

**Time and Religion in Hellenistic Athens: An Interpretation
of the Little Metropolis Frieze.**

Monica Haysom

School of History, Classics and Archaeology

Submitted for the Degree of Doctor of Philosophy, Newcastle University,
November 2015.

ABSTRACT

Two stones that form a part of the spolia on the Little Metropolis church (Aghios Eleutherios) in central Athens consist of a frieze depicting a calendar year. The thesis begins with a Preface that discusses the theoretical approaches used. An Introduction follows which, for reference, presents the 41 images on the frieze using the 1932 interpretation of Ludwig Deubner. After evaluating previous studies in Chapter 1, the thesis then presents an exploration of the cultural aspects of time in ancient Greece (Chapter 2). A new analysis of the frieze, based on ancient astronomy, dates the frieze to the late Hellenistic period (Chapter 3); a broad study of Hellenistic calendars identifies it as Macedonian (Chapter 4), and suggests its original location and sponsor (Chapter 5).

The thesis presents an interpretation of the frieze that brings the conclusions of these chapters together, developing an argument that includes the art, religion and philosophy of Athenian society contemporary with the construction of the frieze. Given the date, the Macedonian connection and the link with an educational establishment, the final Chapter 6 presents an interpretation based not on the addition of individual images but on the frieze subject matter as a whole. This chapter shows that understanding the frieze is dependent on a number of aspects of the world of artistic connoisseurship in an elite, educated audience of the late Hellenistic period. Important is an awareness of their intellectual appreciation of the perfection of the cosmos and the links between this comprehension of a rational domain and religion. Coupling their wonder at these two spheres with the custom for enjoying enigmatic pieces of work leads to a conclusion that the frieze attempts to relate religion and astronomy, rather than present a straight-forward calendrical list of events.

ACKNOWLEDGEMENTS

I would like to begin by thanking Dr Sally Waite, who introduced me to the world of ancient Greece and whose continued friendship and help has supported me throughout the research. I have had the good fortune to have benefitted from the help of three supervisors, Dr Sally Waite, Professor Tony Spawforth and Dr David Creese, who took up the challenge when Professor Spawforth retired. Without Professor Spawforth's encouragement I would not have contemplated this project and it has been his continued interest and open minded but searching scrutiny of the work that has guided my investigations. Dr Creese has piloted me through the latter stages of the thesis and his input has been vitally important guiding me through ancient Greek literature and philosophy. I particularly wish to thank all of them for their patience.

Several other people have given me important help and among these I would like to thank Dr Maria Mili who gave me such useful insights into Greek religion and suggested new avenues of thought. Members of the School of History, Classics and Archaeology have also given me advice or help with particular problems; the late Professor John Moles who helped with translations of Virgil, Dr Rowland Smith who helped with the interpretation of some ancient Greek, Roberto Ciucciove who translated an important Italian document for me, Sally Waite who provided Figures 2.11 and 6.16, Tony Spawforth who provided Figure 3.23 and Nigel Porter who provided Figure 5.1. In addition, Stewart Tod drew Figure 5.29 (a reconstruction of a *prothyron* containing the calendar frieze), and Maria Duggan saved me from the perils of PDF formatting.

Contents.

PAGE	CHAPTER	SECTION
1		Preface.
2		P.1. Science and Language.
5		P.2. Theory and the Study of Culture.
7		P.3. Time and Culture.
9		P.4. Method of Analysis used in the Thesis.
11		Introduction.
23		Chapter 1: Previous Interpretations of the Little Metropolis Calendar Frieze.
		1.1. Athenian Calendars.
26		1.2. Early Roman calendars.
27		1.3. Synchronising Times: Greece and Rome.
28		1.4. Emperor Augustus' Birthday.
34		1.5. Previous Interpretations of Festival Images on the Little Metropolis Calendar Frieze.
		1.5.1. <i>Pyanopsia</i> .
35		1.5.2. <i>Oschophoria</i> .
37		1.5.3. <i>Thesmophoria</i> .
40		1.5.4. <i>Ritual Ploughing and Ritual Sowing</i> .
44		1.5.5. <i>Rural Dionysia</i> .
45		1.5.6. <i>Lenaia</i> .
46		1.5.7. <i>Theogamia</i> .
		1.5.8. <i>City Dionysia and Mounichia</i> .
47		1.5.9. <i>Hephaisteia</i> .
		1.5.10. <i>Dipolieia</i> .
48		1.5.11. <i>Panathenaia</i> .
49		1.5.12. <i>Heracleia at Kynosarges</i> .
		1.5.13. <i>Great Mysteries</i> .
50		1.6. Previous Interpretations of Images on the Little Metropolis Calendar Frieze not classified as Festivals in Section 1.5.
55		1.7. Synopsis of Olga Palagia's Interpretation of the Little Metropolis Calendar Frieze.
57		1.8. Enigmatic Topics that arise from an Analysis of Previous Studies of the Little Metropolis Calendar Frieze.
59		Chapter 2: Cognitive Aspects of Time in Ancient Greece.
		2.1. Modern Time.
		2.1.1. <i>The Measurement of Time</i> .
60		2.1.2. <i>Theoretical Physics and Time</i> .
63		2.1.3. <i>Biology and Time</i> .
		2.1.4. <i>The Social Construction of Time</i> .
68		2.2. Ancient Time.
69		2.2.1 <i>The Myth of Kronos and Time</i> .

73	2.2.2. <i>Time in Literature and the Visual Arts.</i>
79	2.2.3. <i>Philosophy and Time.</i>
	2.2.3.1. <i>Aristotle.</i>
82	2.2.3.2. <i>Hellenistic Philosophers.</i>
83	2.2.4. <i>Social Identity, History and Time.</i>
88	2.2.5. <i>Time and the Law.</i>
89	2.2.6. <i>Time and Religion.</i>
91	2.2.7. <i>Kairos.</i>
93	2.3. Summary.
97	Chapter 3: Astronomy and Time: The Date of the Little Metropolis Calendar Frieze.
	3.1. Introduction.
	3.2. Ancient Greek Concepts of Astronomical Reality.
100	3.3. Hellenistic Astronomy.
	3.3.1. <i>An Explanation of Movement.</i>
106	3.3.2. <i>Appearances.</i>
108	3.4. The Zodiac and the Date of the Little Metropolis Frieze.
119	3.5. The Zodiac and Astrology.
123	3.6. Astronomy and Hellenistic Culture.
	3.6.1. <i>Star Time in Greek Drama and Religion.</i>
129	3.6.2. <i>Star Time and Practical Applications of Knowledge of the Night Sky.</i>
140	3.7. Constellations and Stars: A Possible Theme for the Little Metropolis Calendar Frieze.
146	3.8. Summary.
147	Chapter 4. Greek Calendars: the First Month of the Little Metropolis Calendar Frieze.
	4.1. Introduction.
148	4.2. Interpretation of Athenian Calendars.
	4.2.1. <i>The Beginning and the End of Each Month.</i>
151	4.2.2. <i>Political Control of the Athenian Calendar.</i>
155	4.3. Attic Sacrificial Calendars: Chronology of Months and Years.
158	4.3.1. <i>Thorikos Calendar.</i>
	4.3.2. <i>Erchia Calendar.</i>
160	4.3.3. <i>Marathon Tetrapolis Calendar.</i>
163	4.3.4. <i>Athenian Polis Calendar.</i>
164	4.3.5. <i>Calendar of the genos, Salaminioi.</i>
	4.3.6. <i>The Teithras, Eleusis and Skambonidai Calendar.</i>
165	4.3.7. <i>The Significance of the Attic Sacrificial Calendars for the Interpretation of the Little Metropolis Calendar Frieze.</i>
167	4.4. The Date of the New Year in Greek Poleis during the Hellenistic Period.
	4.4.1. <i>Variation.</i>
173	4.4.2. <i>Significance of the New Year.</i>
178	4.4.3. <i>Numerical Calendars with an Autumn New Year.</i>

186	4.4.4. <i>The Egyptian/ Macedonian and Seleucid/Macedonian Calendars.</i>
190	4.5. The Pyanopsion Start of the Little Metropolis Calendar Frieze.
193	4.6. Image 6: Is Kronos Depicted on the Frieze?
195	Chapter 5. Athens in the Late Hellenistic period: A Search for the Original Location of the Little Metropolis Calendar Frieze.
	5.1. Athens and the Macedonians.
207	5.2. Euergetism.
208	5.3. The Topography and Buildings of Athens in the Late Hellenistic Period.
209	5.3.1. <i>Walls and Roads.</i>
212	5.3.2. <i>Water.</i>
214	5.3.3. <i>Hellenistic Mansions or Palaces.</i>
215	5.3.4. <i>The Agora and Surrounding Area.</i>
218	5.3.5. <i>The Acropolis and Surrounding Slopes.</i>
223	5.3.6. <i>The Temple of Olympian Zeus.</i>
224	5.3.7. <i>Gymnasia.</i>
228	5.4. Search for a Candidate Building that Housed the Frieze.
230	5.5. Structure of the Frieze Bearing Stones on the Little Metropolis.
238	5.6. The Architecture of Hellenistic Gymnasia from outside Athens.
243	5.7. Synchrony between Athenian Gymnasia/ <i>Palaestrai</i> or Stoa Construction and Historical Events.
246	5.8. Gymnasia and the <i>Ephebeia</i>
247	5.8.1. <i>Ephebeia in 4th Century BC Athens.</i>
249	5.8.2. <i>Post 4th Century BC Changes to the Ephebeia.</i>
251	5.9. Athenian Religion in the Late Hellenistic Period: Participation of the <i>Ephebeia</i> ; A Possible Theme for the Little Metropolis Calendar Frieze.
259	5.10. Summary.
261	Chapter 6. Interpretation of the Little Metropolis Frieze.
	6.1. Hellenistic Art.
	6.1.1. <i>Perception.</i>
269	6.1.2. <i>Parallel Examples for the Little Metropolis Frieze Images.</i>
272	6.1.3. <i>The Deification of Homer by Archelaos.</i>
276	6.1.4. <i>Personification.</i>
278	6.2. Search for Interpretive Themes within the Little Metropolis Frieze: Religion.
	6.2.1. <i>Hellenistic Religion.</i>
282	6.2.2. <i>Hellenistic Religion: Continuity and Change.</i>
287	6.3. The Hellenistic Cosmos and Religion.
291	6.4. A Holistic Interpretation of the Little Metropolis Frieze.

294	6.5. Return to the Little Metropolis Frieze Images.
304	6.6. How can we know?
307	Ancient References.
313	References.

TABLES.

PAGE	
25	Table 1.1. THE ATHENIAN <i>octaeteris</i> CYCLE.
32	Table 1.2. JULIAN DATES FOR THE FIRST DAY OF THE ATHENIAN YEAR.
56	Table 1.3. COMPARISON OF THE INTERPRETATIONS OF THE LITTLE METROPOLIS CALENDAR FRIEZE BY PALAGIA AND DEUBNER.
75	Table 2.1. TYPES OF VISUAL NARRATIVE IN ARCHAIC AND CLASSICAL GREECE.
102	Table 3.1. DIVINE AND SECULAR NAMES FOR THE PLANETS.
105	Table 3.2. TERMINOLOGY OF ANALOGOUS MEASUREMENTS.
109	Table 3.3. SIGNS AND NAMES OF THE CONSTELLATIONS FORMING THE ZODIAC.
114	Table 3.4. REFERENCES TO THE CONSTELLATION KNOWN BY ARATUS AS THE CLAWS OF SCORPIO.
131	Table 3.5. STARS RECORDED BY HOMER (<i>ILIAD</i>) AND HESIOD (<i>WORKS AND DAYS</i>).
136	Table 3.6. COMPARISON OF THE LUNAR CALENDAR FROM THE METONIC BACK-DIAL OF THE ANTIKYTHERA MECHANISM WITH THE CORINTHIAN LUNAR CALENDAR COMPILED FROM MONTH NAMES IDENTIFIED IN 11 CORINTHIAN AND MEGARA COLONIES OR SETTLEMENTS.
141	Table 3.7. ASTERISMS AND DEPICTIONS OF THE CONSTELLATIONS.
157	Table 4.1. THORIKOS CALENDAR (SEG XXXIII.147): TRANSLATION.
159	Table 4.2. ERCHIA CALENDAR (SEG XXI.541): RECORD OF MONTHS.
160	Table 4.3. ERCHIA CALENDAR (<i>JG II</i> ² 1358, LS #20): DAILY RECORD OF SACRIFICES IN BOEDROMION.
161	Table 4.4. MARATHON TETRAPOLIS CALENDAR (<i>JG II</i> ² 1358, LS #20): RECORD OF MONTHS.
163	Table 4.5. ATHENIAN POLIS CALENDAR, FACE A (IONIC) (LSS #10): RECORD OF MONTHS.
168-169	Table 4.6. CALENDAR MONTHS OF GREEK POLEIS: ALIGNED WITH THE CALENDAR MONTHS OF DELPHI.
170-171	Table 4.7. CALENDAR MONTHS OF BABYLON AND GREEK HELLENISTIC KINGDOMS: ALIGNED WITH THE CALENDAR MONTHS OF ATHENS.
179	Table 4.8. SOURCES OF EPIGRAPHIC EVIDENCE FOR THE NUMERICAL MONTHS OF CITIES IN THE ACHAEAN LEAGUE, PHOCIS AND OZOLIAN LOCRI.
229	Table 5.1. CANDIDATE LATE HELLENISTIC BUILDINGS AS A POTENTIAL SOURCE OF THE CALENDAR FRIEZE.
235	Table 5.2. LOCATION AND FORM OF RECORDED EXAMPLES OF IONIC ENTABLATURE.
253-258	Table 5.3. ATHENIAN FESTIVALS AND DEDICATIONS IN WHICH <i>EPHEBOI</i> PARTICIPATION HAS BEEN RECORDED.

Figures.

PAGE	
11	Figure I.1. Agios Eleftherios (Little Metropolis).
12-18	Figure I.2. The Athenian Festival Calendar on the Little Metropolis.
21	Figure I.3. Images 12, 13 and 14 of the Calendar Frieze.
22	Figure I.4. Images 7, 8, and 9 of the Calendar Frieze.
30	Figure 1.1. Coin of Augustus Showing his Head on the Obverse and Capricorn holding a Globe on the Reverse.
35	Figure 1.2. The Athenian Festival Calendar: Images 1 – 4.
39	Figure 1.3. Female Figures Carrying Deep Baskets or Boxes.
40	Figure 1.4. The Athenian Festival Calendar: Images 8 and 9.
41	Figure 1.5. Bell Krater by the Painter of the Naples, Haiphaistos, Depicting Bouzyges c.430 BC.
44	Figure 1.6. The Athenian Festival Calendar: Image 13.
45	Figure 1.7. The Athenian Festival Calendar: Images 16 and 17.
	Figure 1.8. Red Figure Stamnos by the Eupolis Painter (450 BC – 440 BC).
46	Figure 1.9. The Athenian Festival Calendar: Images 19, 20, 21 and 22.
47	Figure 1.10. The Athenian Festival Calendar: Images 24, 25, 26, 27 and 28.
48	Figure 1.11. The Athenian Festival Calendar: Images 31, 32, 33 and 34.
49	Figure 1.12. Reconstruction of the Calendar Frieze Panathenaic Ship.
51	Figure 1.13. The Athenian Festival Calendar: Images 36, 37, 38, 39, 40 and 41.
52	Figure 1.14. Statue of Aischines, Naples.
	Figure 1.15. The Athenian Festival Calendar: Images 6 and 7.
54	Figure 1.16. The Athenian Festival Calendar: Images 33, 34, 35 and 36.
62	Figure 2.1. The Trajectory of a Thrown Ball.
67	Figure 2.2. Identifying Reality: The problem from a moth's point of view.
70	Figure 2.3. Rhea Handing a Swaddled Stone to Kronos (AD 160).
71	Figure 2.4. Tail Piece or The Bathos. William Hogarth (1764)
73	Figure 2.5. Olympia; View of Kronos Hill from the Stadium.
	Figure 2.6. Kronos.
76	Figure 2.7. Myron's Diskobolos.
	Figure 2.8. Attic Black-Figure Cup Showing Circe and the Companions of Odysseus.
77	Figure 2.9. Attic Red-Figure Cup Showing the Deeds of Theseus.
	Figure 2.10. Attic Red-Figure Cup Showing Odysseus Offering Neoptolemos Achilles' Arms.
78	Figure 2.11. The First Images on the Telephos Frieze of the Pergamon Altar.
79	Figure 2.12. The Choregic Monument of Lysikrates, Athens.
89	Figure 2.13. Ceramic Klepsydra.
92	Figure 2.14. <i>Kairos</i> , 2 nd century AD.
101	Figure 3.1. Annual Orbit of the Earth Round the Sun.

- 102 **Figure 3.2.** The Apparent Trajectory of Mars in the Night Sky as Viewed
from Earth over Several Months.
- 103 **Figure 3.3.** Halai Archaic Skyphos (c. 625 BC).
- 104 **Figure 3.4.** Celestial Sphere Showing the Celestial Equator, the Ecliptic
Plane and the Spring and Autumn Equinoxes.
- 106 **Figure 3.5.** Variation in the Earth's Spin Axis over Time: Precession.
- 107 **Figure 3.6.** North Polar Star-trails Photographed with 400 30-second
Exposures.
- 109 **Figure 3.7.** Imagined View of the Sky showing the Path of the Sun (the
Ecliptic) and the Position of 3 Constellations in the Zodiac.
- 111 **Figure 3.8.** Terracotta Disc from Brindisi showing the Ascension of Dionysos
and Ariadne Surrounded by Images of the Zodiac.
- 113 **Figure 3.9.** Scorpio and the Claws on the Little Metropolis Frieze. A: Image
5; B: Image 41.
- 115 **Figure 3.10.** Constellation of Claws/Balance/Libra.
- Figure 3.11.** Detail of Fragment C AK31a of the Antikythera Mechanism
c. 100 BC.
- 116 **Figure 3.12.** Dendera Zodiac c.50 BC.
- 117 **Figure 3.13.** Modern Diagram of a Papyrus Horoscope from Oxyrhynchus,
P.Oxy 235 (AD 15 – 22).
- Figure 3.14.** Papyrus Horoscope from Oxyrhynchus, P. Oxy 4274 (AD 480 –
503).
- Figure 3.15.** The Ponza Zodiac (3rd century AD).
- 118 **Figure 3.16.** Piaie's 1816 Illustration of the *Thermae Traiani* (4th century
AD).
- 119 **Figure 3.17.** *Kudurru* of the Babylonian King Melishpak: Recording his gift of
land to his son or servant, Marduk-Apai-Iddina (c. 1186–1172 BC).
- 121 **Figure 3.18.** Histogram of the Greek Horoscopes recorded by Neugebauer
and van Hoesen in 1959.
- Figure 3.19.** Frequency of Documentary Horoscopes among Papyri (by latest
nativity date in each papyrus).
- 122 **Figure 3.20.** Plaster copy of the Lion Relief at Nemrut Dag made by
Puchstein in 1883.
- 129 **Figure 3.21.** The Circumpolar Constellations Draco and Ursa Minor seen
from the Acropolis (600 – 300 BC) During the Upper Culmination
(top) and the Lower Culmination (bottom) of Draco.
- 138 **Figure 3.22.** Interpretation of Zodiac from the Front Plate of the Antikythera
Mechanism.
- 139 **Figure 3.23.** Mosaic from the Casa di Leda, Solunto, Sicily. Late 2nd century
BC.
- 144 **Figure 3.24.** Athenian Festival Calendar Image 34, Sirius.
- 145 **Figure 3.25.** Late 3rd-early 2nd century BC Coin from Karthaea on Keos,
Cyclades.

- 145 **Figure 3.26.** Athenian Festival Calendar Image 25, Personification of Thargelion.
- 146 **Figure 3.28.** New Style Athenian Tetradrachm.
- 194 **Figure 4.1.** Little Metropolis Calendar Frieze, Image 6.
- Figure 4.2.** Rhea Handing a Swaddled Stone to Kronos (AD 160).
- 197 **Figure 5.1.** Hellenistic Column Tomb-markers in the Karameikos.
- 198 **Figure 5.2.** Demetrios Poliorketes Tetradrachm. Pella mint. 294-293 BC.
- 205 **Figure 5.3.** Athens New Style Tetradrachm.
- 210 **Figure 5.4.** Map of Hellenistic Athens.
- 211 **Figure 5.5.** All-stone Hellenistic Wall Construction at the Intersection of Modern Aristeidou and Pesmazoglou Streets.
- Figure 5.6.** Tower in the Walls of Aigosthena. c.340 BC.
- 212 **Figure 5.7.** Plan of Southeast Fountain House.
- 213 **Figure 5.8.** The Tower of the Winds Viewed from the North.
- 216 **Figure 5.9.** Plan of West Side of the Agora in 2nd century BC.
- Figure 5.10.** A Votive Relief of Kybele Seated on a Throne in a *naiskos*
- 217 **Figure 5.11.** View of the Lower Storey of the Reconstructed Stoa of Attalos Showing the Ionic Inner Columns.
- 218 **Figure 5.12.** The Choregic Monument of Lysikrates.
- 219 **Figure 5.13.** The Acropolis from the Southeast in 1875-77; Showing the Huge Piles of 'Debris' Tipped over the Cliffs.
- Figure 5.14.** The Acropolis: Erechtheion and Surrounding Area.
- 220 **Figure 5.15.** Plan of the Late Hellenistic Acropolis and Surrounding Slopes.
- Figure 5.16.** Hellenistic Statue Base Situated by the Acropolis Propylaea.
- 221 **Figure 5.17.** Stoa of Eumenes.
- 222 **Figure 5.18.** Plan of the Restored 2nd century BC City Eleusinion.
- 223 **Figure 5.19.** Doric Frieze over the South Door of the Little Metropolis.
- 224 **Figure 5.20.** The Hadrianic Temple of Olympian Zeus.
- 225 **Figure 5.21.** Modern Street Plan of the Area East of the Roman Agora.
- 227 **Figure 5.22.** Excavation at the Proposed Site of the Diogeneion.
- 232 **Figure 5.23.** Ends of the Little Metropolis Frieze Showing the Damaged Image 17 (Hera or a Bride in the Month Gamelion (A) and the Complete Image 18 (*theōria*) in the Month of Elaphebolion (B).
- 233 **Figure 5.24.** The Rough Ends of the Two Existing Blocks of the Little Metropolis Frieze.
- Figure 5.25.** Section of the Little Metropolis Calendar Showing the Upper and Lower Mouldings that are Integral to the Stone Blocks Carrying the Frieze.
- 234 **Figure 5.26.** Diagram of Ionic Entablature.
- 235 **Figure 5.27.** Reassembled Section of Entablature from the Temple of Artemis Leucophryene, Magnesia on the Maeander.
- 236 **Figure 5.28.** Lysikrates Choregic Monument Entablature.

- 237 **Figure 5.29.** Reconstruction of a *prothyron* Containing the Calendar Frieze:
Assuming Three Stones as in Model (b).
- 240 **Figure 5.30.** Plans of Four Hellenistic Gymnasia/*palaestrai* Showing the
Position and Structure of the Entrances with Porticos.
- 242 **Figure 5.31.** Plan of Lower *palaestra* at Priene showing the Position of the
ephēbeum and a Wash Room (*loutron*).
- Figure 5.32.** View of the *palaestra* at Olympia.
- 243 **Figure 5.33.** Plan of the *palaestra* at Olympia Showing the Positions of the
Wash Room (*loutron*), Room VI, the Court Hall and the Western
South Entrance.
- 250 **Figure 5.34.** Base of a Stele from Athens Showing a Relief with Five *Ephēboi*
in a Boat. AD 163/4
- 261 **Figure 6.1.** Third Century BC Frieze: Dionysos and the Four Seasons.
- 262 **Figure 6.2.** First Century BC Bronze Statue of a Youth.
- 265 **Figure 6.3.** Fourth Century Votive Relief inscribed 'Aristonike, the wife of
Antiphates from the deme of Thorai prayed and dedicated to
Artemis'.
- 270 **Figure 6.4.** Amphora attributed to the Bucci Painter depicting Autumn.
- Figure 6.5.** Calyx Krater. c. 375 BC (view A).
- 272 **Figure 6.6.** Calyx Krater. c. 375 BC (view B).
- 273 **Figure 6.7.** The Deification of Homer.
- 275 **Figure 6.8.** Silver Seleucid Tetradrachm depicting Cleopatra Thea and
Alexander Balas. 150/49 BC.
- 282 **Figure 6.9.** Red-figure Stamnos. c.450 BC.
- Figure 6.10.** Hellenistic Pebble Mosaic depicting Dionysos riding a Panther.
- 295-298 **Figure 6.11.** The Athenian Festival Calendar Frieze on the Little Metropolis.
- 299 **Figure 6.12.** Athenian Red Figure Kylix Depicting a Long-jump Athlete.
525-475 BC.
- 300 **Figure 6.13.** Red-figure Bell Krater Depicting Athletes Running in a Torch
Race. 425-375 BC.
- 301 **Figure 6.14.** New Style Athenian Tetradrachm: Apollo Lykeios.
- 302 **Figure 6.15.** Apollo Lykeios (statue).
- Figure 6.16.** Apollo Lykeios (statuette).
- Figure 6.17.** New Style Athenian Tetradrachm: Nike.
- 303 **Figure 6.18.** Stele with *ephēboi* List: Showing the *kosmetes*, Aurelios
Dositheos Flanked by *ephēboi* who Crown Him.
- 304 **Figure 6.19.** Little Metropolis Calendar Frieze. The final images: from left
to right; personification of Boedromion (Image 39), man on
horseback (Image 40), Scorpio's horns (Image 41).

Preface.

I have it there because I was told that it works just as well if one doesn't believe in it.

Niels Bohr (Pais, 1986: 210)

This study is an analysis of culture in late Hellenistic Athens. The pivot or anchor of the work is a relief frieze apparently depicting a calendar year of Athenian festivals. The frieze is part of the extensive spolia that decorate a small church (Agios Eleftherios or Little Metropolis) in the centre of modern Athens and the 41 frieze images include those depicting religious festivals and those depicting time. The investigation encompasses many aspects of the late Hellenistic Athenian world and, in order to delineate the study, this Preface provides a discussion of some of the terms used, of the theoretical framework adopted and of the methodological approach to studies of time as a cultural experience used in the thesis.

Niels Bohr (1885-1962) was the Danish physicist who made early, fundamental contributions to atomic theory and quantum mechanics, for which he received the Nobel Prize in 1922. He is supposed to have had a horseshoe pinned up over his door and the quotation above was his response to a visitor who expressed some disbelief that he could think that it warded off evil spirits. It is assumed to be a joke but it illustrates a familiar contradiction between the rational activities of even modern scientists and irrational beliefs that are difficult to shed.

At the centre of this study is the question: in a Hellenistic Athenian world defined by its intellectual culture (Wallace-Hadrill, 1988), what was the relationship between the sphere of religion and that of rational enquiry, exemplified by astronomy, both of which are depicted on the Little Metropolis calendar frieze? Rihll, in the Introduction to *Science and Mathematics in Ancient Greek Culture* (2002), asserts that it is impossible for people to be trained in both science and history but nevertheless suggests that a better understanding of the history of a society might follow from some knowledge of their science. The presence of the signs of the Zodiac on the Little Metropolis calendar is key to dating the frieze and to understanding the way in which it was perceived. As a consequence, understanding Hellenistic knowledge of astronomy and interpretation of the cosmos forms an important element in this study.

P. 1. Science and Language.

The term 'culture' is often used in the sense of Matthew Arnold's *Culture and Anarchy* (1869) to mean the high arts; classical literature, theatre, philosophy, things contrary to the material world of domesticity, scientific inquiry, economics and commerce. In this study culture is used more like the anthropological term used by Tyler in *Primitive Culture*, to mean all the things that make us human (Tyler, 1871). Wallace-Hadrill (1988), in his review of Rawson's book *Intellectual Life in the Late Roman Republic* (1985), qualifies the word as 'intellectual culture' but although 'all the things that make us human' is too broad, this qualified version is too limiting. Following Jaeger's three-volume book entitled *Paideia: The Ideals of Greek Culture* (1939-1944), the word *paideia* has commonly been adopted by historians as a synonym for ancient culture. The Greek word, *παιδεία*, means education (bringing up a child) and this is close to the way the word culture is used in this study. Culture here refers to the intellectual knowledge that a person would acquire during their education but also to the more mundane aspects of social behaviour, as well as religious beliefs, gained as they grew up.

Lloyd (1970) ascribes the beginning of Greek 'science' to Thales and other 6th century BC Milesians. In a discussion of rational inquiry in the late Hellenistic period, it is useful to be clear how the word 'science' is used. For a modern scientist, it is a method which has three components; (i) data collection and analysis, (ii) construction of a testable hypothesis and (iii) the design of an experiment (that can be repeated by other scientists), which would allow one to refute the hypothesis from the experimental results. This definition follows that of Karl Popper (1963) and is an accurate description of modern experimental science, which Latour (1999: 20) calls research. Many other modern subjects/fields contain activities that have components in common with science but it is the ability to design experiments that would allow one to refute a hypothesis from the results that defines modern science. It is acknowledged as a progressive, reiterative process that reassesses evidence and experimental design as new data become available. In most other modern subject areas that have been given the label 'science', the crucial experimental component cannot exist. However, there are some areas of science where the experimental component is either (i) difficult so that analysis and interpretation are built on a background of related information (inductive reasoning) or (ii) the experimental

component has to be restricted to a small scale or model system. Some types of human genome analysis would be an example of the first (although, as with other examples, there is a more complicated explanation of experimentation in this field), and evolution is an example of the second. Restricting the term science to the Popper definition has the advantage that analysis of attempts to understand, for example, the cosmos (universe) by Hellenistic thinkers, can use language that relates to their world rather than ours and this avoids methodological anachronism. This linguistic restriction has to be applied cautiously when interpreting ancient Greek methods of studying the natural world. Netz (2012) calls mathematics the 'exact sciences' but this leads to confusion. When he is comparing the intellectual interests of Hellenistic Athens and Alexandria, where he claims that 'no one in Athens was interested in science', it is not clear what he means. In this study mathematics is not considered a branch of science. Mathematics as an abstract mental activity plays a key role in the study of phenomena of the natural world by providing analytical tools and by giving a framework for deductive reasoning. The development of mathematics was crucially important in Hellenistic astronomy. Science is often used as an alternative term for technology, which is the application of knowledge of the natural world. Again this distinction should be maintained if an analysis of Hellenistic studies is not to be slanted by terminology that is misleading, even in modern discourse.

Inductive reasoning depends on the proposition that if a situation holds for each of the observed cases, then the situation holds in all cases. Inductive reasoning was common in the ancient world but was not the only method of reasoning used by the pre-Socratic philosophers to consider the natural world (earthly phenomena). A form of logic known today as *modus tollens* was used by the unknown author of a medical work about epilepsy called '*On the Sacred Disease*', written about the end of the 5th century BC (Lloyd, 1979: 25). In summary, this method rejected a premise if an exception to the situation exists and it was later formally analysed by the Stoics (Lloyd, 1979: 25-26). Analogy was sometimes used to explain phenomena; thus Pliny the Elder says 'It is possible that, by the dashing of the two clouds, the lightning may flash out, as is the case when two stones are struck against each other' (*Natural History* 2.43).

Among the various schools of theoretical archaeology, moderate relativists concede that archaeological interpretations are influenced by the intellectual background of the

archaeologist but think that evidence constrains possible interpretations (Trigger, 2006: 2), and this is the view taken in this study. Understanding ancient 'science' requires careful consideration of the etic/emic concept (using an outside observer's categorization verses using categories of the people studied), which is commonly used in archaeology but not articulated so often in classical or historical studies. Smith (1999) points out that interpreting the work of ancient 'scientists' has often focused on those aspects of their work which resonate most clearly with our own understanding. Ptolemy's *Optics* has been judged harshly because when studying refraction, he did not discover what we now know as sine-relations. But this failure was not a consequence of the lack of precision in his experiments or his data but because he had a different aim (Smith, 1999).

The conceptual and methodological foundations of ancient scholars were very different from those of modern scientists and these are often difficult to appreciate and constitute a potential source of misinterpretation. Even language is a possible obstacle to understanding ancient Greek rational inquiry and colour is a good illustration of arguments concerning the relationship between language and perception (Ings, 2007: 212—219). It is surprising that despite living in a country where the blue colour of the sky and sea were a prominent feature of the landscape, Homer did not use a word for blue; in fact the only word for colour that he consistently used is red. As an example of his language, which is usually considered poetic, the sea is described as 'wine-dark'. Before the medical condition of colour blindness had been recognised, Gladstone (Ings, 2007: 215) suggested that Homer was colour blind but this does not explain Homer's curious descriptions of colour. In the 4th century BC, Aristotle considered that the rainbow contains three basic colours red, green, and violet (he sometimes also mentions yellow but this was thought only due to contrast and not a separate colour), and this tradition of considering only three colours as basic and real continued until the beginning of the fourteenth century (Sayili, 1939). A developmental process has been recognised in anthropology, which suggests that in early languages the first word for colour is red, followed by words for green and yellow and then the word for blue (Ings, 2007: 214). Even current languages differ in the number of words that exist for describing colours; Russian and Japanese have an extra word for what we would categorise singly as blue. The question that arises following these differences is: does the presence or absence of

defining words in a language lead to differences in perception? Modern research suggests that for colour it does (Athanasopoulos, et al., 2011), and if this feature of language can be extended more generally, it clearly impacts on our ability to interpret Ancient Greek rational inquiry.

P. 2. Theory and the Study of Culture.

The work of Hellenistic Greek astronomers strongly suggests that they had a rational view of the cosmos but if asked, “Do you believe in reality?” would they have answered “Yes, of course”, just as Latour did when this question was posed by a scientist in the 1990s (Latour, 1999). In Plato’s description of the myth of Prometheus he explains Epimetheus’ mistake and differentiates mankind from other organisms by our ability to be logical and realistic, that is to be rational:

Now Epimetheus, not being altogether wise, didn’t notice that he had used up all the powers on the non-rational creatures, so last of all he was left with human kind, quite unprovided for

Plato *Protagoras* 321C (translated by Taylor 1996)

Advances in mathematics as well as knowledge of astronomy (the cosmos) and the natural world (earthly phenomena) acquired particularly in the Hellenistic era, attest to the fact that the Greeks believed that a rational explanation could be inferred from their studies. Care must be taken in interpreting ancient Greek studies, since explanations did not necessarily infer a causal relationship. Hankinson (2003: 4-5) in his book *Cause and Explanation in Ancient Greek Thought*, draws attention to the difficulty in translating the Greek word, αἰτία, as either cause or explanation. In modern science we often use the word explanation implying a causal explanation but this was not the case in Hellenistic astronomy. In the Hellenistic period Greek astronomers, influenced by current schools of philosophy, searched for an overarching model that would give a description for the universe as a whole. The chief aim of many Hellenistic astronomers was to ‘save the appearances’ and this was a concern to provide mathematical models that would account for the movement of celestial bodies that were based on regular and uniform movements. ‘Saving the appearances’ meant converting the non-uniform to the uniform (Lloyd 1973: 71).

Unlike Latour (1999: 1-23) and modern philosophers of science, the Hellenistic Greek astronomers would not have struggled with the more extreme scenarios of what reality is. Ancient Greek investigators of the natural world could, however, be cautious about their methods of objective inquiry; Aristotle says that it is a mark of a trained mind never to look for more precision in the treatment of a subject than its nature permits (Aristotle *Nicomachean Ethics* 1094b23-25).

Adopting a moderate relativist position does not exclude the use of other theoretical approaches where they can guide interpretation. Structuralism has a long history; it was developed by Levi-Strauss in a book (*The Elementary Structures of Kinship*, 1969) that applied it to anthropology by building relational systems, which he thought explained cultural phenomena such as the rules governing marriage. His ideas were built on a model of how the brain works and his methods are largely out of fashion now, however Robert Parker (2011) has recently included a structuralist approach in his analysis of Greek gods.

Levi-Strauss believed that all human thought was governed by oppositions: culture/nature, male/female etc., but while these are a widespread feature of the human classification of experience, neuroscience has provided no evidence that the human brain is programmed to think in terms of bilateral differences (Trigger, 2006: 462-467). In 1966 Lloyd wrote a book entitled *Polarity and Analogy* in which he acknowledges his debt to Levi-Strauss. This work is not often cited in the theoretical literature despite the fact that he carefully explores the evidence for polarity. Lloyd (1966: 17) proposes that the thought processes that categorise phenomena as opposites were a mechanism used by pre-Socratic Greeks to organise their understanding of the world.

The leading exponent of structuralism in archaeology was Ian Hodder. His book, *The Domestication of Europe* (1990) was very influential but his attempt to relate the archaeology of Neolithic sites and objects to a set of bilateral oppositions (wild/domestic, culture/nature, male/female) has been widely criticised (Trigger 2006: 462-467). Structuralism is often used to argue that objects can be organised into systems of signs in order to reveal meaning (Hodder 2005: 254-259). Johnson (2010: 94-95) believes that structural archaeologists see artefacts as an expression of human culture and that the hidden cognitive rules that generate them must be understood if you want to explain a

human culture. The concern is that if it is accepted that material culture is always meaningfully constituted, everything is symbolic and all investigations could be treated as a study of signs (semiotics).

So far structuralism has been described as a method based on an unsubstantiated model of how the brain works and as a system that deciphers signs based on patterns of material culture. In the introduction to *Dionysos Slain*, Detienne (1977: 5) says that a structuralist approach to mythology allows the scholar to “bring together different versions of a myth by virtue of their differences and try to see if they cannot order themselves in the space the mythological tradition opens to them”. This explanation of structuralism seems only tangentially related to the former ideas. Parker (2011: 84-98) uses an analogy based on traffic light colours to introduce the structuralist idea that “meaning in a closed system is created by differentiation”. The problem that he addresses is the nature of Greek gods and he approaches this through a series of propositions where he dismisses the bilateral polarity explored by Hodder and Lloyd on the grounds that he sees no reason why comparisons of Greek gods should be limited to pairwise comparisons. Vernant wrote an introduction to the 1994 Princeton edition of Detienne’s earlier book *The Gardens of Adonis* (Detienne 1972: ix), in which he says that a god is defined by the network of relations which links him with, and opposes him to, the other deities in a pantheon and this succinctly expresses Parker’s approach. Taken as an analytical method that gathers as much information as possible and then notes differences, makes comparisons and even constructs networks, structuralism can hardly be faulted and it is this form that is applied in this study.

P. 3. Time and Culture.

Time (Chapter 2) has to be the defining topic of a calendar and the way time forms a framework for any population depends on many facets of that society’s history and culture. From an early period the Athenians were attentive to the way time was measured and recorded. Herodotus in the 5th century cites a speech by Solon of Athens (early sixth century):

The limit of life for a man I lay down at seventy years: and these seventy years give twenty-five thousand and two hundred days, not reckoning for any intercalated month. Then if every other one of these years shall be made longer by one month, that

the seasons may be caused to come round at the due time of the year, the intercalated months will be in number five-and-thirty besides the seventy years; and of these months the days will be one thousand and fifty. Of all these days, being in number twenty-six thousand two hundred and fifty, which go to the seventy years, one day produces nothing at all which resembles what another brings with it.

Herodotus *Histories* I.32.2-4 (quoted by Clarke, 2008: 1)

If accurate, this speech demonstrates a concern with problems of the calculation of time in a city that had a lunar religious calendar. The speech was made in the context of a philosophical conversation about happiness and Clarke (2008: 7) uses it in an introduction to her book about ancient historians. It nicely illustrates the overlapping mental conundrums that concerned the intellectual world of ancient Greece, which are often compartmentalised by modern scholars.

Athenian calendars have been the subject of extensive scholarship (Pritchett and Neugebauer, 1947; Meritt, 1961; Pritchett, 1963; Samuel, 1972) and the way the festival calendar of 12 lunar months and the administrative calendar year (*prytany* calendar) that was partitioned by ten, were regulated forms a prominent part of the academic debate (Mikalson, 1975). It is clear from these studies that these calendars could be manipulated. The eponymous *archon* was in charge of the festival calendar (Clarke, 2008: 26) and Mikalson, who compiled a calendar that includes both civic and sacred (festival) calendars, has shown that in order to avoid timetable clashes between meetings of the *ekklesia* and festivals, the *archon* could intercalate an extra day into the calendar (Mikalson 1975: 3). Thus although the lunar festival calendar can be considered as a reflection of temporal order based on the movement of a celestial body, and hence outside state control, the Greeks had a flexible, pragmatic attitude to this calendar.

Religious festivals were a prominent feature of the routine of life in the *polis* and links between the festival calendar and civic activities were an integral aspect of *polis* culture in any era including the Hellenistic. A number of inscribed Classical Attic festival calendars have been discovered (Chapter 4) and although they clearly had a function or functions different from the calendar frieze (for example, they recorded the cost of various festivals), they show that public displays of religious matters germane to the *polis* were presented in the form of a calendar. The festival calendar of any particular year is likely to reflect the political/social circumstances of that year and the Athenian festival calendar

frieze on the Little Metropolis, which depicts, as images, festivals and both lunar and sidereal time will reflect the culture of the period in which it was made. Lehoux (2012: 224-245) argues that in order to comprehend the way past cultures understood the world, we can accept that we are observing the same real phenomena but must recognise that in the past, the context in which people saw the world was different. Recognising that past contexts could bring cohesion to their interpretations of the world, which are very different from our own, demands a multifaceted approach to an interpretative study of ancient culture. The combination of the rational world of astronomy and the measurement of time, and the irrational world illustrated by myth and religious festivals that is depicted as images on the Little Metropolis church frieze, is unusual in Hellenistic Greek art and this will be explored through a multifaceted analysis of rational inquiry, religion and art in the history and culture of late Hellenistic Athens.

P. 4. Method of Analysis Used in the Thesis.

Broadly this study has been structured to start by briefly introducing the current location of the frieze and describing its images (Introduction). Chapter 1 considers previous studies of the frieze and presents an examination of the images in relation to these studies. Time, as a practical, intellectual or cultural topic, runs throughout the study and Chapter 2 gives a picture of the cognitive aspects of time in ancient Greece. Chapter 3 discusses Hellenistic astronomy and proposes a date for the frieze based on the interpretation of the signs of the Zodiac. Chapter 4 addresses the puzzling question of the non-Athenian start date of the calendar, and, based on the previous two chapters, Chapter 5 explores the possible original location of the calendar. The conclusions of these three investigative chapters inform the final interpretation of the Little Metropolis frieze in Chapter 6.

“If a causal explanation for any pattern is sought, it is important that the initial work should be an unbiased study of all the material. Without this, the pattern will inevitably be perceived in terms of a preconceived explanatory process” (Masters 2007); in other words if an interpretation is produced without sufficient independent background work, the exercise becomes a search for evidence that supports a preformed explanation and this is a dangerously easy task in studies like the one reported here. Therefore the method chosen for the analytical aspects of each chapter is to assemble and present all of

the relevant evidence before evaluating and testing it. This method of operation is particularly clear in Chapters 3, 4 and 5, which debate the context of the frieze, namely the date, structure and original location. As independent conclusions about the frieze are accumulated they form a coherent framework, and this process allows the interpretation of the frieze in Chapter 6 to be tested against a cultural context.

Introduction.



Figure I.1. Agios Eleftherios (Little Metropolis).

Agios Eleftherios (Little Metropolis) (Figure I.1) is a very small church (7.32 m x 11.38 m) situated adjacent to the Neo-Classical Orthodox Cathedral on Plateia Metropolis in the centre of modern Athens, less than 500 m north-east of the Acropolis. The church was originally dedicated to Panaghia Gorgoepikoos (Saint Mary who answers prayers quickly) but was renamed after the War of Independence from *eleftheria*, meaning freedom. It is commonly called the Little Metropolis because it is believed to have briefly been the church of the Patriarch of Athens after he was expelled from the church in the Parthenon by the Turks in 1456 (Waterfield, 2004: 281), and Kiilerich (Kiilerich 2005) has argued that the church dates to this period. All of the external walls of the Little Metropolis were constructed with reused ashlar and decorated stones (spolia), and the church is well known for the quality, exuberance and quantity of its varied spolia.

Running across the front of the church above the west door, at a height of about 4.5 metres, are two stones that depict a religious year in the form of a carved relief frieze (Figure I.2, Parts 1-7). The frieze itself is 0.25 m high (the extensive mouldings double the height of the stone) and 5.73 m long (Chapter 5.5) and, like most stones of the church, it is made of Pentelic marble quarried on Mount Penteli near Athens.

Figure I.2, Part 1. The Athenian Festival Calendar on the Little Metropolis.

(photograph from Deutsches Archäologisches Institut, Athens, 1959).

Interpretations by Deubner (1932: 249-254).



1 2 3 4 5 6 7

1. Male personification of the month Pyanopsion.
2. Festival: Pyanopsia. Image of a boy carrying a laurel or pomegranate branch festooned with wool and fruit (the *eiresione*).
3. Festival: Oschophoria. This image of a naked man holding two bunches of grapes with one foot lifted onto a rounded object is identified with the Oschophoria, a festival dedicated to Dionysos and Athena, partly because the image comes after the Pyanopsia.
4. Festival: Thesmophoria. This is an image of a *thesmophoros* who carries the fertility objects from the underground *megara* of Demeter in order to put them on the Goddess' altar. She carries a sacred basket (*kiste*) that is decorated with a band, on her head.
5. Zodiac sign: Scorpio, minus the claws.
6. Winter.
7. Male personification of the month Maimakterion.

Figure I.2, Part 2. The Athenian Festival Calendar on the Little Metropolis.
(photograph from Deutsches Archäologisches Institut, Athens, 1959).
Interpretations by Deubner (1932: 249-254).



6

7

8

9

10

11

6. Winter.
7. Male personification of the month Maimakterion.
8. Ritual ploughing. The image shows a man with a pointed hat ploughing with two oxen. This is a *bouzyges* performing a ritual ploughing.
9. Ritual sowing.
10. Zodiac sign: Sagittarius.
11. Male personification of the month Posideon.

Figure I.2, Part 3. The Athenian Festival Calendar on the Little Metropolis.
 (photograph from Deutsches Archäologisches Institut, Athens 1959).
 Interpretations by Deubner (1932: 249-254).



11 12 13 14 15 16 17

11. Male personification of the month Posideon.
12. Personification of *theoria*. This figure may represent the act of going to a religious festival.
13. Festival: Rural Dionysia. This image shows three judges seated at a table on which wreaths are stacked. In front of the table two fighting cocks face each other on a palm leaf, symbolizing competition and victory at this festival to Dionysos.
14. Zodiac sign: Capricorn.
15. Male personification of the month Gamelion.
16. Festival: Lenaea. This image of a young man holding a *thyrsos* and garland whilst riding a goat or ram is linked to the festival of Dionysos Lenaios.
17. Festival: Theogamia. This poor, partly truncated, image may be Hera (Robert, 1899) and if so marks the Theogamia (her wedding to Zeus) but it may be a mortal woman since this was also the month when mortal marriages took place.

Figure I.2, Part 4. The Athenian Festival Calendar on the Little Metropolis.
 (photograph from Deutsches Archäologisches Institut, Athens, 1959).
 Interpretations by Deubner (1932: 249-254).



18 19 20 21 22 23 24

18. Female personification of *theoria*. This female figure is holding a wreath possibly related to the following City Dionysia.
19. Festival: City Dionysia. A bearded man leads a billy goat (*tragos*) for sacrifice. This may be a mythological scene with the man being *Ikarios*, who brought the first goat to Dionysos (Robert, 1899). Alternatively, he seems to be wearing a mask of comic actors and leading a victim (Svoronos, 1899).
20. Zodiac sign: Aries.
21. Male personification of the month Mounychion.
22. Festival: Mounychia. This festival is depicted by Artemis; the image shows her leading a stag.
23. Zodiac sign: Taurus. The hooves are just visible below the defacing Christian cross.
24. Summer. This running naked figure holding a torch is the personification of summer.

Figure I.2, Part 5. The Athenian Festival Calendar on the Little Metropolis.
 (photograph from Deutsches Archäologisches Institut, Athens, 1959).
 Interpretations by Deubner (1932: 249-254).



24 25 26 27 28 29 30 31

- 24. Summer.
- 25. Male personification of the month Thargelion.
- 26. Zodiac sign: Gemini.
- 27. Male personification of the month Skiraphorion.
- 28. Festival: Dipolieia. This image shows a man wearing a pointed hat and boots holding an axe over an ox. He is the *Bouphonos* and re-enacts a myth associated with a festival for Zeus Polieus.
- 29. Zodiac sign: Cancer.
- 30. Male personification of the month Hekatombaion.
- 31. Personification of *theoria*. This figure precedes the important festival to Athena, the Panathenaea.

Figure I.2, Part 6. The Athenian Festival Calendar on the Little Metropolis.
(photograph from Deutsches Archäologisches Institut, Athens, 1959).
Interpretations by Deubner (1932: 249-254).



31

32

33 34

31. Personification of *theoria*.

32. Festival: Panathenaea. This festival to Athena was the most important Athenian festival. The image has been largely obliterated by an added cross but part of the ship/cart which brought the *peplos* to the temple on the Acropolis can be seen.

33. Zodiac sign: Leo.

34. Summer. Summer is represented as a dog, indicating the Dog Star, Sirius.

Figure I.2, Part 7. The Athenian Festival Calendar on the Little Metropolis.
 (photograph from Deutsches Archäologisches Institut, Athens, 1959).
 Interpretations by Deubner (1932: 249-254).



33 34

35

36

37

38

39

40 41

33. Zodiac sign: Leo.

34. Summer.

35. Autumn. Autumn is personified as a woman carrying a fruit bowl.

36. Male personification of the month Metageitnion.

37. Festival: Heracleia at Kynosarges. Image of Heracles with lion skin and club.

38. Zodiac sign: Virgo.

39. Male personification of the month Boedromion.

40. Festival: Great Mysteries. This image shows an *ephēbos* riding a horse and was included on the calendar because this was the month when they began practising (Deubner thought that the *ephēbos* year started in Boedromion). Robert (1899) thought that the rider depicts an *ephēbos* who escorted the 'holy things' from Eleusis to Athens on the days before the Great Mysteries festival of Demeter in the City Eleusinion but these were celebrated in Metageitnion.

41. Zodiac sign: Claws of Scorpio.

In 1932 Ludwig Deubner published a book entitled *Attische Feste* in which he describes and interprets the frieze as a festival calendar, basing his analysis partly on earlier publications by J.N. Svoronos (1899) and C. Robert (1899). The two stones of the frieze were rearranged when they were incorporated into the west wall of the church and the current order of months starts with Elaphebolion in the spring. However, originally the stones would have been in the reverse order and the month Pyanopsion, in autumn, was the start. This is the order that Deubner (1932: 248-254) used to present his interpretation and is the order preserved in Figure I.2, where Deubner's interpretation of the images on the frieze is also presented. In addition to reversing the order of the stones, the church builders seem to have shortened them by removing the whole of the month of Anthesterion and part of Gamelion and Elaphebolion. The end of the first stone can be seen to be crudely cut and rough in Figure I.2, part 3. It is apparent from inspection that the original ends of the frieze, which are currently situated in the centre of the frieze, were deliberately left rough; the rough stone stands proud and the egg and dart ovolo above is obviously unfinished (Figure I.2, part 1).

Using Deubner's analysis of the 41 images on the frieze and including the Ritual Ploughing, only 14 refer directly to Athenian festivals. Conversely, of the 42 Athenian festivals listed by Parke (1977: 26,27) and the 129 festivals, sacrifices and processions in Parker (2005: Appendix 1), only 14 are directly represented on what survives of the frieze. This rather simple numerical analysis emphasises the fact that the depiction of festivals is only part of the rationale of the frieze.

Figure I.2 demonstrates that in addition to festivals, the frieze contains a number of images which illustrate concepts of time that parallel the intellectual interests of the Eastern Mediterranean in the late Hellenistic period. Each lunar month is personified and in addition sidereal (star) time is depicted in the form of the Zodiac. This combination of a festival calendar and different representations of time is unique in the Greek world and has not been fully explored by previous authors.

Despite the fact that the church and the frieze are well known, in public view, and have been studied by several scholars, there is no satisfactory explanation for many aspects of the frieze. Included in this list is the fact that the calendar originally began with the autumn lunar month, Pyanopsion, despite the Athenian religious year beginning with the month Hekatombaion at the time of the summer solstice when the most important Athenian festival, the Panathenaea, was celebrated (Salt and Boutsikas 2005; Simon, 1983: 5). The date of the frieze is disputed and this is a crucial problem for all previous scholars who have either studied or cited elements of the frieze. Deubner (1932: 248) discussed the date of the frieze reporting that Robert (1899) dated it to the 2nd century BC. He consulted several archaeologists and their verbal opinions varied: F. Cumont gave 1st century BC, G. Rodenwaldt suggested 2nd or 3rd century AD, E. Weigand suggested the late Hellenistic period

and C. Weickert proposed the beginning of the 3rd century BC. Deubner's conclusion was to leave the date as an open question. Simon (1983: 6) dates the frieze to the 1st century BC; Mee and Spawforth (2001: 77) give a broader estimate of the 2nd to 1st century BC. Most recently, based partly on dress, beard and hair styling, Palagia (2008) proposed that the frieze has a 2nd century AD Roman date. Palagia's paper (2008) represented a fresh holistic evaluation of the calendar; it presented some new analyses of the images and focused attention on the two major puzzles of the calendar described above: why does it start with Pyanopsion and not the month of the Athenian New Year, and when was it commissioned? Clearly any full interpretation of the frieze depends on the date of its commission.

Equally important for interpretation is knowledge of the original location and of the person/people who commissioned the frieze. There have been significant additions to the information available for the study of Athenian archaeology and festivals since the publication of *Attische Feste* (Deubner 1932), when the large excavations in central Athens had only just begun (Parker 2005: 4). Olga Palagia's 2008 paper proposed that the frieze was commissioned by Herodes Atticus in AD 138/9 as part of his refurbishment of the Panathenaic Stadium, but her conclusion is entirely dependent on both her deduced date of the calendar and that of Augustus' birthday in AD 138/9.

Within the body of scholarship relating to ancient Greek astronomy there is a general lack of interest in the Little Metropolis calendar frieze. For example, Evans (1999) published a review article on the material culture of Greek astronomy that aimed to cover the "entire material culture", which, despite having a section on the images of constellations and Zodiac symbols, did not include the frieze.

Alternatively, as illustrated by a paper entitled *Ancient Astronomical Monuments of Athens* that was published in 2010 (Theodossiou and Manimanis, 2010), papers about the frieze as a whole are largely descriptive and uncritical.

Individual images on the frieze have been widely used to illustrate and even understand individual festivals and, although there are some recent studies that give an in-depth analysis, notably a study of the Oschophoria by Pilz (2011) and of the Panathenaic ship-cart by Wachsmann (2012), these are generally unsatisfactory either by not relating the image to the calendar as a whole or by ignoring elements in the image itself. Image 13 (Figure I.2 part 3) illustrates this point. It was interpreted by Deubner as a representation of the Rural Dionysia (Deubner 1932: 248-254), and it appears to consist of three bearded men wearing *himatia* who are sitting behind a draped table bearing five bag shaped objects. In front of the table are two cocks facing each other and standing on a palm leaf (Figure I.3, detail). Like the Oschophoria, the Rural Dionysia image does not show a distinctive feature of the Rural Dionysia festival but it has been widely accepted as representing this festival. The festival occurred in the winter month of Posideon at an unknown date

(Parker 2005: 486) but it was a festival that was organized and held within individual Attic demes and not held in the city of Athens. Several authors, for example Parker (2005: 467), have associated the cock fight with this festival but they have used Deubner's interpretation of the frieze image as their source and presented no corroborating evidence. The image is also referenced by authors discussing cock fighting or the use of images of cockerels in Greek art (Csapo, 1993; Fisher, 2004) again with little critical examination of its interpretation. Without a date these

Figure I.3. Images 12, 13 and 14 of the Calendar Frieze: Female personification of *theoria*, 12, the Rural Dionysia, 13 and Capricorn, 14.



12

13

14

interpretations can be anachronistic. A further example of the use of a single festival image can be found in Parke (1977: 75 -80, Plate 32), who presents the figure of a boy carrying a branch that represents the Pyanopsia without reference to the rest of the frieze (Figure I.2, Part 1, Image 2). Similarly the abstracted depiction of Ritual Ploughing (Figure I.4, Image 8), which is accompanied on the frieze by an image (Figure I.4, Image 9) of a person sowing is used by Spawforth in *Greece and the Augustan Cultural Revolution* (2012: 150).

There are a number of ambiguous images on the frieze for which there is no adequate explanation. These include the three figures called the personification of *theoria* (Images 12, 18 and 31 in Figure I.2), the figures depicting the seasons (Images 6, 24, 34, and 35 in Figure I.2) and the penultimate figure (Image 40 in Figure I.2).

Figure I.4. Images 7, 8, and 9 of the Calendar Frieze: Personification of the Month Maimakterion, 7, Ritual Ploughing, 8, and Ritual Sowing, 9.



7

8

9

This summary of a selection of earlier work on the Athenian calendar frieze demonstrates the number of questions that have not been satisfactorily addressed. We do not know the date or the original location of the frieze and therefore cannot confidently propose its intended audience. The Pyanopsion start date has not been satisfactorily explained, the choice of festivals is quite unclear, a number of the images are ambiguous and finally the reason for depicting the Zodiac on a religious lunar calendar is unknown. Despite resistance to “the tendency to argue by response to previous scholarship” (Papadopoulos, 2013), the study will begin with a detailed presentation and deconstruction of previous recent work (Chapter 1).

Chapter 1. Previous Interpretations of the Little Metropolis Calendar Frieze.

1.1. Athenian Calendars.

Olga Palagia's 2008 paper represented a radical new study of the Little Metropolis calendar frieze. In order to understand Palagia's analysis and interpretation of the frieze, it is necessary to introduce the complexities of both the Athenian and the early Roman calendars.

According to Pritchett (1963: 276 - 402) three separate calendars operated simultaneously in ancient Athens. These were the regulatory lunar calendar (κατά θεόν), a festival calendar (κατ' ἄρχοντα) and the *prytany* calendar, which was an administrative calendar used by the *boule* and *ekklesia*. Both the regulatory and the festival calendar were lunar calendars. These two lunar calendars differed because the regulatory lunar calendar acted κατά θεόν ('according to the god') and was immutable, whereas the festival calendar could be manipulated by the *archon* (see Chapter 4.2). However, dates annotated κατά θεόν only appear on inscriptions from the second century BC (Clarke 2008: 22, n. 84; Lewis 1975). After the introduction of 10 tribes by Kleisthenes in 508/7 BC citizens were appointed to the *boule* for 1/10th of a year, and from the end of the sixth or mid-fifth century (Stern 2012: 47) the *prytany* calendar was organised into ten sections or *prytanies* (Allen 1996). However, in 307/6 BC two more tribes were introduced to honour Antigonos Monophthalmos and his son, Demetrios Poliorketes and the number of *prytanies* increased to 12 (Camp 1992: 163-4). Later, in 223 BC, a thirteenth tribe was formed to honour Ptolemy III Euergetes and this increased the number of *prytanies* to 13 (Camp 1992: 167). Further political events caused the Athenians to rescind the honours for Antigonos Monophthalmos and his son in 200 BC, so that for a short while the number of tribes was 11, only to be restored to 12 a few months later by the introduction of a tribe to honour Attalos I of Pergamon (Camp 1992: 168). Mikalson has compiled a calendar that includes both civil (*prytany*) and sacred (festival, κατ' ἄρχοντα) calendars and shown that in order to avoid timetable clashes between meetings of the *ekklesia* and festivals, the *archon* could intercalate extra days into the festival calendar (Mikalson 1975: 3). In general, however, such clashes did not occur (Mikalson 1975: 203). The problem for modern scholars of aligning the *prytany* calendar with the lunar calendars and the significance of such

problems for residents of Hellenistic Athens will be discussed further in Chapter 4. Here an introduction is needed to understand the problem of Augustus' birthday.

Time measured by the moon is superficially easy for us to understand because the moon is a prominent feature of clear night skies and because its appearance changes from day to day; thus the new crescent moon becomes a half circle and then a full moon as it waxes and reverses the pattern as it wanes. This cycle is repeated approximately every 29.5 days or 12 times within a single solar (or tropical) year, which in turn is based on the movement of the Earth around the Sun. However, this lunar cycle means that 12 lunar months ($12 \times 29.5 = 354$ days), is about 11 days shorter than a solar year of 365.25 days and over time the lunar 'year' slips out of synchrony with the seasons determined by the Earth's orbit round the Sun (Hannah 2005: 12).

As attested by Aristotle, "around the summer solstice" (*History of Animals* 534b) and Plato, "with the month next after the summer solstice" (*Laws* 767c, 945c) (Davidson 2008), the Athenian year began close to the summer solstice with the month called Hekatombaion (Clarke 2008: 22; Davidson, 2008). It is accepted that each new month of the lunar festival calendar started with the sighting of the new moon (Samuel 1972: 57; Salt and Boutsikas 2005), and within each month days were counted forward up to day 20, but were then counted down until the end of the month (Clarke 2008: 23).

As previously explained, because twelve lunar months are about 11 days short of a solar year the festival calendar gradually became out of phase with the seasons, and this was important because many festivals had a link with agricultural activities. In the 3rd century AD, Censorinus (*On the Birthday* 18.5-6) described a late 6th or early 5th century BC Greek system for aligning the lunar and solar calendars. In outline, this scheme had alternating 29 and 30 day months, to accommodate the fact that the lunar month is approximately 29.5 days long. The scheme ran on an eight year cycle (the *octaeteris*) (Table 1.1) (Hannah 2005: 36) and has been associated with Eudoxus and Dositheus (Lehoux 2007: 93). By intercalating an extra 30 day month into years 3, 5 and 8, the lunar calendar ($[354 \times 8] + 90 = 2,922$ days) is better synchronised with the solar calendar ($365.25 \times 8 = 2,922$ days) every

8 years (Hannah 2005: 36). In Athens, intercalation was usually, but not always, done by repeating the winter month of Posideon (Pritchett 2001: 8; Salt & Boutsikas 2005).

Table 1.1. THE ATHENIAN *octaeteris* CYCLE.

(Adapted from Hannah 2005: 36, Table 1) (* length of month in days)

Athenian Month	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
1 Hekatombaion	30*	30	30	30	30	30	30	30
2 Metageitnion	29	29	29	29	29	29	29	29
3 Boedromion	30	30	30	30	30	30	30	30
4 Pyanopsion	29	29	29	29	29	29	29	29
5 Maimakterion	30	30	30	30	30	30	30	30
6 Posideon	29	29	29	29	29	29	29	29
Intercalary months			30		30			30
7 Gamelion	30	30	30	30	30	30	30	30
8 Anthesterion	29	29	29	29	29	29	29	29
9 Elaphebolion	30	30	30	30	30	30	30	30
10 Mounychion	29	29	29	29	29	29	29	29
11 Thargelion	30	30	30	30	30	30	30	30
12 Skiraphorion	29	29	29	29	29	29	29	29

This method of adjustment is an approximation and therefore not perfect, further it is not clear how it was used (Lehoux 2007: 93). Because the solar year is 365.24219 and not exactly 365.25 days long and a lunar month is 29.53059 not exactly 29.5 days long, using the *octaeteris* over 72 years (roughly a human lifetime) would result in the lunar calendar becoming 14.31801 days out of synchrony with the solar calendar. This led to the development of a 19 year Metonic cycle attributed to Meton and Euktemon (mid-5th century BC) (Hannah 2005: 56-57; Lehoux 2007: 90 -93). In this cycle, the 30 and 29 day months alternate and 7 of the 19 years contain an intercalary 30 day month producing a 19 year total of 6,940 days (note for solar years: $365.24219 \times 19 = 6939.60$ days) (Freeth et al. 2008). Geminus (*Introduction to Astronomy 8.59-60*) describes a refinement introduced in

330 BC by Kallippos, which removed an extra day every 76 years because the Metonic Cycle gained an extra day over the solar calendar during this time (Hannah 2005: 56/57). Late Hellenistic fragments of *parapegmata* found in Miletos (dated between 110/9 BC and 89/8 BC) suggest that this Metonic cycle had a civic function (Hannah 2005: 60) and its religious function is confirmed by the most recent report of the Antikythera Mechanism (150-100 BC), which links this cycle to calculations of the timing of the panhellenic games held at Olympia every four years (Freeth et al. 2008).

1.2. Early Roman Calendars.

Roman sub-divisions of a month:	
<i>Kalends</i>	day 1
<i>Nones</i>	day 5 (short month) day 7 (long month)
<i>Ides</i>	day 13 (short month) day 15 (long month)

The origins of the early Republican Roman calendar are obscure but by the early 1st century BC, it consisted of 12 months of varying lengths. Days in the month were identified by their relationship to key subdivisions of the month. This method is not straightforward for us because, for example, the Romans included the *Kalends* of the next month in their calculation. Thus, when December had 29 days, December 21st is the 10th day before the *Kalends* of January (thus 21, 22, 23, 24, 25, 26, 27, 28, 29 and 1 = 10 days). In order to keep the calendar in synchrony with the seasons, the Romans also introduced intercalary months, usually after February. Authority over the calendar was held by priests, the *pontifices*, and in the 2nd century BC their corruption, through manipulating the intercalation, was a major cause of problems with the Roman calendar (Hannah 2005: 111).

In 46 BC Julius Caesar introduced a reformed solar calendar year of 365.25 days, and in order to realign the months and seasons, 90 days were added to 46 BC, making it 455 days long. From January 1st 45 BC, the year had 365 days and an extra day was scheduled to be added after February 24th (6th day before the *Kalends* of March) once every 4 years. However Julius Caesar was assassinated in 44 BC and, for unknown reasons, the *pontifices* mistakenly intercalated an extra day every 3 years for the next 36 years (that is 00+1, 00+1,

00+1 etc. instead of 000+1, 000+1, 000+1 etc.) resulting in 3 extra days at the end of this period. The position was restored by Augustus, who decreed no extra-day intercalations for 12 years after 9 BC (it was skipped in 5 BC, 1 BC and AD 4) and the Julian calendar only functioned properly from AD 5 (Hannah 2005: 112-117).

1.3. Synchronising Times: Greece and Rome.

The discussion so far has focused on the divisions of the year since this is the subject of the Little Metropolis festival calendar but, as Palagia (2008) recognised a full interpretation of the calendar should be set into a particular historical period; dating the frieze will help interpretation. Our perception of time (at least in the western world) as a universal, numerical construction that runs as a continuous line forwards or backwards from a date fixed at the BC/AD border, seems so intuitive that it is difficult for us to adopt a mind-set of ancient cultures where this did not exist. The word 'date' does not exist in Ancient Greek or Latin and Feeney suggests that we should consider 'dates' in the classical world as 'events' (Feeney 2007: 15). This method we still use, by remembering events in relation to others; 'we moved house after the flood but before our son was born'. A problem clearly arises if you want to order events happening in different places where there is no common point of reference. Individual years in Athens were identified by the name of the eponymous *archon* in office and by the time that the Romans became relevant in Athens, Ancient Greek historians had a panhellenic framework of cross reference (Feeney 2007: 4). This important panhellenic event available to chronographers was the Olympic Games, which was held mid-summer every 4 years, and since the timing of these Games was so important, it is not surprising that it features on the Antikythera Mechanism (Freeth et al. 2008). Roman years were named by the consul in office but this was not always straightforward because, depending on campaigning events, the consular year did not always start in January (Feeney 2007: 22-23). The first systematic work to fit Roman events into a Greek framework was by Cornelius Nepos (mid 50s BC) and his work was superseded by Atticus' *Liber Annalis* (47 BC) and *De Gente Populi Romani* written by Varro in 43 BC (Feeney 2007: 22-23). This means that there was an awareness of Greek/Roman synchrony by the late 1st century BC.

The passage of years became important for the Romans in the context of celebrating anniversaries, which Feeney says became a feature of the Roman "investment in the annual

calendar as a unifying grid for their culture". The symbolic power of birthdays also became important and although Augustus was born on the anniversary of the foundation of a Roman temple to Apollo rather than on Apollo's sacred day of the month (the 7th) (Michels 1967: 181), Feeney states that "it was highly important to Octavian (Augustus) ... that he shared a birthday with Apollo" (Feeney 2007: 148-149).

1.4. Emperor Augustus' Birthday.

Today the science of astronomy and non-scientific astrology should be clearly separated, but much of the literature by modern scholars is still influenced by a belief in astrology. Although Babylonian texts giving omens are known from the 7th century BC (Rochberg-Halton 1984), Hellenistic Alexandria is commonly regarded as the cradle of Greek and Roman astrology (Barton 1994: 30). The underlying philosophical reasoning of Greek astrology did not resemble that of Babylon and can be regarded as having a distinctive Hellenistic origin. Critically, whereas the Babylonians believed that the gods provided signs (in the sky) that could be interpreted by a specialist, the late Hellenistic Greek astrology believed that there was a direct physical cause which linked constellations to life on earth and this notion was thus dependent on the development of Hellenistic models of the cosmos that incorporated a celestial sphere (Rochberg-Halton 1984; Chapter 3.3-5). In 1959, Neugebauer and van Hoesen compiled all of the ancient Greek horoscopes then known; those that could be dated (63) fall between 9 BC and AD 497 (Neugebauer & Van Hoesen 1959: 165-166). Rochberg-Halton (1984) gives a slightly different date range for the textual sources for Hellenistic astrology; identifying it as late Hellenistic (between 180 and 31 BC). The dominant form of both Greek and Roman astrology was *genethliology*, which focuses on the relationships of the Sun and the planets to the signs of the Zodiac at the time of birth (Beck 2007: 9).

There is a sizable body of literature on Augustus' birthday including work by Kepler (1571-1630) and Rubens' son, Albert (1735) (Barton 1995). This interest stems not only from Augustus' historical importance but also from an incident described by Suetonius (AD 70-130):

While in retirement at Apollonia, Augustus climbed with his companion Agrippa to the school of the astrologer Theogenes. Agrippa consulted him first, and when great and almost incredible things were predicted for him, Augustus persisted in

keeping quiet about the time of his birth and in not wanting to declare it, through fear and shame that he might be found to be inferior. But when after much urging it was declared with difficulty and reluctance, Theogenes sprang up and revered him. From then on Augustus had so much confidence in his destiny, that he made his horoscope public and struck a silver coin with the sign of the constellation Capricorn, under which he was born.

Suetonius, *Augustus* 94 (translator Graves 1957)

Modern history books give September 23rd 63 BC as the date of Augustus' birth and his reign from January 15th 27 BC until his death on August 19th AD 14 (Braund 1987; Cooley 2009: 42; Crook 1996). Suetonius' choice of birth sign for Augustus is therefore a puzzle because September 23rd would give him the Roman birth sign, Libra, not Capricorn. Capricorn could relate to the January date when he was named Augustus but the horoscope story described by Suetonius happened when Augustus was only 18 years old. The puzzle of the horoscope described by Suetonius is compounded by the fact that Augustus was born before the 46 BC reform of the Republican calendar.

Roman authors (Gellius 15.7.3; Velleius 2.65.2; Suetonius *Augustus* 5) record the 9th day before the *Kalends* of October in the Julian calendar as Augustus' birthday (Michels

Augustus was born in the consulship of M. Tullius Cicero and C. Antonius on the 9th day before the *Kalends* of October a little before sunrise ...

Suetonius, *Augustus* 5 (translator Holland 1923)

1967: 180). Confusion among modern authors results from a lack of clarity as to how the date in the Republican calendar was translated. In the Republican calendar September was a day shorter than the Julian month with only 29 days and the 9th day before the *Kalends* of October in the Julian calendar (September 23rd) translates directly back into a Republican September 22nd (Hannah 2005: 124-125). The anniversary of the foundation, in 431 BC, of a temple to Apollo in Rome occurred on the 8th day before the *Kalends* of October, September 23rd in the Republican calendar (Feeney 2007: 154). There is therefore some discrepancy between Augustus' deduced Republican birth date, September 22nd and the reported Republican temple foundation on the 23rd. However, it was important to the Romans that, during the calendar reform, festivals retained their relationship to the *Ides* of a month not to the *Kalends* (Michels 1967: 181; Feeney 2007: 154). Feeney and Michels

think that, given the importance that Augustus gave to the relationship between this anniversary and his birth, both the anniversary and Augustus' birthday were recalibrated so that the number of days post-*Ides* remained the same (Feeney 2007: 154; Michels 1967: 181). Clearly there was also confusion in the Roman era since some places in the East together with Narbo in Gaul and Forum Clodi in Northern Italy (Stern 2012: 283 n. 136) celebrated Augustus' birthday on two days, 23rd and 24th of September; by celebrating on the 24th they retained the relationship of Augustus' birthday with the *Kalends* not the *Ides* (Hannah 2005: 125; Feeney 2007:154; Michels 1967: 181) .

Augustus raised the profile of astrology and after Actium (31 BC) he adopted the sign of Capricorn as his personal emblem (Barton 1994: 41). A number of coins have been found, which show his head on the front and the sign of Capricorn on the reverse (Barton 1994: plate 5) (Figure 1.1) and Barton lists a number of Augustan representations of Capricorn in an appendix to her 1995 paper (Barton 1995) including a cameo in the Metropolitan Museum of Art, New York (29.175.4). Why he used this Zodiac symbol instead of Libra, the

Figure 1.1. Coin of Augustus Showing his Head on the Obverse and Capricorn Holding a Globe on the Reverse (British Museum). (after Barton 1994, Plate 5).



sign of his birth date, is not known but has been the subject of considerable debate. In the 1995 paper, Barton (using September 22nd as the Republican date of birth) outlines the two 'modern' theoretical explanations for the paradox. Her first theory is that the horoscope was based on the date of conception, which would have been in December when the Sun was in Capricorn; however, Suetonius uses the word, *natus*. Her second theory argues that the horoscope was based on the fact that the moon was in Capricorn on September 22nd in 63 BC; however the moon is rarely given a defining role in horoscopes. Both of these suggestions therefore have problems. Barton proposes a third explanation that emphasises

the 'flexibility' of astrology, and she suggests that the link, albeit tenuous, between both his birth and conception to Capricorn was important because the sign of Capricorn in mid-December (that is the winter equinox) marked the end of the dark days and the beginning of a new cycle of lengthening days and light (Barton 1995), presumably as symbolism for a new optimistic era.

Olga Palagia (Palagia 2008) has proposed that the Little Metropolis festival calendar frieze was commissioned by Herodes Atticus in AD 138/9 as part of the refurbishment of the Panathenaic Stadium, and she suggests that her proposal provides an explanation for the Pyanopsion start of the festival calendar because it commemorates Augustus' birthday. An analysis of synchrony between the Athenian lunar calendar and the reformed Julian calendar in AD 138/9 has been undertaken below in order to understand Augustus' birthday in relation to this Athenian festival calendar and hence Palagia's thesis.

It has been shown that from about 120 BC to 180 AD, the Metonic cycle of intercalation was used in Athens (Müller 1994, 1991; Osborne 2009) and it is possible to reconstruct the alignment of the Julian and the Athenian calendar because the late Babylonian lunar calendar is known and a tabulation of this calendar and the Julian calendar has been constructed (Müller 1994). The cuneiform record of the late Babylonian calendar extends to the Seleucid era (Kuhrt 1996) and ends as late as AD 75 (Parker and Dubberstein 1956: 47). This Babylonian calendar used a Metonic cycle where years 3, 6, 8, 11, 14, 17 and 19 were intercalary but the cycle started six years later than the Athenian cycle (Müller 1994). The alignment must be adjusted for the 6 year delay and may not be perfect because the method of determining the start of the month differed slightly, but Müller estimates that the difference should not be more than "about 2 days" (Müller 1994). Table 1.2 is based on Babylonian chronology and has been extracted from data in Müller's 1994 paper. This table shows the Julian date of the first day of the lunar month Hekatombaion, which varies between June 28th and July 25th in the solar Julian calendar depending on the position of each year in the Athenian Metonic cycle.

Before Julian dates can be assigned to Athenian lunar days for a particular year, it is therefore necessary to know the year's position in the Metonic cycle. Thus, if using Babylonian chronology, AD 46/7 is taken as a reference value for the beginning of an

Athenian Metonic cycle (Müller 1994) (year 1 in Table 1.2), we can calculate the position in the cycle of AD 138/9.

Table 1.2. JULIAN DATES FOR THE FIRST DAY OF THE ATHENIAN YEAR.

Intercalary years bold. (adapted from Müller 1994)

Year in Metonic cycle	Julian date of Hekatombaion 1st	Year in Metonic cycle	Julian date of Hekatombaion 1st
1	July 24	11	July 4
2	July 13	12	July 22
3	July 2	13	July 12
4	July 21	14	July 1
5	July 10	15	July 20
6	June 29	16	July 9
7	July 18	17	June 28
8	July 7	18	July 16
9	July 25	19	July 5
10	July 14		

Calculation of the Julian date of the first day of Hekatombaion in AD 138

1. $138 - 46 = 92 = (4 \times 19) + 16$ (i.e. equivalent to 4 full cycles and 16 years)
2. AD 138 is therefore year 16 in the cycle
3. This equates to a Julian date of July 9th for the first day of Hekatombaion in AD 138

Reference to Table 1.2 and the calculation boxed above, shows that the first day of Hekatombaion in AD 138 was July 9th. Olga Palagia used this method in her 2008 paper and reported that Augustus' birthday, which she gives as September 23rd, would fall on the first day of Pyanopsion in AD 138. However, counting forward from July 9th through Hekatombaion (30 days), Metageitnion (29 days) and Boedromion (30 days), assigns the first day of Pyanopsion as October 6th, 12 days after Augustus' birthday. Further using the same method, the first day of Hekatombaion in AD 139 was June 28th and this translates to September 23rd falling on the 29th day of Boedromion, and in the following year when the first day of Hekatombaion was July 16th, September 23rd fell on the 11th day of Boedromion.

The earliest date for the first day of Hekatombaion (June 28th) falls in AD 139 and, as shown above, this equates to September 23rd falling on the last day of Boedromion. There are some 'health warnings' that have to be noted for these calculations. Firstly, they only apply to the late Hellenistic period when intercalation was regular in Athens (Chapter 4.2.2). Secondly, Müller acknowledges that it will only be accurate to within about 2 days and thirdly, where historical records can be used to verify the calculated and recorded date, they are not always in perfect agreement (Müller 1994). Of course we do not know the source of these historical errors, which could be due to inaccuracy on the part of the ancient historians. It may be significant that an inscribed decree (*IG II² 1071*), recovered from the Athenian Acropolis, provides for the celebration of Augustus' birthday on the 12th day of Boedromion (Benjamin and Raubitschek 1959) and the wording suggests that the celebration might occur on the 12th day of every month (gods had a birthday on the same day of each month). Although the precise date of the inscription is not known, the decree does not lend support to Palagia's deduction (Palagia 2008).

The calculations above show that Palagia's argument (Palagia 2008) that the frieze honours Augustus and starts with Pyanopsion because it celebrates his birthday, can be questioned. Of course, given the ancient confusion about Augustus' birthday and the difficulty of precisely fixing the relationship between any Athenian and Julian date, the conclusion that Palagia (2008) draws has to be considered a possibility. Unfortunately she does not provide a worked scheme for her conclusion, simply referring to J.D. Morgan for the information, and the supporting publication for this is a conference abstract that gives no useful evidence (Morgan 1996). She does cite Müller (1994) for synchronisation of the late

Athenian with the Julian calendar and this is the basis for the calculation that is presented here. A new analysis of the date of the frieze is presented in Chapter 3.

1.5. Previous Interpretations of Festival Images on the Little Metropolis Calendar Frieze.

Since Deubner's book, written in 1932, two scholars have published substantial interpretive studies of the Athenian calendar frieze. In her commentary on the festivals of Attica, Simon dates the Metropolis calendar frieze to the 1st century BC (Simon 1983: 6). This book (*Festivals of Attica*) explores a series of Athenian festivals and although it does not follow the chronology of a single religious year, it uses many of the images of the Metropolis calendar frieze as evidence in some of the inferences and explanations for individual festivals. Although Simon (1983) does not interpret the frieze as a whole, a number of the interpretations either add to or disagree with those of Deubner (1932) presented in the Introduction. Palagia's 2008 paper on the other hand, by treating the frieze as a whole, gives a radical reinterpretation of many of the images, and some, but not all, of her interpretations are related to her Hadrianic date of the frieze. A presentation of the previous analyses of the Little Metropolis frieze presented below includes a detailed review of Simon (1983) and Palagia's (2008) work but also contains some other studies.

1.5.1. *Pyanopsia*: Figure 1.2, Image 2.

Following Deubner's method (1932), the festival images on the frieze are considered in the original order (Pyanopsion to Boedromion) and the first festival image is of a boy carrying a branch festooned with wool (?) and fruit (the *eiresiōnē*) (Figure 1.2, Image 2). This has been widely accepted as a representation of the Pyanopsia, the festival that gave its name to the month. These boys accompanied the procession and sang begging songs; their festooned bough is identified as an olive branch by Parke (1977: 76) and as laurel by Simon (1983: 76) although it more closely resembles a palm leaf.

The name of this festival to Apollo comes from the words for beans and boiling and was associated with eating beans. It occurred early in the month, probably on the 7th day, when by tradition Theseus returned to Athens (Parke 1977: 73 - 94), and it is believed to be one of the oldest festivals of Apollo (Simon 1983: 74).¹

¹ Unless indicated, the day of the month on which the festival was held comes from Parke (1977: 26 – 27).



1

2

3

4

Figure 1.2. The Athenian Festival Calendar: Images 1 – 4.

(Deutsches Archäologisches Institut, Athens, 1959).

1.5.2. Oschophoria: Figure 1.2, Image 3.

The Oschophoria (Figure 1.2, Image 3) was dedicated to both Dionysos and Athena (Parke 1977: 77; Scullion 2008). The image on the frieze shows a naked man holding two bunches of grapes attached to the vine with his left foot lifted onto an egg-shaped object that Simon interprets as a grape press (Simon 1983: 90). The image was interpreted as representing Dionysos and the Oschophoria by several authors (Deubner 1932: 249-254; Hedreen 1992: 83-85; Palagia 2008; Simon, 1983: 90; Pilz, 2011). This ancient festival had a procession from an unknown sanctuary of Dionysos in Athens to the *temenos* of a shrine of Athena Skiras in Phaleron, an early port of Athens. Since the festival was ancient the Athenian sanctuary was probably Limnai, not the Theatre of Dionysos (Parke 1977:77). According to Plutarch (*Theseus* 22.2-4), the Oschophoria commemorates the return of Theseus from Phaleron to the city and occurs on 7th Pyanopsion; however Parker (Parker 1996:315-316) thinks that this date, which relates to the aetiology of the festival, is uncertain. The distinctive feature of this festival is that a procession was led by two young men or boys (Pilz 2011) called *oschoi* who were dressed as women and carried bunches of grapes, which like those on the frieze (Figure 1.2, Image 3), were still attached to the vine (Parke 1977:77). The *oschoi* were selected from aristocratic families by the Salaminians (Parker 1996: 309), they were kept out of the sun so that their skin was pale, had their hair trained in female styles and their skin creamed (Csapo 1997). In other words their female transformation was more than simple cross-dressing. One interpretation of this is that they

represent the two youths who were dressed as women to trick Minos, the King of Crete, when Theseus took twice seven youths and maidens as sacrifice to the Minotaur (Parker 2005: 213). Scullion (2008) questions the ancient aetiological accounts of the festival (Plutarch *Theseus* 23.2-4 from the Atthidographer Demon *FGrH* 327 fr.6; Proclus quoted in Photius *Library* 239, 322a; Aristodemus *FGrH* 383 fr.9), pointing to variations and possible ancient misinterpretations. The presence of young men (*ephēboi*) carrying grape bunches is problematic, does this indicate a link to the vintage and hence Dionysos or, as Scullion suggests, is it a conveniently portable fertility symbol?

A further puzzle of the frieze image lies in the ambiguous nature of the Dionysos' pose, where the object under his raised foot is unlike any Athenian representation of a grape press. From the 5th century BC, treading grapes is the predominant image associated with wine production depicted on Athenian craters (Hedreen 1992: 85-88). Representative figures can be seen in Beazley (1951 Plate 55) and in the Oxford Beazley Archive (www.beazley.ox.ac.uk accession no.205908; accession no. 206429), which show images of grape treading by both satyrs and men. Surveying the 25 pottery images in the Beazley Archive that show grapes being trodden, indicates that this activity occurs using a handled basket or bag, the shape of which varies, with three of the scenes having deep baskets, whereas all the others have a very shallow structure. These baskets would not survive into the archaeological record but an ethnographic study by Margaritis and Jones documents the use of baskets, with handles suspended above to steady those who are treading the fruit (Margaritis and Jones 2006). This handle detail can be seen in several pottery images where an upper loop handle attached to an unidentified structure is held with one hand whilst the other holds a handle on the basket itself (www.beazley.ox.ac.uk accession no.275087). The close resemblance of the pottery images and the ethnographic evidence supports the assertion that the egg shaped object in the festival frieze Image 3 is at best a very unusual representation of a grape press.

Skiras may be the old name of Salamis, where there was a major cult of Athena Skiras. The Salaminoi sacrificed pregnant sheep to Athena Skiras, a victim only offered to goddesses associated with fertility (Scullion 2008). Most scholars believe that the association of Image 3 with activities of the Oschophoria lies with the bunches of grapes still attached to the vine held in the man's left hand (Pilz 2011) but the naked man of Image 3 also holds a cup,

which may represent the *pentaploa* drink awarded to the victor of the *ephēbos* foot race (Kadletz 1980) and it is possible that this image refers to more than one aspect of the festival: Dionysos and the vintage, fertility, and the *ephēbos* footrace through the *pentaploa* cup .

1.5.3. Thesmophoria: Figure 1.2. Image 4.

Image 4 in Figure 1.2 was interpreted as a component of the Festival Thesmophoria (held on the 10th of the month) by Deubner (1932: 250) and more recently by Tiverios (2008), identifying this as an image of a *thesmophoros* who carries the fertility objects from the underground *megara* of Demeter in order to put them on the Goddess' altar. She apparently carries a sacred basket (*kiste*) that is decorated with a band, on her head. Clinton (1996) argues that this festival was not a centrally organized city-state festival but was celebrated by individual demes, and no public, polis inscriptions about the Thesmophoria have been excavated in Athens. He further suggests that within Athens, the Thesmophoria was administered by the city-based deme, Melite.

Palagia (2008) however interprets Image 4 as depicting the festival, Eleusinia, moved to this month by Hadrian. The periodicity of this ancient athletic festival, attested in a Lycurgan inscription recording the receipts from skin sales (*IG II² 1496 A 130, 138*), is problematic but the month on which it was held has been narrowed to Metageitnion or early Boedromion (Parker 2005: 468 – 469) and Rigsby (2010) argues that it occurred between the 13th and the 20th of Metageitnion. It was an Athenian panhellenic festival held in Eleusis with athletic competitions (Parker 2005: 468 – 469) and may have commemorated the grain harvest (Rigsby 2010). The link with the harvest comes from the fact that it was held in late summer and because victors were given corn from the Rharian Field (Parker 2005: 201, 329). However, all the evidence that we have indicates that it was not held every year, surely not a likely pattern for a harvest thanksgiving. The debate over its periodicity is unresolved but it is clear that there were two versions of the festival: a Greater Eleusinia held once every 4 years (Parker 2005: 468 – 469) and a Lesser Eleusinia that probably also only occurred once every 4 years (Rigsby 2010), leading to an interval of one/two years between these festivals.

An inscription discovered in Alexandria Troas, on the northern Aegean coast of Asia Minor, has recently been translated by four scholars (Petzl and Schwertheim 2006; Jones 2007;

Slater 2008). This inscription contains 3 letters from Hadrian; it is dated AD 134 when Hadrian met with the guilds of athletes and the Dionysiac Artists in order to reorder festivals so that their schedule matched that of his circuit of the Empire (Jones 2007; Slater 2008). In the second letter Hadrian gives instructions to reschedule several of the major Greek festivals and Palagia interprets this letter to indicate that the Eleusinia was moved from Metageitnion in the late summer to the autumn month Pyanopsion (Palagia 2008). The wording of the key passage is agreed by all of the epigraphers but its interpretation has not been the focus of their studies and is not straightforward. Critically it is not clear if an unnamed festival at Eleusis was moved to the end of Pyanopsion or if this was its normal time.

I have set the beginning from the Olympia, since this contest is ancient and certainly the most prestigious of the/ Greek ones. After Olympia shall be the Isthmia, and after the Isthmia the Hadrianeia, so that the contest begins on the next day after the festival at Eleusis ends/ and this by Athenian reckoning the first day of Maimakterion.

POxy 2476 Letter 2:61-63. Translator Jones (2007)

Palagia (2008) supports her interpretation by pointing to a similarity between the form of the Roman caryatids at Eleusis, dedicated by Appius Claudius Pulcher (97 – 49 BC), and Image 4 on the frieze (Figure 1.3.a and b). However, there must also be questions associated with this particular interpretation. A girl called the *kanephoros* usually led the procession to sacrifice at festivals, including the Eleusinia (*IG II² 3554*, Parker 2005: 224 n.28). This was an important role since the girl chosen represented the ideal virgin (Roccos 1995). They carried a ritual basket, the *kanoun*, on their heads and although most (98 out of 111, Schelp 1975: Tafeln 6-13) are depicted as flat baskets with 3 handles, the detailed form of these varied in size and shape (Roccos 1995; Schelp 1975: Tafeln 6-13). Despite this variation, none of Schelp's drawings of 111 *kana* resemble the festival calendar Image 4 (Figure 1.3.a). If the image does represent the Eleusinia, she must be the *kanephoros* associated with the festival procession but carrying an abnormal basket.²

² A 4th century BC terracotta statuette in Copenhagen (Roccos 1995: Figure 4; Schelp 1975: Tafel 4) carries a heavily decorated vessel of a similar size and shape to Image 4; however the context of this statuette is not known and it may not represent a procession *kanephoros*.

Figure 1.3. Female Figures Carrying Deep Baskets or Boxes. (a) The Athenian Festival Calendar: Image 4. (Deutsches Archäologisches Institut, Athens, 1959), (b) Caryatid from Eleusis (MA Haysom 2012), (c) *Kistophoros* on a votive plaque from Brauron: dedication of the Lycoleon Family. (M.A. Haysom 2012).



(a)



(b)



(c)

An alternative interpretation of Image 4 is that she represents a *kistophoros*: a girl of apparently subordinate status who carries a round basket at the rear of the procession. Several of the carved relief votive plaques at Brauron (4th century BC) include a girl (*kistophoros*) at the rear of the family group making a dedication to Artemis (Figure 1.3.c). In the Brauron plaques the *kiste* is box-shaped like the calendar frieze image (Figure 1.3.a); the *kistai* vary in size and are plain but one appears draped with a cloth (Figure 1.3.c). Two questions arise from Palagia's interpretation of Image 4: (1) does it represent the Eleusinian procession and depict a *kanephoros* and (2) does the form of the image indicate a Roman date? It is unlikely to be a *kanephoros* simply because pictures of these are overwhelmingly shown carrying a flat basket (Roccas 1995; Schelp 1975: Tafeln 6-13), and it is unlikely that a subordinate character carrying a hat-box shaped container at the rear of the procession would be used to define a festival. The shape and size of the *kanoun* or *kiste* carried by the girl on the calendar frieze (Figure 1.3.a) is different in detail to both

those from Brauron and the Roman Eleusis caryatid (Figure 1.3.b); further, although the object shows signs of decoration, this is rather simple, possibly indicating a basket structure draped with a ribbon. We do not have a comparator image of a *thesmophoros* but Figure 1.3 shows that the festival calendar basket cannot be compared more closely to the Roman Caryatid figure than to those on the 4th century Brauron votive reliefs.



8

9

Figure 1.4. The Athenian Festival Calendar: Images 8 + 9.

(Deutsches Archäologisches Institut, Athens, 1959).

1.5.4. Ritual Ploughing and Ritual Sowing (Figure 1.4, Images 8 & 9).

Calendar Images 8 and 9 (Figure 1.4) show a clear illustration of ploughing and sowing, even though there is no sign of an ard (early form of plough) associated with the oxen. There is some damage to the frieze below the ploughman's right hand, and the ard may have been carried by him and all but an end obliterated by this damage. For comparison Figure 1.5 shows a red-figure bell *krater* reported to have been found at Vari in Attica (Robinson 1931). It contained some bone fragments and is marked with the graffito 'Diokles of the Deme Halai of the tribe Kekropia' (presumably the occupant) and since a Deme called Halai was situated near Vari, this confirms the *krater's* Attic find location.

The ploughman on the *krater* is established as the Attic hero, Bouzyges, who in Athenian myth invented the plough, by the presence of Athena (holding a spear and six stems of wheat) and by the presence of her olive tree (Robinson 1931). Robinson (1931) interprets the other, male figure as Kekrops. This is likely to be a relatively accurate picture of ancient

ploughing, which is consistently portrayed in this way in Greek art. Unlike a modern plough, which turns the sod over to bury the weeds, the *ard* simply cut a groove in the soil (Margaritis and Jones 2008). The implement is not very large or heavy and could easily have been carried by the frieze ploughman and lost from his damaged right arm. Foxhall et al. (2008) suggest that the *ard* followed someone who scattered seed so that the earth broken by the *ard* could cover them, and in front of the ploughman, Image 9 of the frieze (Figure 1.4) depicts a bearded man holding a basket on his left arm and with his right hand held out in a gesture that suggests scattering seed. There were 3 ritual ploughings in Attica,

Figure 1.5. Bell Krater by the Painter of the Naples, Haiphaistos, Depicting Bouzyges c.430 BC. (Robinson 1931 Figure 1)



one of which took place near the foot of the Acropolis in Athens but the annual date of these is not recorded (Spawforth 2012: 150; Broneer 1942). The location of this image in Maimakterion and not the spring (Spawforth 2012: 150) does however roughly correspond to the autumn cultivation and sowing of winter cereals in a Mediterranean climate (Foxhall 2002; Simon 1983: 14).

These images, described as Ritual Ploughing and Ritual Sowing by Deubner (1932: 249 – 254), are interpreted by Simon (1983: 14) as representing the Pompaia, a poorly recorded festival in Maimakterion (Parke 1977: 96) dedicated to Zeus Meilichios and associated with

the protection of the newly sown grain. However, Parke suggests that although the procession of sheep skins and the *caduceus* (of Hermes) in this festival were associated with an apotropaic function, this was possibly caused by anxiety for the coming winter and therefore not directly related to autumn cultivations. Other authors associate the frieze Ritual Ploughing with the Proerosia, a pre-ploughing sacrifice possibly centered on Eleusis that was celebrated early in the preceding month, Pyanopsion (Mikalson 1975: 67 – 69; Parke 1977: 73 – 75; Parker 2005: 479), a timing that is not consistent with the position of these images on the calendar image. Dow and Healey (1965:1-14) deduce that the fragment of a festival calendar inscription (*JG II*² 1363; SEG XXIII.80) found at Eleusis appears to relate to at least four festivals: Proerosia, Pyanopsia, Thesmophoria and Skira (see Chapter 4.3.6). Although the word Pyanopsion does not occur on the inscription the name Proerosia is clear in line 7 and a festival to Apollo Pythios in Athens, which is interpreted as the Pyanopsia, is documented in lines 9-13. This led Dow and Healey to ascribe the month of Pyanopsion to this section of the inscription (Dow & Healey 1965: plate III) and the inscription therefore sites the Proerosia before the Pyanopsia. The exact timing of sowing cereal and legume seeds will vary depending on the weather and other activities such as the vintage and olive harvest and this could account for the difference between the Eleusinian calendar and the Little Metropolis frieze. Possibly the most significant aspect of the position of the ploughing and sowing images on the calendar is their proximity to Image 4, the Thesmophoria.

A search for a holistic explanation of the frieze that is based on an underlying theme that could clarify the choice of images, will recur in this current study, and because a recent paper by Panou et al. (2014) has attempted to derive an agronomic/seasonal explanation of the frieze, a possible agricultural theme will be discussed below in this section. This discussion necessarily precedes the analysis of the Hellenistic date of the frieze, which is presented in Chapter 3.4 but it is pertinent to this discussion that there are examples of Hellenistic friezes which have a unifying theme. These include; the sculptured frieze of Telephos at Pergamon (Figure 2.11) which tells the myth of Telephos (Chapter 2.2.2), a sculptured relief frieze on the monument of the Choregos Lysikrates (Figure 2.12) that depicts the myth of Dionysos' capture by pirates (Chapter 2.2.2), and the relief frieze by Archelaos (Figure 6.7) which portrays the divine source of Homer's inspiration (Chapter

6.1.3). As other possible non-agronomic unifying themes, images of individual stars or of constellations will be discussed in Chapter 3.7, the festival and cult activities of the *ephēbeia* will be examined in Chapter 5.9, and Hellenistic religion will be investigated as an independent subject in Chapter 6.2.

In their interpretation, Panou et al. (2014) have divided the year into 5 seasons; *Metoporon* (after the fruits) with only one month (Pyanopsion), Winter, Spring and Summer each having 3 months, and Autumn with two months. In their interpretation of the frieze they give each lunar month a *hōra* ('period of time for something') and a *kairos* (opportunity). Thus Pyanopsion is called *Metoporon* and under *hōra* is called *Pherousa* (harvest time) and as *kairos* it depicts *Trygetos* (vintage). Hekatombaion is similarly given names for *hōra* (*Teleti*, time for agreement, armistice or offering) and for *kairos* (*Hieros kairos Panathinion*, celebrating the Panathenaia and *Kyon Sirios*, season of the etesian winds). They suggest that in addition to the Zodiac, the frieze images depict months, seasons and weather conditions. Their argument is brief and incomplete, and without some unwarranted conjecture their analysis fails to explain the matrix of images. There is for example no discussion of the choice of festivals or deities depicted on the frieze.

Agricultural activities were vital to the maintenance of ancient societies, and their cyclical seasonal pattern therefore had a profound effect on the time related pattern of other realms of life. Foxall (2002) and Osborne (1987: 15) have summarised the calendar of agricultural tasks and aligned them with the festivals and rituals of Athens. Both of these studies are set in the Classical period; however the causal link between the pattern of seasons and agronomy means that links between agricultural activities and the calendar of festivals also apply to later periods. As discussed above, two of the images on the frieze directly depict a farming activity. Image 8 shows a man driving his oxen to plough a field and Image 9 shows a man scattering seed, both in the autumn month Maimakterion. In addition to these, several of the other autumn images appear to depict festivals that have a strong link to agronomic activities. Thus in the first lunar month (Pyanopsion), Image 2 (Pyanopsia) is linked to the harvest of beans (Osborne 1987: 172), Image 3 (Oschophoria) shows a man holding bunches of grapes and may be linked either to the vintage or to fertility, whilst Image 4 represents the Thesmophoria, a fertility related festival. Osborne (1987: 173) suggests that the Dipolieia (Image 28) in the summer month Skiraphorion,

provides a link between agronomy and sacrifice. A consideration of the general relationship between the Little Metropolis frieze images and agronomy is however problematic and the cluster of autumnal festivals with agronomic links cannot be sustained as a theme for general interpretation. Thus other festivals identified by Deubner (1932: 249-254), namely the Rural Dionysia (Image 13), the Lenaia (Image 16), the Theogamia (Image 17), the City Dionysia (Image 19), Artemis Mounichia (Image 22), the Hephaisteia (Image 24) and the Panathenaia (Image 32), do not readily fit an agronomic theme.

1.5.5. Rural Dionysia (Figure 1.6, Image 13).

Figure 1.6 shows an image (frieze number 13) from the winter month Posideon (30th). Deubner, Simon and Parker think that this image of three men (judges), each draped in a *himation*, who are seated at a table supporting five objects (wreaths, crowns or bags) with two fighting cocks on a palm leaf before them, symbolizes the competitions held at the Rural Dionysia. This was an important rural festival to Dionysos that was celebrated independently in each deme (Deubner 1932: 251; Parker 2005: 467; Simon 1983: 101 -102).



Figure 1.6. The Athenian Festival Calendar: Image 13.

(Deutsches Archäologisches Institut, Athens, 1959).

Olga Palagia (2008), rather against the Hadrianic theme of her argument, ascribes this image to a war festival with cock fights that was introduced by Themistokles (c.524 – 429 BC), and celebrated in the Theatre of Dionysos in commemoration of the Persian Wars, citing the cocks and Erotes on the arms of the theatre chair of a 4th century BC priest of Dionysos Eleuthereus (Fisher 2004; Maass 1972: 63) as evidence. Unfortunately the month in which this festival occurred is unknown and the cockerel is a particularly ambiguous creature in Greek art, used as a figure of liminality, bravery and sexuality (Csapo 1993;

Shapiro 1981; Sourvinou-Inwood 1991: 159), which leads to an unconvincing argument by Palagia (2008). Nevertheless this image is ambiguous.



16

17

Figure 1.7. The Athenian Festival Calendar: Images 16 and 17.

(Deutsches Archäologisches Institut, Athens, 1959).

1.5.6. Lenaia (Figure 1.7, Image 16).

Deubner (1932: 251), Palagia (2008) and Simon (1983: 100) describe Image 16 (Figure 1.7) as a young boy riding a goat and holding a *thyrsus* and garland and this leads to his identification by all these scholars as the young Dionysos, and the image to represent the Lenaean Dionysia, a winter festival of the *maenads* held on Gamelion 12th (Parker 2005: 487). A possible indication of the importance of the festival is the fact that in other parts of Greece the festival gave its name to the month (Lenaion) in which it was held (Simon 1983: 100). The image is however not straightforward, because the diagnostic ‘goat’ does not have a goat’s tail and more closely resembles a horse. In addition, vase images of Dionysos Lenaaios are usually interpreted in the form of a column with a bearded mask, as seen on many 5th century BC Greek vases (Peirce 1998) (Figure 1.8).



Figure 1.8. Red Figure Stamnos by the Eupolis Painter (450 BC – 440 BC).

The British Museum. ARV2
1073.9

1.5.7. Theogamia (Figure 1.7, Image 17).

This poor, partly truncated image may be Hera and if so marks the Theogamia (her wedding to Zeus) (Palagia 2008; Robert 1899; Simon 1983: 16) but Deubner (1932: 251) believed this to represent a mortal wedding. The Athenians chose the conjunction of the sun and the moon for their mortal weddings and also celebrated the first wedding of Zeus and Hera at this time of the year (Bremer 1987); it is unusual in that it occurred late in the month that was named after the festival (Gamelion) (Weaver 1996).

1.5.8. City Dionysia and the Mounichia (Figure 1.9 Images 19 and 22).

There is agreement by Deubner (1932: 252), Palagia (2008) and Simon (1983; 102 – 104) that Image 19, which depicts a bearded or masked man leading a male goat, represents the City Dionysia held on the 10th of Elaphebolion. This image may relate to the award of male goats to dramatic contestants at this festival and the custom of subsequently donating the animal as a sacrificial victim to the god.

Figure 1.9. The Athenian Festival Calendar: Images 19, 20, 21 and 22. (Deutsches Archäologisches Institut, Athens, 1959).



19

20

21

22

Image 22 was interpreted by Deubner (1932: 252) as Artemis Mounychia to be associated with the Mounychia festival that was celebrated on the 16th day of Mounychion in Piraeus and gave its name to the month. Artemis carries a quiver and is accompanied by a deer and this interpretation is accepted by both Palagia (2008) and Simon (1983: 81 – 82).

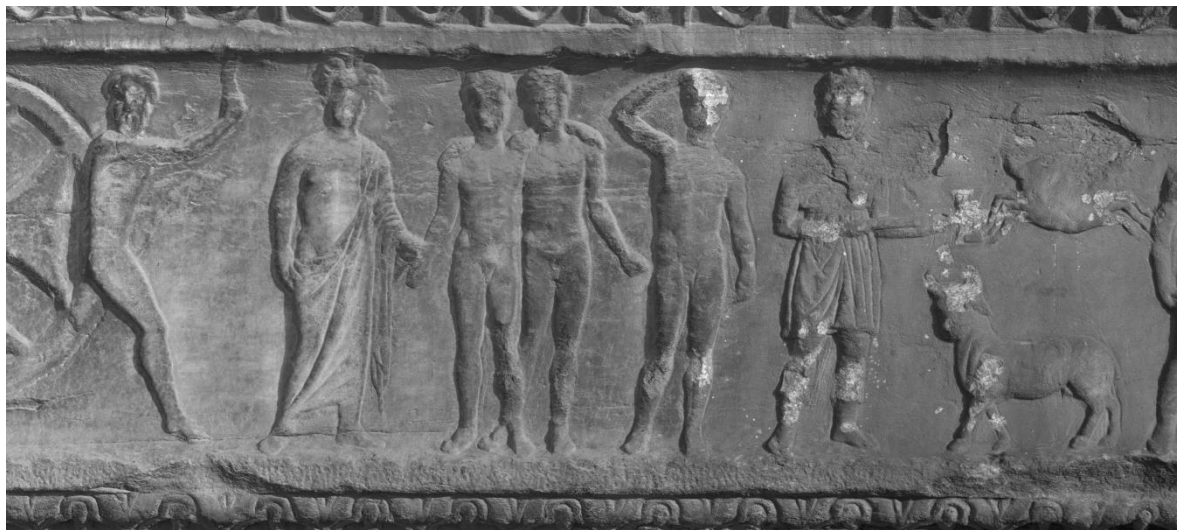
1.5.9. Hephaisteia (Figure 1.10 Image 24).

This image of a naked man has been partly covered by a later Christian cross. Deubner (1932: 252) identified the running naked figure holding a torch as the personification of summer but Simon (Simon 1983: 54) thinks that in addition to representing summer, the figure could be linked to the festival, whose date is unknown, that was dedicated to Hephaistos. Palagia (2008) suggests that the man may be part of a torch race held in the Bendideia, in the month Thargelion at Piraeus. These torch races were however held on horseback (Parker 1996: 170-171) and Palagia's explanation for the runner is that horses were not often represented in art (but see frieze Image 40) and that a dedicatory relief in the British Museum (inv. 2155) shows standing competitors. Comparison with the British Museum relief is problematic because the competitors are clearly not running but paying homage to the god who stands before them. As an alternative interpretation Palagia (2008) suggests that the running figure personifies the month Thargelion, but both this identification and the identification of the image as the Thargelion festival, Bendideia, have consequences for the structure of the frieze (see section 1.6 below).

1.5.10. Dipolieia (Figure 1.10 Image 28).

Deubner (1932: 158 – 174) recognized that this image accurately portrays the myth associated with the festival called the Dipolieia (Harding 1994: 64, Scholion to Aristophanes

Figure 1.10. The Athenian Festival Calendar: Images 24, 25, 26, 27 and 28. (Deutsches Archäologisches Institut, Athens, 1959).



24

25

26

27

28

Clouds), held on 14th Skiraphorion, and both Palagia (2008) and Simon (1983: 8) agree. It shows a man wearing boots and holding a double axe over an ox. He is the *Bouphonos* and re-enacts a myth associated with a festival for Zeus Polieus. In the myth an ox eats cakes which have been put on the altar as an offering to Zeus. When the owner of the ox sees what has happened he flies into a rage and kills the ox. The ox is a working animal and as a punishment for this crime Zeus inflicts drought and crop failure on Attica. Following guidance of the Pythia at Delphi, the festival re-enacts the slaying but the axe is judged guilty, cursed and thrown into the sea and the ox is restored by stuffing a skin (Parker 2005: 187; Simon 1983: 8 - 12).

1.5.11. Panathenaia (Figure 1.11 Image 32).

This festival to Athena was the most important Athenian festival and was held at the end of Hekatombaion (28th). The image (number 32) has been largely obliterated by an added Christian cross but part of the ship/cart, which brought the *peplos* to the temple on the Acropolis, can be seen clearly below the circular cross, and both Deubner (1932: 253) and Palagia (2008) agree with this interpretation. Recently the image has been studied by a nautical archaeologist who has been able to reconstruct the shape of the ship from the fragmentary remnants on the Little Metropolis frieze and relate this reconstruction to the iconography and archaeology of other ancient Greek ships (Figure 1.12). Wachsmann deduces that this study clearly shows how this festival ship-cart was modeled on archaic galleys (Wachsmann 2012).



Figure 1.11. The Athenian Festival Calendar: Images 31, 32, 33 and 34.

(Deutsches Archäologisches Institut, Athens, 1959).

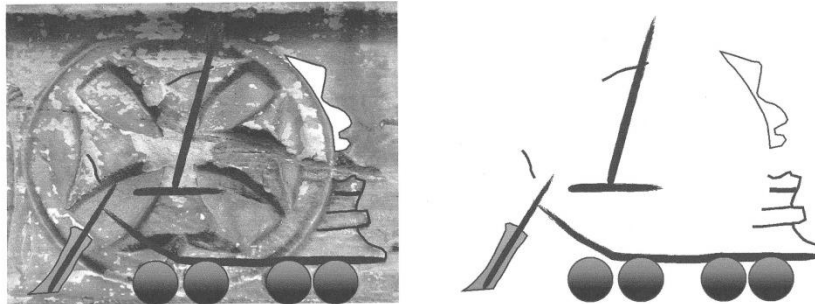
31

32

33 34

Figure 1.12. Reconstruction of the Calendar Frieze Panathenaic Ship.

(Wachsmann 2012: Figure 11)



1.5.12 Heracleia at Kynosarges (Figure 1.13 Image 37).

Image 37 shows Heracles with his lion skin and club. There is agreement by Deubner (1932: 253) and Palagia (2008) about the subject of the image but it is difficult to associate it with a particular festival. Parker (2005: 472 – 473) records three Heracleia festivals, one at Diomeia, possibly one at Kynosarges (held in Metageitnion, day unknown) and the third at Marathon. Demosthenes (19.86) describes a decision to “celebrate the Heracleia within the walls” and relates this to decrees about a festival with this name from the deme Diomeia. Parker does not think that this Heracleia was linked to a gymnasium of Heracles at Kynosarges and suggests that, although the deme, Diomeia, was probably adjacent to the urban deme, Melite, arguments that this was too close for Demosthenes’ instruction are not strong. The decision made by Demosthenes on Skirophorion 27 would put the Diomeia festival at the beginning of Hekatombaion not in Metageitnion (Parker 2005: 472 – 473).

1.5.13. Great Mysteries (Figure 1.13 Image 40).

The final image classified as a festival by Deubner is Image 40 (Figure 1.13). Deubner thought that this image showed an *ephēbos* riding a horse and was included on the calendar because this was the month when they began practicing (1932: 253). Simon (1983: 25) and Palagia (2008) on the other hand think that the rider depicts an *ephēbos* who escorted the ‘holy things’ from Eleusis to the City Eleusinion at the foot of the Acropolis in Athens, during the days (Boedromion 13 and 14) before the Great Eleusinian Mysteries Festival of Demeter.

1.6. Previous Interpretations of Images on the Metropolis Calendar Frieze not classified as Festivals in Section 1.5.

With the exception of Thargelion/Skiraphorion (Palagia 2008), all studies of the Little Metropolis frieze accept Deubner's 1932 interpretation of the male figures who personify the following lunar month (see Introduction Figure I.2, Images 1, 7, 11, 15, 21, 25, 27, 30, 36, and 39). Palagia's designation of Image 24 as the personification of Thargelion has been mentioned (section 1.5), and her identification of Image 27 as a runner in the festival Skira/Skiraphoria and not a personification of the month, Skiraphorion, also produces consequences for her interpretation of the chronology of the calendar and for the structure of her lunar year (2008) (see section 1.7 below). The available evidence for the festival (Skira/Skiraphoria), which gave its name to the month, is puzzling but it was clearly celebrated on the 12th of the month (Parker 2005: 480). Parker (2005: 173 – 177) unravels some of the features of the festival, which include a procession and the participation of married women but no foot race. The personifications of two months, Anthesterion and Elaphebolion, are missing because the frieze was truncated when it was assembled on the church. This personified division of the frieze into lunar months is confirmed by the presence of the signs of the Zodiac, which also decorate the frieze (see Introduction Figure I.2, Images 5, 10, 14, 20, 23, 26, 29, 33, 38, and 41) and subdivide the year into sidereal (star based) months. Again two of the signs (Aquarius and Pisces) are missing, cut off when the frieze was shortened. Not all of the signs are clear; Scorpio (see Introduction Figure I.2, Image 5) has no claws, Aries (see Introduction Figure I.2, Image 20) seems crowded by other figures, Taurus (see Introduction Figure I.2, Image 23) has been almost obliterated by a later Christian cross, Leo (see Introduction Figure I.2, Image 33) is an unusual depiction of a lion but can probably be established by its correspondence to the position of Cancer (see Introduction Figure I.2, Image 29) in the previous month. The identification of Virgo (see Introduction Figure I.2, Image 38) is disputed by Palagia (2008) (see section 1.7) and is another of her designations that have effects on her chronology. Finally the Claws of Scorpio (see Introduction Figure I.2, Image 41) require further explanation (Chapter 3.4).

There are a few generic style themes that Palagia brings to the interpretation of the frieze in her 2008 study and one of these is an analysis of dress. Five of the figures personifying

Figure 1.13. The Athenian Festival Calendar: Images 36, 37, 38, 39, 40 and 41.

(Deutsches Archäologisches Institut, Athens, 1959).



36

37

38

39

40

41

months (Maimakterion (Image 7); Posideon (Image 11); Gamelion (Image 15); Metageitnion (Image 36); Boedromion (Image 39)) and the three beardless figures called *Theōria* by Deubner and *Pompe* (procession) by Simon (Images 12, 18, and 31) are all dressed in a Greek *himation* with the pose of the Roman *palliatius* (Bieber 1959). Their pose and costume, used in many Roman statues and reliefs, was copied from Greek Hellenistic models such as a statue of Aischines (c.340-330 BC) (Figure 1.14 below) (Bieber 1959) and do not therefore necessarily indicate a Roman date. In some of the frieze figures (for example Image 39) distinctive tassels can be seen on the corner of the *himation* but Palagia does not discuss these. Palagia (2008) reinforces her argument for a Roman dress style on the frieze by suggesting that the late classical *peplos* seen on Image 38 (Virgo) (Figure 1.13) is Roman because “*peplos* figures are almost non-existent in the Hellenistic period”. But they exist on the Pergamon Altar and a free standing Hellenistic Nike in the Venice Archaeological Museum (#264A) is dressed identically (Ridgway 2000: 38, plate 11; 163, plate 51). Another stylistic point that Palagia (2008) makes is the form of the beard worn by the image of Heracles (Image 37), saying that it recalls that of a sculpture of Hadrian in the Greek National Museum, Athens (inv. 3729). However, a careful inspection of the frieze face does not justify this conclusion. Several of the male faces on the frieze still have more or less well preserved beards (see Images 7, 9 and 11) and inspection of these shows that

they all fall well within the range of 4th century BC beards carved on funerary monuments and catalogued by Bergemann (1997: see for example Tafel 72,73 and 69). A suggestion that the beards indicate a Roman style is therefore also not justified and Smith (1993) describes beards and *himatia* as the external identifiers of civic leaders (orators, philosophers, politicians) in the Hellenistic period.



Figure 1.14. Statue of Aischines, Naples.

(after Bieber 1959)



6

7

Figure 1.15. The Athenian Festival Calendar: Images 6 and 7.

(Deutsches Archäologisches Institut, Athens, 1959).

The three beardless figures (Figure I.2 Images 12, 18, and 31) who are represented ‘going to a religious show’, *theōria* (Deubner 1932: 248 - 254; Parker 2005: 44) or *pompe* for procession (Simon 1983: 5), are difficult to interpret and Palagia (2008) proposes that each is a personification of the following festival, although no reason for choosing the

particular festivals (Rural Dionysia, City Dionysia and Panathenaia) is given. Deubner (1932: 251) thought that Image 18, who holds a wreath, was female.

Deubner (1932: 248 – 254) thought that four of the frieze figures (see Introduction Figure 1.2 Images 6, 24, 34 and 35) were personifications of seasons. Thus Image 6, a man in boots who is wrapped in a cloak that covers his head, and apparently running to the left, represents winter (Figure 1.15). There is no image of spring, which may have been on the section of the frieze that was cut off by the builders of the church. Summer is represented by a naked man (Image 24) and a dog (Image 34); probably the dog-star, Sirius, whose rising, marks the hottest part of the summer. Homer refers to the morning rising of Sirius at the beginning of the fruit harvest. In 800 BC this was July 28th and was the time of the greatest summer heat and also sickness that was believed to be due to the star. The star was therefore seen as an evil omen (Nilsson 1920: 110) it was called the "disastrous shining star" (Homer *Iliad*. XI, 62).

Him first king Priam saw with his old eyes,
As o'er the plain he lightened, dazzling bright,
Like to the star that doth in Autumn rise,
Whose radiant beams, pre-eminent to sight,
Shine with their fellow stars at noon of night:
Orion's Dog we mortals call its name:
Sign it is of much ill, though clear its light,
And mighty fever brings to man's poor frame:
So, as he ran, the brass upon his breast did flame

Homer, *Iliad*. XXII, 25 (translated by Rieu 1950)

Image 35 (Figure 1.16), identified by Deubner as autumn, appears as a winged female figure holding a basket of fruit or cakes, in a gesture that suggests that she is offering these to another figure; her face has been badly eroded but she has a distinctive hairstyle and is clearly moving forward (Deubner 1932: 253). Winged female figures are usually *nikai* and associated with ideas of victory but the interpretation of this figure, like many of the images, requires further analysis. Palagia (2008) does not consider that any of the seasons are portrayed on the Little Metropolis frieze and has assigned different subjects to these images. Thus she suggests that Image 6 (Figure 1.15) is more likely to represent a festival than it is to be a personification of winter, concluding that the festival is either the

Apatouria, held on an unknown day in Pyanopsion, or the Chalkeia that was held on the last day of this month (Parke 1977: 26 – 27). At the Apatouria festival, youths were admitted to their *phratry*, a ceremony that was held at their own *phratry* altar (Parker 2005: 371). A decree (IG II² 1299) from the *phratry* of Dekeleia, dated after the Peloponnesian War (396 BC), substantiates the role of the Apatouria in verifying the birth right of boys, and in their



33 34

35

36

Figure 1.16. The Athenian Festival Calendar: Images 33, 34, 35 and 36.

(Deutsches Archäologisches Institut, Athens, 1959).

induction on the third day (*koureatis*) of the festival (Parker 2005: 458 – 461; Wade-Gery 1931). The ceremonies involved sacrifices, an oath and cutting the boy's hair. However, it is difficult to relate the running man of Image 6, who is wrapped in a long cloak that covers his head (Figure 1.15), with the activities of the Apatouria. Palagia's alternative suggestion is the Chalkeia, a festival honouring Athena in association with Hephaestus, as goddess and god of crafts (Parker 2005:464 – 465). At the time of the Chalkeia festival, young girls began work on the new *peplos* that was used to clothe the old wooden statue of Athena in the Erechtheion during the Greater Panathenaia (Parker 2005: 464 – 465). Again, it is difficult to reconcile this activity with the image of a heavily cloaked man.

Palagia (2008) interprets the dog (Image 34) just as Sirius, the Dog-Star, with no link to the summer season. Again, reinterpreting the Deubner image of autumn (Figure 1.16 Image 35), Palagia (2008) reads this image as the Zodiac sign, Virgo, and considers Deubner's figure of Virgo (Figure 1.13 Image 38) a depiction of *Kore*, associated with the Eleusinia festival, held between the 13th and the 20th of Metageitnion (Rigsby 2010), and this means

that the Eleusinia (Images 4 and 38) is represented twice in Palagia's interpretation of the calendar frieze.

1.7. Synopsis of Olga Palagia's Interpretation of the Little Metropolis Calendar Frieze.

Olga Palagia rightly focused her 2008 paper on one of the major puzzles of the Little Metropolis calendar frieze, namely the fact that it starts with the month of Pyanopsion not Hekatombion. Her proposal was that the frieze was commissioned by Herodes Atticus in AD 138 to honour Augustus' birthday. I argue that this date is not supported by the temporal analysis presented here (Section 1.4). Palagia (2008) also suggested that the frieze came from the Roman Panathenaic Stadium that was being refurbished by Herodes Atticus between AD 138 and AD 144 (Tobin 1997: 166) and clearly this has to be questioned if Palagia's date of the frieze is wrong.

Table 1.3 presents a chronological comparison of the interpretations of the Little Metropolis calendar frieze made by Deubner (1932) and by Palagia (2008), which allows the sequential consequences of Palagia's 2008 changes to Deubner's version to be easily understood. One of the most significant structural changes to the calendar comes from Palagia's proposal that Image 24 is not the Hephaisteia festival or Summer but the personification of the month, Thargelion, and this means that if Palagia's interpretation of Image 27 as the Skira foot race is correct, the only figure that could represent the month, Skiraphorion, is Image 25. Under both calendars, Thargelion has no festival but with Palagia's calendar it has no Zodiac sign either, whereas Deubner's calendar has a Zodiac sign in each lunar month (although, correctly, not necessarily in the same position within each month). Palagia does suggest an alternative interpretation, namely that Image 24 depicts the festival, Bendideia, but this leads to the same problem from her description of Image 27 as a foot race associated with a festival held in Skiraphorion, known as the Skira or Skiraphoria, and a figure personifying this month (Skiraphorion) has therefore to move to the only suitable Image, namely number 25. This rearrangement produces a lunar month (Skiraphorion) with two signs of the Zodiac.

**Table 1.3. COMPARISON OF THE INTERPRETATIONS OF THE LITTLE METROPOLIS
CALENDAR FRIEZE BY PALAGIA (2008) AND DEUBNER (1932).**

Red script, changes by Palagia; Green boxes, festivals; Blue box, missing stones; Bold script, signs of the Zodiac; Italics, personifications of lunar months; Bold lines indicate new month.

Palagia Interpretation (2008)	Image Number	Deubner Interpretation (1932)
<i>Pyanopsion personified</i>	1	<i>Pyanopsion personified</i>
Pyanopsia	2	Pyanopsia
Oschophoria	3	Oschophoria
Eleusinia	4	Thesmophoria
Scorpion	5	Scorpion
Apatouria/Chalkeia	6	Winter personified
<i>Maimakterion personified</i>	7	<i>Maimakterion personified</i>
Ritual Ploughing	8	Ritual Ploughing
Ritual Sowing	9	Ritual Sowing
Sagittarius	10	Sagittarius
<i>Posideon personified</i>	11	<i>Posideon personified</i>
Personification of 13	12	Theōria
War festival introduced by Themistocles	13	Rural Dionysia
Capricorn	14	Capricorn
<i>Gamelion personified</i>	15	<i>Gamelion personified</i>
Lenaia	16	Lenaia
Theogamia	17	Theogamia
Missing images (part of Gamelion, Anthesterion and part of Elaphebolion)		
Personification of 19	18	Theōria
City Dionysia	19	City Dionysia
Aries	20	Aries
<i>Mounychion personified</i>	21	<i>Mounychion personified</i>
Artemis Mounichia	22	Artemis Mounichia
Taurus	23	Taurus
Thargelion personified or Bendideia	24	Summer personified or Hephaisteia (Simon)
Skiraphorion personified	25	<i>Thargelion personified</i>
Gemini	26	Gemini
Skira foot race	27	<i>Skiraphorion personified</i>
Dipolieia	28	Dipolieia
Cancer	29	Cancer
<i>Hekatombaion personified</i>	30	<i>Hekatombaion personified</i>
Personification of 32	31	Theōria
Panathenaia	32	Panathenaia
Leo	33	Leo
Dog Star	34	Summer (Dog star)
Virgo	35	Autumn personified
<i>Metageitnion personified</i>	36	<i>Metageitnion personified</i>
Heracleia	37	Heracleia
Kore, Eleusinia	38	Virgo
<i>Boedromion personified</i>	39	<i>Boedromion personified</i>
Great Mysteries	40	Great Mysteries
Horns	41	Horns

A further structural change to the calendar arises from Palagia's 2008 conviction that there are no representations of the seasons on the calendar and her subsequent reading of Image 35, which Deubner thought was Autumn, as Virgo. As Palagia acknowledges this produces a sidereal month (between two signs of the Zodiac, Leo and Virgo) containing no lunar month. Palagia's explanation for this anomaly is that this is the position of an intercalary month, although she also acknowledges that there is evidence that in the period that she dates the frieze, intercalation occurred after the winter month, Posideon, when the intercalated month was named Hadrianion (IG II² 1764A and 1765). Posideon was also the commonest month chosen for intercalation recorded in the Classical and Hellenistic periods (Pritchett 1968), and was known as Posideon *hysteros*. The Palagia calendar likewise has another lunar month (Metageitnion) with no Zodiac sign, because as an additional consequence of calling Image 35, Virgo, Palagia decides that Image 38 (Deubner's Virgo) represents *Kore* and the Eleusinia, this festival now occurring twice within the year (in both Pyanopsion and Metageitnion).

1.8. Enigmatic Topics that Arise from an Analysis of Previous Studies of the Little Metropolis Calendar Frieze.

This systematic interrogation of individual images as analysed by Deubner (1932), Simon (1983) and Palagia (2008) reveals a number of points that relate to the calendar as a whole. Palagia (2008) says that the frieze is "an artwork, not an official record of the calendar", implying that the authors were possibly creative in their representation of the Athenian year, but we cannot be certain of this. The frieze was carefully carved and the linear arrangement of the figures seems more suitable for a visual description of a festival calendar than an 'artwork'. Further, there was a tradition of recording religious festival matters in calendar form in Attica, albeit by inscription.

Any new study of the frieze must confront a common and curious feature of many of the figures: they often seem an inappropriate image for the festival portrayed, which has often been identified primarily by their position in the year. This comment can be applied to Image 3 (the Oschophoria), Image 13 (the Rural Dionysia), Image 16 (the Lenaia), and possibly Image 4 (the Thesmophoria) and Image 40 (the Great Mysteries). The question of the choice of festivals should also be addressed (see Chapter 6.2.2). For example, several of the festivals were celebrated in demes; they were not centrally organised city-state

festivals (see Chapter 6.2.1). But this is not a general rule for the choice of festival and previous studies have not seriously considered this aspect of the frieze. As examples of this mixture of state and deme based festivals, the Great Panathenia (Image 32) and the Pyanopsia (Image 2) were city-state festivals held in Athens but the Rural Dionysia (Image 19) and the Thesmophoria (Image 4) were held within individual demes. Some of the festivals, but not all, define the name of the month. Finally from previous work it is difficult to recognize a pattern that would explain the choice of gods represented by the depicted festivals (see Chapter 6.2.1). For example, four of the 13 festivals represented on the frieze are festivals to Dionysos; the Oschophoria (Image 3), the Rural Dionysia (Image 13), the Lenaia (Image 16) and the City Dionysia (Image 19). The important three-day Dionysos festival called the Anthesteria, was held on Anthesterion 11-13th (Parker 2005: 290) and we cannot tell if this was present on the frieze because the winter month of Athesterion was removed when the stones were shortened. Demeter, Athena and Zeus have two festivals each on the calendar and Apollo, Artemis, Hephaistos, Hera and Heracles all have one festival each (using Deubner 1932: 249 – 254, and Simon 1983: 54 festival identifications).

The date of the frieze is crucial for proper analysis of all of these questions and an alternative analysis of the date is presented in Chapter 3. However, before this analysis, Chapter 2 presents a discussion of the cognitive aspects of time as a background to subsequent discussions of the cultural aspects of time in ancient Greece.

Chapter 2. Cognitive Aspects of Time in Ancient Greece.

2.1. Modern Time.

Time is what stops everything happening at once

Wheeler, J.A. (1911 – 2008).

John Wheeler was an eminent American theoretical physicist and the famous quotation shown above is both amusing and thought-provoking. The puzzling aspects of time that emerge when some thought is given to the subject are reflected in the fact that time is a topic that has been contemplated and studied by a very wide range of modern scholars, from theoretical physicists and biologists to social scientists, philologists and philosophers. As a consequence there is a daunting number of modern publications with time in the title. It could be argued that these modern studies, particularly perhaps the scientific research, are not relevant to a study of time in ancient Greece. However, a discussion of modern work is included in this chapter that leads to an examination of the cultural aspects of time in Hellenistic Athens, because without a clear picture of our modern perception of time, it is difficult to recognise where our modern unconscious assumptions and supposedly natural intuition affect an analysis of ancient ideas. In other words, this analytical process of outlining modern understanding acts as a 'perceptual filter' for studies of knowledge in the ancient world. In order to help both the examination of modern ideas, and structure the discussion of ancient ideas of time, this introductory exploration will deal with time under different categories of investigation, although in most cases these will overlap. The survey will start with the more objective time related studies before considering subjective fields.

2.1.1. The Measurement of Time.

In the modern world we are familiar with the linear picture of time, stretching back through history and pre-history, and theoretically forward through a future divided into periods similar to those used to depict the past. Our daily existence is measured by clocks, but how many of us know how the accuracy of these clocks is regulated and synchronised? The authoritative clock is a computer running Coordinated Universal Time, a global standard controlled by the International Bureau of Weights and Measures in Sèvres, France. This

computer programme combines the weighted average of 200 atomic clocks around the world to give International Atomic Time; it then adds a leap second every few months because the rotation of the Earth is gradually slowing (Benedictus 2013). Atomic clocks are the most accurate measure of time known; they are based on atomic physics and use the microwave signal that electrons in atoms (caesium-133) emit when they change energy levels. Although we are largely ignorant of the complexities of the modern mechanisms that determine the divisions of our lives, this indifferent ignorance is significant if it is projected onto our perception of the attitude of people living in the past where an awareness of and an interest in time were a wide concern of the citizens of the Greek polis (Clarke 2008: 4).

2.1.2. Theoretical Physics and Time.

‘Proper time’ is a concept that originated in Einstein’s Special Theory of Relativity and the German title of Nowotny’s book, *Eigenzeit*, (1994) literally translated means ‘self-time’ or ‘proper-time’. ‘Proper time’ is the interval between two events as measured by a single clock. In a Foreword to the 1994 translation of Nowotny’s book, J.T. Fraser presents an example of the application of the Special Theory of Relativity, which gives a nice layman’s explanation of the temporal consequences of this branch of theoretical physics.

Consider an Indian elephant with its gestation period of 645 days and a house mouse with her 19 days. Let each mate with her respective male on January 1st. Then, let the mouse go on an extended round trip at very large velocities, with her itinerary designed by a competent relativist. Let her return on October 7th of the next year, just in time to celebrate the simultaneous delivery of the two offspring. The temporal separation between the twin events (the begetting and delivering of the infants) was 15,480 hours in the elephant’s ‘proper time’, 456 hours in ‘proper time’ of the mouse.

Fraser in Nowotny (1994: Foreword)

This account illustrates the fact that if time is measured by two clocks that are in relative motion (one moving relative to the other) under Einstein’s Special Theory of Relativity, the intervals do not correspond. In other words the mouse that is travelling at a rapid speed has a biological clock that is slower than that of the elephant. However, the mouse’s gestation period is still 19 days (measured by both a biological and a mechanical clock) in her ‘proper time’ (Nowotny 1994: Foreword).

A full mathematical description of Einstein's theory is outside the scope of this chapter but it does merit further explanation. Isaac Newton's 17th century description of time and space is wrong; however it is an adequate description of the world because at low speeds it is a good approximation to the Special Theory of Relativity. Imagine two cases; in the first we are standing at the roadside and a bus goes past at 30 mph overtaken by a van travelling at 60 mph. This describes the motion of the bus and van relative to a stationary observer. In the second case imagine the motion of these vehicles from the reference point of a passenger in the bus; the van is now travelling at 30 mph and the stationary observer is travelling at -30 mph (going backwards). There is no place in the universe that is absolutely at rest relative to everything else, in other words there is no standard place of reference for such measurements.

It is fundamental to the Special Theory of Relativity that the speed of light is constant for all observers regardless of their relative motion and this deduction by Einstein is at odds with our experience of motion described above in the bus example. Einstein realized that the constancy of the speed of light and the principle of relativity could both hold only if space and time were interlinked in ways quite strange to Newtonian physics. His resulting theory predicted that at speed, time becomes expanded, that is clocks (even biological clocks) run slowly (Holbrow et al. 2010).

The fact that the speed of light is constant was established by Michelson and Morley at the end of the 19th century (Holbrow et al. 2010) and Einstein's Special Theory of Relativity (published in 1905) has been confirmed by experiment (Smolin 2013^a: 71). However, there is acute disagreement among current theoretical physicists about other aspects of time that relate to the nature of the universe. Lee Smolin has elaborated many of the theoretical questions about time that have not yet been formulated in a way that lead to experimental verification in his book *Time Reborn* (2013^a). Many laws of physics are reversible (Smolin 2013^a: 52) but our experience of time is not; we cannot return to the past. In addition, the Second Law of Thermodynamics, which states that 'the entropy (disorder) of any isolated system increases over time during any spontaneous process', is not reversible (Penrose 2010: 12). Penrose debates the paradox: if, as most cosmologists believe, the universe began with a big bang, which is a predicted state of maximum entropy, how can entropy increase over time (Kumar 2010)? Such enigmas have led

physicists, such as Ludwig Boltzmann, to propose that there is no reality in the passage of time (Smolin 2013^a: 53). Following from Einstein's theories of relativity,¹ Smolin paints a timeless picture of the universe where there is no reference to anything corresponding to our experience of the present moment (2013^a: 56, 58). However, Smolin believes that time is real and suggests that a radical departure from the modern paradigm of physics is needed before more theories that include time can be formulated (2013^b).

This brief exploration of time in modern theoretical physics may seem very remote from the philosophical debates of ancient Greece but one example can demonstrate a link. Smolin (2013^a: 30 – 36) points out that by graphically representing a process that proceeds over time, we can apply mathematics to the process and this effectively freezes a time dependent process. Figure 2.1 shows a diagram depicting a cartoon character throwing a ball; it represents the position of the ball at different times after the ball has been thrown, with time shown along the horizontal axis. Measurements of the height of the ball at each time point will show that the curve of the ball's flight is a parabola, and this curve has a mathematical formula. The ability to freeze time like this is a useful scientific technique and it can be considered as making the event timeless by converting the data into a mathematical formula that is always true (timeless).

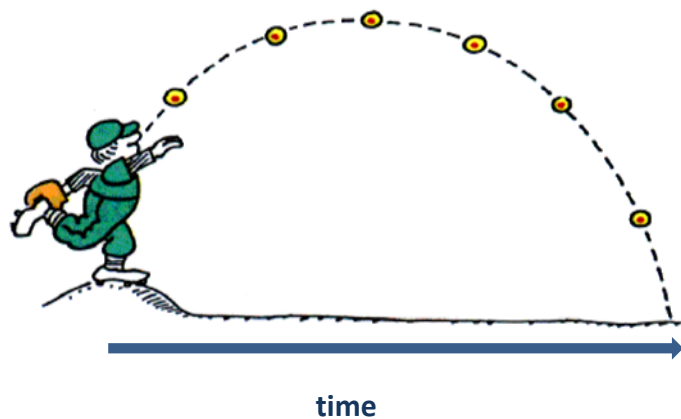


Figure 2.1. The Trajectory of a Thrown Ball. (from www.ux1.eiu.edu)

A circle is also a mathematical construct, produced by plotting points that are equidistant from a single spot, and this geometrical construct can also be considered timeless (always

¹ Einstein devised two theories of relativity; the first was the Special Theory of Relativity, which was augmented by the General Theory of Relativity about 20 years later. The General Theory of Relativity includes gravity.

true). The fact that fixed stars on the celestial sphere move in this predictable and timeless construct gave the cosmos a perfection in Hellenistic astronomy, and mathematics applied to the cosmos supported this belief in the timeless perfection of the universe (Smolin 2013^a: 13 – 14).

2.1.3. *Biology and Time.*

Perhaps surprisingly, innate biological rhythms are a fundamental feature of life and have been recognised in microorganisms, plants and animals, including humans (Hastings, 1997; Kondon and Ishiura, 1999; Okamura et al. 2010). The biochemistry and molecular biology of diurnal oscillating systems have been studied in several species and the genes involved isolated. Before the cloning (isolation) of these ‘clock’ genes, it was anticipated that circadian (diurnal) oscillating systems had evolved only once, but it turns out that although similar molecular models of clock mechanisms have been proposed for different organisms, the key components (proteins) in these systems do not always share sequence (primary structure) similarity (Hastings 1997) and several independent evolutionary events may have occurred.

2.1.4. *The Social Construction of Time.*

This section represents a change of approach, in that it encompasses the subjective interactions of humans with time, but as a field of enquiry it is no less challenging than theoretical physics. The topic of time and society has generated a massive body of literature;² however, only those aspects of the debate that inform discussion of ancient Greece are included in the section. It was Durkheim who provided the foundations for theoretical explorations of time in society (Munn, 1992). Although he distinguishes personal time (subjective consciousness) from social time (the structure of recognisable units that affects everybody in a society), his interests and emphases were on social time (Durkheim 1953: 441). Gell (1992: 11) summarises Durkheim’s arguments as follows: the objective world can only be experienced through categories and time is a category; further, we can only think of time in terms of periods and these are socially derived, therefore we can only experience the objective world through socially derived periods of time. Durkheim extends this idea to deduce that all experience of the objective world is socially derived

² Alfred Gell wrote *The Anthology of Time* in 1992 and this book has 590 citations.

(Gell 1992: 11). This conjecture has coloured much of the subsequent debate in both anthropology and sociology but it has not gone unchallenged. Gell (1992: 13) refutes the argument and believes that Durkheim oversells sociology “as a substitute (...) for the intellectual activity of philosophy. Sociology (and its sister subject, social anthropology) has been much harmed by Durkheim's plausible mimicry of the forms of philosophical argument”.

Gell summarises the ideas of several other early anthropologists, notably Evans-Pritchard who studied the Nuer people from the Nile valley (mainly in South Sudan) and Lévi-Strauss who studied tribal societies in Brazil (Gell 1992: 15 – 22, 23 – 29). Evans-Pritchard published a paper entitled ‘Nuer Time Reckoning’ (1939) in which he distinguishes two forms of time recognised by pre-technological peoples. He describes oecological or microscopic time as the passage of time defined by regular productive tasks (such as sowing and harvesting) and macroscopic time, which is genealogical, defined by human generations (Munn 1992). In his study, this macroscopic time was seen by the Nuer as fixed, that is, people moved temporarily through the age-sets, the number of which remained the same. In other words the number of these age-sets (parents, grandparents etc.) is the same regardless of how many generations had occurred and hence the time between the beginning of their world and the present remained the same for each generation (Gell 1992: 15 – 22). This perception of time is quite widespread ethnographically and Lucas (2004: 62) broadly characterises it in terms of mythic time (the time of ancestors) and present time.

Lévi-Strauss tackles the ‘psychological’ dilemma that arose in pre-technological populations in which many events that mark the passage of time (day and night, the seasons) recur in a cyclical manner, but our personal experience of life is linear; we are born, grow old and finally die; our own life is not a cyclical process (Gell 1992: 23 – 29). Gell diagnoses Lévi-Strauss’ interpretation of the pre-technological solution to this dilemma as three separate kinds of ritual performance: “(1) *Historical rites*, which recreate the past so that it becomes the present (Past → Present); (2) *Death Rituals*, which recreate the present so that it is integral with the past (Present → Past); (3) *Rites of Control*, which adjust periodic changes in the present to a fixed scheme of relationships between men and totemic species in the mythic past (Present = Past)”. Lévi-Strauss concludes that “ritual is a machine for the

destruction of time” (Gell 1992: 27). Gell (1992: 29) agrees with Lévi-Strauss that the manipulation of time is at the core of many rituals but is critical “at the point where the attempt to interpret symbolic action degenerates into a rash attempt to rewrite the laws of logic or physics so as to make the ritual claims come out as true”. Leach is another anthropologist who recognises the dichotomy of personal irreversible experiences of time with our experience of natural phenomena repeating themselves (Leach 1961: 125). Clifford Geertz’s more sophisticated anthropological study of time reckoning in Bali shows that the linear, cumulative flow is largely disregarded by the Balinese (1973: 389-391). The Balinese calendars do not function primarily to mark the passage of time but to show the kind of time at any particular moment (Geertz 1973: 391-398; Lucas 2004: 63).

Gell and the early anthropologists were largely concerned with a society’s understanding of the past but Munn (1992) points out that societies practising long distant exchange must regard the future as a concrete possibility in order to make long-range plans to obtain a desired commodity, and since we have considerable evidence from pre-history of such distant exchange (obsidian or ceremonial stone axes for example) this sense of the future must be ancient.

Since Lévi-Strauss and Leach there has been a change in anthropological thought, away from broad generalisations that interpret pre-technological ideas of time in terms that deny a sense of history (Lucas 2004:63); however, these early studies clearly demonstrate that there is cultural diversity in the representation and awareness of time. Does this diversity mean that time is purely a social construct or is there a common experience of time that underlies the cultural diversity? This question, together with questions of commensurability, recurs in studies of the ancient ideas of time but Clarke (2008: 7 n.18) points out that time is an idea that is universal, and so a study of time is a useful way to approach an understanding of the intellectual culture of another society.

The Social Construction of Reality by Berger and Luckmann was published in 1966 and this book has been influential in the development of the genre of ‘social construction’ studies (Hacking 1999). Berger and Luckmann (1966: 40 – 42, 149) also recognise both the subjective linear experience of time that comes from knowledge of our own eventual death and the time-based rhythms of nature, but their focus is on the socially accepted temporal patterns of everyday life, and they give as an example of a socialising pattern, the structure

of sleeping and eating arrangements that we instil in young children (Berger and Luckmann 1966: 203). Members of a single society share time, and links between sequences of events (such as festivals) lead to 'common understanding and mutual identification' (Berger and Luckmann 1966: 150). It is possible to think of many aspects of time that are social in origin; socially established calendars of various forms or the age related timing of changes in status such as marriage or military service. Nowotny (1994: 4) uses the term 'proper time' to describe the sum of a person's or a group's ideas and experience of time and like Durkheim she argues that social organisation provides the framework for people's thought-categories, of which time is an example. Nowotny's study looks at recent changes to the perception of time that are based on changes in technology and in society and the lack of control of personal time that comes from access to information about time (watches, mobile phones) (Nowotny 1994: 9 – 11) . The state control of time in the past was also linked to the 'technology' of its measurement (Chapters 3 and 4).

One of the tenets of Einstein's Special Theory of Relativity is that 'there can be nothing objectively real about simultaneity; nothing real about now' (Smolin 2013^a: 58) and Nowotny also tackles the modern concept of 'the present' that is linked to our ability to communicate electronically with distant parts of the world, virtually instantly (1994: 16 – 44). This idea of simultaneity must have been very different in the ancient world where communication between different states was tortuous, slow and uncertain. However, the idea of 'now' was an important component in Aristotle's and the Hellenistic philosophers' accounts of time (see Chapter 2.3.3).

The Social Construction of Reality (Berger and Luckmann 1966) is concerned with the sociology of knowledge, the relationship between human thought and the social context in which it arises. Because the topic will recur in the thesis it is appropriate to widen this discussion of time in order to cover the social construction of reality in general. Berger and Luckmann define reality as "a quality appertaining to phenomena that we recognise as having a being independent of our own volition" (we cannot wish them away) (Berger and Luckmann 1966: 16, 13). The ideas of social construction are 'slippery' and the arguments quickly turn to relativism; a collection of opinions that assert that some central feature of our experience of reality is dependent on our own assessment of relative values or even perceptions (Swayer 2010) (Figure 2.2).



Figure 2.2. Identifying Reality: The problem from a moth's point of view.

(The Guardian Weekend July 20th 2013)

Relativistic motifs occur in many areas of philosophy and are also relevant to the study of ancient history and archaeology. With respect to reality, hard-core relativists believe that scientific facts are social constructs and this belief has led to heated debates that are sometimes referred to as the 'culture wars'. Of course there is a social element to scientific research, for example, the history of the field will affect the level of current understanding. In a letter published as part of a relativist/scientist debate in the *New York Review of Books*, the Nobel Prize winning biochemist Max Perutz (1996) rebuts the relativist position that scientific facts are matters of convention and socially constructed. He explains that "the Second Law of Thermodynamics states that heat cannot be transferred from a cold to a warm body without performing work. This is neither an empirical claim, nor a social construction nor a consensus by institutional science, but an inexorable law of nature based on the atomic constitution of matter". We cannot wish the Second Law of Thermodynamics away! Lehoux (2012: 204) quotes a succinct phrase of the philosopher Hilary Putnam, which says that either science is right about the nature of the universe or the technological successes based on this science are due to miracles. However it is proper for scientists to question their interaction with society and to ask if science had to progress the way it has. If Gregor Mendel (1822 – 1884) had not worked in the Brno Monastery garden and laid the foundations of genetics with his work on peas, would the work of the most eminent botanist of the time, Carl Nägeli, have determined the route of genetic research? Our current understanding of genetics would be the same but because Nägeli worked on dandelions, which have an unusual, non-genetic method of producing seed, the

steps in the advances of the science would have been very different. A hard core relativist would argue from this example that at any point in the development of genetics, any particular contemporary scientific position would be socially derived, but this is a misunderstanding of science. Science is progressive and current understandings are dependent on previous research not on changes in social structures.

2.2. Ancient Time.

Clarke (2008: 18) suggests that the use of generation based genealogical tables is an almost universal way of linking humanity to the passage of time but Veyne believed that the most widespread conceptions of time in the ancient Greek world viewed it as “neither cyclical nor linear but as decline; the world is adult and therefore has only to age” (Veyne 1988: 137, note 40; Dodds 1973: 1-25); and Momigliano’s (1977) analysis of Greek time was that it was predominantly cyclical and static. These views and that of Leach (see Chapter 2.2.1 below) are limited and do not properly acknowledge the complexity of the cultural facets of time in ancient Greece.

Csapo and Miller (1998) summarise the history of modern studies of ancient Greek time, beginning with Hermann Fränkel in the 1930s who ostensibly traced an evolutionary progression of temporal awareness. This evolutionary approach, with its scent of colonial superiority, eventually went out of fashion. In contrast, French scholarship drew its inspiration from Durkheim and Lévi-Strauss, and was dominated by a relativist and structuralist approach (Csapo and Miller 1998). The evolutionary analysis of ancient Greek concepts of time looked for progress towards a unified, linear, homogeneous and abstract view of time that mirrors our own ideas. A structuralist and relativist approach was better at investigating the internal logic of the ancient cultural systems but had difficulty analysing change because these analyses produced a series of ‘frozen synchronic moments’ (Csapo and Miller 1998). Csapo and Miller (1998) accept the premise that in Archaic Greece, time was seen as cyclical and ‘qualitative’ but assert that by the 5th century BC, Greece had adopted a linear concept of time. These views are not substantiated by the analysis of other scholars (see below Chapter 2.2.2) and, for example, van Groningen (1953: 107) believed that two opposing ideas of time co-existed widely in ancient Greece; one was mythical where time could have a beginning and an end, and be heterogeneous, and the other was the uninterrupted chain of history.

Lucas (2004: 67) argues that ...

how a society views the world is inextricably linked to their material relations with the world; that material culture encapsulates the conceptual, symbolic or cognitive structure of a society as much as technology or economy. If this is the case, then temporal perceptions are equally implicit in the way past material culture is organised – it just needs looking for.

Lucas is primarily discussing prehistoric cultures but the frieze on the Little Metropolis, which contains a mixture of temporal and religious images, reflects the “conceptual, symbolic or cognitive structure” of Athenian society at the time that it was produced. The date of the frieze will be discussed in Chapter 3; this chapter traces conceptual aspects of time through the Archaic and Classical periods and explores the way time was understood in Hellenistic Greece.

2.2.1. *The Myth of Kronos and Time.*

Nowotny (1994: 75 – 101) uses the Greek myth of Kronos to structure a discussion about ‘modern’ dread of the future. This Greek creation myth was described by Hesiod in his *Theogony* (116 – 513). In the myth, Gea (Earth) gave birth to Ouranos (Sky) with whom she then mated to produce a series of offspring: the Titans, the one-eyed Cyclopes and the enormous, hundred-handed Hecatoncheiries. Ouranos was so horrified by these monstrous offspring that he prevented their birth and the Earth was forced to carry them beyond their gestation period. The Titan Kronos was the youngest offspring, and he was helped by his mother to castrate his father using a sickle made from the mythical hard metal, adamant, so that subsequently the other ‘children’ of Gea could be freed. The blood from Ouranos’ wound fell on the earth and from this ‘seeding’ grew the Giants, the Dryads and the Erinyes. Ouranos’ penis was thrown into the sea and Aphrodite was created from the foamy semen that escaped from the detached organ. Kronos married his sister, Rhea, but his record as a father was no better than that of his own father. Kronos had been told by Heaven and Earth that he would be killed by a son and his solution to this portent was to swallow each child as it was born. Naturally Rhea was distressed by this behaviour and when Zeus was due to be born she tricked Kronos by wrapping a stone in cloth, disguising it as a baby, and presented this to him to swallow. Meanwhile Zeus was taken to Crete, where he quickly grew up in secret and subsequently overthrew his father, who then

regurgitated the stone and the other children (Graf 1993: 80 -83). These other regurgitated children were Hades, Poseidon, Hestia, Hera and Demeter (Leach 1961: 128).

Dodds (1951: 61, note 103) believed that the Kronos myth was derived from the Hurrian-Hittite Epic of Kumarbi, and Walcot (1956) has demonstrated the parallels between the two stories. The myth of Kronos is also reported in *The Library of Greek Mythology*, which was probably written in the first or second century AD by a Greek from Asia Minor called Apollodorus (Apollodorus: Introduction vii – xii, Hard 1997). Apollodorus' later account of the myth is essentially the same as Hesiod's version but he reports that Kronos' parents warned him about being overthrown by a son, does not mention the penis shape of the stone swallowed by Kronos, and states that Zeus enlisted the help of Metis (a daughter of



Figure 2.3. Rhea Handing a Swaddled Stone to Kronos (AD 160). Museo Capitolino, Rome.

(LIMC VI.2: 66 (1992) Kronos Plate 23)

Ouranos), who gave Kronos an emetic forcing him to regurgitate Zeus' siblings. Walcot (1956) thinks that Apollodorus used a translation of the Hittite myth written in Greek by Philo of Byblus in the first century AD, parts of which have been preserved by Eusebius.

This Kronos myth is depicted on Attic vases, for example a red-figure column krater from Vulci is said to depict Rhea carrying a wrapped rock and facing Kronos who is holding a sceptre (Carpenter 1991: plate 94), and a Roman carved marble base relief clearly portrays Rhea handing the wrapped stone to her seated husband (Figure 2.3). In the ancient images, Kronos is often shackled and usually has his head covered (see Figure 2.3). Versnel

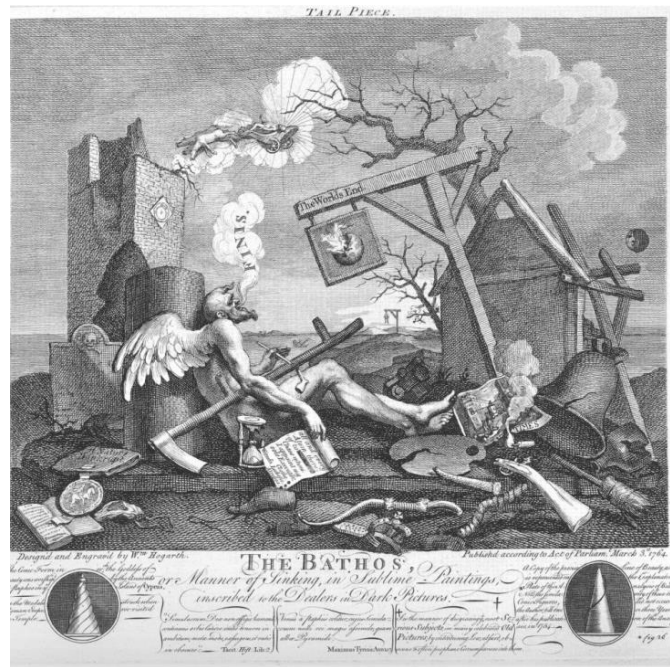


Figure 2.4. Tail Piece or The Bathos. William Hogarth (1764) from Hallett and Riding (2006: plate 134).

(1987) quotes the Vatican Mythographer III.1.5 who reports that “some claim his head is covered because the beginning of time is unknown” and the shackles reflect his exile to Hades following his downfall. However, Nowotny (1994: 74 – 101) does not use an ancient Greek or a Roman image of Kronos as the centre piece for her discussion of modern anxieties about the future but instead has chosen the 18th century final work by William Hogarth (Figure 2.4). Hogarth’s picture is an allegorical representation of the end of the world (the end of time) featuring a dying personified Time, a broken hour glass and bell, and Apollo lying lifeless in his chariot in the sky. Personified Time can be recognised by his attribute, the scythe, which is broken in Hogarth’s etching.

Nowotny (1994) bases her discussion on an essay by Leach entitled, Cronus and Chronos, appended to his book, *Rethinking Anthropology* (1991: 124 – 132). Leach argues that Kronos is a symbolic representation of time and that the obscure link between the myth and time relies on his own proposal that the ancient Greek idea of time was as an oscillation. However, the logic of Leach’s argument is dependent on his tenuous identification of relevant opposites. Kronos is more easily understood as part of a creation myth and Nilsson (1925: 23) believes that he was probably an ancient Mycenaean harvest

god, hence the sickle. Creation has an association with time because it marks a beginning but 'mythical time and space were secretly different from our own' (Veyne 1988: 18) and although myths could incorporate a chronology, mythical time had no consistent structure (Veyne 1988: 74).

Versnel (1987) has interpreted the contradictions within the ancient representations, traditions and rituals associated with the Kronos myth. These contradictions result from the series of negative depictions in the story (parricide, infanticide, cannibalism, lack of moral standards in ruthless struggles for power) and the positive, good traditions, which portray the introduction of kingship and the Golden Age realm of Kronos as a period of peace, justice and prosperity. The official New Year of Attica occurred in mid-summer in the month of Hecatombaion (Versnel 1987) and a festival called the Kronia, dedicated to Kronos, was celebrated on the 12th day of this month (Demosthenes 24.26). It was a festival that celebrated the harvest within individual households (Parker 2005: 202, quoting Philochorus *FGrH* 328 F 98). The Kronia was a 'reversal' festival where slaves ate with their masters and were given licence to drink and celebrate (Plutarch *Moralia* 1098B; Burkert 1985: 231 n.29), and where the normally shackled statues of Kronos were released (Versnel 1987). Reports of sacrifice at the festival vary, with a case of human sacrifice on Rhodes and Athens offering cakes (Versnel 1987). Versnel (1987) believes that the ambiguities of the Kronos complex are associated with his function as a god of periods of change and therefore potential chaos. A period of change, like a new year, could be seen as dangerous, possibly a gap in socially organised and structured time, and the contradictions may be seen as a way to ritually control or limit possible chaos by acting it and realising its danger. Parker (2011: 211), however, suggests that the role reversals of the Kronia may be seen as a reversal to the easy social relations of the Golden Age of Kronos. In many Ionian cities the month Kronion, is equivalent to the last month of the Attic year, called Skirophorion (Burkert 1985: 232), again linking the change from one year to the next with Kronos. Another sacrifice ('*basilae*') to Kronos, held at the spring equinox on the summit of the 'Kronos' hill at Olympia (Figure 2.5), was reported by Pausanias (6.20.1), however the date of the New Year in Elis is not known and the two dates for which there is some evidence, are the winter (Hannah 2012: quoting a scholion to Pindar *Olympian* 3.33) and the summer

solstices (Samuel 1972: 95-96). On the basis of this slim evidence it does not seem that the Olympian sacrifice was linked to the beginning of a new year.



Figure 2.5. Olympia; View of Kronos Hill from the Stadium.

M.A.Haysom (2014)

The visual link between the character in the Archaic myth and the Hogarth figure of Father Time is dependent on the scythe. Nilsson (1951) has established that the word (*harpe*), which describes a toothed sickle (small scythe), was used by Hesiod. This implement was used as an attribute of Kronos in some Greek images of him, as shown in Figure 2.6 below.



Figure 2.6. Kronos. Hellenistic drawing on a bronze cup (now lost) from Macedonia. (LIMC VI.1: 144 (1992) Kronos: Figure 4)

2.2.2. Time in Literature and the Visual Arts.

Csapo and Miller (1998) assert that “all art shapes time, through narrative (or its absence), through ordering narrated events, through the choice and treatment of subjects, in the medium and circumstances of performance, or in the manner it incorporates the historical consciousness of its consumers.” If this is true does the manipulation of time in literature

indicate how the ancient Greeks understood time? In Homer's 8th century epic poem, the *Odyssey*, the story lasts 41 days but the series of related events experienced by Odysseus (the fabula) lasts 10 years. The story of Homer's *Iliad* lasts 51 days but within the story there are several analepses (flash-backs) and also accounts of events that take place after the current point in the story (prolepses). Thus the account of the quarrel with Agamemnon which Achilles gives his mother, Thetis (1.370-92), is an internal analepsis because it occurs within the time span of the main story, and Odysseus' recollection of the gathering at Aulis (2.299-330) is an external analepsis, having taken place before the period of the main story. The narrator's announcement that Hector was to be 'short-lived' (15.612-614) is likewise an example of an internal prolepsis, whilst Priam's depiction of the fall of Troy (22.59-76) is an external prolepsis (de Jong 2007). This manipulation of time within the narrative indicates a level of understanding in the 8th century BC beyond the interpretations of the pre-technological people studied by anthropologists such as Lévi-Strauss and Evans-Pritchard (Gell 1992: 15-22, 23-29). Further these stories indicate an underlying linear form of time, within which individual episodes can move backwards or forwards. Homer (*Iliad* 6.145-149) also uses the cyclical analogy of leaves on a tree, falling in autumn and growing again in spring, to describe the passage of time with regard to successive generations of men.

Kennedy (2013) also aimed to investigate the way in which time is configured in ancient Greek narrative fiction, specifically the tragic plays that were written in the late 6th-5th century BC. In real life, time appears to be 'open ended' but in literature the future of the characters is known (time is closed) (Kennedy 2013: 85), and although the narrator may be within the text he has knowledge of the story. In tragic literature the narratives have what Kennedy calls an Aristotelian structure, consisting of a beginning, middle and an end, sometimes interwoven with prophecy which gave the characters a 'surplus of knowledge'. In *Oedipus Rex*, Oedipus and Jocasta assume that they have the freedom to thwart Teiresias' prophecy but the audience knows that their world is pre-determined (Kennedy 2013: 89). Kennedy suggests that this determinism in narrative literature affected the way people thought about reality, and he quotes Morson (1994: 63); 'people in real life who believe(d) in omens are implicitly treating real time the way we would treat time in a narrative'.

Clarke (2008: 16, 43 – 45) uses the plays of Aristophanes as evidence that the manipulation of time by society was commonly understood in 5th century Athens. Aristophanes' play, *Clouds*, is possibly his most famous but when it was performed in 425 BC, it only came third in the competition (Claughton and Affleck 2012: vi); perhaps it was not so universally understood. In this comic play, Strepsiades has the notion that if he could hire a Thessalian witch to pull the moon out of the sky he could stop time and delay paying his debts (Aristophanes *Clouds* 749 – 756), and Clarke (2008: 45) believes that the episode illustrates the idea that time, although portrayed by a socially constructed calendar, had the same inevitable progression that human life has. It also indicates that this commercial activity was regulated by the lunar calendar not the civic prytany calendar.

Csapo and Miller (1998) have examined time in relation to visual narrative, and related changes in artistic temporality to political changes in 5th century Athens, specifically to the introduction of democracy. Table 2.1 shows, schematically, six types of visual narrative in Archaic and Classical Greek art, where SINGLE images capture a single moment and the **Iconic** form, such as the Archaic *kouros*, is timeless. An example of a SINGLE **Monoscentic** image is Myron's *Diskobolos* (c.460 BC; Townley *Diskobolos*, British Museum, GR 1805.7-3.43) caught mid-swing throwing a discus, where the earlier action and subsequent result are implied in the image (Figure 2.7).

TABLE 2.1. TYPES OF VISUAL NARRATIVE IN ARCHAIC AND CLASSICAL GREECE. (after Csapo and Miller 1998)

	SINGLE	COMPLEX	POLYSCENIC
Non-causal	Iconic	Synoptic	Cyclic
Causal	Monoscentic	Progressive	Phased

A COMPLEX **Synoptic** image brings two or more moments in a story into the same spatial field without organising the images in a logical temporal or causal relationship, and the black-figure Attic Boston Circe cup (c.550 BC; Museum of Fine Arts, Boston 99.518) showing an image of Circe, who illogically offers a magic potion to the already transformed companions of Odysseus, is an example (Figure 2.8). COMPLEX **Progressive** forms also

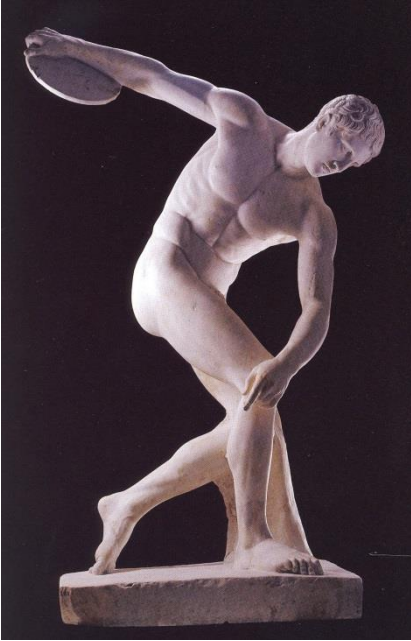


Figure 2.7. Myron's Diskobolos. (SINGLE Monoscenic)

Roman marble copy of Greek bronze original, 2nd century AD. (Townley Diskobolos, British Museum, GR 1805.7-3.43)



Figure 2.8. Attic Black-Figure Cup Showing Circe and the Companions of Odysseus. (COMPLEX Synoptic)

c. 550 BC (Museum of Fine Arts, Boston, 99.518).

present two or more moments in a story in a single field but here the spatial relationship depicts a linear sequence. Csapo and Miller (1998) think that the Parthenon frieze, which has been interpreted as representing the movement of the procession from the lower city to the Acropolis (Beard 2010: 129), demonstrates this. In POLYSCENIC **Cyclic** images space corresponds to time, and a series of discrete scenes show episodes in a narrative but not necessarily in the correct narrative sequence; vases that depict individually the deeds of Theseus fall into this group (Figure 2.9). In Figure 2.9 the illustrations represent the events on the road from Troezen to Athens and are separated by trees.

The last category in Table 2.1 is POLYSCENIC **Phased** and here the scenes are both discrete and causally linked and Csapo and Miller (1998) suggest that the *tondo* of a red-figure cup in the Vienna is an example of this form (Figure 2.10). The *tondo* shows Odysseus offering Achilles' arms to Neoptolemos, and presupposes other events (the quarrel of Ajax and Odysseus and the adjudication of the arms to Odysseus) that are shown on side A and B of the cup.



Figure 2.9. Attic Red-Figure Cup Showing the Deeds of Theseus. (POLYSCENIC **Cyclic)**

Euphronios workshop, Onesimos painter
500 – 480 BC. (Louvre, Paris G104)



Figure 2.10. Attic Red-Figure Cup Showing Odysseus Offering Neoptolemos Achilles' Arms. (POLYSCENIC **Phased)**

500-480 BC. (Kunsthistorisches Museum, Vienna 3695. Figure adapted from Beasley Archive 1963.429.26)

Beyond the right hand column of Csapo and Miller's table (Table 2.1) exists the continuous linear, causal narrative of some Hellenistic art, exemplified in the (now fragmented) frieze of Telephos at Pergamon (164-156 BC) (Pollitt 1999) (Figure 2.11).

In Athens the surviving base of a monument to the producer (*choregos*) of a winning performance held in the Theatre of Dionysos, exists in the ancient street that leads from the Sanctuary of Dionysos round the east of the Acropolis. This street is still known as the

Street of the Tripods because the bronze cauldron prizes displayed here were supported on tripod stands. The surviving 335 BC Monument of the Choregos Lysikrates (Figure 2.12) has a sculptured relief frieze depicting the myth of Dionysos' capture by pirates running round the monument above the Corinthian columns (Camp 2001: 147-148). Although this monument predates the Telephos Frieze of the Pergamon altar, the depiction of a temporal sequence of events is not as simple as that on the Pergamon frieze. The sequence starts with Dionysos seated on a rock petting his panther and surrounded by relaxing satyrs. The



Figure 2.11. The First Images on the Telephos Frieze of the Pergamon Altar.

Heracles at the Court of King Aleos. Tegea sees the priestess Auge. Representing the first meeting of Telephos' parents.

S. Waite (2014)

narrative then moves symmetrically in both directions (left and right) to show various pictures of satyrs fighting pirates on land until the sea is reached in both the left and the right direction. The border of the land and sea is marked, again symmetrically on either side, by a tree and pirates are shown leaping into the water as they change into dolphins. The final image shows a single dolphin/man in a position directly opposite the image of seated Dionysos (de Cou 1893; Figure 5.3.3). In other words, there is a temporal sequence but it is shown encircling the monument in both directions until a conclusion is reached opposite the seated god.

There is at least one example of Athenian ceramic art that may have included images depicting time itself as personifications of the lunar months. These are found on a fragmentary calyx krater dated to the first quarter of the 4th century BC, now held in the

National Archaeological Museum in Athens (Metzger 1965: 102 - 105, Plate XLVI). This krater and the personified lunar months found on the Little Metropolis calendar frieze will be discussed in Chapter 6.



Figure 2.12. The Choregic Monument of Lysikrates, Athens.

M.A. Haysom (2009).

2.2.3. Philosophy and Time.

2.2.3.1. Aristotle.

The Pythagorean speculations about the properties of special numbers led to their concept of the 'great year'. They proposed that if the ratios of the periods of the planets' movements were integers, then after a certain number of years the planets would return to exactly the same position and this idea of identical recurrent periods was coupled to an idea of recurrent cyclical catastrophes (Dodds 1973:14; Stopple 2003: 5, 127). This cyclical picture of catastrophe was rejected by both Plato and Aristotle (Dodds 1973: 15).

Aristotle wrote about time in *Physics* (IV. 10-14). He introduces his account of time with three puzzles but he does not provide any explicit solutions to these puzzles and scholars have consequently found his description of time difficult to interpret (Roark 2011: 4; Coope 2005: 17-18; Sorabji 1983: 7-16, 46-52). Further Sorabji tends to interpret these puzzles in terms of a modern understanding of time (see for example Sorabji 1983: 15, 93-94).

Central to Aristotle's discussions of time is a consideration of the present. If time consists of the past and the future, it is made from things that 'either were or will be' (Aristotle

Physics IV. 10: 271^b33-218^a3; Coope 2005: 18) and this implies a linear structure. Aristotle asserts that the present, or more precisely ‘an instantaneous now’, is not part of time, but represents the division between a continuum of the past and the future (Aristotle *Physics IV. 10*: 218^a6-7; Coope 2005: 21-23). However, as part of his discussion of ‘the instantaneous now’, Aristotle claims that it must simultaneously, always be the same and always be different and, as Coope remarks, this does not provide a satisfactory solution to the puzzle of its nature (2005: 27). It must be true that our personal experience is always and only of the ‘instantaneous now’ and in this sense, it is always the same, but each moment of this present experience will be different as circumstances change; Coope appears to be looking for a more profound or complicated explanation.

Coope (2005: 24, 143, 159-161) thinks that Aristotle defines time as being dependent on change; it is both a measure of change and a number, and since it is a kind of number, it is countable and can therefore only exist in a universe where there are beings to count it (Aristotle *Physics IV. 12*: 221^b4-5; *14*: 223^a21-29). Roark (2011: 175) says that Aristotle defines time as a number of motion and illustrates this with the example of a ball rolling down a slope, where the position of the ball is marked at different intervals of time (measured by another method); these marks thus depict both movement and time. If Roark is right, this is reminiscent of the diagram of the thrown ball in Figure 2.1.

Aristotle recognises that there could be things that last forever, that is things that are ‘not in time’, but Coope (2005: 20) does not interpret this passage to mean that such things never existed in the present (see 3.1.2). Defining things that are ‘not in time’ as things that have no beginning or end, leads to problems concerning the celestial bodies (stars, planets, sun, moon), which were considered as persisting for the whole of time and whose circular movements have no starting point or finale (Coope 2005: 145). However, Plato (*Timaeus* 39c) defines time in terms of the regular motion of these celestial bodies (Roark 2011: 216). Following from the creation myth in *Timaeus* (37c-38e), where a creator, or demiurge, created a universe modelled on an everlasting and unchanging living object, Plato is able to distinguish two forms of the everlasting condition: the heavens, which will last as long as time exists, and the eternal living object on which the heavens are modelled, which is ‘not in time’ (Coope 2005: 145- 146). According to Coope (2005: 148), Aristotle rejects Plato’s

views; he anthropomorphised Nature as creator (Kennedy 2013: 159), and asserts that the heavens are 'not in time' but nevertheless have a temporal relation to other things.

Tony Roark's (2011) more recent book presents a hylomorphic, interpretation of Aristotle's account of time (*Physics* IV 10-14). A hylomorphic compound has both matter and form, two of Aristotle's four causes (Kennedy 2013: 159), and Roark believes that Aristotle viewed time as hylomorphic, being composed of both matter (motion) and form (perceivable), with perception having a central role in Aristotle's idea of time because perception is necessary to both record events and provide the relational structure of measurements (Roark 2011: 5). Roark (2011: 3-4) also acknowledges that Aristotle does not provide explicit answers to the questions that he poses about time and that his treatment of time is labyrinthine. In this context he quotes Broad (1967): 'I am well aware how easy it is to talk nonsense about Time, and to mistake for arguments what are in fact merely verbal tangles'. It was in the Hellenistic era that grammar developed as a discipline; the study of grammar of the Greek language showed significant developments, and the Stoic philosophers advanced a theory of tenses (Schenkeveld and Barnes 1999). Roark points out that Aristotle (*Physics* IV.13) was conscious of the problems inherent in the Greek language when discussing time (Roark 2011: 11). Although a discussion of this aspect of time is outside the scope of this chapter, it should be noted.

Although Aristotle appears to deny the creation of the heavens by a divine intelligence, he agrees with Plato that the movement of the celestial bodies provides the standard for all temporal measurements (periodicity) but refutes the proposition that time is nothing more than the regular movements of these bodies (Roark 2011: 217). Aristotle's apparent equivalence of time and motion is difficult, partly because every modern scholar attempting to interpret his ideas must be influenced by our modern platform of knowledge. He is not strictly identifying time with motion and Roark (2011: 217) suggests that Aristotle is arguing that time is a feature of motion; we only see motion over time and can only measure it through time (again see the thrown ball in Figure 2.1). Conversely we can measure time through motion and this idea accords with the fact that the movement of the stars was a system of measuring time dating back to Hesiod in the 8th century BC (*Works and Days* 383-4; 564-7) (see Chapter 3).

2.2.3.2. Hellenistic Philosophers.

The dialectician Diodorus Chronus (died 284 BC) influenced the founders of the three main Hellenistic schools of philosophy, the Stoics, the Sceptics and the Epicureans, and Diodorus' ideas of atomism helped to shape the Epicurean view that time was made of indivisible atomic units (Sorabji 1983: 19). This idea provided a solution to the problem of the 'instantaneous now' (the present) because it could be considered as an atomic unit of time. Crucial to the ideas of the founder of the Epicurean school, Epicurus (340-270 BC), were the ideas that time is a matter of human perception of physical motion and rest, and that there is no ultimate beginning or end (Kennedy 2013: 160). The Epicurean poet, Lucretius, wrote a poem in the mid first century BC *On the Nature of Things*, which presented the Epicurean view of knowledge in the form of a narrative. In this poem, an imaginary journey by Epicurus through the cosmos mirrors Alexander's travels, and Kennedy (2013: 153-54; 161-65) describes this narrative format as an answer to providing an explanation that is not based on a creator, and hence a beginning. We know very little about Lucretius' life but he lived in Southern Italy where there was an Epicurean centre and he dedicated his poem to an aristocratic Roman called Memmius (Sedley 2013).

Zeno of Citium, who was a pupil of Diodorus, founded the Stoic school of philosophy in Athens in about 300 BC. For the Stoics, time was an 'incorporeal continuum' (Schenkeveld & Barnes 1999). Zeno denied the atomistic view of time, believing that time was infinitely divisible and this belief revives the argument over the reality of the instantaneous now. Sorabji explains this philosophical concern because 'time and the now depend on each other for existence, as do motion and the moving body' (1983: 49). Zeno's position was that the present does not exist but is either past or future (Sorabji 1983: 21) and Sorabji (1983: 23) believes that the Stoics, who had three grades of reality, thought of time as less than fully real. He reports synopses of three later Stoic philosophers' ideas about time that were originally documented by Arius Didymus, a Stoic grammarian of the 1st century BC who taught Augustus (Sorabji 1983: 21 - 23). It is clear from these short passages that the Stoic philosophers, whose writings cover a span of 250 years, did not completely agree about time. Arius Didymus quotes the Stoic, Apollodorus of Seleucia on the Tigris (c.130 BC) (Sorabji 1983: 21):

Some of it is past, some present and some future. But all time is present, just as we say the year is present, circumscribing a wider band.

Apollodorus of Seleucia, *Physics* (Diels 1879: 461)

This concern with the nature of the present or instantaneous now was also extracted by Arius Didymus from the later writings of Poseidonius of Apamea (c.135 – c.55 BC), who was head of the Stoic school on Rhodes (Sorabji 1983: 22):

as regards *when* in time, some is past, some future and some present. The last consists of a part of the past and part of the future, surrounding the division between them. But the division is point-like.

Poseidonius of Apamea (Diels 1879: 461)

The third head of the Stoic school in Athens was Chrysippus (c.280 – c.206 BC) and his ideas of time were critically reported by Pseudo-Plutarch, who interprets his views as follows:

in the third, fourth and fifth books *On Parts* he holds that some of the present is future and some past. Hence it results that such time for him is divided into what does not exist. Or rather no time at all is left existing, if the present has no part which is not either future or past.

Pseudo-Plutarch, *De Communibus Notitiis adversus Stoicos* 41: 1081F. (Diels 1879: 461)

2.2.4. Social Identity, History and Time.

Csapo and Miller (1998) propose that in Classical Greece, a form of temporality occurred in aristocratic families in which there was virtual survival of the often mythical past in the present. This was accompanied by a tradition that the *genos* (family group) had a single point of origin. It was as if the *genos* existed in a timeless historical vacuum and explains why Alcibiades, who was a controversial member of an aristocratic Athenian family, claimed that his victories increased the reputation of his ancestors.

The things for which I am abused, bring fame to my ancestors and to myself, and to the country profit besides.

Thucydides, *History of the Peloponnesian War*, 6.16.1. translator Crawley (2009).

This 'aristocratic time' was dominant in the Archaic period and is characteristic of religious thought in all periods (Csapo and Miller 1998), such that van Groningen (1953: 107) proposed that more than one idea of time co-existed in ancient Greece.

The earliest Greek text on the significance of days within a lunar month is the section on Days in Hesiod's *Works and Days*, which is concerned not with days of the year, but with days of the month (Grafton and Swerdlow 1988).

These days were sent by Zeus the Counsellor.
The following are holy days: the first,
The fourth, and the seventh (Leto, on that day,
Brought forth Apollo of the golden Sword),

Hesiod, *Works and Days* 777 – 780. translator Wender (1973)

Here Hesiod gives an explanation for the choice of the 7th day of the month as a holy day, relating it to a mythical event. This conflation of past mythical events and human history is preserved in the writings of Plutarch (c.46 – 120 AD). In the *Life of Theseus* (xviii 1, xxxvi 3), Plutarch gives calendar dates; Theseus sails to Crete on Day 6 of Mounychion and returns to Athens on Day 8 of Pyanopsion, and these are the dates of the Athenian festivals associated with the story of Theseus (Grafton and Swerdlow 1988). The timing of mythical events was built into the individual histories and religious calendars of the Greek city states, and this way of defining either individual identity or authenticity in the panhellenic world became a feature of the Hellenistic period. Numbering days in a lunar month was complicated, with the days numbered consecutively until the full moon but numbered backwards in the last decade (thus the 21st day of the month was the 10th and the 22nd day of the month was the 9th etc.) (Clarke 2008: 22). Attic inscriptions often combined more than one dating system, so that days within a *prytany* calendar (numbered in succession using ordinal numbers) were sometimes supplemented with the lunar calendar day (McLean 2011: 156).

Each new month in the 12 month religious lunar year began with the sighting of the new moon (see Chapter 4.2.1), and in the Classical and Hellenistic periods, each Attic year was identified by the name of the *archon* (chief magistrate). From 407/6 BC in Athens, the start of the prytany year coincided with the start of the religious year and the *archon* took up office on the first day of the summer month, Hekatombaion. However, each city state (polis) in Greece had its own sequence of eponymous magistrates and therefore different names for equivalent years (Clarke 2008: 20).

In Athens, the timing of religious festivals, including both the day and the month, was regulated by the *archon* and was crucially important for the sense of identity of the Greek polis. The importance of an individual society's expression of time is reflected in the fact that each city state had its own religious calendar (Clarke 2008: 11; McLean 2011: 149 – 169; Samuel 1972: 57- 139; Stern 2012: 25; Trumpy 1997; see Chapter 4.4), so that the collective memory of a mythical past was reinforced by these individual religious calendars. However, despite different adjustments made to the lunar calendar in different *poleis*, and at different times within a single polis, the equivalent festivals of different states were roughly synchronised (Davidson 2008). Further, in spite of the literary evidence about the divergences in the calendars of different states, there is evidence (*IG II² 951*) in the form of an oath taken by emissaries from Athens, Ambrakia (in the north), and Akarnania (in the west) that in 166 BC the calendars of these states differed by only one day (Pritchett 1999). These calendars are clearly social constructs, they were part of the self-image of a polis, and often the aetiology of the names of the months demonstrates a link between these constructed representations of time and the inhabitants' acquaintance with the mythical history of their polis. Walbank (2002) points out that 'in both Classical and Hellenistic Greece the past was important not simply as the subject-matter of historians, but also as an element in public life and sentiment. Consciousness of the past penetrated political activity to an extent which would seem strange today.'

History has a social function because social groups can only continue to exist if they survive beyond the lifetime of the individuals who form and constitute the group, and the transmission of information important for the group's identity depends on a collective memory of the past (Gehrke 2010). Among the pre-Socratic philosophers, the search for origins and causes, including old myths and genealogies, was a sort of intellectual game and part of the social context of elitist leisure (Gehrke 2010). Herodotus (c.484-c.425 BC) did not invoke mythical/genealogical constructions of events in his *Histories* but considered the driving force to be the rise and fall of greatness, dependent on hubris and the gods' envy; he concentrated on what was material and verifiable (Gehrke 2010). This approach was also emphasised by Thucydides (c.460 - c.395 BC) and later by Polybius (c.200 - c.118 BC). Despite this Polybius regarded the epic stories of the past as a genuine part of Greek history, and describes Jason (iv.39.6) and Io (iv.43.6) as though they were real historical

figures (Walbank 2002). In addition, both Pausanias (AD c.110 -180) (*Guide to Greece*) and Plutarch (AD c.50-c.120) (*Life of Theseus*) presented mythological events in their historical writing. This dual attitude is a feature of the ancient Greek perception of their world. Despite Polybius' complicated use of both determinism and contingency in his *Histories* and his advice to learn from history (*Histories* 9.9.9) (Maier 2012), this mixture of rational thought and illogical reference is seen in his use of the ambiguous concept of *Tyche* (Fortune). *Tyche* was a popular Hellenistic notion, and Polybius invokes her as an important theme in his histories. In the sense that she represents both the unpredictable element in human activities and a force for retribution or reward, *Tyche* shaped the way men saw the pattern of events in their world (Walbank 2002).

Great changes in social structure occurred within a short period of time in the Hellenistic Greek world. In Athens the feeling of loss of earlier greatness dominated life especially in the period when the city was subject to Macedonian rule, and memory of past greatness was cultivated through historiography, monuments, rituals and the formal establishment of the *ephēbeia* (Gehrke 2010). Coupled with a geographical expansion of the Greek way of life, social changes of the Hellenistic era affected the way the diaspora of Greeks dealt with the past, and *poleis* often invoked kinship based on real or imaginary histories in diplomatic exchanges. Walbank (2002) reports an appeal for financial help from Cytinium in Doris to Xanthos in Lycia dated to the time of Polybius (c.200 BC to 118 BC). Cytinium needed to rebuild the city walls destroyed by Antigonos Doson and in both the appeal and the response, the Dorian origins of Xanthos were emphasised.

Many *poleis* were new and in order to be accepted into the panhellenic community, they depended on shared notions of the past and so adopted what Gehrke calls 'intentional histories' (Gehrke 2010). The Phoenician town, Sidon, whose lifestyle was Greek, represented itself as the mother-town of Thebes. In the spirit of a Greek foundation story, the Phoenician hero, Kadmos, was believed to have reached Greece while looking for Europa, his kidnapped sister (niece), and there he founded the city of Thebes, whose acropolis was called the Kadmeia. In Magnesia on the Maeander, the main festival of Artemis Leukophryene was upgraded and in order to get recognition by other reigning kings and *poleis*, it dispatched legations to all parts of the Greek world. These carried with them an official history of the town, certified by invented documents that highlighted their

achievements on behalf of all Greece since the Trojan War, and their connections with other Greek communities. This Magnesian 'intentional' foundation history was accepted by other *poleis*, and both the story and the fictional documents were inscribed and erected in the city close to the great altar of Artemis (Gehrke 2010). Price (2005) details several other examples of Hellenistic mythological histories that became duplicated in the east; the birthplace of Apollo and Artemis was usually considered to be the Island of Delos but Ephesus in Ionia claimed this privilege as well, and the myth of the rape and abduction of Demeter's daughter (Kore/Persephone), located at Eleusis and associated with the Great Mysteries festival, was also relocated to Hierapolis in Phrygia. These adopted local histories formed part of the development of a social identity that was linked to the mythical past of the greater Hellenic world at a time of great social change.

Chronography became a discipline from about 300 BC onward and historians in Alexandria attempted to assign more or less precise dates for notable events. Homeric scholars dated the fall of Troy 407 years prior to the first Olympic Games in 776 BC and Eratosthenes of Cyrene (276 – 194 BC) asserted that this was the first datable event of human history, giving an unmistakable demarcation line between mythology and history. Greek writers of the 2nd century BC manufactured genealogical tables which traced the pedigrees of famous Greek cities to remote antiquity with their autochthonous progenitors in an attempt to create order among the conflicting claims (Wacholder 1968).

The important inscription known as the *Marmor Parium* (Parian Marble) is a broken stone about 2.1m high and 0.7m wide from Paros and illustrates the Hellenistic interest in panhellenic chronology. In about 1626 the stone was obtained in Smyrna by William Petty, an agent who was collecting for Thomas Howard, Earl of Arundel (1586-1646). The inscription contains a chronology of the major events in 1300 years of Greek history from the time of Kekrops, the first legendary king of Athens, to 264/3 BC. The stone was shipped to England where it formed part of a gallery of Greek sculpture and inscriptions in Arundel's newly acquired house near St Clement Danes in London. In 1628 John Selden published *Marmora Arundeliana*, the first major piece of archaeological scholarship in England, where he recorded the inscription. The Earl's son was not interested in the Greek collection, and after Arundel's death some was sold but the Parian Marble was converted into a hearth stone and lines 1-45 lost, so that Selden's manuscript is the only record that we have of

them. The remaining part of the inscription was found later on Paros in 1897 and now resides in the Paros museum, whilst the Arundel fragment is in the Ashmolean Museum, Oxford (Stoneman 2010: 45-51). Although the mythical basis of origins and early history continued to be important in the Hellenistic period, chronologies illustrated by the Parian Marble were constructed at this time. These embryonic attempts to produce a panhellenic history were also a response to the rapidly changing political and geographic nature of the Greek world in this period.

The Hellenistic chronology on the Parian Marble presents some interpretative problems; the entries are formulaic, possibly reflecting a performance aspect of history telling, and the arrangement looks Athenian, which has puzzled scholars given that the inscription was erected on Paros. It is possible that the script was influenced by an *Atthis* (local Attic history) or that it was intended for an Athenian audience (Clarke 2008: 212-213). Comparison of epigraphic style with other Parian inscription fragments has led to the suggestion that it was intended for an elite audience and originally set up in the *Archilocheion* of the family of Mnesiepes, which honoured the poet-historian, Archilochus (Clarke 2008: 330, 343). It is significant that within a structure that marks time primarily by the reign of kings and the appointment of *archons*, the Parian Marble also records a history of invention and intellectual developments (Clarke 2008: 326).

2.2.5. Time and the Law.

Water was a feature of timekeeping in Athens. A large stone *klepsydra* (water clock) was found adjacent to the Southwest Fountain House close to what was probably the law court known as the Heliaia (Camp 1986: 157-159). Its construction dates to 330-320 BC and it was supplied with water by the same poros channel used for the Fountain House (Christopoulou, 2011: 61-62). This clock was a hydraulic mechanism that indicated time over a 17 hour period by means of changing water levels and a floating indicator (Camp 1986: 157-159). It was damaged at the siege of Sulla (86 BC) and went out of use at that time (Shear, 1939). Based on a Babylonian system, the Greeks divided their days into 12 hours of daylight and 12 hours of night regardless of the time of year so that daylight hours were longer in the summer compared with the winter (with the reverse for the night) (Allen 1996), and it was not until the late fourth century that Athenians had the device that could run for the length of a summer day (17 hours) and therefore display the time of day.

Although sundials were known in Greece they were not fully developed until the Hellenistic period (3rd century BC) (Allen 1996).

Another, smaller, water based 5th century BC ceramic device for measuring time was also found during excavations of the Athenian Agora (Young 1951). These pots were also known as *klepsydrai* and the partial reconstruction shown in Figure 2.13 demonstrates how they worked. The ceramic *klepsydra* was filled with a measured volume of water, which drained from the bottom of the vessel thus measuring a fixed period of time. They were used in the law courts to limit the time of speeches and there is a description of their use in *Athenaion Politeia* (Pseudo- Aristotle *Athenaion Politeia*: 67). Demosthenes bemoans the fact that he

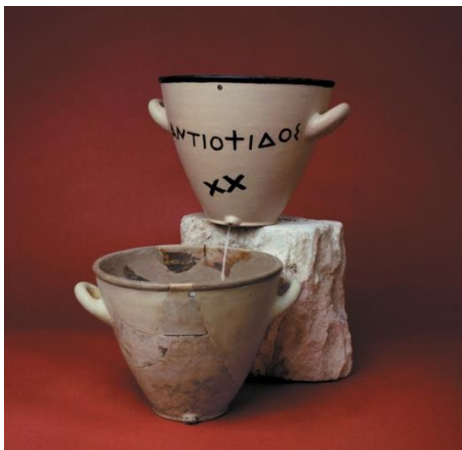


Figure 2.13. Ceramic Klepsydra. from the Athenian Agora (reconstruction in the Athenian Agora Museum P2084).

has been ‘forced to speak with so little water’ (Demosthenes *Against Boeotus* 2.38.3), or to leave things out ‘because there is only a little water left me’ (Demosthenes *Against Spudias*: 30.7). Allen (1996) makes the case that by limiting the time allocated to speeches in a trial they were accepting the principle of fallibility of human judgement, and significantly, that this linked the equal division of time to the political nature of democracy.

2.2.6. Time and Religion.

The Athenian in Plato’s *Laws* (809d) includes astronomy in the curriculum ‘so that the times, sacrifices and feasts may each be assigned their due position, according to nature’, reflecting the fact that religious festivals were invariably celebrated on the same day of the same lunar month each year (Davidson 2008). Festivals were often related to mythical events; Artemis’ Day 6 is next to her brother Apollo’s Day 7 and precedes it because she was the first born twin; Hermes and Aphrodite were celebrated on the same day (4) symbolising their tradition as a happy couple (Davidson 2008). As noted above (2.2.4), in

the *Life of Theseus*, Plutarch gives an explanation based on myth for the dates of the festivals associated with Theseus. This significance and association with a day number extended beyond the timing of festivals and is illustrated by Hermes, where Athenaeus (*Deipnosophists* 659d) describes an Athenian group called the *Tetradistai* who celebrated Aphrodite Pandemos, and Davidson (2008) suggests that the tetragonal shape of the *Hermes* erected in Athens encodes the date. Some festivals had a link to a seasonal agricultural activity and this link was reflected in the timing of the festival. The autumn month Pyanopsion is named after a festival to Apollo known as the Pyanopsia, which was held on the 7th day of this month, and included eating beans that were sown at this time of year. This festival was closely followed by the Oschophoria, a festival dedicated to Dionysos and associated with the autumn grape harvest (Parke 1977: 75, 77).

Echoing Veyne's assertion that mythical time could incorporate a chronology (1988: 18, 74), Davidson (2008) argues that the idea of sequence was important in myth. However, the myths about Dionysos' 'coming' do not indicate the god's historical arrival but rather a projection onto a historical format of some essential feature of Dionysos' character, 'the coming god' (Davidson 2008). Therefore earliness and lateness, priority and posterity, should be seen as symbolic sequential values and not as properties of temporal extension and directionality in myths (Sourvinou-Inwood 1987).

In *Theogony* (901-902), Hesiod says that as a second wife Zeus ...

married bright Themis who bore the *Hōrae* (Hours) and *Eunomia* (Order),
Dikē (Justice), and blooming *Eirēnē* (Peace)

Hesiod, *Theogony* 901 – 902. translator Wender (1973)

and Davidson (2008) interprets *Eunomia*, *Dikē* and *Eirēnē* as the three seasons or Times, suggesting that they did not represent individual seasons but the notion or principle of cyclical seasons. He also cites the *Iliad* (5.749), as an illustration of the role of the *Hōrae* in separating mortals and gods. This mirrors the difference between human ageing and limited time, with the immortal Olympian gods.

And Hera swiftly touched the horses with the lash, and self-bidden groaned upon their hinges the gates of heaven which the Hours (*Hōrae*) had in their keeping, to whom are entrusted great heaven and Olympus, whether to throw open the thick cloud or shut it

Homer, *Iliad* 5.749. translator Rieu (1950)

Two illustrations of the religious significance of what Davidson (2008) calls cumulative time are the serial deposition of burnt offerings at the altar of Zeus at Olympia, and a set of inscriptions found near a theatre at the base of the Lindos Acropolis on Rhodes. These inscriptions (dated 99 BC) are known as the Lindos Chronicle and are effectively a history of the temple of Athena Lindia (Dillery 2005). This Chronicle records time both as the annual cycle and on a historical scale, demonstrating a role for religious officials in documenting time beyond the annual cycle of festivals (Clarke 2008: 214). The document contains a catalogue of votives and stories of divine epiphanies that demonstrate the mixture of history and myth seen elsewhere in the Hellenistic period. The Chronicle also illustrates another feature of Hellenistic historiography where a combination of sources was often used to reinforce the stories (Dillery 2005).

Minos. A silver drinking-cup, upon which was written: "Minos to Athena Polias and Zeus Polieus," as Xenogoras says in the first book of his *Chronological Composition*, Gorgon in the first book of his [books] *Concerning Rhodes*, Gorgosthenes in his letter, [and] Hierboulus in his letter.

Lindos Chronicle Text B, lines 18-22 from Dillery (2008).

2.2.7. Kairos.

In 1978 Andrew Stewart wrote an article about a statue called *Kairos* that was created by Lysippos in the second half of the 4th century BC. The statue no longer exists but was described in an epigram by Poseidippos (*AP* iv. 275; Chapter 6.1.1) within a generation of the sculptor's death. It depicted a male character that had a pair of wings on his shoulders and on each of his ankles. He was running or possibly balanced on his toes and in his left hand he held a pair of scales balanced on a razor, whilst his right hand stabilised the scales. His hair style was unusual because it fell over his face but his head was shaved at the back. The statue is also unusual because it was apparently sited in front of the artist's own house at Sikyon (Stewart 1978). In Peter Levi's translation of Pausanias' *Guide to Greece*, Pausanias reports an altar to Opportunity (*Kairos*) in his description of Olympia (5.14.9) and

an *astragalos* statue base found near the deduced location has been suggested as the base for this statue (although the orientation of the figure must have been the reverse of that described by Poseidippos) (Stewart 1978). Since Poseidippos came from Pella there is a suggestion that a version of the statue also existed in Pella (Stewart 1978). The few extant copies are only in the form of reliefs (Figure 2.14) or gems, and on one of the gems (British Museum, London BM 1200) and a Byzantine relief (LIMC plate 598.14) *kairos* is balancing on a ball.



Figure 2.14. *Kairos*, 2nd century AD.
(Torino, Museo di Antichità 86707; LIMC V.1: 922; LIMC V.2: 397, *Kairos* Plate 4 (1992))

Stewart (1978) interprets the statue as a representation of proportion, relating his analysis to Lysippos' reputation for intellectual subtlety and choice of unusual subjects, and he proposes that its location suggests that it was a personal statement about Lysippos' skill and artistry. However, as Stewart (1978) acknowledges, in common usage the ancient Greek word *καῖρός* meant the auspicious moment. This is illustrated by several elements in the image; the wings and his pose indicate that this moment is fleeting (reminiscent of debates about the 'instantaneous now'), the precariously balanced scales imply a finely poised opportunity, and the curious hairstyle has been interpreted to indicate that he can be caught by his hair as he confronts you but his shaven head means that he cannot be caught once he has passed. This interpretation is also supported by Poseidippos' epigram (Chapter 6.1.1).

Exploration of the use of the concept *kairos* in literature and philosophy has led to slightly modified interpretations of the term. In a study of *kairos* in Aristotle's *Rhetoric*, Kinneavy

and Eskin (2000) define the word as 'right timing and due measure', and relate the concept to the definition of rhetoric as it applies to a particular situation. They extend this use of the concept into Aristotle's discussions of law (as applied to specific situations at specific times) and the emotions (performing an act at the right time). We know from the Greek version of the Old Testament (the *Septuagint*) that in the following passage from the book of *Ecclesiastes*, the English translation of 'a time to' is a translation of *kairos* (Smith 1986).

For everything there is a season, and a time for every purpose under heaven: a time to be born and a time to die; a time to plant and a time to pluck up that which is planted; a time to kill and a time to heal ... a time to weep and a time to laugh. . . .

Ecclesiastes (3: 1 ff.)

Smith (1986) described '*kairos* and *chronos* as different sides of the same coin'; *kairos* involved qualitative time and *chronos* described quantitative time and this idea has been adopted by modern writers. Recently a paper published in *Surgical Innovation* (2008) by Cunningham and Sutton has the title 'Letter to (Fellow) Young Doctors: More *kairos* with less *chronos*'. These authors distinguish linear, quantitative time measured by clocks and calendars, *chronos*, from *kairos*, qualitative time in relation to human activity, a moment of indeterminate duration in which something happens. Assessing the degree of penetration of the concept of *kairos* into the Hellenistic world would be conjecture, but Kinneavy and Eskin (2000) believe that the word has not received enough attention from modern scholars, partly because general reference works³ have not understood its importance.

2.3. Summary.

This chapter has surveyed several features of the understanding of time in ancient Greece. It is clear that there were multiple concepts of time and of time related ideas, and unlike the advances and practical developments in mathematics and astronomy that mark the rational intellectual interests of the Hellenistic period, the artistic, philosophical, social and symbolic aspects of time continued to be varied and sometimes ambiguous into the Hellenistic era.

Despite this, can any general themes be detected? The continued penetration of mythology into the less rational cognitive aspects of time is evident from art, historiography

³ The Oxford Classical Dictionary 3rd ed. (2003) eds. Hornblower, S. and Spawforth, A. is an exception.

and religion. The two Roman reliefs found in Italy (Kronos in Rome, dated AD 160, Figure 2.3 and *Kairos* in Turin, 2nd century AD, Figure 2.14) indicate a continuing interest in mythical depictions of a beginning and the present moment but there is no similar conceptual illustration of an end or apocalypse in the ancient Greek world. Our modern notion of Father Time, illustrated by Hogarth's etching (Figure 2.4), is coupled with his alternative name, the Grim Reaper. This terminology reflects our modern concern with a final ending, either our own or that of the world, but an equivalent anxiety is not apparent in the evidence from Greek art. This interpretation does not deny the ancient Greek concern with posterity that Lin Foxhall investigates in an article about 'monumental time' (Foxhall 1995^a). Foxhall argues that in Archaic and Classical Greece, a sense of the future influenced both writing and monuments. However, the monuments did not necessarily depict the personal features of individuals but were designed to trigger a recollection of the epic deed(s) of the protagonist(s). A cited Archaic example of this is the impersonal and unlabelled *kouroi* statues of Kleobis and Biton at Delphi: two sons who performed a heroic deed for their mother and were 'rewarded' by Hera with death at the peak of their acclaim. Herodotus makes clear his aim to prevent the great deeds of men fading in the future in his preface to his *Histories*, and Foxhall proposes that he had a disregard for the minutiae and details which allowed him to portray Solon in conversation with Kroisos despite the fact that they lived a generation apart (Foxhall 1995^a).

Dodds (1973: 1-25) has explored another idea related to the future, namely the idea of progress as it is portrayed in literature from the Classical to the Hellenistic and Roman periods. He describes as anti-progressive Hesiod's account of the passage from the mythical past Age of Gold ruled by Kronos, to the gloomy picture of his current world, called the Age of Iron, which Hesiod uses to warn his brother of the perils of disobeying Zeus (*Works and Days* 106-201). Dodds (1973: 24-25) highlights the fact that after the 5th century BC there was general hostility to the idea of progress and Edelstein (1967: 133, 138) thought that this continued into the early Hellenistic period. Edelstein (1967: 146) points to a change in vocabulary that occurred during the Hellenistic period. There was no word for progress in the Greek language; in the 4th century BC, ἐπίδοσις, (augmentation of knowledge) was used but Zeno used the word, προκοπή, (cutting one's way forward) when describing striving for self-improvement. The Hellenistic period was a time of great

originality in science and technology, as well as the arts and this appears to have led to more optimistic ideas of progress. This attitude was unlikely to have been restricted to the intellectual elite given the fashion for reading didactic poems (for example Aratus' *Phaenomena*) for entertainment (Edelstein 1967: 152). The Hellenistic inscription called the Parian Marble is not discussed by either Dodds or Edelstein but is interesting in this respect because it charts both the history of political figures and advances in technology.

It is important to note here that the Little Metropolis calendar portrays both the use of the Zodiac to measure time and a twelve month lunar calendar with images related to religious festivals, thereby combining a Hellenistic 'state of the art' astronomical method of measuring the passage of time within a year (the Zodiac) with a lunar temporal system related to religion and myth. This combination represents an intellectual amalgamation that has not been explored either in studies devoted to the frieze or to general studies of time in ancient Greece. The following chapter will discuss the relationship between astronomy and the measurement of time and investigate the history of the Greek Zodiac in order to explain the curious separation of the body of the Zodiac scorpion from its claws. It is this depiction that provides a Hellenistic date for the Little Metropolis calendar frieze.

Chapter 3. Astronomy and Time: the Date of the Little Metropolis Calendar Frieze.

3.1. Introduction.

The Little Metropolis calendar frieze depicts time as measured by the phases of the moon (a lunar calendar) and by the stars (a sidereal calendar depicted by the Zodiac). It is clearly not a precise mathematical document but in order to grasp how the frieze was understood at the time that it was commissioned and carved, we have to understand the ancient Greek's view of the cosmos and specifically their understanding of the relationship between the movement of the moon and the stars, and time.

The frieze contains images that clearly represent the constellations of the Zodiac and it is therefore reasonable to ask the questions: do any of the other images on the frieze depict non-Zodiac, individual stars or constellations and if so why were they chosen? These questions are reinforced by Deubner's proposal that Sirius is shown as a dog (Image 34) above the Zodiac image of Leo (Image 33) (Deubner 1932: 248-254). Knowledge of how the movement of celestial objects was regarded and critically what stars were considered significant during the period in which the frieze was made would support an attempt to assess previous identifications of the astronomical images on the frieze (Deubner 1932: 248-254; Palagia 2008; Simon 1983), and allow new proposals to be made. The Zodiac as depicted on the calendar differs from the Roman and modern Zodiac because Scorpio has been represented by two signs, the body of the scorpion in the Attic month Pyanopsion (Image 5) and its horns or claws in Boedromion (Image 41), and it follows that an examination of the history of the development of the Zodiac will crucially help to date the frieze (Chapter 3.4). In addition to investigating the date of the frieze, this chapter will look at different types of evidence for the extent to which knowledge of the night sky was embedded in the culture of ancient Greece (Chapter 3.6) and finally ask if the inclusion of images of celestial bodies provides an overarching theme for the frieze (Chapter 3.7).

3.2. Ancient Greek Concepts of Astronomical Reality.

The greatest achievements of early Greek science lay in astronomy (Lloyd 1970: 80) and the long term interest in astronomy and its partner mathematics, which can be said to

culminate in Ptolemy's *Almagest*, reflects both the ancient Greek's curiosity about the natural world and their concern to understand it. Ptolemy (Claudius Ptolemaeus) was a Greek speaking resident of Canopus (an Egyptian town close to Alexandria) working in the middle of the 2nd century AD in the reign of Antoninus Pius. His astronomical treatise the *Almagest*, which became the standard textbook on astronomy for 1,000 years, was written between c.AD 138 and AD161, although not published before AD 150 (Toomer 1984: 2). He wrote about a dozen books, which had two major themes; mathematical modelling and methods of visual representation of reality (Jones 2005). A significant proportion of his books have been preserved and although there are questions about his use of other people's data (Riley 1995) and the fact that we now know that there are errors in Ptolemy's observations (Swerdlow 2010), which had consequences for his own and for later astronomy, his work influenced western views of the universe for the next thousand years.

Ancient Greek physical science can be considered as having two methods of explanation; firstly that changes in physical matter could be explained by the effects of a few basic properties, typically hot, cold, wet and dry, and secondly that phenomena could be modelled by mathematics. These tended to be regarded as mutually exclusive so that the material world and the cosmos were regarded as having either qualitative processes that could not be modelled mathematically or quantitative processes that could. Studies of earthly phenomena tended to be classed in the first category and studies of astronomy fell into the second (Jones 2005).

In 1978 G.E.R. Lloyd published an influential paper entitled 'Saving the Appearances' in which he analysed earlier twentieth century interpretative studies of the astronomy of Proclus (c. AD 410 – 485), Ptolemy (c. AD 138 – 170) and Geminus (c. 50 BC), focusing on the work of Duhem (1908). The key question of Lloyd's 1978 paper is: were the Greek astronomers instrumentalists or realists? Duhem (1908) considered them to be instrumentalists; that is, their theories or models "were devices or fictions put forward purely for the sake of calculations with no claims to correspond to physical reality" (Lloyd 1978). Later scholars have followed Duhem's analysis and Wasserstein (1962) states that "the Greek astronomer in formulating his astronomical theories does not make any statements about physical nature at all. His theories are purely geometrical fictions. In other words to save the appearances became a purely mathematical task, it was an

exercise in geometry, no more, but, of course, no less". Modern debates about the interpretation of ancient Greek astronomy have to recognise the two conflicting problems of understanding that existed in the ancient world. In summary, the Platonist view that the fixed stars are regular and orderly has to be countered by the fact that the movement of the planets, sun and moon appear irregular and disorderly. By the Hellenistic period astronomers' chief aim was to provide mathematical models based on regular and uniform movements that would explain the movement of celestial bodies. Saving the appearances meant converting the non-uniform to the uniform, a philosophical approach that dated back to Plato (Lloyd 1973: 71).

The key ancient author used to support an instrumentalist view of Greek astronomy is Proclus, a Neo-Platonist philosopher from Lycia who worked in Alexandria and Athens in the 5th century AD. As a Neo-Platonist Proclus supported the view that observed movements of the heavenly bodies should as far as possible be explained in terms of circular and orderly movements but struggles (as all ancient astronomers and philosophers did) with the obvious complexity of the movements of the sun, the moon and the planets; a problem that follows from the persistent ancient belief that the Earth lies at the centre of the cosmos (Lloyd 1978). Lloyd (1978) describes Proclus as "a moderately intelligent summariser and critic of received views" but despite this disparaging comment, Lloyd's criticism of the instrumentalist interpretation of Proclus' work by Duhem and Wasserstein is actually based on the errors of translation and errors of interpretation of his writings made by these authors. Lloyd (1978) therefore maintains that Proclus presents a debate about the alternative instrumentalist and realist views. Evidence from earlier astronomers makes their position regarding the balance of realist interpretations (physics) and mathematical astronomy clear. Geminus, writing in the first century BC, maintained that physics could explain the formation, size, shape and destruction of stars whereas arithmetic and geometry explain their distances and movement; Geminus believed that "astronomy presupposes physics" (Lloyd 1978). Jones (2005) argues that the "broader deductive structure of the *Almagest*" indicates that Ptolemy, writing in the 2nd century AD, also believed that his models represented material bodies, even if he was not explicit about how they did so. This realist position of Hellenistic and Roman astronomers influenced the system of Greek astrology that developed in the Late Hellenistic-Roman world (Section 3.4).

3.3. Hellenistic Astronomy.

3.3.1. *An Explanation of Movement.*

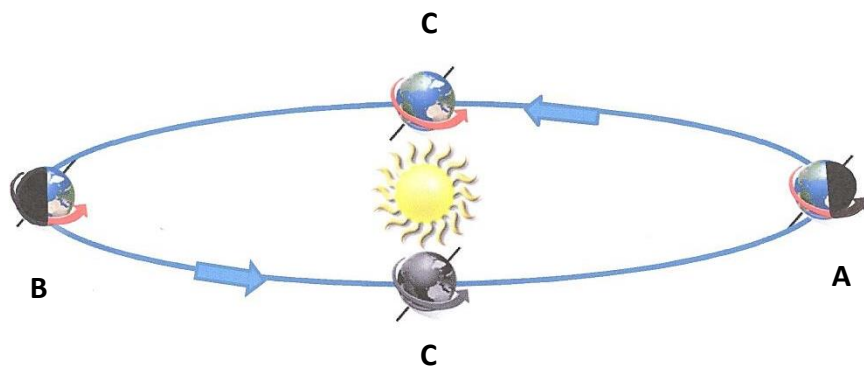
Ptolemy devised a complex epicyclical model for the cosmos that accounted for the sometimes apparently erratic movement of the planets. The epicyclical model positioned the earth at the centre of a huge sphere round which the sun, the planets and the stars were thought to rotate. This model of the cosmos was based on several earlier models, particularly on the earlier work of Hipparchus (200-100BC). Except for a heliocentric model proposed by Aristarchus (c.310-230 BC), all these models placed the earth at, or close to, the centre of the cosmos (Snow 1993: 33-39).

This earth-centric model reflects both the ancient Greek and our own observation of the sky, where the stars, planets, Sun and moon all apparently move in great arcs. In order to understand most easily the ancient Greek perception of the movement of these bodies, it is helpful to review what we now know about the basic astronomy of the movements of the Earth, the moon and the planets in relation to each other and other celestial bodies. This will inform an understanding of the night sky in which three important movements, the spin of the Earth, its orbit round the Sun and the orbit of the moon around the Earth, all of which contribute to the celestial phenomena that were important in relation to the ancient Greek use of astronomy in recording time.

The Earth orbits the Sun (Figure 3.1), one orbit defining a single tropical (solar) year of 365.25 days. The plane of the Earth's orbit round the Sun is known as the ecliptic plane. The Earth also spins on its own north/south axis but this axis is always at an angle of 23.5° to the ecliptic plane (Figure 3.1). A single spin of the Earth on this axis defines a day but because the spin axis is always at an angle of 23.5° to its orbit, at one position on the ecliptic (Figure 3.1: A) the North Pole is tilted away from the Sun (northern winter with short days) and at a diametrically opposite position on the ecliptic (Figure 3.1: B) the North Pole is tilted towards the Sun (northern summer with long days). The two extreme positions are known as the solstices and, halfway between these extreme winter and summer positions (Figure 3.1: C), the length of the day and night is equal in both the northern and the southern hemisphere. These intermediate positions are called the vernal (spring) and autumn equinoxes and here at midday, the Sun is overhead (at the zenith) at

the equator. At midday during the northern summer solstice, the Sun is overhead at the northern latitude of 23.5° and this defines the Tropic of Cancer. The Tropic of Capricorn in the southern hemisphere is similarly defined by the position of the Sun at the northern winter solstice (Snow 1993: 23 – 27). These changes in the orientation of the Sun to different latitudes on Earth during the course of a year mean that, at any given location, the Sun rises and sets at different positions on the horizon through the year. For example, standing on the Pnyx in Athens (latitude $37^{\circ}58'N$) during the summer solstice, the Sun rises over Mount Lykabettos but in midwinter it rises further south, over Mount Hymettos, apparently moving through an arc of about 60° (Hannah 2009: 7).

Figure 3.1. Annual Orbit of the Earth Round the Sun.



The moon orbits the Earth and the plane of this orbit is almost the same as the ecliptic plane. Because the changes in the appearance of the moon, forming a crescent at the new moon that becomes a half circle and then a full moon as it waxes and reversing the pattern as it wanes, are a prominent feature of clear night skies, we are familiar with the movement of the moon. It takes the moon about 27 days and 8 hours to encircle the Earth, measured from a fixed point of reference in the celestial sphere (see below), and this is known as a sidereal month. But because the Earth moves round the Sun at the same time, from our point of view it takes about 29 days and 13 hours from one full moon to the next: a lunar month (Snow 1993: 27).

The ancient Greeks knew only 5 planets (Table 3.1), and these orbit the Sun in the same plane as the Earth (the ecliptic). The movement of the planets was considered erratic and a mathematical model to predict accurately their movement was only produced in the 2nd century AD by Ptolemy. As an example of this apparently erratic movement, Figure 3.2 is a diagram showing how the simultaneous orbit of the Earth (A) and Mars (B) around the Sun

(orange) produces an apparent trajectory of Mars (C) when viewed from Earth, where at one point in its orbit the planet seems to go backwards (D).

Table 3.1. DIVINE AND SECULAR NAMES FOR THE PLANETS. (after Geminus' *Introduction to the Phaenomena: A translation and study of a Hellenistic survey of astronomy. Evans & Berggren 2006: 119).*

Secular Greek Name	Translation	God	English Name
Phainōn	Shiner	Kronos	Saturn
Phaëthōn	Bright one	Zeus	Jupiter
Pyroëis	Fiery one	Ares	Mars
Phōsphoros	Light bringer	Aphrodite	Venus
Stilbōn	Gleamer	Hermes	Mercury

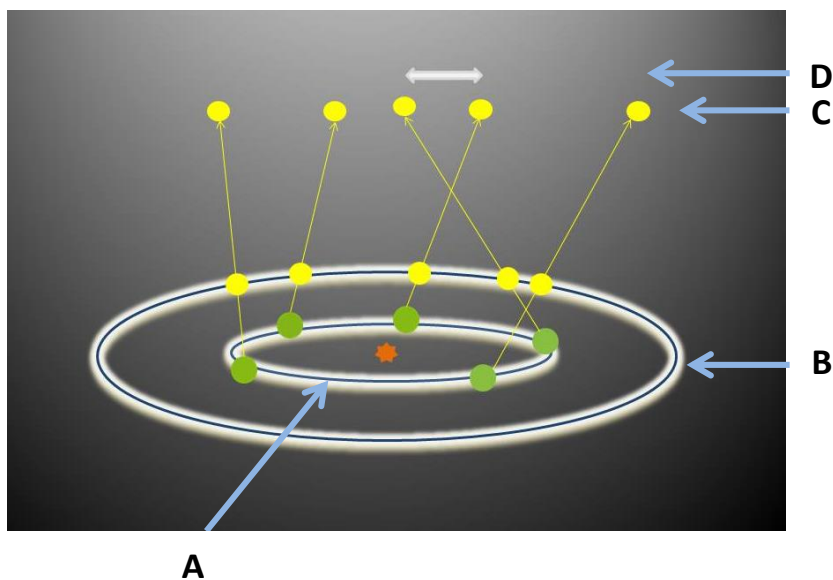


Figure 3.2. The Apparent Trajectory of Mars in the Night Sky as Viewed from Earth over Several Months. Orbit of the Earth (A) and Mars (B), Sun (orange), apparent trajectory of Mars (C), apparent backward trajectory (D). Lines of sight shown as thin yellow arrows.

The other stars in the sky are known as the fixed stars, the term referring to the fact that, using the technology of the ancient Greeks (as well as amateur astronomers today), their position relative to each other does not change. The ancient Greeks were familiar with all the bright fixed stars and by the 8th century BC had grouped them into constellations, evidenced by a number of references to constellations of stars in Homer's *Iliad* (see section 3.7). The following description of Achilles' Shield, which Hannah argues is season-specific and describes the spring (Hannah 2001), illustrates this.

He made the earth upon it, and the sky, and the sea's water,
And the tireless sun, and the moon waxing into her fullness,
And on it all the constellations that festoon the heavens,
The Pleiades and the Hyades and the strength of Orion
And the Bear, whom men give also the name of the Wagon,
Who turns about in a fixed place and looks at Orion
And she alone is never plunged in the wash of the Ocean.

Homer, *Iliad* 18.483-89 (c.750BC) (Hannah 2001, quoting the translation by R. Lattimore)

Recently, Barnes (2014) has analysed a fragmentary Archaic skyphos (c.625 BC) from Halai, Eastern Locris and shown that the animals that decorate the cup represent constellations.

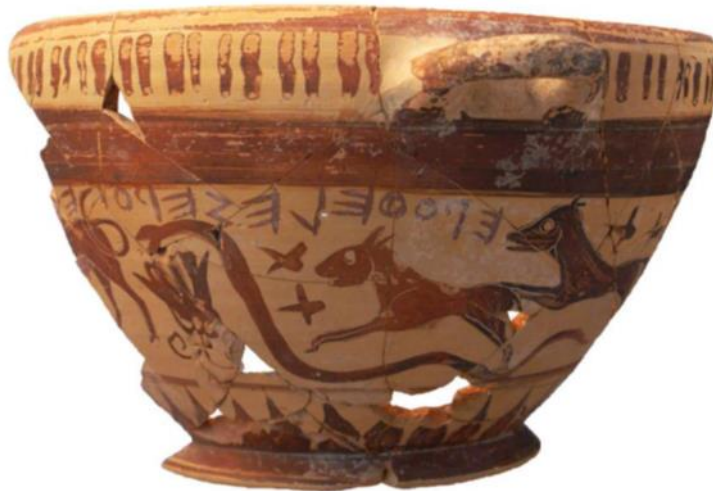


Figure 3.3. Halai Archaic Skyphos (c. 625 BC).

Lamia Archaeological
Museum H91-648.

(adapted from Barnes 2014)

The frieze of animals, who all face left, is framed by two bands of decoration and the cup has both the potters and the painters signs (Figure 3.3). Barnes (2014) proposes that the animals represent constellations; a bull for Taurus, followed by a snake for Hydra, a hare for Lepus, a dog for Canis Major, a scorpion for Scorpius (not Scorpio), then a dolphin for Delphinus and a lion for Leo. This abbreviated representation of the night sky was found 3 m from a small Archaic temple and is thought to have been a dedication (Barnes 2014).

In order to describe the stars and constellations it is helpful to have a framework for the sky that is independent of the observer's position on Earth and this comes from the ancient Greek concept of the celestial sphere, which is imagined as a sphere surrounding the Earth, on which are located the stars. The celestial sphere has the same orientation as the Earth. In other words, the Earth's north-south axis is extended into space to give a north-south axis to the celestial sphere and the Earth's equator is similarly extended to give the celestial sphere an equator that lies in the same plane as that of the Earth (Figure 3.4).

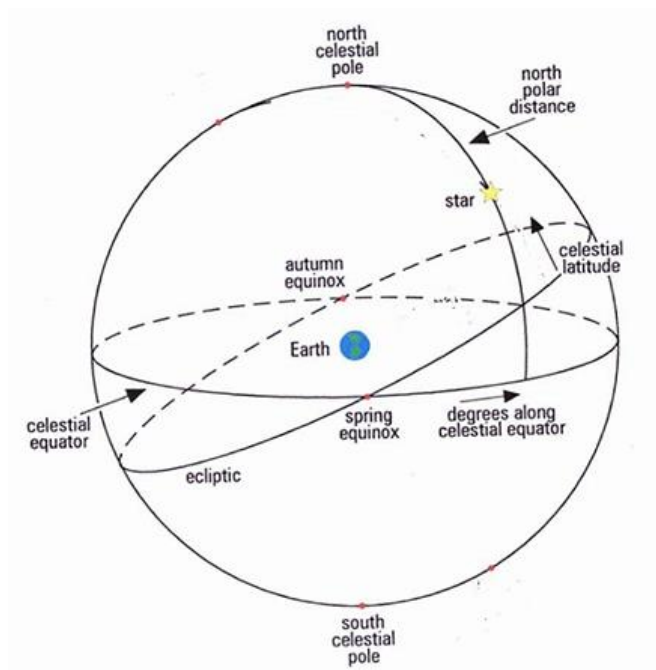


Figure 3.4. Celestial Sphere Showing the Celestial Equator, the Ecliptic Plane and the Spring and Autumn Equinoxes.

The ecliptic is the apparent trajectory of the sun. The declination of the star shown in yellow is given as 'celestial latitude' and the right ascension is given as 'degrees along the celestial equator' (see Table 3.2).

Adapted from <http://www.hps.cam.ac.uk/starry/armillmaths.html>.

The celestial sphere was crucial to the development of Greek astronomy. There is a tradition recorded by Cicero (*Rep.* 1.22) that the early Greek astronomer, Eudoxus of Cnidus, (c.408-356 BC), had a solid model of the celestial sphere (*sphaera solida*) on which he inscribed figures of the stars (Stern 1960: 49), but there is no evidence for such a *sphaera solida* in the 4th century BC (Kidd 1997: 17). Eudoxus' work (*Phaenomena*) that described the geometry of the celestial sphere with its axis and poles was used by Aratus

(c.276 BC) in his poem (also called the *Phaenomena*), which provided a guide to the movement of the constellations (Kidd 1997; Poochigian 2010). Geminus later used the concept of the celestial sphere to explain the view of the cosmos as seen from a particular location on Earth (Evans & Berggren 2006: 149-160). The Farnese Globe, which is supported by a statue of Atlas, was made in the 1st or early 2nd century AD but is a copy of an earlier Hellenistic prototype (Stern 1960: 48). This *sphaera solida* depicts many constellations (including those of the Zodiac) with iconography that was still in use in the middle ages (Duke 2006; Schaefer 2005).

The celestial sphere is still used by modern astronomers to describe the location of stars independently of the observer's position (Holliday 1999: 43-50). Table 3.2 gives the terminology used to describe analogous measurements on the Earth's surface, the observer's sky and the celestial sphere. The Greenwich meridian is obviously arbitrary but because the Earth is spinning, the right ascension cannot be measured from a fixed point on

Table 3.2. TERMINOLOGY OF ANALOGOUS MEASUREMENTS.

	Up/down coordinate	Up/down zero	Up/down top	Up/down bottom	Around coordinate	Around zero
Earth's surface	Latitude	Equator	North pole	South pole	Longitude	Greenwich meridian
Sky	Altitude	Horizon	Zenith	Nadir	Azimuth	Observer's meridian
Celestial sphere	Declination	Celestial equator	North celestial pole	South celestial pole	Right ascension	Vernal equinox

Earth; instead a reference point in the sky is specified and this is the intersection of the ecliptic (the Earth's orbital plane) and its equatorial plane (see Figure 3.4), indicating the spring (vernal) equinox. When the coordinates were established in the 2nd century AD, the line of intersection of these planes pointed to the constellation Aries but because of a fourth movement called precession, it currently points to the constellation Pisces and will in

the future point to Aquarius (Snow 1993: 22). Precession describes a circular wobble in the spinning axis of the Earth (Figure 3.5), like a top that is slowing down. Currently (2015) the Polaris star is positioned directly over the North Pole but as the axis wobbles the North Pole gradually points to a different region of the celestial sphere (Holliday 1999: 63). This circular movement of the North Pole is very slow and a full circle takes 26,000 years.

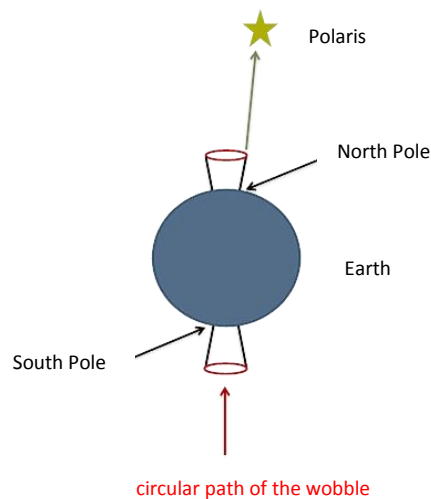


Figure 3.5. Variation in the Earth's Spin Axis over Time: Precession.

3.3.2. Appearances.

We can now consider the apparent movement of the stars and the sun as seen by an observer on Earth. Because the Earth spins (completing one cycle every 24 hours), our view of the celestial sphere changes through a 24-hour period and the fixed stars of the celestial sphere apparently move in parallel arcs across the sky with each star moving in a circle every 24 hours. Because they are produced by the Earth's spin, these circular movements are both parallel to the Earth's equator and to each other so that the spatial relationship between the stars is fixed. This means that from the Earth-observer's point of view, at a single location any given star always rises and sets at the same place on the horizon.

Stars that are situated on the celestial sphere close to a pole (near the pivot of the spin) move in small circles and Polaris that currently sits directly on the north celestial pole, does not move at all. As we observe stars that are situated closer and closer to the equator of the celestial sphere they appear to move east to west through circles with increasingly greater circumferences and eventually complete circles cannot be seen; the stars rise and

set below the horizon . Figure 3.6 shows the circular movement of stars and demonstrates that stars close to the North Pole never set but move in complete circles. Polaris is one of the stars forming the constellation called the Little Bear (Ursa Minor) and this constellation therefore never sets, a phenomenon that is described in Homer's portrayal of Achilles' Shield.



Figure 3.6. North Polar Star-trails Photographed with 400 30-second Exposures. A meteor trail can be seen in the bottom left. Each star-trail shows the apparent distance travelled by the star in a period of 3 hours 20 minutes and is therefore not a complete circle. Adapted from (Couper and Henbest 2012: 16).

And the Bear, whom men give also the name of the Wagon,
Who turns about in a fixed place and looks at Orion
And she alone is never plunged in the wash of the Ocean.

Homer, *Iliad* 18.483-89 (c.750BC) (Hannah 2001, citing the translation by R. Lattimore)

The picture of an apparently revolving celestial sphere carrying stars that follow predictable parallel circles always rising and setting in the same place on the horizon, has to be qualified by the fact that the Earth not only spins on its own axis but in a year completes an orbit of the Sun. This affects the time of the day or night at which a given star rises and sets but not the location on the horizon.

The ancient Greeks paid particular attention to the time of the year at which a given star rose or set at either sunrise or sunset. As an illustration, Hannah (2009: 14-15) imagined an observer in a particular geographical location noting the appearance of a recognised star

over the horizon in the East just before sunrise. After sunrise the star will be invisible because of the brightness of the Sun. Making observations of the same star night after night will show that each day it rises earlier and earlier back through the night, until eventually it rises at the beginning of the night just after sunset. After this day, the star rises during daylight and cannot be seen. The Greeks called the morning rising, the heliacal rising and the evening rising, the acronychal rising. On Cnidus, the island home of the Greek astronomer Eudoxus, in 2009 the cluster of stars known as the Pleiades rose just before dawn (heliacal rising) on June 12th and rose at sunset (acronychal rising) four months later on October 29th (Hannah 2009: 14-15). The setting of a star has a similar progression. A given star may set in the West just ahead of sunrise and over the following weeks it will set earlier and earlier through the night until it sets just after sunset. After this date it sets during daylight and cannot be seen. The morning setting is known as the cosmical setting and the evening setting, the heliacal setting (Hannah 2009: 14-15). Repeating the example of the Pleiades and Cnidus, the cosmical setting takes place on about December 6th and the heliacal setting around May 4th (Hannah 2009: 14/15). Ptolemy devised and used a systematic nomenclature that distinguished between the true setting or rising date of stars and the date of the visible setting or rising (collectively known as star phases) but other, earlier, authors were not systematic in either their choice or their terminology (Evans and Berggren 2006: 63-70).

Because the axis of the Earth's spin is set at 23.5° to its orbit round the Sun, the apparent movement of the Sun as viewed from Earth is not parallel to the equator and therefore not parallel to the movement of the fixed stars. Instead it follows a path at 23.5° to the celestial and terrestrial equators. The trace of this path on the celestial sphere is shown diagrammatically in Figures 3.4 and 3.7. The apparent movement of the Sun is independent of the star movements but conceptually it moves across the celestial sphere crossing a group of constellations, the Zodiac, that lie on its path. This is illustrated in Figure 3.7, although obviously in reality it is impossible to see the stars and the Sun at the same time.

3.4. The Zodiac and the Date of the Little Metropolis Calendar Frieze.

In Greece, by the 3rd century BC, the ecliptic had been artificially divided into twelve 30° sectors each containing a constellation, collectively known as the Zodiac (Table 3.3) but it

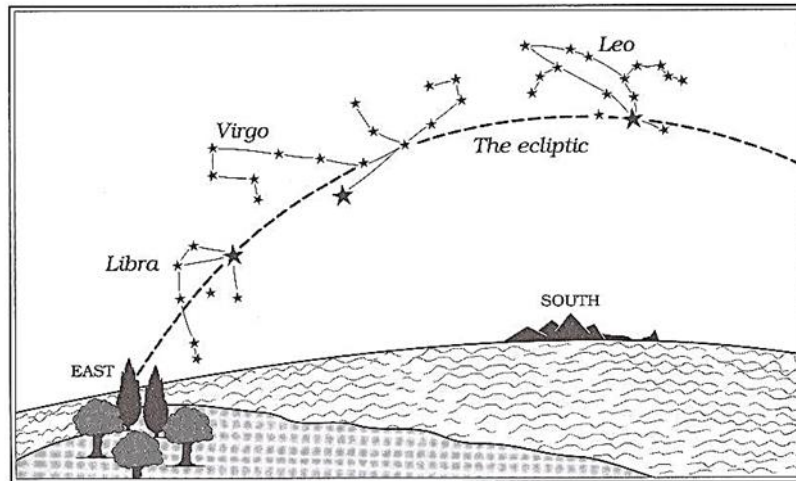


Figure 3.7 Imagined View of the Sky Showing the Path of the Sun (the ecliptic), and the Position of 3 Constellations in the Zodiac. (from Wood and Wood 1999:23).

had its origin in 5th century BC Babylon where it was invented for astronomical computation not divination (Rochberg-Halton 1984). These constellations are sometimes said to ‘follow’ the Sun (Hannah 2005: 126) but this can only be seen by looking at the stars on the horizon at sunset and dawn. During the year the position of the Sun at sunset and dawn changes and it is the constellations whose appearance (heliacal or acronychal rising) or disappearance (cosmical or heliacal setting) coincides with the changing position of the Sun at dawn and sunset that defines the Zodiac.

Table 3.3. SIGNS AND NAMES OF THE CONSTELLATIONS FORMING THE ZODIAC.

(translation of Greek names used by Aratus in brackets).

♈ Aries (Ram)	♋ Cancer (Crab)	♎ Libra (Claws)	♏ Capricorn
♉ Taurus (Bull)	♌ Leo (Lion)	♏ Scorpio (Scorpion)	♒ Aquarius (Water Pourer)
♊ Gemini (Twins)	♍ Virgo (Maiden)	♐ Sagittarius (Archer)	♓ Pisces (Fishes)

The Cilician Hellenistic poet, Aratus, described the Zodiac in his poem called *Phaenomena*:

.....each sixth measured equal intercepts two constellations. Men call it by name the circle of the Zodiac [545]. On it is the Crab, and next the Lion, and under that the Maiden, after her the Claws and the Scorpion itself, the Archer and Capricorn, and after Capricorn, the Water-pourer; after him the two Fishes are starred, after them the Ram, the Bull after that and the Twins [550].

Aratus, *Phaenomena* (translator Kidd 1997)

Poochigian (2010) considers this didactic poem by Aratus to be “one of the most influential poems in antiquity” and he shows that the *Phaenomena* had a more “illustrious pedigree of Latin translators than any other Greek poem” (Poochigian 2010: xxiii – xxvii). Evidence for the life of Aratus comes largely from four *Vitae* preserved in manuscripts of Aratus, which in general outline agree and are therefore considered accurate (Poochigian 2010: ix – xi). He was born in Soli, Cilicia in about 310 BC; in 276 BC he was invited to the court of Antigonus Gonatus at Pella in Macedonia and he wrote the *Phaenomena* whilst he was there. He spent some time at the court of Antiochus I Soter in Syria but returned to Pella where he died in 239 BC (Poochigian 2010: ix – xi). The lack of biographical evidence makes interpreting the influences of other astronomers and philosophers difficult. He may have spent time in Athens in the 280s and early 270s BC and the poem shows that he was at least acquainted with the teachings of Zeno and other Stoic philosophers (Poochigian 2010: ix – xi). The *Phaenomena* has four parts; a Proem or hymn to Zeus (1-18), a description of the constellations and how to estimate time by observing them (19 – 757), local weather signs observable in natural phenomena and the behaviour of birds and animals (758 – 1141) and finally a conclusion (1142-1154). The early section (19 – 757) of the poem is considered an adaptation of a lost book by Eudoxus of Cnidus and the most important predecessor of the work is Hesiod’s *Works and Days*, written in the 8th century BC (Poochigian 2010: xi - xiv). Apart from the straightforward description of the stars and weather signs, this work provides an insight into the changes in world view that accompanied political developments in the Hellenistic period and this aspect of the poem will be considered in Chapter 6.

A depiction of the Zodiac that is presumed to be earlier than Aratus has been found on a 35 cm terracotta disc recovered from a tomb in Brindisi (Figure 3.8). The disc is believed to be dated 4th century BC and depicts Dionysos and Ariadne seated on a chariot in the centre surrounded by images that represent the constellations of the Zodiac (Hardie 1985). It is argued that the early date of this disc is supported by the fact that the artist appears to have been unsure about the details of the Zodiac and made mistakes; there are only eleven constellations, Capricorn has no tail and the order is wrong, Taurus coming between Gemini and Cancer instead of between Aries and Gemini (Hardie 1985) . In common with other early descriptions of the Zodiac, Libra is missing and Scorpio covers an arc of 60^o. Aratus splits the Scorpion into two 30^o constellations; the body of Scorpio and the Claws.



Figure 3.8. Terracotta Disc from Brindisi Showing the Ascension of Dionysos and Ariadne Surrounded by Images of the Zodiac (Museo Provinciale, Brindisi, Italy). (from Kerényi, 1976: plate 146).

One of the puzzles on the Little Metropolis calendar frieze is the separation of the body of Scorpio (Image 5) from its Claws (Image 41), which are found where Libra is positioned in later Zodiacs (Figure 3.9 below). Virgil (70 BC to 19 BC), who was contemporary with Augustus, wrote a descriptive poem (Wilkinson 1950), sometimes termed a ‘farmer’s manual’, called *Georgics* between 35 BC and 29 BC. This poem in four parts was part agricultural manual and part allegorical political poem. The work is unusual in that it appeals to a mortal rather than invoking the gods and the mortal in question is the powerful Octavian. In the first book of the poem Virgil refers to Octavian in

the context of the Zodiac. This passage is relevant to the depiction of the Zodiac on the Little Metropolis frieze and needs some interpretation. The translation by Fallon (2006; translation below) names the Zodiac constellation, Libra, but the Latin script says *Chelasque* (pursuing Claws) , which is the term used in the translations of Chew (2009: 4-5; translation below), Project Gutenberg (2008), Miles (1980: 68) and Thomas (1988: 74-75).

or whether you will add a new star to the Zodiac to quicken months
where there's a lull between Virgo and Libra which comes after it
(already ardent Scorpio contracts its claws for you
and allots to you more than your fair share of sky).

Virgil, *Georgics* 1.32-35 (translation by Fallon 2006)

or whether you will add yourself, a new star
to the slow-moving months
where between Virgo and the pursuing Claws
a place lies open –
 now for you
 the fiery Scorpio
 is drawing back his legs (arms)
 and for you
 he has left a piece of the sky
 more than is due.

Virgil, *Georgics* 1.32-35 (translation by Chew 2009)

Georgics was written over a long period (Heslin 2010) and this early section was among the parts that were written late, after Actium (31 BC) (Wilkinson 1950). All of the authors agree that this passage refers to the late first century BC, Roman introduction of Libra and the adoption of the structure of the Egyptian Zodiac, which had 12 constellations instead of the 11 constellation early Greek Zodiac (Neugebauer & Van Hoesen 1959: 59; Thomas 1988: 74-75). Virgil does refer to Libra (the Balance) later in the poem (1.208) (Getty 1951) and the replacement of the Claws of Scorpio in the Zodiac by Libra and her sign the Balance in honour of Octavian/Augustus, is accepted by all of the authors cited above. The 'new star' in the passage probably does not refer to a constellation (Virgil was more knowledgeable about astronomy than this interpretation implies). It has been taken to refer to Octavian's future deification, and may reference the comet seen after Julius Caesar's death (Fallon 2006 note 1.32). The constellations of the Zodiac are not a uniform size and the 'slow moving months' may refer to the fact that the large size of Virgo and Libra makes them take the longest to rise above the horizon (Getty 1951). Relating the introduction of Libra to August's birth sign for September 23rd is difficult (Getty 1951; Barton 1995), but the Virgil

passage indicates that this change to the Zodiac was contemporary with Augustus, and the presence of Claws on the Little Metropolis frieze (Figure 3.9) therefore helps to date it.

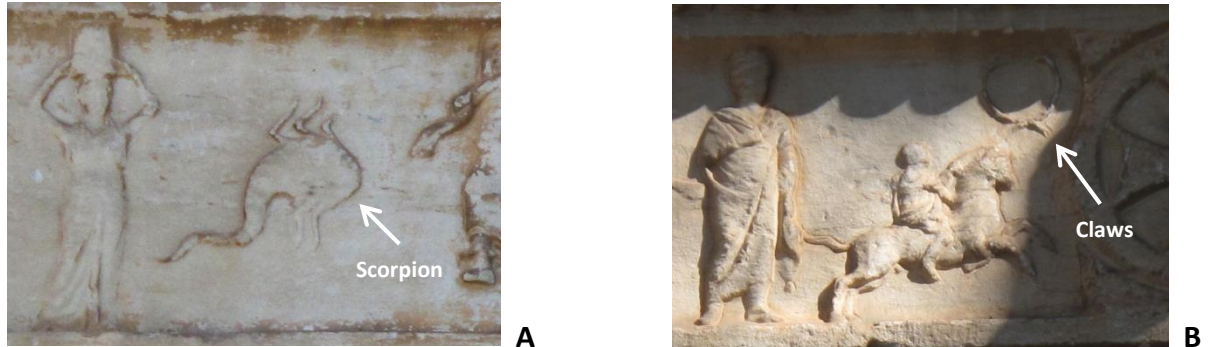


Figure 3.9. Scorpio and the Claws on the Little Metropolis Frieze. A: Image 5; B: Image 41.

Perhaps more informative than Virgil's *Georgics* is a 12 part agricultural manual called *On Agriculture and Trees* written between about AD 60 and AD 65 by Lucius Junius Moderatus Columella. In Book XI Columella gives instructions for the timing of agricultural activities, relating these to the movement of the stars and giving the Julian date when the Sun moves into each sign of the Zodiac. He states "On September 19th the Sun passes into the Balance" (Book XI ii. 65) indicating that the change in the Zodiac, anticipated by Virgil, had occurred by about 50 years after Augustus' death.

The Babylonians designated the stars in the constellation called the Claws by Aratus as a Balance (Figure 3.10) and this term was probably introduced into later Greek astronomy from them (Evans & Berggren 2006: 116, note 12). The Balance later became the Roman symbol for Libra (meaning balance in Latin). It is difficult to pinpoint precisely the date at which the change from Claws to Libra and her sign, the Scales or Balance occurred, or to know how widespread it was when introduced. Table 3.4 gives a number of sources who describe this constellation and shows the chronology of the terms used, covering a period from the early 3rd century BC to Ptolemy in the 2nd century AD.

Some of the sources are *parapegmata*, that is documents that related star phases and corresponding weather predictions (see section 3.5.1). The Antikythera Mechanism is a clockwork device that contains a number of time-related calculating gears, which was

Table 3.4. REFERENCES TO THE CONSTELLATION KNOWN BY ARATUS AS THE CLAWS OF SCORPIO.

SOURCE	P. HIBEH 27 ¹	ARATUS ²	ERATOSTHENES ³	HIPPARCHOS ⁴	ANTIKYTHERA MECHANISM ⁵	GEMINOS ⁶	DENDERA ⁷	COLUMELLA ⁸	PTOLEMY ⁹
DATE	Early 3 rd century BC	c. 267 BC	c. 230 BC	c. 160 BC	c. 100 BC	1 st century BC	50 BC	AD 60-65	AD 138-162
TERM USED	Claws	Claws (<i>chēlai</i>)	Claws	Claws/ Balance* (<i>zugos</i>)	Claws	Balance/ Claws*	Balance	Libra *	<i>Phaseis</i> *-- Claws; <i>Almagest</i> -- Balance
NOTES	Parapegma, Greek text from Egypt.	Parapegma related poem.		* Balance used once.	Bronze geared mechanism.	Parapegma. * used in reference to the 'ancients'	Greco-Egyptian relief.	Parapegma. * Latin for Balance	*Parapegma.

Notes for TABLE 3.5. 1.P.Hibeh 27, is a Greek textual parapegma from the Saïte nome of Egypt (Lehoux 2007:222); 2. Aratus' *Phaenomena* [545-550] (Kidd 1997); 3. Eratosthenes, *Catasterisms* (Evans and Berggren 2006:116, note 12); 4. Hipparchos uses Claws in his commentary of Eratosthenes with one mention of the Balance (iii 1.5) (Evans and Berggren 2006:116, note 12); 5. A clockwork mechanism that includes a dial showing the Zodiac (Evans, Carman and Thorndike 2010); 6. Geminus' *Introduction to the Phaenomena*, (Evans and Berggren 2006: 172; Lehoux 2007: 157 - 158); 7. The Dendera relief Zodiac (Rogers 1998); 8. Columella's *Book XI of On Agriculture and Trees* Book XI, ii 34, 65 (Forster and Heffner 1948-55); 9. Ptolemy, *Phaseis* (Lehoux 2007: 161) and *Almagest* (Toomer 1984: 341-399). Ptolemy uses Claws throughout the text of the *Phaseis* but uses Balance in connection with a Chaldean observation of Mercury in the *Almagest* (Evans and Berggren 2006:116, note 12) and Libra in his description of the constellations of the northern hemisphere (Toomer 1984: 341 – 399).

recovered from an ancient shipwreck off the island of Antikythera in 1901 (Freeth et al. 2006; Price 1974) (see section 3.5.1). It has been dated by reference to other finds on the ship and now exists in several fragments, one of which contains part of a dial that depicted the Zodiac. The illustration (Figure 3.11) of this fragment in a paper by Evans, Carman and Thorndike (2010) has the surviving section labelled Virgo and Libra but the inscription on this fragment says XHAAI, Claws, not Libra.

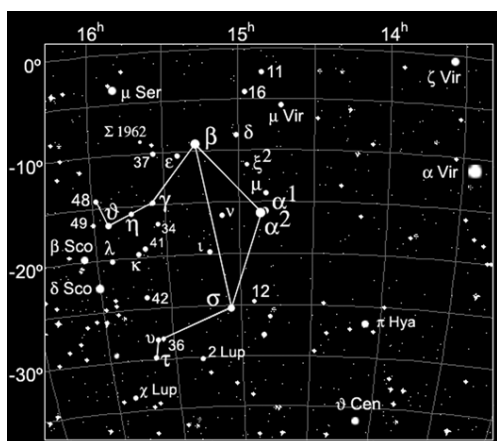


Figure 3.10. Constellation of Claws/Balance/Libra.
(www.dibonsmith.com)

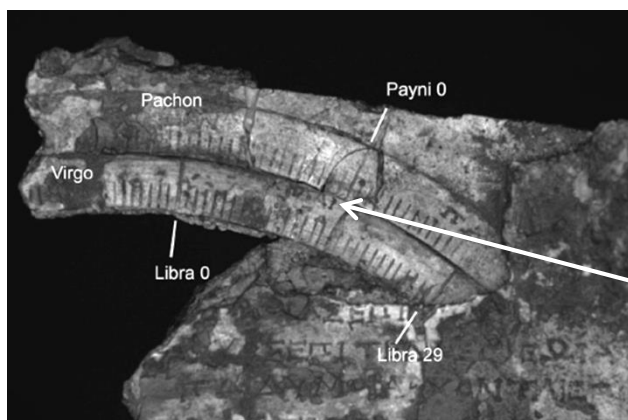


Figure 3.11. Detail of Fragment C AK31a of the Antikythera Mechanism c. 100 BC .

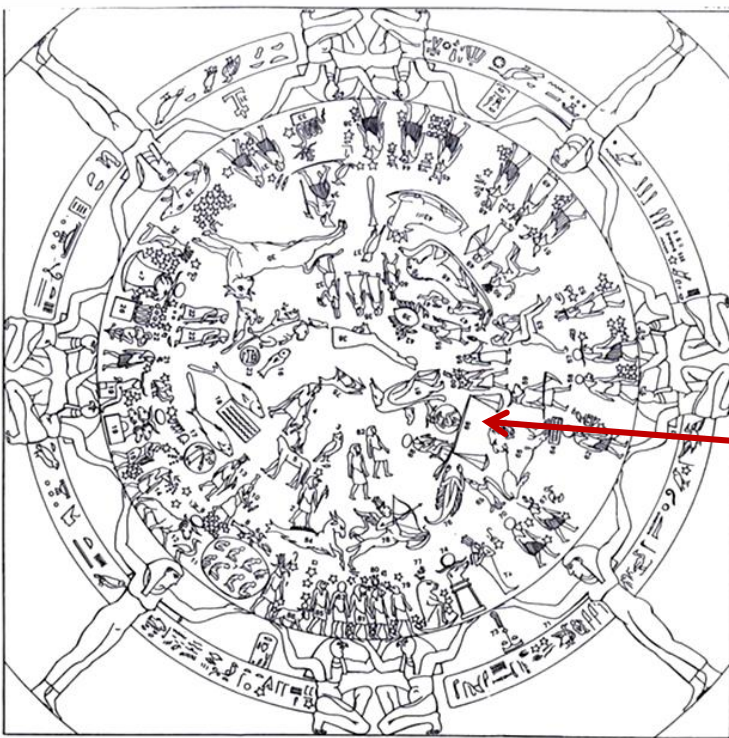
(from Evans, Carman and Thorndike 2010).

Inscription XHΛAI (Claws)

The Dendera sandstone relief (Figure 3.12) comes from the domain dedicated to the goddesses Hathor and Isis at Dendera, Egypt and has been dated to the first century BC by the configuration of the planets among the constellations (Rogers 1998; Evans 1999). It was part of the ceiling of one of the temples where the resurrection of Osiris was commemorated during the period when the ruling elite in Egypt spoke Greek but were governed by Rome, and should be interpreted as a map of the sky rather than a horoscope. Among the constellations represented several belonging to the Zodiac can be recognized, including the Scales or Balance.

Roman horoscopes from the imperial period (roughly the first to the fifth century AD) have been preserved on papyri from the rubbish heaps of ancient Oxyrhynchus in Egypt (Jones 1999) and these contain the Greek word for a balance. Figure 3.13 shows a modern sketch

of a diagram on an early papyrus horoscope from Oxyrhynchus (P.Oxy 235) (reproduced in Evans 1999: Figure 33). This horoscope has been dated to AD 15 – 22 and uses the Greek word for a balance. A photograph of a later horoscope from the same site is shown in Figure 3.14. This horoscope is much later than that in Figure 3.13, dating between AD 480 and AD 503, but although the editor (Jones 1999: 415) translates the word as Libra, it clearly also uses the Greek word for a balance.



**Figure 3.12. Dendera Zodiac
c.50 BC .**

(from Rogers 1998).

Scales

Roman images of the Zodiac invariably show Libra holding scales or simply the scales. Early Roman depictions of the Zodiac can be found associated with the cult of Mithras, which Beck (1998) proposes was founded in the third quarter of the first century AD. Figure 3.15 shows a drawing of the Zodiac from the ceiling of the cult niche on the Island of Ponza, which is dated c. AD 212 (Beck 1976: Figure 1). Here the Scorpion is flanked by Sagittarius and a rather indistinct human figure that appears to be holding something in an outstretched hand. The latter must be Libra holding scales since there are 12 divisions of the Zodiac ring not 11.



Figure 3.13. Modern Diagram of a Papyrus Horoscope from Oxyrhynchus, P.Oxy 235 (AD 15 – 22).

(from Evans 1999: Figure 33).

ΖΥΓΟC (Balance)

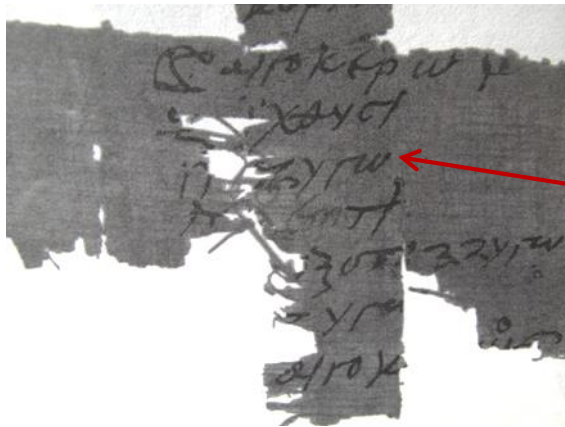


Figure 3.14. Papyrus Horoscope from Oxyrhynchus, P. Oxy 4274 (AD 480 - 503).

(from Jones 1999: 415).

ΖΥΓΩ (Balance)

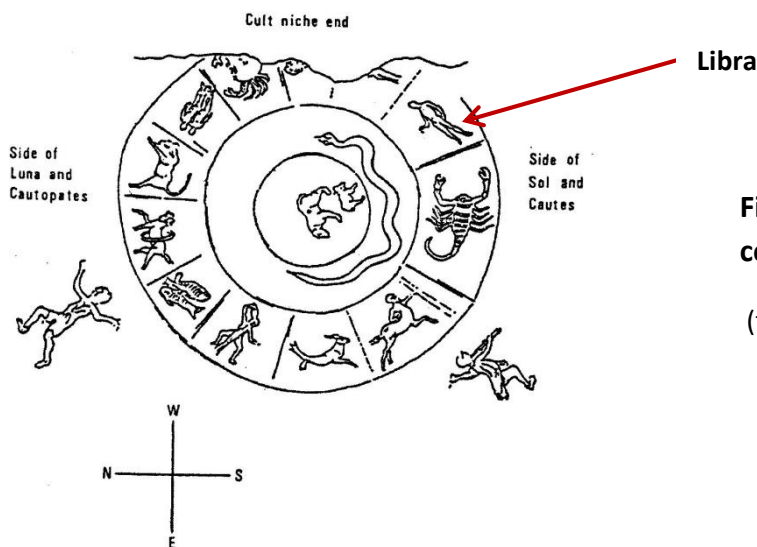


Figure 3.15 The Ponza Zodiac (3rd century AD).

(from Beck 1976: Figure 1).

Figure 3.16 shows the graffito wall-painting of the Zodiac known as the *Thermae Traiani*. It has been dated to the 4th century AD but Lehoux considers this effectively a guess (Lehoux 2007: 168 – 170). This astrological parapegma was discovered in the early 19th century in a house close to the Trajanic baths in Rome but after exposure to the elements the paint quickly disappeared, although fortunately it had been drawn by several authors. The parapegma has holes aligned with the Zodiac months that form a circle, and vertically, at the sides, it has holes aligned with days within a month. As can be seen in Figure 3.16 the Scorpion at 6 o'clock is flanked by Sagittarius and Libra.

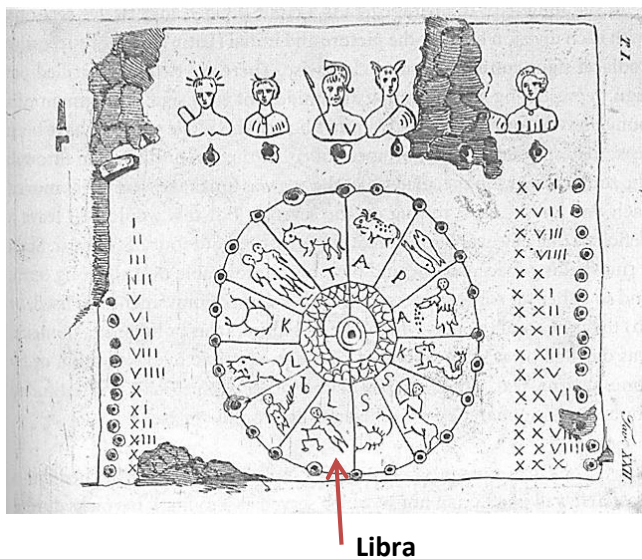


Figure 3.16. Piale's 1816 Illustration of the *Thermae Traiani* (4th century AD).

(from Lehoux 2007: Figure Cat. 5).

This survey of Roman depictions of the Zodiac, together with the earlier examples presented in Table 3.4, demonstrate that there is a well-defined trend for the replacement of the Claws of Scorpio by the Babylonian Balance or Scales, the symbol of Libra, over the period from the second century BC to the early Roman period. The use of Claws by Ptolemy in the *Phaseis* (AD 138 – 162) is however out of position with this trend. The reason for his use of the term Claws is unknown but Jones (2006) has shown that he continued to use the wording and nomenclature of earlier astronomers. It is noteworthy that he uses the name Libra or Balance in the *Almagest*.

The survey presented here shows that there is no precise date at which the change in the name of the constellation occurred but Geminus' *Introduction to the Phaenomena* is the first work that commonly includes the name, Balance. There is debate about both the authorship and the date of this work (Lehoux 2007: 157 – 158) but Evans and Berggren

(2006: 22) think that it was written about 70 BC in Rhodes. After this date, with the exception of the *Phaseis*, all the evidence supports the interpretation of the testimony of Virgil in the *Georgics*, namely that the adoption of the name Libra with the sign of a balance or scales, is contemporary with Augustus.

The presence of the Claws within a depiction of the Zodiac on the Little Metropolis calendar frieze therefore argues for a late Hellenistic date of the frieze. In other words it is unlikely to have been made before the late third century BC or after the reign of Augustus and it is certainly very unlikely to have been commissioned to honour Augustus during Hadrian's reign (AD 138/9) as suggested by Palagia (2008).

3.5. The Zodiac and Astrology.

Although Babylonian texts giving omens are known from the 7th century BC (Rochberg-Halton 1984), Hellenistic Alexandria is commonly regarded as the cradle of Greek astrology (Barton 1994: 30). The underlying philosophical reasoning of Greek astrology did not resemble that of Babylon and can be regarded as having a distinctive Hellenistic origin (Rochberg-Halton 1988).



Figure 3.17. Kudurru of the Babylonian King Melishpak: Recording his gift of land to his son or servant, Marduk-Apai-Iddina (c. 1186–1172 BC).

From <http://www.louvre.fr>



Drawing of the **Goat-fish (Capricorn)**

(from Evans 1999).

Critically, whereas the Babylonians believed that the gods provided signs in the sky that could be interpreted by a specialist priest, the Greeks believed that there was a direct physical cause which linked the constellations to life on earth (Rochberg-Halton 1984) and this was dependent on the development of Hellenistic models of the cosmos that incorporated a celestial sphere and also on a realistic belief in the cosmos itself. Although the Greek horoscopic astrology was elaborated during the Hellenistic period, the images and signs of the Greek Zodiac constellations were strongly influenced by Babylonian predecessors (Evans 1999). This is particularly obvious for the monstrous animals, such as Sagittarius and the goat-fish or Capricorn. Figure 3.17 shows a Bronze Age Babylonian *kudurru*, which includes the image of the goat-fish. *Kudurrus* were royal land grants engraved on stone stelae that were decorated with divine symbols, inscribed with elaborate curses against offenders, and placed in temples (Brinkman 2006). The *kudurru* in Figure 3.17, like many others, was found in Susa, capital of ancient Elam, where they were taken in the 12th century BC as trophies during Elamite raids into Babylonia (Slanski 2000).

Both Hipparchus and Ptolemy believed that it was possible to predict the future from the stars (Lloyd 1973: 72). In the context of interpreting the astronomical images, particularly the Zodiac, on the Little Metropolis frieze, it is reasonable to ask if these images are related to astrological ideas. Today the science of astronomy and non-scientific astrology are clearly separated, but it may not be helpful to think in these terms when interpreting ancient Greek and Roman attitudes and the paucity of scholarly comment on the signs of the Zodiac present on the frieze may reflect a modern attitude to astrology. The dominant form of Greek and Roman astrology was genethliology, which focuses on the relationships of the Sun and the planets to the signs of the Zodiac at the time of birth (Beck 2007: 9).

In 1959, Neugebauer and van Hoesen compiled all of the ancient Greek horoscopes then known; those that could be dated (63) fall between 90 BC and AD 497 (Neugebauer & van Hoesen 1959: 165-166) (Figure 3.18). Rochberg-Halton (1984) gives a broader date range for the textual sources for Hellenistic astrology, identifying it as late Hellenistic (between 180 and 31 BC). The date of these literary references also indicates the dependence of astrology on the development of Hellenistic astronomical models of the cosmos. Figure 3.19 shows the distribution of dates of horoscopes found among various papyri, including those from Oxyrhynchus (Jones 1999: 5–7). These range from 38 BC to 508 AD; the dates

are based on the date of birth; however, the horoscopes themselves could have been produced years later.

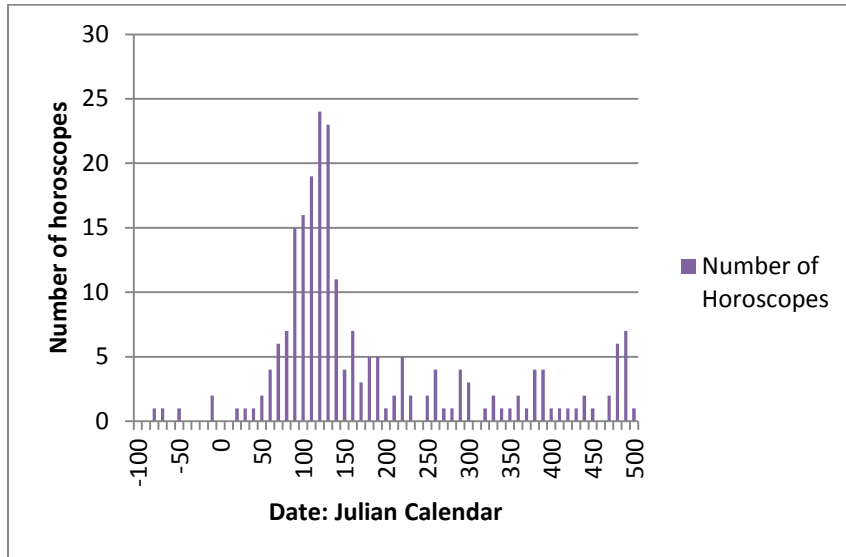


Figure 3.18. Histogram of the Greek Horoscopes: recorded by Neugebauer and van Hoesen in 1959.

(adapted from Neugebauer & van Hoesen 1959).

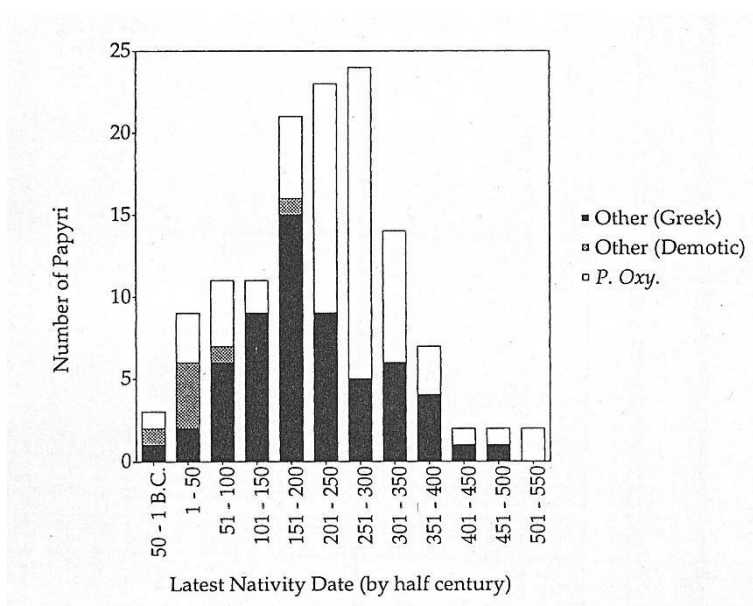


Figure 3.19. Frequency of Documentary Horoscopes Among Papyri (by latest nativity date in each papyrus).

(from Jones 1999: Figure 1).

Taken together these data indicate that astrology was not an activity associated with the Zodiac by the Greeks certainly before the second 2nd century BC and perhaps not until the 1st century BC. Therefore, the Zodiac described by Aratus was not elaborated for the purpose of divination.



Figure 3.20. Plaster copy of the Lion Relief at Nemrut Dağ made by Puchstein in 1883.

(from Evans 1999). The relief is now badly corroded.

The histogram produced from Neugebauer and van Hoesen's data (1959) includes the Lion Relief from Nemrut Dağ (Figure 3.20). Archaeological studies of the sculptural programme of Antiochus I Epiphanes, King of Commagene, to which this relief belongs, have not been widely reported in English. Excavations have been confined to two sites: the sacred mountain Nemrut Dağ (Goell 1957) and the site at Eski Kahta (Arsameia). Commagene was a region between the Anti-Taurus Mountains and the Euphrates in the east of modern Turkey. Antiochus I claimed descent from the Armenian royal family and from the Achaemid Persians but he took cultural ideas from both the Persians and the Greeks (Andrade 2013: 72-77). Antiochus was both King and Chief Priest and the massive funerary tumulus on remote Nemrut Dağ (2150m above sea-level), displays his cultural credentials and is an example of Hellenistic syncretism, depicting hybrid gods (Ghiță 2011). The German archaeologist, O. Puchstein, recorded a large number of sculptural remains at Nemrut Dağ, including the Lion Relief shown in Figure 3.20 (Young 1964). The dates of Antiochus 1 of Commagene are uncertain; Ghiță (2011) cites his coronation in 70 BC and his death in 36 BC and Young (1964) uses the dates from Goell (1957) (c. 69 – 34 BC). In addition to the lion, the relief in Figure 3.20 accurately depicts the stars of the constellation Leo and the moon hangs round the lion's neck. The planets Mars, Mercury and Jupiter are named within an inscription (Gúney 2008). This relief has been described by Evans (1999) as the oldest known Greek horoscope. Neugebauer and van Hoesen (1959) interpreted the relief as a horoscope and used the conjunction of the three planets and the moon carved on the Lion Relief (Figure 3.20) to date the monument as a commemoration of his coronation on July 7th 62 BC (Evans 1999; Neugebauer and van Hoesen 1959: 14 – 16) and

Andrade (2013: 77) says that it commemorated a lunar eclipse at the end of July 62 BC. However a number of elements of a Hellenistic horoscope are missing (Evans 1999). Antiochus' monument contains a large number of other depictions of lions; they form 28% of all the statues excavated and they also form a procession around his diadem and appear on his tiara (Goell 1957; Gúney 2008). Given the early date of the monument, the uncertainty of dating key events in Antiochus' life, the fact that horoscopes were usually related to the birth date and, most significantly, the prevalence of lion images at the monument, the interpretation of the Lion Relief as a horoscope seems questionable. The lion was clearly an image associated with power and majesty, and the accurate visual reference to the moon, the planets and the constellation Leo on the relief augmented the power reference of this image with a reference to the *paideia* of this Commagene king.

There is no indication that the Zodiac depicted on the Little Metropolis frieze had an astrological objective. Like the Nemrut Dağ Lion Frieze, it may have been a demonstration of the astronomical expertise of the commissioner. However, the rising and setting of the constellations of the Zodiac (together with other prominent stars) were also used as a measure of the passage of time and as a weather forecasting system and it is this aspect of the Zodiac that is explored in the next section.

3.6. Astronomy and Hellenistic Culture.

Although it was in the Hellenistic period that the great advances of Greek astronomy were generated, the oral tradition of the Archaic period has conserved several accurate pictures of prominent stars, star clusters and constellations in Homer's *Iliad* (Section 3.2) and Hesiod's *Works and Days*. The accuracy of the literary references to stars at this early date attests to the fact that knowledge of the night sky was embedded in ancient Greek culture. This section explores the way in which this knowledge had an early impact on the sphere of religion and festivals, and on the practical aspects of existence in the Hellenistic world.

3.6.1. Star Time in Greek Drama and Religion.

The cultural sphere of religion and drama can provide evidence of the extent to which knowledge of the night sky was rooted in ancient Greek society. The examples described below predate the Hellenistic period but indicate the long history of this knowledge.

Star phases (risings and settings) appear in literature of the Classical period, where their meaning has been strongly debated, possibly because modern classical scholars lack the astronomical insight of the original audiences. The entrance speech of Agamemnon in Aeschylus' play, *Agamemnon*, refers to the star cluster called the Pleiades, which can be seen within the limits of the constellation, Taurus. The Pleiades is a star cluster commonly cited in ancient Greek literature.

.. a shield-bearing people making a rushing leap during the setting of the Pleiades. And savage Leo, mounting over the city, licked its fill of kingly blood.

Aeschylus, *Agamemnon* 825-8 (translation by Pfundstein 2003)

Pfundstein (2003) points out that the Prologue of this play, spoken by a watchman, makes the stellar references clear and infers that the apparently obscure reference to the Pleiades (above) is not to specify the time of year, or the time of day, but fixes the position of the Zodiac constellation, Leo, in the sky, since Leo will only be at its zenith while the Pleiades are setting.

I have learned to know aright the conclave of the stars of night, yea those radiant potentates conspicuous in the firmament, bringers of winter and summer unto mankind: the constellations, what time they set and rise.

Aeschylus, *Agamemnon* 3-7 Prologue (translation by Smyth 1926)

Agamemnon is speaking of himself as the Lion King of Argos and Pfundstein (2003) believes that this literary device increases the grandeur of Agamemnon's image as victor, whilst using the stars to indicate the doom-laden inevitability of his end. Thus the Lion is at its zenith but must eventually set. The play was first performed in 458 BC and it is not clear if Aeschylus had knowledge of the Zodiac, since knowledge of the relative position of the constellation Leo and the Pleiades star cluster does not presuppose this.

Homer's description of Achilles' shield was known in the Classical period, although in ceramic art exact depictions of the shield have not been found (Hardie 1985). In the Roman period the shield is a popular subject and Roman images, often containing astronomical symbols, including those of the Zodiac, probably reflect the analytical interest in the Shield by Hellenistic scholars (Hardie 1985). In literature, the Shield is described in

the play *Electra* by Euripides, where in comparison with Homer's description (Section 3.2.1), only the Pleiades and Hyades star clusters are included (King 1980).

In the center of the shield there shone radiant
the circular sun
with his winged horses
and the lofty choirs of stars,
Pleiades, Hyades, turning to rout
the eyes of Hector. (464-69)

Euripides, *Electra* (translated by King 1980)

The poetic language of Homer's description of the Shield continues to puzzle and has been analysed by several modern authors (Taplin 1988; Hannah 2001; Scully 2003). In this context it is interesting that W.H. Auden's 1952 poem *The Shield of Achilles* (1979), contains no allusion to the stars, reflecting perhaps our contemporary indifference.

Delphi provides an example of the possible use of star phases in religious practice (Salt and Boutsikas 2005). The Oracle at Delphi was originally consulted on the birthday of Apollo in the Delphic month of Bysios, and this was related to his return to Delphi from the northern land of the Hyperboreans (Salt & Boutsikas 2005). However, over time Greek lunar months moved within the solar year and Salt and Boutsikas (2005) propose that from the 5th century BC, panhellenic timing of consultations was determined by sightings of the heliacal rising of the constellation, Delphinus (the Dolphin) (see Section 3.2.2). This constellation consists of a tight group of stars whose appearance over the horizon (heliacal rising) would coincide. The landscape of Delphi with high mountainous cliffs to the east, means that the constellation would be seen one month later at Delphi compared to sea level and the authors surmise that this would allow travellers to arrive at Delphi on the right day, if they set out when the Dolphin was first seen in their own maritime locality (Salt & Boutsikas 2005).

Hannah (2012) also argues that star phases were used to signal the time of the panhellenic Festival at Olympia. Censorinus (*On the Birthday* 21.6) describes the Olympic games occurring during the days of summer at full moon at an intervals of 49 and 50 months, and a corrupted scholion of Pindar (on *Olympian Ode* 3.33) says that the first month of the Elis year was marked by the winter solstice and that the first Games were held in the eighth

month of the year and “alternately in the season called *opōra* or at the heliacal rising of Arcturus” (Hannah 2012). The *opōra* was the period between the heliacal rising of Sirius (late July) and the heliacal rising of Arcturus (mid September) (Hannah 2012) and these signals would have allowed people from various parts of the Greek world to prepare to travel to Olympia, despite differences in the calendars of Greek cities.

The east-west orientation of many Greek temples has been debated since the 19th century (Salt, 2009). Retallack (2008) in a recent survey of 84 temples of Classical mainland Greece found no evidence of compass orientation but Salt (2009) found strong statistical evidence that the Archaic and Classical temples of Sicily have an alignment related to the position of the Sun. Coldstream (1985) considered the east-west alignment normal and Spawforth (2006: 51–52) suggests that this orientation may have had a practical function, letting the low early morning Sun illuminate the interior of the *cella* when the doors were first opened; although the position of sunrise on the eastern horizon varies throughout the year. There are however, many examples where the ‘normal’ east-facing rule for temple doors does not apply. The Arcadian Temple of Apollo at Bassae, with its north-south alignment, is a well-known example (Coldstream 1985). Here the terrain was thought to be the reason for the exceptional axis but it has been established that many Arcadian religious structures had a north-south orientation (Coldstream 1985). Other exceptions include an unfinished temple on the Cycladic island of Naxos, where the door faces north-west giving a view of the neighbouring island of Delos that had important sanctuaries of Apollo (Spawforth 2006: 181–182).

Survey data coupled with statistical analysis has limitations. For example, whilst statistical analysis of data can indicate temporal or regional trends it cannot reveal causal associations. It is possible that a uniform pattern is the product of one or more factors, but identifying the factor or factors requires other evidence. Alternatively, at the other extreme, it is possible to have an apparently random distribution that hides an important association, which in the case of the night sky, involves a different star (factor) in each case.

Several recent studies by Boutsikas have refined the analysis of Greek temple building. Boutsikas’ thesis (2007) shows that some prominent religious structures were oriented towards stars and constellations not the solar range, and in some cases a complex

association of the stars in the night sky and the landscape influenced the building of religious structures. Archaeoastronomy is the study of past beliefs, knowledge and practices involving the sky (Boutsikas and Ruggles 2011) and scholars maintain that the sky is part of the environment and as such it should be studied as part of landscape archaeology. In this framework it is unique, because it is directly visible to us and because the tools of modern astronomy allow us to accurately reconstruct the sky of previous periods. As a branch of archaeology it has been accepted in the study of several periods and regions but has not been very widely used in Greek archaeology (Boutsikas and Ruggles 2011). There is scattered evidence for the influence of the night sky in Greek religious practices; some festivals such as the Eleusinian Mysteries (Parker 2005: 342–363) and the *Arrhēphoria* (Burkert 1985: 228–229) were nocturnal, several festivals had torch races that must have occurred at night and the Hellenistic *parapegma*, A.i.P. Hibeh 27 (Chapter 3.4), relates some feasts to star phases (Lehoux 2007: 220–222).

Boutsikas and Ruggles (2011) have studied the sanctuary of Artemis Orthia at Sparta, integrating the archaeology, the literary evidence and astronomy to interpret the alignment of structures on the site. An ode called the *Partheneion* was written by Alcman in the 7th century BC and describes a rite held in this sanctuary. Two of the young women who took part in a procession are described as Pleiades and according to the ode, this procession takes place one hour before dawn at the heliacal rising of the Pleiades. Boutsikas and Ruggles (2011) tested the astronomy of the Pleiades to see if this 7th century BC description could be verified. The mythic origin (catasterism) of the Pleiades, recorded by Eratosthenes, calls them the maidens of Artemis, who when chased by Orion the hunter were placed in the sky by Zeus. The open air rite performed by the young women mirrors this myth because according to Alcman, they have to complete their task of placing an offering (a robe) on the altar before sunrise. It is a race to accomplish this between the heliacal rising of the Pleiades and the stars' disappearance at daybreak. Boutsikas and Ruggles (2011) have shown that the later Classical temple in the sanctuary was orientated on the rising of the stars of Orion's belt but the altar, with a different alignment, was aligned on the heliacal rising of the Pleiades. It is curious that all of the altars built in the sanctuary (Early Geometric c. 950 BC, Archaic, Classical and Roman 250 AD) were constructed in the same place with the same alignment and did not therefore follow the

shift in the position of the Pleiades heliacal rising (due to precession, see Section 3.2.1) that occurred over the 11 centuries of its use. Despite this it is difficult to dismiss the conclusion that an astronomical event played an important role in the festival of Artemis Orthia at Sparta.

A further example of the connection between stars and religious practice comes from a study of the large, long constellation, Draco (Dragon/Snake) that curves around the constellation, Ursa Minor (Figure 3.21). Both of these constellations are sited close to the North Celestial Pole (Section 3.2.1) and in 24 hours they circle the Pole but in Athens do not disappear below the horizon. The complete circular path of these constellations cannot be seen because part of any single 24 hour period will be daylight. The two opposite positions of Draco in this 24 hour circle are equivalent to head-up (upper culmination) and head-down (lower culmination) (Figure 3.21) and occur 12 hours apart but both positions cannot be seen in any single 24 hour period. Boutsikas (2011) has shown that in the period 600 – 300 BC, the Draco head-up position (upper culmination) would have been visible within one or two hours of sunset from the north porch of the Erechtheion during the month, Hekatombaion. She proposes that, given the mythical association of the snake and Athena, the sight of this dramatic snake head (the head contains the brightest stars in the constellation) was important in the timing of the Panathenaia. A further link between the annual pattern of the rising and setting of constellations and religious (cult) activity on the Acropolis has been proposed by Boutsikas and Hannah (2012). Here they suggest that the heliacal rising of the Hyades and Auriga during Thargelion (700-300 BC) was associated with two festivals involving young girls, the Kallynteria and the Plynteria. According to their proposition this association comes from the catasterism that connects Auriga with Erechtheus and the Hyades with his daughters whose suicide saved the city (section 3.7; Table 3.7).

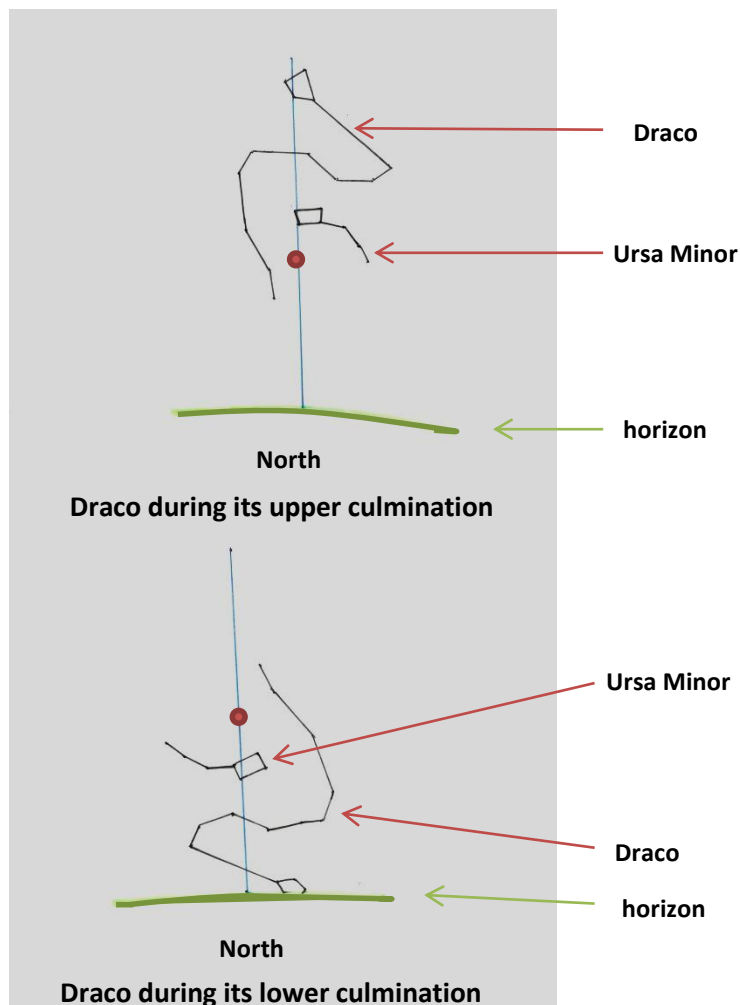


Figure 3.21. The Circumpolar Constellations Draco and Ursa Minor Seen from the Acropolis (600 – 300 BC) During the Upper Culmination (top) and the Lower Culmination (bottom) of Draco. Adapted from Boutsikas 2011.

Red spot indicates the position of the North Celestial Pole.

3.6.2. Star Time and Practical Applications of Knowledge of the Night Sky: Parapegmata, Armillary Spheres and the Antikythera Mechanism.

The four identifiable solar positions within a year, namely the two solstices and the two equinoxes, provided the ancient Greeks with a measure of the annual cycle but the annual pattern of rising and setting of individual stars and constellations was also used by them to identify progress through a year. A sidereal year, measured by the time between a given star's successive heliacal risings, is determined by the Earth encircling the Sun; it is virtually in step with the cycle of seasons and formed the basis of time-measurement that was

independent of the lunar cycle. A sidereal year is 365.2564 mean solar days and a solar year is 365.24219 mean solar days (Hannah 2009: 14): a difference of about half an hour. In ancient Greece the stellar method of time measurement existed in parallel to a lunar calendar, which was based upon the cycle of changes to the Moon. The stellar observations that are the basis of measurement in a sidereal year are however sensitive to the latitude of the observer. The Greeks were familiar with this phenomenon: for example in *Phaseis*, Ptolemy refers to terrestrial latitude (*klima*) in terms of the length of the day (Riley 1995).

Tybi 1 (= 27 December): in the klima where the longest day is 14 hours (Alexandria), Sirius rises in the evening; in the klima where the longest day is 15 hours (the Hellespont), Procyon rises in the evening.

Ptolemy, *Phaseis Op. Min.*32.1-4 (translated by Lehoux 2007)

Homer (c. 750 BC) names a total of 5 stars, star clusters and a constellation in the *Iliad* and Hesiod (c. 700 BC) additionally names the bright star, Arcturus, in *Works and Days* (Table 3.5). In Hesiod, the references also clearly indicate knowledge of the annual cycle of heliacal risings and settings.

But when Orion and Sirius are come into midheaven,
and rosy-fingered Dawn sees Arcturus,
then cut off all the grape-clusters, Perses, and bring them home

Hesiod, *Works and Days*, 609–11 (translator Wender 1973)

... when Pleiades and Hyades and the strength of Orion set,
then be mindful of seasonal ploughing ...

Hesiod, *Works and Days* 614.17 (translator Wender 1973)

The practice of using the annual movement of the fixed stars to chart changes in seasonal weather dates back to Hesiod's *Works and Days* and West describes this poem as a type of 'wisdom or gnomonic literature', examples of which can be found in the literature of other, much older, cultures (West 1978: 3-25). By the 3rd century BC, a structured system of representing the temporal changes in the phases of the fixed stars existed in Greek communities. These are found in the form of literary texts or inscribed stones and they are collectively known as *parapegmata* or star calendars. The stone *parapegmata* have holes that enable a moveable peg to track the passage of time but textual *parapegmata* have no

such mechanism and are often indexed to another dating system. Lehoux recognises three forms of *parapegmata*; solely astronomical (e.g. Miletus I), astrometeorological (e.g. Ptolemy's *Phaseis*) and the primarily Roman, astrological (e.g. *Thermae Traiani*) (Lehoux 2007:18-19). As might be expected, a number of *parapegmata* are only known from their use by later authors, thus in his *parapegma* appended to the *Introduction to the Phaenomena*, Geminus cites six earlier authorities including Euctemon, Eudoxus and Kallipos (Evans and Berggren 2006: Appendix I).

Table 3.5. STARS RECORDED BY HOMER (*ILIAD*) AND HESIOD (*WORKS AND DAYS*).

	Star(s)	Comment
Homer (18.483-89)	Bear (Wagon)	Constellation called Ursa Minor or Little Dipper, contains Polaris at the end of the dipper handle.
Homer (18.483-89), Hesiod (line 614)	Hyades	Forms the face of the constellation, Taurus
Homer (18.483-89), Hesiod (line 614)	Orion	Constellation
Homer (18.483-89), Hesiod (line 614)	Pleiades	Group of stars lying within Taurus
Homer (22. 29-30), Hesiod (line 408)	Sirius	Part of the constellation Canis Major, the brightest star in the sky, twice as bright as the next bright star (Canopus)
Hesiod (line 560)	Arcturus	Brightest star in the constellation Bootes

The concern of Hellenistic Greeks to chart the annual movement of stars represents a pragmatic approach to cosmology that contrasts with the philosophical concerns to identify order within the cosmos. In particular, a predictive knowledge of changes in weather was important in agriculture and this is a predominant feature of many *parapegmata*, such as

Columella's 12 part agricultural manual called *On Agriculture and Trees*. In addition to agriculture, weather forecasting was important for shipping. Polybius (c. 200-118 BC) refers to a storm at sea off the coast of Sicily during the first Punic war (255 BC) when 284 ships under the command of Marcus Aemilius and Servius Fulvius were lost (Lehoux 2007: 7).

....for many of the pilots warned them not to sail along the outer coast of Sicily
.....and also warned that a shift in the weather was not yet over, and another one was coming, for they were sailing between the rising of Orion and that of the Dog Star.

Polybius, *Histories* I.37.4-5 (translated by Lehoux 2007)

Medical texts also demonstrate a concern for choosing an auspicious time, as determined by the movement of stars, for treatment of patients (Lehoux 2007: 8).

It is necessary to be especially careful at the most important changes of season, and neither give a purgative drug, nor perform abdominal cautery or surgery until ten or more days have passed. The following are the most important and the most dangerous: both of the solstices, especially the summer, and both of the so-called equinoxes especially the autumnal. It is also necessary to be careful at the risings of stars, especially Sirius, then Arcturus, and again at the setting of the Pleiades.

[Hippocrates] *Aër*. XI (translated by Lehoux 2007)

Not including the 5th century stone Athenian Kerameikos parapegma (Lehoux 2007: 190), which consists of only 5 numbers and 9 holes, the earliest parapegmata known are textual. Aratus' *Phaenomena* (c.276 BC) (Kidd 1997: 4; Poochigian 2010: 1 - 26), which describes the stars and a few astrometeorological correlations, and the *P. Hibeh 27* (Lehoux 2007: 22) date to the 3rd century BC. The earliest inscribed stone parapegma (Miletus II), which was recovered from the theatre in Miletus, has a *terminus ante quem* of 89/88 BC (Lehoux 2007: 22). Lehoux has recently catalogued all the known parapegmata (Lehoux 2007) and as the most recent example, he cites the *al-Bīrūnī* parapegma, which is called *On the Days of the Greek Calendar* and was a summary of the 10th century AD work, *Kītāb al-anwā'* (Lehoux 2007: 167).

Lehoux (2007: 206, 217-223) classifies Aratus' *Phaenomena* as a 'related text' rather than a parapegma. The *Phaenomena* includes a description of the constellations and an explanation of how to estimate the passage of time by observing the constellations. It also includes a few references to ways of predicting the weather from star phases.

Also many a man aboard ship has noticed signs of a surging storm by paying heed to either dread Arcturus [746] or some other stars that are drawn from the sea at morning twilight and when it is still early night.

Aratus, *Phaenomena* (translated by Kidd 1997: 127)

P. Hibeh 27 is a Greek textual paraepigma from the Saïte nome of Egypt and probably dates from the reign of Ptolemy Euergetes (284-221 BC) (Lehoux 2007: 153-154). It is indexed to the Egyptian calendar, contains the dates of some Egyptian religious festivals and may be based on a work of Eudoxus (Lehoux 2007: 153-154).

Miletus II is an inscriptional Greek paraepigma from the theatre in Miletus. It is incomplete and in fragments, with fragment 456C containing the name [*Ep*]icrates Pylo[rou] who was an ephor in Miletus in 89/8 BC (Lehoux 2007: 157, 223-226). The stone contains peg holes that mark star phases and associated weather conditions. It also provides attributions for some of the data (Lehoux 2007: 225-226).

Geminus' paraepigma is appended to all manuscripts of his *Phaenomena* but Lehoux (2007: 157) believes that it predates the *Phaenomena*. As already noted, the *Phaenomena* was written in about 70 BC, possibly in Rhodes (Evans & Berggren 2006: 22). It resembles a text book and "the very format of the work illustrates what had become a commonplace among Greek thinkers, namely that celestial phenomena can be explained rationally" (Evans & Berggren 2006: 6). Geminus gives a complete year starting with the summer solstice and attributes information to earlier astronomers. The work also correlates star phases with the Zodiac (Evans & Berggren 2006: 140-145). He devotes a whole chapter (xvii) to refuting the common belief that changes in the weather are caused by the heliacal risings and settings of the stars and thereby makes a distinction between association or correlation and causality that many later 'scientists' have not.

Columella wrote a paraepigma in *Book XI of On Agriculture and Trees*. He dedicated it to Claudius Augustalis who was a member of an order of state priests at Rome who supervised the rites of Caesar-worship in the *municipia*, and Forster and Heffner believe that this dates the book after Augustus's death, between AD 60 and AD 65 (Forster & Heffner 1945: 48-49). He apparently gives a reason for using a star-calendar (Hannah 2009:56).

....following the calendars of Eudoxus and Meton and the old astronomers, which are adapted to the public sacrifices, because that old view, understood by farmers, is better known.

Columella, *On Agriculture and Trees*, Book IX part 14, 12 (translators Forster & Heffner 1948-55)

The parapegma begins with the Ides of March and correlates dates in the Julian calendar with star phases. Columella cautions readers against the assertion of accuracy that he attributes to the Chaldaeans (Babylonians).

.... changes in the air coincide with fixed dates, as if they were confined within certain bounds; but in our science of agriculture scrupulous exactitude of that kind is not required For he will exercise sufficient foresight if he shall be in a position to take measures against suspected weather many days beforehand.

Columella, *On Agriculture and Trees*, Book XI part I, 31 (translators Forster & Heffner 1948-55)

Ptolemy's *Phaseis* is the most detailed of the surviving parapegmata (Lehoux 2007: 161). It dates to the 2nd century AD and indexes the star phases, which were calculated by Ptolemy, to the Alexandrian calendar. But the weather predictions are attributed to a number of earlier astronomers, including Euctemon, Eudoxus and Kallipos who were also cited by Geminus. Uniquely, Ptolemy gives rising and setting dates for different latitudes (Lehoux 2007: 161).

In 1901 the corroded remains of a bronze geared mechanism were recovered from an ancient shipwreck off the small island of Antikythera. This structure (about 190 x 340 x 50 mm), which is now called the Antikythera Mechanism, has been the subject of a large number of studies that have in some cases recorded its disintegration since its discovery and most recently produced remarkable new information derived from modern non-invasive imaging techniques. The inscriptions on the fragments were reported by Price in 1974 (Price 1974) but more recently a novel method of digital surface photography together with microfocus X-ray computed tomography was used by the Antikythera Mechanism Research Project (AMRP) (<http://www.antikythera-mechanism.gr>) to reveal more details of the structure and the inscriptions (Freeth et al. 2006, Freeth et al. 2008). The results of this research group have also been used by Michael Wright, Dionysios Kriaris, Massimo Vicentini and Tatjana van Vark to construct models, while the AMRP is developing

a model based on their own on-going research (<http://www.antikythera-mechanism.gr>). The fragmentary, corroded and incomplete condition of the object means that a complete and satisfactory explanation of the mechanism does not exist but geared structures of this precision and complexity are not found again until church clocks were constructed in the Middle Ages (Freeth 2009).

The shipwreck itself has been dated to 60-50 BC on the basis of comparative analyses of amphorae and Roman and Hellenistic pottery also recovered from the wreck (Kavvadias 2012). The Antikythera Mechanism is however thought to be older than this and the form of the lettering of the inscriptions dates the construction of the mechanism to 150-100 BC (Freeth et al 2006). The vessel was located off the north tip of the island Antikythera, where a Hellenistic fortified town was situated, on a sea route that would have been used by ancient ships traveling east to west (or *vice versa*) in the Mediterranean. Marchant (2010) suggests that the wreck was a Roman ship transporting loot from the war with Mithridates VI of Pontus in Asia Minor but neither the place of origin of the Mechanism nor its destination are known. Because the names of the Greek lunar months vary from polis to polis (see Chapter 4), the names of months found engraved on the Mechanism suggested that it was made for a Corinthian colony (Freeth et al. 2008). Few details of a calendar of Corinth itself are known. Hannah (2009:59-62) has noted that 11 of the 12 months coincide with those of Dodona, and Cabanes (2007: 275-288) has compiled a composite calendar from several sources that confirms a Corinthian connection.

Table 3.6 compares the lunar calendar deciphered on the Metonic dial of the Antikythera Mechanism, where the months were written in order (Freeth et al. 2008), with the Corinthian calendar compiled by Cabanes (2007:284-288) and reported in *Supplementum Epigraphicum Graecum* Volume LVI. Accepting that the Antikythera-month 3 is equivalent to month 5 in the Corinthian calendar of Cabanes, the names of 11 of the 12 months are the same in both calendars although the order is different. Since the Antikythera months were inscribed in order, this difference is probably due to the way that Cabanes assembled the calendar. The two month names that have no corresponding months (Antikythera ΔΩΔΕΚΑΤΕΥΣ [5] and Corinthian ΔΑΤΥΙΟΣ [6]) could easily be an anomaly from the Corinthian compilation.

The Antikythera Mechanism contained at least 33 gear-wheels that were set at 14 different levels (Freeth et al. 2006). It has been described as a didactic device (Jones 2012) that matched the cultural and intellectual context of the late Hellenistic world. On the front plate is a 365-day Egyptian calendar dial (Hannah 2009:49) that can be set to a particular

Table 3.6. COMPARISON OF THE LUNAR CALENDAR FROM THE METONIC BACK-DIAL OF THE ANTIKYTHERA MECHANISM WITH THE CORINTHIAN LUNAR CALENDAR COMPILED FROM MONTH NAMES IDENTIFIED IN 11 CORINTHIAN AND MEGARA COLONIES OR SETTLEMENTS.

Data from: 1, Freeth et al. (2008), 2, SEG (2006: Vol. LVI #392)

ANTIKYTHERA LUNAR CALENDAR ¹		CORINTHIAN LUNAR CALENDAR ²			
order	names	order	names	position in Antikythera calendar	notes
1	ΦΟΙΝΙΚΑΙΟΣ	1	ΑΡΤΕΜΙΣΙΟΣ	7	
2	ΚΡΑΝΕΙΟΣ	2	ΨΥΔΡΕΥΣ	8	
3	ΛΑΝΟΤΡΟΠΙΟΣ	3	ΑΓΡΙΑΝΙΟΣ	10	
4	ΜΑΧΑΝΕΥΣ	4	ΦΟΙΝΙΚΑΙΟΣ	1	
5	ΔΩΔΕΚΑΤΕΥΣ	5	ΑΛΙΟΤΡΟΠΙΟΣ		possible equivalent to Antikythera month 3 ΛΑΝΟΤΡΟΠΙΟΣ
6	ΕΥΚΛΕΙΟΣ	6	ΔΑΤΥΙΟΣ		no Antikythera equivalent
7	ΑΡΤΕΜΙΣΙΟΣ	7	ΚΡΑΝΕΙΟΣ	2	
8	ΨΥΔΡΕΥΣ	8	ΠΑΝΑΜΟΣ	11	
9	ΓΑΜΕΙΛΙΟΣ	9	ΑΠΕΛΛΑΙΟΣ	12	
10	ΑΓΡΙΑΝΙΟΣ	10	ΓΑΜΙΛΙΟΣ	9	
11	ΠΑΝΑΜΟΣ	11	ΜΑΧΑΝΕΥΣ	4	
12	ΑΠΕΛΛΑΙΟΣ	12	ΕΥΚΛΕΙΟΣ	6	

day by turning a handle on the side; this front plate also had a second dial, concentric with the first, that was marked out into 360 degrees and the 12 signs of the Zodiac (Freeth 2009). There are also planetary dials and pointers for the Moon and the Sun together with an inscribed parapegma on the front plate (Marchant 2010; Freeth et al. 2006). Dials on the back plate are also simultaneously set by cranking the handle and these display, as spirals, the Kallippic and Metonic luni-solar calendars (Freeth et al. 2006). Two further back plate dials of the Saros and Exeligmos cycles allow eclipse prediction (Freeth et al. 2006). The back plate also contains a small dial within the Metonic dial that is divided into four

quadrants and has recently been shown to be inscribed with the names of panhellenic games (Olympia, Nemea, Pythia, Isthmia and NAA for Dodona) (Freeth et al. 2008).

Measurements and counts of the gear teeth are critical to interpreting the mechanism and recently Evans et al (2010) have carried out a new analysis of the data from the AMRP and suggested that the mechanism displays the movement of the Sun using a system that was Babylonian and therefore that the device is not Greek but Babylonian (Marchant 2010).

The most recent analysis of the parapegma inscription has not been published by AMRP (M.G. Edwards, personal communication) but it is included in Lehoux's catalogue (Lehoux 2007: 87-90) and has been discussed by Hannah (2009: 49-59).

[K]	e]veni[ng
[Λ]	e]v[e]ni[ng
[M]	r]is[e.
[N]]e[v]ening.
[Ξ]	The Pleiad]es ri[s]e in the morning.
O	The Hyades rise in the morning.
Π	Gemini begins to ri]se.
P	Aquila rises in the even[ing.
Σ	Arcturus sets in the [...

Interpretation of the largest preserved fragment of the parapegma on the Antikythera Mechanism (Lehoux, 2007:188).

The parapegma inscription was recorded and published by Price in 1974 and he noted then that the fragment had deteriorated since it was described by A. Rehm. Price (1974) worked both from his own observations and from the unpublished notes of Rehm but Lehoux (above) has been cautious in using only the first-hand records in Price's transcription. Hannah (2009: 50) is less cautious and has inserted: Λ The Hyad[es set in the e]vening; [M] Taurus begins to rise; [N L]yra [rises in the e]vening.

The surviving parts of the Zodiac dial are shown diagrammatically in Figure 3.22 (including recent discoveries as interpreted by Hannah 2009: 49-59). Price (1974) originally thought that it only contained a single alphabet but recent analysis suggests two full alphabets, with the second set ending (with Ω) at Virgo 18. Unfortunately there is no overlap between the

surviving letters on the Zodiac (Ω to I) and those of the parapegma (O to Σ) and this hampers interpretation. A number of parapegmata, such as those of Geminus and Columella, link the astrometereological data to the Zodiac and a link here is therefore not unexpected. Hannah (2009: 49-59) and Lehoux (2007: 189/190) have also attempted to match the Antikythera parapegma data to parapegmata written by known authors or stelae from known locations, in an attempt to identify the latitude of either the maker or the commissioner but this has proven inconclusive (Hannah 2009: 59).

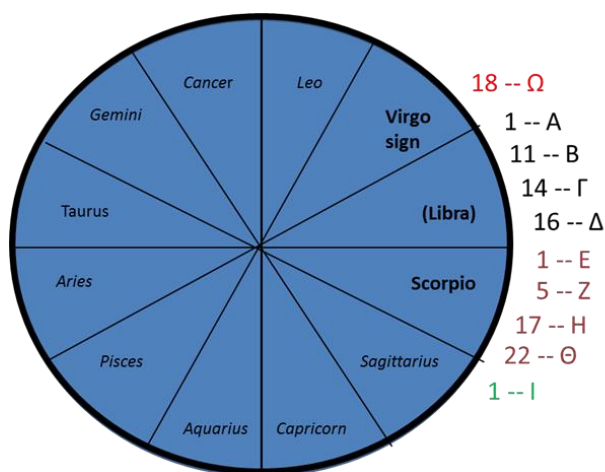


Figure 3.22. Interpretation of Zodiac from the Front Plate of the Antikythera Mechanism.

adapted from Hannah (2009: 49-59) showing the readable letters of the alphabet (red, Parthenos; black, Khēlai; purple, Skorprios; green, Sagittarius). Missing names and signs in italics.

A further example of evidence for a late Hellenistic interest in practical astronomy comes from Sicily. The North Sicilian city, Soloeis (modern Solunto), is described as a Hellenised city of the 3rd to the 1st century BC; it had a grid plan, agora, theatre, stoa, bouleuterion and peristyle houses. Its cult sites and tombs are however interpreted as Punic, reflecting influence from its Phoenicio-Carthaginian origin (Holloway 2000: 161; Wilson 2013). A damaged mosaic (77 cm²) in one of the rooms off the peristyle of a house called the Casa di Leda has been interpreted as depicting an armillary sphere (Figure 3.23) (von Boeselager 1983: 56-60).

An armillary sphere is a model of the celestial sphere that is centred on the earth and consists of a series of rings that can be rotated to demonstrate the movement of the stars. Cicero (*Tusculan Disputations* 1.63) described the reconstruction of Archimedes' sphere

made by Posidonius (Wright 1995:51). Although the design of the mosaic may have come from elsewhere, the Solunto mosaic was made *in situ* and both the archaeological context

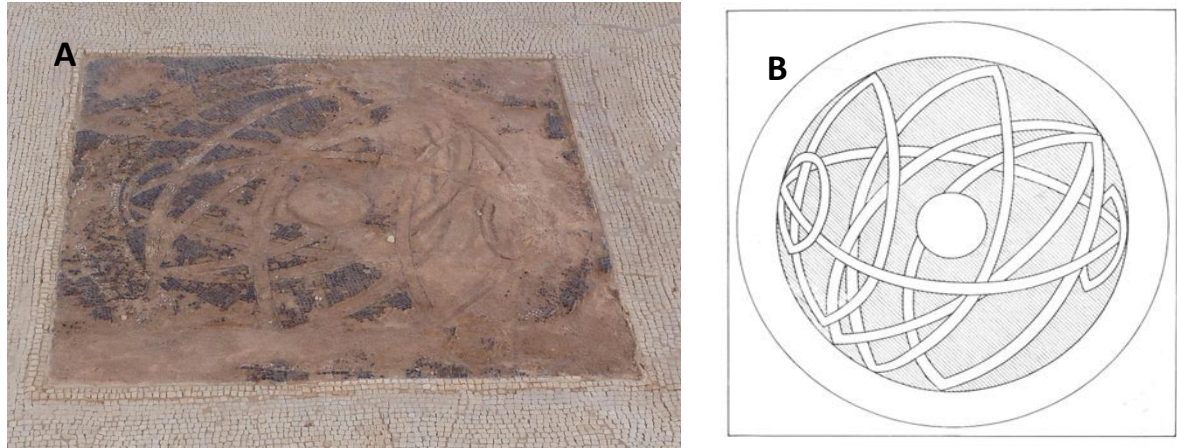


Figure 3.23. Mosaic from the Casa di Leda, Solunto, Sicily. Late 2nd century BC.

A Photograph. A.J.S. Spawforth 2015; **B** Diagram. von Boeselager (1983: plate XV, 29).

and the use of lead strips to outline the contours date the mosaic to the late 2nd century BC. On a dark grey background five parallel bands show, in three dimensions; the equator, the north and south tropics and two polar rings. A sixth ring shows the elliptic; the position of the Zodiac constellations on the celestial sphere and the apparent trajectory of the sun. A seventh ring shows an arbitrarily positioned meridian passing through both poles. The rings are formed with 5 mm yellow and white tesserae and at the centre of the device is a two dimensional red disc representing the Earth. The wide circular frame of the sphere is decorated and appears to be segmented suggesting it may have been a calendar. In the corner of the square frame the heads of four blowing winds were depicted (only one survives) (von Boeselager 1983: 56-60). This is the first visual evidence of an ancient armillary sphere (von Boeselager 1983: 56-60) and it is perhaps not surprising that it existed on Sicily, the home of Archimedes. What is more surprising is that it was found in a house.

These examples of Hellenistic and early Roman items demonstrate a familiarity with the night sky that is missing from modern societies. From the range of material, the practical

application of such knowledge would appear to be widespread, indicating that this knowledge was rooted in the culture of the late Hellenistic Greek world.

3.7. Constellations and Stars: A Possible Theme for the Little Metropolis Frieze.

Given the undisputed presence of signs of the Zodiac on the Little Metropolis frieze, it is reasonable to ask the question: is the visual syntax of the frieze primarily related to constellations of the celestial sphere? Table 3.7 shows that 43 constellations were recognised and named by the first century BC, with many of the names related to myths.

Rogers (1998) summarises the origin of the constellations in the classical Greek sky-map into four groups; the star-groups named in Homer and Hesiod (Chapter 3.3.1; 3.6.2), the large constellations from a Mediterranean seafaring tradition dating to the second millennium BC, the Zodiac coming from a pre-Greek Mesopotamian tradition (Chapter 3.4), and those that probably had a later Greek origin. Two star-lists dating to the mid-third century BC (Aratus) and the first century BC (Geminus) are collated in Table 3.7 below. Both of the lists shown in the table were based on lists that had an origin earlier than the date at which they were written. The process of precession (Chapter 3.3.1) allows us to calculate retrospectively the positions of stars and Aratus' descriptions of settings and risings would be only be correct at about 2,000 BC (Roy 1984). The dating of Aratus' data has however been the subject of several studies (summarised in Frank 2015) and the calculated dates vary depending partly on the assumed latitude of the ancient observer, but the conclusion of 6 out of 8 scholars is that the data dates to the second millennium BC (Bronze Age). It is interesting that if the astronomical information in Aratus' *Phaenomena* contained discrepancies it would have been outdated and inaccurate if used for stellar navigation in the third century BC. Frank (2015) suggests that two traditions existed in astronomy; a practical tradition based on accurate observation and a second poetic one that lacked the rigor of observation.

Table 3.7. CATASTERISMS AND DEPICTIONS OF THE CONSTELLATIONS.

Aratus: c.267 BC^{1,(a)}	Geminus: 1st century BC^{2,3,(b),(c),(d)}		Depiction^{4,5,6}
Constellation.	Constellation.	Single star or star cluster within individual constellation.	
Ram (Aries)	<i>Krios</i>		Ram
Bull; <i>Pleiades; Hyades</i>	<i>Taurus</i> (e)	<i>Pleiades; Hyades</i>	Bull; <i>maidens; maidens</i>
Twins (Gemini)	<i>Didumoi</i>	<i>Propous</i> (Propus)	Youths
Crab (Cancer)	<i>Karkinos</i>	<i>Phatnē</i> (Manger); <i>Onoi</i> (Asses)	Crab; <i>manger (Biblical); asses</i>
Lion (Leo)	<i>Leōn</i>	<i>Kardia Leontos,</i> <i>Basiliskos</i> (Regulus); <i>Harpē</i> (Sickle)	Lion; <i>little lion; sickle</i>
Maiden/Justice (Virgo); <i>Spica; Vintager</i>	<i>Parthenos</i>	<i>Stachus</i> (Spica); <i>Protrugētēr</i> (<i>Vindemiatrix</i>)	Maiden; <i>ear of wheat; grape-gatherer</i>
Claws (Libra)	<i>Zugon</i>		Claws of Scorpio; scales; maiden
Scorpion (Scorpio)	<i>Skorpios</i> (e)		Scorpion, with or without claws
Drawer of the Bow/Archer (Sagittarius)	<i>Toxotēs</i>		Centaur-archer
Capricorn	<i>Aigokerōs</i>		Fish-goat
Water-pourer (Aquarius); <i>Water</i>	<i>Hydrochoōs</i>	<i>Hydōr</i> (Water); <i>Kalpis</i> (Pitcher)	Man; <i>water; pitcher</i>
Two Fishes (Pisces)	<i>Ichthues</i>	<i>Linoi</i> (Cords); <i>Sundesmos</i> (Knot)	Two fish tied by <i>cords</i> and a <i>knot</i>
Bear/Wagon/Helice (Ursa Major)	<i>Megalē Arktos</i>		Bear, wagon, plough, Zeus' nurse
Bear/Wagon/ Cynosura (Ursa Minor)	<i>Mira Arktos</i>		Bear, wagon, Zeus' nurse
Dragon (Draco)	<i>Dracōn</i>		Large snake
Arctophylax/Bootes	<i>Arktophulax</i>	<i>Arktouros</i> (Arcturus)	Ploughman, bear herder; <i>tail of the bear, Ikarios</i>
Crown Boreas (Corona Borealis)	<i>Stephanos</i>		crown
Man on his knees	<i>Engonasin</i>		Kneeling man, Herakles
Ophiuchus	<i>Ophiouchos</i>		Serpent-wrestler
	<i>Ophis</i> (Serpens)		Serpent, snake
Tortoise/Lyre	<i>Lyra</i>	<i>Lyra</i> (Vega)	Lyre; <i>Vega from an Arabic word</i>
Bird (Cygnus)	<i>Ornis</i>		Swan
Arrow (Sagitta)	<i>Oistos</i>		Arrow
Eagle (Aquila)	<i>Aētōs</i>	<i>Aētōs</i> (Altair)	Eagle; <i>Altair from an Arabic word</i>
Dolphin	<i>Delphis</i> (e)		Dolphin

Forepart of horse	<i>Protomē Hippou</i>		Fore half of a horse
Prancing horse (Pegasus)	Híppos		Flying horse
Cepheus	<i>Kēpheus</i>		King of Ethiopia seated with his foot on the Pole Star; on the Farnese Globe he is portrayed as a tragic actor
Cassiopeia	<i>Kassiopeia</i>		Seated wife of Cepheus
Andromeda	<i>Andromeda</i>		Chained daughter of Cepheus and Cassiopeia
Perseus	<i>Perseus</i>	<i>Gorgonion</i> (Gorgon's Head)	Rescuer of Andromeda holding the Gorgon's head
Charioteer(Auriga); Goat; Kids	<i>Hēniochos</i>	<i>Aix; (Capella); Eriphoi (Haedi)</i>	Seated man holding a goat and a kid , Erechtheus father of the Pleiades maidens
Triangle	<i>Deltōton</i>		Triangle
	<i>Berenikēs Plokamos</i> (Berenice's Locks)		Tied lock of hair
Orion	Oriōn		Hunter may carry a club and lion skin
Procyon (Canis Minor)	<i>Prokuōn</i>	<i>Prokuōn</i>	Dog
Dog (Canis Major)	<i>Kuōn</i> (e)	Kuōn (Sirius)	Dog; brightest star in night sky
Hare (Lepus)	<i>Lagōos</i> (e)		Hare
Argo	<i>Argō</i>	<i>Kanōbos</i> (Canopus)	Ship, second brightest star in the sky
Hydra	<i>Hydros</i> (e)		Sea monster (snake)
Bowl (Crater)	<i>Kratēr</i>		Bowl
Raven (Corvus)	<i>Korax</i>		Raven
Centaur	<i>Kentauros</i>	<i>Thyrsolongchus</i> (Thyrsus)	Centaur holding a thyrsus
Beast (Lupus)	<i>Thērion</i>		Wolf carried by Centaur to be sacrificed on Ara
Altar (Ara)	<i>Thumaitētion</i>		Altar
Southern Fish	<i>Notios Ichthus</i>		Fish
Sea Monster (Cetus)	<i>Kētos</i>		Sea monster sent to devour Andromeda
Starry River/Eridanus	<i>Potamos</i>		River
	<i>Notios Stephanos</i> (Corona Australis), <i>Kērukeion</i> (Caduceus)		Crown, alternative name Caduceus

Notes for Table 3.7:

1. Kidd, D. (1997). *Aratus Phaenomena: edited with translation and commentary* p. 73-129.
 2. Evans, J. & Berggren, J.L. (2006). *Geminus's Introduction to the Phenomena: A translation and study of a Hellenistic survey of astronomy* p.140-145.
 3. Jones, A. (2007). On Greek and Zodiacal Date-Reckoning. in *Calendars and Years* ed. Steele J.M. pp. 149-167.
 4. Rogers, J.H. (1998). Origins of the Ancient Constellations II Mediterranean Traditions. *Journal of the British Astronomical Association* 108: 1-28.
 5. www.constellationsofwords.com/stars
 6. Boutsikas, E. & Hannah, R. (2012). *Aitia, Astronomy and the Timing of the Arrhephoria*. *The Annual of the British School at Athens* 107: 233-245.
 7. Davidson, J. (2008). Time and Greek Religion. in *A Companion to Greek Religion*. ed. Ogden, D. Wiley-Blackwell. pp. 204-218
-
- a. Aratus' names from Kidd's (1997) translation.
 - b. Stars/constellations cited from Euctemon (c.423 BC) and Eudoxus (c.408-356 BC) are shown bold.
 - c. Single stars or star groups from within a constellation are shown in red.
 - d. More commonly used modern name in brackets.
 - e. Constellations on the archaic skyphos from Halai (Barnes 2014).

Colour Key:

ZODIAC	NORTHERN CONSTELLATIONS	SOUTHERN CONSTELLATIONS

Rogers (1998) links a Bear, Arcturus, Sirius, the Hyades, the Pleiades and Orion, which were documented by Homer and Hesiod (750-700 BC) in his first set. His second 'seafaring' group of constellations contains the huge giants and serpents, and these can be related to navigational aids (dating to the 2nd millennium BC). Evidence for the Greek Zodiac dates to the 4th century BC (Chapter 3.4), and Rogers suggests that the constellations that cannot be placed in any of these groups were invented later by the Greeks themselves. Only two ancient maps of the constellations are known; both are carved in stone, the Dendera Zodiac and the Farnese Atlas (Duke 2006). The Dendera Zodiac, which is dated c.50 BC, shows the Mesopotamian zodiac surrounded by Egyptian stars (Chapter 3.4) and the Farnese Globe is thought to be a Roman copy of a Hellenistic globe, and its details are consistent with the work of Hipparchus (c.125 BC) (Schaefer 2005; Duke 2006). Catasterisms are the myths associated with the constellations and these myths gave rise to the names and forms that were assigned to groups of stars. There are however variations of these myths that are

dependent on geography and time. For the purpose of investigating the calendar frieze images, it is those catasterisms that existed in late Hellenistic Athens that are most important, and the images and myths associated with the star map of the Farnese Globe, and the descriptions in Aratus' *Phaenomena* form the basis of the following analysis. They are not however the only star-myths, thus Humphreys (2004: 260) cites Eratosthenes' *Erigone* (c.276-c.195/4 BC), in which Erigone, with the help of her dog Maira, discovers her father Ikarios' suicide and they became Virgo, the Dog Star and the star Arktouros. This myth relates the introduction of wine into Attica by Dionysos and the heliacal rising of Arktouros is linked to the grape harvest by Hesiod.

The signs of the Zodiac have been discussed in Chapter 3.4 and the depiction of Scorpio, the Claws and Libra fully investigated. Sagittarius (Image 10) has a cloak, which is mentioned in Ptolemy's *Almagest* (H114) but not shown on the Farnese Globe. In Table 3.7 only 11 out of 43 constellations have a human form but the frieze contains human forms in 29 out of 41 images and no celestial monsters or wild beasts. Even those figures that could refer to a constellation, such as Herakles in Image 37, do not conform to the Farnese or Aratus account; thus the constellation Herakles was represented as a kneeling figure. Image 8 of a man ploughing is a possible candidate for Bootes, the ploughman, but he is often associated with the bears (Ursa Major and Ursa Minor) and not an accompanying sower (Image 9). None of the other images can be convincingly associated with the non-Zodiac constellations in Table 3.7 above.



**Figure 3.24. Athenian Festival Calendar
Image 34, Sirius.**

(photograph from Deutsches Archäologisches Institut, Athens, 1959).

The only single star identified on the frieze by Deubner (1932: 253) is Image 34, Sirius or the Dog-Star. This identification is secure because rays can clearly be seen radiating from the dog's head (Figure 3.24) and this convention of using rays to indicate a star was also used on a coin depicting Sirius from Keos (Figure 3.25). Further references to either constellations or individual stars are missing from the frieze images. It is however possible that the figure personifying Thargelion (Image 25) (Figure 3.26), which marks early summer, has a headdress that references Helios. A parallel can be seen a New Style Athenian Tetradrachm dated 138/7 BC (Figure 3.27).



Figure 3.25. Late 3rd-early 2nd century BC Coin from Karthaea on Keos, Cyclades.

Obverse: Laureate head of Apollo; Reverse: Forepart of the dog, Sirius within rays, below, bee.

<http://www.cngcoins.com>

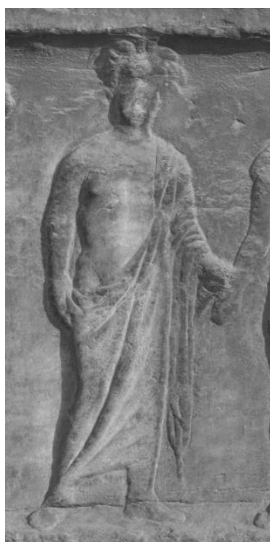


Figure 3.26. Athenian Festival Calendar Image 25, Personification of Thargelion.

(photograph from Deutsches Archäologisches Institut, Athens, 1959).



Figure 3.28. New Style Athenian Tetradrachm.

Obverse: Helmeted head of Athena right / Α-ΘΕ; reverse: left and right of owl standing right on amphora. ΓΛ-ΑΥ over ΣΦ in left field, ΕΧΕ and radiate head of Helios facing in right field. Ε on amphora.

Thompson (1961 Vol.2 # 293). Low chronology date 138/7 BC.

3.8. Summary.

Three important points emerge from the discussions in this chapter: a probable late Hellenistic date for the Little Metropolis frieze, the early importance of the Zodiac in astronomy, predating the development of astrology and therefore excluding astrology from interpretations of the Little Metropolis frieze, and finally the extent to which knowledge of the night sky was embedded in ancient Greek culture. The chapter also shows that the Little Metropolis frieze cannot be interpreted as a simple chronological compendium of star signs.

In the following chapter the complicated system of Athenian calendars will be examined in order to illustrate further the extent to which the measurement of time, at various levels, penetrated the lives of Athenian citizens. Chapter 4 will also discuss the complex picture of calendars from the other Greek *poleis* in the Hellenistic period, concentrating on the relationship between the Macedonian and the Athenian calendars. The analysis of these calendars constitutes an investigation into the puzzling non-Athenian start date of the religious year depicted on the frieze.

Chapter 4. Greek Calendars: the First Month of the Little Metropolis Calendar Frieze.

4.1. Introduction.

This chapter addresses the problem of the non-Athenian, Pyanopsion (autumn) start of the calendar that is depicted on the Little Metropolis frieze. In *Making Time for the Past* (2008: 370), Katherine Clarke makes the case that members of Greek poleis were familiar with calendars that ‘contracted their past into an annual cycle’. This familiarity with the calendar implies that citizens understood the meaning and importance of its structure. In support of this suggestion, this chapter examines modern controversies about the interpretation of epigraphic evidence for the irregularity and complexity of Athenian calendars. The following study of the organisation of several Classical Attic sacrificial calendars asks the question: how important was a systematic chronological representation of an Athenian year in a festival calendar? These analyses of Classical Athenian calendars are followed by a survey of 17 Hellenistic Greek calendars in relation to the significance of the New Year in different Hellenistic Greek city states and kingdoms. Finally these studies will be employed to provide a plausible explanation for the non-Athenian start of the Little Metropolis festival calendar.

More information exists about the Athenian calendars than about those of any other Greek polis but despite this there are significant gaps in our knowledge of these calendars. Most importantly, disagreement about the interpretation of existing evidence for irregularities in the operation of the calendar in any given year has led to many unresolved controversies among modern scholars. Woodhead (1992: 117-122) believes that because modern scholarship is influenced by current ideas of time that are derived from the accuracy of modern clocks and timetables (Chapter 2.1.1), a precision is demanded of the ancient world which it ‘neither had nor cared to acquire’ and he points to a number of the irregularities and uncertainties in our knowledge of the Athenian calendars that have led to debate between modern scholars. These include the start and end of the month, synchrony between the *prytany* and the religious calendars, the sequence of full and hollow months and the pattern of intercalation of both days and months. All of these relate to the level of state control of the calendar and the consequential yearly level of irregularity in the

operation of an astronomical lunar calendar. The debates are largely polarised with Pritchett (1976, 1999, 2001) interpreting the data in support of substantial irregularity and Habicht (1997: Preface), Meritt (1964) and Woodhead (1989) taking the view that irregularity was less prevalent and more controlled.

This chapter will argue that the apparent complexity of the relationships between different Athenian calendars cannot be dismissed as a phenomenon associated with either the fragmentary evidence or the dichotomy of modern interpretations. Although Stern (2012: 26) believes that the development of Greek calendars does not reveal an evolution of the concept(s) associated with them, the undoubted complexity of the annual cycle of religious and civic events determined by these calendars does suggest a substantial degree of sophistication in the Athenian citizens' knowledge and understanding of them, and an appreciation of this should inform any attempt to interpret the Hellenistic Little Metropolis calendar.

4.2. Interpretation of the Athenian Calendars.

Pritchett (1999) attempts to avoid some of the confusion among disputing scholars by defining the ancient Greek words used to describe the various religious lunar calendars (sometimes called festival calendars). Thus *κατά θεόν* (according to the Gods), a term which is not recorded on inscribed sacrificial calendars before the 2nd century BC (Clarke 2008: 22, n. 84; Lewis 1975), describes a true lunar calendar; *κατά θεόν νοιμηνία* is the calendar according to the moon and presumably equivalent to *κατά θεόν*; *κατά σελήνην* is also according to the moon and *κατ' ἄρχοντα* (*archontic* calendar) is the lunar calendar that has been modified by the *archon*. None of these terms refer to the civil or *prytany* calendar (see Chapter 1.1).

4.2.1. The Beginning and End of Each Month.

There is some debate about the limits of an Athenian day; so whilst most scholars interpret Geminus (*Elementary Astronomy* 6.1-5 translated by Aujac 1975: 49-50, 59-60; translated by Evans & Berggren 2006: 161-162) such that the Athenian day runs from sunrise to sunrise, Pritchett (1999) points out that other scholars working on the Oxyrhynchus papyri (Burkert 1993^a; Sider 1994) suggest that the period of the Greek day was sunset to sunset and Stern (2012: 27) believes that this period should be preferred. Although this distinction

is seemingly trivial, it can have a consequence when deciphering epigraphic evidence that involves interpretation of the limits of the important calendar period, the month.

Another source of uncertainty in the Athenian calendar is the level of precision in the way a new month was identified. The first day of the month was called *νουμηνία* (new-moon-day) and was a market day (Mikalson 1975: 15). Most modern scholars cite Geminus (*Elementary Astronomy* 8.11, 9.7) who, writing in the first century BC, states that the month begins when the crescent of a new moon is first sighted, and this always occurs in the evening shortly after sunset (Stern 2012: 26). Nevertheless even Geminus is not completely clear because he indicates that sometimes the new moon is not seen until the third day of the month. This can be interpreted to mean that weather conditions could affect a sighting, yet if this is correct it implies that the appearance of the 'real' new moon could be predicted. Translations of Aratus' 3rd century BC poem, *Phaenomena* have also contributed to the debate. Pritchett (2001: 91-92) cites the translation of Kidd (1997: lines 733-738) and this has been interpreted to indicate that when the moon is first sighted it is already waxing and therefore the month began before this.

Don't you see? When the moon with slender horns is sighted in the west, she declares a waxing month; when the first light shed from her is enough to cast a shadow, she says she is entering on the fourth day; eight days she indicates at half moon, mid-month when she is with full face. As she continually changes her aspect with different phases, she tells which day of the month is taking its course.

Aratus, *Phaenomena* 733-738. (translator Kidd 1997)

However, the translation of the same lines by Poochigian (2010) give a different interpretation of the description of the start of the month with no mention of waxing and Stern (2012: 28) suggests that the term used by Aratus, *ἀεξομένοιο*, may be interpreted to mean the first day of the month.

Don't you see? Moon declares a month is born
When in the west she grows a sliver of horn;
And when her beams are bright enough to splay
Night-shadows, she announces her fourth day.
Eight days upon her, she is half concealed,
And only during mid-month fully is revealed.
So, as she grows or shrinks from phase to phase,
We measure out the passing of our days.

Aratus, *Phaenomena* 733-738. (translator Poochigian 2010)

The term conjunction describes the period when the moon is completely obliterated by the shadow of the Earth and this occurs two days before the new moon becomes visible (Stern 2012: 26-27). Discussion of this phenomenon where there are two nights with essentially no moon, has also contributed to the modern debate particularly in relation to Hellenistic Athens, when an understanding of astronomy was more developed.

The Athenians called the last day of the month 'the old and the new' (ἔνη καί νέα) (Pritchett 1999) and this expression only adds to the debate about the precision of the beginning and ending of each lunar month. The uncertainty among modern scholars in identifying the end of the month involves the designation of a full 30 day month, as opposed to a hollow 29 day month. There is an astronomical constraint on the length of a lunar month, which means that it cannot be longer than 30 days or shorter than 29 days because an astronomical lunar month is 29 days and 13 hours long (Chapter 3.3.1). As discussed in Chapter 3.3.2, the end of the month was important in commercial life because debts had to be repaid at this time but the sequence of full and hollow months was under political control and could be irregular in any given year (Woodhead 1992: 120). Days in an Athenian month were counted forward from day one to day 20, using the term 'rising' for the first ten days followed by 'plus ten' for the next ten days and the 15th day of each month, when the moon was full, was called *dichomenia* (split month) (Davidson 2008). However, the last ten (or nine) days were counted backwards (names for these days changed in the late 4th century BC) (Woodhead 1992: 120-121). The problem then arises as to which day in the month was omitted in a hollow month and this problem has also generated heated debates (Woodhead 1992: 120-121). Walsh (1981) summarises the problem; did the Athenian hollow month leave uncounted the day at the very end of the month or the day at the beginning of the backward count? Pritchett (1999) cites Proklos (c. 400 AD) in the scholia of Hesiod (Op. 765 and 817), who states twice that in Athens the 29th day (δευτέρα φθίνοντος) was omitted in a hollow month and the final day of the month was always called ἔνη καί νέα (Sider 1994). The choice of day would have been of particular concern in civil life when citizens would presumably be anxious to know exactly when their debts had to be repaid (Chapter 3.3.2).

Although the *prytany* calendar determined the dates of civic meetings such as the *ekklesia* (assembly) and the *boule* (council), it is clear that in Athens, commercial (non-religious)

activities (including debt collection) were also determined by the lunar *archontic* calendar. In the Athenian Tax Law of 374/3 BC, (*Agora 1*, no. 7557, Stroud 1998) the supervision of grain imported from Lemnos, Imbros, and Skyros was dated in terms of the lunar months Maimakterion and Anthesterion, not in terms of the *prytany* calendar (Pritchett 1999).

4.2.2. Political Control of the Athenian Calendar.

Greek festival calendars were maintained by political authority and in Athens this authority was the eponymous *archon* (Stern 2012: 29). Despite the accepted role of the *archon* in manipulating the lunar festival calendar there is no evidence that the observation of the new moon was a duty of the *archon* (Stern 2012: 28). Stern (2012: 30) suggests that the fact that political control of calendars was common in Greek city states is illustrated by a story from the early 4th century BC wit, Stratonikos. After a visit to Abdera, Stratonikos thought it sufficiently odd to report that, somewhat chaotically, each citizen appointed his own herald to announce the new month (Pritchett 2001: 36).

In Athens, from 407/6 BC, the first day of Hekatombaion was equated with the first day of the *prytany* year, the day on which the *archon* and other officials, including the new *boule*, took up office (Pritchett 1976; Woodhead 1992: 119). Mikalson (1975) has compiled a composite calendar of the Athenian year that includes both the attested days on which festivals were held and the days of civic meetings of the *ekklesia* and the *boule*. His book does not give chronological information of all of the epigraphic evidence that he used but one citation is dated 118/117 BC (Meritt 1963: #23 Inv. No. I, 6422) so he must have included data from the late 2nd century BC (Mikalson 1975: 192). From this survey Mikalson (1975: 203) concludes that there were very few clashes between civic meetings and religious festivals. This problem was averted because there was political control over some aspects of the calendar (Stern 2012: 29), thus if it was necessary to hold a meeting of the *ekklesia* on a festival day, the *archon* could introduce an extra day(s) into the month (Mikalson 1975: 3). A passage in Aristophanes, *Clouds* (615-626) (performed in 423 BC) demonstrates the fact that the Athenian *archontic* festival calendar could be seriously out of accord with the phases of the moon, and that the Athenians were aware of that fact.

The sighting of the new moon (to start a new month) was also sometimes manipulated (Salt and Boutsikas, 2005) despite the fact that gods had sacred days and the date in the lunar

month of a particular festival was seen as crucial for the proper observance of ritual (Parker 2005: 192). These adjustments must have involved and presumably been accepted by the citizen population of the polis (Clarke, 2008: 26). An example of such a political adjustment, albeit outside Athens, is given by Pritchett (1999) citing a law of the Euboian Confederacy concerning the contracting of Dionysiac artists (*IG XII.9.207*). This law prescribed that the Dionysiac troupes were to appear on specified dates, first at Karystos, then moving northwards, at Eretria, Chalkis, and Oreos. In relation to the appearance of these troupes in the four cities on the dates designated for the Dionysia, the prescription was given that the “lunar” calendars might be adjusted by intercalations of up to three days (lines 28–29). There is evidence that in Athens such inserted extra, *embolimoι*, days were rectified by adjusting the last month of the Athenian year, Skirophorion (Meritt 1972).

Evidence for political manipulation of the calendars can also be found in inscriptions that give calendar ‘equations’ where a single day is designated by more than one form of the calendar. As noted above, after 407/6 BC the boundaries of the Athenian *prytany* year (named after the first secretary) and the *archontic* (κατ’ ἄρχοντα) year (named after the new *archon*) were the same (Pritchett 1976), but before 407/6 BC the *prytany* year had 10 *prytanies*, whereas the *archontic* year had 12 months. After 407/6 BC the number of *prytanies* varied following political adjustments to the number of tribes (Chapter 5.1) (Camp 1992: 163-4, 167-168). Dunn (1998) has shown that in the 2nd century BC when there were 12 tribes, on double dated inscriptions there was usually good equivalence between the κατά θεόν date and the *prytany* date, but *prytany* and κατ’ ἄρχοντα (*archontic*) dates showed divergences.

An Athenian example of political manipulation of the lunar festival calendar can be seen in the late 4th century BC. Woodhead (1989) presents nine inscriptions (*IG II² 481, 482, 483, 484, 485, 486, 597; SEG XXX 69; Hesperia, 7 1938: 297 #22*) from the year 304/3 BC where both the *prytany* and the *archontic* calendar dates are given. This year had 12 months in the *archontic* year and also had 12 *prytanies* following the introduction of two new tribes to honour the Macedonians, Antigonos Monophthalmus and his son Demetrios Poliorketes. The two calendars are in close accord, only differing by plus or minus one day, if the following structure is correct. Thus the *prytanies* ran as follows: 4 x 29 days; 6 x 30 days; 1

x 29 days; 1 x 30 days, and the *archontic* calendar ran hollow /full in order until full Anthesterion, which was followed by full Elaphebolion, after which the hollow/full months alternated until an extra day was added to the last month, Skirophorion, making the year 355 days long. Presented as number of days in each *archontic* month this pattern becomes: 29/30/29/30/29/30/29/30/30/29/30/30. A tenth decree appears to contradict this neat explanation of the year but Woodhead (1989) shows that the inscription (*Agora XVI*, no. 114) refers to changes to the calendar described by Plutarch (*Life of Demetrios* Chapter 26) that were made by Stratokles, the *archon* in 304/3 BC, whereby he renamed Mounichion first as Anthesterion and then as Boedromion so that Demetrios Poliorketes could attend the Lesser and the Greater Eleusinian Mysteries in the 'correct' months. This is the first record of a Hellenistic King manipulating calendrical time as an expression of power and an instrument of propaganda (Thonemann 2005). The complexity of the Athenian calendars of this single year (304/3 BC), involving irregularity in the pattern of days in both the *prytany* and *archontic* calendars, together with twice renaming a single month, demonstrates the degree to which knowledge of the calendar was necessary to organise both religious and commercial activities in the city. Evidence for further manipulation of the civic (*prytany*) calendar by Demetrios Poliorketes in 296/5 BC can be seen in an inscription (*IG II² 644*; Thonemann 2005), when the year was begun again in the middle of Elaphebolion and a cycle of mini-*prytanies* occurred whilst the religious lunar calendar continued as normal.

At the beginning of *Athenian Calendars and Ekklesias*, Pritchett (2001: 1-7) summarises information from 23 Attic inscriptions from the 2nd century BC that with one exception, show triple dates (κατ' ἄρχοντα, κατά θεόν and *prytany*). Differences between the κατ' ἄρχοντα and κατά θεόν dates vary from 1 day (4 cases), two days (two cases) and one case each for between 3 days and one month. All the months are represented except the first month, Hekatombaion and the last, Skirophorion. A second internal type of epigraphical evidence for political changes to the κατά θεόν calendar can be the presence of the word, ἐμβόλιμος (intercalated) in an inscription. In 13 inscriptions, dating between 333 BC and 122 BC, Pritchett (2001: 6-7) records intercalations of between one and eight days in a single month. The only month not recorded in either of Pritchett's summaries described above, is Skirophorion, the last month of the year; a month with very few festivals where

days were deleted (ἐξαίρεσις) in order to compensate for intercalated days in earlier months, and thus regulate the total length of the year.

As well as disagreements about the manipulation of days within a month, there is also disagreement among scholars in the interpretation of the number of months within any given year; a problem that follows from the need to intercalate an extra month every few years in order to compensate for the fact that 12 lunar months are 11 days shorter than a solar year (see Chapter 1.1; Chapter 3.3.1). Both Hannah (2005: 55-58) and Woodhead (1992: 118-120) believe that deductions about the pattern of intercalation of extra months, made on the basis of ancient authors' accounts (Geminus, *Introduction to Astronomy* 8.50-58; Ptolemy, *Almagest* 7.3, H 25-32), should be treated with caution.

Pritchett (2001: 8) tabulates the Athenian inscriptions that document intercalation of an extra month in a year, covering a period from the 5th to the 2nd century BC. In most cases (8/10) the year is identified by the name of the *archon*. Five of the added months are Posideon, but Hekatombaion was repeated in the 5th and the 3rd centuries and single examples of intercalation have been found for Metageitnion in the 2nd century, Gamelion in the 4th century and Anthesterion in the 3rd century BC. Although ten examples in a period of over 300 years is not compelling evidence, this pattern is generally interpreted to mean that a second winter month of Posideon was usually chosen for intercalation.

As explained in Chapter 1.1, in the mid-5th century BC, a 19 year Metonic cycle was attributed to Meton and Euktemon by Geminus, writing in the first century BC (*Introduction to Astronomy* 8.59-60). In this cycle, the 30 (full) and 29 day (hollow) months roughly alternate to give 110 hollow and 125 full months; with 7 of the 19 years containing an intercalary 30 day month (Hannah 2005: 56/57; Lehoux 2007: 90 -93). Geminus (*Introduction to Astronomy* 8.59-60) also describes a refinement introduced in 330 BC by Kallippos, which removed an extra day every 76 years because the Metonic Cycle gained an extra day over the solar calendar during this time (Hannah 2005: 56/57). Ptolemy's *Almagest* is the only known source for the use of the Kallippic cycle (Jones 2000) and its widespread use should therefore be assessed with caution, however Jones (2000) suggests that it was used both to date astronomical observations by the early 3rd century BC and also

for the construction of *parapegmata*. Unsurprisingly, there is debate about the date of the operation of the Metonic cycle in Athens. In the Preface to his *Athens from Alexander to Antony* (1997), Habicht declares that in the Hellenistic period 'there was a nineteen-year cycle of twelve ordinary and seven intercalary years, following each other in fixed order' but although it is accepted that evidence for conformity or regularity comes from the Hellenistic and Roman periods (Stern 2012:37), Pritchett (1999) thinks that this seems unlikely. Müller (1991) looked at epigraphic evidence dating from the late 2nd century BC to the 2nd century AD and deduced that the pattern of intercalated months (that is in years 3, 6, 8, 11, 14, 17, 19) during this period followed a regular Metonic 19-year cycle. In addition, Osborne (2009) has attempted to use the archon lists to infer regular use of the Metonic cycle in Athens during the 3rd century BC. The deductions of both of these authors have been criticised by Stern (2012: 39-43), who nevertheless acknowledges that the epigraphic data for the periods 125-95 BC studied by Müller and 286-266 BC and 228-211 BC studied by Osborne, replicate the same Metonic pattern of intercalation of months. Although the Antikythera Mechanism (c.150 BC) (Chapter 3.6.2) is not Athenian, confirmation of the use of the Metonic cycle in the Hellenistic period comes from the most recent report of the mechanism, which links this cycle to calculations of the timing of the panhellenic games held at Olympia every four years (Freeth et al 2008).

4.3. Attic Sacrificial Calendars: Chronology of Months and Festivals.

This section analyses the chronology of months and festivals in several Attic sacrificial calendars. Did Athenian (Attic) festival (sacrificial) calendars reflect the close attention to calendar chronology that was needed in order to timetable festivals on the correct date? More germane to the topic of this chapter is the extent to which other festival calendars can help to explain the autumn start of the Little Metropolis calendar.

Eight Attic sacrificial calendars have been recorded: the Marathonian Tetrapolis calendar, an Athenian calendar, a calendar of the *genos* Salaminioi, and calendars from the demes of Erchia, Teithras, Eleusis, Skambonidai and Thorikos. The first calendars to be reported were the Marathon Tetrapolis calendar (Richardson 1895), which was discovered in hills above the Marathon Plain, and two small calendar fragments found in Eleusis (Skias 1895, cited by Dow & Healey, 1965). The Athenian calendar (Oliver & Dow 1935) and the calendar of the

genos Salaminioi (Ferguson 1938) were found in the Athenian Agora in the 1930s. The Erchian calendar was apparently found in what is believed to be the Pagos of Erchia about 500 m south of the modern village, Spata, in the late 1940s (Vanderpool 1965). In the late 1950s a small fragment of a calendar was found in the modern village of Pikermi and this has been identified as lying within the ancient deme of Teithras (Pollitt 1961). Skambonidai is a city deme and this calendar has been reported by Humphreys (2004: 145) and now resides in the British Museum. The most recently discovered calendar is from Thorikos; the early history of this stele is problematic but it came onto the antiquities market in the late 1970s and now resides in the J Paul Getty Museum in California where it was studied by Daux in 1983. Parker (1987) points out that no sacrificial calendars are known for other Attic organisations, such as the phratries, that had religious functions.

Since the initial reports there has been a series of refining or augmenting publications on all of these calendars and there are some papers or chapters which attempt to interpret the collection as a whole. Dow (1968) wrote a paper that is a largely factual comparison of six of the calendars (the Thorikos calendar had not been discovered in 1968 and Skambonidai not reported) and in 1977 Mikalson published a more analytical paper, although again the Thorikos stele had not been properly reported at this date. More recently, Whitehead (1986^a: 185-208) discusses the deme calendars in his book on the 'Demes of Attica' and Parker (1987) has based a paper on deme festivals on these calendars. This section will focus on the temporal sequence of months on these calendars to see if this helps to answer the question of the Pyanopsion start of the Little Metropolis calendar frieze.

Six of the eight Attic calendars date to the 4th century BC, the Thorikos calendar has been dated to c.430 BC by Parker (1987) and the Skambonidai calendar is the oldest dating to c.460 BC (Humphreys 2004: 145), so as a group they are probably at least 150 years older than the Little Metropolis frieze. Further, the most prominent distinctive feature of the information in these calendars is the detailed descriptions of the costs of sacrificial material (Dow 1968). Nevertheless, they each represent a chronological record of religious festivals and although six are deme based, two were found in the Athenian Agora and some may include records of the expenses incurred attending festivals in Athens (Dow 1968). Given the persistence of many religious festivals and myths in Hellenistic Greece and the interest

in many aspects of Classical Greek religion manifest in Augustan Greece (Spawforth, 2012: 159), an analysis of the 4th and 5th century calendar data could provide a background mind-set to help interpret the Little Metropolis calendar.

TABLE 4.1. THORIKOS CALENDAR (SEG XXXIII.147): TRANSLATION.

(Lupu 2009:121-122, Parker 1987)

[---] In **Hecatombaion**: [---] for(?) [---] and for (Hekate?) [---] (3) [shall] provide lunch (4) [--] a drachma each (5) [---] the Prerosia (6) [---] at(?) the Delphinion a goat (7) [---] (9) a full-grown victim, to be sold.

(10) [In **Metageitnion**:] for Zeus Kataibates in the sacred enclosure at the Delphinion a full-grown victim, to be sold. An oath-victim shall be provided for the *euthynai*.

(13) In **Boedromion**: The Prerosia; for Zeus Polieus, a choice sheep, a choice piglet, at/to Automenai(?) a bought piglet to be wholly burnt; the priest shall provide lunch for the attendant; for Cephalus, a choice sheep; for Procris, a table; for Thorikos, a choice sheep; for the Heroines of Thorikos, a table, to Sounion, for Poseidon, a choice lamb; (20) for Apollo, a choice young he-goat; for Kourotrophos, a choice female piglet; for Demeter, a full-grown victim, for Zeus Herkeios, a full-grown victim, for Kourotrophos a piglet, [[for Athena, a sheep to be sold]]; at the Salt Works, for Poseidon, a full-grown victim, for Apollo, a piglet.

(25) In **Pyanopsion**: for Zeus Kataibates, on the land of the Philomelidai, a full grown victim to be sold, on the sixteenth; (?) for Neanias, a full-grown victim, at the Pyanopsia [---]

(28) In **Maimakterion**: for Thorikos, a bovine worth not less than forty up to fifty drachmas; for the Heroines of Thorikos a table.

(31) In **Posideon**: the Dionysia.

(32) In **Gamelion**: for Hera, at the Hieros Gamos [--]

(33) In **Anthesterion**: for Dionysus, on the twelfth, a tawny or [black] goat, lacking its age-marking teeth; at the Diasia, for Zeus Meilichios, a sheep, to be sold.

(36) In **Elaphebolion**: for the Heraclidae [a full grown victim]; for Alcmena, a full-grown victim; for the Anakes a full-grown victim; for Helen a full-grown victim; for Demeter; as the Chloia offering, a choice pregnant [ewe]; for Zeus a choice lamb.

(40) In **Mounichion**: for Artemis Mounichia, a full-grown victim; to the sanctuary of Pythian Apollo, a triple offering; for Kourotrophos, a piglet; for Leto, a goat; for Artemis, a goat; for Apollo a goat lacking its age-marking teeth; for Demeter, a pregnant ewe as the Antheia (blossom) offering (?); for Philonis, a table; for Dionysus, to Mykenos (or Mykenon) a tawny or black [he goat].

(47) In **Thargelion**: for Zeus, at/to Automenai(?) a [choice] lamb; for Hyperpedios, a sheep; for the Heroines of Hyperpedios, a table; for Rhogios, a sheep; for Pylochos, a piglet; for the Pylochian heroines, a table.

(52) In **Skirophorion**: an oath-victim shall be provided; at the Plynteria, for Athena, a choice sheep; for Aglauros, a sheep; for Athena, a choice lamb; for Cephalus a bovine worth not less than forty up to fifty drachmas; for Procris a sheep worth 20 drachmas(?).

4.3.1. *Thorikos Calendar.*

The most accessible of the calendars is that from Thorikos (c.430 BC, Parker, 1987) (SEG XXXIII.147). A transcript of the Greek script has been published by Daux (1983) and Parker's translation (1987) has been published in Price (1999: Appendix 1). Lupu (2009:117-149) also gives a translation (Table 4.1) together with an extensive commentary. The calendar is complete in that it starts in Hekatombaion, the beginning of the Athenian religious year (Hannah, 2005:70-71) and ends with Skirophorion, the last of the 12 Athenian lunar months. The inscription is in a single stoichedon column on one side of the stele. The back of the stone shows signs of wear consistent with it having been used as a threshold stone.

4.3.2. *Erchia Calendar.*

The calendar from Erchia (c.360-350 BC) (SEG XXI.541) is almost complete. It was first recorded in the inventory of the Epigraphical Museum in Athens (#13163) in 1952, although it was probably found in 1948/9 (Vanderpool 1965). A full transcript of the Greek and an analysis of the inscription were published by Daux in 1963. The calendar is in five quasi-stoichedon columns each headed by a single letter (Α, Β, Γ, Δ, Ε) and arranged by month and day, and all but the last 14 lines are thought to be preserved. With the exception of Maimakterion, all of the Athenian months appear on the stele (Daux, 1963). Daux (1963) does not report a complete translation but has analysed the calendar under several headings (grammar, chronology, festivals, etc.). The arrangement of festival sacrifices into five columns is unique among the eight calendars (Dow 1965) and seems to be largely related to a division of the expenses since the expense totals are given at the bottom of each column (Jameson, 1965). Above the calendar columns there are two lines of inscription with the heading 'The Greater Demarkhia' in the second line; this has been discussed by Dow (1965) in relation to the political history of Attica but is not significant here.

Line1	[Θ] Ε Ο Ι
Line 2	Δ Η Μ Α Ρ Χ Ι Α Η Μ Ε Ι Ω Ν

In Daux's 1963 report of the Erchia calendar, he presents a single composite list of the dates (month plus day) showing the sacrifices with their deities, the location and the ritual,

TABLE 4.2. ERCHIA CALENDAR (SEG XXI.541): RECORD OF MONTHS.

(drawn from information in Daux, 1963)

	Columns				
	A	B	Γ	Δ	E
Missing months	<i>Hekatombaion, Maimakterion, Posideon, Mounichion</i>	<i>Hekatombaion, Pyanopsion, Maimakterion, Posideon, Anthesterion, Elaphebolion</i>	<i>Pyanopsion, Maimakterion, Posideon, Elaphebolion</i>	<i>Pyanopsion, Maimakterion, Posideon, Anthesterion</i>	<i>Hekatombaion, Pyanopsion, Maimakterion, Anthesterion, Elaphebolion, Mounichion</i>
Line					
1	Metageitnion	Metageitnion	Hekatombaion	Hekatombaion	Metageitnion
9					Boedromion
12	Boedromion				
13			Metageitnion	Metageitnion	
14		Boedromion			
17	Pyanopsion				
18				Boedromion	
22					Posideon
23	Gamelion				
26		Gamelion	Boedromion		
28				Gamelion	
31			Gamelion		Gamelion
33				Elaphebolion	
37	Anthesterion				
40		Mounichion			
41				Mounichion	
42			Anthesterion		
44	Elaphebolion				
45		Thargelion			
47				Thargelion	Thargelion
48			Mounichion		
52	Thargelion				
54			Thargelion		
55		Skirophorion			
56				Skirophorion	
57	Skirophorion				
59			Skirophorion		
65					Skirophorion

and Dow (1965) has redrawn this list preserving the arrangement of five columns and adding the information about victims and prices. Both of these papers effectively realign the data from each column of the inscription so that the calendar starts with Hekatombaion. Daux (1963) proceeds in order of the Athenian lunar months (omitting

Maimakterion) to Skirophorion. This is not how the calendar was originally inscribed and where the individual line numbers are given (Table 4.2) it can be seen that the alignment of dates in the five columns was not a concern of the workman. Curiously Dow’s handwritten transcription (1965) also changes the order of months, inserting Anthesterion , Elaphebolion and Mounichion between the months of Boedromion and Pyanopsion. The reason for this is not clear. Dow’s 1965 scheme does however make clear the fact that more than one column may record sacrifices on the same day. This is illustrated for a single month, Boedromion, in Table 4.3.

TABLE 4.3. ERCHIA CALENDAR (IG II² 1358, LS #20): DAILY RECORD OF SACRIFICES IN BOEDROMION. (extract from Dow, 1965)

Boedromion				
Columns				
A	B	Γ	Δ	E
	4 th day Basil			
		5 th day Eops	5 th day Eops	
27 th day Nymphs	27 th day Acheloos	27 th day Alochos	27 th day Hermes	27 th day Ge

4.3.3. Marathon Tetrapolis Calendar.

The stele known as the Marathon Tetrapolis calendar (c.375-350 BC) (IG II² 1358, LS #20) was the first to be discovered. It was found at Kukunari, in the hills at the western edge of the Marathon Plain, where the stone had apparently been used as a church threshold (Richardson, 1895; Lambert, 2000). It is thought to have originally included calendars for four demes: Marathon, Probalinthos, Oinoe and Trikorynthos (Larson, 1995: 27) but the stone is broken and Face B (which contains a list of names) is badly eroded and largely unreadable (Dow, 1968). The records of the Marathon component of the Tetrapolis calendar on Face A are almost complete and are the best preserved (Dow, 1968).

A revised transcript of the Greek inscription, published in 2000 by Lambert, shows that it records both annual and biennial sacrifices and was arranged in two columns with Column 2 broader than Column 1, reflecting the volume of data inscribed in each column. Although

Lambert (2000) pays no special attention to the monthly chronology, his analysis implies that the calendar is arranged in a form that is difficult to follow. He suggests that Column 1

TABLE 4.4. MARATHON TETRAPOLIS CALENDAR (IG II² 1358, LS #20): RECORD OF MONTHS. (after Lambert, 2000)

	Column 1	Column 2
Missing months	<i>Metageitnion, Boedromion, Maimakterion, Posideon, Anthesterion, Elaphebolion</i>	<i>Pyanopsion, Maimakterion, Thargelion</i>
Line		
4	τετάρτης τριμήνο	
5	Mounichion	Boedromion
7	Thargelion	δευτέρας τριμήνο, Posideon
9	Skirophorion	
11		τρίτης τριμήνο, Gamelion
17		Elaphebolion
19		τετάρτης τριμήνο, Mounichion
20	τετάρτης τριμήνο	
21	Mounichion	
23	πρώτης τριμήνο	
24	Hekatombaion	
27	δευτέρας τριμήνο Pyanopsion	
29	τετάρτης τριμήνο Mounichion	
30		Skirophorion
32	τετάρτης τριμήνο	
33	Mounichion	
40	δευτέρας τριμήνο Pyanopsion	
41		Hekatombaion
42	τρίτης τριμήνο Gamelion	
44	τετάρτης τριμήνο Mounichion	
48		Anthesterion
52		Skirophorion
53	Skirophorion	
55		Metageitnion

can be considered in four sections (see Table 4.4): lines 1-9 (Mounichion, Thargelion, Skirophorion) are the end of a calendar, lines 13-19 are prose, lines 20-33 (Mounichion, Hekatombaion, Pyanopsion, Mounichion, Mounichion) give three sequences of sacrifices and lines 40-53 (Pyanopsion, Gamelion, Mounichion, Skirophorion) give a single sequence of sacrifices. The prose section (lines 13-19) ends:

The following sacrifices are to take place in the cycle (or year in cycle?) of the ... in ... , each ... in order as is written ... on the [stelai] by the Eleusinion, on the [altar?] in Kynosoura [and the one?] by the Herakleion

Lambert (2000).

Lambert (2000) deduces that there is only a small amount of script missing from the top of Column 1 and thus this column started with a three-month section at the end of the Athenian religious year. Whitehead (1986^a: 191) points out that the inscription contains “super rubrics” that group the sacrifices into units of three months. These are Hekatombaion to Boedromion (πρώτης τριμήνου), Pyanopsion to Posideon (δευτέρως τριμήνου), Gamelion to Elaphebolion (τρίτης τριμήνου) and Mounichion to Skirophorion (τετάρτης τριμήνου). The positions of these rubrics, with line numbers, are shown in Table 4.4, demonstrating that seven of the nine 3-month units contain only one month. The month Mounichion occurs 5 times in Column 1 and this implies that, if an annual order is accepted, the column represents 5 years with different patterns of festivals, which seems unlikely.

There is no indication that Column 1 has the sacrifices divided by deme but in Column 2, lines 1–53 are specifically allocated to the *demarch* of Marathon and the lines following this to Trikorynthos. Boedromion is given in line 5 indicating that the surviving Marathon text may have started fairly close to the beginning of the year. Within the Marathon section (lines 1-53) there are three “super rubrics” in lines 7, 11 and 19 (Table 4.4). A biennial sequence starts in line 34. The reason for these “super rubrics” is not clear (Dow, 1968) but Whitehead (1986^a: 191) suggests that their meaning “when seasons determined everything” indicates an ancient origin.

4.3.4. Athenian Polis Calendar.

After the fall of the Thirty, a calendar of sacrifices was included in a new Athenian law code. Like other sacrificial calendars it included a record of the deities, their offerings and the prices together with the date of each sacrifice (Gawlinski, 2007). The first fragment of this Athenian polis calendar (403-399 BC) was published in 1935 (Oliver & Dow, 1935) but since then several newly discovered fragments have been added, however this still represents only a small proportion of the whole. Excluding Gawlinski (2007: Agora I 7577), a synthetic report of thirteen fragments (LSS #10) was published by Lambert in 2002. The calendar was probably displayed in the Stoa Basileios in the Athenian Agora. It was inscribed on both surfaces of a series of stelai that were joined by clamps to form a wall. Face A was erased and re-inscribed between 403 and 399 BC in the newly adopted Ionian script (Gawlinski, 2007). The calendar on face A consists of an annual sequence followed by a biennial sequence (Lambert, 2002). Lambert (2002) provides an English translation of this face but the only month recognised on the stelai is Hekatombaion (fragment 3), all the other months are inferred and the order of the months must therefore be very cautiously interpreted.

TABLE 4.5. ATHENIAN POLIS CALENDAR, FACE A (IONIC) (LSS #10): RECORD OF MONTHS.

(after Lambert, 2002)

Fragment/Line(s)	Day/Month	Festival
1: 1-2	[4, Boedromion]	
1: 3-22	5, [Boedromion]	Genisia
1: 23-25	6, [Boedromion]	
1: 26-30		Pythias
2: 2	11 or 12[Metageitnion]	
2: 8	11 or 12[Metageitnion]	<i>Theoria</i> to Nemeia?
3: 1-4	[25, Thargelion]	Plynteria?
3: 5-15	29,[Thargelion]	Plynteria?
3: 16-17		
3: 19-27	[2, 4, 5 or 7, Skirophorion]	
3: 28	[3, 8 or 9, Skirophorion]	
3: 30-43	15, Hekatombaion	Eve of Synoikia
3: 44-58	16, Hekatombaion	Synoikia
3: 60-76	[Metageitnion]	Eleusinia
3: 77-86	[Metageitnion]	Eleusinia
6: column 1, 1-3	Before 7 th of ? month	Hermaia?
8: column 2	[Anthesterion?]	<i>Theoria</i> to Delos

4.3.5. Calendar of the genos, Salaminioi.

In 1936 a sacrificial calendar (363/2 BC) (LSS #19), known as the calendar of the genos Salaminioi was found in the Athenian Agora, SW of the Hephaisteion (Ferguson 1938). This stele (#1 in Ferguson, 1938) is one of group that had later been used in a tunnel designed to hold a water conduit constructed at the end of the first century AD. The stele which was originally located in the neighbouring Eurysakeion, is complete and was inscribed on one side only in 97 lines of a mixture of stoichedon, quasi- stoichedon and non- stoichedon continuous script (Ferguson, 1938). Ferguson (1938) gives both a transcript of the Greek and an English translation. A new Greek transcript and further comments have also been published by Lambert (1997). Only six months are named, in the order: Mounichion (line 85), Hekatombaion (line 88), Metageitnion (line 89), Boedromion (line 90), Pyanopsion (line 93) and Maimakterion (line 94) (Ferguson, 1938).

4.3.6. The Teithras, Eleusis and Skambonidai Calendars.

Only 14 lines of Side A of the Teithras calendar (first half of 4th century BC) (SEG XXI.542, LSS #132) have been translated and these document, in stoichedon script, sacrifices on two dates (4, 27) of Boedromion (Pollitt, 1961, Dow, 1968). Seven lines on side B of the stele have not been deciphered (Dow, 1968).

The decipherable parts of the Skambonidai calendar (*IG I³ 244*) contain information in column C about the sacrifices and distribution of meat at a dedication to a tribal hero (Leos), and the festivals Kronia, Synoika and Epizephyria. Column A gives similar information about the [Dipoli]eia or the [Olympi]eia and the Panathenia. The information from this inscription primarily covers the first month of the year, Hekatombaion, but the Dipolieia (Skiraphorion) and the Olympieia (Mounichion) were not held in this month and appear to be out of order (Humphreys 2004: 145).

Two fragments containing 41 lines of a calendar from Eleusis (c.330-300 or c.270 BC) (*IG II² 1363*, SEG XXIII.80) that were first reported by Skias in 1895 were edited and reinterpreted by Dow and Healey in 1965 using new reproductions (squeezes). The stele was inscribed on one side only as non- stoichedon script in two columns and appears to document the funded expenses of Eleusinian cult officials, incurred both in Eleusis and attending festivals

in Athens (Dow, 1968). Dow and Healey (1965:1-14) deduce that the calendar appears to relate to at least 4 festivals:

Proerosia: complete (lines 1-7) at Eleusis on [4,5] 6 Pyanopsion
Pyanopsia: incomplete (lines 8-21) in Athens on 7 Pyanopsion
Thesmophoria: the end only (lines 22-27) in Eleusis on 11-13 Pyanopsion
Skira: incomplete (lines 33-39) in Athens on 12 Skirophorion

However, the word Pyanopsion does not occur on the inscription. The name Proerosia is clear in line 7 and a festival to Apollo Pythios in Athens, which is interpreted as the Pyanopsia, is documented in lines 9-13. These together with the reference to priestesses attending a night festival in Eleusis (the Thesmophoria) in lines 16-19 lead Dow and Healey to ascribe the month of Pyanopsion to this section of the inscription (Dow & Healey 1965: plate III). This fragmentary data from Eleusis has contributed to the debate concerning the nature of Images 8 and 9, which depict ploughing and sowing and have been interpreted as the Proerosia (Chapter 1.5).

4.3.7. The Significance of the Attic Sacrificial Calendars for Interpretation of the Little Metropolis Festival Calendar.

The eight sacrificial calendars reviewed here contribute information for the questions: how concerned were citizens about starting a recorded calendar at the beginning of the Athenian year (Hekatombaion) and/or recording the correct order of the months? The evidence presented above is mixed. The Thorikos calendar (Table 4.1) is straightforward since it starts with Hekatombaion and with the exception of the damaged line that contained the missing Metageitnion, all of the months are named in the correct order (Hekatombaion, [Metageitnion], Boedromion, Pyanopsion, Maimakterion, Posideon, Gamelion, Anthesterion, Elaphebolion, Mounichion, Thargelion, Skiraphorion). The Erchia calendar is more complicated because some months are missing from each of the five columns and only columns Γ and Δ start with Hekatombaion (Table 4.2). However, within each column the months are in the correct order and all of the columns end with the last month in the year (Skiraphorion). Only one day (21) in Hekatombaion is recorded, in columns Γ and Δ, and this represents a division of the costs between these two columns. Dow's conclusion that the five columns on this calendar reflect a division of the costs, explains why the monthly sequence was not a primary concern of the Erchians (Dow, 1965). The Marathon Tetrapolis calendar is even more difficult to interpret. It is divided into two

columns, Column 1 for Tetrapolis-wide sacrifices and Column 2 divided into individual demes, and this second column documents both annual and biennial festivals (Lambert, 2000). However, it is clear that within Column 1 the months are not inscribed in order (Table 4.4). The inscription indicates that a year was divided into four 3-month sections but it is not clear how this division explains the order of the months presented on the stele. The Athenian calendar is very fragmented and probably cannot contribute to this survey, but if Lambert's analysis (2002) can be accepted, the months are not presented in order. The calendar of the genos, Salaminioi only contains six named months and the list has one month out of order (Ferguson, 1938). The Teithras (Pollitt, 1961; Dow, 1968) and Skambonidai (Humphreys 2004: 145) fragments are uninformative, whilst the Eleusis fragment does not help interpret the overall frieze chronology (Dow & Healey, 1965).

The pervasive significance of time in all aspects of ancient Athenian religion was described in Chapter 2. In the Classical period, the Athenian understanding of the religious significance of the structure of their calendars is illustrated by Aristophanes play *Clouds* (615-626), where the moon complains that the gods have been threatening her because the citizens have not observed the proper calendar date for festivals. Despite this, using the four best preserved stelai, only the one from Thorikos (c.430 BC) shows the Athenian lunar months in the correct order. The order of months in the other three (Erchia c.360-350 BC, Marathon c.375-350 BC, Athens c.403-399 BC) has to be qualified because in each case the order probably reflects specific local matters. The dates of these three calendars are all more recent than the Thorikos calendar and span a period from 403 BC to 350 BC, which as previously pointed out, is at least 150 years before the earliest estimated date of the Little Metropolis calendar (Chapter 2.4). It is unlikely that the sequence of months on the eight sacrificial calendars reviewed above is random but rather it reflected the specific purpose of the inscription, which may have been different in each case but clearly involved the costs of organising a religious festival (Chapter 4.3.2 & 4.3.4 above). From this survey it is unlikely that the start date of the Little Metropolis calendar was chosen at random. It differs from the inscriptions by the attention taken to present chronology and the significance of this is emphasised by the presence of symbols of the Zodiac in an accurate chronological order (Chapter 1).

4.4. The Date of the New Year in Greek Poleis during the Hellenistic Period.

4.4.1. Variation.

Table 4.6 (column 2) shows the lunar months of Athens presented in order from Hekatombaion, the first month of the year, to Skirophorion, the last month of the year (Introduction). The start of the Athenian year is indicated by Plato and Aristotle (see below), as well as the late 5th century BC orator, Antiphon, who talks of the first two months of the year as Hekatombaion and Metageitnion (*On the Choreutes* 42). The lunar calendar of Delphi, which dates from the 4th century BC, is shown in Table 4.6 aligned with the Athenian lunar calendar. This alignment demonstrates that although the Delphi months had different names, the Delphi New Year (shown in green) began in a month equivalent to the Athenian month, Hekatombaion. All the other lunar calendars presented in Tables 4.6 date from the 4th to the 2nd century BC and are aligned with the calendar of Delphi. Table 4.7 shows the lunar months of Athens aligned with the lunar calendar of Babylon and with the lunar calendars of several Greek Hellenistic kingdoms. A cursory study of these two tables shows that with the exception of the leagues Achaëa, Phocis and Ozolian Locris, which had numerical months, all cities had a different set of names for their months. Those cities that had close political and cultural links with Athens or had been colonised by Athenians, had several months with Athenian names (Gorman 2001: 41). Thus Delos (Table 4.6) had Hekatombaion, Metageitnion, Posideon and Thargelion in common with Athens; Miletos (Table 4.7) had Metageitnion, Boedromion, Pyanopsion, Posideon, Anthesterion, and Thargelion in common with Athens, and Ephesos (Table 4.7) had Metageitnion, Boedromion, Maimakterion, Posideon, Anthesterion and Thargelion in common with Athens.

Again, a cursory study of Tables 4.6 and 4.7 shows that the first month of the year (shown in green for each city/kingdom) varied widely and the only places that had the same New Year as Athens were Delphi and Halos in Achaëa Phthiotis. Among the cities surveyed in these tables, six other months are shown to represent the New Year. There has to be a 'health warning' for this analysis because the data for each city sometimes comes from a particular year and, as was previously explained in this Chapter (4.2.2), the yearly pattern of intercalation of months could have been irregular. This means that the alignment of lunar

TABLE 4.6. CALENDAR MONTHS OF GREEK POLEIS: ALIGNED WITH THE CALENDAR MONTHS OF DELPHI.

Each New Year shown green.

	ATHENS ¹	DELPHI ²	DELOS ³	AITOLIA ⁴	PHOCIS ⁵	ACHAEA ⁶	OZOLIAN LOCRI ⁷	THESSALY ⁸	HALOS (PHTHIOTIS) ⁹	EPIDAUROS ₁₀
Summer	Hekatombaion	Apellaios	Hekatombaion	Laphriaios	Dexatos (Tenth)	Dexatos	Dexatos	Panemos	Hadromios	Apellaios
	Metageitnion	Boukatios	Metageitnion	Panamos	Endexatos (Eleventh)	Endexatos	Endexatos	Themistos	Eyonios	Azosis
Autumn	Boedromion	Boathoos	Bouphonion	Prokyklios	Dodexatos (Twelfth)	Dodexatos	Dodexatos	Agagylis	Pythoios	Karneios
	Pyanopsion	Heraios	Apatourion	Athanaios	Protos (First)	Protos	Protos	Apollonios	Hagnaios	Praratios
	Maimakterion	Daidaphorios	Aresion	Boukatios	Deuteros (Second)	Deuteros	Deuteros	Hermaios	Dionysios	Ermaios
Winter	Poseidion	Poitropios	Poseidion	Dios	Tritos (Third)	Tritos	Tritos	Leskanorios	Genetios	Gamos
	Gamelion	Amalios	Lenaion	Euthaios	Tetartos (Fourth)	Tetartos	Tetartos	Hafrios	Megalartios	Teleos
	Anthesterion	Bysios	Hieros	Homoloios	Pemptos (Fifth)	Pemptos	Pemptos	Thyos	Themistios	Posidaios
Spring	Elaphebolion	Theoxenios	Galaxion	Hermaios	Hextos (Sixth)	Hextos	Hextos	Homoloios	Dematros	Artamitios
	Mounichion	Endyspoitropios	Artemision	Dionysios	Hebdomos (Seventh)	Hebdomos	Hebdomos	Hippodromios	Hekatombios	Agrianios
	Thargelion	Herakleios	Thargelion	Agyeios	Ogdoos (Eighth)	Ogdoos	Ogdoos	Phyllikos	Homoloios	Panamos
Summer	Skirophorion	Ilaios	Panemos	Hippodromios	Enatos (Ninth)	Enatos	Enatos	Hitonios	Thyos	Kouklios

Notes for Table 4.6.

1. (Bennett 2011^a: Prolegomena; Hannah 2005: 71-97; Samuel 1972: 57).
2. From 4th century BC to the early Christian period, (Hannah 2005: 78-81; Samuel 1972: 73-74; Trumphy 1997: 212).
3. Alignment with Delphi in 377-373 BC, (Hannah 2005: 73-77; Trumphy 1997: 14); 270/269 BC (Humphreys 2004: 252n.71).
4. From beginning 2nd century BC, (Hannah 2005: 71-97; Samuel 1972: 76-78; Trumphy 1997: 201).
5. From end 2nd century BC to 2nd century AD (Hannah 2005: 80; Mulliez 1984; Samuel 1972: 70-72).
6. Dates from mid-2nd century to early-1st century BC (<http://epigraphy.packhum.org>); 170-69 BC, date of alignment with Delphi (Samuel 1972: 97).
7. After 167 BC, (Samuel 1972: 75-76). The adoption of numerical months is a feature of leagues, possibly to produce internal uniformity in the 2nd century BC (Hannah 2005:28).
8. Evidence suggests that there was a lack of permanent accord between the Delphi calendar and that of Thessaly, thus Thyos was aligned with either Bysios (c.124 BC) or Endyspoitropios (c.161/0 BC) of the Delphi calendar and after the 2nd century BC the two calendars were not aligned, (Samuel 1972: 83-84; Trumphy 1997: 217; Stern 2012: 34).
9. About 150 BC, alignment with the Delphi calendar uncertain, (Samuel 1972: 81; Trumphy 1997: 236).
10. 4th to 3rd century BC (Trumphy 1997: 140-143).

TABLE 4.7. CALENDAR MONTHS OF BABYLON AND GREEK HELLENISTIC KINGDOMS: ALIGNED WITH THE CALENDAR MONTHS OF ATHENS.
 Each NEW YEAR shown green.

SEASONS	ATHENS ¹	BABYLONIAN ²	SELEUCID (MACEDONIAN) ³	EGYPT (MACEDONIAN) ⁴	MILETOS ⁵	EPHESOS ⁶	PRIENE ⁷
Summer	Hekatombaion	Du'uzu	Loios (July 6)	Loios	Panemos	Klarion	Panemos
	Metageitnion	Abu	Gorpiaios (Aug 5)	Gorpiaios	Metageitnion	Metageitnion	Metageitnion
Autumn	Boedromion	Ululu	Hyperberetaios (Sept 4)	Hyperberetaios	Boedromion	Badromion (Kaisareon)	Boedromion
	Pyanopsion	Tashritu	Dios (Oct 4)	Dios	Pyanopsion	Hagneion (Neokaisareon)	Pyanopsion
	Maimakterion	Arahsamna	Apellaios (Nov 3)	Apellaios	Hapatourion	Maimakterion	Apatourion
Winter	Poseidion	Kislimu	Audnaios (Dec 2)	Audnaios	Poseidion	Poseidion	Poseidion
	Gamelion	Tebetu	Peritios (Jan 1)	Peritios	Lenaion	Lenaion	Lenaion
	Anthesterion	Shabatu	Dystros (Jan 30)	Dystros	Anthesterion	Anthesterion	Anthesterion
Spring	Elaphebolion	Addaru	Xandikos (Mar 1)	Xandikos	Artemision	Artemision	Artemision
	Mounichion	Nisannu	Artemisios (April 9)	Artemisios	Taurion	Taurion	Taurion
	Thargelion	Aiaru	Daisios (May 9)	Daisios	Thargelion	Thargelion	Thargelion
Summer	Skirophorion	Simanu	Panemos (June 7)	Panemos	Kalamaion	?	Kronion

Notes for Table 4.7

1. (Bennett 2011^a: Prolegomena; Hannah 2005: 71-97; Samuel 1972: 57).
2. (Bennett 2011^a: Prolegomena; Stern 2012: 240).
3. (Trumpy 1997: 262). Alignment with Babylonian calendar 312 BC – AD 16 (Samuel 1972: 143). Equivalent Julian dates for beginning of the Macedonian month in 100 BC are shown in red (Bennett 2011^b <http://www.tyndalehouse.com/egypt/ptolemies/chron/chronology.htm>).
4. The Macedonian year in Egypt started in Dios in about year 40 of the reign of Ptolemy VIII (131/130 BC), previous to this date the New Year began in Dystros (Bennett 2011^a: Prolegomena).
5. The New Year changed from Pyanopsion to Taurion between 313 and 288 BC, (Samuel 1972: 114-115; Herda 2011; Trumpy 1997: 92-93; *Inscr. Didyma* 488. 16-24.). In poleis of Anatolia (eg Miletos, Ephesos and Priene) several months had Athenian names.
6. Hellenistic (Samuel 1972: 122-124, including relevant inscriptions; Trumpy 1997:96-99, including relevant inscriptions).
7. 4th century BC (Samuel 1972: 118; Trumpy 1997: 94-96; *Inscr. Priene* 174. 20, 3, 18, 4, 21).

calendar months could be plus or minus one month for any given year, depending on intercalation in either of the cities. Stern (2012: 34), for example, ascribes the change in alignment of the Thessaly month, Thyos, which in 161/0 BC was aligned with the Delphi month Endyspoitropios but in 124 BC with the Delphi month Bysios, to irregular intercalation in either or both cities. The phenomenon of intercalation does not however explain all the variation in the time/season of the New Year because in general more than one month separates these dates. The first month of the year in Athens was described by Plato as 'the month next after the summer solstice' (*Laws* 767c, 945c) and by Aristotle 'around the summer solstice' (*History of Animals* 543b) (Davidson 2008) and it could be argued that in each city state the New Year was marked by one of the four times in the solar year that from prehistoric times could be measured by the length of the day, namely the winter and summer solstices (the shortest and the longest days in the year) and the autumn and spring equinoxes when the day and night are the same length (Chapter 3.3.1). Eight of the cities surveyed in Tables 4.6 and 4.7 had an autumn New Year, two had a spring New Year, three had a summer New Year and only one had a winter New Year.

The relationship between the days of each month of different states was inconsistent and remarked upon by several ancient authors (e.g. Aristoxenus late 4th century BC *Harmonica* 2.37) (Stern 2012: 34). There is also evidence of political manipulation of the calendar in city states other than Athens (Chapter 4.2.2), which would have contributed to this variation. Thucydides (5. 54) reports that during the late 5th century BC, the Argives postponed the holy month of Karneios because, in their war against Epidaurus, they did not want to fight during this month (Stern 2012: 64). In the Hellenistic period increased understanding of astronomy probably led to increased conformity of lunar calendars, which in turn led to increased conformity of days within the months of different cities, and it has been suggested that the appearance of calendars termed κατά θεόν was related to the needs of commercial activity and political alliances between cities in this period (Dunn 1998). A treaty of 196 BC equated the Milesian 16th day of Pyanopsion with the 15th day of Hagneon in the Magnesian calendar, and this is consistent with both cities using sight of the new moon to start the month, where the geography of Miletos would give an earlier sighting of the moon (Stern 2012: 37; Dittenberger 1915-24: 108-111 #588). Similarly, a treaty of 120-98 BC between Ephesos and Sardis was dated as the 27th of the month,

respectively in Taurion and Diasios (Samuel 1972: 123) and an inscription dated 116/5 BC (Stern 2012: 68; Dittenberger 1915:-24: 361-364, #712) shows that the Cretan cities of Knossos, Lato and Olos had different month names but the days were synchronised. It has been suggested that the 2nd century BC adoption of numerical names for months, in Achaea, Phocis and Ozolian Locris, was designed to produce 'federal' calendars among these leagues, which would foster accord (Hannah 2005: 28, 71-97; Stern 2012: 68) and conformity for economic and political purposes.

4.4.2. Significance of the New Year.

In the light of the debate about variability in Athenian calendars (Chapter 4.2), it is perhaps not surprising that there is disagreement among modern scholars regarding the significance of the New Year, particularly in Athenian society where in general we have more information about calendars but where 'only occasionally were the sacrifices associated with the entry of new magistrates described as the beginning of a new year' (Parker 2011: 196). The discussion can be seen as polarised between Parker (2005: 194, 200/11; 2011: 196), who does not believe that the transition from the Old to the New Year had any symbolic significance, and Burkert (1985: 227-234) and Davidson (2008), who believe that it did.

Parker asks 'what is the Greek for Happy New Year?' (Parker 2008), and he considers that although the year is a 'natural' division of time, in ancient Greece the beginning and end of each year was arbitrary; although magistrates could change on a particular date in the 12 month annual cycle, this did not necessarily mean that this marked a new year (Parker 2005: 194). Parker is wary about 'the power of festivals to shape the experience of time' (Parker 2005: 194) but his interpretation of festivals that have been associated with the change from one year to the next is coloured by his belief in the insignificance of this change.

There are records of Athenian dedications associated with the change of year. An early 4th century BC ceremony for magistrates and council of the old year, held on the last day of Skirophorion, where they ask the gods Zeus Soter and Athena Sotiai for protection for the next year, is attested in two inscriptions (Parke 1977: 29; *IG II²*, 689; *IG II²* 690). More

noteworthy is the Athenian festival called the Kronia that has been interpreted as having a significant role in the change from one year to another (Burkert 1993^b), and which was held on the 12th day of the first month of the lunar year. This festival was dedicated to Kronos and the site of an Athenian sanctuary to Kronos has been identified near the Temple to Olympian Zeus; between this temple and the Ilisos River (Parke 1977: Plate 1). The festival has been understood as a private festival (Parker 2005: 162) and Parker asserts that records of it do not exist after the death of Alexander (Parker 1996: 270) but this is unclear since Apollodoros of Athens, writing in the 2nd century BC, describes a ritual from the Kronia, and the festival is seen as a precursor of the Roman Saturnalia (Versnel 1993: 99-105). Further, there is Athenian (agora) epigraphic evidence from 267/6 BC that the *prytaneis*, who must have already held the first *prytany* of the year, sacrificed to Zeus at the Kronia (Merritt and Traill 1974: 4, inscription 81; SEG XXI #372). Although records of the festival are not extensive, there is also a reference to the festival in a speech made in 353 BC by Demosthenes (24. 26), which reveals that the *boule* did not sit on this day (Parke 1977: 30).

[26] Now, of all these rules the defendant Timocrates has not observed one. He never exhibited his law; he gave no one a chance to read it and oppose it; nor did he wait for any of the dates appointed by statute. The assembly at which your vote was taken fell on the eleventh of Hecatombaeon, and he introduced his law on the twelfth, the very next day, although it was a feast of Cronos and the Council therefore stood adjourned; for he had contrived, with the help of persons whose intentions are unfriendly to you, to get by decree a sitting of the Legislative Committee, on an excuse afforded by the Panathenian Festival.

Demosthenes, *Against Timocrates*. (translators Sabben-Clare & Warman 1991)

The calendar (c.460 BC) from the Athens city deme, Skambonidai, contains a reference to the distribution of meat at a festival that Humphreys (2004: 145) interprets as the Kronia (Chapter 4.3.6). Finally, Plutarch (*Theseus* 12. 7) states that Theseus arrived in Athens on 'the 8th day of the month, Kronius now called Hekatombaion', indicating that the first month of the year had been named after this Titan, again suggesting a link between Kronos and the New Year. Together these records suggest that in Athens the festival had a more public profile and survived longer than Parker believes. Outside Athens, a month called Kronion was the last month of the year in Samos (Parke 1977: 30) and Magnesia (Pauly

2005: 106-111; Samuel 1972: 123). As a caution it has to be noted that although in general, Ionian months called Kronion align with the Athenian month Skirophorion (Table 4.7; Pauly 2005: 106-111), this was not however necessarily the last month of the year.

Burkert (1985: 228) asserts that following a Near Eastern tradition, the most important festival of any Greek city was a New Year festival, and in Athens this was the Panathenaia. In Babylon the reigning king was deposed, humiliated, abused, and finally restored to his throne in a ritual that recognised and enacted the potential chasm in the social order of time during the introduction of a New Year (Burkert 1985: 228). Burkert (1985: 228) considers that the major Athenian New Year festivals took place at a slack time in the annual cycle of agricultural tasks, and cites Aristotle.

For it may be noticed that the sacrifices and festivals of ancient origin take place after harvest, being in fact harvest-festivals; this is because that was the season of the year at which people had most leisure.

Aristotle, *Nicomachean Ethics*. 1160a 25-28. (translator Rackman 1934)

In Athens the hot summer post-harvest month of Hekatombaion might fulfil this condition although it was the season of threshing (Foxhall 1995), hardly a slack period in the agricultural year. In addition, variation in the month in which the New Year fell, shown in Tables 4.6 and 4.7, does not provide strong support for Burkert's idea for the choice of month. Humphreys (2004: 184 n.33, 252 n.71) looks briefly at the idea of new beginnings or new seasons in relation to the festival calendar, suggesting that the New Year in Delos (Lenaion), which was aligned with the Athenian month Gamelion, represented a new beginning, coming after the winter solstice. Similarly the Attic month, Pyanopsion, when cereals and legumes were sown (Foxhall 1995) can be considered the beginning of the agricultural year and the equivalent of this month (Dios) represents the New Year in Macedonian Egypt and the Seleucid Empire (Table 4.7) as well as those leagues that adopted a numerical system of naming months in the 2nd century BC (Achaean, Ozolian Locris, Phocis) (Table 4.6) (see Chapter 4.4.3/4).

Burkert (1985: 228-233) believes that the series of festivals that preceded the Panathenaia constituted a New Year cycle. According to Burkert this cycle started in the previous year with the Kallynteria on the 20th day of Thargelion during which the temple (Erechtheion) was cleaned, followed on the 25th day of Thargelion by the Plynteria when the ancient cult image of Athena housed in the Erechtheion, was washed. In the final month of the year (Skirophorion), the Arrephoria, a nocturnal rite with elements of a fertility ritual, was held on the 3rd day. The Skira, held on the 12th day of Skirophorion celebrated the death of Erechtheus, the first king of Athens, is also considered an end of year celebration by Humphreys (2004: 175 n. 117). The Skira was followed on the 14th day by the Dipolieia, a festival that re-enacted a myth relating to a sacrifice to Zeus (Chapter 1.5). A festival to Apollo (Hekatombai) was held early in the first month of the New Year (7th day), followed on the 12th day by the Kronia (Chapter 3.3.1 and above) and then the Synoika on the 16th day. The Synoika celebrated the unification of the towns of Attica and included a sacrifice to Eirene (Peace). The final festival in Burkert's cycle was the Panathenaia (Chapter 1.5), the most important Athenian festival, which was held on the 28th day of Hekatombaion. Burkert (1985: 233) believes that this long series of festivals demonstrates a rhythm, which includes gods, sacrificial victims, patrician families, democratically elected officials and the redrawing of boundaries involving the limits of the city (inside versus outside), society (the position of women and slaves) and life (birth and death). He argues that the importance of the first king of Athens was a central feature of this cycle but he also points out that there is no cosmic dimension to his scheme (Burkert: 1985: 233). In Deubner's 1932 interpretation of the Little Metropolis calendar frieze only the Dipolieia and the Panathenaia are depicted from this list (Chapter 1.5).

Neither Parker nor Burkert provide a convincing assessment of the significance of the New Year in ancient Athens. In general, they both only consider the religious realm; Parker focuses on a search for a specific New Year festival and is unconvinced that a festival calendar had anything to do with the expression of time, whereas Burkert builds an elaborate scheme of festivals that only share the fact that they occur between Thargelion and Hekatombaion (inclusive). These views are too limited in their scope; a simplistic separation of the religious and the secular activities of the citizens of Athens ignores the fact that it was the same people attending the festivals and civic events. In Athens, the first

month of the year was the time when a new *archon* and other officials were appointed (Chapter 4.2.2). A further example of the non-religious (legal) significance of the New Year is the law that decreed that murder trials could not be carried over from one year to another (Burkert 1985: 228).

Parker (2005: 194) cites the fact that different city states started each New Year on different dates within the calendar year as evidence that such dates were unimportant to the city (Tables 4.6 and 4.7), but Clarke (2008: 22) believes that the different religious calendars of Greek city states were a way of defining individual identity, and this would therefore lead to such variation. Individual calendars built mythical events from the past into the pattern of life in each city state and gave authenticity to the position of the polis in the panhellenic world, especially during the Hellenistic period.

There are some well attested examples of the symbolic significance of the New Year in cities other than Athens. Thus Miletos held a New Year festival to Apollo Delphinios between the 6th and 10th day of the spring month, Taureon (Table 4.7) (Herda 2011). The details of this festival are given in what is known as the Molpoi Decree, an inscription that is judged to be a 200 BC Hellenistic copy of a 476/5 BC document that records a decision of the *Molpoi*, who were members of a Milesian religious association (Ancient Greek and translation given in Herda 2011). The rituals of this festival to Apollo Delphinios included sacrifices, citizen initiations, officers' oaths, dining and competitions, as well as a procession from Miletos to Didyma (Herda 2011). In his review of Herda's book (2006), Parker (2008) acknowledges the strength of Herda's analysis, finding the case for this New Year festival 'plausible'. Further, despite his misgivings, Parker (2011: 197) refers to an annual purification ceremony on Lemnos described by Philostratus (c.170-250 AD), when all fires were quenched for 9 days and new fire brought from Delos. The family of Flavius

And the island of Lemnos is purified every year for the deed once done to the men on Lemnos by their wives at Aphrodite's instigation. The fire on Lemnos is extinguished for nine days. A sacred ship from Delos, however, carries the fire, and if it arrives before the offerings for the dead, it puts in nowhere on Lemnos, but rides at anchor off the headlands out at sea until sailing into the harbour is permitted by divine law.

Philostratus, *On Heroes* 53. 5-7. (translators Bradshaw-Aitkin & Berenson-Maclean 2001)

Philostratus, the Athenian, came from Lemnos and relates that this New Year ritual stems from a myth whereby Aphrodite instructed the women to kill all the men on the island. Xenophon (*Hellenica* 5.4.4) records a festival to Aphrodite celebrated at Thebes by the *polemarchs* (war magistrates) at the end of their period of office, when perhaps unsurprisingly they were joined by *hetairai* (courtesans). Davidson (2008) believes that this festival recalls a city foundation myth whereby Ares and Aphrodite commit adultery resulting in the birth of Harmonia, who became the wife of Cadmus, the founder of the city.

As for Phillidas, since the polemarchs always celebrate a festival of Aphrodite upon the expiration of their term of office, he was making all the arrangements for them, and in particular, having long ago promised to bring them women, and the most stately and beautiful women there were in Thebes, he said he would do so at that time. And they — for they were that sort of men — expected to spend the night very pleasantly.

Xenophon, *Hellenica* 5.4.4. (translator Brownson 1918)

4.4.3. Numerical Calendars with an Autumn New Year (Achaea, Phocis and Ozolian Locris).

One of the noticeable set of calendars in Table 4.6 is the group (Achaea, Phocis and Ozolian Locris) that have numerical months and are aligned with each other. This group also has an autumn new year and this has to be considered in relation to the Pyanopsion (autumn) start of the Little Metropolis calendar. Table 4.8, which retains the same sequence of months as that in Table 4.6, gives the sources of epigraphic evidence for these three calendars, and also shows the cities to which the inscriptions refer. The calendars shown in Table 4.8 are noteworthy for two reasons; firstly as pointed out above, they start with an autumn month (Protos) equivalent to the Athenian month Pyanopsion, the start month of the Little Metropolis frieze (see Table 4.6; Introduction, Figure I.2 Part 1 and Chapter 1.5) and secondly, they represent a change to the nature of *poleis* calendars that occurred during the Hellenistic period in regions that surrounded the Gulf of Corinth (the northern Peloponnese and southern mainland Greece). These three calendars come from three separate groups of *poleis*, each of which had formed a *koinon*, variously termed a federation or a league by modern scholars. Many of the inscriptions in Table 4.8 come from Delphi and alignments with the Delphi calendar are used by both Samuel (1972) and

**TABLE 4.8. SOURCES OF EPIGRAPHIC EVIDENCE FOR THE NUMERICAL MONTHS OF CITIES
IN THE ACHAEAN LEAGUE, PHOCIS AND OZOLIAN LOCRIS.**

Sources of dates: P, <http://epigraphy.packhum.org>; S, Samuel 1972: 70-72; BCH, Bulletin de Correspondance Hellenique. **Abbreviations:** *IG V₁, Inscriptiones Graecae, Inscriptiones Laconiae et Messeniae*, ed. Walter Kolbe. Berlin 1913; *IG V₂, Inscriptiones Graecae, Inscriptiones Arcadiae*, ed. Friedrich Hiller von Gaertringen. Berlin 1913; *FD, Fouilles de Delphes, III. Épigraphie*. Paris 1929-; *GDI, Sammlung der griechischen Dialekt-Inschriften II, 3-6 1892-1899*; *SEG, Supplementum Epigraphicum Graecum*.

ACHAEA		PHOCIS		OZOLIAN LOCRIS	
Month	Primary source of information	Month	Primary source of information	Month	Primary source of information
Dekatos (Tenth)	<i>IG V₁</i> , 1433 39 BC (P) Messene	Dekatos		Dekatos	<i>GDI</i> 1842 170-157 BC (P) Delphi
Hendekatos (Eleventh)	<i>IG V₁</i> , 1390 92/1 BC (P) Andania (Messenia)	Hendekatos	<i>FD III²</i> 230 138 BC (P) Abai (Delphi)	Hendekatos	
Dodekatos (Twelfth)	<i>IG V₂</i> , 345 79/8 BC (P) Orchomenos; <i>IG V₁</i> , 1425 late 4 th /early 3 rd century BC (P) Messene	Dodekatos		Dodekatos	<i>GDI</i> 1954 156-151 BC (P) Physkeis (Delphi)
Protos (First)		Protos		Protos	170-165 BC (BCH 22: 357 1898) Physkeis
Deuteros (Second)		Deuteros	<i>GDI</i> 2077 177/6 BC (S) Ambryssa (Delphi)	Deuteros	
Tritos (Third)	<i>IG V₂</i> , 274 102 BC – 16 AD (P) Mantineia	Tritos	<i>FD III³</i> 333 c.100 BC (S) Delphi	Tritos	<i>IG IX</i> , 1,350 Physkeis
Tetartos (Fourth)		Tetartos	<i>GDI</i> 2107 150-140 BC (P) Antikyra (Delphi)	Tetartos	<i>GDI</i> 1901 156-151 BC (P) Delphi
Pemptos (Fifth)	<i>IG V₂</i> , 269 1 st century AD (P) Mantineia; <i>IG V₂</i> , 443 mid 2 nd to early 1 st century BC (P) Megalopolis	Pemptos		Pemptos	<i>FD III¹</i> 565 ca.150 BC; <i>FD III³</i> 20 ca.148 BC (P) Physkeis (Delphi)
Hektos (Sixth)	<i>IG V₁</i> , 1390 92/1 BC (P) Andania (Messenia)	Hektos	<i>FD III⁶</i> 84 124-116 BC (P) Ambryssa (Delphi)	Hektos	<i>IG IX</i> 1 ² ,349 Physkeis <i>GDI</i> 1878 170-156 BC (P) Delphi
Hebdomos (Seventh)	<i>IG V₁</i> , 1433 39 BC (P) Messene	Hebdomos	<i>GDI II</i> 1774 170/169 BC (S) Delphi	Hebdomos	<i>SEG III</i> , 431, 432 no date Oianthea
Ogdoos (Eighth)	<i>IG V₂</i> , 265 64-61 BC (P) Mantineia; <i>IG V₂</i> , 345 79/8 BC (P) Orchomenos	Ogdoos		Ogdoos	<i>GDI</i> 2028 150-148 BC (P) Delphi
Enatos (Ninth)		Enatos	<i>GDI</i> 2256 140-100 BC (P) Ambryssa (Delphi); <i>GDI</i> 1977, 2033 Tithronius	Enatos	

Trumpy (1997) for all three league calendars. Thus Hebdomos in the Phocis calendar (Table 4.6 and 4.8) has been aligned with Endyspoitropios in the Delphi calendar in 170/169 BC (*GD1* II 1774, Samuel 1972: 97).

The individual inscriptions for the Achaean calendar have been dated from the late 4th century BC to the 1st century AD (Table 4.8), but the interpretation of the early Messene inscription (Table 4.8, *IG* V₁, 1425) should be questioned because Messene was not part of the early Achaean League (Polybius *Histories* 2.41 and see below) and the identification of Dodekatos is based on missing letters (<http://epigraphy.packhum.org>). Eliminating this inscription from the list in Table 4.8, results in dates from the mid-2nd century BC to the 1st century AD for epigraphic evidence from the Achaean calendar.

In order to assess the significance of these Achaean calendars and any possible implications for interpreting the Little Metropolis frieze they need to be set in a historical context. According to Polybius (*Histories* 2.41) (c. 200 - c. 118 BC), the first Achaean League was formed by 12 cities (Olenus, Helice, Patrae, Dyme, Pharae, Tritaea, Leontium, Aegium, Aegeira, Pellene, Bura and Caryneia) in about 371 BC. Subsequently, encouraged by the Macedonian kings, the League fell apart (Polybius *Histories* 2.41). In about 280 BC, when Macedonian garrisons were driven from some cities (Shibley 2000: 136-138), the cities Patrae, Dyme, Pharae and Tritaea formed the nucleus for a reconstituted league, which was later joined by Aegium, Bura and Caryneia (Polybius *Histories* 2.41). None of these early Achaean cities are recorded in Table 4.8. Later membership of the League varied depending on changes driven by political developments and alliances. A significant addition was the Dorian city, Sikyon, which, led by Aratos, joined the League in 251 BC probably to promote stability after the return of exiles caused *stasis* in the city (Plutarch *Aratus* 9.3-4), and in 245 BC Corinth, Epidauros, Megara and Troizen were recruited by Aratos after he had retaken Corinth from Antigonos Gonatas (Shibley 2000: 138). The League had a common system of weights and measures as well as a common currency, although there was no 'federal' mint (Polybius *Histories* 2.37-38; Shibley 2000: 136-138). The League also had a single elected *strategos*, who could not serve two sequential years (Plutarch *Aratus* 30.3), a representative assembly (see below) and collective magistrates

and judges (Polybius *Histories* 2.37-38; Shipley 2000: 136). There is however no historical evidence for a common numerical calendar in the League. The Achaean cities providing epigraphic evidence for such a common numerical calendar are Andania, Mantinea, Megalopolis, Messene and Orchomenos (Tables 4.8) and the earliest of these pieces of evidence is from Megalopolis (*IG V₂*, 443). In 220 BC Aratos was elected *strategos* and summoned a meeting in arms of all of military age at Megalopolis (Polybius *Histories* 4.7) and this indicates that Megalopolis was a member of the League at this time. The Achaean League membership of Orchomenos in c.234 BC is indicated by an Achaean League decree (*Syll.*³ 490; Bagnall and Derow 2008: 62, 63). The date at which Messene joined the League is not known but during a time of Achaean conflict with Sparta and subsequent Roman influence, Messene seceded from the League (184/3 BC) and then re-joined in 182/1 BC (Shipley 2000: 378). Most of the Achaean inscriptions in Table 4.8 date to the 1st century BC but there are two 2nd century BC calendars (Mantineia and Megalopolis), and two inscriptions from Mantineia that date to the 1st century AD. Therefore, with the possible exception of *IG V₂*, 443 from Megalopolis, all of the Achaean calendars listed in Table 4.8 post-date the Roman war with Achaea in 146 BC (Gruen 1976; Shipley 2005). Collectively this data shows that the ‘federal’ numerical Achaean calendar existed by the mid-2nd century BC and lasted well into the period of Roman domination.

The *koinon* of Phocis lies north of the Gulf of Corinth, east of Ozolian Locris and northwest of Boeotia, and Delphi lies within its geographical area. The numerical calendar shown in Table 4.8 has been dated from the beginning of the 2nd century BC (Samuel 1972: 70-72) and the dates of 5 individual inscriptions range from 177/6 BC to c.100 BC (Samuel 1972: 71). Although the evidence is scanty, there is a suggestion that before this ‘federal’ numerical calendar existed Phocis had named months that may also have been common to several cities and that the use of these month names persisted after the adoption of the numerical system (Samuel 1972: 70-72). There is much less information about the history of the Hellenistic period in Phocis although it had strategic importance as an alternative route south from northern Greece/ Macedonia (Larsen 1965). Larsen (1965) proposes that in 219 BC Philip V used the route from the coastal city of Cynus in Eastern Locris (Polybius 4.67.7) to the Pass of Hyampolis in Phocis before moving down the valley of the Cephissus into Boeotia. Further, when Flamininus (198 BC) came south from Thessaly, the first cities

he captured in Phocis were Hyampolis, Phanoteus, Ambrysus, and Anticyra, indicating that he also used the Pass of Hyampolis. More significantly, the prominence of the Phocians in connection with the formation of the Hellenic *symmachy* (association) at the end of the 3rd century BC (see below) makes it likely that Antigonos Doson, having liberated Phocis from Aetolian domination, marched from Cynus, through the Pass of Hyampolis to Achaea, in order to intercede in the Achaean war with Sparta (Larsen 1965). Larsen (1965) suggests that Phocis may have been a virtual Macedonian protectorate at this time and the importance of this north-south route would explain the early inclusion of Phocis in the Hellenic *symmachy* (see below).

Dunbabin (1954), in a review of Lerat's book (1952), states that historically the most important inscription reported in his book about the Ozolian (Western) Locris league is a decree of the *koinon* from the middle of the 4th century BC that was found at Physkeis, the federal capital, which indicates an early date for this league. There is insufficient evidence to determine the characteristics of Western Locrian calendars before the region was liberated from Aetolia by the Romans in 167 BC (Lerat 1952: 170-177; Samuel 1972: 75), and the inscriptions recording the Locris numerical calendar (Table 4.8) broadly fit this picture. Like Phocis, there is evidence that some cities of Ozolian Locris (Amphissa, Physkos, Chaleion, Ointhea, Tritea and Tolophon) also had named months, with Physkos, Chaleion, Ointhea, Tritea and Tolophon sharing month names (Lerat 1952: 170-177; Samuel 1972: 77).

Because documentary and archaeological evidence for the Hellenistic histories of Locris and Phocis is much less plentiful than that for Achaea, the evidence from this region must lead the analysis of the three numerical calendars. The social and political conditions that led Aratos to ask the Macedonian King, Antigonos Doson, for help in the Spartan conflict was clearly caused by the weakness of the Achaean League and its inability to resist the Spartan forces led by Cleomenes (Walbank 1984). Walbank (1984) argues that there was internal support for the Spartans at this time, which came from social unrest and the expectation that Cleomenes would apply to the cities of Achaea, the principles of social revolution and land-redistribution which had had success in Sparta. In the spring of 224 BC Argos had left the Achean League and joined Sparta, who under Cleomenes was besieging both

Acrocorinth and Sikyon (Scholten 2003). Following the arrival of Antigonos Doson and the Macedonian forces in the Peloponnese, Cleomenes retreated from Corinth and Sikyon, Argos changed sides again (Scholten 2003), and finally in 222 BC, the Spartan army was defeated at Sellasia in northern Lakonike (Shipley 2000: 145-146). By the terms of Antigonos' agreement with Aratos, the Macedonians reoccupied Acrocorinth (Scholten 2003).

In the autumn of 224 BC Antigonos Doson returned to Aegium, where he was elected *hegemon* (commander-in-chief) of all the allied forces and it was probably at this meeting that he proposed the formation of a new Hellenic *symmachia* (alliance) (Walbank 1984). The original members were described by Polybius:

for the sworn alliance negotiated by Antigonos during the Cleomenic war was still in force, and included Achaia, Epirus, Phocis, Macedonia, Boeotia, Acarnania, and Thessaly

Polybius, *Histories* 4.9.4. translator Shuckburgh 1889

It is clear from this list that the alliance was between leagues not cities, and a speech by a legate from Rhodes to the Aitolians, reported by Polybius, demonstrates that by this date the *symmachy* had probably expanded to include the *koinon* of (Ozolian) Locris (Polybius *Histories* 9.5.4.). Further evidence for the inclusion of Ozolian Locris in the Hellenic Alliance is provided by an inscription dated to 166 BC, which was studied by Oldfather (1922); this shows that a citizen of Dyme in Achaia acted as a guarantor in Ozolian Locris, indicating that there was a political link between the regions.

Walbank (1984) believes that this Hellenic *symmachy* was a 'loose' organisation, it could not provide the Macedonian King with full authority but from the Macedonian viewpoint it brought together a group of leagues that were all potentially hostile to Aetolia and it may have been a consideration in ideas about future attitudes to Rome. Although the collective calendar of Achaia, Phocis and Ozolian Locris does not seem to have been noticed by modern historians and has not been commented on by them, it is possible that the adoption of a common numerical calendar, with a common date for the New Year is related to the establishment of the Hellenic *symmachy*. In addition, the common autumnal New

Year in these numerical calendars may reflect the political interaction between members of the Hellenic *symmarchy* and Macedonia at this time. This proposal would be refuted by dates but the evidence in Table 4.8 shows that all of the inscriptions post-date the probable date of the introduction of the *symmarchy*. The continued use of the numerical calendar system into the first century AD, at least in Achaean, is carried by the fact that longevity is a widespread feature of ancient Greek lunar calendars (Chapter 4.2.2). This longevity points to the unusual nature of these 'federal' calendars, which likewise illustrates the cultural changes that occurred in the Hellenistic world.

Interpretation of the common autumnal New Year (Protos) shown in Tables 4.6 and 4.8, requires further analysis of the Achaean League. There are two alternative explanations for the autumnal date of the New Year in these three leagues. As shown above the Macedonian New Year (Dios, Table 4.7) was in the autumn and therefore the date may be due to Macedonian influence, alternatively this may have been original the date of the New Year in one or more of the member states. Given the variation in the date/season of the New Year shown in Tables 4.6 and 4.7 it is probably unlikely that all three leagues in Table 4.8 originally had the same New Year. There is a lack of evidence from Phocis and Ozolian Locris, but it is possible to ask the question; what was the time/season of the New Year in Achaean prior to the date of the Hellenic *symmarchy*? This limited approach is backed by Walbank's idea (1984) that Aratos had some role in formulating the Hellenic *symmarchy*, because it favoured Achaean interests. In other words did the Hellenic *symmarchy* retain the earlier Achaean date?

This particular New Year question, like many others relating to calendars, is not easy to answer partly because of disagreements between modern authors about the system of political governance in Achaean. The key evidence for an Achaean New Year should be the time of year at which elected representatives were appointed but the most important source, Polybius, is ambiguous about the nature of political governance in the League. Modern scholars (Larsen 1972; Walbank 2002: 153-161) agree that there were two named bodies of governance in Achaean, the *synodos* and the *synkletos* but the nature of these bodies is unclear. Both Larsen (1972) and Walbank (2002: 160) assert that a change in the conditions under which assemblies were called occurred between 217 and 200 BC, but

even then the nature of meetings described by Polybius is not clear and interpretations vary widely.

In the Peloponnesus a mission arrived before the end of the winter from the two kings, Ptolemy (Philometor) and Ptolemy (Physcon), asking for help. This gave rise to repeated and animated discussions. The ambassadors arrived when the Achaean congress was in session in Corinth.

Polybius, *Histories* 29. 23. (translator Shuckburgh 1889)

Callicrates and his party managed to prevent the decree being passed, by staggering the magistrates with the assertion that it was unconstitutional to discuss the question of sending help abroad in public assembly. But a short time afterwards a meeting was summoned at Sicyon, which was attended not only by the members of the council, but by all citizens over thirty years of age;

Polybius, *Histories* 29. 24. (translator Shuckburgh 1889)

widely. A key piece of debated evidence which illustrates the problem dates to 169 BC when a mission from Egypt arrived in Achaea asking for assistance. Here Polybius uses two different words to describe the meeting in Corinth: τῆς συνόδου, 'congress' (transliterated as *synodos*) and 'ἐν ἀγορᾷ, 'public assembly' (transliterated as *agora*). The question of whether the Corinth *synodos* was a primary, non-representational assembly of all citizens is confounded by the description of the second meeting, which was apparently called specifically and consisted of members of the council and all citizens over 30. Larsen's (1972) explanation is that *synodos* is a general term. In any case the winter timing of this meeting does not clearly answer the question of when officials took up their term of office.

Larsen (1972) cites Livy (38.30.1-5) to explain that Philopoemen began his 5th term of office as Achaean chief magistrate in the autumn of 189 BC, but states that before this date generals (and presumably other officials) were elected in the spring. In support of Larsen's unreferenced earlier spring date, Plutarch (*Philopoemen* 11.1) implies that Philopoemen was made general for the second time in the spring of 206 BC, which is consistent with a change in governance occurring between 217 and 200 BC, and this could coincide with the establishment of federal systems in the Hellenic *symmarchy*.

In conclusion, there is no evidence that the autumn date of the first month (Protos) of the common Achaean, Phocis and Ozolian Locris numerical calendars followed from the timing of an older Achaean New Year. The dates of the establishment of the Hellenic *symmachy* by Antigonos Doson and the dates of the epigraphic evidence are consistent with the proposal that the 'federal' numerical calendar was introduced subsequent to the formation of the *symmachy* and that the time of the New Year was influenced by the Macedonian calendar (Chapter 4.4.4).

This extended analysis of the Achaean, Phocis and Ozolian Locris numerical calendars illustrates the point that during the Hellenistic period, Greek calendars, which were so important for polis identity could be adapted to reflect political influence, and this is an important detail that is relevant to the interpretation of the Little Metropolis frieze. In the next section the analysis of Hellenistic calendars is extended to consider the other notable calendar with an autumn start, namely the Macedonian calendar.

4.4.4. The Egyptian/Macedonian and Seleucid/Macedonian Calendars.

There is virtually no published epigraphic evidence for a native Macedonian calendar in Macedonia itself and explicit Macedonian dates are largely missing from ancient literature (Bennett 2011^a: 6) but Macedonian names of months can be found widely in the eastern territories conquered by Alexander. Closer to Athens, painted epitaphs (SEG XI nos. 8-10, 13) from Aegina bear a name followed by a date expressed as a Macedonian month, and Fraser (1951) interprets these as Roman tombs, confirming the use of the Macedonian calendar into the Roman period. The existence of the Macedonian calendar on Aegina (*IG* V 1 in Austin 2006: #245) is not surprising since after it had been conquered by the Romans in 211 BC, and subsequently given to the Aetolians, it was sold by them to Attalus II and became Pergamene territory (Polybius 22.11) until it was returned to Rome in the will of Attalus III in 133 BC. Epigraphic evidence for Hellenistic calendars from Pergamon itself is very confusing; eight Macedonian month names have been recognised but there are also non-Macedonian and introduced, honorific months recorded (Samuel 1972: 125-126). Although Samuel is reluctant to draw any conclusions, the situation in Pergamon resembles the cities of the Hellenic *symmachy* (Chapter 4.4.3) where cities retained their own calendar as well as adopting the new numerical federal calendar, suggesting that both a

Macedonian and an indigenous calendar could have operated in Pergamon at the same time.

Translating calendars from the eastern territories back into a Macedonian prototype is difficult since the integration of each local and Macedonian calendar needs to be understood separately (Samuel 1972: 139). Additional difficulty is caused by the fact that the patterns of integration varied over time, and Egypt and the Seleucid Empire (Table 4.7) illustrate both of these problems.

The indigenous Egyptian calendars continued to operate throughout the Ptolemaic and the Roman periods. The civil Egyptian calendar had 12 months each containing 30 days, plus 5 extra days at the end of the year to produce a year that was 365 days long (Jones 1997; Stern 2012: 130). This pattern was very regular but was 0.25 of a day short of the solar year (Chapter 3.3.1) so that over time the first month of the Egyptian civil year (Thoth) fell in different seasons. Consequently at the time of Alexander's conquest Thoth 1 fell in early winter but when Octavian arrived in Egypt it fell 2.5 months earlier (Samuel 1972: 145). In addition to the civil calendar, Ptolemaic Egypt also had the lunar Macedonian calendar, which was used by the elite from the late 4th century (Jones 1997; Samuel 1972: 145; Stern 2012: 154). In addition to these calendars, Egyptian lunar months also had a religious function. Stern (2012: 159-160) doubts the existence of a true Egyptian lunar calendar because lunar dates always appear together with civil calendar dates. In the Ptolemaic period there was a development towards representing all of the days in a lunar month but these days had names related to the festival held on that day, and were probably a record of events related to the lunar cycle.

The non-lunar Egyptian civil calendar can be converted to dates in the Julian calendar but alignment of the lunar calendars presents problems. The most abundant source of data about the integration of the Macedonian calendar with that of a conquered territory comes from papyri of Ptolemaic Egypt. Double dates are known from Ptolemy II onwards and these show that a system, when operating, equated Macedonian months to Egyptian civil months (Bennett 2011^a: 7). The discussions are centred on a relatively small number of documents where scholars disagree about interpretation, and Jones (1997) argues that this

documentary evidence is less solid than it is widely believed to be. The evidence does show that there was excessive intercalation of months in the Macedonian calendar and a 25 year cycle may have been used to align it with the civil Egyptian calendar (Stern 2012: 157). The debates are reminiscent of the debates about the Athenian lunar calendar. For example, some of the arguments are centred on whether the Egyptian documents were written during the day or at night (Jones 1997). Jones (1997) concludes that we cannot determine exact Egyptian equivalents for any Macedonian date given in Egyptian texts.

Bennett (2011^a) has suggested a model to resolve the evidence from the late 4th century, and proposes that the equation aligning the Macedonian and Egyptian civil calendar did not become fixed until the reign of Ptolemy VI (180-145 BC), from which point Thoth was consistently equated with Dystros. However, towards the end of the reign of Ptolemy VIII (c.120 BC) the calendar was realigned to equate Thoth with Dios (Bennett 2011^a: 7). Problems with a detailed interpretation of Macedonian/Egyptian integration come from evidence that during the period Ptolemy II to Ptolemy VI there are many sets of double dates that do not align (Bennett 2011^a: 9). Intercalation appeared to occur too often and, compared with Alexandria, the calendar appeared to be different in the *chora* (rural areas), where it has been argued precision was not needed. Bennett therefore contends that the Macedonian calendar in Egypt was an Alexandrian calendar (Bennett 2011^a: 8-11).

The problem of relating Ptolemaic regnal years to the lunar calendar (Bennett 2011^a: 13-15) links back to interpretations of dating accessions, and hence regnal years, in Macedonia itself (Bennett 2011^a: 131-171). Bennett (2011^a: 136) thinks that in Macedonia, New Year Days existed independently of the regnal year and that, as in Greek cities, the New Year marked the beginning of the civil year. Table 4.7 shows the Ptolemaic Egyptian/Macedonian calendar from Alexandria aligned with the Athenian calendar after 131/130 BC according to Bennett (2011^a: 58-62).

The calendar from a Hellenistic empire that has been most closely linked to a Macedonian original is the Seleucid calendar (Table 4.7). When the Macedonians entered Babylonia they encountered a lunar calendar, with a regular 19 year cycle of month intercalations that dated back to 367 BC and was much better organised than the calendar of any Greek city

(Samuel 1972: 139-140). Further, there are abundant cuneiform records of the Babylonian calendar that allow accurate equivalents to be made for dates from 347 BC to AD 75 (Parker and Dubberstein 1956). The Seleucids reckoned the Seleucid era from the autumn of 312 BC in the Macedonian calendar (Austin 2009) and Seleucus I is said to have ordered the Babylonian months renamed with Macedonian names (Stern 2012: 238).

An autumn New Year in Macedonian calendars is not very well documented but is widely accepted (Hannah 2005: 82-83; Samuel 1972: 139-145; Stern 2012: 235-238; Trumphy 1997: 262) and Stern (2012: 236) contends that in the Roman period almost all of the indigenous calendars of Asia Minor and the Near East began the New Year in the autumn. An important piece of evidence is the *gymnasiarchy* law of Beroia (Veria) in Macedonia (*iBeroia* 1) from the late Antigonid period, which explicitly states that the civic New Year is Dios 1 (Bennett 2011^a: 136; Austin 2006 #137). Samuel (1972: 142) and Stern (2012: 235-238) interpret the Macedonian autumn month Dios as the first month of the Macedonian year because in the Seleucid Empire it was used primarily in Greek documents from the west only during the Seleucid era. The date of the first month of the year differed in the Babylonian calendar, and the Babylonian New Year (Nisanu), which was equivalent to the Macedonian month Artemisios (Table 4.7), continued to be recorded by Babylonian scribes in the east. This may explain the sequence on dated bronze coins from Seleucis on the Tigris from AD 15/16, where the sequence only makes sense if the year begins with Artemisios (Nisanu) (Samuel 1972: 142). Sometime between AD 15/16 and AD 46/47 the alignment between the Macedonian and Babylonian calendars changed and from AD 46/47 the Macedonian year was retarded by one month and Nisanu became aligned with Xandikos (Samuel 1972: 143). An astronomical cuneiform diary that records Alexander's death in the Babylonian calendar suggests an alignment of the two calendars at the early date (312 BC) (Samuel 1972: 141) and Table 4.7 shows the Babylonian calendar aligned with the Seleucid/Macedonian calendar during the years from 312 BC to AD 16 (Samuel 1972: 143). Evidence that the Seleucid/Macedonian calendar followed the Babylonian 19 year pattern of intercalation comes from Ptolemy's *Almagest* (Toomer 1984: 13). Almost all the Greek calendars from Asia Minor and the Near East dated to the Roman period began the year in the autumn (Stern 2012: 236) and inscriptions recovered from

Doura-Europos (Unvala & Cumont 1930) and Parthian coins (Stern 2012: 237) are consistent with this interpretation.

Apart from the one important inscription dated 168/7 BC from Beroia (the 'second' city of Macedonia), which explicitly states that Dios is the first month of the year (see above), evidence for the autumn (Dios) New Year from Macedonia itself is very limited. Zenobus (cited in Hannah 2005: 82-83), writing in the 2nd century AD, stated that the last month of the Macedonian year was Hyperberetaios, which implies that the next month, Dios, was the first month of the next year, but Stern (2012: 235) cautions that this might only apply to the Roman period. A more contemporary letter from Antiochos II dated 254 BC concerning payments implies that the three months following the month Xandikos were in the same year (cited in Hannah 2005: 93) and this makes Dios the first month of the following year (Table 4.7).

4.5. The Pyanopsion Start of the Little Metropolis Calendar Frieze.

In this final section, a discussion of the Pyanopsion (autumn) start of the Little Metropolis calendar will argue that this was a significant symbolic statement for whoever commissioned the frieze. This chapter has illustrated the importance of each individual Ancient Greek polis's expression of time in the maintenance of identity. This occurred by depicting a mythical past told via the city state's own religious calendar, and this aspect of calendrical time continued to be important into the Hellenistic period. To repeat Walbank's (2002) statement: 'in both classical and Hellenistic Greece the past was important ... as an element in public life and sentiment. Consciousness of the past penetrated political activity to an extent which would seem strange today.' Athenian calendars, with all their complexities, lasted through and beyond the Hellenistic period and this chapter asks three related questions about the start of the Little Metropolis calendar; is there evidence from other Attic religious calendars for a random choice of start date, would the citizens of Athens have understood the implication of a non-Athenian start, and finally is it possible to find a precedent for the Pyanopsion New Year elsewhere in the Greek world, which could be set in a historically relevant context?

There are three important features of the Little Metropolis frieze that need to be assimilated into this discussion; firstly it can be dated to the late Hellenistic period (Chapter 3.4), secondly it displays a number of religious festivals (Chapter 1), and thirdly it presents the signs of the Zodiac (Chapter 3). The Hellenistic date is clearly vital for any investigation but before the religious festivals can be considered, the presence of the Zodiac must be emphasised because the inclusion of signs of the Zodiac means that the order of the festivals was not a random choice. This Chapter began by looking at the complexity of Athenian calendric timekeeping, which is related to the level of state control of the calendar and the consequential yearly level of irregularity in the operation of a lunar religious calendar, even in the Hellenistic period when an understanding of astronomy led to attempts to regulate the monthly cycle (illustrated by the use of the term *κατὰ θεόν*). It is argued that, in addition to their importance in issues of identity, the intricacies of Athenian calendars and their importance in regulating both civic and religious life show that the citizens of Athens must have been acutely aware of both the structure and the operation of these calendars. The level of understanding and attention to these calendars needed by the citizens of Athens for the proper execution of their financial, legal and religious lives has been demonstrated in Sections 4.2 and 4.3 of this Chapter.

Section 4.3 of this Chapter asked the question: how concerned were Athenian citizens about starting a sacrificial (religious) calendar at the beginning of the year and/or recording the correct order of the months in sacrificial calendars? This study of chronology in eight Attic sacrificial calendars dating to the Classical period shows that, with the exception of a calendar from Thorikos, such religious calendars were not concerned with the yearly pattern of months. This feature existed despite the fact that there was a pervasive significance of time in all aspects of ancient Athenian religion, and that the religious significance of their calendar was understood by the citizens of Attica (Chapter 4.2.2). The order of months in these calendars was not random, but reflected specific local matters, related primarily to the administration of festivals. Although this survey looked at calendars that were recorded at least 150 years before the Little Metropolis calendar was created, the evidence indicates that that, even without considering the presence of the Zodiac, it cannot be concluded that the start date of the Little Metropolis calendar was

chosen at random. The attention to chronology and its significance in this calendar is clearly emphasised by the accurate chronological order of symbols of the Zodiac.

If it is accepted that the Little Metropolis calendar deliberately depicts an accurate, astronomically verified, twelve lunar month period (a lunar religious year), then it follows that the autumn start of this year (Pyanopsion) was significant. Chapter 1 has shown that a previous interpretation (Palagia 2008) of the Pyanopsion start has serious flaws and cannot be substantiated. In this Chapter an alternative inquiry, based on a late Hellenistic date, has been carried out. Although there is disagreement among scholars about the significance of the New Year, there is good evidence that it was important in the civic life of Athenian citizens (Chapter 4.2). The disagreement among researchers as to its significance in religious life has resulted in somewhat polarised positions; either dismissing the New Year or over interpreting it (Chapter 4.4.2). In this Chapter the New Year is seen as an integral part of the annual calendar cycle as experienced by citizens who both attended the religious festivals at the right time and had to pay their debts on time. Viewed like this, variation in the seasonal position of the New Year, seen in different Greek city states, forms part of both the mythically based cultural identity of each society and its religious and civic purpose (Chapter 4.4.2; Table 4.6).

Questioning this variation further into the Hellenistic period (Chapter 4.4.2; Table 4.7) shows two trends; a concern to synchronise calendars (Chapter 4.4.3) and the spread of the Macedonian calendar in Hellenistic kingdoms (Chapter 4.4.4). Synchrony can be related to the broader economic activity and rapidly changing political patterns of the Hellenistic world (Chapter 5), as well as the changing culture of eastern Mediterranean Greek states in this period. The introduction of numerical calendars in Leagues that were members of the Hellenic *symmachy* can be viewed as an example of this trend and it is possible that the choice of autumn as the season of the New Year is related to the Macedonian initiative in forming the *symmachy* (Chapter 4.4.3). Although evidence of the Macedonian calendar is very limited in Macedonia itself, it is clear that the Macedonian calendar was widely adopted in Hellenistic kingdoms. Understanding each process of integration is problematic but there is a consensus among researchers in identifying the autumn month, Dios, as the Macedonian New Year (Chapter 4.4.4; Table 4.7). The question then follows; does the

autumn Pyanopsion start of the Little Metropolis frieze indicate a Macedonian connection? It should be noted that Deubner (1932: 248) originally suggested that the Pyanopsion start may indicate a Macedonian influence. This suggestion requires an investigation into the political history of Athens during the period when the frieze was produced in order to give historical context to the proposal and guide a search for the original location and commissioner of the frieze, and this is the topic of Chapter 5.

4.6. Image 6: Is Kronos depicted on the Frieze?

Image 6 on the Little Metropolis calendar frieze (Figure 4.1 and Figure 1.15) is found within the first month (Pyanopsion) and was identified by Deubner (1932: 248 – 254) as a personification of winter, largely because the figure is wearing a cloak over his head and the image is situated at the end of the series that form the month Pyanopsion, arguably the beginning of winter. However, Deubner's identification of seasons on the frieze is problematic; spring is missing, putative summer is depicted as both a naked running man and the dog star, Sirius, that are situated 10 images apart, and putative autumn is a female figure bearing a basket, which has no exemplar. A comparison of the calendar figure shown in Figure 4.1 with the figure of Kronos shown in Figure 4.2 provides a possible clue to the identity of Image 6, namely the unusual Greek depiction of a cloak covering the head of a man (see Chapter 2.2.1; Figure 2.3). Versnel (1993: 104) asserts that this portrayal dates back to the 5th century BC and that images of Kronos with his head uncovered are unusual. Excluding gems, images of Kronos in LIMC VI (1992) are equally divided between veiled and unveiled and do not show a clear chronological relationship. The LIMC images date from c.450 BC to the 2nd century AD; among the Roman images, two are unveiled and 5 veiled, whereas among the Greek pictures, 3 are unveiled and one is veiled.

A further feature of Image 6 (Figure 4.1) may provide a second clue to the identity of this Little Metropolis calendar figure because images of Kronos often depict him shackled at the ankles (Versnel 1987; 1993: 105). Despite the fact that the figure in Image 6 appears to be running, he clearly has straps tied to his ankles and Versnel (1993: 105) cites references to woollen bandages used to shackle the feet of Saturn, the Roman equivalent of Kronos. Versnel (1987; 1993: 105) explains that the shackles were removed from statues during the



**Figure 4.1. Little Metropolis
Calendar Frieze,
Image 6.**

(Chapter 1.5, Figure 1.15)



**Figure 4.2. Rhea handing a
swaddled stone to Kronos (AD 160).**

Museo Capitolino, Rome. (LIMC VI.2:
66 (1992) Kronos Plate 23)

(Chapter 2.2.1, Figure 2.3)

New Year festival of Kronia. Since Pyanopsion is not the Athenian New Year and therefore the festival called Kronia did not take place at this time in the Athenian religious calendar but was held in Hekatombaion, an image of Kronos in Pyanopsion is inexplicable in an Athenian context but would fit into a calendar that was Macedonian in origin and therefore had an autumn New Year in the month of Dios (Pyanopsion).

Chapter 5. Athens in the Late Hellenistic period: A Search for the Original Location of the Little Metropolis Calendar Frieze.

This chapter will complete a background analysis that has so far given a probable date of the calendar (Chapter 3) and proposed that it is based on the Macedonian calendar (Chapter 4). Together with a possible commissioner and an initial location explored in this chapter, this analysis will inform the interpretive inquiry into the iconography of the frieze that is presented in Chapter 6. A search for possible Athenian buildings displaying a Macedonian calendar in the late Hellenistic period has to be integrated into the known history of Athens during this time because given the level of anti-Macedonian feeling in Athens following the Lamian (Hellenic) War in 324/3 BC (Green 2003; Mattingly 1997), the very presence of a Macedonian calendar in the city needs some explanation. This chapter therefore begins with a summary of the key events in Athenian history from the Lamian War to the sack of Athens by Sulla in 87- 85 BC.

5.1. Athens and the Macedonians.

Athens had been *de facto* under Macedonian domination since the battle at Chaeronea (338 BC) (Habicht 1997: 7) but after the Lamian War, the Macedonian regent Antipater introduced punitive measures; Athens lost its independent foreign policy, over half of its citizens were disenfranchised, a significant proportion of the radical core of the old democracy were deported to Thrace, the group of anti-Macedonian elite were sentenced to exile and then murdered when outside the city limits, and Macedonian troops were installed in the Mounychia fort at Piraeus (Green 2003). The city also had to pay a fine and the costs of the war. The anti-Macedonian sentiment is illustrated by the philosopher Xenocrates, who at the time objected that Antipater dealt with them moderately only if he held them to be slaves (Plutarch *Phocion* 27.4).

Antipater died in 319 BC and passed the regentship of Alexander IV and Philip III to Polyperchon, another of Alexander's Diadochi, rather than to his son, Cassander. Under Polyperchon, but following a series of difficult political manoeuvres, Athens returned to democracy in 318 BC but the Mounychia fort at Piraeus was still occupied by Macedonian troops commanded by Nicanor who was however loyal to Cassander. By 317 BC there were

two opposing Macedonian factions. Polyperchon in Athens supported by Eumenes, Olympias (Alexander's mother) and Cleitus (one of Alexander's military commanders), and Cassander, Antigonos Monophthalmos and Lysimachos, who held the fort in Piraeus. Cleitus was defeated and killed at the Bosphorus by Nicanor and Antigonos, and the emboldened Cassander attacked Athens taking Aegina and Salamis. Polyperchon suffered a major defeat at Megalopolis in the Peloponnese prompting the Athenians to negotiate with Cassander. A leading role in these negotiations was taken by an Athenian called Demetrios of Phalerum who was subsequently appointed to head a new democratic form of government, which however only had control of its internal affairs. A few of the Athenian political leaders were executed and poorer citizens again lost their political rights. Cassander returned the port of Piraeus to Athens but retained troops in the fort of Mounychia; he subsequently returned to Macedonia (Habicht 1997: 47-53). In the next two years, Philip III was murdered, Polyperchon ousted, and Olympias and Eumenes executed (Shibley 2000: xxv).

Demetrios of Phalerum was ἐπιμελητής (superintendent) in Athens for 10 years (317 -307 BC) and opinions vary about the nature of the reforms that he instituted. He introduced civic 'guardians of the law' (*nomophulakes*) who are seen either as repressing the actions of the *boule* and the *ekklesia* or as policing the moral reform programme that he introduced (O'Sullivan 2009: 289). He also introduced legal restrictions on the behaviour of women that were policed by *gynaikonomoi*, legislation to limit the number of guests at religious festivals, and curtailed the erection of extravagant choregic monuments as well as the elaborate grave markers used by wealthy citizens. This funerary law, which existed throughout the Hellenistic period, restricted monuments to low columns (Figure 5.1), rectangular blocks or simple marble vessels only carrying inscriptions giving the name, the patronymic and the demotic of the deceased (Camp 2001: 165-166; O'Sullivan 2009: 292; Shibley 2000: 104).



Figure 5.1. Hellenistic Column Tomb Markers in the Karamaikos.

N. Porter 2011

In 307 BC Demetrios Poliorketes was sent to Athens from Asia Minor by his father Antigonos Monophthalmos and he liberated the city from the garrison of Cassander in the Mounychia fort. Demetrios of Phaleron was deposed, democracy restored (the anti-democratic wealth criteria removed), the city walls repaired and the islands Lemnos and Imbros returned to Athens. The gratitude of the Athenians was extraordinary. They erected golden statues of father and son and made them tribal heroes with new tribes (Antigonis and Demetrias), necessitating an increase in the size of the *boule* (Plutarch *Demetrious* 10). In 304 BC Cassander besieged Athens but this was lifted by Demetrios Poliorketes, however between this time and 302 BC Demetrios Poliorketes became unpopular in Athens through his disdain of polis mores and his immoral lifestyle (Shipley 2000: 121-122). When Demetrios Poliorketes and Antigonos Monophthalmos were defeated at the battle of Ipsos by Lysimachos and Seleusos I in 301 BC, the Athenians denied Demetrios access to Attica (Kralli 2000). Five years later in 296/5 BC Demetrios Poliorketes took advantage of the fact that the Athenian General Lachares had usurped power in the city, to return to Athens where after a brutal offensive he rebuilt and garrisoned the Mounychia fort 'so that the people might not again shake off the yoke and give him further trouble' (Plutarch *Demetrious* 34.5). He also established a Macedonian garrison in a fort on the Mouseion Hill west of the Acropolis (Camp 2001:166-167) and installed a government with oligarchic features (Kralli 2000). Despite this Plutarch (*Demetrious* 34.4) reports that public speakers 'were eager to outdo the customary eulogies' and supported the reintroduction of Macedonian troops at Piraeus. It is to this period that the 'ithyphallic hymn' in honour of Demetrios belongs (291 BC). The hymn,

with its vivid imagery of Demetrios' genealogy (also reflected in coins of the period found in Athens, Lönnqvist 1997, Figure 5.2) and excessive praise, gives insight into the political acrobatics necessary in Hellenistic Athens (Austin 2006: 93-94, #43; Chaniotis 2011; Chapter 6.2.3).



Figure 5.2. Demetrios Poliorketes Tetradrachm. Pella mint, 294-293 BC.

Nike, holding open wreath and sceptre, standing left on prow of galley / ΔΗΜΗΤΡΙΟΥ right, BA-ΣΙΛΕΩ-Σ below, Poseidon (adopted as Demetrios's ancestor), seen from behind, striding left and wielding trident; monogram before, dolphin and star behind. Picture from <http://www.wildwinds.com>

Following Cassander's death in 297 BC, Demetrios Poliorketes took advantage of Antipater family feuding and by subterfuge and murder became King of Macedonia in 294 BC. Demetrios no longer resided in Athens and he began a losing campaign against the Aetolian League in 289 BC, where his behaviour became even more outrageous. Finally in 287 BC, with the aid of Ptolemy I (Soter) and under the leadership of Olympiodoros, Athens revolted, and in 286 BC Demetrios Poliorketes was captured in Asia Minor by Seleukos I (Habicht 1992; Habicht 1997: 91-97).

The independence Athens achieved in 287 BC lasted for 25 years but the troops of Demetrios' son, Antigonos Gonatas, still occupied the Mounychia fort and the port of Piraeus. Athens had continued support from Ptolemy I Soter, as well as other enemies of the Antigonids (Pyrrhus of Epirus and Lysimachos), who were vital for grain supplies in the absence of Athenian control of the port and hence a fleet. A significant victory by Antigonos Gonatas over invading Gauls in 280 BC led to him becoming King of Macedonia

(Habicht 1997: 126-135). In 265/4 BC or 268/7 BC (Shipley 2000: 125), Athens formed an alliance with a number of Peloponnesian cities and Ptolemy II Philadelphos of Egypt and jointly they declared war on Antigonos Gonatas. The war is known as the Chremonidean War after the Athenian named in a decree declaring the alliance (Austin 2006: 130-133, #61; Bagnall & Derow 2008: #19; *Syll.*³ 434/5). The period is not well documented, however the outcome is clear; Athens was defeated and Antigonos Gonatas established firm control over the city, probably giving authority to one man (who may have been the grandson of Demetrios of Phaleron, Habicht 1997: 152-4), and reoccupying the Mouseion Hill fort in the city (Tracy 2003). Ten (or 13) years later, in 255 BC, Antigonos Gonatas is said to have 'given Athens its freedom' in that he returned all the forts except Mounychia, Sounion and Salamis, and the port of Piraeus to the city's control (Habicht 2003). Nevertheless he continued to hold military control of Attica and curb important aspects of democracy until his death in 239 BC. An interesting insight into the attitude of the conquering Macedonian King to Athenian intellectual culture is illustrated by his initiative in offering posthumous honours to the philosopher Zeno of Citium, shortly after the war ended. Zeno, who was the founder of the Stoic school and a *metic*, was awarded a golden crown and given a grave in the Kerameikos state cemetery that was normally reserved for Athenian citizens (Tracy 2003).

The period between the Chremonidean War and 229 BC is one of the least known periods of Athenian history (Habicht 1997: 157). However, war between Demetrios II, son of Antigonos Gonatas, and the Achaean and Aetolian Leagues led to battles in Attic territory and raids on Athens by Aratus of Sikyon (Habicht 1997: 164). Following the death of Demetrios II in 229 BC and during dynastic problems in Macedonia, a Macedonian governor called Diogenes liberated Athens from Macedonian control by withdrawing his troops from the Mounychia and Sounion forts and from Salamis and Piraeus for the price of 150 talents. Habicht believes that Diogenes was an Athenian but other authors consider him a Macedonian who married into the prominent Athenian family of Lycurgus, the Eteobutadai (Habicht 1997: 173; 2003; Mikalson 1998: 171-172). Two Athenian brothers, Euryclides and Micion of Cephisia are credited with the lead in this diplomatic bribe (Habicht 1997: 173; *IG* *II*² 834) but Pausanias gives a decisive role to Aratus, the leader of the Achaean League who had previously attacked Attica.

After his success in the Peloponnesus, Aratus thought it a shame to allow the Macedonians to hold unchallenged Piraeus, Mounychia, Salamis, and Sunium; but not expecting to be able to take them by force he bribed Diogenes, the commander of the garrisons, to give up the positions for a hundred and fifty talents, himself helping the Athenians by contributing a sixth part of the sum.

Pausanias, *Guide to Greece* 2.8. (translator Levi 1979).

Diogenes was awarded exceptional honours for taking the bribe, including a seat at the theatre; a new Athenian gymnasium was named after him and more than a century later a festival in his name was still celebrated in Athens (Miller 1995) (see Chapter 5.3.7). At this time the walls of Athens and Piraeus were strengthened, the city had its own foreign policy adopting a strategy of neutrality and critically not joining the Achaean League. Polybius (5.106.6-8) attributed Aratus' request to Antigonos Doson (who at the time was regent of the son of Demetrios II, Philip V), for help with conflict between the Achaean League and Sparta in 222 BC, to this lack of Athenian support. Soon after the 229 BC liberation, the city saw a resurgence of Macedonian strength under Antigonos Doson and in 226/5 BC Athens sent an embassy to Antigonos Doson, using the philosopher Prytanis of Carystus, who was a *metic* that the Macedonian king trusted, but a resulting honorific decree to Prytanis indicates that Athens had to remain on guard (Habicht 1992).

Athens continued its close association with the Ptolemies and in 223 BC the reigning king, Ptolemy III Euergetes (246-221 BC), was made an eponymous hero with a new tribe, Ptolemais, named after him, and a deme named after his wife, Berenike. A new festival, the Ptolemaia, was also initiated at this time (Habicht 1992). The tribes Antigonis and Demetrias, formed in 307 BC to honour Demetrios Polioketes and his father, still existed so the Ptolemaic honour increased the number of Athenian tribes to 13 (Camp 2001: 168; Mattingly 1997). Habicht believes that these honours to Ptolemy followed from the benefaction of a gymnasium in Athens (see Chapter 5.3.7) but this building may have been the donation of a later Ptolemy (Habicht 1997: 183; Mattingly 1997; Miller 1995; Wycherley 1978: 232) and Shipley believes that these honours were linked to the threatening revival of the Hellenic League by Antigonos Doson (Shipley 2000: 149-150). The period between Ptolemy III Euergetes and Ptolemy VI Philomator has well documented exchanges of notable citizens and honours, as well as economic support, the latter curiously illustrated by a large consignment of hair (Mattingly 1997). Mattingly (1997) asserts that after Ptolemy III, Ptolemy VI was 'the king of Egypt most favoured by Athens'. Ptolemy VI could

have been the benefactor of the gymnasium and Mattingly (1997) thinks that this may have been a result of political competition with other Hellenistic kings (the brothers Eumenes II and Attalos II of Pergamon, and the Seleucid king Antiochos IV) who were funding impressive building projects in Athens in the 2nd century BC. Mattingly (1997) suggests that the gymnasium was finished c.150 BC and that the exceptional celebration of the Ptolemaia in 149/8 BC (*JG II*² 1938.25.8 and 40) with over 60 *hieropoioi*, (officials responsible for sanctuaries) may have marked its dedication.

The death of a relatively young Antigonos Doson in 222 BC came as a surprise and the new 17 year old King Philip V was soon at war with the Aetolian League. For some time, he posed no threat to Athens and the city succeeded in preserving its neutrality until the end of the century. Indeed in 209 BC and possibly in 207 BC, Athens joined ambassadors from Ptolemy IV Philopator, Rhodes and Chios to negotiate an agreement in the First Macedonian War between the Aetolian League, Attalos I of Pergamon and Rome against Philip V (Habicht 1992). Critically for future events, the First Macedonian War (214-205 BC) between Rome and Philip V involved a treaty between the Aetolians and Rome (Livy 26.24.7-15; Austin 2006: #77). It resulted in victory for Rome and sale of the island of Aegina to Attalos I in 210 BC (Shipley 2000: 372), which signalled the increasing involvement of Pergamon in Athenian affairs. This period also marked the time when Rome first became a serious political agent in Greece. The association between Athens and the Attalids had begun as a cultural one, established by a Pergamene subject (Arkesilaos) who lived and studied in Athens, and eventually became the Head of the Academy. Attalos I tried, unsuccessfully, to persuade Arkesilaos' successor (Lacydes of Cyrene) to move to Pergamon and gave the Athenian Academy a garden that was named after him (Habicht 1990).

In 204 BC Ptolemy IV Philopater died and his heir, Ptolemy V Epiphanes, was a child only 6 years old. This circumstance led to an acute crisis in Egypt when there was dangerous civil unrest and a series of guardians ran the kingdom. Eckstein (2008: 227) called this situation a 'power-transition crisis' (comparing it to the background of the First World War), which led to a system-transforming series of wars, and the failure of the Hellenistic balancing mixture of coercion and brinkmanship. This led to weaker states asking for protection from

stronger states, 'empire by invitation'. Polybius describes a conspiracy of Antiochos III and Philip V to 'dismember' Egypt:

I shall tell . . . how, upon Ptolemy [IV] passing from life, Antiochus and Philip – conspiring together to dismember the domain of his successor who was only a child – began to engage in evil acts, Philip setting off to lay hands on Egypt [?], and the regions around Caria and Samos, while Antiochus attacked the regions around Coele, Syria and Phoenicia.

Polybius, *Histories*. 3.2.8 (translator Shuckburgh 1889)

There is debate about the truth of this account but the reality of a secret pact between Antiochos III and Philip V to seize Egypt at this time has been strengthened by a Rhodian inscription (Eckstein 2008: 156-180; Dreyer 2002). Notwithstanding, they both attacked Egypt; Antiochos III taking the port of Seleukeia and Palestine and Philip V the island of Samos, Miletos and Bargylia (Eckstein 2008: 156; Habicht 1992; Mattingly 1997).

Envoys from Pergamon, Rhodes, Egypt and Athens appeared before the Roman Senate in 201 BC pleading for Roman intervention. Antiochos III acceded to Roman pressure and withdrew but Philip rejected their demands (Eckstein 2010). Athens did not take direct action in the First Macedonian War, however the aggressive behaviour of Philip V, who in 200 BC repeatedly attacked Athens, burning sacred sites, tombs and temples outside the city (Camp 2001: 168), led to its involvement in the Second Macedonian War (200-197 BC) (Shipley 2000: 373-375). Athens abolished all honours voted to the Antigonid dynasty (Livy 31.44.2-9; Austin 2006: #82), destroyed the gilded statue of Demetrios Poliorketes, and having recently abolished the tribes of Antigonis and Demetrias, created a new tribe in honour of Attalos I, (Polybius 16.25-6; Austin 2006: #232; Habicht 1997: 182,197). Livy (31.44.2-9; Austin 2006: #82) was critical of Athens, probably reflecting their reluctance to fight Philip V.

Thus did the Athenians wage war against Philip with decrees and words, the only weapons they are strong in.

Livy 31.44.2-9. (Austin 2006: #82)

In the end, Athenian entry into the war was allegedly triggered by two young men from Acarnania (a region allied to Macedonia), who participated in a part of the Eleusinian

Mysteries ritual reserved for initiates. They were executed by the Athenians for this crime and complaints to Philip V led to Acarnanian troops joining Philip's attacks and plundering Attica (Habicht 1997: 197-201; Polybius 26, 16.9; Livy 31.15.5). When the Athenians declared war on Philip in 200 BC they were incapable of contributing to the military forces and relied for protection not so much on Egypt as on other powers: King Attalos I of Pergamon, the Rhodians, and most significantly for the future, the Romans (Habicht 1992). It was at this time that Attalos I presented Athens with a sculptural group that celebrated Athenian victories, the victory of Attalos I over invading Gauls, and gods fighting giants (a group representing law and order over chaos) (Hansen 1947: 57-8).

The Romans won the Second Macedonian War at the battle of Cynoscephalae in Thessaly (197 BC) and the Roman consul/commander, Titus Quinctius Flaminius, famously proclaimed Greece free at the Isthmian games of 196 BC (Shibley 2000: 375; Polybius 18.46.5). Philip V had to withdraw from Greek territories and return to Macedonia but Athens gained no extra territory and did not even regain the island of Lemnos (Habicht 1997: 203). After Philip V's return to Macedonia, he rebuilt Macedonia's military strength but following his execution of his younger son for treason, he died (179 BC) and was succeeded by his son, Perseus (Shibley 2000: 151). The Aetolians, who had fought with the Romans against Philip V, felt that the Romans had just replaced the Macedonians as foreign tyrants and asked Antiochus III for help. This led to a conflict called the Third Macedonian War and eventually to the defeat of Perseus at the Battle of Pydna (168 BC). After this defeat the Romans inflicted punitive reprisals on Perseus' supporters, they divided Macedonia into four republics and in 167 BC gave Athens, which supported Rome, Lemnos and the duty free port of Delos as a cleruchy, where the settlers retained Athenian citizenship and the post of Commissioner was restricted to *ex-archons* (Badian 1976; Shibley 2000: 381). After the destruction of Corinth in 146 BC by L. Mummius and the organisation of Asia by the Romans in 133 BC, the island of Delos grew rapidly in importance. An inscription (*IG II² 2336*), which lists contributors of *aparchai* (gifts for the Gods) for the Pythais (103 to 96 BC), provides a picture of Athenian society at this time. Of the 31 official posts listed 17 were held by men who had commercial interests on Delos and Tracy claims that, in a world where men paid for the privilege of holding public office, Delos was the primary source of Athenian wealth at this time (Tracy 1979).

The Athenians seemed confident of their friendly relationship with Rome, and during the 2nd century BC they retained good diplomatic relations with the Attalids (until 133 BC when Attalos III died and bequeathed Pergamon to Rome), the Ptolemies and the Seleucids (Shibley 2000: 382). Athens prospered, its currency (from c.168 BC) became one of the most widely used in the Eastern Mediterranean and was given a privileged status by the Delphic *amphictyony*, as evidenced by a coinage decree from Delphi dated 150-100 BC (Bagnall & Derow 2008: 142 #82; Chapter 6.5).

After the Second Macedonian War there was a period in which Athens awarded honours to a long list of elite citizens both from Pergamon, and also from Athens for promoting 'financially beneficial' friendship between them. This is illustrated in a decree for the poet Philippides of Kephale (*IG II² 657*), where emphasis is given to the gifts he solicited from Attalos I (Kralli 2000). The sons of Attalos I were awarded Athenian citizenship and in 178 BC Eumenes II and his three brothers won chariot races in the Great Panathenaia, and Attalos II stayed on in Athens to study under Carneades, Head of the Academy (Hansen 1947: 100). In 175/4 BC, when the Attalids escorted the Seleucid King, Antiochos IV Epiphanes from Athens to his kingdom, the city honoured Philetairos, brother of Eumenes II Soter, for his inherited goodwill using language that recalled that used to praise a future king of Syria in 178/7 BC (*IG II² 905*; Mattingly 1997).

Relations with the Seleucid monarchy were less uniform. There is epigraphic evidence of honours bestowed on high-ranking Seleucid citizens from the last quarter of the third century and dedications (inventoried in 181/0 BC) imply that Athens received benefactions from Antiochos III and his wife, Laodice. However, in 192 BC Antiochos III invaded Greece and Athens supported Rome in its war against the Syrian king, who was finally defeated by the Romans at Magnesia, Asia Minor in 189 BC (Eckstein 2010). Despite Athens' support for Rome, friendly relations were restored early in the following reign of Seleukos IV (187 BC), and when in 178/7 BC Seleukos sent his son Demetrios to Rome to replace his hostage brother Antiochos (IV Epiphanes), the released Antiochos is thought to have then settled in Athens. This rapport occurred even though Seleukos IV sent his daughter, Laodice, to Macedonia to marry Perseus (Eckstein 2010). Scolnic (2014) has recently reinterpreted the key inscription upon which the dates of Antiochos IV's residence in Athens are based. Scolnic's argument is largely based on the fact that the future king Antiochos IV was the

youngest son of Seleukos IV and was named Mithridates at birth. The oldest son, called Antiochos, died in 193 BC but Scolnic judges that Mithridates would not have been renamed until he was crowned king. Scolnic claims that Mithridates/Antiochos was only in Athens during 175 BC and this changes the orthodox interpretation of events surrounding the assassination of Seleukos IV, suggesting a careful plot between Rome and Pergamon. Nevertheless, when Antiochos IV Epiphanes became king he became an important Athenian benefactor providing the funds to restart the building of the Temple of Olympian Zeus (Polybius 26.1.11, Mattingly 1997) (see 4.1.6) and Polybius (26.1.10) declares that:

But in the sacrifices he furnished to cities and in the honours he paid to the gods he far surpassed all his predecessors

Polybius, *Histories* 26.1.10. (translator Shuckburgh 1889)



Figure 5.3 Athens New Style Tetradrachm.

Head of Athena Parthenos right, pendant earring and triple-crested Attic helmet adorned with vegetative tendril on neckpiece, Pegasus above raised ear flap, and four horse foreparts above visor / owl standing right on fallen amphora, head facing, elephant symbol in right field, A-- ΘΕ, ANT—OXOΣ, magistrate(s) KAPA / XOΣ / -EN / -N, I on amphora, ΣΩ below. (131-130 BC; low chronology date). Picture from <http://www.wildwinds.com>

The later amity between Athens and Syria is also evidenced by an exchange of symbols on coins; in 131/0 BC a new Athenian silver tetradrachma portrayed an elephant (as a reference to a royal emblem of Antiochos VII) and the word ANTIOCHOS (ANT-OXOΣ) (Figure 5.3) (Mattingly 1997).

In 88 BC, at a time when it was the centre of the cultural world, Athens changed a policy that had maintained a delicate balance between Rome and the Hellenistic kingdoms for

over 100 years. We lack good evidence for the reason(s) why the city ended an alliance with Rome and entered war on the side of the Pontic king, Mithridates VI Eupator. Badian (1976) has reinterpreted the existing evidence and proposed that in the period immediately prior to the change of allegiance there were financial problems among the Athenian political wealthy elite, as well as social unrest in the *polis*. The eponymous *archon* for 91/0 BC was Medeius of Piraeus, a man who had previously held a number of political appointments, including a previous term as eponymous *archon* in 101/0 BC. He appears to have seized control of the city and continued to serve as eponymous *archon* (tyrant) for 3 years. The civil unrest and financial problems prompted him to ask the Roman Senate for help but they were preoccupied by their own Social or Italic War and delayed making a response. At some point a philosopher called Athenion was sent by the political elite to visit Mithridates and he sent letters back to Athens indicating that the Pontic king would restore a democratic constitution in Athens. When he returned to Athens in 88/7 BC there was no eponymous *archon* in post (*anarchia*) and the philosophical schools were closed. He extolled Mithridates and described the Roman military position as dire. Athenion became tyrant but Delos revolted and this triggered a sequence of military events (Badian 1976).

Apellicon of Telos was sent by Athens to retake Delos but failed and Mithridates sent his general, Archelaus, whose successful but savage attack is said to have killed 20,000 resident Romans and Italians. Archelaus' troops then moved to Athens and by 87/6 BC the greater part of Greece was under Mithridates' control. Athens became the main theatre of the war and was as a consequence besieged by the Roman general, Sulla. Finally in 86 BC Sulla's troops breached the Piraeus and the Sacred Gates and sacked the city causing immense destruction to the structure of buildings, the details of which have only been fully understood through modern excavations (Habicht 1997: 304-305).

Rawson (1985: 14-24) catalogues a decline in intellectual scholarship during the period leading up to Sulla's sack of Athens in 86 BC. Ptolemy VIII Euergetes II persecution of scholars in the 2nd century BC led to the Museum in Alexandria being broken up. The cultural centre of Pergamon lost its court when Attalos III Philometor bequeathed Pergamon to Rome in 133 BC and the Mithridatic wars led to a loss of scholarship in Hellenistic courts including Seleucid Antioch. Her catalogue does not include Athens until

Sulla took the 'great Library' from the city to Cumae in Southern Italy. Given the international nature of cultural activity in Athens, the impact of these events on *paideia* in the city needs consideration. For Athens, Rawson's summary is at odds with other evidence from this period, namely the cultural significance of advances in astronomy (Chapter 3.6.2), the construction of the Tower of the Winds (Chapter 5.4), the construction of gymnasia (Chapter 5.1, 5.4), and the increase in the number of foreigners who came to Athens to study (Chapter 5.8.2). All these examples support Perrin-Saminadayar's assertion (2007: 633) that through participation in the *ephēbeia*, late Hellenistic Athens became a cultural centre for *paideia* in Hellenistic kingdoms (Chapter 5.8.2).

5.2. Euergetism.

The Hellenistic period has been characterised as a period of euergetism, when wealthy benefactors (mainly foreign rulers) donated public buildings or monuments and sponsored public events. After the relative peace and prosperity of the Lycurgus era and the death of Alexander, Athens suffered a period of stagnation when no new public buildings were commissioned by the city (Camp 2001: 167; Tracy 1979). The ancient prestige of the city however meant that it benefited from the practice of euergetism displayed by several of the Hellenistic kings who were descendants of the successors of Alexander, particularly the kings of Syria, Pergamon and Egypt (Habicht 1997: 227). Perrin-Saminadayar (2007: 138-148) lists the evidence for royal visitors to Athens in the late Hellenistic period: Attalos 1 and his 4 sons; Ptolemy III Euergetes and Queen Laodice and Antiochos IV. Habicht (1997: 183) thinks that the first of the major buildings funded in this way was the Gymnasium of Ptolemy (the Ptolemaeum), possibly financed by Ptolemy III between 246 and 221 BC (see Chapter 5.3.7).

In a modern context the practice of euergetism could possibly be seen as philanthropy but in the Hellenistic world it should be seen as an activity designed to enhance the status of the donor in a recipient community and to display, for political advantage, both this status and wealth to other ruling elites. In his book on Antiochos III, Ma has produced a nuanced analysis of this practice, largely through a careful translation of the language used by both the recipients and donors (2000: 179-194). Ma describes euergetism in the context of interaction between rulers and ruled, where it can be seen as a process of reciprocity. Gifts

were a manifestation of royal power; they formed part of the means of persuasion, the alternative to which was force. Documents studied by Ma show a pattern, a royal letter addressed to the recipient city and a civic decree by the recipient. The language of these documents shared a moralising vocabulary for the benefaction and subsequent gratitude that was very uniform, and was used by donors and cities over a long period of time. The royal letter could refer back to earlier relations and to the promise of future benefactions naturally dependent on 'loyalty', even if this was not spelt out. Iasos, in Caria, Asia Minor provides an example. Iasos was a free city; it received support for social projects from both Antiochos III and his wife Laodice and this allowed the Seleucid state to extend its influence into this 'free' community.

5.3. The Topography and Buildings of Athens in the Late Hellenistic Period.

This section will describe the landscape and buildings that existed in Athens in the late Hellenistic period, focusing on those buildings that were constructed at this time, in order to build a case for the possible original location of the Little Metropolis calendar frieze. It will emphasise the buildings and monuments that were sponsored by those Hellenistic kingdoms using the Macedonian calendar (Chapter 4) during the period in which the festival calendar was produced (Chapter 3). This will lead to a discussion of the architectural features and use of possible buildings or monuments that may have displayed the calendar.

Heracleides the Cretan is thought to have visited Athens after 294 BC and he described both the city and its attractions.

The road is pleasant, passes through countryside that is all cultivated, and offers pleasing scenery. The city itself is all dry and does not have a good water supply; the streets are narrow and winding, as they were built long ago. Most of the houses are cheaply built, and only a few reach a higher standard; a stranger would find it hard to believe at first sight that this was the famous city of Athens, though he might soon come to believe it. There you will see the most beautiful sights on earth: a large and impressive theatre, a magnificent temple of Athena, something out of this world and worth seeing, the so called Parthenon, which lies above the theatre: it makes a great impression on sightseers. There is the Olympieum, which though only half-completed is impressively designed, though it would have been most magnificent if completed. There are three gymnasia: the Academy, the Lyceum and the Cynosarges; they are all planted with trees and laid out with lawns.

There are many different festivals, temptations and refreshments for the mind from a variety of philosophers, many amusements, and constant exhibitions.

Heracleides the Cretan c.250 BC (Austin 2006: #101; Habicht 1997:170-172)

About four centuries later, in the 2nd century AD, Pausanias (*Guide to Greece* 1, 2-30) toured Athens and he provides a more detailed description of buildings and the architectural settings of sculptures present in Roman Athens. Archaeological evidence for the city varies with the nature of the material and the site. Important religious and civic buildings that were monumental and decorated have survived better and, in general, received more attention from archaeologists than domestic structures. Camp's 2001 book *The Archaeology of Athens*, for example, has no index entry under 'houses'. In addition to this, the publication of excavated material is patchy and naturally tends to concentrate on large structures and art. The fragmentary nature of archaeological information is also affected by location, such that we have much better information from those areas that were designated and carefully cleared for excavation during the process of planning the modern city in the 19th century, compared with the areas of Athens that now lie under modern structures. This discussion will focus on those structures that were built in the Hellenistic period but attempt to set these in the context of the contemporaneous city.

5.3.1 Walls and Roads.

This survey is principally limited to the area of the city that lay within the course of the Themistoklean circuit wall (built c. 479/8 BC) (Theocharaki, 2011) (Figure 5.4). The wall was repaired and modified several times between 478 and 200 BC but the basic course and structure were still in existence in the late Hellenistic period (Wycherley, 1978: 7-25). A significant period of repair and rebuilding, using stone blocks, occurred between 307 and 304 BC when the city was controlled by Demetrios Poliorketes (Figure 5.5) (*IG II²* 463; Theocharaki, 2011) and in about 229 BC Eurykleides paid for wall repairs (*IG II²* 834; Wycherley, 1978: 21). The walls were punctuated by square towers and gates but there is archaeological evidence for only some of the gates and even less evidence for the towers. Figure 5.6 shows a surviving square tower (c.340 BC) in the wall of the fortified Attic city,

Aigosthena, which gives an idea of the size and structure of contemporary Athenian wall towers (Mee and Spawforth, 2001: 133).

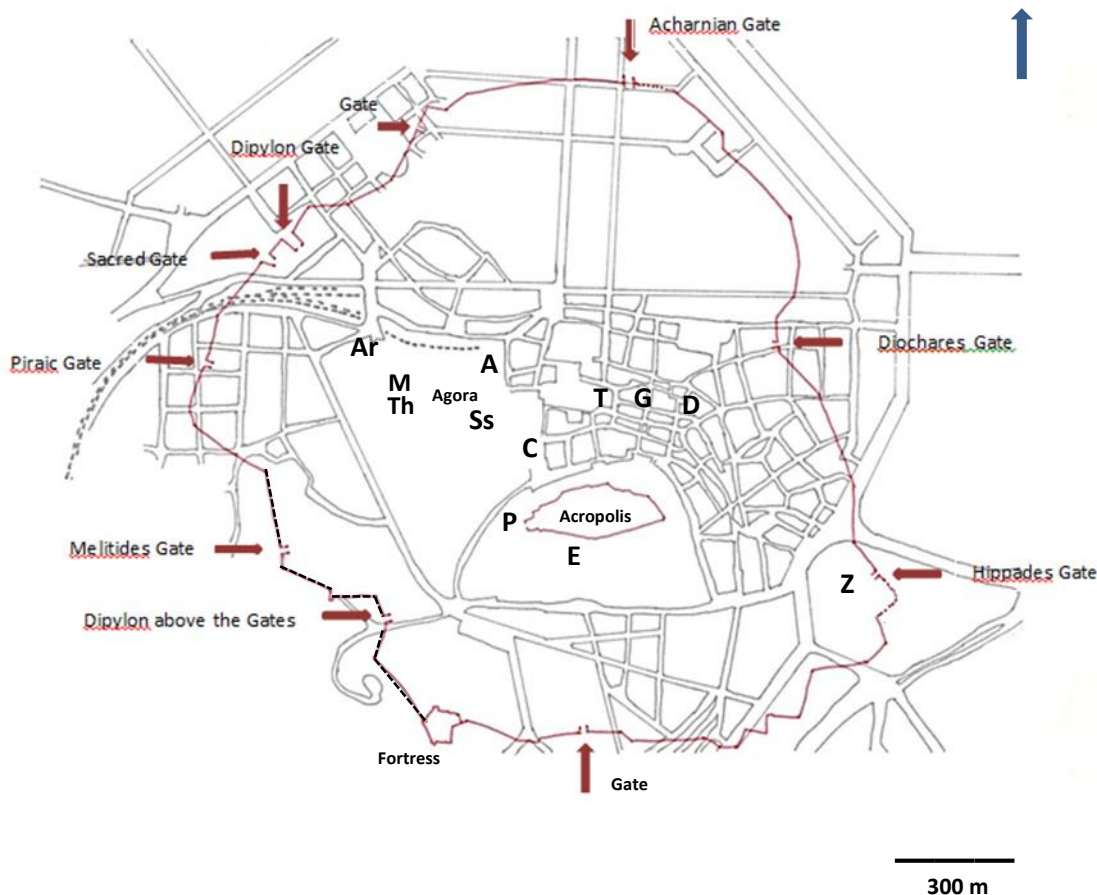


Figure 5.4. Map of Hellenistic Athens. The Themistoklean wall (red), *diateichisma* and gates superimposed over the roads of the modern city (grey). *Diateichisma*, red/black dashed line; railway, grey dashed lines (data from Costaki, 2006: II.16; IV.10, 11, 607, 620; Theocharaki, 2011). Position of: **A**, Stoa of Attalos; **Ar**, Arsenal; **C**, City Eleusinion; **D**, Diogeneion; **E**, Stoa of Eumenes; **G**, Gymnasium of Ptolemy; **M**, Metroon; **Th**, Tholos; **P**, Attalos plinth; **Ss**, Middle and South Stoas; **Z**, Temple of Olympian Zeus (assembled from Christopoulou, 2004: 10-11; Keinast 1997; Parlama & Stampolidis, 2001; Shear, 1973; Shear, 1975; Thompson, 1966; Thompson, & Scranton, 1943).

A wall called the *diateichisma* was constructed in the years between 300 and the mid-280s BC, along the crest of the three western hills (the Mouseion Hill, the Pnyx and the Hill of the Nymphs) between the legs of the Long Walls to Piraeus (Conwell, 2008: 178-182; Thompson and Scranton, 1943). This wall included the small fortress that housed a

Macedonian garrison at the beginning of the 3rd century BC. In the early 2nd century BC a new White Poros Wall was built that followed a new course on the Pnyx (Thompson and Scranton, 1943; Conwell, 2008: 193-194) and repairs to the Themistoklean wall were carried out south of the city in this period (Theocharaki, 2011).



Figure 5.5. All-stone Hellenistic wall Construction at the Intersection of Modern Aristeidou and Pasmazoglou Streets.

Curtain wall at rear; external ring road, middle; *proteichisma*, foreground (from Theocharaki, 2011, Figure 4).



Figure 5.6. Tower in the Walls of Aigosthena c.340 BC.

M. A. Haysom 2010

The plan of several Hellenistic cities such as Priene and Rhodes, consisted of a uniform grid of oblong blocks created by a few longitudinal and even fewer latitudinal roads with narrow alleys between them (Burns, 1976; Steinhauer, 1993). Hellenistic Athens however evolved and grew from the existing older city and the chaotic state of the Athenian streets was even condemned by some ancient writers (Wycherley, 1962^a: 29; see Heracleides quote above).

The Agora was at the centre of the ancient street plan and the Altar of the Twelve Gods in the Agora acted as a kind of central milestone (Thompson & Wycherley, 1972: 192). The course of the ancient roads presented by Travlos (1971: 169) has been updated by Costaki (2006) who shows that the route of many of these ancient arterial roads is still retained in the layout of modern streets in the city. Costaki (2006) recorded 265 road locations including Archaic, Classical, Hellenistic and Roman sites. His survey showed several changes to the layout of roads during the period of Roman influence but no new roads in the Hellenistic period; indeed there is evidence for roads going out of use at that time (Costaki, 2006: 607).

5.3.2 Water.

The supply of water must have been a vital component of life in the city (Dillon 1996) and is relevant to time keeping in ancient Athens and is therefore included in this survey. Of the two rivers that could have supplied water, the Eridanos flowed through the north of the city leaving at a point between the Dipylon and Sacred Gates, however the Ilissos did not flow through the city itself but passed close to the south-eastern walls. Today the Eridanos is a miserable stream and the Ilissos not much bigger but it is difficult to judge the nature of these rivers in Hellenistic Athens. From about 540 BC, water was brought into the city via an underground system of pipes called the Peisistratian aqueduct, parts of which continue to be discovered (Parlama & Stampolides, 2001: 209). This pipe system, which followed the line of the city roads (Costaki, 2006: 78), brought water from the northeast of the city, one branch crossing the southern slopes of the Acropolis to feed south western Athens and the fountain houses in the south of the Agora. Smaller pipes taking water to public buildings and shrines in the Agora were installed in the Hellenistic period (Wycherley, 1978: 248-250).

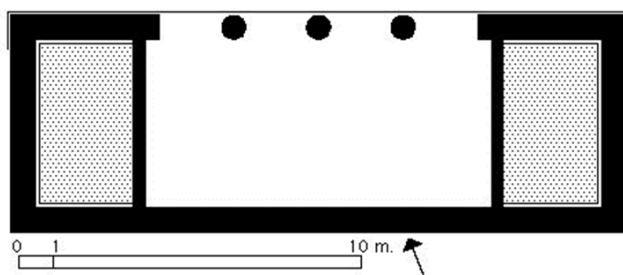


Figure 5.7. Plan of Southeast Fountain House.

from Perseus Digital Library.
<http://www.perseus.tufts.edu>
adapted from Camp 1986: 43

A series of city water features existed in Hellenistic Athens. The large Southwest Fountain House in the south of the Agora dates to 450-325 BC, with 2nd century BC alterations that converted it into a swimming pool (Christopoulou, 2011: 61; Thompson, 1966). The Southeast Fountain House (Figure 5.7), which was also situated south of the Agora, is thought to be one of the earliest public buildings in the Agora, built between 530 and 520 BC in the Peisistratid period (Camp, 1986: 42-44). Despite its age it was seen by Pausanias (1.14.1) and must therefore have existed in Hellenistic Athens.

Water was also a feature of two timekeeping structures in Hellenistic Athens. The Klepsydra water clock was found adjacent to the Southwest Fountain House, its construction dates to 330-320 BC and it was supplied with water by the same poros channel used for the Fountain Houses (Christopoulou, 2011: 61-62). This clock was a hydraulic mechanism that indicated time by means of changing water levels and a floating indicator. It was damaged at the time of the siege of Sulla (86 BC) and went out of use at that time (Shear, 1939). Another important water driven timepiece is the Tower of the Winds (Figure 5.4 T; Figure 5.8). This regular octagonal structure still stands to a height of about 9 metres (Keinast, 2008: 10); it was described by Vitruvius in the 1st century BC (I.6.4) and studied by Stuart and Revett in the middle of the 18th century (Stuart & Revett, 1762).



Figure 5.8. The Tower of the Winds Viewed from the North.

M. A. Haysom 2014

The Tower had a weather vane at the top and eight relief depictions of personified winds running round the top of the walls, together with vertical sundials fixed at lower positions. Keinast (1997) believes that it was constructed in the 2nd century BC and designed by the

architect, Andronikos (Vitruvius I.6.4). The structure housed a water clock but although marks and channels have been preserved on the inside of the tower, the mechanism of this clock has not been deduced (Keinast, 2008: 19). A southern circular annex looks like a water reservoir and there is evidence that water from a spring on the north slope of the Acropolis was collected in a basin above the tower and then piped to this annex (Keinast, 2008: 21). It is assumed that this flow kept the annex tank permanently full, providing a constant pressure of water to drive the clock mechanism. The Tower now stands behind the later Roman Agora but it was built in an elevated position and would have been clearly visible from the Greek Agora in the Hellenistic period. This is an exceptional, elegant building displaying intelligent ingenuity, whose construction must have been costly but the question of who commissioned it remains unanswered. Camp (2001: 179) suggests that it was a Ptolemaic benefaction because virtually all the advances in timekeeping of this period were developed in Alexandria; in addition the great lighthouse of Alexandria was in part octagonal. There was longstanding friendship between Athens and Egypt (see above 5.1) and it may be significant that the gymnasium of Ptolemy is said by Pausanias to have been nearby (Miller 1995).

5.3.3 Hellenistic Mansions or Palaces.

No large Hellenistic mansions or palaces have been identified in Athens. One general feature of houses in Hellenistic Greek cities was the uniformity of the size of the building plots. However, the House of Dionysos in Pella (Nevett 1995) was larger and more lavish than contemporaneous houses on the site, indicating differentiation in housing in a Macedonian city, presumably associated with wealth. Nielsen (1994: 240-305) catalogues 31 Hellenistic palaces, and ignoring those that were built by earlier regimes and reused, 13 were built by ruling families who either supported or occupied Athens between 260 BC and 100 BC. Four have been excavated in Macedonia (Aigai, Demetrias and Pella [x2]), two in Ptolemaic Egypt, 6 in the Seleucid kingdom and one in Pergamum. Kutbay (1998) produced a survey analysis of Hellenistic palaces and large dwellings but none of her examples came from Athens. Both Nielsen's 1994 book and Kutbay's 1998 studies show the considerable variation in architectural features of these buildings, and although fragments of friezes have been found, this variation precludes their diagnostic use.

Despite variation in plans, the scale of a mansion or palace would itself suggest the grand residence of a wealthy owner but apart from a possible 6th century residence of the Peisistratid tyrants proposed by Nielsen (1994: 73-75), there is no archaeological evidence for a grand residence in Athens. It is dangerous to admit an *argumentum ex silentio* that these buildings were situated in parts of Athens that have not yet been excavated or where any remains have been obliterated. However, the wording of Heracleides' account does not suggest the existence of a mansion that could have housed the calendar frieze and the nature of the subject matter does not strongly suggest a domestic setting. Never the less, because there is no archaeological evidence of palaces or large mansions used by Macedonian rulers, such as Attalos II or Antiochos IV who took up residence in Athens, this type of original location for the frieze cannot be totally excluded.

5.3.4 The Agora and Surrounding Area.

Although Pausanias' account of 2nd century AD Athens (*Guide to Greece* 1, 2-30) is at times confusing (for example he calls the ancient Greek Agora the Kerameikos) his description has proved to be generally accurate (Vanderpool, 1974). Pausanias describes a series of buildings after he passed the Hephaisteion that were built before the late Hellenistic period but would have been features of the Hellenistic city landscape. These include: a sanctuary of Aphrodite Ourania; a gate carrying an Athenian cavalry trophy; the Stoa Poikile or Painted Stoa (Camp, 2007); the Stoa Basileios (Royal Stoa) (Camp, 2009); the Stoa of Zeus Eleutherios (Camp, 2001: 104-105); the new Bouleuterion (Christopoulou, 2011: 10-11). The Tholos (Figure 5.4 **Th**; Figure 5.9) (Camp 2001: 69) had a *propylon* added in the 1st century BC (Christopoulou 2011: 59) and the Metroon is an example of a building erected in the Hellenistic period (150 BC) over the foundations of a previous building (the old Bouleuterion) (Figure 5.4 **M**; Figure 5.9). This building had an Ionic colonnade in the front, an open peristyle courtyard in the north of the building, and one of the rooms served as the temple of the Mother of Gods or Kybele (Figure 5.10), other rooms stored the city archives (Christopoulou, 2004: 10-11). Further older buildings were modified in the Hellenistic period. Between the Stoa of Zeus Eleutherios and the Metroon there was a small 4th century BC temple dedicated to Apollo Patroos (Figure 5.9), and next to this temple there was an even smaller temple dedicated to Zeus Phratrios and Athena Phratria, which had a portico added in the 2nd century BC (Christopoulou 2011: 47-48).

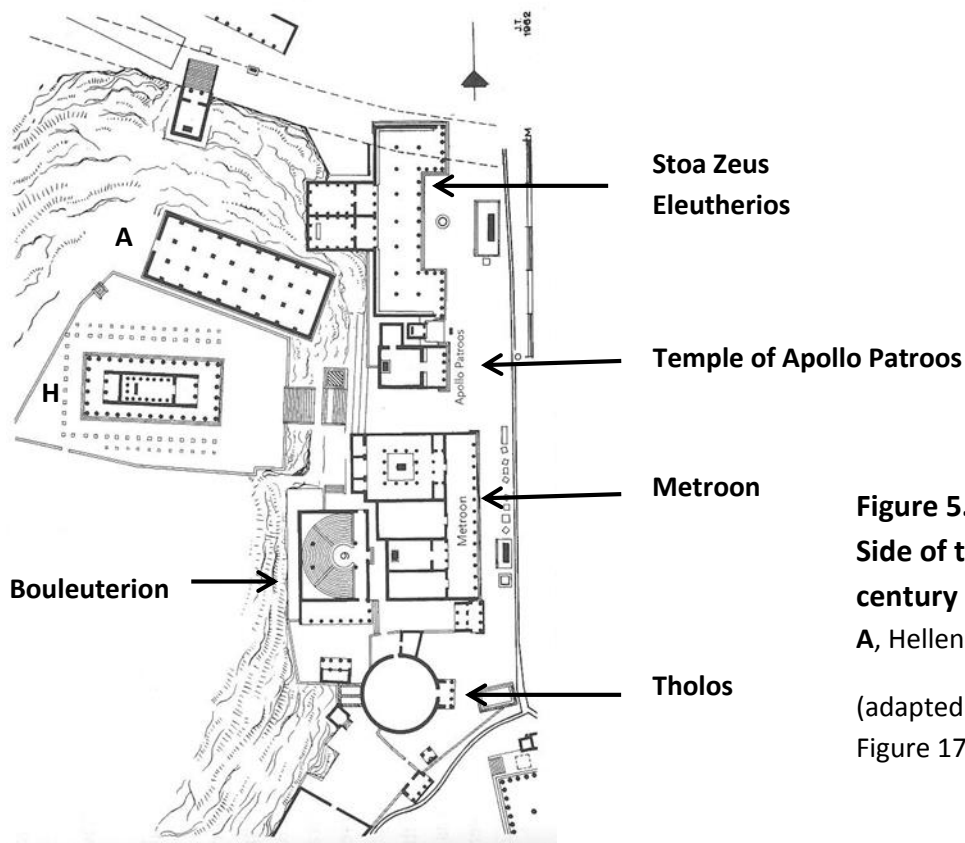


Figure 5.9. Plan of West Side of the Agora in 2nd century BC. H, Hephaisteion; A, Hellenistic arsenal.
(adapted from Camp 2001: Figure 177)



Figure 5.10. A Votive Relief of Kybele Seated on a Throne in a *naiskos*. She is holding a bowl in her right hand and supporting a large tympanum with her left arm. An example of one of the hundreds of copies of this statue recovered in Attica (Roller 1999:145) and now part of the spolia on the Little Metropolis.

M. A. Haysom 2009

Two Hellenistic stoas (Figure 5.4 Ss) were built in the south of the Agora during the 2nd century BC. These ran east-west and the benefactors are not known (Camp 2001: 180). Of these stoas, the Doric style Middle Stoa cut across the Agora reducing its north-south

length. Despite its size it was a modest limestone construction, dated to about 150 BC from pottery found beneath the floor. After the completion of this stoa, the old South Stoa was replaced with a new building and connected to the Middle Stoa by a short East Building (Camp 2001: 182) thus creating an enclosed rectangular South Square. The undivided, eastern room of this building had marble slabs set at intervals in the floor. Each of these slabs had 4 shallow sockets and it is suggested that they held the tables of 'money changers' (Christopoulou 2011: 73).

The Attalid dynasty of Pergamon financed a number of buildings in Athens and a huge double storey stoa (116.5 x 20 m.) was built by Attalos II (158-138 BC) (Figure 5.9; **A**; Figure 5.11) on the east side of the Agora (Camp 2001: 173-174). It functioned as a shopping centre, housing 21 shops on each floor.

Pounder (1983) argues that a Hellenistic arsenal was built on the slopes of the hill north of the Hephaisteion in 272 BC (Figure 5.9; **Ar**). This is one of the larger structures (44.5 x 17.62 m) of Hellenistic Athens; it had a single west doorway and two rows of eight columns dividing the interior into three aisles and was situated on a road leading to the western gates of the city.



Figure 5.11. View of the Lower Storey of the Reconstructed Stoa of Attalos Showing the Ionic Inner Columns. Viewed from the South.

(<http://www.perseus.tufts.edu>)
Photograph from the Department of Archaeology, Boston University, Saul S. Weinberg Collection.

Competitive plays and performances were held in the Theatre of Dionysos and the producers (*choregoi*) of the winning productions were awarded bronze cauldrons supported on tripod stands. The ancient street that leads from the Sanctuary of Dionysos

round the east of the Acropolis is known as the Street of the Tripods because these prizes were displayed, sometimes on elaborate bases, along this street. The surviving Lysikrates Monument (Chapter 2.2.2; Figure 5.12) originally displayed a tripod won by Lysikrates for a winning chorus in 335 BC. Running round the monument above the Corinthian columns, it has a sculptured relief frieze depicting the myth of Dionysos' capture by pirates (Camp 2001: 147-148).



Figure 5.12. The Choregic Monument of Lysikrates.

M. A. Haysom 2011

5.3.5. The Acropolis and Surrounding Slopes.

The magnitude of the modern clearance of structures from the Acropolis (Figure 5.13) has produced an area that is now uncluttered and largely dominated by exposed bedrock between the preserved structures. This uncluttered, clean, white precinct (Figure 5.14) is not how the area would have been in the Hellenistic period.

Figure 5.15 gives a summary of the major buildings on the Acropolis and its southern slopes in late Hellenistic Athens. Most of these (# 3-5, Propylaea; # 6, Temple of Athena Nike; # 8, Sanctuary of Artemis Brauron; # 9, Chalkotheke; # 11, Erechtheion; # 12, Parthenon; # 15, Temple of Zeus; # 16, Pandion cult site; # 24 Sanctuary of Asclepios; # 28, Theatre of Dionysos; # 31, Odeion of Pericles) had been built long before 250 BC. The spaces between



Figure 5.13. The Acropolis from the Southeast in 1875-77; showing the huge piles of 'debris' tipped over the cliffs.

(from Kavvadias 2004: Figure 5).



Figure 5.14. The Acropolis: Erechtheion and Surrounding Area.

M. A. Haysom 2011

these temples would be occupied by hundreds of stelai inscribed with dedications and decrees, together with votive offerings and statues, such as the statue of Sextus Pompeius, who was a Roman Proconsul of Macedonia killed in a battle with a Thracian tribe, and whose statue was erected 120-118 BC (Habicht 1997: 295). In addition, many of the sculptured features would have been painted, creating a much livelier atmosphere than the current rather aesthetic and deferential environment.

A well-built, impressive 2nd century BC statue base stands just to the left of the entrance to the Propylaea of the Acropolis (Figure 5.4 P; Figure 5.15 #2; Figure 5.16). This base is nearly 9 metres high and is believed to have carried a statue of one of the Attalid Kings. The inscription was erased in the Roman period and the base reused for a statue of Agrippa. The bottom sections of several other tall Hellenistic bases of this type have been identified on the Acropolis (Figure 5.15 #19) and in the Agora (Camp 2001: 172-173).

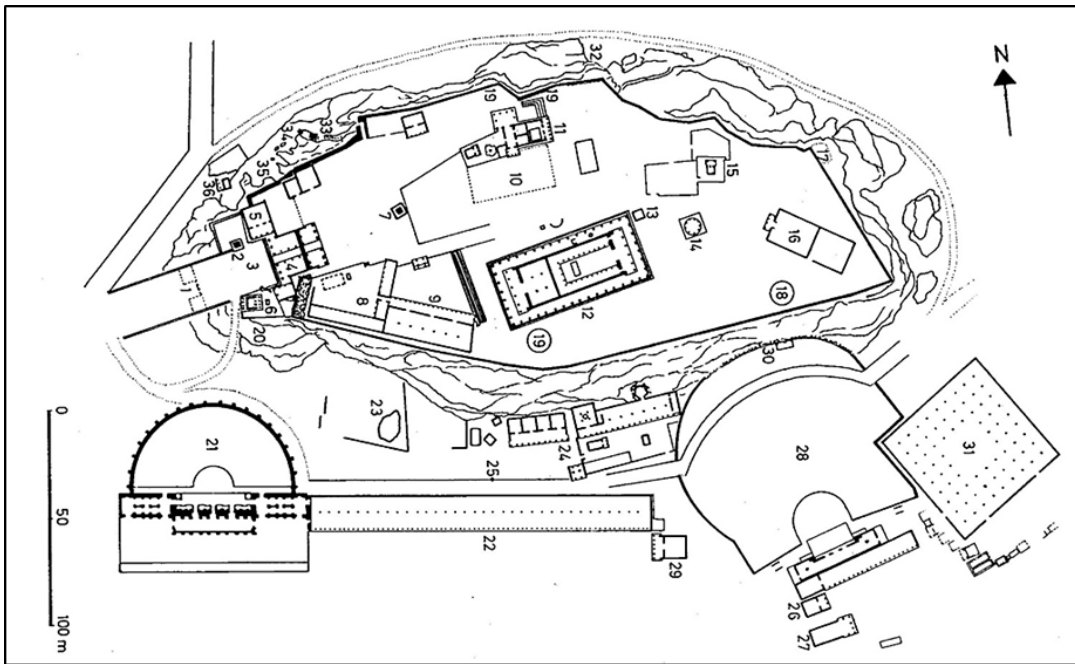


Figure 5.15. Plan of the Late Hellenistic Acropolis and Surrounding Slopes. (adapted from Goette 2001: Figure 6). # 2, Base of Attalid monument; # 3-5, Propylaea; # 6, Temple of Athena Nike; # 8, Sanctuary of Artemis Brauron; # 9, Chalkotheke (storehouse); # 11, Erechtheion; # 12, Parthenon; # 13, Hellenistic statue base; # 15, Temple of Zeus; # 16, Pandion cult site; # 19, Hellenistic statue base; # 22, Stoa of Eumenes II; # 24, Sanctuary of Asklepios; # 27, Temple of Dionysos; # 28, Theatre of Dionysos; # 29, Choregic monument of Nikias; # 31, Odeion of Pericles.



Figure 5.16. Hellenistic Statue Base Situated by the Acropolis Propylaea.

M.A. Haysom 2012

Today (and probably in late Hellenistic Athens), the most prominent building on the south slope of the Acropolis is the 5th - 4th century BC Theatre of Dionysos Eleuthereus (Figure 5.15 # 28). This theatre existed in the Hellenistic period but was damaged by Sulla in 86 BC and later repaired by Ariobarzanes, King of Cappadocia (Kavvadias 2004: 21-23). To the west of the Theatre of Dionysos, a large stoa was constructed in about 160 BC by the Pergamene King, Eumenes II, brother of Attalos II (Figure 5.4 E; Figure 5.17). This stoa, 160 metres in length with a double colonnade and two stories, resembled the massive Stoa of Attalos II in the Agora. It was built into the steep slope of the Acropolis and the style of architecture and workmanship indicates that Eumenes did not only supply the money for the project but also sent Pergamene workmen to Athens (Camp 2001:171-172). North of the eastern end of the Stoa of Eumenes and between it and the theatre are the remains of the Asclepieion or healing Sanctuary of Asclepios (Figure 5.15 # 24). The dates of the various components of this complicated sanctuary are still being researched but the plan shown in Figure 5.15 (# 24) probably represents the structure as it existed in the 1st century AD (Kavvadias 2004: 30-32).



Figure 5.17. Stoa of Eumenes.

M.A. Haysom 2012

Figure 5.15 also shows the position of the Odeion of Pericles (# 31). This building, measuring 62.5 by 68.5 m, was built for music contests including those of the Panathenaic

Games. Tradition said that it was built using the timber of the Persian ships after the battle of Salamis and that the form, with many columns, resembled the tent of Xerxes. It was burnt by the Athenians during the siege by Sulla to prevent him using the timber for siege engines and was another building rebuilt with marble in 61 BC by Ariobarzanes, King of Cappadocia (Kavvadias 2004: 24).

As the Panathenaic Way rises up on the north eastern slope of the Acropolis it passes the City Eleusinion on a spur to its east (Figure 5.4 C; Figure 5.18). This sanctuary to Demeter, Kore and Triptolemos was described by Pausanias (1.14.1-4); it was an important venue for the Eleusinian Mysteries and is another example of a building complex that underwent structural changes in the Hellenistic period. The site was identified by the large number of

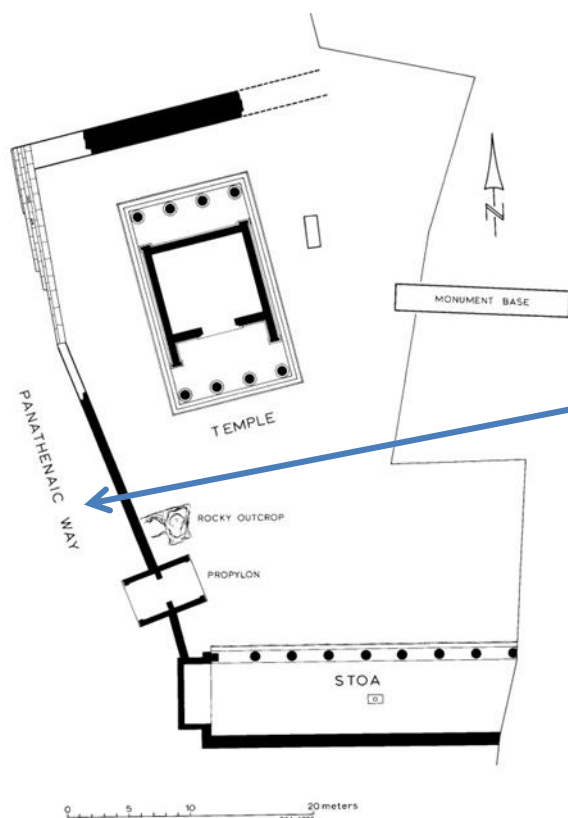


Figure 5.18. Plan of the Restored 2nd century BC City Eleusinion.

(adapted from Miles, 1998: Figure 9)

Roman paving on Panathenaic Way

Circular building 17 metres south

finds associated with the Mystery Cult found here (Miles 1998: 6-9) but only part of the site has been excavated; the rest lies under modern houses. The area was surrounded by a substantial set of walls and the district around the sanctuary was uninhabited throughout antiquity (Miles, 1998:14). The construction of the temple has been dated to 490 BC (Miles 1998: 68; Thompson 1960), and in the Hellenistic period (2nd century BC), a stoa (25 x 9 m)

was built across the south of the sanctuary (Miles 1998: 75-78). This stoa was a well built, single storey building that appears to have reused stone from the Square Peristyle that was demolished to build the Stoa of Attalos. Numerous stelai were recovered from the sanctuary, including 17 honorary decrees dated to the Hellenistic period and the simple stoa may have been used as a location for these (Miles 1998: 77). A new gateway (*propylon*) was also constructed in the 2nd century BC (Miles 1998: 84). A carved stone from the City Eleusinion (probably originating from the inner propylon) has been identified amongst the spolia on the Little Metropolis (Figure 5.19) (Miles 1998: 89; Miles 2012).



Figure 5.19. Doric Frieze over the South Door of the Little Metropolis.

The crossed myrtle torches and poppies, *phiale*, *plemochoe* and *boukranion* decorated with a fillet are symbols found at Eleusis.

M.A. Haysom 2011

5.3.6 The Temple of Olympian Zeus.

In the 6th century BC the Peisistratids planned to build a huge Doric temple, measuring about 40 x 100 metres, in the south east of the city near the Hippades Gate (Figure 5.4 Z). This building was not completed because, following the overthrow of the Tyrants in 510 BC, the new democracy concentrated on new buildings on the Acropolis. The foundations had been completed and some of the column drums were later built into the Themistoklean city walls.

In the late 4th century BC, Lykurgus restarted the building using the earlier foundations but building a *dipteros* in the Corinthian style. This work was also not completed; however, between 175 and 164 BC, the Macedonian Seleucid king, Antiochos IV, saw the project as an opportunity to highlight his Greek credentials and employed a Roman architect, Cossutius, to finish the temple. After Antiochos' death work stopped again and the temple

was only completed under the Emperor Hadrian in AD 131/2 (Figure 5.20). Despite its unfinished state several visitors to Hellenistic Athens commented on the grandeur of the temple (Camp 2001: 173-176).



Figure 5.20. The Hadrianic Temple of Olympian Zeus.

M.A. Haysom 2010

5.3.7 *Gymnasia*

Gymnasia were introduced into Greek cities in the 6th century BC at a time when the nobility lost their predominance in the military (Finley & Pleket 1976: 83-89). Gymnasia were municipal institutions administered by a *gymnasiarch* and became one of the defining buildings of a Hellenistic Greek city (Finley & Pleket 1976: 83-89; Skaltsa 2012). In Athens, there are records of three ancient (pre-Hellenistic) gymnasia, all situated outside the city walls at the site of an ancient shrine, but archaeological information about these gymnasia (the Academy, Lyceum and Cynosarges) is limited. Since none of the Athenian gymnasia have been completely excavated, other gymnasia and written records are used here as models for their structure. Vitruvius (5.11) gives a description of the structure of gymnasia; they probably consisted of a square *palaestra* (wrestling school) or *peripatos* (colonnaded court), a *dromos* (running track), a pool, stoas, *exedrae* and an *ephebeum* (lecture room), possibly a library, and a garden (Wycherley 1978: 227). However, Skaltsa (2007) emphasises recent work that demonstrates that they should not be considered a homogenous group since construction could reflect local conditions.

In Hellenistic Athens two further gymnasia were built but again the archaeological evidence

for their location and structure is virtually non-existent. Pausanias (1.17.2) refers to a Gymnasium of Ptolemy 'not far distant from the Agora' and near the 'Theseion'. This description is confusing since by 'Agora' Pausanias is probably referring to the Roman Agora (Vanderpool 1974), which lies south-east of the Greek Agora. Dodwell's account of his visit to Athens in the early 19th century gives an etching of a structure 'east of the Hephaisteion', which he mistakenly identifies as this gymnasium (Dodwell 1819: 370) but is now recognised as part of the Stoa of Attalos (Mauzy, 2009). More recently a site east of the Roman Agora has been proposed (Travlos 1971: 579), and Miller (1995) argues that the Gymnasium of Ptolemy lies under modern Kyrrhestou (Figure 5.21). As archaeological support for this proposal Miller lists: evidence of the ancient construction of a broad terrace formed by cutting into the natural slope at the intersection of Kyrrhestou and Mnesikeous streets; the stonework of the structure south of the Tower of the Winds; a wall found in rescue excavations under modern houses between Kyrrhestou and Lysiou streets, and finds of a marble basin typical of those found in the *loutron* (wash room) of *palaestrai*, and rectilinear limestone benches sometimes found in *exedrai* of *palaestrai*.

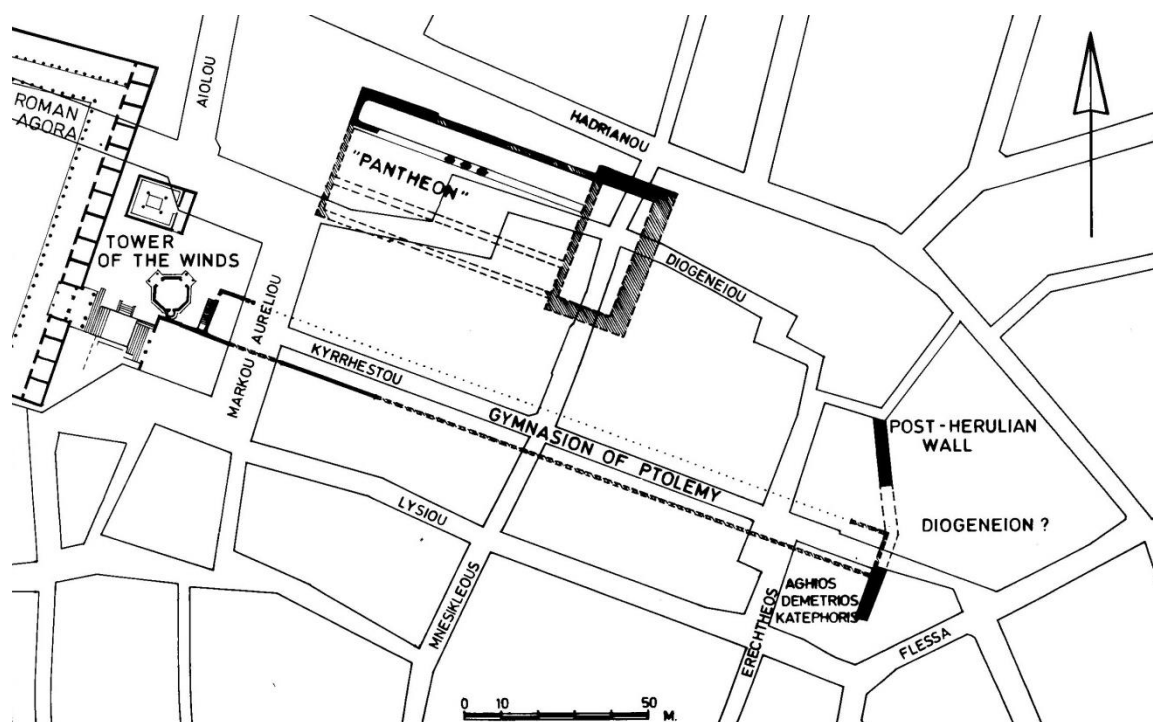


Figure 5.21. Modern Street Plan of the Area East of the Roman Agora. After Miller (1995).

The gymnasium was either commissioned by Ptolemy III Euergetes (246-221 BC) (Habicht 1997: 183) or Ptolemy VI Philometor (181-145 BC) and differed from the older gymnasia by being situated within the city (Thompson 1950; Wycherley 1978: 232). The first written record of this gymnasium is an inscription dated 122/1 BC (*IG II²* 1006, Thompson, 1950), which post-dates both Ptolemy Euergetes and Ptolemy Philometor and therefore does not help fix the date of its construction.

There is also evidence for a second Hellenistic gymnasium within the walls of the city. A site also lying east of the Roman Agora, bounded by the modern streets Kyrrhestou, Erechtheos and Lysiou was part of the city designated to stay clear of building when the modern city was planned in 1836 (Figure 5.21). At this time the site was occupied by a church, Aghios Demetrios Katephoris, which was demolished in 1861 partly in order to recover and study the large number of stelai, *herms* (hermaic stelai) and other architectural fragments built into the fabric of the building (Papaioannou 2009). Many of these items are now housed in Athens either in Room 31a of the National Museum of Archaeology or in the adjacent Epigraphic Museum. The site is currently being excavated by students from the Department of History and Archaeology at the University of Athens (Director, P.P. Papaioannou) (Figure 5.22). The large structural feature uncovered in the site is part of the post-Herulian Wall that was constructed under Emperor Probus (276-282 AD) following the Herulean invasion (Papaioannou 2009). At least 54 inscriptions concerning the *ephēboi* were recovered from the church and the surrounding area, together with several herm portraits of *kosmetai* (men who oversaw the training of the *ephēboi*). The inscriptions date from 106/5 BC to 266/7 AD; all the *herms* date to the 2nd century AD (Papaioannou 2009).

Many authors agree that in 220 BC the second gymnasium or *palaestra*, called the Diogeneion, was built in honour of the Macedonian commander Diogenes, who withdrew Macedonian troops from the Attic forts in 229 BC (Franz 1979; Mikalson 1998: 171; Wycherley 1962b) (Chapter 5.1), and 'on reasonable but not overwhelming evidence' the Diogeneion has usually been taken to be the headquarters of the *ephēbeia* (Dow 1960). It has been suggested that the finds from the area of Aghios Demetrios Katephoris indicate the location of the Diogeneion (Miller 1995; Papaioannou 2009) and this is how the



Figure 5.22. Excavation at the Proposed Site of the Diogeneion.

M.A. Haysom 2009

collection is presented in the National Museum. However, our knowledge of the Diogeneion is very limited; there is only one literary reference to it, where Plutarch reports Ammonios holding an examination of the *ephēboi* in the Diogeneion (*Quaestiones Convivales* 9.1.1). Among stelai found at Aghios Demetrios Katephoris, one (*IG II² 1078.42*) contains the instruction ‘to be set up in the Diogeneion’, a 107/6 BC inscription (*IG II² 1011.41*) refers to required wall repairs (Miller 1995), and an ephobic catalogue dated AD 220-240 (E.M.13,146) has been interpreted as referring to the Diogeneion by Mitsos and Vanderpool (1953). Miller (1995) suggests that the Diogeneion was situated at the eastern end of the Ptolemaic gymnasium and formed part of the Gymnasium complex (Figure 5.21). Finally Miller (1995) believes that 2nd century BC inscriptions (*IG II² 956.16; 957.11; 958.14*) that were to be set up in a sanctuary of Theseus (*Theseion*) and were found in the vicinity of Aghios Demetrios Katephoris, indicate that this sanctuary also lay in the neighbourhood of the Gymnasium. If the Diogeneion was constructed at the end of the 3rd century BC and the accumulated stelai and *herms* indicate an ephobic structure in existence in the 3rd century AD, a gymnasium-like building centred on the *ephēboi* existed in Athens for 500 years, and must have needed periodic refurbishment.

In 1881, an inscribed and reused epistyle (*IG II², 5205*) was uncovered immediately south of the Little Metropolis and north of the Aghios Demetrios Katephoris site. Franz (1979) proposes that the word ΔΙΟΓΕΝΕΙΟΝ may have been inscribed on this epistyle at the position of a repaired break. This suggestion depends on a very fragmentary inscription that suggests a word beginning with Α, Δ or Λ and containing more than 5 letters. Franz

(1979) further suggests from dimensions and marks that the origin of this stone could be tentatively traced to a gateway of the Diogeneion. Frantz believes that the Diogeneion underwent several successive repairs including rebuilding in the Hadrianic period before being destroyed by the Herulians in AD 267. An additional inscription dated between AD 396 and AD 400 exists on the epistyle and is a problem for this analysis (Miller 1995), however Frantz (1979) suggests that the epistyle may have been reused in another civic building of this date.

5.4. Search for a Candidate Building that Housed the Frieze.

The objective of this chapter is to explore the possible original location of the calendar frieze and was undertaken because examining potential structures that displayed the stones will naturally inform an analysis of the images on them. The search has to be somewhat speculative but the exercise will provide an informed foundation for a discussion of the intended location of the frieze. Importantly, the following investigation can enable some structures to be eliminated as unlikely candidates and thus produce a tentative list of prospective structures. The nature of these possible structures (see below Chapter 5.6) and their significance in the political background of Athens in the late Hellenistic period, particularly Athens' relationship with the Hellenistic kingdoms using a Macedonian calendar (Chapter 4, Table 4.7; Chapter 5.1), will refine this list.

Following the analyses of Chapters 3 and 4 the candidate building should have been built or extended in the late Hellenistic period and have an association with a benefactor who used the Macedonian calendar. A review of Athenian buildings presented in the previous section that fulfil the first of these criteria is shown in Table 5.1. The list can be refined by considering the nature of each building. Seven of the structures in Table 5.1 have no recorded benefactor and cannot therefore be positively associated with a Macedonian influence and cannot contribute to the analysis. The Arsenal was largely made of wood, and its function suggests that it was unlikely to have been the forum for a religious and astronomical frieze. The Metroon, as a depository of the city archives, could be considered but there is no evidence that it was funded by a benefactor with a Macedonian origin and the extensive

Table 5.1. LATE HELLENISTIC CANDIDATE BUILDINGS AS A POTENTIAL SOURCE OF THE CALENDAR FRIEZE.

DATE	STRUCTURE	BENEFACTOR
272 BC	Arsenal	unknown
246-145 BC	Gymnasium	Ptolemy III or VI
220 BC	Diogeneion (gymnasium)	unknown
197-138 BC	Large Statue Bases	Attalid king
180 BC	Middle Stoa	unknown
175-164 BC	Temple of Olympian Zeus	Antiochos IV, unfinished
c.160 BC	Stoa	Eumenes II
158-138 BC	Stoa	Attalos II
150 BC	Metroon	unknown
150 BC	Tower of the Winds	Ptolemy VI?
2 nd Century BC	City Eleusinion Propylon	unknown
1 st Century BC	Tholos Propylon	unknown
Hellenistic	South Stoa	unknown

production of images of Kybele seated on a throne in a *naiskos* (Figure 5.10) suggests that the frieze's imagery would not be apt. There were two stoas (Middle and South) built in the south of the Agora during the Hellenistic period, where the construction of one in limestone is described as 'modest'. Again we have no evidence that they were built with benefactions from one or more of the Hellenistic kingdoms. Both of these buildings were of the Doric order (Camp 2001: 180-282) and this does not fit with the Ionic structure of the frieze (see Chapter 5.5 below). Thus although we have no knowledge of the benefactors for these buildings, their nature and purpose strongly suggest that they are not the home of the Little Metropolis frieze. Similarly, we have no record of a benefactor for the City Eleusinion and the relief images from Eleusis and the spolia from the Little Metropolis (Figure 5.19) suggest that any structure from this complex would conform to the imagery of the Eleusinian Mysteries and be in the Doric style. The Tholos *propylon* is a possible venue for a festival calendar but since the building had an important Athenian civic function it is

difficult to see why it would have a Macedonian calendar. Also the structure of its *propylon* (Figure 5.9) is not compatible with the reconstructions developed in Chapter 5.5 (below).

The Diogeneion will be considered in more detail below (Chapter 5.6).

Looking at the remaining structures with identified benefactors in Table 5.1:

1. The rebuilding of the Temple of Olympian Zeus (Figure 5.20) by Antiochos IV was not completed and this may be significant but since the imagery of the frieze, which is quite small does not endorse Zeus, this temple is probably an unlikely source of the calendar.
2. The Tower of the Winds (Figure 5.8) is still largely complete (Kienast 2008: 10, 17). The two missing porches, which were too small to accommodate the frieze, have been the subject of some debate, however much of the entablature survives with the full Ionic set of triple fasciaed epistyle, plain frieze and dentils (Smith 1985).
3. The Acropolis housed several large statue bases, of which the base for an Attalid statue adjacent to the Propylaia (Figure 5.16) is an example. This has been included because a similar statue base at Delphi, which supported a statue of Aemilius Paullus celebrating his victory over Perseus at Pydna in 168 BC, had a relief frieze running round the top. This frieze is now in the Delphi Museum and reconstruction drawings depict it situated under decorated moulding (Scott 2014: 191). The length of each side of the top of the Athenian base in Figure 5.16 is estimated to be about 3 m and such a monument could therefore accommodate the frieze stones (the longest stone is 2.99 m). However, the Little Metropolis could only have consisted of 2 or 3 stones (see below Chapter 5.5) and these are therefore unlikely to have formed a frieze on a square monument. In addition, the two rough undecorated ends would be visible on such a structure and this feature of the frieze will be discussed below (Chapter 5.7 below).
4. The two stoas built by the Pergamene Kings, Attalos II and his brother Eumenes II, between 160 and 138 BC have the right Macedonian benefactor credentials but it is difficult to see where in these huge buildings an area could exist that would house such a complex and erudite but relatively small relief as the calendar frieze. These buildings cannot be completely ruled out but they are not considered as a probable home for the frieze (Chapter 5.7 below).
5. This leaves two remaining buildings in Table 5.1, namely the two gymnasia. One of these has a Ptolemy as benefactor and the other honoured a Macedonian general. The analysis of these structures, for which we have no archaeology, is the subject of Chapter 5.6 (below).

5.5. Structure of the Frieze-bearing Stones on the Little Metropolis.

An important beginning for this section of the enquiry is a study of the architectural features of the frieze stones themselves. The Little Metropolis church measures 7.32 m by

11.38 m (Michel & Struck 1906) and the lengths of the Pentelic marble stones carrying the calendar frieze are 2.74 m (original left stone) and 2.99 m (original right stone) (Grundel 1992: 97-98; Palagia 2008). Before being built into the west (7.32 m) wall of the church, the frieze was shortened to fit the space on the church, so that the Zodiac signs, Aquarius and Pisces are missing together with the personification of Anthesterion and Elaphebolion. In total this means that part of the month Gamelion, the whole of Anthesterion and part of the month Elaphebolion were removed. This is effectively one whole and two half months or the length of two months. The ends, where two months are missing from the middle of the calendar year, are shown in Figure 5.23. The removal of months from the middle of the year strongly suggests that the calendar was originally made of more than one block of stonework and, assuming that the original calendar did not have this omission, there are therefore two possible models for the frieze: (a) the whole calendar consisted of two stones of equal length each of which was shortened or (b) the complete calendar consisted of three stones and a third, central stone is missing.

Under Model (a) it is possible to estimate the original length of the frieze knowing that it would have originally depicted 12 months. The average length of each of the remaining nine complete months is 47.5 cm and since two months were removed, under Model (a) 0.95 m should be added to the length of the two stones making the total length of the complete frieze block 6.68 m ($2.74 + 2.99 + 0.95 = 6.68$ m). In order to give some measure of the possible error of this estimate, the missing section(s) can alternatively be calculated based on either the shortest month (Thargelion, 0.20 m) or the longest month (Pyanopsion, 0.795 m) and this gives the shortest measurement, 6.13 m and the longest measurement, 7.31 m. The interpretation of the ends shown in Figure 5.23 is different for Model (b). Here the right stone, which although broken at the bottom does not have a damaged figure (Figure 5.23 B), is considered to be complete (Palagia 2008 agrees with this interpretation).

Under Model (b) the two existing stones should be the same length and since the left, shorter stone with a damaged image shows definite signs that the end was cut (Figure 5.23 A), this should have about 25 cm added to repair it and make the frieze the same length as the right stone. Therefore, excluding the rough ends, the frieze on each stone was about 2.62 m long and in order to produce a structure that is symmetrical the missing section should also be this length.

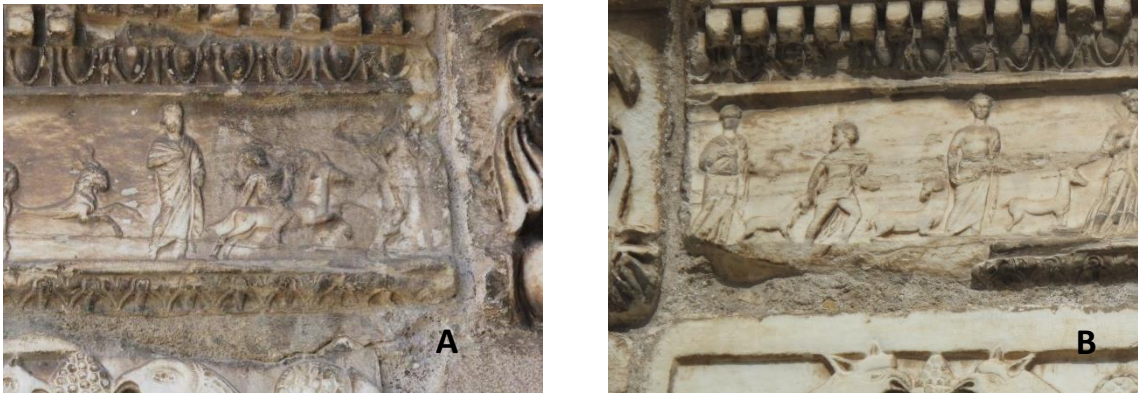


Figure 5.23. Ends of the Little Metropolis Frieze Showing the Damaged Image 17 Hera or a Bride in the Month Gamelion (A) and the Complete Image 18 (*theoria*) in the Month of Elaphebolion (B).

(A, M.A. Haysom 2009; B, M.A. Haysom 2011)

The total height of the blocks is 0.53 m (Grundel 1992: 97-98; Palagia 2008) and the frieze itself is 0.25 m high. Because the blocks are built into the church wall their depth is not known. Figure 5.24 shows the rough ends of the frieze, which were not removed by the builders of the Little Metropolis church, and also indicates that the egg and dart ovolo moulding above the ends is unfinished. Careful inspection of the rough areas shows that they stand proud of the 'background' surface of the carved frieze and therefore this is not an area where images were removed. The rough end of the left stone is 34.6 cm long and the rough end of the right stone is 38.0 cm long.

The mouldings (Figure 5.25) that form a frame above the frieze are in order from the top: an egg and dart ovolo, a bead and reel astragal, a filet, a row of dentils, another egg and dart ovolo and a plain filet. These elaborate upper mouldings overhang the vertical face of a frieze. Below, the frame has a plain filet and an astragal (Figure 5.25). All these features can be found on buildings dating from the Archaic to the Roman period but the overall form of the entablature has an Ionic style (Coulton 1995: 190). The profile of the blocks is a combination of the Ionic features shown in Figure 5.26, where Lawrence (1996: XIV) describes the Ionic entablature with a relief frieze (Figure 5.26, A) as Attic and cites the

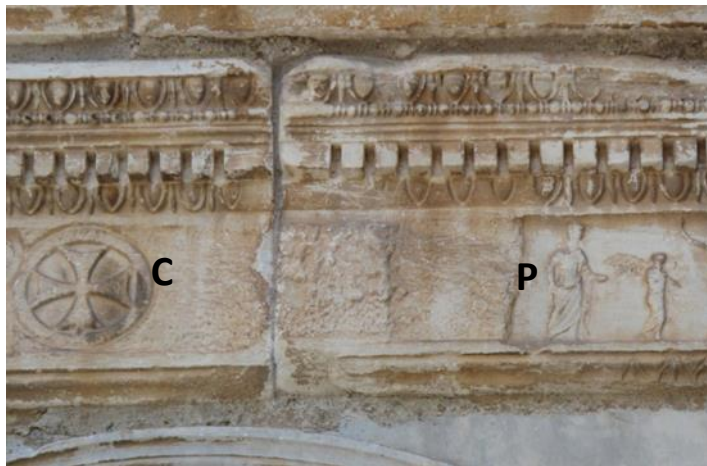


Figure 5.24. The Rough Ends of the two Existing Blocks of the Little Metropolis Frieze. The personification of the first month, Pyanopsion (**P**) marks the start of the calendar, a Byzantine cross (**C**) defaces the end of the calendar. An unfinished egg and dart ovolo can be seen above the frieze on the ends of both blocks.

M.A. Haysom 2011

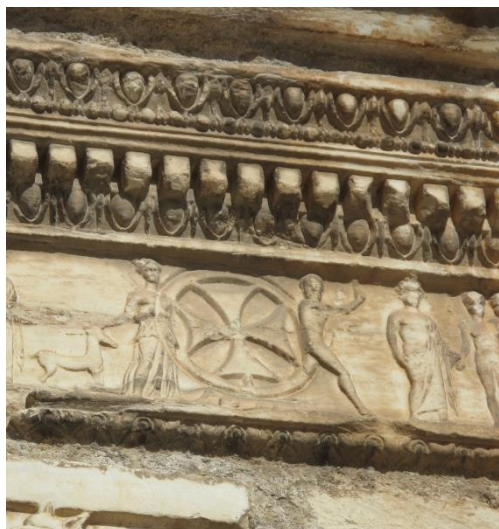


Figure 5.25. Section of the Little Metropolis Calendar Showing the Upper and Lower Mouldings that are Integral to the Stone Blocks Carrying the Frieze.

M.A. Haysom 2011

temple on the Ilissus, Athens, as an example. This temple was built c.480 BC and destroyed by the Turks in 1778 but illustrated by Stuart and Revett in 1762 (Dinsmoor 1975: 185 n.1, Plate XLIV). The Ionic entablature with no frieze, shown in Figure 5.26, B is

described by Lawrence as the Ionic Order of Asia Minor, and he cites the well reported Temple of Athena Polias (320 BC) in Priene as an example (Schede 1964: 29-32). Other examples of Ionic entablature indicating the range of dates of construction and of styles are shown in Table 5.2 (below).

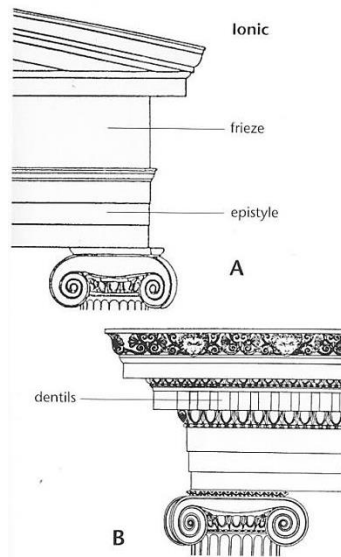


Figure 5.26. Diagram of Ionic Entablature. A, with relief frieze; B, with mouldings.

(figure from Spawforth 2006: 63).

Table 5.2 shows that Lawrence’s simple designation of entablatures from Attica existing with friezes but without moulding (dentils), and those from Asia Minor existing without friezes but with moulding, is not straightforward since the Nereid Monument at Xanthos, the Temple of Apollo at Didyma and the Temple of Artemis Leucophryene at Magnesia on the Maeander (Figure 5.27), all from Asia minor, possess both. Of course the scale of these structures is too big for a meaningful comparison with the calendar frieze but it does illustrate the caution that should be taken when applying diagnostic stylistic rules particularly since the entablatures of many of these temples (Temple of Artemis, Ephesos; Nereid Monument, Xanthos; Temple of Athena Polias, Priene; Temple of Artemis Leucophryene, Magnesia on the Maeander; Temple of Athena Nike, Athens) were reconstructed from fragments, as is clearly seen in the illustration of the entablature of the Temple of Artemis at Magnesia on the Maeander (Figure 5.27).



Figure 5.27. Reassembled Section of Entablature from the Temple of Artemis Leucophryene, Magnesia on the Maeander.

(figure from Spawforth 2006: 202)

Table 5.2. LOCATION AND FORM OF RECORDED EXAMPLES OF IONIC ENTABLATURE.

BUILDING: Temples	DATE	CITY	LOCATION	FRIEZE	UPPER DENTILES
Temple of Artemis ¹	560-546 BC, rebuilt 236 BC (Corinthian)	Ephesos	Asia Minor	none	yes
Nereid Monument ²	410-400 BC	Xanthus	Asia Minor	yes	yes
Temple of Athena Polias ³	c. 330 BC	Priene	Asia Minor	none	yes
Temple of Apollo ⁴	c. 300 BC but unfinished	Didyma	Asia Minor	yes	yes
Temple of Artemis Leucophryene ⁵	221/0-150-125 BC	Magnesia on the Maeander	Asia Minor	yes	yes
Temple on the Ilissus ⁶	c. 480 BC	Athens	Greece	yes	none
Temple of Athena Nike ⁷	435-420 BC	Athens	Greece	yes	none
BUILDING: Monuments	DATE	CITY	LOCATION	FRIEZE	UPPER DENTILES
Lysikrates Choregic Monument ⁸	334 BC	Athens	Greece	yes	yes
Pedestal of Aemilius Paulus ⁹	168 BC	Delphi	Greece	yes	yes

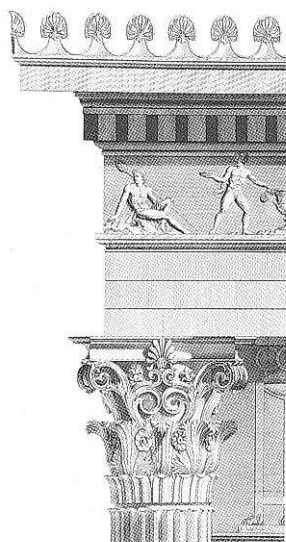
Key for Table 5.2.

¹ Dinsmoor (1975: 127,224); ² Dinsmoor (1975: 256); ³ Dinsmoor (1975: 221-223), Lawrence (1996: 146); ⁴ Dinsmoor (1975: 229-231), Lawrence (1996: 154); ⁵ Dinsmoor (1975: 274-276), Lawrence (1996: 164), Spawforth (2006: 202); ⁶ Lawrence (1996: XIV); ⁷ Camp (2001: 90-92); ⁸ Dinsmoor (1975: 237-238), Lawrence (1996: 140); ⁹ Lawrence (1996: 162).

Perhaps more interesting as a comparator for the Little Metropolis frieze is the smaller intact entablature that has both moulding and a frieze, on the Choregic Monument of Lysikrates in Athens (Figures 5.12; 5.28 A and B). The Lysikrates Monument was built in 334 BC and has external Corinthian columns, which Lawrence (1996: 140) believes is the first

example of such columns used on the outside of a building. The moulding on the entablature above the frieze only consists of a single row of dentiles and is therefore simpler than that above the calendar frieze (Figure 5.25). Another relatively small structure represented with a complex entablature is the late Hellenistic statue pedestal at Delphi portraying the Roman, Aemilius Paullus. It is commonly illustrated with entablature that has both elaborate moulding and a frieze but again this pedestal is a reconstruction (Scott 2014: 191).

Vitruvius (3.5.10) gives some conventions for the proportions of the components of Ionic entablatures, described in relation to the height of the columns supporting them. Although calculations based on these rules must be speculative, they can provide a rough guide for a search for calendar-frieze-bearing structures. Vitruvius' symmetry of the column and the entablature is based on the dimensions of the epistyle (Figure 5.26), which is missing from the Little Metropolis frieze. However, Vitruvius gives the relative proportion of a decorated frieze and the lower epistyle as 1.25/1.0 and this ratio produces an epistyle for the calendar frieze with an estimated height of 0.42 m. The figures of Vitruvius (3.5.8) that can be used to estimate column height only relate to columns over 4.25 m; using these figures gives a calculated maximum height of between 5.0 m and 5.5 m for the columns that may have supported the frieze.



A



B

Figure 5.28. Lysikrates Choege Monument Entablature.

A Elevation from Stuart and Revett. (Figure 220 from Lawrence 1996: 140).

B M.A. Haysom 2009

If, as suggested in Model (a) the frieze was originally made as two stones, the estimated numbers suggest an entablature minus the rough ends that was about 6.0 m wide and (including epistyle) was nearly a metre high ($0.52 + 0.424 = 0.944$ m) with a central supporting Ionic (or Corinthian) column not more than 5.5 m high. The stones would also have been supported at the rough ends and assuming that the unfinished ends were obscured this support was probably a wall. Finally, with this plan, the open spaces between the central column and each wall would have been nearly 3 m wide. Together these calculations suggest that the frieze could have been built into a *prothyron* or entrance in a recessed porch.

With Model (b) the three sections of entablature would also have been supported by flanking walls, but with two Ionic (or Corinthian) supporting columns each not more than 5.5 m high making the exposed entablature (i.e. without the rough ends) about 7.83 m wide. The central missing stone must depict the whole of the month of Anthesterion, part of Elaphebolion and possibly part of Gamelion. This would make the missing images in these months occupy 2.62 m making them structurally the most elongated months of the year. Again this model suggests that the frieze was built into a *prothyron* or recessed porch and a reconstruction drawing of the model proposed here is shown in Figure 5.29.

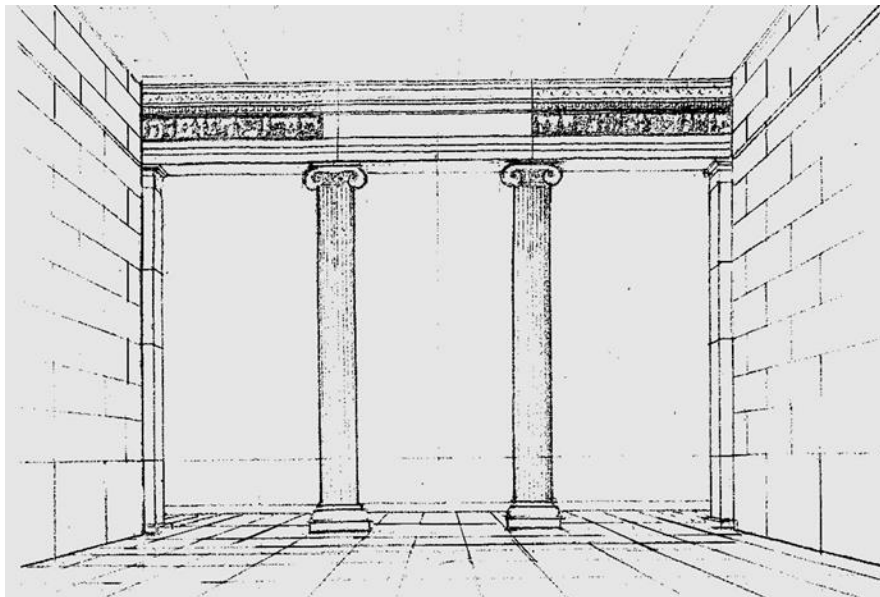


Figure 5.29. Reconstruction of a *prothyron* Containing the Calendar Frieze: Assuming Three Stones as in Model (b). Right stone complete, left stone missing 25 cm, central stone missing. Scale 1:107. Drawing by S. Tod 2015

This exploration of a possible architectural setting for the frieze has assumed that the rough ends (Figure 5.24) could be built into flanking walls (Figure 5.25) but this needs qualification. These ends have the same moulding as the finished sections of the frieze, namely: an egg and dart ovolo, a bead and reel astragal, a filet, a row of dentils, another egg and dart ovolo and a plain filet. The lower egg and dart ovolo appears unfinished but the moulding as a whole extends forwards to the same extent as the moulding over the sculptured frieze. It is difficult to see how this structure could be built into a wall and therefore there must be a possibility that the frieze was not finished and was never erected into whatever building it was intended for.

A comparison should be made with the dimensions of the inscribed epistyle (*IG II² 5205*) that Franz (1979) suggests belonged to a gateway of the Diogeneion (Chapter 5.3.7). This epistyle is shorter than the shortest calculated overall length of the calendar frieze (5.12 m versus 6.13 m) and longer than the calculated length of each stone (5.12 m versus 2.99 m); it is also higher than that calculated for the frieze (0.655 m versus 0.424 m). This comparison has to be of limited value but it does strongly suggest that the epistyle described by Franz does not belong to the calendar frieze.

5.6. The Architecture of Hellenistic Gymnasia from outside Athens.

The analysis presented in Chapter 5.4 and 5.5 (above) is consistent with the proposal that the intended location for the Little Metropolis frieze was a gymnasium. In the Hellenistic period the gymnasium became an essential component of Greek life and a hallmark of Hellenism (Jones 1940: 220). In Ptolemaic Egypt gymnasia existed wherever there was a sizable Greek community and Greek members of the elite population gathered there to socialise and pursue intellectual activities (Cribiore 2005: 35). The Attalid kings built 3 gymnasia in Pergamon, one for boys, one for *ephēboi* and a third for young men (Jones 1940: 221). In Egypt, there is also evidence for gymnasia as venues for festivals and celebrations but no evidence (libraries, classrooms) for their use as educational institutions (Cribiore 2005: 36).

The columnar orders played important decorative roles in the porticos of gymnasia or *palaestrae*, and in the entrance to the *ephebeum* (schoolroom) (see the Lower Gymnasia at Priene, Winter 1984). In this section Hellenistic gymnasia will be examined for *prothyron*

style entrances that could be exemplars for an Athenian gymnasium. Figure 5.30 presents a summary of the plans of 4 *palaestrai/gymnasia*, giving the width of entrances. All of these buildings are roughly square and have a central court surrounded by a peristyle that was enclosed by stoas. Rooms of various sizes existed on four (Epidauros, Peloponnese), three (Olympia, Peloponnese), two (Priene, Asia Minor) or a single side (Miletos, Asia Minor). The terminology of these structures is confusing and has been discussed by Glass (1967: 69-81); the word *palaestra* is used to describe buildings with the structure shown in Figure 5.30 and these are in general interpreted as buildings where athletes trained and participated in competitions such as wrestling.

Training for races would take place in elongated structures called gymnasia, such as that adjacent to the *palaestra* in Olympia or to the Lower *Palaestra* in Priene. However in many Hellenistic cities only the *palaestra* has been identified and excavated and in these cases it is often referred to as a gymnasium (see Epidauros and Miletos in Figure 5.30). Many *palaestrai* are believed to have been the seat of *ephēbos* training and one or more of the rooms have often been identified with this function. Thus a room off the north stoa at Priene has been named an *ephebeum* (ἑφηβική ἐξδέρα); identified in this case because it contained marble blocks on which students carved their names as graffiti (Schede 1964: 85). The term *ephebeum* is sometimes conflated with the term *exedra* probably because neither is very distinctive architecturally (Glass 1967: 263).

There were two candidate Hellenistic *palaestrai/gymnasia* built in Athens that had a reference to the Macedonian calendar, in one case because it was associated with a kingdom that used the Macedonian calendar (Ptolemaic Egypt) (Chapter 4.4.4), and in the second case because it honoured a Macedonian military commander, Diogenes (Chapter 5.1 above). The question arises; would the dimensions of structures within these Athenian *palaestrai/gymnasia* indicate that the calendar-frieze-bearing structure (calculated in Chapter 5.5 above) could correspond to a component of such buildings? Since we have no archaeological record of these two Hellenistic Athenian *palaestrai/gymnasia*, comparisons have to be made with buildings elsewhere. One candidate for a possible structure would be the *palaestra* entrance. Delorme (1960) documents 20 *palaestrai*; of these 6 have an

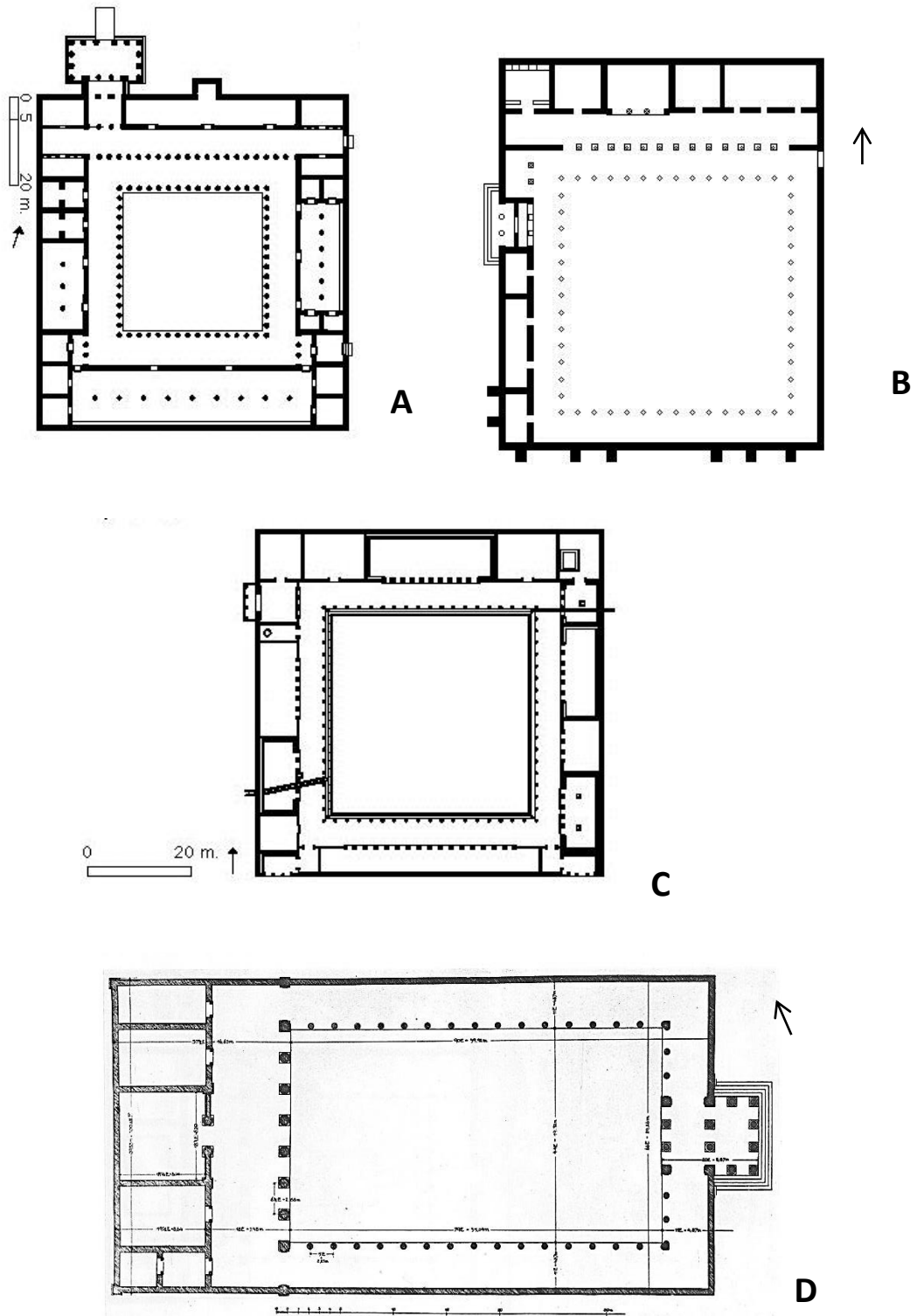


Figure 5.30. Plans of Four Hellenistic Gymnasia/*palaestrai* Showing the Position and Structure of the Entrances with Porticos.

Notes for Figure 5.30 on page 241

Notes for Figure 5.30.

A, Gymnasium at Epidauros c.280 BC (<http://www.perseus.tufts.edu>; Dinsmoor 1975: 320); entrance size, portico, 16 m, doorway, 7 m; **B**, Lower Gymnasium at Priene c.130-100 BC (<http://www.perseus.tufts.edu>; Delorme 1960: Plate XXX, Figure 49; Schede 1964: 81-89); entrance size, portico, 9 m, doorway, 5 m; **C**, *Palaestra* at Olympia 3rd century BC (<http://www.perseus.tufts.edu>; Delorme 1960: Plate XII, Figure 21; Dinsmoor 1975: 320; Vikatou 2006: 44); entrance size, portico, 7 m, doorway, 3 m; **D**, Hellenistic Gymnasium at Miletos (Delorme 1960: Plate XVIII, Figure 34); entrance size, portico, 7.3 m, doorway, 7.3 m.

entrance with a portico, 9 have no portico and 5 are uncertain. Four of the buildings with porticos at the entrance are shown in Figure 5.30 and 3 of these have a recessed entrance (external portico) with two pillars.

Other candidate structures within *palaestrai* are entrances to the rooms, particularly the *ephēbos* study rooms, and the identified *ephebeum* in the lower *palaestra* in Priene (Figure 5.31) provides an example. The 3rd century BC Olympian *palaestra* (Figures 5.32 and 5.33) provides some measurements for comparison because column heights have been recorded for entrances, namely one of the large rooms, the southern court hall and the western South Entrance (Adler et. al. 1896: Tafel XXIV, XXV). Room VI in the Olympian *palaestra* had 4 free-standing Ionic columns that were 3.8 m high, the Court Hall had 15 free-standing Doric columns that were 3.5 m high and the western South Entrance had two free-standing Corinthian columns that were 4.0 m high (Figure 5.32; 5.33) (Adler et. al. 1896: Tafel XXIV, XXV). These heights are between 1.0 m and 1.5 m less than the maximum calculated for the Little Metropolis frieze-bearing structure shown in the reconstruction (Figure 5.29). Despite Vitruvius' norms, designs are unlikely to be standard, thus for comparison, the columns of the *ephebeum* at Priene (Figure 5.31) were at least 7.5 m high (Schede 1964: 81-89). At both Olympia and Priene a mixture of capital styles was used; Priene used Doric columns for the portico colonnades but the *ephebeum* had Ionic columns at the entrance and engaged Corinthian half columns internally (Schede 1964: 81-89).

The width of the entrances to the *palaestrai* at Olympia and Priene varies. At Olympia (Figure 5.33) the western entrance has a portico 7.0 m wide with a 3.0 m inner doorway, the south-western entrance is 6.7 m wide and the entrance to Room VI is 9.4 m wide. At Priene the monumental western entrance has a 9.0 m portico with a 5.0 m inner doorway and the entrance to the *ephebeum* is 9.0 m wide (Figure 5.31). Although none of these

entrances conform to the *prothyron* suggested in Figure 5.29, these measurements (height and width) do not rule out a hypothetical structure based on an entrance, calculated for Model (b) of the Little Metropolis frieze at 7.89 m wide with 4.0-5.0 m Ionic columns (Figure 5.29).

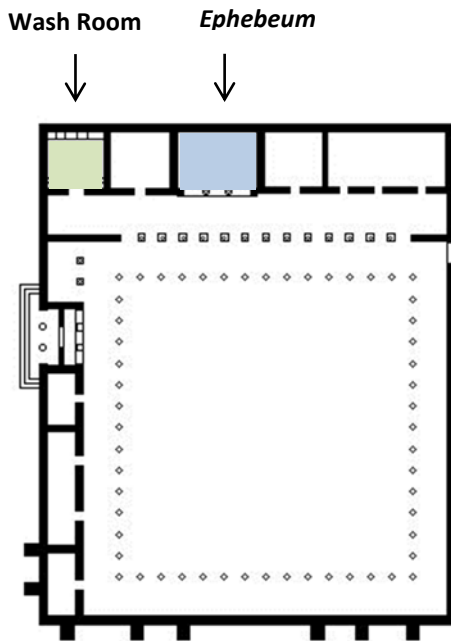


Figure 5.31. Plan of Lower *palaestra* at Priene Showing the Position of the *ephebeum* and a Wash Room (*loutron*).

(adapted from <http://www.perseus.tufts.edu>)



Figure 5.32. View of the *palaestra* at Olympia.
Looking north in the eastern stoa with Room VI on the right.

M.A. Haysom 2014

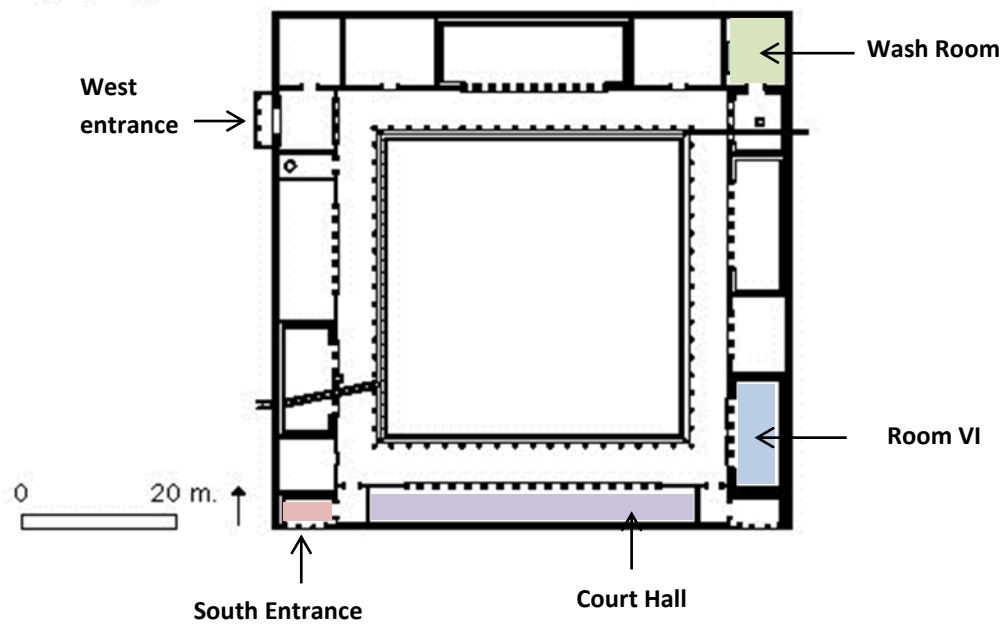


Figure 5.33. Plan of the *palaestra* at Olympia Showing the Positions of the Wash Room (*loutron*), Room VI, the Court Hall and the Western South Entrance. (adapted from <http://www.perseus.tufts.edu>; Adler et. al. 1896: Tafel XXIV, XXV; Delorme 1960: Plate XII, Figure 21).

5.7. Synchrony between Athenian Gymnasia/*palaestrai* or Stoa Construction and Historical Events.

In order to make even a speculative proposal for the possible building for which the Little Metropolis calendar frieze was intended, four components of the argument must apply. These are: (i) the date of the frieze (late 3rd century BC to early 1st century BC); (ii) the fact that it starts with the first month of a Macedonian calendar; (iii) a historical setting that could accord with a benefactor who used the Macedonian calendar and (iv) a reasoned suggestion for the type of building that held it.

The discussion in Chapter 5.4, which reviews the known Hellenistic buildings in Athens (Table 5.1), concludes that the most likely intended location of the frieze was a gymnasium/*palaestra* (either the gymnasium of a Ptolemy or the Diogeneion), but that one of the Attalid stoas is also possible. The study of the architecture of gymnasia from outside Athens, together with the dimensions and style of the frieze stones, led to the proposal that the frieze was intended for or erected in a *prothyron* (recessed porch) that may have

been part of an entrance either to the gymnasium itself or to an *ephebeum*. The reason why a benefactor would commission the relief, with its combination of religious images and depictions of both lunar and stellar time keeping, is part of the discussion in the final Chapter 6. Here it is useful to preview the argument that the frieze is a statement that displays the benefactor's religious and intellectual credentials (*paideia*). This feature fits the behaviour of the Ptolemaic kings, and accords well with the frieze's possible location in a late Hellenistic educational setting, namely a gymnasium with an attested function in physical and military training of young men (*ephēboi*), which had an increased component of religious and secular training in the Hellenistic period (Perrin-Saminadayar 2007: 259-266; Reinmuth 1971: 133).

There is good agreement between the broad date of the construction of the frieze and the construction of both gymnasia but the use of the Macedonian calendar needs further discussion. The use of the Macedonian calendar in Ptolemaic Egypt is well documented but Bennett (2011^a: Prolegomena) believes that the practice of starting the year in the autumn, in the Macedonian month Dios (equivalent to the Athenian month Pyanopsion) (Chapter 4, Table 4.7), only began in the reign of Ptolemy VIII (131/130 BC) and this date does not match either of the proposed dates for the construction of the Ptolemaic gymnasium (Chapter 5.4). Critically, Bennett (2011^a: 58-62) argues that during the reign of Ptolemy III Euergetes the New Year began in the Macedonian month Dystros. However Bennett's scheme needs some further examination. The literature shows considerable uncertainty as to the start of the Macedonian year in Ptolemy III's reign; Loios, Dystros and Dios have been proposed, the choice of month depending on the author's interpretation of the pattern of intercalation of months (Bennett 2011^a: 58-60). Bennett's premise is based primarily on data in two papyri (pPetrie III 21 (g) and pGurob2) that record a court judgement. Although the papyri are not perfectly clear, the argument is centred on the fact that an ordinance authorising the creation of the court is dated in Dystros, and the dating formula for the record of proceedings of the court does not give the names of the eponymous priests, implying that they were not yet known and thus that the court would sit at the beginning of an imminent new year (Bennett 2011^a: 60). The question that arises concerns the length of time that could be expected to elapse between the ordinance and the court hearing. If Dios is the start of the year this would be 8 months, whereas if it was Dystros,

and the year changed between Dystros 16 and Dystros 22 (as Bennett believes) the interval would have been a matter of days. This analysis of the date of the New Year is further complicated by an alternative belief that the Ptolemaic New Year marked a regnal anniversary and a Canopic Decree states that Ptolemy III came to the throne on Dios 25 (Bennett 2011^a: 58). Given these questions, the Dios/Pyanopsion start of the Little Metropolis calendar should not rule out Ptolemy III Euergetes as the benefactor.

Ptolemy VI Philomator (180-145 BC) has also been proposed as the benefactor for the Ptolemy gymnasium. Here the identification of the month in which New Year began is more tenuous (Bennett 2011^a: 63-64). Most of the data aligns Dystros with the Egyptian civil month Thoth, but the lunar Macedonian calendar continued to be used in Alexandria and Bennett considers it separately. However, the evidence for both Ptolemy V (AfP 48 (1) and SB XX 14659) and Ptolemy VI (UPZ 1_{III} and UPZ 1₁₁₃) is scant and only suggests a period in the year. Although Bennett (2011^a: 64) believes that this is consistent with a Dystros-based New Year the evidence is not compelling and other authors (e.g. Baplu 2008) have considered that Dios was the Alexandrian New Year at this time.

The date of construction of the Diogeneion can match the date of the construction of the frieze but we have no evidence regarding the funding/support for this project. If the building was funded by the Athenians, it seems unlikely that they would furnish it with a Macedonian calendar despite the fact that Diogenes is believed to have been a Macedonian. If Miller's (1995) location (Figure 5.21) is correct, the Diogeneion and the Ptolemaic gymnasium were situated very close to each other and the possibility must exist that both were funded by a Ptolemy (Miller 1995). In addition to the original construction, it is certain that both buildings were repaired and possibly 'refurbished' at some date when an unknown benefactor may have taken the opportunity to enhance his reputation by funding such repairs. There are therefore questions regarding both *gymnasia/palaestrai* but this exploration will help to inform the analysis of the frieze images in the next chapter.

Turning to the Attalid stoas, the dates of construction are compatible with the date of the frieze (Eumenes II Stoa c.160 BC and Attalos II Stoa 158-138 BC), and the cultural links and practice of benefaction also support either of the stoas as a potential home for the calendar frieze. However the scale of these buildings is wrong and it is not easy to identify a location within either massive structure that would be suitable to display the relatively

small frieze. The secular role of these buildings as shopping centres does not seem appropriate for the subject matter of the frieze and although doorways/entrances can be found, the particular entrance that housed the frieze should have had a rather specialist role, which is not apparent in the archaeological record. In the Stoa of Attalos for example, there were doorways at either end of the ground and the upper floor. The internal entrances at the top of steps on the upper floor were about 7 metres wide and the epistyles were supported by two free-standing pillars (Camp 1986: 172-175). Unlike the lower storey which had massive Ionic inner columns (Figure 5.11), the interior upper storey column capitals had a Pergamene adaptation of an Egyptian palm-leaf design.

This examination will help form an interpretive framework for interrogating the calendar images in the final chapter. It has indicated that the structure of the frieze and its subject matter are compatible with a late Hellenistic *gymnasium/palaestra* funded by either Ptolemy III or Ptolemy VI. This tentative conclusion is consistent with the astronomical interests of Alexandrian scholars, with the role of *gymnasia* as locations for religious, secular and athletic training of young men and with the practice of *euergetism*, involving the display of wealth, power and *paideia*.

5.8. Gymnasia and the *Ephebeia*.

The association of *gymnasia* and cultural education predated the Hellenistic period; from the early Classical period the *gymnasium* was the venue for the education of youths and this included physical training, sung poetry and choral dance (Troncoso 2009; Aristophanes *Clouds* 961). In Plato's *Laws* the concept of *paideia* as learning music and gymnastics, is centred in the institution of the *gymnasium*.

It will be proper next to appoint officials for music and gymnastics,—two grades for each department, the one for education, the other for managing competitions. By education-officers the law means supervisors of *gymnasia* and schools, both in respect of their discipline and teaching and of the control of the attendances and accommodation both for girls and boys.

Plato, *Laws* 6. 764 c-d. (translator Troncoso 2009).

Troncoso (2009) emphasises the attention given to describing the environment of gymnasia by Plato, who recommends that centres of education be constructed in a nearly idyllic landscape with spring water, streams, fountains and plantations. In the Hellenistic period, Polybius does not describe the role or function of gymnasia but later authors are a little more informative and both Diodorus and Strabo reveal the emblematic nature of the gymnasium in the Greek polis.

In short, the city is full of public and sacred structures; but the most beautiful is the gymnasium, which has porticoes more than a stadium in length.

Strabo, *Geography* 17.1.10, describing Alexandria (quoted in Troncoso 2009)

... very many traces of Greek culture are preserved there – gymnasia, *ephēbeia*, *phratryae*, and Greek names of things

Strabo, *Geography* 5.4.7, describing Neapolis in Roman Italy (quoted in Troncoso 2009)

5.8.1. Ephēbeia in 4th Century BC Athens.

The Athenian *ephēbeia* had a history of over 600 years and occasioned more inscribed words than any other Athenian institution (Dow 1960). A wealth of epigraphic evidence shows that by the middle of the 4th century BC, a formal system of training for young men, who were known as *ephēboi*, existed in Athens. However, the existence of a formal training institution known as the *ephēbeia* before that time and details of changes during the Hellenistic and Roman periods, are less clear. In addition, the term *ephēbos* is sometimes used by authors writing about earlier periods to simply describe a young man or youth rather than a participant in a formal training programme.

The best literary source is the brief description given in the (pseudo-Aristotelian) *Athēniōn Politeia*. At the time that this was written (c.325/4 BC), *ephēboi* joined a two-year continuous programme with tuition in paramilitary gymnastics, moral, civic and religious virtues as well as military training, which included garrison duties (Reinmuth 1971: 79). The ephēbic training was a necessary qualification for citizenship and for membership of a

deme, the father had to be registered in a deme and an Athenian citizen and the mother a daughter of an Athenian citizen (Reinmuth 1971: 123).

The exact date of the introduction of a formal *ephēbeia* has been controversial. Reinmuth (1971: 1-4) describes a stele that can be dated 361/0 BC by reference to the Archon Nikophemos. However, the date of this ephebic inscription is disputed, notably by Lewis (1973) who considers that the ephebic inscription was added later than the dated upper section. An important piece of evidence for an early 4th century BC date for the *ephēbeia* comes from Aeschines, who would have been in training in 372-371 BC (Ober 1985: 93).

As soon as I passed out of boyhood I became a *peripolos* of this *chora* for two years.
As witnesses to this statement I will call my fellow *ephēboi* and our officers.

Aeschines, *On the Embassy* 2.167. (quoted in Ober 1985)

The Athenian *ephēbeia* was apparently established to perpetuate traditional values as well as give military training to young men between the age of 18 and 20. It reached its peak during the Lycurgus period (c.390 – c.325/4 BC) when it had 500 - 600 recruits (Oliver 2007: 175). Pseudo-Aristotle (*Ath. Pol.* 42) states that the polis provided funds for the subsistence of the *ephēboi* and for their hoplite military equipment, and that they were exempt from taxes and legal duties. They wore distinctive black *chlamys* and the *petasos* hat and had a formal investiture. There were two types of instructor, the civilian head of the corps called a *kosmetes*, and a military *sophronistai* appointed for each tribe (Reinmuth 1971: 123, 126,132).

During their investiture the *ephēboi* swore an oath, a copy of which has been found on an inscription from a temple of Ares in the Attic deme, Acharnai (12 km from Athens) (Siewert 1977; Rhodes & Osborne: #88).

- I. I will not disgrace these sacred arms
- II. and I will not desert the comrade beside me wherever I shall be stationed in a battle line.
- III. I will defend our sacred and public institutions
- IV. and I will not hand over to the (descendents) smaller, but greater and better, so far as I am able, by myself or with the help of all.
- V. I will obey those who for the time being exercise sway reasonably and the established laws and those which they will establish reasonably in the future,
- VI. if anyone seek to destroy them I will not admit it, so far as I am able, by myself or with the help of all.
- VII. I will honour the traditional sacred institutions.

- VIII. Witnesses are the Gods, Aglauros, Hestia, Enyo, Enyalios, Ares and Athena Areia, Zeus, Thallo, Auxo, Hegemone, Heracles and the boundaries of the fatherland, wheat, barley, vines, olive trees, fig trees.

This oath is interesting for a number of reasons; it contains a qualification (“reasonably”) in their allegiance and shows the important Gods, as well as their commitment to the produce of the countryside. This oath differs slightly from literary versions, and the date of the oath, its site, and its relation to the ‘Oath of Plataia’ have been the subject of debate since it was first published over 70 years ago (Kellogg 2013). The inscription has been dated to the 4th century BC on the basis of letter-form but several of the references indicate that the oath itself is much older and much of the debate concerns its possible archaic origin (Kellogg 2013; Lambert 2012; Rhodes & Osborne 2003: #88). Lambert (2012) suggests that the inscription deliberately resurrects a ‘remembered’ Archaic oath. Despite this possible invention of the past, it does present a picture of those religious activities of the *ephēbeia* that were considered important in the 4th century.

5.8.2. Post 4th Century changes to the *Ephēbeia*.

The *ephēbeia* changed over time but there is no consensus of agreement on the precise nature of these changes. By the end of the 4th century BC several of the official posts had disappeared, the term had been shortened to one year and state support was dropped. *Ephēbos* training was no longer compulsory and resembled an educational institution and athletic club for the elite (Reinmuth 1971: 133). An inscription (*IG II² 478*) set up in Piraeus in 305/4 BC honouring the *ephēboi* of the previous year suggests that at this date only 300 youths served. Perrin-Saminadaya (2007: 31) has estimated that before the 4th century reforms, the *ephēbeia* cost the city more than 60 talents per year and surmises that economics played a part in the changes.

At the end of the 3rd century BC, this voluntary, and essentially elite school for potential leaders only recruited 50 per year (Waterfield 2004: 259), and although the institution was copied throughout the Hellenistic world, Athens had fewer *ephēboi* than Orchomenos, Boeotia (Perrin-Saminadaya 2007: 31). In 125 BC, after Athens acquired Delos, the *ephēbeia* was opened to foreigners (Romans) (Waterfield 2004: 275) and a steady increase in enrolment followed. Jones (1940: 224) relates the increased numbers to the increasing

wealth of Athens following the acquisition of the free port of Delos. The *ephēboi* of 128/7 BC numbered 107 (*Agora I* 286, no breakdown of origin), the class of 123/2 BC (*IG II²* 1006) numbered about 127, 113 citizens and 14 foreigners, that of 119/8 BC had 141 members (*IG II²* 1008), 124 citizens and 17 foreigners and the class of 102/1 BC also numbered 141 (*IG II²*, 1028), 101 citizens and 40 foreigners, from Rome, Alexandria and Antioch (Reinmuth 1971: 133; Tracy 1988).

Tracy (2007) believes that although the *ephēbeia* underwent changes, even during Antigonid domination military training was always of paramount importance. We have information about military and religious activities of the *ephēboi* from the 123 BC honorary inscription *IG II²* 1006 (Chaniotis 2005: 237). They were given instructions in fighting, sacrificed to Athena Nike, took part in the procession for Artemis Agrotera on Boedromion 6th (the anniversary of the battle of Marathon), on Epitaphia they held a race dressed in armour in honour of the war dead, and they toured the frontiers visiting extra-urban sanctuaries. They honoured Theseus at the festival of Theseia, visited the Marathon military grave (where they offered a wreath and a sacrifice to the fallen) and visited the sanctuary of Amphiaros in Oropos. They also sailed to the trophy erected after the battle of Salamis and sacrificed to Zeus, and at Aianteia (which honoured Ajax) they organised a regatta (Figure 5.34).



Figure 5.34. Base of a Stele from Athens Showing a Relief with Five *Ephēboi* in a Boat. AD 163/4

National Archaeological Museum, Athens (1466).

M. A. Haysom 2009

Evidence for the intellectual education of the *ephēboi* comes from a variety of sources. An inscription (*IG II²* 1029) indicates that in 117/8 BC, on graduation, the *ephēboi* donated

books to the Ptolemy Gymnasium library, which may have acquired the character of an official library (Wycherley 1962; *IG II²* 1029; *Agora III* 144), and the important 123 BC inscription *IG II²* 1006 mentions their attendance at lectures in the Lyceum, Academy and Ptolemy's Gymnasium (Wycherley 1962; 1978: 234). These inscriptions provide evidence for the non-athletic/military education of 2nd century BC *ephēboi*. Diogenes Laertios (*Lives and Opinions of Eminent Philosophers* iv. 6. 42) provides a literary reference to the cultural education of *ephēboi*, where Arkesilaos recommends his pupils to go and hear philosophers.

The international nature of the *ephēbeia* and evidenced attention to *paideia* matches the social structure of Athens at this time. In his survey of the evidence for cultural 'operators' in Hellenistic Athens between 229 and 88 BC, Perrin-Saminadaya (2007: 633) proposes that Athenian leaders adopted an open-door policy to cultural and artistic professionals that resulted in more foreign intellectuals and artists residing in the city compared with the Classical period. Unlike the Classical period cultural activity and innovation was not directly linked to Athenian military supremacy or economic strength. Of course the ancient glory, artistic reputation and established philosophical institutions of Athens acted as a lure, drawing foreign visitors. As a consequence Athens acted as a 'shop window' for the Hellenistic kings and it would not be surprising that benefactions to support the *ephēbeia* were bestowed by a Ptolemy, since this organisation recruited youths from Alexandria and had a role in inculcating both Hellenic cultural values and intellectual knowledge (*paideia*).

5.9. Athenian Religion in the Late Hellenistic Period: Participation of the *Ephebeia*.

Given the possible gymnasium location of the frieze and the large number (13) of probable festivals depicted on the frieze (Deubner 1932: 249-254), it is reasonable initially to explore a possible connection with the religious practices of the *ephēbeia*. In other words, did the religious activities of the *ephēbeia* provide a theme for the festivals depicted on the frieze? Parker (1996: 270) gives a provisional list of festivals that disappeared after 300 BC: Kronia, Synoikia, Herakleia, Genesis, Apatouria, Oschophoria, Hieros Gamos, Diasia, Dipolieria and Brauronia. He does however acknowledge that the absence of records is a dubious argument and he has an explanation for the apparent presence of some of these festivals on the Little Metropolis calendar based on the idea that it did not reflect contemporary

practice. These considerations lead to a weakness in any contextual analysis of the frieze; absences cannot be clearly identified as reflecting reality and presence may be due to a desire to link with the past rather than present a picture of current practice. Despite these pitfalls some reassessment of individual images presented earlier in Chapter 1 will be undertaken here to determine if those religious activities with attested *ephēbos* participation form a pattern that would provide an explanation for the images on the frieze.

Parker (Parker 1996: 254) considers that by the late 2nd century BC “no festival was complete without *ephēbos* participation” and Chaniotis (2005: 53) believes that sacrifices structured the year of the *ephēboi*, familiarising them with killing and blood through the violence of sacrifice. It is clear that piety to the Athenian gods was an important component of the *ephēbeia*. Witnesses to the Gods; Aglauros, Hestia, Enyo, Enyalios, Ares, Athena Areia, Zeus, Thallo, Auxo, Hegemone and Heracles, are listed in the 4th century Acharnian inscribed oath taken by newly recruited *ephēboi* (Rhodes & Osborne 2007: 440-448, #88), and Pseudo-Aristotle (*Ath.Pol.* 42) says that the new recruits were taken on a tour of the shrines of the city. Lambert’s (2012) suggestion, that the inscription deliberately resurrects a ‘remembered’ Archaic oath, is supported by a number of such elaborations of the past to support the present that have been identified from 4th century BC Greece (Davies 1996). The inscribed oath differs from literary descriptions, and Rhodes and Osborne (2007: 440-448) have compared the oath with reports of later authors (Stobaeus, 5th century AD and Julius Pollux, 2nd century AD), where either no deities were described (Stobaeus) or the list excludes Athena Areia, Enyo, Heracles and Hestia (Pollux). In addition, Rhodes and Osborne (2007: 440-448) question the veracity of the inclusion of Auxo and Thallo.

Table 5.3. ATHENIAN FESTIVALS AND DEDICATIONS IN WHICH *EPHEBOI* PARTICIPATION HAS BEEN RECORDED.

D: Festivals identified by Deubner (1932); **P:** Festivals identified by Palagia (2008). Those festivals or dedications whose practice in late Hellenistic Athens has an element of doubt are presented in red type.

FESTIVALS AND DEDICATIONS WITH A KNOWN MONTH					
	Festival or Dedication	Year	Month/day	Comment	Reference for <i>ephēbos</i> Participation
1	Nemesia	333/2 BC	Hekatombaion 19	Torch race.	Mikalson (1998: 156); <i>SEG XXIX</i> #162
2	Panathenaia D, P	117/6 BC	Hekatombion 28	Torch race..	Pélékidis (1962: 254-255)
3	Eleusinia P x 2	117/6 BC, 101/0 BC	Metageitnion		Pélékidis (1962: 224); <i>IG II²</i> 1009; <i>IG II²</i> 1028.
4	Ares, (Charisteria)	4 th century	Boedromion 6	Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
4	Artemis Agrotera, (Charisteria)	123 BC	Boedromion 6	Constructed anniversary of the battle at Marathon.	Pélékidis (1962: 219-220); Parke (1977: 55); <i>IG II²</i> , 1058; <i>IG II²</i> 1006; Chaniotis (2005: 237)
4	Enyalios, (Charisteria)	4 th century	Beodromion 6	Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
5	Great Mysteries D, P		Boedromion 15-22	Escort, sacrifice, consecration of <i>phiale</i> .	Pélékidis (1962: 220-223)
6	Proerosia D, P	363/2 BC	Pyanopsion 5	Bull lifting.	Pélékidis (1962: 224); Parke (1977: 74)
7	Oschophoria D, P		Pyanopsion 7	Race.	Pélékidis (1962: 226-228); <i>SEG XI</i> #527
8	Theseia	123 BC	Pyanopsion 8	Torch race.	Pélékidis (1962: 229-235); <i>IG III</i> 2038; <i>IG II²</i> 1006; Chaniotis (2005: 237)
9	Epitaphia		Pyanopsion 8 (?)	Race in armour.	Pelekidis (1962: 235); <i>IG II²</i> 1006; Chaniotis (2005: 238)
10	Hephaisteia	421/0 BC; 1 st century AD	Pyanopsion 28 (?)	Bull lifting; torch race.	Parke (1977: 172); <i>IG I²</i> 84; Pélékidis (1962: 252)
11	Chalkeia (?)		Pyanopsion 30		Pélékidis (1962: 255)
12	Rural Dionysia (Peiraia) D		Posideon		Deubner (1932: 251); Pélékidis (1962: 239-247)
13	Lenaia D, P		Gamelion 12	May be later.	Pélékidis (1962: 239-347)
14	Asklepieia	141/0 BC	Elaphebolion 8		Pélékidis (1962: 249-250)
15	City Dionysia D, P		Elaphebolion 9-13		Pélékidis (1962: 239-247)
16	Galaxia		Elaphebolion		Pélékidis (1962: 224)
17	Pythiade	128/7 BC	Elaphebolion-Mounichion		Sokolowski (1936)
18	Mounichia D, P	122/1 BC; 123 BC	Mounichion 16	Regatta.	Parker (2005: 475-476); <i>IG II²</i> , 1006; Chaniotis (2005: 237); <i>IG II²</i> , 1029
19	Aianteia (Ajax)	123 BC	Mounicion (?)	Regatta.	<i>IG II²</i> 1006; Chaniotis (2005: 239); Sokolowski (1936).

20	Salamis Battle Trophy	123 BC	Mounichion (?)		<i>IG II² 1006</i> ; Chaniotis (2005: 239); Sokolowski (1936).
20	Zeus Tropaïos	4 th century	Mounichion ?	Oath.	Siewert (1977); Rhodes & Osborne (2007: #88); <i>IG II² 1006</i> ; Chaniotis (2005: 239)
21	Plynteria (Athena Polias) and Aglauros	4 th century	Thargelion 25	Oath, 'Festival of Washing'.	Parke (1977: 153); <i>IG II² 1011.11</i> ; Siewert 1977; Rhodes & Osborne (2007: #88)
22	Diisoteria (Zeus Soter)	139 BC	Skiraphorion 11, (20)	Regatta.	Parke (1977: 168); Parker (2005: 467); <i>IG II² 941</i> ; Pélékidis (1962: 249)
FESTIVALS AND DEDICATIONS WITH NO KNOWN MONTH					
23	Amphiaraios in Oropos	123 BC			<i>IG II² 1006</i> ; Chaniotis (2005: 237)
24	Athena Areia	4 th century		Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
25	Athena Nike	123 BC		Patron of military victory.	<i>IG II² 1006</i> ; Chaniotis (2005: 237)
26	Auxo	4 th century		Oath.	Siewert 1977; Rhodes & Osborne 2007: #88
26	Thallo	4 th century		Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
26	Hegemone	4 th century		Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
27	Diogeneia	After 229 BC		Sacrifice a bull.	Pelekidis (1962: 252); <i>IG II² 1011</i> ; Siewert (1977); Rhodes & Osborne (2007: #88)
28	Enyo	4 th century		Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
29	Heracles (D, P Heracleia)	4 th century		Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
30	Hestia	4 th century		Oath.	Siewert (1977); Rhodes & Osborne (2007: #88)
31	Semnia Theia			Made cakes.	Pélékidis (1962: 251); Parker (1996: 298); <i>SEG XXVI, 98.9</i> ; <i>SEG XXIX, 116</i>

Commentary on Table 5.3.

1. Nemesis: Palagia and Lewis (1998) analyse a dedication (*IG II² 3105*) inscribed on a rounded base, which originally stood on the terrace of the sanctuary of Nemesis at Rhamnous. This base is believed to have supported a herm in the form of an *ephēbos* and recorded victory in a torch race at the Nemesisia of 333/2 BC. The only additional information for a sacrifice at the Nemesisia dates 236/5 BC, which has been associated with the king of Macedonia.

2. Panathenaia: This is discussed in Chapter 1.5 (Image 32).

3. Eleusinia: Palagia (2008) interprets Image 4 and 38 on the Little Metropolis frieze as representations of the Eleusinia and the problems associated with this interpretation have been discussed in Chapter 1.5. Parker (2005: 468; *IG II² 1496*) timetables it either in Metageitnion or early Boedromion.

4. Ares/Enyalios/Artemis Agrotera/Charisteria: Ares was the son of Zeus and Hera and the god of war and although he is attested very early he was not a major Greek cult figure (the Areopagos in Athens was not related to his cult). In the *Iliad* (17.211) Ares is also called Enyalios (Konaris 2012) but in the ephebic oath (Rhodes & Osborne 2007: #88) both Ares and Enyalios are named and Gonzales (2008) shows that although Ares and Enyalios may have been originally two separate martial deities, the pattern of their worship varied geographically. At the festival (Charisteria) celebrating the victory at Marathon, offerings were made to Artemis Agrotera and Enyalios; 500 goats were slaughtered and these were escorted to the sanctuary of Artemis Agrotera on the Ilissos by *ephēboi* wearing armour (Simon 1983: 82). This festival was held on Boedromion 6 and Simon (1983: 82) suggests that figure (d) in Figure 6.5 represents this festival.

5. Great Mysteries: This is discussed in Chapter 1.5 (Image 32).

6. Proerosia: This is discussed in Chapter 1.5 (Images 8 & 9). The fragment of a sacrificial calendar found at Eleusis (*IG II² 1363*) records the expenditure of the Hierophant and Sacred Herald, who travelled to the City Eleusinion at Athens to invite the Athenians to the sacrifices that occurred the day before the Proerosia (Pyanopsion 6). The name of the festival means 'pre-ploughing', it was celebrated in individual demes and the time of the festival varied depending probably on factors affecting the cycle of agricultural tasks (Hitch 2012). The Eleusinian Proerosia (supplication to Demeter) fell on Pyanopsion 7 and included a supplication to Apollo (Robertson 1984). Deubner (1932: 68) gives Pyanopsion 5 as the date of the Athenian Proerosia.

7. Oschophoria: This is discussed in Chapter 1.5 (Image 3). Parker (2005: 216) describes the Oschophoria as an ephebic rite. Rutherford (1988) reports that the Oschophoria was a vintage festival to Dionysos, Athena and probably Theseus. It had two main elements, first a procession to the sanctuary of Athena Skiras at Phaleron from a temple of Dionysos in Athens that was led by two aristocratic youths dressed as women (Pilz 2011). The second element, a foot race between *ephēboi* has been disputed but Kadletz (1980) and Rutherford (1988) provide an analysis that supports the existence of a foot race for *ephēboi*, which was followed by a naked dance.

8. Theseia Plutarch (*Theseus* 36.1-4) records how, after the Persian wars, the Delphic oracle instructed Kimon of Athens to go to Skyros and retrieve the bones of Theseus. The bones were taken to Athens and interred in a sacred enclosure called the Theseion, which Pausanias (1.17.2) describes as being near the Gymnasium of Ptolemy. In 1861, excavations of the Post-Herulian wall, near the Church of Aghios Demetrios Katephores, uncovered inscriptions of the second century BC (*IG II² 956-965*) that relate to the Theseia, and it has been suggested that the site of the Theseion was nearby (Bugh 1990). This location is also thought to be close to the Diogeneion and the Gymnasium of Ptolemy (Chapter 5.3,7). The inscriptions provide details of a torch race and up to 23 athletic and equestrian competitions for boys, *ephēboi* and men from both Athens and elsewhere (Kennell 1999; Tracy 1990: 184-185). This festival was held on Pyanopsion 6 every second year (*trieteric*), however the early Pyanopsion festival depicted on the frieze is clearly identified as a festival for Apollo, the Pyanopsia held on the 7th day of the month.

9. Epitaphia: Similarly, *ephēbos* participation in the Epitaphia is recorded in the 2nd century BC. Thucydides describes how every winter Athenians gathered to mourn the men who had died in war that year (Thuc. 2.34.1-8; Shear 2013). The honorary inscription (*IG II² 1006*) dated 123 BC (Chaniotis 2005: 237) shows that in the Epitaphia, the *ephēboi* held a race dressed in armour that started at the *polyandreion*, the common burial place of the Athenians who died at the sea battle of Salamis.

10. Hephaisteia: This is discussed in Chapter 1.5 (Image 24). After the 5th century the Hephaistia honoured both Athena and Hephaistos, not as patrons of craft and metalworking but as mythical parent gods of the autochthonous Athenians (Saito 1999: 32-40). Torch-races are mentioned in inscriptions (mostly ephebic from the Hellenistic and Roman periods) at the Panathenaia, the festivals of Prometheus, Hephaistos, Pan, Bendis, Hermes, and Theseus, and the festival in honour of the dead (Sekunda 1990). The literary evidence is confusing but Herodotus (8.98.2) has been interpreted as describing an *ephēbos* relay race at the Hephaisteia (Sekunda 1990).

11. Chalkeia: The Chalkeia was an important festival in the Hellenistic period, it was a festival of Hephaistos with Athena Hephaistia as the major deity (Humphreys 2004: 102 n.62) and held on the last day of Pyanopsion (*IG II² 353*; *IG II² 2838*; Lambert 2005). This festival also marked the time that young girls began to weave the new *peplos* for the wooden statue of Athena in the Erechtheion, which was presented to Athena Polias during the Great Panathenaia in the following summer (Sparkes 2010).

12. Rural Dionysia: This was discussed in Chapter 1.5 (Image 13). Belknap (1934) reports that an inscription from the deme Myrrhinous shows that the Rural Dionysia was celebrated in Posideon but deduces that there were also Rural Dionysia festivals held in the spring. This is questioned by Hanfmann (1937) but he cites Deubner's identification of Image 13 (Chapter 1.5) as evidence that the festival was held in the winter. The sacrificial calendar from the deme Thorikos provides additional evidence for a rural Dionysia occurring in Posideon (see Chapter 4.3) (Whitehead 1986).

13. Lenaia: This was discussed in Chapter 1.5 (Image 16). Image 16 has been interpreted as the Lenaia. Peirce (1998) identifies the "Lenaia" scenes on a group of 28 Lenaia vases as representations of *thysia* and a cult banquet of meat and wine celebrated by *bacchic* nymphs who are *astai* arguing that do not represent a real cultic activity, rather they are an intellectual message about female *bacchism* where these women are temporarily endowed with the status of men, a status that allows them to constitute an all-female sacrificing and commensal group. This interpretation does not accord with Image 16, which portrays a youth riding a horse.

14. Asklepeia: Asklepios was the dominant Greek healing god. He is considered to have a Thessalian origin and his major sanctuary was at Epidauros. According to the monument of Telemachos (*IG II² 4960a- c*; 4961), the god travelled by sea from Epidauros to Piraeus and a sanctuary for Asklepios, the Asklepieion, was built on the south slopes of the Acropolis (Mylonopoulos 2012).

15. City Dionysia: The City Dionysia was attended by very large numbers of Athenians and is one of the best known of all Attic festivals through the tradition that it was the origin of Western theatre. *Ephēboi* conducted a bull to be sacrificed at the festival but Lambert (1998: *IG II² 2949*) suggests that in 123/4 BC they did not form a major component of the procession.

16. Galaxia: Deubner (1932: 216) reports that there was a festival of the Mother of the Gods at Athens. This was called the Galaxia and Deubner infers that it was held in Elaphebolion. An ephebic decree (*IG II² 101*) shows that they made a sacrifice and a dedication at this festival (Parker 2005: 470).

17. Pythiade: Sokolowski (1936) reports a new analysis of a fragmented stele that documents an honorific decree for the *ephēboi* and their leaders (the *kosmetes*) who took part in the pilgrimage (Pythiade) from Athens to Delphi in 128/9 BC. By comparing the order of festivals documented on other stele Sokolowski deduces that in 128/7 the Pythiade occurred in either Elaphebolion or Mounichion.

18. Mounichia: This festival held on Mounichion 16, honoured Artemis Mounichia at her shrine in Phaleron and in the procession distinctive cakes decorated with torches (candles?) were carried. The festival, which came to commemorate the aid given to the Greeks at the Battle of Salamis by Artemis Mounichia, involved *ephēboi* (Parker 2005: 231 n.59; 475-476).

19. Aiantia: This festival to honour Ajax, is only known from inscriptions that evidence the involvement of *ephēboi*. Activities included ‘a long race’, a sacrifice to Ajax, a torch race, a procession and a ship race (Parker 2005:456) and the relief shown in Figure 5.34 may refer to this race. Sokolowski (1936) suggests that this event occurred in Mounichion.

20. Salamis Battle Trophy/Zeus Tropaia: The *ephēboi* (*IG II¹* 476) rowed to Salamis and sacrificed to Aias. They were honoured by the Salaminians, and, having set sail for the trophy, they sacrificed to Zeus Tropaios. Since it was necessary for the *ephēboi* first to set sail the trophy was not in Salamis town, and Wallace (1969), who surveyed the area, concludes that the promontory referred to as Cape Tropaia, due to the erection of a conspicuous trophy monument, is the Cynosoura peninsula of Salamis. Sokolowski (1936) suggests that this event occurred in Mounichion.

21. Aglauros and the Plynteria: Aglauros was the primary divine patron of the *ephēboi* (Rhodes & Osborne 2007: 440-448; Sourvinou-Inwood 2011: 28-29) and some aspect of the washing of Athena’s vestments and redressing her statue that occurred on the 19, 25 and 29 Thargelion involved Aglauros and her sanctuary the Aglaurion. There is also an inscription that states that the *ephēboi* escorted ‘Pallas to the sea and back’ (*IG II²*1011.11) (Lambert 2008), which connects them to the Plynteria (25 Thargelion) when, on horseback, they escorted the washed and wrapped statue of Athena Polias in procession from the sea (Phaleron) back to Athens (Robertson 2004; Simon 1983: 48).

22. Diisoteria/Zeus Soter: At the Diisoteria *ephēboi* participated in boat races in the harbour at Piraeus and these were followed by a procession to the shrine of Zeus Soter also at Piraeus (139 BC) (Kellogg, 1929; Parker 2005: 466-467; *IG II²* 941). Parker argues that the festival was moved to Skirophorion 11 sometime between 383/2 and c. 350 BC (Parker 2005: 466-467).

23. Amphiarios: Amphiarios was a warrior-prophet hero from Argos, one of the Seven against Thebes, and during a flight at the end of this war he was engulfed by a chasm in the earth that Zeus had opened with a thunderbolt. He is said to have reappeared at a spring, not in Argos or Thebes but in the ravine near the ancient town of Oropos. This led to the establishment of the oracle and healing shrine, the Amphiareion. The height of activity at the sanctuary lay in the late Classical and Hellenistic periods (4th-1st century BC) and we have some information from the honorary inscription (*IG II²* 1006) dated 123 BC, which shows that the *ephēboi* visited the sanctuary “where they demonstrated possession of the sanctuary that was situated in another City State”.

25. Athena Nike: The Temple of Athena Nike on the Acropolis was completed in the late 420s BC and the cult was active by 424/3 BC (*IG I³* 36) (Schultz 2001). The south frieze of this temple depicts the Battle of Marathon (Harrison 1972) and the inclusion of Athena Nike accords with the *ephēbos* participation in the Charisteria when they escorted the victims to the sanctuary of Artemis Agrotera to celebrate victory at the Battle of Marathon (Simon 1983: 82).

26. Hegemone/ Auxo/ Thallo: Auxo and Hegemone were graces and Thallo and Karpo were seasons (Parker 2005:435). Pausanias (9.35.2) reports that the Athenians installed a group of three statues in front of the entrance to the Acropolis but does not tell us which three they were. The triad on the ephebic oath stele are Auxo, Hegemone (Ἥγεμόνη) and Thallo, who are linked verbally to spring, autumn (or mastery) and flourishing respectively. An inscribed Hellenistic altar to Aphrodite Hegemone was found in the north-west corner of the Agora (Stewart 2012) in the

sanctuary of Demos and the Graces. Stewart (2012) thinks that the altar establishes Aphrodite as the demos's *hegemon*, or leader. The goddess's cult was established in 3rd century Rhamnous, a garrison town where the cult's military character is confirmed by inscriptions. The proposed year of the addition of Aphrodite to the cult of Demos and the Graces in Athens (180/79 BC) coincided with a decade of Athenian friendly terms with external powers and its receipt of benefactions from the Seleukids, Attalids and Ptolemies, and Stewart (2012) suggests that 'to align the cult of Demos and the Graces with Aphrodite Hegemone at this time would have been a shrewd, even brilliant (political) move'.

27. Diogeneia: The Diogeneion is widely accepted as the headquarters of the *ephēbeia* and *ephēboi* would therefore have participated in this festival that honours the titular general of the Diogeneion (see Chapter 5.3.7).

29. Herakles: This is discussed in Chapter 1.5. Image 37 on the frieze has been interpreted as Herakles and this hero would have been a suitable subject for an epebic monument. Deme based festivals for Herakles are known but it is difficult to associate any of these with the date of the frieze image.

The extensive list of festivals and dedications in Table 5.3 supports Parker's assertion that by the late 2nd century BC "no festival was complete without *ephēbos* participation" (1996: 254). If frieze Images 8 and 9 are designated as the Proerosia, the extensive list in Table 5.3 shows that that of the 13 festivals identified by Deubner only 9 are present in Table 5.3 (see Table 1.3). The four missing festivals are: the Pyanopsia, the Thesmophoria, the Theogamia and the Dipolieia. Palagia's list of festivals is slightly different. She identifies 16 festivals but 6 are missing from Table 5.3: the Pyanopsia, the war festival introduced by Themistocles, the Theogamia, the Bendideia, the Skira foot race and the Dipolieia. By itself this data shown in Table 5.3 demonstrates that there is no obvious pattern to the religious activities of the *ephēboi* and those images on the Little Metropolis frieze that probably represent festivals. In the first place there too many festivals documented in Table 5.3 and secondly some of the festivals on the frieze have no record of *ephēboi* participation. It is perhaps easy to argue for the lack of *ephēboi* participation in the Thesmophoria and the Theogamia, with their female involvement but this cannot explain the absence of *ephēboi* at the Pyanopsia and the Dipolieia. In conclusion, the data above does not support the idea that the *ephēbeia* provides a theme for the visual syntax of the frieze.

5.10. Summary.

This chapter has addressed two aspects of the Little Metropolis calendar frieze; firstly the possible location and benefactor and secondly a possible link with the festival and cult 'curriculum' of the *ephēboi*.

The first part of this Chapter (Chapter 5.1- 5.7) explored the possible intended location for the frieze. Although the structure of the ends of the frieze suggests that it may have never been erected, this analysis led to the proposal that the relief was designed to be incorporated into an entrance of a gymnasium, either the so-called Gymnasium of Ptolemy or the Diogeneion. If this tentative conclusion is correct the benefactor of the frieze was a Ptolemy, either Ptolemy III or Ptolemy VI, one of whom is considered the likely benefactor of the Hellenistic Gymnasium in Athens. The earliest possible date for the frieze would therefore be after the start of Ptolemy III's reign (246 BC) and the latest date must precede Sulla's sack of Athens in 87 BC. Significant dates within this period are c.150 BC, suggested by Mattingly (1997) based on the date of the Ptolemaia in 149/8 BC, and 229 BC, the date of the liberation of Athens by the Macedonian commander, Diogenes. This interval is consistent with the late Hellenistic date of the frieze suggested in Chapter 3.

If the frieze was intended to decorate an entrance into or within a gymnasium, the intended audience would have been the *ephēboi*. The religious and cult activities of the *ephēbeia* have been investigated (Chapter 5.8 - 5.9) in order to determine if they provide an explanation for the choice and form of the images. However Table 5.3 shows that the extensive recorded religious duties of the *ephēboi* do not provide an explanatory theme. Simply, although about 30 religious activities of the *ephēboi* are shown in Table 5.3, the list does not include four of the festivals identified by Deubner on the frieze. The visual syntax of the frieze cannot therefore be derived from the religious duties of the *ephēboi*. Chapters 3, 4 and 5 complete an analytical investigation of the frieze and the next chapter will propose a new interpretation that is based upon the deductions in these chapters.

Chapter 6. Interpretation of the Little Metropolis Frieze.

An interpretation of the imagery of the Little Metropolis frieze has to be set against the context proposed in previous chapters; namely a late Hellenistic relief carving with a Macedonian connection that was probably decorating an entrance into or within a building such as a gymnasium or *palaestra*, and sponsored by a powerful benefactor who wished to demonstrate his intellectual credentials. Interpretation of the way the imagery of the frieze would have been understood at this time has to include the contemporary cultural attitudes to art, philosophical ideas of the cosmos, and religious practices in the late Hellenistic city. These topics form the background discussion to an interpretation of the frieze presented in this chapter.

6.1. Hellenistic Art.

6.1.1. Perception.

Analysis of the frieze imagery will focus on an exploration of the way that an educated elite audience may have interpreted visual information in this period. In the context of the Little Metropolis frieze, it is Hellenistic sculpture that is most relevant. As opposed to Classical art, style in Hellenistic graphic art has been characterised as 'baroque', exemplified by over-muscular heroes and plump putti, but it also portrayed realism in individual portraiture. It had more variety, subtlety and complexity than Classical art, being capable, for example, of depicting states of mind such as ecstasy and misery or sensuous and decrepit conditions (Smith 1991: 7). However in attempting to interpret Hellenistic art it has to be recognised



Figure 6.1. Third Century BC Frieze: Dionysos and the Four Seasons.

Louvre, Paris. Alinari 22565

from Havelock 1964: Figure 18.

that earlier styles were also occasionally used. The 'Archaistic' style was employed at this

time, particularly in carved reliefs (Havelock 1964; Pollitt 1986: 177-184) as illustrated by the folds of the garments in Figure 6.1. The Classical genre was also used (Pollitt 1986: 164-175) and Ridgway (2002: 124-125, Plates 45a-f) believes that the undersize bronze statue of a youth shown in Figure 6.2 is an example of this continuity. The statue was found in the beach area of Ierapetra on Crete and was probably a sanctuary votive. Although it clearly has a Classical appearance, the figure shows a number of Hellenistic features such as the elaborate sandals, the almost flamboyant folds of the *himation* and most notably, the distinctive rather surly personalised expression.

Figure 6.2a. First Century BC Bronze Statue of a Youth.

Height 1.4 m Herakleion Museum.

from Vasilakis A. Herakleion Archaeological Museum Guide. p. 221



Figure 6.2b. First Century BC Bronze Statue of a Youth: detail of head.



In trying to interpret images from the perspective of an ancient Greek population, at least two scholars have approached the problem by asking not what the image means but what it does (Gombrich 1977; Tanner 2001). In a society where religion so thoroughly permeated everyday life, images must be assessed using approaches anachronistic in our world. Gombrich gives an account of Plato's objection to art's attempt to create a naturalistic picture of the world (Gombrich 1977: 107). He cites Plato's condemnation of such art as having an intention to deceive.

- a. What does painting do in each case? Does it imitate that which is as it is, or does it imitate that which appears as it appears? Is it an imitation of appearances or of truth?
- b. Of appearances.
- a. Then imitation is far removed from the truth, for it touches only a small part of each thing and a part that is itself only an image.

Plato, *Republic 598b*. (translator Grube, revised Reeve, 1992)

In some ancient art the image was seen as a pictogram, much like a chess piece, where the artist produces an image based not on realism and visual impact but on knowledge of the object (conceptual art) (Gombrich 1977: 76, 114). Tanner argues that, for example, *kouroi* were seen as god-like and were used as dedications (votives) and funerary monuments because they exemplified the attributes of divine human beauty that the aristocracy wanted to emulate. The archaic smile was a sign that they were *agalмата* - objects in which the gods take delight, and using this image on a grave or as a dedication indicated aristocratic epigone. The fact that the *kouroi* were not personalized was not important; they served as an indicator for *agalмата* and privilege. This interpretation of art is relevant to interpreting the late Hellenistic calendar frieze, which clearly contains images that are not realistic, such as personifications of lunar months, signs of the Zodiac and images that may portray the iconic elements of festivals.

In order to recognize the way the frieze images were understood in the late Hellenistic period, it is important to be aware of both continuity and change not only in style but also in the way sculptures were perceived during the this period. Euripides in his play *Ion* (414-412 BC) shows that the Chorus recognised the subject matter of a frieze on the Temple of Apollo at Delphi. The Chorus were women and therefore, when the play was written, not likely educated intellectuals, yet they recognised the topics and characters on the frieze (Tanner 2006: 51).

Chorus A Look! Come see, the son of Zeus is killing the Lernean Hydra with a golden sickle; my dear, look at it!

Chorus B I see it. And another near him, who is raising a fiery torch— is he the one whose story is told when I am at my loom, the warrior Iolaus, who joins

with the son of Zeus in bearing his labours? And look at this one sitting on a winged horse; he is killing the mighty fire-breathing creature that has three bodies.

Chorus A I am glancing around everywhere. See the battle of the giants, on the stone walls.

Chorus B I am looking at it, my friends.

Chorus A Do you see the one brandishing her gorgon shield against Enceladus?

Chorus B I see Pallas, my own goddess.

Chorus A Now what? The mighty thunderbolt, blazing at both ends, in the far-shooting hands of Zeus?

Chorus B I see it; he is burning the furious Mimas to ashes in the fire. And Bacchus, the roarer, is killing another of the sons of Earth with his ivy staff, unfit for war.

Euripides, *Ion* 190-215. (translator Potter 1938)

Tanner (2006: 41-49; 85) explores the nature of the changes in perception and in the cultural significance of art (sculpture) that occurred between the Classical and the Hellenistic period. In the Classical period interaction with statues of gods was tied to the sacred site that they occupied, they marked the presence of sacred power. Removing the statue from its surroundings broke this link where visual impact is based on an idea of pre-existent form (*eidea*) understood by the artist and recognized by symbolism in the image. Statues of gods were not the only type of 5th century sculptures. Honorific athletic victor statues were set up as private dedications to the gods in sanctuaries such as Olympia, but with the exception of Athens, they could be also be placed in the agora of the athlete's home city (Smith 2007).

The relationship between viewer and the statue of a deity can be seen in votive reliefs and Figure 6.3 for example shows a family group visiting the sanctuary of Artemis at Brauron. They seem to be visiting an overlarge relative, with the members at the back chatting and others looking curiously at onlookers, whilst the animated goddess Artemis appears to either be making a libation herself or handing a libation *phiale* to the worshipers. The



Figure 6.3. Fourth century Votive Relief Inscribed 'Aristonike, the Wife of Antiphates from the Deme of Thorai Prayed and Dedicated to Artemis'. Brauron Museum, Greece. M. A. Haysom 2009

iconic form of the deity in such votive reliefs often resembled that of the cult statue, and the gestures shown in Figure 6.3 give a clear impression that the god is interacting with mortal groups (Tanner 2006: 85), what Platt (2011: 11) calls a 'careful ambiguity'. This personal interaction between god and worshipers can also be demonstrated by the talismanic nature of some sacred statues reported in literature. Plutarch (*Alexander* 24.3-4) told a story from a time close to the Hellenistic period: the siege of Tyre by Alexander the Great. Towards the end of this siege some Tyrians dreamt that Apollo told them that he was leaving because he was not pleased. They treated him as a deserter, threw ropes over his statue and nailed them to the base calling him an 'Alexanderist'. The incident shows that interaction with this image had a powerful reality, what Smith calls a quasi-magical identification of the statues of gods (Smith 1991: 10). Plutarch's description of the reaction to the sight of the image of Artemis by the inhabitants of Pellene in the Peloponnese also gives a vivid portrayal of the psychological impact of cult images in Hellenistic Greece (*Aratus* 32.2).

But the Pellenians themselves tell us that the image of the goddess usually stands untouched, and that when it is removed by the priestess and carried forth from the temple, no man looks upon it, but all turn their gaze away; for not only to mankind is it a grievous and terrible sight, but trees also, past which it may be carried, become barren and cast their fruit.

Plutarch, *Aratus* 32.2. (translator Perrin 1926)

This talismanic perception of statues persisted into the Roman period. In the late 12th century, the historian Niketas Choniates described how a bronze eagle attacking a snake was allegedly brought to the Constantinople Hippodrome in the 1st century AD to save the city from snake bites (Saradi-Mendelovici 1990).

There was set up in the Hippodrome a bronze eagle, the novel device of Apollonius of Tyana (1st century AD), a brilliant instrument of his magic. Once, while visiting among the Byzantines, he was entreated to bring them relief from the snake bites that plagued them. he set up on a column an eagle (with) an uncoiled snake clutched in its claws. It is said that the very sight of the snake uncoiled and incapable of delivering a deadly bite frightened away, by its example, the remaining serpents in Byzantium.

Niketas Choniates quoted in Maguire (2007: 68)

Pollitt (1986: 13) points out that a significant feature of Hellenistic intellectual culture (science as well as literature and the graphic arts) was its exclusiveness and quotes an epigram by Callimachus (310/305-240 BC), "...I drink not from every well. I loathe all common things" (*Epigram* 30). Tanner (2006: 180-181) interprets the bronze statue of *Kairos* (Chapter 2.3.6) that was made by Lysippos of Sikyon in the last half of the 4th century BC, as an indication that art was becoming important in the formal development of abstract knowledge; it was no longer part of what Tanner (2006: 201) calls an "aesthetically unreflective relationship to visual art". This form of art may have gone beyond the 'everyday' knowledge of more poorly educated citizens, portrayed by Euripides in his play *Ion*. If Lysippos' statue is interpreted correctly, it widens the topics explored by artists outside the religious and mythical subjects that would be understood by everyone and presents art as becoming part of an elite activity, which could be used for displays of *paideia*.

In the Hellenistic world kings expropriated art works and formed galleries of them to demonstrate their power and enhance their prestige. This assembly of works into art galleries by the Hellenistic kings broke the Classical link between statue and place. The sanctuary of Athena Nikephoros in Pergamon housed possibly the earliest collection of expropriated Classical sculptures. The collection was begun by Attalos I but reorganised and augmented by Attalos II and Eumenes II (Tanner 2006: 219-234). Once the relationship between the original location and statue had been broken, the meaning of these relocated statues became ambiguous. This dislocated aspect of the Hellenistic view of art is also

apparent in the tradition of copying. The Athenaeum (library) in Pergamon housed a copy (commissioned by Eumenes II) of the Pheidias statue of Athena Parthenos in the Parthenon. Again this statue was removed from its specific Athenian iconographic programme and used to appropriate the cultural heritage of Athens in order to promote Pergamon as a centre for cultural pursuits (Tanner 2006: 222-228). These collections of artwork reflect the development of a cultural elite assuming a 'sophisticated' culture of viewing, very different from the religious realm of interactions associated with the original location of these works (Tanner 2006: 209).

Evidence of a Hellenistic change is also illustrated by the inscriptions on the bases of statues. Although the practice of the sculptor signing the statue base existed in the Classical period the practice became more frequent in the Hellenistic period (Smith 1991: 13). The base of a statue of the athlete Pythokles by Polykleitos was found in Olympia. It included Polykleitos' name but this was inscribed in small letters at the back. By contrast, the base of what is believed to be a copy of this statue found in Rome had the artist's name on the top surface at the front, given as much prominence as the name of the athlete portrayed (Tanner 2006: 206-207). Lysippos' act of siting the bronze *Kairos* at the entrance to his own studio (Chapter 2.3.6) also reflects this change; he used it to signify his own status. The civic standing of sculptors in the Hellenistic period is illustrated by their appointment as city councillors, priests and sacred ambassadors to Delphi (Smith 1991: 11). The development of an expert, enthusiast interest in art was coupled to this fashion to name and honour the artist.

Works of art became the subject of epigrams in the Hellenistic period (Gutzwiller 2007: 106-120; Gow & Page 1965^{a&b}). These give a further insight into the development of connoisseurship and a sense of the aesthetic status that went with collecting and knowledge of art. Antipater of Sidon wrote an epigram about a bronze statue of a cow that originally stood on the Athenian Acropolis but was probably moved to Rome in the 1st century BC (Gow & Page 1965^b: 63-64).

If Myron had not fixed my feet to this stone
I would have gone to the pasture with the other cows.

Antipater of Sidon, (Gow & Page 1965^a: 24, xxxvi; translator Paton W.R. Greek Anthology Volume III, Loeb 1915).

Myron worked in the mid-5th century BC but Antipater of Sidon wrote in the late Hellenistic period. This sculpture was famous in antiquity and, in addition to 6 more couplets by Antipater, a further 10 authors are known to have written epigrams about it (Gow & Page 1965^b: 63-64; Gutzwiller 2007: 113).

The statue of *Kairos* by Lysippos that has been discussed before (above and Chapter 2.3.6) was the subject of an epigram by Poseidippus from Pella (284-c.250 BC). This epigram has the form of a conversation between the statue and an onlooker who starts by asking who the artist is, and then asks who the statue is before asking about the appearance of the statue.

- a. Why dost thou stand on tip-toe?
- b. I am ever running.
- a. And why hast thou a pair of wings on thy feet?
- b. I fly with the wind.
- a. And why dost thou hold a razor in thy right hand?
- b. As a sign to man that I am sharper than any sharp edge.
- a. And why does thy hair hang over thy face?
- b. For him who meets me to take me by the forelock.
- a. And why, in Heaven's name, is the back of thy head bald?
- b. Because none whom I have once raced by on my winged feet will now, though he wishes it, take hold of me from behind.
- a. Why did the artist fashion thee?
- b. For thy sake, stranger, and he set me up in the porch as a lesson.

Poseidippus, *On a Statue of Time by Lysippos*. in Paton W.R. (1918). *The Greek Anthology* Volume 5, Book XVI, Epigram 275.

It is worth noting that in the last line this epigram describes the sculpture in terms of a specific place and function. The practice of describing art in the form of poetic epigrams conveys the sense of an educated elite enjoying a collective knowledge of high culture and the last sentence of Poseidippus' epigram that describes Lysippos' *Kairos* as a lesson, is evidence for this interpretation.

A further source of information about the 'viewing culture' of the Hellenistic period comes from the practice of ecphrasis. An example of this custom is Theocritus' poem about a cup. Theocritus worked in Alexandria around 270 BC and in his poem a goatherd describes a cup that is decorated on the outside with three images (Idyll I. 27-55; Petrain 2014: 37-44). These images portray young men with a woman, an old fisherman, and a child with foxes. They are generally interpreted as three ages of man (childhood, youth and old age) but the goatherd does not describe them in chronological order. Petrain points out that three images on the external surface of a circular bowl can be viewed in any order depending on the way the cup is turned. The Theocritus ecphrasis is therefore a kind of riddle that would amuse a visually sophisticated Hellenistic audience just as the epigrams must have done.

6.1.2. *Parallel Examples for Little Metropolis Frieze Images.*

Given the unique nature of the subject matter of the Little Metropolis frieze, a search for parallels has had limited value. Udell (2012) explores the iconography of time found on Attic vases but her thesis is concerned with the symbolism used by artists to depict a particular time of day or season of the year rather than the progression of time. For example, we can be certain that a pelike, which depicts two men and a youth looking at a swallow, is a depiction of spring because the vase is inscribed "look, a swallow; by Herakles you are right; there it is; spring is here" (St. Petersburg, State Hermitage Museum, 615; Udell 2012: 205-206). A second example shown in Figure 6.4 depicts autumn painted on an amphora, with a ploughing scene on one side and a picture of bird netting on the other (Udell 2012: 237, 240), both of which are autumnal agrarian activities.

Although there are numerous examples of inscriptions recording calendar information (Chapter 4), there is only one published example of images that are believed to represent calendrical time, and this is a fragmentary Attic calyx krater dated to the early 4th century BC. This krater, found at Hermione in the Peloponnese in 1932, may be an example of Athenian ceramic art that includes images of young men personifying Athenian lunar months (Metzger 1965: 102-105, Plate XLVI; Simon 1983: 5; The Beazley Archive # 218101; National Archaeological Museum in Athens #1435) (Figures 6.5 and 6.6).



Figure 6.4.
Amphora
Attributed to
the Bucci
Painter:
Autumn.

Private Collection,
 New York (from
 Udell 2012: 237,
 240; Figure 74).

Two of the figures have a crescent shaped moon above their heads and carry an attribute possibly identifying a festival held within the month. Using these clues, Simon (1965; 1983: 82-83) has proposed that the seated figure holding a laurel branch (Figure 6.5: b) is Pyanopsion and the next seated male (Figure 6.5: d) who is holding a white kid is Boedromion.

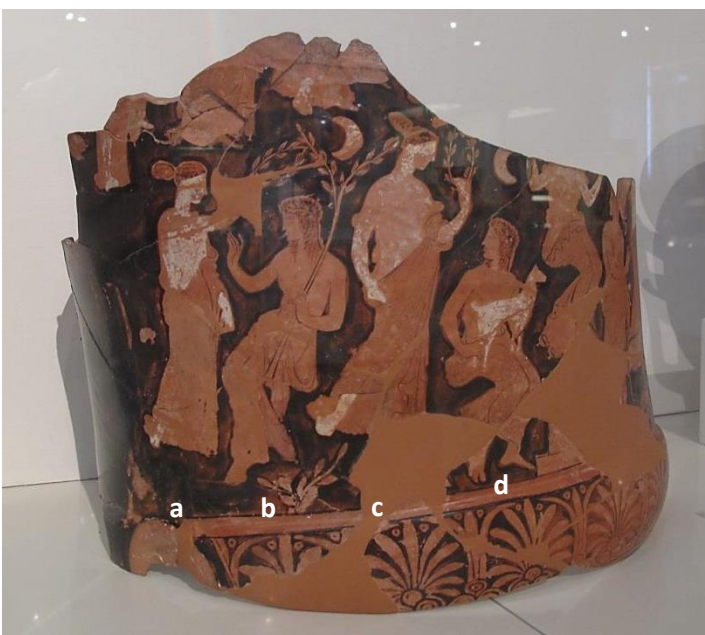


Figure 6.5. Calyx Krater
c. 375 BC (view A).

National Archaeological
 Museum in Athens #1435.
 Height 0.271 m. Oinomaos
 Painter.

M. A. Haysom 2014

Smith (2011: 170) gives a fuller description that follows Simon's 1965 interpretation. The krater was decorated with figures on two levels and Smith (2011: 170) suggests that the upper layer contains female personifications of *pompai* (processions) and *theōriai* (religious delegations) (Rutherford 2007). Starting on the left of the lower level in Figure 6.5 (view A) and traveling to the right, a *pompe* (a) awards a wreath to a seated youth (b) draped in a *himation* who is holding a branch in his left hand and displaying a speaking gesture with his right. He is followed by another *pompe* (c) awarding a wreath to another seated youth (d), who is turned towards her and holds a white kid on his lap. At a slightly higher level a female figure (e) is seated on a low altar (?) (Figure 6.6, view B) and the next youth (f), who is standing and leaning on a staff, is turned towards her with his left hand raised. This figure is followed by another *pompe* (g) and then a youth (h) holding a *loutrophoros* in his left hand and pointing down with his right. The final seated youth (i) holds a box (?) in his right hand (Smith 2011: 170). The interpretation of the youths as personified months comes from the presence of moons above two of them. Thus the first seated youth (b) under a waxing moon personifies Pyanopsion, with the laurel branch reflecting the *eiresione* of the Pyanopsia. The next youth (d), seated under a waning moon personifies Boedromion and the kid may refer to goats sacrificed at Artemis Agrotera. The following youth (f), is identified as Hecatombaion by Smith (2011: 170) but the staff is not easily linked to a festival of this month, however the *loutrophoros*, a vessel associated with weddings and held by the next youth (h) could identify Theogamia held in Gamelion. Smith (2011: 170) suggests that the final figure (i) is holding a box and may represent either Metageitnion or Maimakterion, but if the months are presented in order this has to be Maimakterion.

There are problems associated with this 'personification of months' interpretation that arise from the fragmentary condition of the vase and the fact that we cannot deduce the missing figures. Accepting Smith's 2011 interpretation there is room for only two or three more bodies on the missing part of the vessel and this, together with months missing in the depicted sequence, means that the vase does not present a complete lunar year. Further because of its date and the nature of the medium, the imagery does not provide a very useful diagnostic aid, it only suggests an earlier example of personification.



Figure 6.6. Calyx Krater c. 375 BC (view B).

National Archaeological Museum in Athens #1435.
Height 0.271 m. Oinomaos Painter

M. A. Haysom 2014

6.1.3. *The Deification of Homer by Archelaos: “A relief embodying the academic spirit of Alexandria” (Thompson 1969).*

Figure 6.7 (below) shows a marble relief that was discovered on the Appian Way not far from Rome. The relief is about 1.2 m high and 0.76 m wide, it was signed by Archelaos of Priene and is thought to have been made in Alexandria. It now resides in the British Museum where it is labelled ‘The Apotheosis of Homer’ and dated 225-205 BC (in the reign of Ptolemy IV Philopator) (Smith 1991: 187). It has been described as a ‘translation into stone of a typical Hellenistic poem’ by Thompson (1969); Pollitt (1986: 15) describes the relief as a ‘scholarly’ sculpture, and Stewart (2014: 135-136) includes it in his chapter entitled ‘Wisdom’. It does not portray a calendar, but despite the difference in subject matter, it has a number of features that resonate with the overall nature of the Little Metropolis frieze.

The interpretation of the Archelaos relief is aided by that fact that inscriptions along the bottom frame identify the characters in the lowest of four levels. The top level resembles a mountain peak where Zeus reclines with his sceptre and eagle (Archelaos’ name is inscribed below this image). On the right stands Mnemosyne alongside a Muse descending steps.



Figure 6.7. The Deification of Homer. Adapted from British Museum #1819.0812.1.

These figures provide a visual link with the level below that contains four more Muses (Elderkin 1936). Underneath is a cave containing a central standing figure interpreted as

Apollo in a setting that may allude to the prophetic shrine in Delphi; he is wearing the long dress of the *kitharoidos*, holds a large *kithara* and has an *omphalos* shaped object on the ground beside him (Newby 2007^a). To the left of Apollo is the cloaked 'Leaning Muse', Polyhymnia, identified by comparison with a statue in the round (Ridgway 1990: Plates 134, 135). The other three figures in the cave are also identified as Muses and Ridgway (1990: 257-262) shows that Archelaos probably used known types as models for all the Muses. The cave level is linked to the open mountain above by a male figure standing in front of a tripod and it is suggested that this is a poet who won a competition and commissioned the relief (Elderkin 1936). Newby (2007^{a, b}) proposes that the arrangement and poses of these figures suggests that they are communicating with each other and that this would have indicated a divine source of inspiration to a Hellenistic audience. The figures in the bottom level, which has a curtain draped from Doric columns as the backdrop, are named from left to right as: *Chronos*; *Oikoumene*; Homer seated, with two small figures personifying the *Iliad* and the *Odyssey* flanking his chair; Myth and History at a circular altar with a zebu cow as the sacrificial victim; Poetry holding two torches; Tragedy; Comedy; and a group of 5 figures named as Human Nature (*Physis*), Excellence (*Arête*), Mindfulness (*Mneme*), Trustworthiness (*Pistis*) and Wisdom (*Sophia*) (Elderkin 1936; Pollitt 1986:16). A drawing of the relief by William Smith (1890: 547) shows two mice possibly nibbling a scroll beneath Homer's chair, which Stewart (2014: 139) and Parsons (2015) suggest is an illusion to a mock epic ascribed to Homer (*The Battle of Frogs and Mice*). However recent autopsy of the relief by the author does not confirm the presence of mice.

By comparison with coin portraits, the personifications of *Chronos* (Time) (see Chapter 5.3.1) and *Oikoumene* (the Civilised World) are thought by some scholars (Newby 2007^{a, b}; Thompson 1969) to be portraits of Ptolemy IV Philopator and his wife Arsinoe III, and it has been suggested that the relief may allude to the shrine to Homer, the Homereion, built by Ptolemy IV (Newby 2007^{a, b}). Newby points out that only the figures in the bottom level are labelled and that a full interpretation of the relief would have needed viewer recognition of the Muses.

The relief has been the subject of considerable dispute that is summarised by Ridgway (1990: 257-265). In particular she analyses the stylistic arguments developed by Pinkwart (1965), which link the work to the sculptor Philiskos of Rhodes and date it 130-120 BC.

Ridgway is not fully persuaded by Pinkwart's thesis and essentially agrees with Pollitt (1986: 15-16) and Thompson (1969) who support the Alexandrian source and the earlier 222-204 BC date. The Ptolemaic origin of the frieze is also supported by two more elements on the frieze not commented on by previous authors. The zebu cow is African and is therefore more likely to have been reared in Egypt than Italy, where the relief was found, or Rhodes, an alternative site of production (Ridgway 1990: 257-265). Further, the female figure *Oikoumene* is wearing a Ptolemaic ceremonial headdress, a parallel for which is shown on the silver tetradrachm in Figure 6.8. The coin shows Alexander I Balas, pretender to the Seleukid throne who married Cleopatra Thea, the daughter of Ptolemy VI, in 150/149 BC. The coin is later than the proposed date of the relief and the features of Alexander Balas are different from those of *Chronos* but his bride is wearing a similar Egyptian headdress.



Figure 6.8. Silver Seleucid Tetradrachm Depicting Cleopatra Thea and Alexander Balas, 150/49 BC. (possible marriage issue)

<http://www.cngcoins.com>

Although the Archelaos relief is interpreted as honorific and does not have the same subject matter, it has a number of features that connect it to the Little Metropolis calendar frieze. Firstly, there is an obvious link between the various images portraying time on the Little Metropolis frieze and a personification of Time (*Chronos*) on the Archelaos relief (Figure 6.7). In the Archelaos relief, Time stands next to a figure personifying the civilised world (*Oikoumene*). The precise meaning of the word *Oikoumene* is not clear; Demosthenes (7.35) uses it to mean the Greek world as opposed to barbarian lands but other ancient authors use it more loosely (Liddell & Scott 1940). On the calendar frieze a 'civilised' audience is implied by the presence of astronomy in the form of the Zodiac, acting as a marker for education (*paideia*) in the audience. In other words, they are both works that assume a knowledgeable audience, in the calendar frieze this knowledge is astronomy whereas in the Archelaos relief it is the works of Homer. Finally, they both have a connection with a Ptolemaic dynasty.

There are other examples of Hellenistic works that demonstrate the scholarly learning of the artist and suggest the existence of an equally scholarly clientele (Burn 2004: 133). A group of so called Megarian bowls were decorated both with scenes from epic poems including Homer's *Iliad* and *Odyssey*, and inscribed with pieces of script (Burn 2004: 132). The bowls are rounded, almost hemispherical, and have no stem or handles; they were mould made in large quantities in Athens and thought to be cheap copies of silver bowls from Alexandria that were used in an Athenian ceremonial procession honouring Ptolemy III Euergetes in 224 BC (Rotroff 1978). A further, possibly related example is the group of small marble reliefs known as the *Tabulae Iliacae*. These depict scenes from Homer's epics, rather as a modern graphic novel (strip-cartoon). The scenes are accompanied by texts, either verses from the poem or books. In some cases the illustrations and the texts do not agree with each other nor, very closely, with the original Homer epic (Newby 2007^b). The earliest of the *Tabulae Iliacae (Capitolina)* was found in the vicinity of the Italian find-site of the Archelaos relief and Ridgway (1990: 263-266) uses this to suggest that the Archelaos relief was made there. The *Tabulae Iliacae* are accepted as Roman and Petrain (2014: 19) dates the tablets to the early 1st century AD although Squire (2011: 2) gives a broader range: late 1st century BC to early 1st century AD. At least 6 of them mention a Theodorus and appear to have been produced by a workshop associated with the name (Petrain: 2014: 22; Squire 2011: 283-291). One intriguing feature of a number of the tablets is the presence on the reverse of a grid pattern into which letters have been carved so that words are formed by reading in several directions (Squire 2011: 237). This puzzle-like feature compares with the riddle of Theocritus' ecphrasis of the goatherd's cup.

6.1.4. Personification.

Personification is an important component of the Little Metropolis frieze. Smith (2011: 2) defines personification as the representation of a thing, place or abstraction as a person and it was an important phenomenon in ancient Greek thought. Personification of concepts occurred in both literature and visual art and the Athenian cult of Persuasion is an extensively documented example (see Pausanias 1.22.3). Hellenistic inscriptions, statues and votive reliefs demonstrate the importance of personification in this period (Stafford 2008). For example, an Athenian inscription (*IG II² 1496*) of the late 330s records income from the sale of skins from sacrifices to *Eirene* (Peace) and indicates that at least 80 oxen

were slaughtered, a vivid indication of the prominence of the concept at this time (Stafford 2008). Perhaps the most important personifications on the Little Metropolis frieze are the male figures representing each lunar month. Of the 10 personified months on the existing stones, nine wear a *himation* with the way this is draped depending on the season.

Thargelion (Image 25) in the early summer is half-draped and wears a crown of Helios (Chapter 3.5) and the mid-summer month, Skiraphorion (Image 27), is naked. The winter months, Posideon and Gamelion (Images 11 and 15), wear boots. Deterioration of the carving makes interpretation of some of the faces difficult but three of the figures clearly also have beards. *Himatia* and beards were identifying external markers of city leaders (Smith 1993) and this way of personifying the months gives the calendar an obvious reference to the role of the polis in administration of the religious lunar calendar (Chapter 4.2.2), in contrast to the astronomical calendar depicted by the Zodiac (Chapter 3.4).

Deubner (1932: 250) suggests that Images 12, 18 and 31 on the Little Metropolis Frieze are personifications of *theōria* (witness of a festival), Simon (1983: 5) classifies them as *pompe* (procession) and Palagia (2008) suggests that they are personifications of the following festival (Chapter 1.6). This group of images with no satisfactory explanation warrants further attention. None of the three figures are bearded; they all wear a *himation* and have the 'philosopher' pose and all precede an important festival (Rural Dionysia, City Dionysia, Panathenaia). Their gender is rather difficult to recognize but Deubner (1932: 250) and S. Waite (personal communication) believe that they are female. Smith's book (2011) is restricted to the Classical period and she only documents the personification of *theōria* twice. Her first example is from a round altar found at Brauron (2011: 80, R2 142, fig 7.1), where most of the figures are labelled. Unfortunately the only remaining letters for *theōria* are [.....IA] and this interpretation must therefore be tentative. The second example is the fragmentary calyx krater discussed above (Chapter 6.1.2, Figures 6.5 and 6.6), where Simon (1983: 5) and Smith (2011: 170) suggest that some/all of the female figures in the upper section of this vase are personifications of *theōria* but the figures exist as fragments, and since there are no labels this must be conjecture.

Parallels for the representation of *pompe* are more convincing. The fragmentary calyx krater described above (Figure 6.5) has two (more or less complete) women holding

wreaths over seated figures that represent key Athenian festivals and the month in which they were held, and both Simon (1983: 5) and Smith (2011: 80, 87, VP 57 170, fig 8.7) classify these as *pompe*. A chous (oinochoe) in the Metropolitan Museum is decorated with a labelled figure of *pompe* who is holding an untied wreath and appears to be dressing (Richter 1926; Brendel 1945). She is accompanied by Eros, Dionysos and a *kanoun*. The tradition of labelling personifications makes this identification and that on a volute krater (Smith 2011: VP 15 154, fig 8.2) certain. The figures on the Little Metropolis frieze have no labels but the practice of presenting a personification with an attribute that identifies the meaning became standard in the Hellenistic period (Stafford 2008: 72-85). Attributes for *pompe* seen on the Classical vases include a Lydian lyre, sheaves of grain, a *kanoun* and a wreath. Little Metropolis frieze Image 18 clearly holds a wreath, Image 12 has a similar gesture and Image 31 has been defaced, but they all have similar poses and a similar position with respect to the following festival. If the attribute of holding a wreath indicates *pompe*, they can all be considered personifications of *pompe* although their location in the sequence of frieze images is obscure.

6.2. Search for Interpretative Themes within the Little Metropolis Frieze: Religion.

In order to identify a topic that could provide a possible holistic explanation for the imagery of the Little Metropolis frieze, several subjects have been discussed in earlier chapters. A possible underlying theme based on agriculture was discussed and rejected in Chapter 1.5, a theme based on depictions of stars and constellations was explored and dismissed in Chapter 3.7, and the analysis of the festival responsibilities of the *ephēbeia* in Chapter 5.9 led to the conclusion that there is no pattern providing a relationship between the *ephēbeia* and the matrix of frieze images. Before considering a final analysis of the Little Metropolis frieze, there is one obvious subject that has not been explored as a theme in previous chapters, namely the broad topic of Hellenistic religion.

6.2.1. Hellenistic Religion.

In the Hellenistic period the intellectual link between cosmology and religion, demonstrated by the Stoic philosophers (Chapter 6.4 below), suggests an approach to deciphering the Little Metropolis frieze, which clearly contains both astronomical and

religious images. Before this approach is undertaken, the putative festival images need to be considered as a group in order to test for a defining religious theme.

The work of Deubner (1932) and Palagia (2008), discussed in Chapter 1.7, shows that religion does not provide a primary explanatory theme for the frieze. Nevertheless if Images 8 and 9 (ritual ploughing) are included, 14 of the 41 images appear to depict religious festivals or cults (Deubner 1932: 249-254). Religion is therefore clearly a major component of the visual syntax of the frieze and it is legitimate to extend the search for themes into religion even if this is unlikely to provide a primary explanation. Not all of the identifications of festival images made by Deubner are secure (see Chapter 1.5); nevertheless it is possible to consider Deubner's religious festival images as a group.

Problems with 'building' interpretations of individual festival images to construct a theme can be illustrated by those of the Dionysos festivals. Four of the 14 frieze festival images were interpreted by Deubner (1932: 248-254) as festivals for Dionysos and analysis of this group is used to demonstrate the problems. In Athens, his festivals were in the winter and the position of Images 3, 13, 16 and 19 in the calendar is consistent with their interpretation as the Dionysos festivals; Oschophoria, Rural Dionysia, Lenaea and City Dionysia. Two questions arise: why were these festivals chosen and why were they depicted in the particular way that they were?

Dionysos was the most important divine model for Hellenistic kingship (Smith 1993) and the choice of his festivals in a late Hellenistic frieze accords with this. Dionysos was a god of paradox (Otto 1965: 121), who never stayed in one place for very long; "a god of advents and epiphanies" (Parker 2005: 302). He was associated with rituals of inversion (Csapo 1997), which often formed a part of 'rites of passage'. These rites have been described by Turner (1982: 44, 83) as composed of separation from the community, liminality and reintegration. The second component, liminality, involved disorientation, loss of identity and abnormal behaviour, and the gender ambivalence of Dionysos may also refer to 'rites of passage' (Csapo 1997).

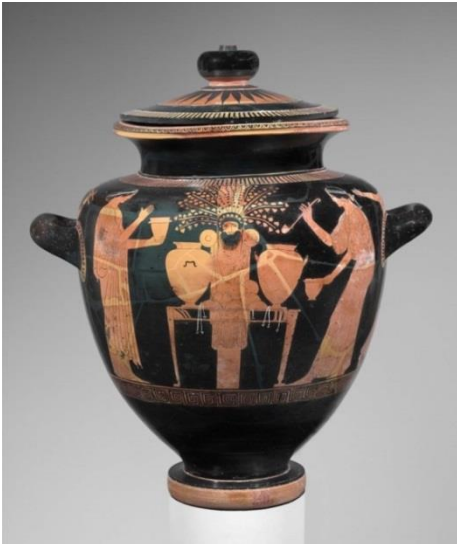
Alexander 'discovered' Dionysos Nysa in India and came to identify himself with the god (Burkert 1993). New features of Dionysiac worship subsequently appeared in the Hellenistic period when Bacchic mystery cults became prominent in Macedonia, and the

Ptolemies of Egypt and the Attalids of Pergamum appropriated the patronage of Dionysiac worship (Burkert 1993). Ptolemy II had a tableau of the Dionysiac mystery cult in his Alexandrian procession held in 280/79 BC, which portrayed a triumphal return of Dionysos from India accompanied by various wild animals (Athenaios 5,197C). Ptolemy IV Philopator was initiated into the Dionysiac mystery cult and identified his regime with allegiance to the god (Seaford 2006: 23, 37-38, 57-58). Dionysiac mysteries are not however attested in Athens (Mikalson 1998: 263-264). If the prominence of Dionysos festivals matches the late Hellenistic date of the frieze and a possible ephebic venue with Ptolemaic connections, what is the explanation for the mode of representation?

The difficult interpretation of Image 3 (Figure 1.2) as the Oschophoria has been discussed in Chapter 1.5. The image considered to represent the Rural Dionysia (Image 13) is also difficult to interpret. It includes a clear picture of a cock-fight. The cockerel is used in many contexts within Greek art; it was associated with virility, death and erotic love (Sourvinou-Inwood 1991: 147-159; Shapiro 1981), and, because it crows at dawn and marks the transition from darkness to light, it also has a liminal connection. Aside from these symbolic explanations, cock-fighting was a very popular sport in Athens (Fisher 2004) and the picture of two cockerels facing each other in Image 13 (Figure 1.6) is most easily interpreted as a cock-fight. Several authors, for example Parker (2005: 467), have associated the cock fight with the Rural Dionysia but they have used Deubner's interpretation of the frieze image as their source and presented no corroborating evidence. The Deubner (1932: 248-254) explanation of the complete image as three judges sitting behind a draped table bearing prizes in bags does not answer the question: why is the Rural Dionysia with its phallic procession that is depicted on many Athenian pots (Csapo 1997), represented this way on the frieze? This festival occurred in the winter month of Posideon at an unknown date (Parker 2005:486), it was celebrated in the individual demes of Attica not the city, and could be quite elaborate with theatrical productions, wine and the sacrifice of a male goat. It was the highlight of the religious year for villagers (Aristophanes *Acharnians*: 237-790). The celebration of this festival in demes rather than the city raises another question: what was the reason for choosing rural festivals? A further question about the identification of this image arises from the decline in deme religious activity in this period (see Chapter 6.3 below).

The third Dionysos festival, the Lenaea, (Image 16, Figure 1.7) is interpreted by Deubner (1932:248-254) as a young man riding a goat whilst holding a garland and a *thyrsos*. The goat in this relief does not have a goat's tail and this tail together with the shape of the hindquarters, legs, and hooves are those of a horse (compare with Image 40). Image 19 shows that the sculptor knew the anatomy of a goat, and Deubner's interpretation probably comes from what appears to be a horn on the top of the animal's head. However, several of the animals on the frieze have their heads turned face on (see Images 8, 20 and 29), which would reveal the second ear and explain the poorly defined projection from the animal's head. The Lenaea were held on Gamelion 12th (Parker 2005:487). In addition to sacrifices and theatre, they also included a procession where insults were shouted at the audience by people on wagons, and women (*maenads*) danced (Parker 2005:317). A group of about 70 vases show scenes, with varying detail, that have been interpreted as representing the Lenaea (Figures 1.8 and 6.9), although there is debate about this interpretation. They show a distinctive cult-image of Dionysos attended by female followers (*maenads*) (Peirce 1998). As with the Oschophoria and the Rural Dionysia, Image 16 of the frieze, even if Deubner is correct, does not accord with our information about the festival or with its representation on Attic vases. Lastly Deubner (1932:248-254) identifies Image 19 (Figure 1.9) as the City Dionysia held on Elaphebolion 10th-12th. It was associated with theatrical productions and the second greatest procession in the city that may have re-enacted Dionysos coming to Athens (Parker 2005:316). Image 19 shows a man (who may be masked) leading a goat and the most obvious interpretation is that the mask may refer to the theatrical component of this festival.

Images of Dionysos were prevalent in the Hellenistic period: for example he was portrayed as a naked young man riding a panther in several mosaics (Pollitt 1986: 213; Figure 6.10). These representations depict the god, often in scenes from Dionysos myths such as the relief frieze depicting Dionysos' capture by pirates (Camp 2001: 147-148) on the Lysikrates Monument (Chapter 4.3.4; Figure 4.33), and, although they provide clues in the form of his attributes and even poses, they are not diagnostic images of his festivals.



**Figure 6.9: Red-figure Stamnos c.450 BC.
"Lenaia": banquet-symposium.**

Museum of Fine Arts, Boston 90.155. ARV²
621.34: Villa Giulia Painter.

The four images of Dionysos festivals discussed here illustrate three general features of religious images on the frieze. They are interpreted as images representing festivals rather than gods; only 4 of the 14 festivals include an image of the relevant god (Dionysos for the Oschophoria, Hera for the Theogamia, Artemis for the Mounychia and Heracles for the Heracleia). They have often been identified by their position in the calendar rather than their iconography and they include both city (Athens) festivals and festivals held in the demes.



**Figure 6.10. Hellenistic Pebble Mosaic
Depicting Dionysos Riding a Panther.**

2.70 x 2.65 m.

Pella Archaeological Museum, Macedonia
c.330-300 BC.

6.2.2. Hellenistic Religion: Continuity and Change.

Mikalson (1998) published a book on Athenian religion in the Hellenistic period in which he points out that our understanding of religion in this period is distorted by the conflation of evidence from different places and periods by many authors. By concentrating on Athens and linking his study to the political changes, he shows that continuity was a strong feature of religion in the city; the reforms of Lycurgus (4th century BC) were returned to whenever

Athens was freed from Macedonian domination. Potter (2003) illustrates this by surmising that “If seven Athenians had gone to sleep in a cave on Hymettos in 336 BC to awaken in 100 BC they would not have been greatly confused by the religious structures they confronted. Athena Polias was still in charge, the Eleusinian mysteries were still revered, and great festivals of the past still would run their course through the city”. Parker (1996: 256-281) on the other hand, whilst acknowledging that evidence is scarce, asserts that there were many changes in Athenian religion during the period but that these cannot be ascribed to the conventional date (323 BC) used to divide the Classical and the Hellenistic periods and suggests that the critical time was between 300 and 250 BC.

Social and political changes inevitably had an impact on religious activities and although scarce, changes in religious ideas and practices have been documented. The organisation of festivals was reformed by Demetrios of Phaleron between 317 and 307 BC, when wasteful liturgies were abolished, however they were still too expensive for public funding and wealthy men with civic ambitions both contributed money and ‘submitted’ to election as the festival *agonothete* (elective administrative magistrate) (Parker 1996: 268).

By the end of the 3rd century BC demes had lost most of their importance as centres of collective life, evidenced by the fact that inscriptions of decrees almost vanished by the end of the 3rd century (Whitehead 1986^a: 360-363). Mikalson (1998: 248) suggests that under Macedonian domination festivals that involved travel or venues in the countryside, such as the Rural Dionysia, washing Athena’s peplos at Phaleron or the Proerosia (Ritual Ploughing), were not held. Demosthenes (19.86) recounts how a decision to “bring women and children in from the fields and celebrate the Heracleia within the walls” was made in 346 BC for fear of Philip of Macedon and relates this to decrees about a festival with this name from the deme Diomeia. The last dedication for the Artemis Brauronia is dated 313/2 BC (*IG II²* 1480.12-16; Mikalson 1998: 296) and the last inscriptions to document the Rural Dionysia are from Thorikos, one dated 430 BC (Chapter 4.3.1) and the other 385-370 BC (Whitehead 1986^b). Demes also have reduced visibility in ephebic evidence (Parker 1996: 264). As pointed out above (Chapter 6.2.2) this apparent decline in extra-urban activity leads to questions about the festivals on the Little Metropolis frieze that were held in the countryside (Ritual Ploughing) and demes (Rural Dionysia and Thesmophoria). It is possible

that, despite the lack of evidence, people returned to their ancestral deme for important festivals (Whitehead 1986^a: 355) but this is conjecture.

Parker (1996: 256-257) highlights the ‘revolutionary’ Hellenistic introduction of the cult of living men and two examples can demonstrate this. In 324 BC a proposal to worship Alexander that was debated in Athens is recorded in *Against Demosthenes*, a speech by Dinarchos (1.94) (Parker 1996: 257).

At one time he [Demosthenes] made a proposal forbidding anyone to believe in any but the accepted gods and at another said that people must not question the grant of divine honours to Alexander.

Dinarchos, *Against Demosthenes* 1.94. (translator Burt 1962).

The Ithyphallic Hymn to Demetrios Poliorketes (Austin 2006 #43) is the only more or less complete surviving hymn to a Hellenistic king and it has been the subject of numerous studies. It was written for Demetrios Poliorketes’ return to Athens during the celebrations of the Eleusinian Mysteries in 291/0 BC.

How the greatest and dearest of the gods are present in our city! For the circumstances have brought together Demeter and Demetrios; she comes to celebrate the solemn mysteries of the Kore, while he is here full of joy, as befits the god, fair and laughing. His appearance is solemn, his friends all around him and he in their midst, as though they were stars and he the sun. Hail boy of the most powerful god Poseidon and Aphrodite! For other gods are either far away, or they do not have ears, or they do not exist, or do not take any notice of us, but you we can see present here, not made of wood or stone, but real. So we pray to you: first make peace, dearest; for you have the power. And then, the Sphinx that rules not only over Thebes but over the whole of Greece, the Aitolian sphinx sitting on a rock like the ancient one, who seizes and carries away all our people, and I cannot fight against her — for it is an Aitolian custom to seize the property of neighbours and now even what is afar; most of all punish her yourself; if not, find an Oedipus who will either hurl down that sphinx from the rocks or reduce her to ashes.

Athenaeus, *Deipnosophistae* VI.253b-f. translation from Austin (2006) modified by Chaniotis (2011).

Chaniotis (2011) has attempted to place this *prosodion* or ritually performed processional hymn in the context of Hellenistic religious trends. Facets of the poem such as the allusion

to his divine parentage and the suggestion that he is preferable to other gods who don't pay attention and are made of wood or stone are explained through the common practice of inventing mythical forbears and to the Hellenistic religious need for the physical presence of divinity, their benevolence and the belief that prayers for help were effective. The hymn also explicitly associates Demetrios' court with cosmic powers, comparing him with the sun and his friends with the stars; solar symbolism that can be seen as an element of royal ideology. Chaniotis' analysis supports the conclusion that the hymn's author was sending a political message using images of divinity current in the early Hellenistic period, and these images of divinity included reference to the heavens.

New polis festivals were introduced for political reasons. The Ptolemaea was initiated as a 'showcase' festival in 223 BC to honour Ptolemy III Euergetes (Habicht 1992; Parker 1996: 275) and a festival called the Diogeneia was introduced to honour Diogenes, the Macedonian governor who liberated Athens from Macedonian domination in 229 BC (Miller 1995) (see Chapter 5.1). The cult of Demos and the Graces was founded between 210 and 203 BC on the initiative of two wealthy brothers, Euryclides and Micion, who also funded the buildings associated with the cult (Parker 1996: 269,272). New festivals were also introduced from other regions of the Greek Hellenistic world. Parker (1996: 266) describes the foundation of a society of the Anatolian Great Mother (Kybele) in Piraeus as the 'only real novelty' and the Metroon in the Athenian Agora housed a temple to Kybele in 150 BC (Chapter 5.3.4). In the period of prosperity between the acquisition of Delos (168 BC) and the sack of Athens by Sulla in 86 BC, Mikalson (1998: 252-253) highlights the re-emergence of festivals related to Theseus; a new quadrennial 'Great' Theseia appeared after 164/3 BC, which Mikalson suggests represented a new second *synoikismos* celebrating the re-establishment of Athens' pre-Macedonian geographical boundaries. In this period the Amphictionic Council of Delphi renewed guarantees of safe passage, freedom from taxes and military service to the Athenian guild of *technitai* of Dionysos, who had a major role in the Pythais (Mikalson 1998: 263-264; 271-273; Chapter 5.9). This provides evidence of a new Athenian interest in Apollo (SEG 21.469C).

The best record of state cults comes from Athenian decrees that honoured the previous year's *ephēboi* and their officials (Mikalson 1998: 242). The decree IG II² 1006 records in

detail the activities of the *ephēboi* in 123/2 BC. It is dated precisely to the 8th intercalated day of Boedromion according to the archon, the 9th day according to the moon and the 9th day of the prytany. Mikalson (1998: 243-246) gives a complete translation of the decree which includes the statement:

And through the whole year they persevered in studying with Zenodotos in the Ptolemaion

IG II² 1006: 10

Zenodotos was a Stoic philosopher (c.150 BC) and Parker (1996: 280) suggests that the attendance of *ephēboi* at philosophy classes (Chapter 5.9.2) indicates the acceptance of a metaphysical interpretation of the traditional forms of anthropomorphic cults, 'probably one of the most fundamental changes in the Hellenistic period'. The participation of *ephēboi* suggests the importance of those Athenian festivals listed in Table 5.3 (Chapter 5.9). However those festivals, such as the Theseia, which were attended by *ephēboi* and were significant in the re-emerging interest in the aetiology of the city, are not found on the frieze. A full analysis of the festivals in which *ephēboi* participated has been given in Chapter 5.9, where it was concluded that they provided no defining pattern for the frieze iconography.

The conclusion has to be that it is not possible to detect any specifically Hellenistic religious element as a major unifying component of the frieze's visual syntax. None of the images on the frieze appear to depict festivals or cults that were introduced or became popular in the Hellenistic period. The defining iconography of the cult of Isis and Sarapis (Martin 1987: 72-75; Parker 2011: 274-5); the mystery cults (Martin 1987: 93-96); the Soteria, honouring Antigonos I and Demetrios Poliorketes (Mikalson 1998: 295); the Ptolemaia (Habicht 1992; Parker 1996: 275); the Diogeneia (Miller 1995); Kybele (Parker 1996: 266); Demos (Parker 1996: 272) and Tyché (Martin 1987: 21-24) are not present. Instead it is festivals of the traditional Athenian gods (Apollo, Dionysos, Demeter, Zeus, Hera, Artemis, Athena, and Heracles) that are featured on the frieze. Further, the earliest evidence for these featured festivals indicates that they were ancient. The Pyanopsia (Image 2) and the Oschophoria (Image 3) existed in the 5th century (Parker 1996: 169). Sixth-century evidence exists for the Thesmophoria (Image 4), Dipolieia (Image 28), Heracleia (Image 37), Lenaea (Image 16),

City Dionysia (Image 19) and the Panathenaia (Image 32) (Parker 1996: 76-77; Mikalson 1998: 36-37), and there is eighth-century evidence for the Mounichia and the Great Mysteries (Parker 1996: 18). Despite this common characteristic, the presence of some of the festivals on the frieze is difficult to interpret. For some no late Hellenistic record exists; the last decree for the Pyanopsia (Thorikos) is dated between 430 and 420 BC, and for the Oschophoria (Salaminioi) it is 363/2 BC (Mikalson 1998: 252).

After the departure of Demetrios Poliorketes in 287/6 BC there was a slow return to 'ancestral' religious practices modelled on the age of Lycurgus and this agrees with the presence of festivals for the traditional gods on the frieze. The City Dionysia is attested in 255/4 BC after a lapse of 15 years and the Great Panathenaia reappears in 254 BC after a gap of 8 years (Mikalson 1998: 305-307). The Artemis Mounichia festival was not celebrated between 322 and 229 BC when the Macedonians occupied the fort on the Mounichia Hill (Mikalson 1998: 248). Since the Artemis Mounichia appears on the frieze, it is tempting to date the frieze after 229 BC. Conversely, since Parker (1996: 270) (Chapter 5.9) believes that the Oschophoria was not held after 300 BC, how can the presence of this festival be interpreted? Clearly religion is an important component of the frieze but alone it does not provide an explanation for the imagery.

6.3. The Hellenistic Cosmos and Religion.

Smith (1991: 10) groups Hellenistic sculpture under four functional categories; cult, votive, funerary and honorific, whereas Pollitt (1986: 1-16) categorises the wider subject of Hellenistic art differently: obsession with fortune, theatrical mentality, individualism, scholarly mentality and a cosmopolitan outlook. The Little Metropolis frieze, like the Archelaos relief, could be considered a sophisticated (cosmopolitan), scholarly work. The case will be made here that it exemplified the relationship between religious ideas and the scholarly realm of astronomy and that this relationship could be displayed through the depiction of time. It is the mixture of an appreciation of the perfect pattern of the movement of the fixed stars and moon, with the struggle to understand the causes of these heavenly movements, which links religion to astronomy and explains the composition of the Little Metropolis frieze. The analysis in this study will suggest a holistic interpretation that reads the frieze as a single visual statement, which presents the relationship between astronomy and religion as explored in Stoic philosophy.

Humphreys (1978: 209-211) analysed the Archaic origins of Greek religious ideas, where a search for order and meaning was important, and she highlights the predominance of transcendent order in the ancient Greek conception of gods. She contrasts this with the importance of transcendent power attributed to god in monotheistic religions such as Christianity. In polytheistic Archaic Greece, the gods may have been transcendent but they were integral to a predestined pattern. In the introductions to their respective translations of Aratus' *Phaenomena* both Kidd (1997: 8) and Poochigian (2010: xii-xiii) emphasise the difference between the way that Hesiod (700 BC) and Aratus (310-240 BC) portray Zeus. In Hesiod's *Works and Days* (53-105), Zeus is omniscient and omnipotent but inscrutable and sometimes fickle, punishing mankind. In Aratus' *Phaenomena* (9-12; 821-826) on the other hand, Zeus has organised the world as a *cosmos* (orderly system) for men, where he is inherent in signs by which they can understand the world. Aratus is believed to have studied under Zeno, the founder of the Stoic school of philosophy, and the poem's opening reflects the cosmology of Cleanthes (331 - 232 BC), Zeno's successor (Jones 2003; Kidd 1997: 10-12). The relationship between Zeus and Stoic cosmology is illustrated by Cleanthes' *Hymn to Zeus*:

For thee this whole vast cosmos, wheeling round
The earth, obeys, and where thou lead
It follows, ruled willingly by thee.

Stobaeus, *Anthology* 1.1.12 p. 25.3-27.4. (translator Grant 1953: 152-153)

Cleanthes identified four sources for the origins of human belief in gods and he believed the greatest of these was the splendour of cosmic order (Cicero *Nat. D.* 2. 13-15; Parker 2011: 13). Poochigan (2010: x; xx), whilst acknowledging the lack of concrete evidence, believes that Aratus was influenced by Stoic cosmology, where Zeus is a life-giving force who arranged the constellations for men. Aratus in turn influenced later Stoics and his description of the movement of stars in *Phaenomena* was quoted by Cicero (*Nat. D.* 2. 104-115).

Aratus' emphasis on observation reflects a Stoic focus on perception. Brunschwig (1999) asserts that 'the Hellenistic period was the great age of ancient epistemology', the study of

the basis of knowledge. The Stoic arguments, which were developed initially as a response to the Epicureans, were complex and included a hypothesis as to how nature has endowed us with the means to obtain knowledge and hence wisdom. The Stoic concern to be able to distinguish between belief and knowledge led to an argument that knowledge is based upon the human ability to recognise objects in the natural world through perception (Frede 1999). The Stoics argued that it is our ability, on the basis of perception, to develop concepts like that of a god, which extends perception to knowledge. In this sense Frede (1999) considers the Stoics rationalists, and states that they were regarded as such in antiquity. Contemporary Hellenistic astronomical and mathematical studies of the heavens (Chapter 3) where observation (perception) and questioning led to hypotheses (models), matched this epistemology. The observed (apparent) movement of the stars, planets, sun and moon led to the Hellenistic models of the cosmos (Chapter 3.3.2) and this together with the importance of perception in Stoic epistemology lends support to the proposal that a complex frieze of images could be understood as a philosophical statement, particularly in an educational setting.

Chrysippus (279 – 206 BC) became the third head of the Stoic school and he defined the word cosmos as ‘a system of heaven and earth and the natures contained in these’ (Arius Didymus frag. 31 quoted in Furley 1999), and there was general agreement among Hellenistic cosmologists that the stars mark the spherical outer boundary of the cosmos (Cicero *Nat. D.* 2. 115-116; Diogenes Laertius 7.140; Furley 1999). The two important cosmological theories of the Hellenistic period were those of the Epicureans and of the Stoics. Furley (1999) calls Epicurean ideas disastrous because they ignored the achievements of Hellenistic astronomers and failed to forecast the predictability of the motions of the stars. The Stoics followed the teachings of Plato, who believed in the divinity of the heavens (Diogenes Laertius 7.148-9; Furley 1999) and this link is key to understanding the frieze. Modern scholars are handicapped by the lack of primary Stoic material and interpretations vary. Herrmann (2008), who is critical of the developments of Aristotle and the Stoics, believes that Plato had created a rational theology, whereas Aristotle in an attempt to reconcile both logic and physics failed. Nevertheless Herrmann acknowledges the Stoic belief in a relationship between cosmology and religion: ‘...the pale

reflection that was the Stoic *kosmos* with its divine, impersonal intelligence, a material god that had emanated out of the Platonic myth’.

Philip of Opus was a late 4th century BC astronomer; he was a member of Plato’s Academy and is thought to be the author of the *Epinomis* (347-280 BC). Philip argued that wisdom is achieved by astronomy, where one looks on a visible form of divinity as the movement of heavenly bodies (Nightingale 2004: 180-186; Tarán 1975: 133-139). Although there is a lack of surviving primary Stoic texts, the Stoics had influential supporters, from Cicero in the first century BC to Plutarch in the first century AD and Diogenes Laertius in the third century AD. The Stoics thought that the cosmos was permeated by reason (*logos*) and they gave a corporal form to the *logos* as a god or divinity (Mansfeld 1999). Diogenes Laertius explained:

They use the term ‘cosmos’ in three senses: [1] the god himself who is the individual quality consisting of the totality of substance, who is indestructible and ungenerated, being the craftsman of the organisation, taking substance as a totality back into himself in certain [fixed] temporal cycles, and again generating it out of himself; [2] they also call the organisation itself of the stars cosmos; and [3] thirdly, that which is composed of both.

Diogenes Laertius, 7.137-138. (translators Inwood & Gerson 1997)

Cicero paraphrases an argument by Chrysippus:

Just as a shield-case is designed for a shield and a sheath for a sword, so everything else except the cosmos is designed for the sake of some other thing. [...] But the cosmos is entirely perfect, because it contains all things and there is nothing that is not within it. [...]; but nothing is more perfect than the cosmos [...]. Therefore it is wise, and consequently divine.

Cicero, *de Natura Deorum* II.37-39 (translator Mansfeld 1999)

Aëtius wrote about the Stoic ideas of natural philosophy in the late 1st century AD (Bremmer 1998). In the *Source of Man’s Conception of the Gods* he states that:

1. The Stoics define the substance of god thus: it is an intelligent and fiery *pneuma*, which does not have a shape but changes into whatever it wishes and assimilates itself to all things.
2. Men acquired the conception of god first by getting it from the beauty of things which appear to them. For nothing beautiful becomes so at random and haphazardly but rather by a craft which acts as an artisan. And the cosmos is beautiful

8. From this we have acquired the conception of god. For the sun and the moon and the rest of the heavenly bodies moving round the earth always rise [displaying] the same colours, the same sizes, and in the same places at the same time.

Aëtius. 1.6.1-18. (translators Inwood & Gerson 1997)

In literature generalising references to ‘the gods’ alternate with reference to ‘the god’ or ‘the divine’, in other words plural and singular forms were interchangeable (Parker 2011: 65-66). Stoic theology was pantheistic; the gods were considered manifestations or parts of a supreme divinity that pervades the whole cosmos and as demonstrated above the relationship between the visible heavens and the god(s) is well attested in the surviving ancient reports of Stoic philosophy.

6.4. A Holistic Interpretation of the Little Metropolis Frieze.

This section will explore how the link between astronomy, time and the gods provides a pointer for the interpretation of the Little Metropolis frieze. By the late Hellenistic period a link between religious festivals and individual constellations had a long history (Chapter 3.6.1). Hannah (2012) has argued that star phases were used to signal the time of the panhellenic festival at Olympia, and Boutsikas has published articles that demonstrate the alignment of temple structures or timing of festivals in relation to stellar events (Boutsikas 2011; Boutsikas & Ruggles 2011). This background consciousness must have existed when the frieze was made. Accordingly the frieze image of Artemis that represents the festival Mounychia (Image 22) would no longer have been seen as associated with her sanctuary but was used as a device to indicate a temporal position in the calendar. The frieze’s religious images are in this sense out of context because they are part of an arrangement that depicts time and its relationship with the cosmos, not direct interactions with the gods.

The following discussion will attempt to identify diagnostic features of the imagery by initially looking at the frieze as a single statement rather than building an interpretation from an analysis of individual images. This approach adopts the idea that the frieze can best be interpreted by starting with the whole rather than interrogating individual items and subsequently building an explanation by assembling these descriptions. This ‘assembly’ approach has been tested in Chapter 1.5 for agronomy, in Chapter 3.5 for the incidence of constellations, in Chapter 5.9 for the involvement of *ephēboi*, and in this

chapter for religious festivals (Chapter 6.2.2). None of these provide a convincing explanation. Parallels for a late Hellenistic holistic understanding suggested here could be understanding the Archelaos relief (Chapter 6.1.3), the frieze of Telephos at Pergamon or the sculptured relief frieze on the Lysikrates Monument in Athens (Chapter 2.2.2), where individual images taken out of the context of the whole relief can be difficult or impossible to understand.

As introduced above this study proposes that the Little Metropolis frieze should be seen as a single statement that presents the relationship between the gods and the cosmos through the depiction of the passage of time. It is a picture of a year with a complicated visual syntax and although not all of the imagery is obvious, interpreting the frieze in this way avoids some of the problems demonstrated by Palagia (2008) and links it to contemporary Stoic philosophy (Chapter 6.3).

Although the personification of *theōria* on the Little Metropolis frieze is questionable, the concept has a place in understanding its meaning. The term *theōria* comes from the city practice of sending delegates, *theōroi*, to festivals held in another city. In addition, sometimes a city would send *theōroi* to other cities in order to advertise a coming festival. The delegations (*theōriai*) were hosted by *theōrodokoi* in the visited city and Rutherford (2007) has used epigraphic data to construct ‘theoric networks’ of the eastern Mediterranean, thereby providing evidence for the practice in the Hellenistic period.

The notion of *theōria* forms the core of Nightingale’s exploration of the 4th century BC philosophical idea that knowledge of reality comes from seeing (2001; 2004; 2005). Nightingale (2001) defines *theōria* as a journey or pilgrimage to a destination in order to be an eye witness of events (such as festivals) and links this to Plato’s allegory of the cave (*Republic* 7 514a-517c) and the idea that true wisdom comes from witness. The 4th century philosophers differed in their conjectures but the idea that wisdom takes the form of seeing the truth was common (Nightingale 2004: 7). Nightingale (2005) quotes Aristotle who describes the link between observing the universe (cosmos) and witnessing the nature and truth of reality:

For just as we go to the Olympian festival for the sake of the spectacle, even if nothing more should come of it—for the *theōria* is more precious than money; and just as we go to theorise the festival of Dionysos not so that we gain anything from

the actors (indeed we pay to see them) ... so too the *theōria* of the universe must be honoured above all things that are considered to be useful. For surely we should not go to such trouble to see men imitating women and slaves, or athletes fighting and running, and not think it right to theorize without payment the nature and truth of reality.

Aristotle, *Protrepticus*. (translator Düring (1961) B44. quoted in Nightingale 2005).

Rutherford (2013: 325-326) discusses the analogies between philosophical *theōria* and religious *theōria*. Religious *theōria* did not have a practical purpose and Rutherford cites the 'Parable of the Three Lives', which is attributed to Pythagoras and which describes three kinds of people who visit the Olympic festival. Namely those athletes who go for glory, traders who go for commercial gain and spectators who simply go to watch, and these are the paradigm for philosophical *theōria*.

The importance of perception in Stoic epistemology has been discussed above (Chapter 6.3), later, Ptolemy (*Opt.* II.22) also grappled with the relationship between perception, understanding and the truth (Lehoux 2011: 126-127). Although the 'spectator theory of knowledge' is attacked by modern scholars (Nightingale 2004: 7), we often say "I see" when we mean "I understand". Platt (2011: 296-297) develops the idea of *theōria* as a concept where religion and philosophy meet. The importance of the gods being seen is evident in the Hellenistic period through a flourishing epiphanic culture; *epiphaneia* is first attested as a substantive noun and Epiphanes was adopted as a royal title (Platt 2011: 25). Platt (2011: 251-260, 296-297) suggests that the visual experience linked through imagination and intellectual enquiry gave the Greeks access to transcendent truth. In this way the philosophical use of *theōria* accords with Stoic epistemology, as well as Hellenistic astronomy and religious experience. The observation of predictable patterns of movement by celestial bodies was coupled to wonder (awe) at the perfection of the cosmos, and to puzzlement (wonder) over the nature of these movements, which in turn led to the idea that that they were looking at divinity. This concept may provide a key to understanding the frieze, which considered as a single statement concerning the relationship between religious ideas, the cosmos and the passage of time, presents an image that embodies an idea. This interpretation matches the culture of Hellenistic art, exemplified by the statue of *Kairos* (Chapter 6.1).

It is noteworthy that the word *θεωρία* (*theōria*) was used in the sense of speculation (theory) as opposed to practice (<http://stephanus.tlg.uci.edu/ljsj>) by Polybius (*Histories* 9.14.6) and Plutarch (*Lives: Romulus* 12.3).

Likewise in the time of Marcus Varro (as a man learned, and one that had read as much of ancient stories as any Roman) there was a friend of his called Tarutius, a great philosopher and mathematician. Who being given to the calculation of astronomy for the delight of speculation (*theōria*) only, wherein he was thought most excellent, it did fall out that Varro gave him the question, to search out what hour and day the nativity of Romulus was.

Plutarch, *Lives: Romulus* 12.3. (translator North 1998)

Interestingly in both of these examples the term is used in relation to time; Polybius described the military importance of using astronomy to calculate the length of days and nights and Plutarch (above) described the choice of a theoretical philosopher/astronomer to calculate the time of Romulus' birth.

6.5. Return to the Little Metropolis Frieze Images.

Following the holistic process of analysis in the previous section (Chapter 6.4), this section returns to single images on the frieze. This will test the interpretation of the subject matter and the visual syntax by checking that it is supported by individual images. Figure 6.11 below presents the 1959 photographs of the frieze previously shown in the Introduction but here the Deubner (1932: 248-252) description of some individual images has been amended.

Key changes are as follows:

Image 6 changed from winter to Kronos (see Chapter 3.6).

Images 12, 18, 31 changed from *theōria* to *pompe* (see Chapter 6.1.4).

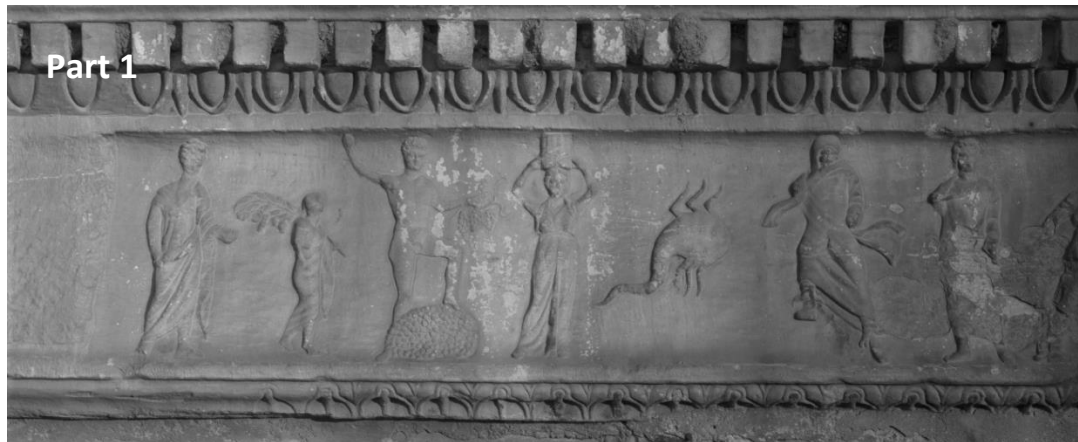
Image 24 changed from summer to athlete (see below).

Image 34 removed reference to summer (see Chapter 2.5).

Image 35 changed from autumn to *nike* (see below).

Image 40 changed from Great Mysteries to *ephēboi* 'graduation' ceremony (see below).

Figure 6.11. The Athenian Festival Calendar on the Little Metropolis. (photographs from Deutsches Archäologisches Institut, Athens, 1959).



Part 1

1 2 3 4 5 6 7

1. Male personification of the month Pyanopsion.
2. Festival: Pyanopsia.
3. Festival: Oschophoria.
4. Festival: Thesmophoria.
5. Zodiac sign: Scorpio, minus the claws.
6. Kronos
7. Male personification of the month Maimakterion.



Part 2

6 7 8 9 10 11

6. Kronos.
7. Male personification of the month Maimakterion.
8. Ritual ploughing.
9. Ritual sowing.
10. Zodiac sign: Sagittarius.
11. Male personification of the month Posideon.



11 12 13 14 15 16 17

- 11. Male personification of the month Posideon.
- 12. Personification of *Pompe*
- 13. Festival: Rural Dionysia.
- 14. Zodiac sign: Capricorn.
- 15. Male personification of the month Gamelion.
- 16. Festival: Lenaea.
- 17. Festival: Theogamia.



18 19 20 21 22 23 24

- 18. Female personification of *Pompe*
- 19. Festival: City Dionysia.
- 20. Zodiac sign: Aries.
- 21. Male personification of the month Mounychion.
- 22. Festival: Mounychia.
- 23. Zodiac sign: Taurus.
- 24. Athlete.



24 25 26 27 28 29 30 31

- 24. Athlete.
- 25. Male personification of the month Thargelion.
- 26. Zodiac sign: Gemini.
- 27. Male personification of the month Skiraphorion.
- 28. Festival: Dipolieia.
- 29. Zodiac sign: Cancer.
- 30. Male personification of the month Hekatombaion.
- 31. Personification of *Pompe*.



31 32 33 34

- 31. Personification of *Pompe*.
- 32. Festival: Panathenaia.
- 33. Zodiac sign: Leo.
- 34. The Dog-Star, Sirius.

Part 7



33 34 35 36 37 38 39 40 41

- 33. Zodiac sign: Leo.
- 34. The Dog Star, Sirius
- 35. Nike.
- 36. Male personification of the month Metageitnion.
- 37. Festival: Heracleia at Kynosarges.
- 38. Zodiac sign: Virgo.
- 39. Male personification of the month Boedromion.
- 40. ephēbos.
- 41. Zodiac sign: Claws of Scorpio.

These changes to Deubner's interpretation of individual images are not dramatic. The inclusion of personifications of *pompe* rather than *theōria* has been discussed above. The personifications of the lunar months and the signs of the Zodiac form a sequence that is consistent with the depiction of a year in the late Hellenistic period. Although many of the images of festivals are difficult to interpret, their positions in this calendar are also consistent with Deubner's interpretation. The biggest group of alterations made here is the removal of seasons, which do not form a convincing series. The presence of Kronos (Image 6) in the first month of the year has been fully discussed in Chapter 4.6. Removing Winter (Deubner's interpretation of Image 6) highlights the interpretive problem of having summer represented twice, 3 months apart, and autumn placed next to the Dog Star, at the height of summer.

Changing the interpretation of Image 24 from summer to an athlete is consistent with the proposed gymnasium location of the frieze. The figure resembles figures of long-jump contestants on vases. This was a popular subject and there are 420 vase images depicting long-jump athletes in the Beazley Archive (<http://www.beazley.ox.ac.uk/index.htm>). They all show a naked youth preparing to jump and although the poses vary they are recognised by the hand-held *haltēres* attribute. There are problems in using images from a different period or medium to interpret the images on the frieze, but it can be argued that images that faithfully depict human activity would be more reliable than those depicting myth. The *tondo* in Figure 6.12 is an example of this common motif for Attic vases and shows an athlete with *haltēres* preparing to jump. The naked youth of Image 24 holds an object that

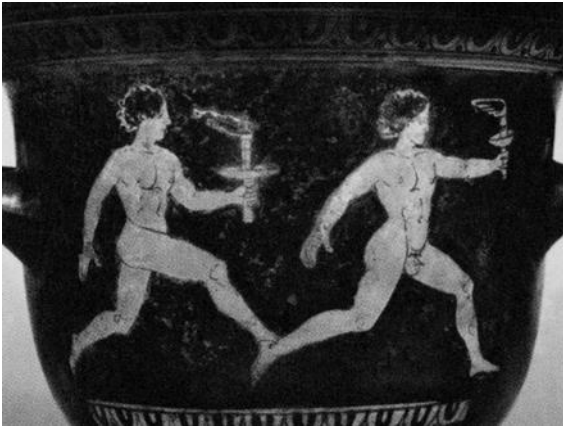


Figure 6.12. Athenian Red Figure Kylix Depicting Long-jump Athlete. 525-475 BC.

Beazley Archive no. 275044;
Beazley 1963: 1625

Dusseldorf, Hetjens-Museum:
1963.25

can be interpreted as one of a pair of a jumping *haltēres* although his arms are not held straight, which is the most frequent position shown in vase figures. Deubner (1932: 252) and Palagia (2008) identified Image 24 as a racing athlete holding a torch. There are 8 red-figure vase images in the Beazley Archive that depict naked athletes participating in torch races (example shown in Figure 6.13). All the torches held by these athletes have a distinctive shape that includes a guard that would protect the hand and arm during the race from burning material that could drop from the torch. This feature cannot be seen in Image 24. This means that the naked figure of Image 24 has attributes that do not exactly match either a long-jumper or a torch-racer. The figure has been partly destroyed by the later Christian cross and this makes a proper identification difficult, nevertheless it can be interpreted as an athlete.



**Figure 6.13. Red-figure Bell Krater
Depicting Athletes Running in a
Torch Race. 425-375 BC.**

Vienna, Kunsthistorisches Museum:
3734.

Beazley Archive no.563

Coins were a medium of mass communication in ancient Greece; they reached everybody who handled money, and the messages they conveyed through their images would have been easily understood (Fleischer 1996). As such they are useful guides to the ability of an audience to interpret images on the frieze. Evidence suggests that Athens did not mint coins between 183 BC and about 164 BC but at the end of this period it produced what are known as the new style drachm and tetradrachm silver pieces. A new set of coins was subsequently produced each year. All of these coins had the head of Athena on the obverse, whilst the reverse uniformly portrayed an owl standing on an amphora with surrounding decorations that changed each year (Figures 2.27; 6.14; 6.17). The dates for the first and last minting of these coins has been the subject of some dispute. An almost complete set of examples exists and Thompson (1961) dates the series 196/5 BC to 88/7 BC but the dates are still not secure and Habicht (1997: 242-243), Kroll (1997) and Sosin (2004) date them from 165/4 BC to about 50 BC (the low chronology dates). The coins were widely used throughout Greece and the Amphictionic Council of Delphi gave them a uniquely favoured status (Habicht 1997: 245). The variable features on the reverse of these coins included the monograms of the yearly magistrates in charge of the mint and later their names, a letter on the amphora from A to N indicating the month in which the coin was struck, and a symbol (Habicht 1997: 242-243).

Several of the symbols on these coins resemble the slightly odd images on the frieze. Thus the radiate head of Helios dated 138/7 BC (Figure 2.27) resembles the head of Thargelion (early summer) (Image 25), the pose of Image 35 resembles a similar pose of Nike found on a coin dated 157/6 BC (Figure 6.17) and the coin pose of Apollo Lykeios dated 72/71 BC

(Figure 6.14) closely resembles naked Skirophorion holding his arm over his head (Image 27).

The Apollo pose needs some explanation. It is thought to copy a 4th century statue by Praxiteles (Bieber 1961: 18; Figures 17-23), which was widely copied in the Hellenistic-Roman periods (see Figures 6.15 and 6.16 below) and was described by Lucian (*Anacharsis* 7) (Bieber 1961: 18). The cult of Apollo Lykeios in Athens is documented in the 5th century BC (*IG I³* 138; Jameson 2014: 41-61) and the god had a sanctuary outside the walls of Athens, which consisted of a *temenos*, and was known as the Lyceum. The early history of the site is complicated by its three functions, a cult place for the god, an exercise area for troops and a gymnasium. There was no temple on the site, which later became a centre of philosophy (Jameson 2014: 41-61). The inclusion of this image on the frieze is tantalising, where there is a link to a gymnasium and philosophy and therefore to education of the



Figure 6.14. New Style Athenian Tetradrachm: Apollo Lykeios.

Helmeted head of Athena right / Α-ΘΕ left and right of owl standing on amphora. Names of magistrates left and right of owl. Apollo Lykeios in right field.

Thompson (1961 Vol.2 # 1237b). Low chronology

ephēboi. However, Apollo is not on the 4th century *ephēbos* oath (Chapter 5.9.1) and Jameson (2014: 41-61) and Vidal-Nacquet (1968: 49-64) argue that in Athens the god presided over the trained *ephēboi*, the male hoplites, who exercised in the Lyceum. In the calendar of the Attic deme, Erchia (Chapter 4.3.2; SEG XXI.541; Dow 1965), sacrifices to Apollo Lykeios are made both on the 12th day of Metageitnion and the 7th day of Gamelion. The presence of the image on an Athenian coin of the first century BC indicates that it would have been widely recognised and in addition the statue by Praxiteles was widely copied (Figure 6.15; Figure 6.16). Why this image of Apollo is used to personify

Skiraphorion, the last month of the Athenian year, is unknown but it is possible that another unrecorded sacrifice occurred in Athens at this time.



Figure 6.15. Apollo Lykeios: Statue.

Legato Giovanni Grimani 1587. National Archaeological Museum, Venice, Italy.

Inv. no. 101. labelled 'Copy of Praxiteles statue, datable to the 2nd century BC'.

S. Waite 2015



Figure 6.16. Apollo Lykeios: Statuette.

3rd century AD ivory statuette from the Athenian Agora.

(Thompson 1959: Plate 60)



Figure 6.17. New Style Athenian Tetradrachm: Nike.

Helmeted head of Athena right / A-ΘE left and right of owl standing on amphora, monograms of magistrates left and right of owl, Nike in right field.

Thompson (1961 Vol.2 # 31a). Low chronology date 157/6 BC.

The pose of Nike holding a wreath shown on coins of 157/6 BC (Figure 6.17) and 139/8 BC closely resembles that of Image 35 where she carries sacrificial cakes, and the presence of Nike on a frieze that was intended for a venue of competitive athletics is not difficult to accept.



Figure 6.18. Stele with *ephebos* List: Showing the *Kosmetes*, Aurelios Dositheos Flanked by *epheboi* who Crown Him.

c. AD 212/3

M. A. Haysom 2009

Because images that correspond to descriptions of *epheboi* can occur in periods before the introduction of the formal *ephebeia* and because images of youths from the Hellenistic period have not always been identified as *epheboi*, identifying images of *epheboi* on the Little Metropolis calendar frieze is problematic. The images of nude youths on the stelae found in the presumed vicinity of the Diogeneion, which record *ephebeia* membership or cite honours to the *kosmetes* or *sophonistai* (Figure 6.18), date to the Roman period and also have limited value. Deubner (1932: 254) has suggested that Image 40 (Figure 6.19) on the Little Metropolis frieze represents an *ephebos* escorting the procession to/from Eleusis during the Great Mysteries festival.

The decree IG II² 1006 (Chapter 5.9) records in detail the activities of the *epheboi* in the previous year (123/2 BC), it is dated precisely to the 8th intercalated day of Boedromion and this suggests that the *epheboi* may have 'graduated' in early Boedromion (Mikalson 1998: 243-246; Chapter 6.3). Further, Pélékidis (1962: 219-220; IG II² 1011; IG II² 2119) suggests that the new and the old ('graduating') *epheboi* competed at the festival for Artemis Agrotera on the 6th day of Boedromion. Both of these interpretations support the proposal that Image 40 depicts an *ephebos* participating in an end of year parade. This

penultimate image therefore marks a significant time in the life of male citizens since it represents their transition from youths (childhood) to trained adult warriors.



Figure 6.19. Little Metropolis Calendar Frieze. The final images from left to right: personification of Boedromion (Image 39), man on horseback (Image 40), Scorpio's horns (Image 41).

M. A. Haysom 2009

The new interpretation of Image 24 as a long-jump or torch-bearing athlete, Image 27 as Skirophorion/Apollo Lykeios, Image 35 as Nike and Image 40 as a 'graduating' *ephēbos* lends further support to the proposal that the frieze was intended for a gymnasium used by the *ephēbeia*.

6.6. How can we know?

Of the 41 images on the frieze those representing lunar and stellar divisions in a calendar year are possibly the easiest to interpret but the calendar frieze has other layers of meaning and these are more problematic. In exploring the meaning of the Little Metropolis frieze, the structuralist approach that builds an integrated picture of the cultural context provides insights that complement some of the more linear or reductionist inquiries used. Harris & Robb (2012) argue that we can mentally accommodate more than one idea of the essence of things (multiple ontologies). As an example they cite the human body, where we can think of it as a mechanical object capable of repair by surgeons but at the same time accept it as an inherent part of our self-image and personality. Platt (2011: 20), referring to human reactions to artistic representations, calls this 'ontological instability' and this multiple layered meaning is evident in the Hellenistic vogue for puzzles both in art itself and in literary descriptions of art (Chapter 6.1.1).

The frieze is not a puzzle but it has layers of meaning that relate to the social features of time which would have affected the way that Hellenistic Athenians read the calendar. The difference between the lunar calendar with its civic personifications implying unpredictability, and the perfect stellar calendar would have been understood. In addition, the exclusive inclusion of festivals for their traditional gods and the reference to the *ephēbeia*, which by their inclusion in a calendar are shown in relation to time, would also have been recognised. In addition, the use of Pyanopsion as the first month, seemingly at odds with Athens' subjugation by the Macedonians, would have been seen as a reference to the benefaction of a Ptolemy. Wallace-Hadrill (1988) states that the Hellenistic world was defined by its intellectual culture and the interpretation proposed here accords with the suggestion that the frieze's intended location was within a late Hellenistic educational establishment, namely a gymnasium.

Versnel (2011: 11-18) discusses the debate over the extent to which the 'otherness' of ancient Greek culture is a barrier to our understanding. This study has attempted to combine areas where we can see and experience the same phenomena as the ancient Greeks (astronomy and time), with written and pictorial evidence from the past to build a holistic interpretation of the frieze. The interpretation presented in this study accords with other time-related unique works from the late 2nd or early 1st century BC: the Tower of the Winds in Athens (Chapter 5.3.2), the Antikythera Mechanism (Chapter 3.4; 3.6.2), and the Solunto armillary sphere mosaic (Chapter 3.6.2). As chronological outsiders with limited evidence we cannot properly interpret all of the frieze imagery but arguably there is enough coherent evidence to be confident about the broad conclusion that the frieze was an Athenian statement produced in the late Hellenistic period, which described the relationship between the passage of time in the lives of Athenian citizens and in the perfect, divinely constructed cosmos.

Ancient References.

Aeschines. *On the Embassy.* quoted in Ober, J. (1985). *Fortress Athens.* Leiden, EJ Brill.

Aeschylus. *Agamemnon* Aeschylus, V. II. translator Smyth, H.W. (1926). Heinemann.

Aeschylus. Pfundstein, J.M. (2003). Aeschylus, Astronomy and the *Agamemnon*. *The Classical Journal* 98: 397 – 410.

Aëtius. The Source of Man's Conception of God. *Doxographi Graeci.* Diels, H. (1879) pp. 292-297. in *Hellenistic Philosophy: Introductory Readings* 2nd edition. eds. Inwood, B. & Gerson, L.P. (1997). Hackett Pub. Co. pp. 161-163.

Antipater of Sidon. translator Paton W.R. (1915). *Greek Anthology Volume III*, Loeb.

Apollodorus. *The Library of Greek Mythology: A new translation* by Hard R. (1997). Oxford University Press.

Apollodorus of Seleucia. *Physics.* translator Diels, H. (1879: 461). *Doxographici Graeci.* in Sorabji, R. (1983: 22).

Aratus. *Aratus Phaenomena: edited with translation and commentary.* translator Kidd, K. (1997). Cambridge University Press.

Aratus. *Aratus: Phaenomena, Translated with an introduction and notes.* translator Poochigian, A. (2010). J. Hopkins University Press.

Aristotle. *Nicomachean Ethics, Vol. 19.* translator Rackham, H. (1934). Harvard University Press.

Aristotle. *Protrepticus.* Düring, I. (1961). *Aristotle's Protrepticus.* B44. Almquist & Wiksells, Göteborg.

Athenaeus. *Deipnosophistae.* Austin M. *The Hellenistic World from Alexander to the Roman Conquest.* 2nd ed. (2006) Cambridge University Press. #94.

Cicero. *de Natura Deorum.* quoted in Mansfeld, J. (1999). Theology. in *The Cambridge History of Hellenistic Philosophy.* eds. Algra, K., Barnes, J., Mansfeld, J. & Schofield, M. Cambridge University Press. pp. 452-478.

Cicero. *Cicero: The Nature of Gods.* translator Walsh, P.G. (1998) Oxford University Press.

Cleanthes. quoted in Grant, F.C. (1953). *Hellenistic Religions*. The Library of Liberal Arts, Indianapolis: Bobbs-Merrill.

Columella. *Lucius Junius Moderatus Columella. On Agriculture and Trees Volume III, Book XI, II.* translators Forster, E.S. & Heffner, A.M. (1948-55). Loeb. Cambridge Massachusetts.

Demosthenes. *Demosthenes.* translator Murray, A.T. (1939). William Heinemann Ltd.

Demosthenes. *Speeches.* translators Sabben-Clare, J.P. & Warman, M.S. (1991). *The Culture of Athens*. London Association of Classical Teachers.

Dinarchos. *Against Demosthenes* 1.94. translator Burt, J.O. (1962). <http://www.perseus.tufts.edu>

Diogenes Laertius. 7. 140-149. in *The Hellenistic Philosophers* Volume 1. Long, A.A. & Sedley, D.N. (1987) Cambridge University Press.

Diogenes Laertius 7.137-138. in *Hellenistic Philosophy: Introductory Readings* 2nd edition. eds. Inwood, B. & Gerson, L.P. (1997) Hackett Pub. Co. p. 133.

Euripides. *Electra.* quoted in King, K.C. (1980). The Force of Tradition: The Achilles Ode in Euripides' *Electra*. *Transactions of the American Philosophical Society* 110: 195 – 212.

Euripides. *The Complete Greek Drama*, eds. Whitney J., Oates P. & O'Neill, E. Jr. Volume 1. *Ion*, translator Potter R. (1938). New York. Random House.

Geminus. *Geminus's Introduction to the Phaenomena: A translation and study of a Hellenistic survey of astronomy.* Evans, J. & Berggren, J.L. (2006). Princeton University Press.

Heracleides, the Cretan. in *The Hellenistic World from Alexander to the Roman Conquest*. 2nd ed. #101. Austin, M. (2006). Cambridge University Press.

Herodotus. *Histories.* translator Macaulay, G.C. (2008). www.gutenberg.org

Hesiod. *Theogony.* translator Wender, D. (1973). *Hesiod and Theognis*. Penguin Classics.

Hesiod. *Works and Days.* translator Wender, D. (1973). *Hesiod and Theognis*. Penguin Classics.

- [Hippocrates].** *Airs Waters Places*. quoted in Lehoux, D. (2007). *Astronomy, Weather, and Calendars*. Cambridge University Press.
- Homer.** *The Iliad* 5.749. translator Rieu, E.V. (1950). Penguin Classics.
- Homer.** *The Iliad* 18.483-89. quoted in Hannah, R. (2001). "From Orality to Literacy? The case of the parapegma". in *Speaking Volumes: orality and literacy in the Greek and Roman world*. ed. J. Watson J. Brill, Leiden. pp. 139-159.
- Livy.** *History of Rome*. in *The Hellenistic World from Alexander to the Roman Conquest*. 2nd ed. #77, #94. Austin, M. (2006). Cambridge University Press.
- Pausanias.** *Guide to Greece*. translator Levi, R. (1979). Penguin Books.
- Philostratus.** *On Heroes* 53. 5-7. translators Bradshaw-Aitkin, E. & Berenson-Maclean J.K. (2001). <http://chs.harvard.edu>
- Plato.** *Laws*. translator Troncoso, V.A. (2009). The Hellenistic Gymnasium and the Pleasures of Paideia. *Symbolae Philologorum Posnaniensium Graecae et Latinae*. XIX: 71-84.
- Plato.** *Protagoras*. translator Taylor C.C.W. (1996). Oxford University Press.
- Plato.** *Republic*. translators Grube, G.M.A. & Reeve, C.D.C. (1992). Hackett Pub. Co.
- Plutarch.** *Aratus*. translator Perrin, B. (1926). William Heinemann Ltd. <http://www.perseus.tufts.edu>
- Plutarch.** *Demetrius*. translator Perrin, B. Harvard University Press. London. (1920). <http://www.perseus.tufts.edu>
- Plutarch.** *Phocion*. translator Perrin, B. Harvard University Press. London. (1920). <http://www.perseus.tufts.edu>
- Plutarch.** *Quaestiones Convivales*. translator Goodwin, W.W. (1874). <http://www.perseus.tufts.edu>
- Plutarch.** *Selected Lives: Romulus*. translator North, T. ed. Mossman, J. (1998). Wordsworth Classics of World Literature.
- Polybius.** *Histories*. quoted in Lehoux, D. (2007). *Astronomy, Weather, and Calendars*. Cambridge University Press.

- Polybius.** *Histories*. translator Shuckburgh E.S. (1889). Macmillan London. (1889). Reprint Bloomington (1962). www.perseus.tufts.edu
- Poseidonius of Apamea.** translator Diels, H. (1879: 461) *Doxographici Graeci*. in Sorabji, R. (1983). *Time, Creation and the Continuum: Theories in Antiquity and Early Middle Ages*. Duckworth, London.
- Posidippus.** *On a Statue of Time by Lysippos*. translator Paton W.R. (1918). *The Greek Anthology* Volume 5, Book XVI, Epigram 275.
- Pseudo-Plutarch.** *De Communibus Notitiis adversus Stoicos* 41: 1081F. translator Diels (1879: 461) *Doxographici Graeci*. in Sorabji, R. (1983). *Time, Creation and the Continuum: Theories in Antiquity and Early Middle Ages*. Duckworth, London.
- Ptolemy.** *Phaseis*. quoted in Lehoux, D. (2007). *Astronomy, Weather, and Calendars*. Cambridge University Press.
- Ptolemy.** *Ptolemy's Almagest*. translator Toomer, G.J. (1984). G. Duckworth & Co. Ltd.
- Strabo.** *Geography*. translator Troncoso, V.A. (2009). *The Hellenistic Gymnasium and the Pleasures of Paideia. Symbolae Philologorum Posnaniensium Graecae et Latinae*. XIX: 71-84.
- Suetonius.** *History of the Twelve Caesars*. translator Holland, P.; ed. Freese, J.H. (1923). Routledge.
- Suetonius.** *The Twelve Caesars*. translator Graves, R. (1957). Penguin Classics.
- Theocritus.** *Idyll I* in *Theocritus* Volume 1. 2nd ed. translator Gow, A.S.F. (1952) Cambridge University Press.
- Thucydides.** *History of the Peloponnesian War*. translator Crawley, R. (2009). www.gutenberg.org
- Vitruvius Pollio.** *The Ten Books on Architecture*. translators Rowland, I.D., Howe, T.N. & Dewar, M.J. (1999). Cambridge University Press.
- Virgil.** *Georgics*. translator Chew, K. (2009). Hackett Pub. Indianapolis.
- Virgil.** *Virgil's Georgics*. translator Fallon, P. (2006). Oxford University Press.

Virgil. *Virgil's Georgics: A new interpretation.* translator Miles, G.B. (1980). University of California Press.

Virgil. *The Georgics.* Project Gutenberg. www.gutenberg.net (2008).

Virgil. *Virgil: Georgics Volume 1: Books I-II.* translator Thomas, R.F. (1988). Cambridge University Press.

Xenophon. *Xenophon in Seven Volumes.* translator Brownson, C L. Vol. 1 (1918); Vol. 2 (1921). William Heinemann, London.

References.

- Adler, F.; Borrmann, R.; Dörpfeld, W.; Graeber, F. & Graef, P. (1896). *Olympia: die Ergebnisse der von dem Deutschen Reich veranstalteten Ausgrabung, im Auftrag des Königlich preussischen Ministers der geistlichen Unterrichts und Medicinalangelegenheiten. Zweiter Tafelband. Tafel LXXIII-CXXXII*. Asher, A. & Co., Berlin.
- Allen, D. (1996). A Schedule of Boundaries: an Exploration, Launched from the Water Clock, of Athenian Time. *Greece and Rome* xliii: 157 - 168.
- Andrade, N.J. (2013). *Syrian Identity in the Greco-Roman World*. Cambridge University Press.
- Athanasopoulos, P., Damjanovic, L., Krajciova, A. & Sasaki, M. (2011). Representation of Colour Concepts in Bilingual Cognition: The Case of Japanese Blues. *Bilingualism: Language and Cognition* 14: 9-17.
- Arnold, M. (1869). *Culture and Anarchy: An Essay in Social and Political Criticism*. London.
- Auden, W.H. (1979). *Selected Poems*. ed. Mendelson, E. Faber and Faber.
- Aujac, G. (1975). *Géminos: Introduction aux Phénomènes*. Belles Lettres, Paris.
- Austin, M. (2006). *The Hellenistic World from Alexander to the Roman Conquest: A selection of sources in translation* (2nd edition). Cambridge University Press.
- Austin, M. (2009). The Seleukids and Asia. in *A Companion to the Hellenistic World*. ed. Erskine, A. Wiley.
- Backe-Dahmen, A., Kästner, U., & Schwarzmaier, A. (2010). *Greek Vases: Gods, Heroes and Mortals*. Antikensammlung- Staatliche Museen Zu Berlin. P.72-73.
- Badian, E. (1976). Rome, Athens and Mithridates. *American Journal of Ancient History* 1: 105-128.
- Bagnall, R.S. and Derow, P. (2008). *The Hellenistic Period: Historical sources in translation*. Wiley.
- Balme, M. and Lawall, G. (1995). *Athenaze: An Introduction to Ancient Greek. Book 1*. Oxford University Press.

- Baplu, E. (2008). Lists of Months in Greek Papyri. *Chronique d’Egypte* 83: 224-244.
- Barringer, J.M. (2001). *The Hunt in Ancient Greece*. John Hopkins University Press, Baltimore.
- Barnes, J.T. (2014). Asteras Eipein: An Archaic view of the constellations from Halai. *Hesperia*: 257-276.
- Barton, T. (1994). *Ancient Astrology*. Routledge.
- Barton, T. (1995). Augustus and Capricorn: Astrological Polyvalency and Imperial Rhetoric. *Journal of Roman Studies* 85: 33-51.
- Beard, M. (2010). *The Parthenon*. Profile Books Ltd.
- Beazley, J.D. (1951). *The Development of Attic Black-Figure*. Berkeley, University of California Press.
- Beazley, J.D. (1963). *Attic Red-Figure Vase-Painters*. Oxford University Press, 2nd edition 1625.44BIS; # 1447.3, 1694.
- Beck, R. (1976). Interpreting the Ponza Zodiac. *Journal of Mithraic Studies* 1: 1 – 19.
- Beck, R. (1998). The Mysteries of Mithras: A New Account of Their Genesis. *The Journal of Roman Studies* 88: 115-128.
- Beck, R. (2007). *A Brief History of Ancient Astrology*, John Wiley.
- Belknap G.N. (1934). The Date of Dicaeopolis' Rural Dionysia. *The Journal of Hellenic Studies* 54: 77-78.
- Benedictus, L. (2013). What’s the Time? *The Guardian* G2 page 3, 06.06.2013.
- Benjamin, A. & Raubitschek, A.E. (1959). *Arae Augusti*. *Hesperia* 28: 65 – 85.
- Bennett, C. (2011^a). *Alexandria and the Moon: An investigation into the lunar calendar of Ptolemaic Egypt*. Peeters, Leuven.
- Bennett, C. (2011^b).
<http://www.tyndalehouse.com/egypt/ptolemies/chron/chronology.htm>
- Bergemann, J. (1997). *Demos und Thanatos*. Munich, Biering and Brinkmann.
- Berger, P. and Luckmann, T. (1966). *The Social Construction of Reality: A treatise in the sociology of knowledge*. Penguin Books, London.

- Bieber, M. (1959). Roman Men in Greek Himation (Romani Palliati): A Contribution to the History of Copying. *Proceedings of the American Philosophical Society* 103: 374-417.
- Bieber, M. (1961). *The Sculpture of the Hellenistic Age*. Columbia University Press, NY.
- Boutsikas, E. (2007) *Astronomy and Ancient Greek Cult: An application of archaeoastronomy to Greek religious architecture, cosmologies and landscapes*. PhD Thesis, University of Leicester.
- Boutsikas, E. (2011). Astronomical Evidence for the Timing of the Panathenaia. *American Journal of Archaeology* 115: 303 – 309.
- Boutsikas, E. & Ruggles, C. (2011). Temples, Stars, and Ritual Landscapes: The Potential for Archaeoastronomy in Ancient Greece. *American Journal of Archaeology* 115: 55 – 68.
- Boutsikas, E. & Hannah, R. (2012). Aitia, Astromomy and the Timing of the Arrhephoria. *Annual of the British School at Athens*. 107: 233-245.
- Braund, D. C. (1987). The Legacy of the Republic. in *The Roman World*. ed. Wachter, J. Routledge, London. pp. 55-68.
- Bremmer, J.N. (1998). Aëtius, Arius Didymus and the Transmission of Doxography. *Mnemosyne* 51: 154-160.
- Bremer, J.M. (1987). Full moon and marriage in Apollonus' *Argonautica*. *Classical Quarterly* 37: 423 – 426.
- Brendel, O. (1945). Procession Personified. *American Journal of Archaeology* 49: 519-525.
- Brinkman, J.A. (2006). Babylonian Royal Land Grants, Memorials of Financial Interest, and Invocation of the Divine. *Journal of the Economic and Social History of the Orient* 49: 1 – 47.
- Broad, C.D. (1967). Ostensible Temporality. in *The Philosophy of Time*. ed. Gayle, R.M. Anchor, N.Y. pp. 117 – 142.
- Broneer, O. (1942), The *Thesmophorion* in Athens. *Hesperia* 11: 250-274.
- Brunschwig, J. (1999). Introduction: the beginnings of Hellenistic epistemology. in *The Cambridge History of Hellenistic Philosophy*. eds. Algra, K., Barnes, J., Mansfeld, J. & Schofield, M. Cambridge University Press. pp. 229-259.

- Bugh, G.R. (1990). The Theseia in Late Hellenistic Athens. *Zeitschrift für Papyrologie und Epigraphik* 83: 20-37.
- Burkert, W. (1985). *Greek Religion: Archaic and Classical*. (translated by Raffan, J.) Blackwell, Oxford.
- Burkert, W. (1993^a). Heraclitus and the Moon: New fragments in P. Oxy. 3710. *Illinois Classical Studies* 18: 49-55.
- Burkert, W. (1993^b). Kronia-fest und der ihr altoriental Hintergrund. in *Karnevaleske Phänomene in Antike und Nachantike Kulteren*. ed. Döpp, S. pp. 11-30.
- Burkert, W. (1993^c). Bacchic *Teletai* in the Hellenistic Age. in *Masks of Dionysus*. eds. Carpenter T. H. & Faraone, C.A. Cornell University Press. pp.259-275.
- Burn, L. (2004). *Hellenistic Art: From Alexander the Great to Augustus*. The British Museum Press.
- Burns, A. (1976). Hippodamus and the Planned City. *Historia* 25:414-428.
- Cabanes, P. (2007). *Études Epigraphiques 2: Corpus des inscriptions grecques d'Illyrie méridionale et Épire:2.2 Inscriptions de Bouthrotos*. Athens. pp. 275-288.
- Camp, J.M. (1986). *The Athenian Agora*. Thames and Hudson.
- Camp, J.M. (1992). *The Athenian Agora: Excavations in the Heart of Classical Athens*. Thames and Hudson.
- Camp, J.M. (2001). *The Archaeology of Athens*. Yale University Press.
- Camp, J.M. (2007). Excavations in the Athenian Agora: 2002-2007. *Hesperia* 76:627-63.
- Camp, J.M. (2009). The Archaeology of the Athenian Agora. in *The Athenian Agora: New perspectives on an Ancient Site*. eds. Camp, J.M. & Mauzy, C.A. pp.11-38.
- Carpenter, T.H. (1991). *Art and Myth in Ancient Greece*. Thames and Hudson.
- Chaniotis, A. (2005). *War in the Hellenistic World*. Oxford, Blackwell.

- Chaniotis, A. (2011). The Ithyphallic Hymn for Demetrios Poliorketes and Hellenistic Religious Mentality. in *More than Men Less than Gods: Studies on Royal Cult and Imperial Worship*. eds. Iossif, P.P., Chankowski, A.S. & Lorber, C.C. Peeters, Leuven. pp. 157-196.
- Chew, K. (2009). *Georgics*. Hackett Pub. Indianapolis.
- Christopoulou, V. (2004). *The Ancient Agora of Athens – Areopagus Hill*. Athens.
- Christopoulou, V. (2011). *The Ancient Agora of Athens – The Areopagus*. Athens
- Clarke, K. (2008). *Making Time for the Past: Local History and the Polis*. Oxford University Press.
- Claughton, J. & Affleck, J. (2012). *Aristophanes Clouds*. Cambridge University Press.
- Clinton, K. (1996). The *Thesmophorion* in Central Athens and the Celebration of the Thesmophoria in Attica. in *The Role of Religion in the Early Greek Polis*. ed. Hägg, R. Stockholm pp.111 -125.
- Coldstream, J.N. (1985). Greek Temples: Why and Where. in *Greek Religion and Society*. eds. Easterling, P.E. & Muir, J.V. Cambridge University Press. pp.67–97.
- Cooley, A.E. (2009) *Res Gestae Divi Augusti: Text, Translation and Commentary*. Cambridge University Press.
- Coope, U. (2005). *Time for Aristotle: Physics IV. 10-14*. Clarendon Press, Oxford.
- Conwell, D.H. (2008). *Connecting a City to the Sea: The history of the Athenian Long Walls*. (Mnemosyne Suppl.293). Leiden.
- Costaki, I. (2006). *The intra muros Road System of Ancient Athens*. Diss. University of Toronto.
- Coulton, J.J. (1995). *Ancient Greek Architects at Work: problems of structure and design*. Oxbow Books.
- Couper, H. & Henbest, N. (2012). *Stargazing*. Octopus Publishing Group, London.
- Criboire, R. (2005). *Gymnastics of the Mind*. Princeton University Press
- Crook, J.A. (1996). Political History: 30 BC – AD 14. in *Cambridge Ancient History Volume 10, The Augustan Empire, 43 BC – AD 69 (2nd edition)*. eds. Bowman, A.K., Champlin, E. & Lintott, A. Cambridge University Press. pp. 70-112.

- Csapo, E. (1993). Deep Ambivalence (part 1): Notes on a Greek Cockfight. *Phoenix* 47: 1-28.
- Csapo, E. (1997). Riding the Phallus for Dionysus: Iconology, Ritual and Gender-role De/Construction. *Phoenix* 51: 253-295.
- Csapo, E. & Miller, M. (1998). Democracy, Empire, and Art: Toward a Politics of Time and Narrative. in *Democracy, Empire, and the Arts in fifth Century Athens*. eds. Boedeker, D.D. & Raaflaub, K.A. Cambridge. pp. 87 -125.
- Cunningham, S.C. & Sutton, E.R.H. (2008). Letter to (Fellow) Young Doctors: More *Kairos* and less *chronos*. *Surgical Innovation* 15: 324 – 331.
- D'Angour, A. (2011). *The Greeks and the New: Novelty in Greek Imagination and Experience*. Cambridge University Press.
- Daux, G. (1963). La Grande Demarchie: Un nouveau calendrier sacrificiel d'Attique (Erchia). *Bulletin de Correspondance Hellénique* 87:603-634.
- Daux, G. (1983). Le Calendrier de Thorikos au Musee J Paul Getty. *L'Antiquité Classique*. 52:150-174.
- Davidson, J. (2008). Time and Greek Religion. in *A Companion to Greek Religion*. ed. Ogden, D. Wiley-Blackwell. pp. 204 – 218.
- Davies, J.K. (1996). Documents and 'Documents' in 4th Century Historiography. in *Le IVe Siecle av. J.-C.: Approches historiographiques*. ed. Carlier, P. De Boccard . pp. 29-39.
- de Cou, H.F. (1893). The Fieze of the Choragic Monument of Lysikrates at Athens. *American Journal of Archaeology and of the History of the Fine Arts* 8: 42-55.
- de Jong, I.J.F. (2007). Narratological Theory on Time. in *Time in Ancient Greek Literature: Studies in Ancient Greek narrative*. eds. De Jong, I.J.F. & Nèunlist, R. Brill, Leiden. pp.1–16.
- Delorme, J. (1960). *Gymnasion: Etudes sur les monuments consacrés à l'éducation en Grèce*. De Boccard, Paris.
- Detienne, M. (1972). (translated by Lloyd, J. 1977, with J-P Vernant introduction, 1994) *The Gardens of Adonis: Spices in Greek Mythology*. Princeton University Press.

- Detienne, M. (1977) (translated by Mueller, M. and Mueller, L. 1979) *Dionysos Slain*. John Hopkins University Press.
- Deubner, L. (1932). *Attische Feste*. Berlin, Akademie-Verlag.
- Dillery, J. (2005). Greek Sacred History. *American Journal of Philology* 126: 505 – 526.
- Dillon, M.P.J. (1996). The Importance of the Water Supply at Athens: The role of ἐπιμδλητῆς τῶν κρινῶν. *Hermes* 124:192-204.
- Dinsmoor, W.B. (1975). *The Architecture of Ancient Greece: an account of its historic development*. B.T. Batsford Ltd., London.
- Dittenberger, W. (1915-24). *Sylloge Inscriptionum Graecarum*. Volume Alterum. Lipsiae, apud. S. Hirzelium.
- Dodds, E.R. (1951). *The Greeks and the Irrational*. University of California Press.
- Dodds, E.R. (1973). *The Ancient Concept of Progress and Other Essays on Greek Literature and Belief*. Clarendon, Oxford.
- Dodwell, E. (1819). *A Classical and Topographical Tour through Greece*. London, Rodwell and Martin.
- Dow, S. (1960). The Athenian *Epheboi*: Other staffs and Staff of the Diogeneion. *Transactions & Proceedings of the American Philological Society* 91: 381-409.
- Dow, S. (1965). The Greater Demarkhia of Erchia. *Bulletin de Correspondance Hellénique* 89:180-213.
- Dow, S. (1968). Six Athenian Sacrificial Calendars. *Bulletin de Correspondance Hellénique* 92:170-186
- Dow, S & Healey, RF. (1965). *The sacred calendar of Eleusis*. Harvard Theological Studies 21, Harvard University Press.
- Dreyer, B. (2002). Der 'Raubvertrag' des Jahres 203/2 v. Chr: Das Inschriftfragment von Barylia and der Brief von Amyzon. *Epigraphica Anatolica* 34: 119-138.
- Duhem, P. (1908). *To Save the Phenomena* (translation by Doland, E. & Maschler, C. (1969) Chicago).

- Duke, D.W. (2006). Analysis of the Farnese Globe. *Journal for the History of Astronomy* 37: 87-100.
- Dunbabin, T.J. (1954).review of Lerat, L. (1952). Les Locriens de l'ouest. 2 volumes. Paris, de Boccard. *Classical Review* 4: 310-311.
- Dunn, F.M. (1998). Tampering with the Calendar. *Zeitschrift für Papyrologie und Epigraphik* 123: 213-231.
- Durkheim, E. (1953) [1898]. Individual and Collective Representations. in *Society and Philosophy*. London, Cohen and West.
- Eckstein, A.M. (2008). *Rome Enters the Greek East: from Anarchy to Hierarchy in the Hellenistic Mediterranean, 230-170 BC*. Blackwell.
- Eckstein, A.M. (2010). Macedonia and Rome 221-146 BC. in *A Companion to Ancient Macedonia*. eds. Roisman, J. & Worthington, I. Wiley. pp. 225-250.
- Edelstein, L. (1967). *The Idea of Progress in Classical Antiquity*. John Hopkins Press, Baltimore.
- Elderkin, G.W. (1936). The Deification of Homer by Archelaos. *American Journal of Archaeology* 40: 496-500.
- Evans, J. (1999). The material culture of Greek astronomy. *Journal for the History of Astronomy* 30: 237 – 307.
- Evans, J. & Berggren, J.L. (2006). *Geminus's Introduction to the Phaenomena: A translation and study of a Hellenistic survey of astronomy*. Princeton University Press.
- Evans, J., Carman, C.C. & Thorndike, A.S. (2010). Solar Anomaly and Planetary Displays in the Antikythera Mechanism. *Journal of the History of Astronomy* 41: 1-39
- Evans-Pritchard, E. (1939). Nuer Time Reckoning. *Africa* 12: 189 -216.
- Fallon, P. (2006). *Virgil's Georgics*. Oxford University Press.
- Feeney, D. (2007). *Caesar's Calendar: Ancient Time and the Beginnings of History*. University of California Press.
- Ferguson, WS. (1938). The Salaminioi of Heptaphylia and Sounion. *Hesperia* 7:1-74.

- Finley, M. I., & Pleket, H.W. (1976). *The Olympic Games: The First 1000 Years*. Chatto and Windus.
- Fisher, N. (2004). The Perils of Pittalakos: Settings of Cock Fighting and Dicing in Classical Athens. in *Games and Festivals in Classical Antiquity*. eds. Bell, S. & Davies, G. Archaeopress, Oxford. pp. 65-78.
- Fleischer, R. (1996). Hellenistic Royal Iconography on Coins. in *Aspects of Hellenistic Kingship*. eds. Bilde, P., Engberg-Pedersen, T., Hannestad, L. & Zahle, J. Aarhus University Press. pp. 28-40.
- Forster, E.S. & Heffner, A.M. (1948-55). Translation of Lucius Junius Moderatus Columella. *On Agriculture and Trees Volume III, Book XI, II*. Loeb, Cambridge Massachusetts.
- Foxhall, L. (1995^a). Monumental Ambitions: The significance of posterity in Greece. in *Time, Tradition and Society in Greek Archaeology: Bridging the 'Great Divide'*. ed. Nigel Spencer. (TEG) Routledge, London. pp. 132-149.
- Foxhall, L. (1995^b). Woman's Ritual and Men's Work in Ancient Athens. in *Women in Antiquity: New Assessments*. eds. Hawley, R. & Levick, B. Routledge. pp. 97-110.
- Foxhall, L., Jones M., & Forbes, H. (2008). Human Ecology and the Classical Landscape: Introduction. in *Classical Archaeology*. eds. S. Alcock & R. Osborne. Blackwell, Oxford. pp. 91 – 121.
- Frank, R.M. (2015). The Origin of 'Western' Constellations. in *Handbook of Archaeoastronomy and Ethnoastronomy*. ed. Ruggles, C.L.N. Springer Science, New York. pp. 147-163.
- Frantz, A. (1979). A Public Building of Late Antiquity in Athens. *Hesperia* 48: 194 - 203.
- Fraser, P. (1951). Peloponese Inscriptions. *Revue of Supplementum Epigraphicum Graecum*. Daux, G., Klaffenbach, G., Tod, M.N. & Hondius, J.J. *Classical Review New Series* 1: 223-225.
- Frede, M. (1999). Stoic Epistemology. in *The Cambridge History of Hellenistic Philosophy*. eds. Algra, K., Barnes, J., Mansfeld, J. & Schofield, M. Cambridge University Press. pp. 295-322.

- Freeth, T., Bitsakis, Y., Moussas, J.H., Sieradakis, J.H., Tselikas, A., Mangou, H., Zafeiropolou, M., Hadland, R., Bate, D., Ramsey, A., Allen, M., Crawley, A., Hockley, P., Malzbender, T., Gelb, D., Ambrisco, W. & M.G. Edwards. (2006). Decoding the ancient Greek astronomical calculator known as the Antikythera Mechanism. *Nature* 444: 587-591.
- Freeth, T., Jones, A., Steele, J.M., & Bitsakis, Y. (2008). Calendars with Olympiad Display and Eclipse Prediction on the Antikythera Mechanism. *Nature* 454: 614-617.
- Freeth, T. (2009). Decoding an Ancient Computer. *Scientific American* 30: 76-83.
- Furley, D. (1999). Cosmology. in *The Cambridge History of Hellenistic Philosophy*. eds. Algra, K., Barnes, J., Mansfeld, J. & Schofield, M. Cambridge University Press. pp.412-451.
- Gawlinski, L. (2007). The Athenian calendar of Sacrifices: a new fragment from the Athenian Agora. *Hesperia* 76: 37-55.
- Geertz, C. (1973). *The Interpretations of Cultures: Selected essays by Clifford Geertz*. Basic Books, N.Y.
- Gehrke, H-J. (2010). Greek Representations of the Past. In *Intentional History: Spinning Time in Ancient Greece*. eds. Foxhall, L., Gehrke, H-J. & Luraghi, N. Steiner, Stuttgart. pp. 16 – 33.
- Gell, A. (1992). *The Anthropology of Time*. Berg, Oxford.
- Getty, R.J. (1951). Liber et Alma Ceres in Vergil Georgics 1.7. *Phoenix* 5: 96-107.
- Ghiță, C.E. (2011). Creating and Transforming a Dynastic Myth – The Commagenian Case. In *Myth-Making and Myth-Breaking in History and the Humanities* (Proceedings of the Conference held at the University of Bucharest, October 2011). eds. Dobre, C-F, Epurescu-Pasovici, I. & Ghiță, C.E. pp. 13-24.
- Glass, S.L. (1967). *Palaistra and Gymnasium in Greek Architecture*. PhD Thesis Philadelphia, USA.
- Goell, T. (1957). The Excavation of the "Hierothesion" of Antiochus I of Commagene on Nemrud Dagh (1953-1956). *Bulletin of the American Schools of Oriental Research* 147: 4-22.

- Goette, H.R. (2001). *Athens, Attica and the Megarid: An archaeological guide*. Routledge.
- Gombrich, E. (1977). *Art and Illusion: A Study in the Psychology of Pictorial Representation*. London, Phaidon.
- Gonzales, M. (2008). New Observations on the Lindian Cult-Tax for Enyalios (SEG 4.171). *Zeitschrift für Papyrologie und Epigraphik* 166: 121-134.
- Gorman, V.B. (2001). *Miletos, the Ornament of Ionia: A history of the city to 400 BC*. Ann Arbor, University of Michigan Press.
- Gow, A.S.F. & Page, D.L. (1965^a). *The Greek Anthology: Hellenistic Epigrams*. Volume 1. Cambridge University Press.
- Gow, A.S.F. & Page, D.L. (1965^b). *The Greek Anthology: Hellenistic Epigrams*. Volume 2. Cambridge University Press.
- Graf, F. (1993). *Greek Mythology: An introduction*. Translated by Marier, T. John Hopkins University Press.
- Grafton, H.T. and Swerdlow, N.M. (1988). Calendar dates and Ominous Days in Ancient Historiography. *Journal of the Warburg and Courtauld Institutes* 51: 14 – 42.
- Grant, F.C. (1953). *Hellenistic Religions*. The Library of Liberal Arts, Indianapolis: Bobbs-Merrill.
- Green, P. (2003). Occupation and Co-existence: the impact of Macedon on Athens 323-307 BC. in *The Macedonians in Athens: 322 – 229 BC*. eds. Palagia, O & Tracy, S.V. Oxbow Books. p.1-17.
- Griffin, A. (1982). *Sikyon*. Clarendon Press, Oxford.
- Gruen, E.S. (1976). The Origins of the Achaean War. *The Journal of Hellenic Studies*. 96: 46-69.
- Grundel, H.G. (1992). *Zodiakos: Tierkreisbilder im Altertum; Kosmische Bezüge und Jenseitsvorstellungen in antiken*. Mainz am Rhein: P.von Zabern.
- Gúney, A.Ó. (2008). *An Iconological Study on the Lion Horoscope Relief of Nemrut Dag Hierothesion*. www.metu.academia.edu
- Gutenberg Project (2008). *Virgil's Georgics*. <http://www.gutenberg.org>

- Gutzwiller, K. (2007). *A Guide to Hellenistic Literature*. Blackwell Publishing, Oxford.
- Habicht, C. (1990). Athens and the Attalids in the Second century BC. *Hesperia* 59: 561-577.
- Habicht, C. (1992). Athens and the Ptolemies. *Classical Antiquity* 11: 68-90.
- Habicht, C. (1997). trans. Schneider, D.L. *Athens from Alexander to Antony*. Harvard University Press.
- Habicht, C. (1997). *Athens from Alexander to Antony*. Translated by Schneider, D.L. Harvard University Press.
- Habicht, C. (2003). Athens after the Chremonidean War: some second thoughts. in *The Macedonians in Athens: 322-229 BC*. eds. Palagia, O. & Tracy, S.V. Oxbow Books. pp.52-55.
- Hacking, I. (1999). *The Social Construction of What?* Harvard University Press.
- Hallett, M. and Riding, C. (2006). *Hogarth*. Tate Publishing.
- Hanfmann, G.M.A. (1937). review: Studies in Greek Religion. Smertenko, C.M, & Belknap, G.N. *American Journal of Archaeology* 41: 504.
- Hankinson, R.J. (2003). *Cause and Explanation in Ancient Greek Thought*. Oxford Scholarship Online.
- Hannah, R. (2001). From Orality to Literacy? The case of the parapegma. in *Speaking Volumes: orality and literacy in the Greek and Roman world*. ed. J. Watson. Brill, Leiden. pp. 139-159.
- Hannah, R. (2005). *Greek and Roman Calendars: Constructions of Time in the Classical World*. Duckworth & Co. Ltd.
- Hannah, R. (2009). *Time in Antiquity*. Routledge.
- Hannah, R. (2012). Early Greek Lunisolar Cycles: The Pythian and Olympic Games. in *Living the Lunar Calendar*. eds. Ben-Dov, J.; Horowitz, W. & Steele, J.M. Oxbow, Oxford. pp. 79-94.
- Hansen, E.V. (1947). *The Attalids of Pergamon*. Cornell University Press.

- Hardie, P.R. (1985). Imago Mundi: Cosmological and ideological aspects of the Shield of Achilles. *Journal of Hellenic Studies* 105: 11-31.
- Hastings, M.H. (1997). Central Clocking. *Trends in Neurological Sciences* 20: 459 – 464.
- Harding, P. (1994). *Androtion and the Atthis: The fragments, translated with introduction and commentary*. Oxford University Press.
- Harris, O.J.T. & Robb, J. (2012). Multiple Ontologies and the Problem of the Body in History. *American Anthropologist* 114: 668-679.
- Harrison, E.B. (1972). The South Frieze of the Nike Temple and the Marathon Painting in the Painted Stoa. *American Journal of Archaeology* 76: 353-378.
- Havelock, C.M. (1964). Archaistic Reliefs of the Hellenistic Period. *American Journal of Archaeology* 68: 43-58.
- Hedreen, G.M. (1992). *Silens in Attic Black-figure Vase Painting*. University Michigan Press.
- Herda, A. (2006). *Der Apollon-Delphinios-Kult in Milet and die Neujahrprozession nach Didyma. Ein neuer Kommentar der sog. Molpoi-Satzung*. (Milesische Fotschungen, 4). Mainz
- Herda, A. (2011). The Organisation of the Cult of Apollo Delphinos in Miletos: How to run a State cult. in *Current Approaches to Religion in Ancient Greece*. eds. Haysom, M.C. and Wallensten, J. Stockholm, Acta Instituti Atheniensis Regni Sueciae, Series in 8^o, 21. pp.57-94.
- Herrmann, F-G. (2008). Greek Religion and Philosophy: The God of the Philosopher. in *A Companion to Greek Religion*. ed. Ogden, D. Wiley, pp.385-397.
- Heslin, P. (2010). Virgil's Georgics and the Dating of Propertius' First Book. *Journal of Roman Studies* 100: 54-68.
- Hitch, S. (2012) Proerosia. *Encyclopaedia of Ancient History*. eds. Bagnall, R.S., Brodersen, K., Champion, C.B, Erskine, A. & Huebner, S.R. Wiley-Blackwell.
- Hodder, I. (1990). *The Domestication of Europe*. Blackwell.
- Hodder, I. (2005). Symbolic and Structuralist Archaeology, in *Archaeology: the key concepts*. eds. Renfrew, C. & Bahn, P. Routledge.

- Holbrow, C.H., Lloyd, J.N. & Amato, J.C. (2010). Time and Lengths at High Speeds. in *Modern Introductory Physics*. eds. Holbrow, C.H.; Lloyd, J.N.; Amato, J.C.; Galvez, E. & Parks, M.E. Springer. pp. 339 – 374.
- Holliday, K. (1999). *Introductory Astronomy*. J. Wiley & Sons.
- Holloway, R.R. (2000). *The Archaeology of Ancient Sicily*. Routledge
- Humphreys, S.C. (1978). *Anthropology and the Greeks*. Routledge.
- Humphreys, S.C. (2004). *The Strangeness of Gods*. Oxford University Press.
- Ings, S. (2007). *The Eye: A natural history*. London.
- Jaeger, W. (1939). *Paideia: The Ideals of Greek Culture* Vol. I (Book I, *Archaic Greece* and Book II, *The Mind of Athens*), translated by Highet, G. Oxford.
- Jaeger, W. (1943). *Paideia: The Ideals of Greek Culture* Vol. 2 (Book III, *In Search of the Divine Centre*), translated by Highet, G. Oxford.
- Jaeger, W. (1944). *Paideia: The Ideals of Greek Culture* Vol. 3 (Book IV, *The Conflict of Cultural Ideals in the Age of Plato*), translated by Highet, G. Oxford.
- Jameson, M.H. (1965). Notes on the Sacrificial Calendars from Erchia. *Bulletin de Correspondance Hellénique* 89:154-172.
- Jameson, M.H. (2014). *Cults and Rites in Ancient Greece: Essays on Religion and Society*. Cambridge University Press.
- Johnson, M. 2nd ed. (2010). *Archaeological Theory: An introduction*. Wiley-Blackwell.
- Jones, A. (1997). On the Reconstructed Macedonian and Egyptian Lunar Calendars. *Zeitschrift für Papyrologie und Epigraphik* 119: 157-166.
- Jones, A. (1999). *Astronomical Papyri from Oxyrhynchus*. Volume 2. American Philosophical Society, Philadelphia.
- Jones, A. (2000). Calendrica I: New Callippic dates. *Zeitschrift für Papyrologie und Epigraphik* 119:85-106.
- Jones, A. (2003). The Stoics and the Astronomical Sciences. in *The Cambridge Companion to the Stoics*. ed. Inwood, B. Cambridge University Press pp. 328-344.

- Jones, A. (2005). Ptolemy's mathematical models and their Meaning. in *Mathematics and the Historian's Craft – the Kenneth May Lectures*. (eds) Van Brummelen, G. and Kinyon, M. p. 23 – 42. CMS Books in Mathematics, Springer.
- Jones, A. (2006). Ptolemy's Ancient Planetary Observations. *Annals of Science* 63: 255-290.
- Jones, A. (2007). On Greek Stellar and Zodiacal Date-Reckoning in *Calendars and Years: Astronomy and the Ancient Near East*. ed. Steele, J.M. Oxbow Books p.149 – 167.
- Jones, A. (2012). The Antikythera Mechanism and the Public Face of Greek Science. Proceedings of the Meeting *From Antikythera to the Square Kilometre Array: Lessons from the Ancients*. 12-15 June 2012. Kerastari, Greece. Published online at <http://pos.sissa.it>
- Jones, A.H.M. (1940). *The Greek City: From Alexander to Justinian*. Clarendon Press, Oxford.
- Jones, P. (2007). Three New Letters of the Emperor Hadrian. *Zeitschrift für Papyrologie und Epigraphik* 161: 145 – 156.
- Kadletz, E. (1980). The race and the procession of the Oschophoria. *Greek, Roman and Byzantine Studies* 21: 363-371.
- Kavvadias, G. (2004). *South Slope of the Acropolis*. Athens.
- Kavvadias, G. (2012). The Red-Slip Tableware. in *The Antikythera Shipwreck: The Ship, the Treasures and the Mechanism*. eds. Kalstas, N., Vlachogianni, E. & Bouyia, P. National Archaeological Museum, Athens. pp.169–173.
- Keinast, H.J. (1997). The Tower of the Winds in Athens. in *The Romanization of Athens*. eds. Hoff, M.C. & Rotroff, S.I. Oxbow Monograph 94. pp. 53-66.
- Keinast, H.J. (2008). *The Tower of the Winds in Athens*. Hellenic Ministry of Culture. Archaeological Receipts Fund.
- Kellogg, G.D. (1929). Catullus 4: was Catullus' Phasellus a Racing Yacht? *Classical Weekly* 27: 185-189.
- Kellogg, D.L. (2013). The Place of Publication of the Ephebic Oath and the "Oath of Plataia". *Hesperia* 82: 263-276.

- Kennell, N.M. (1999). Age Categories and Chronology in the Hellenistic Theseia. *Phoenix* 53: 249-262.
- Kennedy, D.F. (2013). *Antiquity and the meaning of Time: A philosophy of ancient and modern literature*. Allen Lane, London.
- Kerényi, C. (1976). *Dionysos: archetypal image of indestructible life*. Princeton University Press. English translation by Manheim R. (1996). Mythos.
- Kiilerich, B. (2005). Making Sense of the Spolia in the Little Metropolis in Athens. *Arte Medievale* IV: 95 - 114.
- Kidd, K. (1997). *Aratus Phaenomena: edited with translation and commentary*. Cambridge University Press.
- King, K.C. (1980). The Force of Tradition: The Achilles Ode in Euripides' *Electra*. *Transactions of the American Philosophical Society* 110: 195 – 212.
- Kinneavy, J.L. & Eskin, C.R. (2000). *Kairos in Aristotle's Rhetoric*. *Written Communication* 17: 432– 444.
- Konaris, M. (2012). Ares. *Encyclopedia of Ancient History*. eds. Bagnall, R.S., Brodersen, K., Champion, C.B., Erskine, A. & Huebner, S.R. Wiley-Blackwell.
- Kondon, T. and Ishiura, M. (1999). The Circadian Clocks of Plants and Cyanobacteria. *Trends in Plant Science* 4: 171 – 176.
- Kralli, I. (2000). Athens and the Hellenistic Kings (338-261). *Classical Quarterly* 50: 113-132.
- Kroll, J.H. (1997). Coinage as an Index of Romanisation. in *The Romanisation of Athens*. eds. Hoff, M.C. & Rotoff, S.I. Oxbow Monograph 94. Oxford pp. 135-150.
- Kutbay, B.L. (1998). *Palaces and Large Residences in the Hellenistic Age*. Edwin Mellen Press.
- Kuhrt, A. (1996). The Seleucid Kings and Babylonia: New perspectives on the Seleucid realm in the East. in *Aspects of Hellenistic Kingship*. eds. Bilde, P., Engberg-Pedersen, T., Hannestad, L. & Zahle J. Aarhus University Press. pp. 41-54.
- Kumar, M. (2010). Review of Penrose: *Cycles of Time: An extraordinary new view of the universe*. The Guardian. October 16th.

- Lambert, S.D. (1997). The Attic Genos Salaminioi and the Island of Salamis. *Zeitschrift für Papyrologie und Epigraphik* 119:85-106.
- Lambert, S.D. (1998). The Attic "Genos" Bakchiadai and the City Dionysia. *Historia: Zeitschrift für Alte Geschichte* 47: 394-403.
- Lambert, S.D. (2000). The Sacrificial Calendar of the Marathonian Tetrapolis: a revised text. *Zeitschrift für Papyrologie und Epigraphik* 130:43-70.
- Lambert, S.D. (2002). The Sacrificial Calendar of Athens. *Annual of the British School at Athens* 97: 353-399.
- Lambert, S.D. (2005). Athenian State Laws and Decrees, 352/1-322/1: II Religious Regulations. *Zeitschrift für Papyrologie und Epigraphik* 154: 125-159.
- Lambert, S.D. (2008). Aglauros, the Euenoridai and the Autochthon of Atlantis. *Zeitschrift für Papyrologie und Epigraphik* 167: 22-26.
- Lambert, S.D. (2012). Inscribing the Past in Fourth Century Athens. in *Greek Notions of the Past in the Archaic and Classical Eras: History without historians*. eds. Marinola, J., Llewellyn-Jones, L. & Maciver, C. Edinburgh University Press. pp.253-275.
- Larsen, J.A.O. (1965). Phocis in the Social War of 220 -217 BC. *Phoenix* 19: 116 128.
- Larsen, J.A.O. (1972). A Recent Interpretation of Achaean Assemblies. *Classical Philology* 67: 178-185.
- Larson, J.L. (1995). *Greek Heroine Cults*. Uni. Wisconsin Press.
- Latour, B. (1999). *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, Massachusetts.
- Lawrence, A.W. (1996). *Greek Architecture*. 5th ed. Yale University Press.
- Leach, E. (1961). *Rethinking Anthropology*. The Athlone Press, New York.
- Lehoux, D. (2007). *Astronomy, Weather, and Calendars in the Ancient World: Parapegmata and Related Texts in Classical and Near Eastern Societies*. Cambridge University Press.
- Lehoux, D. (2012). *What Did the Romans Know? An Inquiry into Science and Worldmaking*. Chicago University Press.

- Lerat, L. (1952). *Les Locriens de l'ouest*, Volume 2. Paris, de Boccard.
- Lévi-Strauss, C. (1969). *The Elementary Structures Of Kinship*. Boston Beacon Press.
- Lewis, D.M. (1973). Attic Ephebic Inscriptions. Review of Reinmuth, O. (1971) The Ephebic Inscriptions of the 4th century BC. *The Classical Review* 23: 254-256.
- Lewis, D.M. (1975). Review of Greek Chronology: Calendars and Years in Classical Antiquity. A.E. Samuel (1972). *The Classical Review* 25: 69 – 72.
- Liddell H.G. & Scott R. (1940). *A Greek-English Lexicon*: revised by Jones H.S. & McKenzie R. Oxford, Clarendon Press.
- LIMC (1992). *Lexicon Iconographicum Mythologicae Classicae*. Artemis Verlag Zürich und München.
- Lloyd, G.E.R. (1966). *Polarity and Analogy: Two Types of Argumentation in Early Greek Thought*. Cambridge University Press.
- Lloyd, G.E.R. (1970). *Early Greek Science: Thales to Aristotle*. Norton & Co. Inc. New York.
- Lloyd, G.E.R. (1973). *Greek Science after Aristotle*. Norton & Co. Inc. New York.
- Lloyd, G.E.R. (1978). Saving the Appearances. *The Classical Quarterly* 28: 202 – 222.
- Lloyd, G.E.R. (1979). *Magic, Reason and Experience*. Cambridge University Press.
- Lolos, Y.A. (2011). *Land of Sikyon: Archaeology and history of a Greek City State*. Princeton, American School of Classical Studies, Athens.
- Lönnqvist, K. (1997). Studies on the Hellenistic Coinage of Athens: the impact of Macedonia on the Athenian money market in 3rd century BC. in *Early Hellenistic Athens: Symptoms of change*. ed. Frösén, J. Foundation of the Finnish Institute Athens, Finland. pp. 147-183.
- Lucas, G. (2004). *Archaeology of Time*. Routledge.
- Lupu, E. (2003). Sacrifice at the Amphiareion and a Fragmentary Sacred Law from Oropos. *Hesperia* 72: 321-340.
- Lupu, E. (2009) *Greek Sacred Law: a collection of new documents*. (2nd ed.) Brill, Leiden.

- Ma, J. (2000). *Antiochos III and the Cities of Western Asia Minor*. Oxford University Press.
- Maass, M. (1972). *Die Prohedrie des Dionysostheaters in Athen*. Vestigia Band 15. O. Beck, München.
- Maguire, E. D. & Maguire, H. (2007). *Other Icons: Art and power in Byzantine Secular Culture*. Princeton University Press.
- Maier, F.K. (2012). Learning from History ΠΑΡΑ ΔΟΞΑΝ: A new approach to Polybius' manifold view of the past. *Histos* 6: 144-168.
- Mansfeld, J. (1999). Theology. in *The Cambridge History of Hellenistic Philosophy*. eds. Algra, K., Barnes, J., Mansfeld, J. & Schofield, M. Cambridge University Press. pp.452-478.
- Marchant, J. (2010). Mechanical inspiration. *Nature* 468:496-498.
- Margaritis, E. & M. Jones (2006). Beyond Cereals: Crop-processing and *Vitis vinifera* L: Ethnography, Experiment and Charred Remains from Hellenistic Greece. *Journal of Archaeological Science* 33: 784 - 805.
- Margaritis, E. & M. Jones (2008). Greek and Roman Agriculture. In *The Oxford Handbook of Engineering and Technology*. ed. J. Oleson. Oxford. pp. 158 – 174.
- Martin, L.H. (1987). *Hellenistic Religions: An introduction*. Oxford University Press.
- Masters, J. C. (2007). Taking Phylogenetics Beyond Pattern Analysis: Can Models of Genome Dynamics Guide Predictions About Homoplasy in Morphological and Behavioural Datasets? *Journal of Human Evolution* 52: 522-535.
- Mattingly, H. (1997). Athens between Rome and the Kings: 229/8 to 129 BC. in *Hellenistic Constructs: Essays in culture, history and historiography*. eds. Cartledge, P., Garnsey, P. & Gruen, E.S. University of California Press. pp. 120-144.
- Mauzy, C.A. (2009). A Pictorial History of the Agora Excavations. in *The Athenian Agora: New perspectives on an Ancient Site*. eds. Camp, J.M. & Mauzy, C.A. Mainz am Rhein: Philipp von Zabern. pp. 87-112.
- McLean, B.H. (2011). *An Introduction to Greek Epigraphy of the Hellenistic and Roman Periods from Alexander the Great down to the Reign of Constantine (323 BC – AD 337)*. University of Michigan Press, Ann Arbor.

- Mee, C. and A. Spawforth (2001). *Greece: Oxford Archaeological Guide*. Oxford University Press.
- Meritt, B.D. (1941). Greek Inscriptions. *Hesperia* 10: 38-64.
- Meritt, B.D. (1961). *The Athenian Year*. Berkeley and Los Angeles.
- Meritt, B.D. (1963). Greek Inscriptions. *Hesperia* 32: 1-56.
- Meritt, B.D. (1964). Athenian Calendar Problems. *Transactions and Proceedings of the American Philological Association*. 95: 200-260.
- Meritt, B.D. (1972). Two Attic Decrees of the Late Fourth Century. *American Journal of Philology*. 93: 164-168.
- Meritt, B.D. and Traill, J.S. (1974). *The Athenian Agora 15: Inscriptions, the Athenian Councillors*. The American School of Classical Studies at Athens. Princeton.
- Metzger, H. (1965). *Recherches sur L'Imagerie Athénienne*. E. de Boccard, Paris.
- Michel, K. & Struck, A. (1906). Die Mittelbyzantinischen Kircken Athens. *Mitteilungen des Deutschen Archaologischen Instituts, Athenische Abteilung* 31: 279 - 324.
- Michels, A. K. (1967). *The Calendar of the Roman Republic*, Princeton University Press.
- Mikalson, J. D. (1975). *The Sacred and Civil Calendar of the Athenian year*. Princeton University Press.
- Mikalson, J. (1977). Religion in the Attic Demes. *American Journal of Philology* 98:424-435
- Mikalson, J.D. (1982). The *heorte* of Heortology. *Roman and Byzantine Studies* 23: 213-221.
- Mikalson, J.D. (1998). *Religion in Hellenistic Athens*. University of California Press.
- Miles, G.B. (1980). *Virgil's Georgics: A new interpretation*. University of California Press.
- Miles, M.M. (1998). *The City Eleusinion*. The Athenian Agora Vol. XXXI. American School of Classical Studies at Athens, Princeton.

- Miles, M.M. (2012). Entering Demeter's gateway: The Roman propylon in the City Eleusinion. in *Architecture of the Sacred: Space, ritual and experience from Classical Greece to Byzantium*. eds. Westcoat, B.D. & Ousterhout, R.G. CUP pp.114-151.
- Miller, S. (1995). Architecture as Evidence for the Identity of the Early Polis. in *Sources for the Ancient Greek City-State*. ed. M. Hansen. Copenhagen, Det Kongelige Danske Videnskaberues Selskab. pp.201-244.
- Mitsos, M.T. & Vanderpool, E. (1953). Inscriptions from Athens. *Hesperia* 22: 177-181.
- Momigliano, A. (1977). Time in Ancient Historiography. In *Essays in Ancient and Modern Historiography*. Blackwell, Oxford. pp. 179 -204.
- Morey, C. (1907). Arming an *Ephebe*. *American Journal of Archaeology* 11: 143-149.
- Morgan, J.D. (1996). The Calendar and Chronology of Athens. *American Journal of Archaeology* 100: 395.
- Morson, G.S. (1994). *Narrative and Freedom: The Shadows of Time*. Yale University Press, New Haven.
- Müller, J.W. (1991). Intercalary Months in the Athenian Dark Age Period. *Schweizer Münzblätter* 41: 85-89.
- Müller, J. W. (1994). Synchronization of the Late Athenian with the Julian Calendar. *Zeitschrift für Papyrologie und Epigraphik* 103: 128 – 138.
- Mulliez, D. (1984). Notes d'Epigraphie Delphoique II et III. *Bulletin de Correspondance Hellénique*. 108: 355-389.
- Munn, N.D. (1992). The Cultural Anthropology of Time: A Critical Essay. *Annual Review of Anthropology* 21: 93—123.
- Mylonopoulos, I. (2012). Asklepios. *Encyclopedia of Ancient History*. Wiley (on line).
- Netz, R. (2012). The More it Changes ... Reflections on the World Historical Role of Greek Mathematics. in *Greek Science in the Long Run: Essays on the Greek Scientific Tradition (4th century BC – 17th century AD)*. ed. Olmos, P. Cambridge Scholars Publishing. pp. 152-168.

- Neugebauer, O. & van Hoesen H.B. (1959). *Greek Horoscopes*. Philadelphia, American Philosophical Society.
- Nevett, L.C. (1995). The organisation of Space in Classical and Hellenistic Houses from Mainland Greece and the Colonies. in *Time, Tradition and Society in Greek Archaeology: Bridging the 'Great Divide'*. ed. Spencer, N. London. pp.89-108.
- Nevett, L.C. (2010). *Space in Classical Antiquity*. CUP.
- Newby, Z. (2007^a). Introduction. in *Art and Inscriptions in the Ancient World*. eds. Newby, Z. & Leader-Newby, R. Cambridge University Press. pp. 1-16.
- Newby, Z. (2007^b). Reading the Allegory of the Archelaos relief. in *Art and Inscriptions in the Ancient World*. eds. Newby, Z. & Leader-Newby, R. Cambridge University Press. pp. 156-178.
- Nielsen, I. (1994). *Hellenistic Palaces Tradition and Renewal*. Aarhus University Press.
- Nightingale, A.W. (2001). On Wandering and Wondering: *Theoria* in Greek philosophy and culture. *Arion* 9: 23-58.
- Nightingale, A.W. (2004). *Spectacles of Truth in Classical Greek Philosophy: Theoria in its Cultural Context*. Cambridge University Press.
- Nightingale, A.W. (2005). The Philosopher at the Festival: Plato's Transformation of Traditional *Theoria*. in *Pilgrimage in Graeco-Roman and Early Christian Antiquity: Seeing the gods*. eds. Elsner, J. & Rutherford, I. Oxford University Press. pp. 151-180.
- Nilsson, M.P. (1920). *Primitive Time Reckoning*. Oxford.
- Nilsson, M.P. (1925). *A History of Greek Religion*. Oxford University Press.
- Nilsson, M.P. (1951). The Sickle of Kronos. *Annual of the British School at Athens* 46: 122 – 124.
- Nowotny, H. (1994). *Time: the modern and postmodern experience*. Polity Press.
- Ober, J. (1985). *Fortress Athens*. Leiden, EJ Brill.
- Okamura, H., Doi, M., Fustin, J-M., Yamaguchi, Y. & Matsuo, M. (2010). Mammalian Circadian Clock System: Molecular mechanism for pharmaceutical and medical sciences. *Advanced Drug Delivery Reviews* 62: 876 – 884.

- Oldfather, W.A. (1922). Studies in History and Topography of Locris II. *American Journal of Archaeology* 26: 445-450.
- Oliver, G. (2007). *War, Food and Politics in Early Hellenistic Athens*. Oxford University Press.
- Oliver, J.H. and Dow, S. (1935). American Excavations in the Athenian Agora, 6th report. *Hesperia* 4: 5-90.
- Osborne, M.J. (2008). The Date of the Athenian Archon, Thrasylphon. *Zeitschrift für Papyrologie und Epigraphik* 164: 85-89.
- Osborne, M.J. (2009). The Archons of Athens: 300/299-228/7 BC. *Zeitschrift für Papyrologie und Epigraphik* 171: 83-99.
- Osborne, R. (1987). *Classical Landscape with Figures: The ancient Greek city and its countryside*. G. Philip, London.
- O'Sullivan, L. (2009). *The Regime of Demetrius of Phalerum in Athens*. Brill
- Orlandos, A. (1934). La Fontaine de Sicyone. *American Journal of Archaeology* 38: 153-157.
- Otto, W. F. (1965). *Dionysus: Myth and Cult*. Indiana University Press.
- Pais, A. (1986). *Inward Bound: Of Matter and Forces in the Physical World*, Clarendon Press, Oxford.
- Palagia, O. & Lewis, D. (1989). The *Ephebes* of Erechtheis, 333/2 BC and their Dedication. *The Annual of the British School at Athens* 84: 333-344.
- Palagia, O. (2008). The Date and Iconography of the Calendar Frieze on the Little Metropolis, Athens. *Jahrbuch des Deutschen Archäologischen Instituts* 123: 215 - 237.
- Panou, E., Theodossiou, E., Manimanis, V.N. & Kalachanis, K. (2014). The Astronomical Monuments of Athens. *Global Journal of Multidisciplinary and Applied Sciences* 2: 47-52.
- Papadopoulos, J.K. (2013). Always Present, Ever Changing, Never Lost from Human View: The Athenian Acropolis in the 21st century. *American Journal of Archaeology* 117: 135 – 140.

- Papaioannou, P.P. (2009). The University Excavation at 'Gymnasium of Diogenes', Plaka, Athens. *The Kapodistrian* 154. <http://kapodistriako.uoa.gr>
- Parke, H. W. (1977). *Festivals of the Athenians*. London, Thames & Hudson.
- Parker, R. (1987). Festivals of Attic Demes. In *Gifts to the Gods*. eds. Linders T. & Nordquist G. Upsala. pp. 137-147.
- Parker, R. (1996). *Athenian Religion: A History*. Oxford, Clarendon.
- Parker, R. (2005). *Polytheism and Society at Athens*. Oxford University Press.
- Parker, R. (2008). Review: A. Herda, Der Apollon-Delphinios-Kult in Milet und die Neujahrsprozession nach Didyma. Ein neuer Kommentar der sog. Molpoi-Satzung. *Classical Review* 58: 178-180.
- Parker, R. (2011). *On Greek Religion*. Cornell University Press.
- Parker, R. A. and Dubberstein, W.H. (1956). *Babylonian Chronology: 625 BC - AD 75*. Providence, Brown University Press.
- Parlama, L. & Stampolides, N.C. (2001). *Athens: The city beneath the city*. Athens.
- Parsons, P. (2015). Diary: Rooting Around Oxyrhynchus. *London Review of Books* 37: 11, 34-35.
- Paton W.R. (1918). *The Greek Anthology* (with translations). Volume 5. Loeb. Harvard University Press.
- Pauly (2005). *Brill's New Pauly: Encyclopedia of the Ancient World*. Volume 7. Brill, Leiden
- Peirce, S. (1998). Visual Language and Concepts of Cult on the "Lenaia Vases". *Classical Antiquity* 17: 59-95.
- Pélékidis, C. (1962). *Histoire de l'Épébie Attique: Des Origines à 31 Avant Jésus-Christ*. Paris, Ecole Française d'Athènes.
- Penrose, R. (2010). *Cycles of Time: An extraordinary new view of the universe*. Vintage Books.

- Perrin-Saminadayar, E. (2007). *Éducation, culture et société à Athènes Les Acteurs de la Vie Culturelle Athénienne (229-88): Un Tout Petit Monde*. de Boccard, Paris.
- Perutz, M. (1996). Pasteur and the Culture Wars: An exchange. *The New York Review of Books* 43, #6: 69.
- Petrain, D. (2014). *Homer in Stone: Tabulae Iliacae in their Roman Context*. Cambridge University Press.
- Petzl, G. and Schwertheim, E. (2006). *Hadrian und die dionysischen Künstler: Drie in Alexandria Troas neugefundene Briefe des Kaisers an die Künstler-Vereinigung*. Asia Minor Studien 58, Bonn.
- Pfundstein, J.M. (2003). Aeschylus, Astronomy and the *Agamemnon*. *The Classical Journal* 98: 397 – 410.
- Pilz, O. (2011). The performance aspect of Greek ritual: The case of the Athenian Oschophoria. in *Current Approaches to Religion in Ancient Greece*. eds. Haysom, M.C. & Wallensten, J. Stockholm. pp. 151 – 168.
- Pinkwart, D. (1965). *Das Relief das Archelaos von Priene und die "Musen des Philiskos"*. Kallmünz.
- Platt, V. (2011). *Facing the Gods: Epiphany and Representation in Graeco-Roman Art, Literature and Religion*. Cambridge University Press.
- Pollitt, J.J. (1961). Fragment of a Sacred Calendar and Other Inscriptions from the Attic Deme of Teithras. *Hesperia* 30:293-298.
- Pollitt, J.J. (1986). *Art in the Hellenistic Age*. Cambridge University Press.
- Pollitt, J.J. (1999). New Perspectives on the Art of Pergamon. *American Journal of Archaeology* 103: 337 – 339.
- Poochigian, A. (2010). *Aratus: Phaenomena, Translated with an introduction and notes*. J. Hopkins University Press.
- Popper, K. (1963). *Conjectures and Refutations; the growth of scientific knowledge*. Routledge.

- Potter, D. (2003). Hellenistic Religion. in *A Companion to the Hellenistic World*. ed. Erskine, A. Blackwell. pp. 409-430.
- Pounder, R.L. (1983). The Hellenistic Arsenal in Athens. *Hesperia* 52:233-256.
- Price, D.J. de Solla, (1974). Gears from the Greeks. *Transactions of the American Philosophical Society* 64:1-70.
- Price, S. (1999). *Religions of the Ancient Greeks*. Cambridge University Press, Appendix 1.
- Price, S. (2005). Local Mythologies in the Greek East, in *Coinage and Identity in the Roman Provinces*. eds. Howgego, C., Heuchert, V. & Burnett, A. Oxford University Press. pp. 115-124.
- Pritchett, W. K. (1963). *Ancient Athenian calendars on stone*. Cambridge, CUP.
- Pritchett, W. K. (1968). The Intercalary Month at Athens. *Classical Philology* 63: 53 – 54.
- Pritchett, W.K. (1976). The Calendar of Athens Civic Administration. *Phoenix* 30: 337-356.
- Pritchett, W.K. (1999). Postscript: The Athenian Calendar. *Zeitschrift für Papyrologie und Epigraphik* 128: 79-93.
- Pritchett, W.K. (2001). *Athenian Calendars and Ekklesias*. J.C.Gieben, Amsterdam.
- Pritchett, W. K. & Neugebauer, O. (1947). *The Calendars of Athens*. Cambridge, MA.
- Rawson, E. (1985). *Intellectual Life in the Late Roman Republic*. Baltimore.
- Reinmuth, O. (1971). *The Ephebic Inscriptions of the 4th Century BC*. Leiden, Brill.
- Retallack, G.J. (2008). Rocks, Views, Soils and Plants at the Temples of Ancient Greece. *Antiquity* 82: 640 – 657.
- Rhodes, P.J. & Osborne, R. (eds.) (2007). *Greek Historical Inscriptions 404-323 BC*. Oxford University Press.
- Richardson, R.B. (1895). A Sacrificial Calendar from Epakria. *American Journal of Archaeology and History of Fine Arts* 10:209-226.
- Richter, G.M.A. (1926). The Basket of the Kanephoroi. *American Journal of Archaeology* 30: 422-426.

- Ridgway, B.S. (1990). *Hellenistic Sculpture I: The styles of c. 331-200 BC*. Bristol Classical Press.
- Ridgway, B. S. (2000). *Hellenistic Sculpture II: The Styles of c. 200 -100 BC*. Wisconsin, University of Wisconsin Press.
- Ridgway, B.S. (2002). *Hellenistic Sculpture III: The styles of c. 100-30 BC*. University of Wisconsin Press.
- Rigsby, K.J. (2010). The Schedule of the Eleusinia. *Mnemosyne* 63: 289 – 297.
- Rihll, T.E. (2002). Introduction: Greek Science in Context. in *Science and Mathematics in Ancient Greek Culture*. eds. Wolpert, L., Tuplin, C.J. & Rihll, T.E. Oxford University Press. pp. 1-21.
- Riley, N.T. (1995). Ptolemy's Use of his Predecessors' Data. *Transactions of the American Philological Society* 125: 221-250.
- Roark, T. (2011). *Aristotle on Time: A study of the Physics*. Cambridge University Press.
- Robert, C. (1899). *Göttinger Forum für Altertumswissenschaft* : 549 (GFA). Göttingen : Duehrkohp und Radicke.
- Robertson, N. (1984). Poseidon's Festival at the Winter Solstice. *The Classical Quarterly* 34: 1-16.
- Robertson, N. (2004). The Praxiergidae Decree (IG I³ 7) and the Dressing of Athena's Statue with the Peplos. *Greek, Roman and Byzantine Studies* 44: 111-161.
- Robinson, D.M. (1931). Bouzyges and the First Plough on a Krater by the Painter of the Naples Hephaistos. *American Journal of Archaeology* 35: 152-160
- Roccos, L.J. (1995). The Kanephoros and Her Festival Mantle in Greek Art. *American Journal of Archaeology* 99: 641 – 666.
- Rochberg-Halton, F. (1984). New evidence for the History of Astrology. *Journal of Near Eastern Studies* 43: 115 - 140.
- Rochberg-Halton, F. (1988). Elements of the Babylonian Contribution to Hellenistic Astrology. *Journal of the American Oriental Society* 108: 51 – 62.
- Rogers, J.H. (1998). Origins of the Ancient Constellations II Mediterranean Traditions. *Journal of the British Astronomical Association* 108: 1-28.

- Roller, L.E. (1999). *In Search of the Mother: The cult of the Anatolian Cybele*. University of California Press.
- Rotroff, S.I. (1978). Hellenistic Athenian Pottery: "Megarian Bowls". *Current Anthropology* 19: 387-388.
- Rotroff, S.I. (2009). Commerce and Crafts around the Athenian Agora. in *The Athenian Agora: New perspectives on an Ancient Site*. eds .Camp, J.M. & Mauzy, C.A. pp.39-46
- Roy, A.E. (1984). The Origin of the Constellations. *Vistas in Astronomy* 27: 171-197.
- Rutherford, I. (2007). Network Theory and Theoric Networks. *Mediterranean Historical Review* 22: 23-37.
- Rutherford, I. (2013). *State Pilgrims and Sacred Observers in Ancient Greece: A Study of Theōria and Theōroi*. Cambridge University Press.
- Rutherford, I.C. & Irvine J. (1988). The Race in the Athenian Oschophoria and the Oschophoricon by Pindar. *Zeitschrift für Papyrologie und Epigraphik* 72: 43-51.
- Saito, T. (1999). The Decree of the Hephaistia in 421/0 BC and the Athenian Demos. *Journal of Classical Studies* 47: 32-40.
- Salt, A.M. (2009). The Astronomical Orientation of Ancient Greek Temples. *PLoS ONE* 4 (11) e7903. www.plosone.org
- Salt, A. & Boutsikas, E. (2005). Knowing when to Consult the Oracle at Delphi. *Antiquity* 79: 264 - 572.
- Samuel, A. E. (1972). *Greek and Roman Chronology: Calendars and Years in Classical Antiquity*. Series: Handbuch der Altertumswissenschaft Abt. 1, T.7. München.
- Saradi-Mendelovici, H. (1990). Christian Attitudes Toward Pagan Monuments in Late Antiquity and their Legacy in Later Byzantine Centuries. *Dumbarton Oaks Papers* 44: 47-61.
- Sayili, A.M. (1939). The Aristotelian Explanation of the Rainbow. *Isis* 30: 65-83.
- Schaefer, B.E. (2005). The Epoch of Constellations on the Farnese Atlas. *Journal for the History of Astronomy* 36: 167-196.
- Schede, M. (1964). *Die Ruinen von Priene*. Walter de Gruyter & Co., Berlin.

- Schelp, J. (1975). *Das Kanoun: der griechische Opferkerb*. Würzburg.
- Schenkeveld, D.M. & Barnes, J. (1999). Language. in *The Cambridge History of Hellenistic Philosophy*. eds. Algra, K., Barnes, J., Mansfield, J. & Schofield, M. Cambridge University Press. pp. 177 – 226.
- Scolnic, B. (2014). When did the Future Antiochos IV Arrive in Athens? *Hesperia* 83: 123-142.
- Scholten, J.B. (2003). Macedon and the Mainland. in *A Companion to the Hellenistic World*. ed. Erskine A. Oxford University Press. pp. 134-158.
- Schultz, P. (2001). The Akroteria of the Temple of Athena Nike. *Hesperia* 70: 1-48.
- Scott, M. (2014). *Delphi: a history of the center of the world*. Princeton University Press.
- Scullion, S. (2008) Festivals. in *A Companion to Greek Religion*. ed. Ogden, D. Blackwell pp. 190-203.
- Scully, S. (2003). Reading the Shield of Achilles: Terror, Anger, Delight. *Harvard Studies in Classical Philology* 101: 29 – 47.
- Seaford, R. (2006). *Dionysos*. Routledge.
- Sedley, D. (2013). Lucretius. in *The Stanford Encyclopaedia of Philosophy* (Fall 2013 Edition), ed. Zalta, E.N. <http://plato.stanford.edu/archives/fall2013/entries>
- SEG. *Supplementum Epigraphicum Graecum*. Leiden, Brill.
- Sekunda, N. (1990). IG II² 1250: A Decree concerning the "Lampadephoroi" of the Tribe Aiantis. *Zeitschrift für Papyrologie und Epigraphik* 83: 149-182.
- Shapiro, H. A. (1981). Courtship Scenes in Attic Vase-Paintings. *American Journal of Archaeology* 85: 133-143.
- Shear, T.L. (1939). The Campaign of 1938. *Hesperia* 8:201-246.
- Shear, T. L. (1973). The Athenian Agora: Excavations 1971. *Hesperia* 42:165-168, plate 36.
- Shear, T.L. (1975). The Athenian Agora Excavations of 1973-1974. *Hesperia* 44:331-374.

- Shear, J. (2013). 'Their Memories Will Never Grow Old': The Politics of Remembrance in The Athenian Funeral Orations. *The Classical Quarterly* 63: 511-536.
- Shiple, G. (2000). *The Greek World after Alexander: 323-30 BC*. Routledge.
- Shiple, G. (2005). Between Macedonia and Rome: Political Landscapes and Social Change in Southern Greece in the Early Hellenistic Period. *The Annual of the British School at Athens* 100: 315-330.
- Sider, D. (1994). Heraclitus on Old and New Months: P. Oxy. 3710. *Illinois Classical Studies* 19: 11-18.
- Siewert, P. (1977). The Ephebic Oath in 5th Century Athens. *Journal of Hellenic Studies* 97: 102 – 111.
- Simms, R.M. (1998). The Phrearrhian *Lex Sacra*: An interpretation. *Hesperia* 67: 91-107.
- Simon, E. (1965). Attische Monatsbilder. *Jahrbuch de Deutschen Archaologischen Instituts* 80: 105-113.
- Simon, E. (1983). *Festivals of Attica: An archaeological commentary*. University of Wisconsin Press.
- Skaltsa, S. (2007). Review: *The Hellenistic Gymnasium* by Kah, D. & Scholtz, P. *The Classical Review* 57: 452-454.
- Skaltsa, S. (2013). The Gymnasium in Classical and Hellenistic Times. in *Encyclopedia of Ancient History (1st ed.)* eds. Bagnall, R.S., Brodersen, K., Champion, C.B., Erskine, A. & Huebner, S.R. Blackwell Publishers. pp. 3008-3010.
- Skias, A.N. (1895). *Archaiologike Ephemeris* 12:97-100.
- Slanski, K.E. (2000). Classification, Historiography and Monumental Authority: The Babylonian Entitlement "narûs (kudurrus)". *Journal of Cuneiform Studies* 52: 95-114.
- Slater, W.J. (2008). Hadrian's Letters to the Athletes and Dionysiac Artists Concerning arrangements for the "Circuit" of Games. *Journal of Roman Archaeology* 21: 610 – 620.
- Smith, A.C. (2011). *Polis and Personification in Classical Athenian Art*. Brill, Leiden.

- Smith, A.M. (1999). Ptolemy and the Foundation of Ancient Mathematical Optics: A Source Based Guided Study. *Transactions of the American Philosophical Society* 89: Part 3, 1-172.
- Smith, J.E. (1986). Time and Qualitative Time. *Review of Metaphysics* 40: 3 – 16.
- Smith, R.R.R. (1985). *Oikía Kyrrήστου: Studien zum sogenannten Turm der Winde in Athen*. von Freeden, J. & Bretschneider G. (1983) review in *Journal of Hellenic Studies* 105: 230-231.
- Smith, R.R.R. (1991). *Hellenistic Sculpture: a handbook*. Thames & Hudson.
- Smith, R.R.R. (1993). Kings and Philosophers. in *Images and Ideologies: Self Definition in the Hellenistic World*. eds. Bullock, A., Gruen, E.S., Long, A.A. & Stewart, A. University of California Press. pp. 202-211.
- Smith, R.R.R. (2007). Pindar, Athletes, and the Early Greek Statue Habit. in *Pindar's Poetry, Patrons, and Festivals: From Archaic Greece to the Roman Empire*. eds. Hornblower, S. & Morgan, C. Oxford University Press. pp. 83-140.
- Smith, W. (1890). *A Dictionary of Greek and Roman Antiquities*.
<http://ancientrome.ru/art>
- Smolin, L. (2013^a). *Time Reborn: From the Crisis of Physics to the Future of the Universe*. Allen Lane, Penguin Books.
- Smolin, L. (2013^b). It's Time to Rewrite Time. *New Scientist* April 20th: Opinion.
- Snow, T.P. (1993). *Essentials of the Dynamic Universe: An introduction to Astronomy* 4th ed. West Pub. Co.
- Sokolowski, F. (1936). En Marge d'un Décret d'Athènes en L'Honneur des Épèbes. *Bulletin de Correspondance Hellénique* 60: 386-388.
- Sokolowski, F. (1962). Lois sacrées des cités grecques. *Supplément Franciszek Sokolowski*. Paris, E. de Boccard, (LSS).
- Sokolowski, F. (1969). Lois sacrées des cités grecques. *Supplément Franciszek Sokolowski*. Paris, E. de Boccard, (LS).
- Sorabji, R. (1983). *Time, Creation and the Continuum: Theories in Antiquity and Early Middle Ages*. Duckworth, London.

- Sosin, J.D. (2004). Alexander and Stephanephoroi at Delphi. *Classical Philology* 99: 191-208.
- Sourvinou-Inwood, C. (1987). Myth as History: The previous owners of the Delphic Oracle. in *Interpretations of Greek Mythology*. ed. Bremmer, J. Croom Helm, London. pp. 215 – 241.
- Sourvinou-Inwood, C. (1991). *'Reading' Greek Culture: Texts and Images, Rituals and Myths*. Oxford, Clarendon.
- Sourvinou-Inwood, C. (2011). *Athenian Myths and Festivals: Aglauros, Erechtheus, Plynteria, Panathenaia, Dionysia*. Oxford University Press.
- Sparkes, B.A. (2010). Luxury Items. *New Surveys in the Classics* 40: 75 – 94.
- Spawforth, A.J.S. (2006). *The Complete Greek Temples*. Thames and Hudson.
- Spawforth, A.J.S. (2012). *Greece and the Augustan Cultural Revolution*. Cambridge University Press.
- Squire, M. (2011). *The Illiad in a Nutshell: Visualising epic on the Tabulae Iliacae*. Oxford University Press.
- Stafford, E. (2008). Personification in Greek Religious Thought and Practice. in *A Companion to Greek Religion*. ed. Ogden, D. Blackwells-Wiley, pp.71-85.
- Steinhauer, G. (1993). *The Monuments and Archaeological Museum of Piraeus*. Michael Toubis Pub. S.A.
- Stern, H. (1960). *Astrology & Astronomy in Encyclopaedia of World Art Vol. II, Classical Antiquity*. Mcgraw-Hill: 48-57.
- Stern, S. (2012). *Calendars in Antiquity: Empires, States and Society*. Oxford University Press.
- Stewart, A.F. (1978). Lysippan Studies. 1. The Only Creator of Beauty. *American Journal of Archaeology* 82: 163 – 171.
- Stewart, A. (2012). Hellenistic Freestanding Sculpture from the Athenian Agora, Part 1: Aphrodite. *Hesperia* 81: 267-342.

- Stewart, A. (2014). *Art in the Hellenistic World*. Cambridge University Press.
- Stoneman, R. (2010). *Land of the Lost Gods*. Taurus Parke
- Stoppole, J. (2003). *A Primer of Analytical Number Theory*. Cambridge University Press.
- Stroud, R.S. (1998) The Athenian Grain-Tax Law of 374/3 BC. *Hesperia Supplement 29: Figure 1*.
- Stuart, J. & Revett, N. (1762). *The Antiquities of Athens, Measured and Delineated*. London, Haberkorn.
- Svoronos, J.N. (1899). Der athenische Volkskalender. *Journal International d'Archeologie Numismatique Dirigé 2: 21-78*.
- Swerdlow, N. M. (2010). Tycho, Longomontanus and Kepler on Ptolemy's Solar Observations and Theory, Precession of the Equinoxes, and Obliquity of the Ecliptic. in *Ptolemy in Perspective* (ed.) Jones A. *Archimedes 23:151 – 202*.
- Swoyer, C. (2010). Relativism. in *The Stanford Encyclopaedia of Philosophy*. ed. Zalta, E.N. <http://plato.stanford.edu/archives/win2010/entries>
- Tanner, J. (2001). Nature, Culture and the Body in Classical Greek Art. *World Archaeology 33: 257 - 276*.
- Tanner, J. (2006). *The invention of Art History in Ancient Greece*. Cambridge University Press.
- Taplin, O. (1988). The Shield of Achilles within the *Iliad*. *Greece and Rome, 2nd series 27: 1 – 21*.
- Tarán, L. (1975). *Academica: Plato, Philip of Opus and the Pseudo-Platonic Epinomis*. American Philosophical Society, Philadelphia.
- Thatcher, M. *Women's Own*, October 31, 1987.
- Theocharaki, A.M. (2011). The Ancient Circuit Walls of Athens: Its changing course and The phases of construction. *Hesperia 80:71-156*.
- Theodossiou, E. & Manimanis, V.N. (2010). Ancient Astronomical Monuments of Athens. In *Advances in Hellenic Astronomy, ASP Conference Series 424: 455 – 461*.

- Thomas, R.F. (1988). *Virgil: Georgics Volume 1: Books I-II*. Cambridge University Press.
- Thompson, D.B. (1959). *Miniature Sculpture from the Athenian Agora*. American School of Classical Studies at Athens. Princeton, New Jersey.
- Thompson, D.B. (1969). Review of *Das Relief des Archelaos von Priene und die "Musen des Philiskos"*. Pinkwart, D. (1965). Verlag M. Lassleben. *American Journal of Archaeology* 73: 385-385.
- Thompson, H. A. (1950) Excavations in the Athenian Agora: 1949 *Hesperia* 19:313-337.
- Thompson, H.A. (1960). Activities in the Athenian Agora: 1959. *Hesperia* 29:327-368.
- Thompson, H.A. (1966). Activity in the Athenian Agora 1960-1965. *Hesperia* 35:37-54.
- Thompson, H.A. & Scranton, R.L. (1943). Stoas and City Walls on the Pnyx. *Hesperia* 12:269-383.
- Thompson, H. A. & Wycherley, R. E. (1972). *The Agora of Athens: The History, Shape and Uses of an Ancient City Centre*. American School of Classical Studies at Athens.
- Thompson, M. (1961). *The New Style Coinage of Athens*. Volumes 1 & 2. The American Numismatic Society, New York.
- Thonemann, P. (2005). The Tragic King Demetrios Poliorketes and the City of Athens. in *Imaginary Kings: Royal Images in the Ancient Near East, Greece and Rome*. eds. Hekster, O. & Fowler, R. F. Steiner Verlag. pp. 63-86.
- Toomer, G.J. (1984). *Ptolemy's Almagest*. G. Duckworth & Co. Ltd.
- Tiverios, M. (2008). Women of Athens in the Worship of Demeter: Iconographic Evidence from Archaic and Classical Times. in *Worshipping Women: Ritual and Reality in Classical Athens*. eds. Kaltsas, N. & Shapiro, A. Alexander S. Onassis Public Benefit Foundation (USA). pp. 124-135.
- Tobin, J. (1997). *Herodes Attikos and the City of Athens: Patronage and Conflict under the Antonines*. Amsterdam, J.C.Gieben.
- Tracy, S.V. (1979). Athens in 100 BC. *Harvard Studies in Classical Philology* 83: 213-235.
- Tracy, S.V. (1988). Ephebic Inscriptions from Athens: Addenda and Corrigenda. *Hesperia* 57: 249-252.

- Tracy, S.V. (1990). *Attic Letter Cutters of 229-86 BC*. Berkeley.
- Tracy, S.V. (2003). Antigonos Gonatas, King of Athens. in *The Macedonians in Athens: 322-229 BC*. eds. Palagia, O. & Tracy, S.V. Oxbow Books. pp.56-60.
- Tracy, S.V. (2007). Reflections on the Athenian Ephebeia in the Hellenistic Age. in *Das Hellenistische Gymnasium*. eds. Kah, D. & Scholz, P. Academic Verlag. pp. 207-211.
- Travlos, J. (1971). *A Pictorial Dictionary of Ancient Athens*. London, Thames and Hudson.
- Trigger, B.G. 2nd ed. (2006). *A History of Archaeological Thought*. CUP.
- Troncoso, V.A. (2009). The Hellenistic Gymnasium and the Pleasures of Paideia. *Symbolae Philologorum Posnaniensium Graecae et Latinae*. XIX: 71-84.
- Trumpy, K. (1997). *Untersuchungen zu den Attgriechischen Monatsnamen und Monatsfolgen*. Universitätsverlag C. Winter, Heidelberg.
- Turner, V. W. (1982). *From Ritual to Theatre: The Human Seriousness of Play*. New York.
- Tyler, E.B. (1871). *Primitive Culture: researches into the Development of Mythology, Philosophy, Religion, Art and Custom*. London.
- Udell, J. (2012). *Times of Day and Times of Year on Athenian vases*. PhD Thesis, University of New York. UMI 3502790.
- Unvala, J.M. & Cumont, M.F. (1930). Doura-Euroos: Based on 'Fouilles de Doura-Europos (1922-1923) par Cumont, M.F., Paris 1926. *Bulletin of the School of Oriental Studies, University of London* 6: 133-149.
- van Groningen, B.A. (1953). *In the Grip of the Past: Essay on an Aspect of Greek Thought*. Leiden, Brill.
- Vanderpool, E. (1965). The Location of the Attic Deme Erchia. *Bulletin de Correspondance Hellénique*. 89:21-26.
- Vanderpool, E. (1974). The 'Agora' of Pausanias 1, 17, 1-2. *Hesperia* 43: 308-310.
- Versnel, H.S. (1987). Greek Myth and Ritual: The case of Kronos. in *Interpretations of Greek Mythology*. ed. Bremmer, J. Croom Hill, London. pp. 121 – 152.

- Versnel, H.S. (1993). *Inconsistencies in Greek Religion II. Transition and Reversal in Myth And Ritual*. Leiden, Brill.
- Versnel, H.S. (2011). *Coping with the Gods*. Brill, Leiden.
- Veyne, P. (1988). *Did the Greeks Believe in their Myths?* University of Chicago Press.
- Vidal-Naquet, P. (1968). The Black Hunter and the Origin of the Athenian Epehebia. *Proceedings of the Cambridge Philological Society* 14: 49-64.
- Vikatou, O. (2006). *Olympia: The archaeological site and museums*. Ekdotike Athenon S.A.
- von Boeselager, D. (1983). *Antike Mosaiken in Sizilien: Hellenismus und römische Kaiserzeit 3. Jahrhundert v. Chr. – 3. Jahrhundert n. Chr. (Archaeologica 40)*. Giorgio Bretschneider Editor.
- Wacholder, B.Z. (1968). Biblical Chronology in the Hellenistic World Chronicles. *Harvard Theological Review* 61: 451-481
- Wachsmann, S. (2012). Panathenaic ships: The iconographic evidence. *Hesperia* 81: 237 –266.
- Wade-Gery, H.T. (1931). Studies in the Structure of Attic Society: Demotionidai. *Classical Quarterly* 25: 129 – 143.
- Walbank, F.W. (1984). Macedonia and the Greek Leagues. *Cambridge Ancient History Volume 7, Part 1. The Hellenistic World*. eds. Walbank, F.W., Astin, A.E., Frederiksen, M.W. & Ogilvie, R.M. pp. 446-481.
- Walbank, F.W. (2002). Polybius and the Past in *Polybius, Rome and the Hellenistic World: Essays and Reflections*. Cambridge pp.178 – 192.
- Walcot, P. (1956). The Text of Hesiod's *Theogony* and the Hittite Epic of Kumarbi. *The Classical Quarterly* 6: 198 – 206.
- Wallace, P.W. (1969). Psyttaleia and the Trophies of the Battle of Salamis. *American Journal of Archaeology* 73: 293-303.
- Wallace-Hadrill, A. (1988). Review: Greek Knowledge, Roman Power: Intellectual Life in The Late Roman Republic by Rawson, E. *Classical Philology* 83: 224-233.

- Walsh, J.A. (1981). The Omitted Date in the Athenian Calendar Month. *Zeitschrift für Papyrologie und Epigraphik* 41: 107-124.
- Wasserstein, A. (1962). Greek Scientific Thought. *Proceedings of the Cambridge Philological Society* 188: 51 -63.
- Waterfield, R. (2004). *Athens: A History from Ancient Ideal to Modern City*. London, Macmillan.
- Weaver, B.H. (1996). A further illusion in Eumenides to the Panathenaia. *Classical Quarterly* 46: 559 – 561.
- West, M.L. (1978). *Hesiod Works and Days: edited with Prolegomena and Commentary*. Clarendon Press, Oxford.
- Wheeler, J.A. (2008). *Obituary 15th April 2008*. Developeronline.blogspot.co.uk
- Whitehead, D. (1986^a). *The Demes of Attica, 508/7 – c. 250 BC: A political and Social Study*. Princeton University Press.
- Whitehead, D. (1986^b). Festival Liturgies in Thorikos. *Zeitschrift für Papyrologie und Epigraphik* 62: 213-220.
- Wilkinson, L.P. (1950). The Intention of Virgil's Georgics. *Greece and Rome* 19: 19-28.
- Wilson, A. (2013). Hellenistic Sicily, c.270-100 BC. in *The Hellenistic West: Rethinking the Ancient Mediterranean*. eds. Prag, J.R.W. & Quinn, J.C. Cambridge University Press. pp. 79-119.
- Winter, F.E. (1984). Hellenistic Science: its application in peace and war: building and town planning. in *Cambridge Ancient History Volume 7, part 1*. (2nd edition). eds. Walbank, F.W., Astin, A.E., Frederiksen, M.W. & Ogilvie, R.M. pp. 371-383.
- Wood, F. & Wood, K. (1999). *Homer's Secret Iliad: The epic of the night skies decoded*. John Murray.
- Woodhead, A.G. (1989). The Calendar of the Year 304/3 BC in Athens. *Hesperia* 58: 297-301.
- Woodhead, A.G. (1992). *The Study of Greek Inscriptions*. 2nd revised edition. London, Bristol Classical Press.
- Wright, M.R. (1995). *Cosmology in Antiquity*. Routledge.

Wycherley, R.E. (1962^a). *How the Greeks Built Cities*. Macmillan Press.

Wycherley, R.E. (1962^b). Peripatos: The Athenian Philosophical Scene-II. *Greece and Rome* 9: 2-21.

Wycherley, R. (1978). *The Stones of Athens*. New Jersey, Princeton UP.

Young, J.H. (1964). Commagenian Tiaras: Royal and Divine. *American Journal of Archaeology* 68: 29-34.

Young, R. S. (1951). An Industrial District of Ancient Athens. *Hesperia* 20:135-288.

