

Glassware and Glassworking in Thessaloniki

1st Century BC – 6th Century AD

Anastassios Ch. Antonaras

ARCHAEOPRESS PUBLISHING LTD

Gordon House
276 Banbury Road
Oxford OX2 7ED

www.archaeopress.com

ISBN 978 1 78491 679 4
ISBN 978 1 78491 680 0 (e-Pdf)

© Archaeopress and Anastassios Ch. Antonaras 2017

Cover images: Glass vessels, Thessaloniki, 1st-5th c.

All rights reserved. No part of this book may be reproduced, in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of the copyright owners.

Printed in England by Oxuniprint, Oxford
This book is available direct from Archaeopress or from our website www.archaeopress.com

Contents

List of Figures.....	v
Acknowledgments.....	vii
Introduction.....	1
1. Production – Forming – Decoration.....	5
Raw materials	5
Production	5
Glassmaking – primary glass production.....	6
Glassworking – secondary glass production.....	8
Glass-forming techniques associated with the vessels under study	12
Casting.....	13
Slumping.....	13
Rotary-pressing.....	14
Free-blowing.....	15
Decorative techniques associated with the vessels under study	17
Mould-blowing.....	17
Wheel-cutting engraving	19
Application of plastic elements.....	21
Indentation.....	23
Pinching	23
Bi-colouring.....	24
2. Secondary Glass-Workshops	25
A. The location of secondary glass-workshops in the Roman world and in Roman Thessaloniki.....	25
B. Glass-workshops in Roman Thessaloniki.....	28
1. East of the Acheiropoietos basilica (S. Georgiadis plot)	28
2. The Ancient Agora.....	30
3. Theological Department, Aristotle University	31
4. The site at No. 45 Vassileos Irakleiou Street.....	33
C. Probable Local Products	41
Conclusions	45
3. Glassworkers: People, Artisans and Traders	47
4. Typological Classification of the Material Under Study	52
1. Mosaic plates	52
2. Free-blown dish, plain base (Isings Form 46a, c)	52
3. Free-blown dish, ring base	52
4. Rectangular trays, cast decolourized.....	53
5. Bowls smooth, mosaic	54
6a. Ribbed bowls, rotary-pressed, single-coloured.....	54
6b. Ribbed bowls, rotary-pressed, mosaic.....	56
7. Ribbed bowls, mould-blown.....	56
8. Ribbed bowls, free-blown (Isings Form 17).....	57
9. Bowls, everted conical, smooth	58
10. Bowls, hemispherical with horizontal rim	58
11. Bowls/Beakers, hemispherical with crimped handles (Isings Form 43).....	59
12. Bowls, hemispherical (Isings Form 96).....	60
13. Bowls, hemispherical with three handles.....	63
14. Bowls, hemispherical honeycomb (Isings Form 107a).....	64
15. Bowls, inverted conical, indented (Isings Form 117)	65
16. Bowls, smooth free-blown, hemispherical or shallower (Isings Form 116).....	66
17. Calyx-shaped bowls.....	67
18. Bowls with scalloped rim (Isings Form 42d).....	67
19. Calyx-shaped beakers (Harden Type G1ii).....	68
20. Bowls, hemispherical (Isings Form 12).....	70
21. Conical beakers with straight walls and raised ovular protuberances, ‘Lotus Beaker’ (Isings Form 31).....	71
22. Conical beakers with straight walls, ‘Mythological Beaker’	72
23. Conical beakers with straight walls, multifaceted engraved decoration.....	73

24. Conical beakers with curved walls, pointed	74
25. Conical beakers with curved walls, flat-bottomed (Isings Form 29).....	74
26. Conical beakers with curved walls, pushed-in ring base (Isings Form 34)	74
27. Conical beakers, straight walls with indentations, plain base, Isings Form 32.....	75
28. Conical Beakers with straight walls, indentations, and pushed-in ring base (Isings Form 35).....	76
29. Beakers, cylindrical	76
30. Beakers, ovular	77
31. Conical beakers with straight, smooth walls, plain base (Isings Form 106a, b, c)	77
32. Conical beakers with straight smooth walls, ring base (Isings Form 109c).....	79
33. Cylindrical beakers with small knob	80
34. Cylindrical beakers with massive knob	81
35. Stemmed beakers, inherent stem (Isings Form 111.1)	82
36. Stemmed beakers, inherent foot, three handles	84
37. Stemmed beakers (Isings Form 111)	85
1. Applied, solid stem	
2. Applied, conical stem.....	85
38a, b. Beakers with tall cylindrical base/stemmed lamps	87
39. Ladles	89
40. Pans, 'trullae'	90
41. Calyx bowl with three handles	91
42. Kantharoi, free-blown (Isings Form 38a)	91
43. Kantharoi, mould-blown	92
44. Flasks with collar-shaped rim (Isings Form 70)	93
45. Bottles squat conical body with curved walls, with constriction (Isings Form 82A2)	93
46. Bottles with conical body, curved walls, squat, without constriction (Isings Form 82B2).....	94
47. Bottles with conical body, straight walls, flat shoulder (De Tommaso Form 53).....	95
48. Bottles conical body, curved walls, slender, tubular rim (Isings Form 82A2 var.)	96
49. Bottles with cracked-off rim, biconical with indentations	97
50. Bottles spherical with cracked-off rim (Isings Form 103)	97
51. Bottles with tubular rim, spherical.....	99
52. Bottles with tubular rim, pear-shaped.....	100
53a, b. Baby-feeders or lamp-fillers	102
54. Funnel-mouth flasks, globular, with long curved neck and very small body spouts.....	103
55. Funnel-mouth flasks, bulbous spear-shaped, slender on plain base, wide mouth and unworked rim	104
56. Funnel-mouth flasks, pear-shaped, slender, on plain base, wide mouth and fire-polished rim	104
57. Funnel-mouth flasks, pear-shaped, slender plain base and narrow mouth.....	105
58. Funnel-mouth flasks, pear-shaped, ribbed (Isings Form 133 min)	105
59. Funnel-mouth flasks, slender biconical body, horizontal rim.....	106
60. Funnel-mouth flasks, pear-shaped, slender with pushed-in base	106
61. Funnel-mouth flasks, spherical with short neck (Isings Form 104b var.).....	107
62. Funnel-mouth flasks, spherical with tall neck and unworked rim, squat (Isings Form 104b)	107
63. Funnel-mouth flasks, spherical with tall neck and unworked rim, slender (Isings Form 104b local)	108
64. Funnel-mouth flasks, spherical with tall neck and fire-polished rim, squat	109
65. Funnel-mouth flasks, globular, with tall neck and fire-polished rim, slender	109
66. Funnel-mouth flasks, globular, with thread wound around the mouth	109
67. Funnel-mouth flasks, globular, with indentations	110
68. Funnel-mouth flasks, globular, with vertical ribs	111
69. Funnel-mouth flasks, pear-shaped, bulbous	111
70. Funnel-mouth flasks, ovular with applied coil base	112
71. Funnel-mouth flasks, ovular, plain base	112
72. Funnel-mouth flasks, cylindrical, with short body	113
73. Funnel-mouth flasks, cylindrical, tall body (Isings Form 132)	113
74. Amphorisks.....	114
75. Square bottles (Isings Form 50)	115
76. Jugs, globular, trefoil-mouth.....	117
77. Jugs, conical with undulating handle	118
78. Globular jugs, without rim. 'Dilekythoi'	119
79. Globular, aryballoid jugs, without rim	119
80. Jugs, spherical, funnel-mouth, plain base	120
81. Jugs, globular, funnel-mouth, with pushed-in ring base.....	120
82. Jugs, globular, with tubular rim	120
83. Jugs, ovular, smooth (Isings Form 120a).....	121
84. Jugs, ovular, with oblique ribbing (Isings Form 120b)	121

85. Jugs, fusiform.....	122
86. Jugs, pear-shaped, oblique ribs.....	123
87. Jugs, pear-shaped, smooth.....	124
88. Jugs, inverted truncated conical, with horizontal shoulder.....	125
89. Jugs, inverted truncated conical, slender, with shoulder.....	125
90. Jugs, inverted truncated conical, squat, plain base.....	126
91. Jugs, inverted, truncated conical, squat, pushed-in tubular base, dip-mould-blown.....	126
92. Jugs, inverted truncated conical, squeezed with pushed-in tubular ring base, free-blown.....	126
93. Jugs, hemispherical.....	127
94. Jugs, eight-sided.....	127
95. Jugs, cylindrical (Isings Form 126).....	128
96. Jugs, figural in the shape of human head.....	129
97. Bottles, eight-sided, single-handled.....	130
98. Jars, globular, smooth with tubular rim (Isings Form 68).....	131
99. Jars, globular, smooth with fire-polished rim (Isings Form 94 var.).....	131
100. Jars cylindrical, with short neck, wide (Isings Form 130b).....	132
101. Jars, quadrate, mould-blown.....	132
102. Jars, quadrate, indented, with short neck.....	133
103. Jars, globular, with wide funnel-mouth and fire-polished rim.....	134
104. Jars, squat globular, with horizontal rim.....	134
105. Jars globular, smooth, with fire-polished rim and a cut-out.....	134
106. Jars, globular, ribbed, with fire-polished rim.....	135
107. Jars, bulbous, smooth.....	135
108. Jars, pear-shaped, short.....	135
109. Jars, pear-shaped.....	136
110. Jars, bulbous, with pinching.....	136
111. Aryballoi.....	137
112. Amphorisks, globular, flat base.....	138
113. Amphorisks, ovular, with ring base.....	138
114. Amphorisks, ovular, mould-blown on flat base.....	139
115. Juglets, hexagonal.....	139
116. Unguentaria, globular, unworked rim, 'spheres' (Isings Form 10).....	140
117. Unguentaria, figural, date-shaped (Isings Form 78d).....	141
118. Unguentaria, figural, grape-shaped (Isings Form 78e).....	142
119. Unguentaria, figural, fish-shaped.....	143
120a, b, c. Unguentaria, bird-shaped (Isings Form 11).....	144
121. Unguentaria, globular, unworked rim, milky-white.....	145
122. Unguentaria, globular, fire-polished, flaring rim (Isings Form 6).....	146
123. Unguentaria, squat, spherical, with flaring rim.....	147
124. Unguentaria, bulbous (Isings Form 16).....	148
125. Unguentaria, ovular (De Tommaso Form 21).....	148
126a. Unguentaria, tear-shaped, with fire-polished rim (Isings Form 8).....	149
126b. Unguentaria, tear-shaped, with tubular rim (Isings Form 8).....	149
127. Unguentaria, tubular (Isings Form 27).....	150
128. Unguentaria, conical body, straight walls, no shoulder, short neck, fire-polished rim.....	151
129. Unguentaria, conical body, straight walls, no shoulder, short neck, tubular rim.....	151
130. Unguentaria, conical body, straight walls, no shoulder, long neck, fire-polished rim.....	152
131. Unguentaria, conical body, straight walls, no shoulder, long neck, tubular rim.....	152
132. Unguentaria, conical body, curved walls, no constriction (Isings Form 82B2 var.).....	154
133. Unguentaria, globular, with fire-polished rim and cut-out.....	154
134. Unguentaria, ovoid with indentations, convex base.....	155
135. Unguentaria, cylindrical, with short neck, slender (Isings Form 102b oriental var. similis).....	155
136. Unguentaria, cylindrical, tall neck (Isings Form 102 var. similis).....	156
137. Kraterisks.....	156
138. Amphorisks, cylindrical (Isings Form 127 min.).....	157
139. Unguentaria, spherical, tubular rim, tall neck (Isings Form 101 min.).....	157
140. Unguentaria, pear-shaped, smooth (Isings Form 101 min. similis).....	158
141. Unguentaria, square, indented, tall neck.....	159
142a. Unguentaria, funnel-mouthed, spherical, tall conical neck, constriction and fire-polished rim.....	160
142b. Unguentaria, funnel-mouthed, spherical, tall conical neck and fire-polished rim.....	160
143. Juglets, trefoil-mouth.....	161
144. Amphorisks, spherical, ring base (Isings Form 129).....	161
145. Unguentaria, spherical, cracked-off rim and tall neck (Isings Form 103 min.).....	162

146. Unguentaria, figural, 'Janiform' (Isings Form 78b)	163
147a Unguentaria, large fusiform, convex base.....	164
147b Unguentaria, small fusiform, flat base.....	164
148 'Stirring rods' (Isings Form 79)	166
149. Appliqués/Medallions, with relief masks	167
5. Decoration of the Studied Material	170
A. Engraving.....	170
a. Figural motifs	170
b. Geometrical Motifs.....	173
B. Application of relief elements	176
a. Relief medallions	176
b. Blobs	177
c. Applied threads.....	177
C. Indenting	178
D. Pinching.....	178
E. Mould-blowing.....	179
6. Uses of Glass Vessels	182
A. Transport and storage vessels.....	182
B. Tableware.....	182
C. Unguentaria	184
D. Lamps and oil-fillers	185
E. Burial uses.....	186
7. Chronological Overview of the Finds – Conclusions	188
7a. Charts Referring to Typological or Chronological Distribution	195
8. Catalogue of the Glass Vessels	197
9. Catalogue and Brief History of the Excavations and Find-Spots of the Glass Vessels	223
Thessaloniki, Intra Muros	241
Wider Thessaloniki Prefecture Area.....	245
Imathia Prefecture.....	246
Kilkis Prefecture.....	246
Pella Prefecture.....	247
Pieria Prefecture	247
Serres Prefecture	247
Chalkidiki Prefecture	247
Glossary of Technological Terms Related to Glassworking.....	251
10. Concordance	259
Typological and Chronological Table	264
Plates: Drawings.....	276
Plates.....	321
Bibliography and Abbreviations.....	345
Index of Places	378

List of Figures

Figure 1. Fragment of a raw glass chunk, probably 4th-7th c. Antonaras 2009, fig. 6, cat. No. 468; Princeton University Art Museum, y, 1928-32. Photo Bruce M. White.....	5
Figure 2. Remains of a primary glass workshop, Wadi Natrun, Egypt, 1st - 2nd c. A.D.	7
Figure 3a. Remains of a primary glass workshop, Bet Eli'Ezer, Israel, 6th - 7th c. A.D.	7
Figure 3b. Reconstruction of a primary glass workshop, Bet Eli'Ezer, Israel, 6th - 7th c. A.D.	7
Figure 4. Secondary glass workshop, Thessaloniki, Vasileos Irakleiou No. 45, late 6th c.	8
Figure 5. Drawing of clay lamp with the representation of a secondary glass workshop showing glass blowers Athenios and Trellus at work, Asseria, Croatia (reg. no. 1094-30), 1st c. AD.....	9
Figure 6. Clay lamp with the representation of a secondary glass workshop showing glass blowers at work, Pokrainski Muzej Ptuj, Slovenia, 1st c. AD.	9
Figure 7. Kiln of a secondary glass workshop, site Louloudies in Pieria, Greece, 6th-7th c.	10
Figure 8. Representation of a glassblower in action in front of a kiln. Rabano Mauro, De Universo XVII, X, fol. 89. Montecassino, library of the monastery, 1023.	10
Figure 9. Testing droplets, and other glassworking refuse, early imperial period, Ancient Corinth, Greece, East of Theater area.....	11
Figure 10. Glass working tools, Komarowo, Ukraine, 3rd-4th c. A.D.....	12
Figure 11. Sagging-slumping technique	13
Figure 12. Rotary pressing technique	14
Figure 13. Rotary-pressing technique of a ribbed bowl	14
Figure 14. Rotary pressing. Formation of a Cretan pyxis (3rd-1st c. B.C.).....	15
Figure 15. Free blowing technique	15
Figure 16. Mold blowing technique.....	18
Figure 17. Mold blown, janiform unguentarium, (Cat. No. 701) Thessaloniki, 4th c.....	18
Figure 18. Dip-mould blowing technique	19
Figure 19. Dip-mould blown bottle, (Cat. No. 259), Thessaloniki, 4th c.....	19
Figure 20. Multifaceted beaker, late 1st - early 2nd c.....	19
Figure 21. Beaker with cut decoration (Cat. No. 63), Thessaloniki, 3rd-4th c.	20
Figure 22. Engraved dish, (Cat. No. 74), Thessaloniki, 4th c.	20
Figure 23. Juglet with applied thread, (Cat. No. 688), Thessaloniki, 4th c.	21
Figure 24. Snake-thread flask, decorated with birds, first half of the 3rd c.	21
Figure 25. Bowl with applied blobs (Cat. No. 66), Thessaloniki, 4th c.....	22
Figure 26. Bowl with applied blobs (Cat. No. 66), Thessaloniki, 4th c.....	22
Figure 27. Appliquee in the form of a hare, Dion, Pieria, 3rd c.....	22
Figure 28. Indented flask (Cat. No. 671), Thessaloniki, 4th c.....	23
Figure 29. Pinched flask, 3rd-5th c.	23
Figure 30. Jar with pinched, bifurcated decoration, (Cat. No. 451), Thessaloniki, late 3rd - 4th c.	24
Figure 31. Blue amphoriskos with white handles, (Cat. No. 460), Thessaloniki, 1st c.	24
Figures 32-33. East of the Acheiropoietos basilica	29
Figures 34-35. Melting pot fragment	29
Figure 36. Drawing of melting pot.	29
Figures 37-38. Glass moils	30
Figure 39. The Ancient Agora, Glassworking refuse	30
Figure 40. The Ancient Agora, Glassworking refuse	31
Figure 41. Theological Department, Aristotle University, Glassworking refuse	32
Figure 42a-f. Theological Department, Aristotle University, vessel fragments and forms identified among them	33
Figure 43. General plan of the excavation at 45, Vasileos Irakleiou street, with the glass workshop highlighted	34
Figure 44. Plan of the workshop at 45, Vasileos Irakleiou street.....	35
Figure 45. General view of the workshop	35
Figure 46. Glass kilns B and C. The five phases of furnace C are outlined (Sofia Akrivopoulou).....	35
Figure 47. Raw glass of different colors	36
Figure 48. Raw glass and deformed masses	36
Figure 49. Testing droplets and deformed masses of glass	36
Figure 50. Moils	36
Figure 51. Distorted bases of stemmed beakers	37
Figure 52. Dip mould blown stemmed beakers	37
Figure 53. Base of a free blown stemmed beaker-like lamp with a long handle and a rim of a flask decorated with dark-colored trail ..	37
Figure 54. Drawings of bowls and stems of stemmed beakers	37
Figure 55. Base of a stemmed beaker-like lamp, with long handles	37
Figure 56. Bases of stamped stemmed beakers	38
Figure 57. Drawings of stamped stemmed beakers	38
Figure 58. Drawings of necks of close-shaped vessels	38
Figure 59. Close-shaped vessels/flasks and stemmed beakers	39
Figure 60. Bottom of a deformed stemmed lamp	39
Figure 61. Drawings of stemmed lamps	39

Figure 62. Drawings of bowls	40
Figure 63. Conical or cylindrical lamps with a massive knob	40
Figure 64. Deformed fragments of window panes	40
Figure 65. Glass gems	40
Figure 66. Probable Local Products	45