material.