

**The Aulos in Classical and Late Antiquity:
Acculturation, Diffusion, and Syncretism in Socio-
Musical Processes of the Mediterranean**

Juan Sebastián Correa Cáceres

Thesis submitted in partial fulfilment of the requirements for the
degree of Doctor of Philosophy

Department of Music Studies
School of Performing Arts
University of Malta

November 2020



University of Malta Library – Electronic Thesis & Dissertations (ETD) Repository

The copyright of this thesis/dissertation belongs to the author. The author's rights in respect of this work are as defined by the Copyright Act (Chapter 415) of the Laws of Malta or as modified by any successive legislation.

Users may access this full-text thesis/dissertation and can make use of the information contained in accordance with the Copyright Act provided that the author must be properly acknowledged. Further distribution or reproduction in any format is prohibited without the prior permission of the copyright holder.

DECLARATION

I hereby declare that I am the legitimate author of this thesis and that it is my original work.

Juan Sebastián Correa Cáceres

ABSTRACT

Juan Sebastián Correa Cáceres

The Aulos in Classical and Late Antiquity: Acculturation, Diffusion, and Syncretism in Socio-Musical Processes of the Mediterranean

This thesis concerns the *aulos*, that is, an extinct wind musical instrument consisting of a cylindrical-bore pipe with finger-holes and, probably, a double reed for a mouthpiece. The *aulos* was popular during antiquity particularly in the regions of the Mediterranean and the Near East. This research presents a holistic view of this musical instrument, its past and consequential history, with a focus on how it was transformed from classical antiquity (c.1000 BC-AD 395) to late antiquity (c.395-600 AD). This process involved an analysis of written, iconographic, and archaeological sources from both ancient Mediterranean and Near Eastern societies. The research tackles issues related to the origin of the musical instrument, its use in both Greek and Roman societies and its eventual disappearance from the music scene. This is placed within a historical framework in which social processes such as acculturation, diffusion, and syncretism influence cultural aspects of society, including practices related to music and thus the *aulos*. This research includes fieldwork in Sardinia and Egypt. The Sardinian *launeddas* and the Egyptian *arghul* were compared and contrasted with the ancient *aulos*. Parallels between the past and the present suggest possible scenarios of continuity of musical practices from the past. It should be noted that the *launeddas*, the *arghul* and the *aulos* were contemporary instruments, part of a large family of pipe instruments, of which it was only the *aulos* that disappeared. To a large extent, the factors that contributed to its disappearance had to do with the eradication of the Greco-Roman customs, with which it was intrinsically associated, and the establishment of Christianity as the official religion of the Western World. The *aulos* probably survived until the advent of Islam, a religion which similarly associated it with pagan customs and therefore prohibited its use.

ACKNOWLEDGMENTS

I would like to take the opportunity to acknowledge the many that have been unfailingly generous with their advice, assistance, correction, and encouragement. First of all, I would like to thank my supervisor, Dr Philip Ciantar, Head of the Department of Music Studies at the University of Malta and my co-supervisor, Professor Anthony J. Frendo, Professor of Near Eastern Archaeology and the Hebrew Bible at the Department of Oriental Studies and that of Classics and Archaeology, University of Malta. I could not have been better supervised. I remain very grateful to Mr Pitano Perra for sharing his knowledge on the *launeddas* and the *aulos* with me. Sincere thanks are also due to Dr Mario Frendo, Head of the Department of Theatre Studies at the University of Malta, for introducing me to Dr Mustafa Garranah, Professor at the Academy of Arts of the University of Cairo. I also wish to express my gratitude to Dr Ashraf Heikal, coordinator of the Higher Institute of Arabic Music (المعهد العالي للموسيقى العربية), University of Cairo, and to Dr Amin Nagy, lecturer in Arabic Music at the above-mentioned Institute and University. I owe sincere thanks to Mr Zakaria Ibrahim, founder of the El Mastaba Center for Egyptian Folk Music, for introducing me to the *arghul* player Mr Mahmoud Abdel Hady. Their time, knowledge, and help are gratefully acknowledged. I am also very much indebted to Mr Amin Arghouli (Shahin), who kindly shared his *arghul* expertise with me. My appreciation extends to the numerous individuals, museums, libraries, and archives who assisted with research, provided photographs, and permissions. My thanks go to Etta Mizzi for proofreading and correcting my English. Finally, I could never adequately acknowledge or express the enormous debt I owe to my wife, Miriam, for her support and assistance in countless ways and especially for her infinite patience. This work is lovingly dedicated to her.

DEDICATION

This thesis is dedicated to the memory of my late mother, Luisa Jenny del Carmen Cáceres Manzano, to my family and to my wife, Miriam Muscat, for her constant support.

CONTENTS

DECLARATION.....	I
ABSTRACT	II
ACKNOWLEDGMENTS	III
DEDICATION.....	IV
CONTENTS.....	V
ABBREVIATIONS	VII
LIST OF FIGURES	VIII
LIST OF TABLES	XIII
CD TRACK LIST	XIV
CHAPTER I: INTRODUCTION.....	1
1.1 THE AIMS OF THIS RESEARCH	2
1.2 STUDIES IN MUSIC ARCHAEOLOGY	3
1.3 ACCULTURATION, DIFFUSION, AND SYNCRETISM	11
1.4 METHODOLOGY.....	19
1.5 ORGANISATION OF THESIS.....	26
1.6 THE RESEARCH QUESTION(S).....	28
1.7 THE RECOVERY OF MUSIC IN ANTIQUITY AND THE AULETIC TRADITION	33
<i>Archaeological Sources</i>	33
<i>Iconographical Sources</i>	40
<i>Written Sources</i>	42
CHAPTER II: THE PRECURSORS OF THE AULOS: ART AND TRADITION FROM PREHISTORY TO THE SECOND MILLENNIUM BC	53
2.1 IN THE BEGINNING, THERE WAS WHISTLING	55
2.2 PIPING AND WHISTLING WITHIN THE FIRST FARMING COMMUNITIES.....	58
2.3 THE EASTERN LEGACY.....	62
2.4 WESTERN PIPES IN THE EAST	66
2.5 BONE PIPES FROM PREHISTORIC GREECE.....	67
2.6 ANATOLIA: THE LAND THAT GIVES AND RECEIVES.....	68
2.7 WHAT IF THEY USED METAL?	74
2.8 THE AULOS IN THE CYCLADIC AND HITTITE TRADITION: THE ART OF PLAYING TWO PIPES SIMULTANEOUSLY	79
2.9 WIND INSTRUMENTS IN ANCIENT EGYPT	87
CONCLUSION.....	97
CHAPTER III: THE AULOS OF CLASSICAL ANTIQUITY (C.1000 BC-AD 395)	103
3.1 CLASSICAL ANTIQUITY	103
3.2 HOMER, THE LIGHT BEARER IN DARK TIMES	104
3.3 THE CONTEXTS IN WHICH THE AULOS WAS PLAYED	119
<i>Festivals</i>	119
<i>Processions</i>	120
<i>Sacrifices</i>	123
<i>The Meal</i>	127
<i>The Contest</i>	127
<i>The Games</i>	136
<i>The Symposion</i>	140
<i>Weddings</i>	142
<i>War</i>	145
3.4 COALESCING SITUATIONS AND PROCESSES	148
CONCLUSION.....	157
CHAPTER IV: THE AULOS OF LATE ANTIQUITY (C.AD 395-600).....	162

4.1 ETRUSCAN DOUBLE-PIPES	164
4.2 THE ROMAN TIBIA	168
4.3 THE TIBIA IN THE THEATRE.....	174
4.4 THE TIBIA IN ROMAN LIFE	176
4.5 SYSTEM OF CLASSIFICATION.....	178
4.6 DESCRIPTION OF EXCAVATED AULOI AND TIBIAE.....	183
<i>The Auloi of Pydna</i>	183
<i>The Elgin Aulos</i>	184
<i>The Pompeii Auloi or Tibiae</i>	185
4.7 POSSIBLE TRANSFORMATION OF THE AULOS IN LATE ANTIQUITY	187
CONCLUSION.....	196
CHAPTER V: THE MUSICAL PAST AND PRESENT IN FIELDWORK	202
5.1 INTRODUCTION.....	202
5.2 METHODOLOGY.....	203
5.3 UNDERSTANDING THE PAST THROUGH THE PRESENT: EXPLORING SIMILARITIES BETWEEN THE SARDINIAN LAUNEDDAS AND THE ANCIENT GREEK AULOS	208
5.4 FIELDWORK IN EGYPT: THE ARGHUL AS A CASE STUDY FOR A BETTER UNDERSTANDING OF THE ANCIENT AULOS	234
CONCLUSION.....	251
BIBLIOGRAPHY	272
PRIMARY SOURCES	272
SECONDARY SOURCES	276
APPENDICES	319
APPENDIX A: WRITTEN CONSENT FOR THE REPRODUCTION OF PHOTOS AND MEDIA	319
APPENDIX B: DESCRIPTION OF RETRIEVED AULOI AND AULOS FRAGMENTS.....	322
<i>The Brauron Aulos</i>	322
<i>The Elgin Aulos</i>	323
<i>The Auloi of Pydna</i>	324
<i>The Auloi or Tibiae from Meroë</i>	326
<i>The Tibiae from Mook</i>	327
<i>The Pompeii Auloi or Tibiae</i>	329
<i>The Maenad Pipes</i>	332
<i>Tibiae fragments from Damascus</i>	334
<i>The Reading Aulos</i>	334
<i>Fragments of Auloi from the Athenian Agora</i>	335

ABBREVIATIONS

AD	anno Domini (= in the year of our Lord).
b.	born
BC	before Christ
BP	before present, 'before 1950' the approximate year of Libby's establishment of the first radioactive method, radiocarbon.
c.	circa, about
cal	calibrated, corrected radiocarbon dates usually through tree ring dating
cm	centimetre(s)
e.g.	exempli gratia-for example
fem.	feminine
fl.	flourished
fr.	fragment
Gk.	Greek
inv.	inventory
Lat.	Latin
lit.	Literally
m.	metre(s)
masc.	masculine
mm	millimetre(s)
pl.	plural
r.	reigned
sic	sic erat scriptum, 'thus was it written'
sing.	singular
s.v.	Sub Verbo (Latin: Under the Word, Under the Heading of)

LIST OF FIGURES

FIGURE 1.1. (L-R) ‘MALE’ AND ‘FEMALE’ CANE (ARUNDO DONAX), MARACALAGONIS, SARDINIA (PHOTOGRAPHS BY THE AUTHOR).	22
FIGURE 1.2. PARTS OF AN AULOS (REDRAWN FROM MATHIESEN 1999: 186).	29
FIGURE 1.3. ROMAN AULOS OR TIBIA FROM POMPEII, NATIONAL ARCHAEOLOGICAL MUSEUM OF NAPLES (PHOTOGRAPH BY THE AUTHOR).	34
FIGURE 1.4. TUTANKHAMUN TRUMPET, THE MUSEUM OF EGYPTIAN ANTIQUITIES IN CAIRO (PHOTOGRAPH BY THE AUTHOR).	36
FIGURE 1.5. FRAGMENTS FROM SILVER PIPES FOUND AT UR, EARLY DYNASTIC III, C.2500 BC, THE UNIVERSITY OF PENNSYLVANIA MUSEUM OF ARCHAEOLOGY AND ANTHROPOLOGY (PHOTO: HTTPS://WWW.PENN.MUSEUM/COLLECTIONS/OBJECT_IMAGES.PHP?IRN=224933#IMAGE1).	38
FIGURE 1.6. BRAURON AULOS (REDRAWN FROM LANDELS 1963: 116, FIGURE 1).....	39
FIGURE 1.7. AMPHORA BY THE KLEOPHRADES PAINTER WITH AULOS PLAYER, COLLECTION E270 (C.500-450 BC). LONDON, THE BRITISH MUSEUM (HTTP://WWW.BRITISHMUSEUM.ORG/RESEARCH/COLLECTION_ONLINE/COLLECTION_OBJECT_DETAILS/COLLECTION_IMAGE_GALLERY.ASPX?ASSETID=221978001&OBJECTID=399287&PARTID=1#MORE-VIEWS).	41
FIGURE 1.8. PLATE BY EPIKTETOS WITH SATYR HOLDING AULOI, C.500 BC. BIBLIOTHÈQUE NATIONALE, PARIS (PHOTO: BUNDRICK 2005: 38, FIGURE 23).....	41
FIGURE 2.1. BONE PIPE FROM DIVJE BABE (60,000 BC), NARODNI MUZEJ SLOVENIJE, LJUBLJANA (PHOTOGRAPH BY THE AUTHOR).....	56
FIGURE 2.2. BONE PIPE FROM HOHLE FELS CAVE, C.40,000 YEARS AGO, ACH VALLEY, GERMANY (REDRAWN FROM CONARD ET AL. 2009: 737, FIGURE 1).	57
FIGURE 2.3. CLAY WHISTLE FROM YARIM TEPE I, SIXTH MILLENNIUM BC (PHOTO: MERPERT AND MURCHAEV 1973, PLATE XLIII).	60
FIGURE 2.4. BONE PIPES FROM JIAHU, CHINA (PHOTO: HTTPS://NUTCRACKERMAN.FILES.WORDPRESS.COM/2016/01/JIAHU.JPG).	61
FIGURE 2.5. THE HUNTING SHRINE OF ÇATAL HÜYÜK (A.III.I) (PHOTO: MELLAART 1967: 134-5, FIGURES 61 AND 63).....	62
FIGURE 2.6. LID OF PAESTAN RED-FIGURE LEKANIS, C.360-350 BC, ATTRIBUTED TO ASTEAS, MUSÉE DU LOUVRE, PARIS (PHOTO: HTTPS://DIGITALCOLLECTIONS.NYPL.ORG).....	65
FIGURE 2.7. ATTIC RED-FIGURED CUP ATTRIBUTED TO THE BRYGOS PAINTER, AROUND 490-480 BC. THE LEOPARD-SKIN SYBENE HANGS ON THE WALL BEHIND THE MAIN FIGURE (PHOTO: HTTPS://WWW.PICUKI.COM/MEDIA/2165989819241690581).	65
FIGURE 2.8. PALAEOLITHIC BONE PIPE FROM KARAIN CAVE, ANTALYA, TURKEY (PHOTO: TAŞKIRAN 2017: 40, FIGURE 6).	66
FIGURE 2.9. NEOLITHIC BONE PIPES FROM DISPILIO, KASTORIA, GREECE (PHOTO: HTTP://WWW.ANCIENTPAGES.COM/2014/10/28/ANCIENT-DISPILIO-DISK-AND-TRADITIONAL-HISTORY-OF-WRITING/DISPILIOFLUTES01/).	67
FIGURE 2.10. NEOLITHIC BONE PIPE FROM AVGI, KASTORIA, GREECE (PHOTO: HTTP://WWW.NEOLITHICAVGI.GR/?PAGE_ID=50).	68
FIGURE 2.11. STONE BOWL (LIMESTONE) FROM NEVALI ÇORI (8500-7900 BC) (PHOTO: HTTP://WWW.DANEL.COM.HR/LEPENSKI%20VIR.HTML).	69
FIGURE 2.12. CHALCOLITHIC BONE PIPE FROM ARSLANTEPE, MALATYA, TURKEY (3800-3400 BC) (PHOTO: FRANGIPANE 2004: 42).....	69
FIGURE 2.13 AND 2.14. (L-R) BONE PIPE FROM TEPE GAWRA, STRATUM XVII, HALAF PERIOD (C.6700 BC). BONE PIPE FROM TEPE GAWRA, STRATUM XII, UBAID PERIOD (C.4500 BC) (PHOTO AND DRAWING: TOBLER 1950, PLATE XCIX AND CLXXXII).	71
FIGURE 2.15. BONE TUBES FROM TEPE GAWRA (DRAWING: TOBLER 1950, PLATE CLXXXII).....	73
FIGURE 2.16. FRAGMENTS FROM SILVER PIPES, UR, EARLY DYNASTIC III (C.2500 BC), THE UNIVERSITY OF PENNSYLVANIA MUSEUM OF ARCHAEOLOGY AND ANTHROPOLOGY (PHOTO: HTTPS://WWW.PENN.MUSEUM/COLLECTIONS/OBJECT_IMAGES.PHP?IRN=224933#IMAGE2).	75
FIGURE 2.17. DETAIL OF THE STELA OF UR-NAMMU. TO THE RIGHT, A FIGURE STANDS ON A PEDESTAL HOLDING A PIPE (REDRAWN FROM CANBY 2001, PLATE XI).....	76
FIGURE 2.18. SILVER PIPES FROM UR, RECONSTRUCTION (DRAWING: RIMMER 1969: 39, FIGURE 9). ...	76
FIGURE 2.19. FRAGMENT OF AN IDOL, ZENCIDERE (2000-1650 BC) (PHOTO: HTTPS://WWW.PINTEREST.CA/PIN/533535887088243998/).	77

FIGURE 2.20. FIGURINE OF A DOUBLE-PIPE PLAYER FROM KEROS, PARIAN MARBLE (EARLY CYCLADIC II, c.2500-2200 BC) THE NATIONAL ARCHAEOLOGICAL MUSEUM OF ATHENS (3910) (PHOTOGRAPH BY THE AUTHOR).....	80
FIGURE 2.21. THE FOUR SUPERIMPOSED REGISTERS OF THE INANDIK VASE (c.1600 BC) (DRAWING: HTTPS://AR.PINTEREST.COM/PIN/524106475380549381/?LP=TRUE).	82
FIGURE 2.22. ORTHOSTAT PANELS OF THE SPHINX GATE, ALACA HÖYÜK (PHOTO: HTTPS://FUNKYSTOCK.PHOTOSHELTER.COM/IMAGE/I0000MH4A.hEPmBw).....	84
FIGURE 2.23. ORTHOSTAT RELIEF FROM CARCHEMISH, ANKARA (c.1200-1000 BC) (DRAWING: DUMBRILL 2005: 339, PLATE 46).	85
FIGURE 2.24. ORTHOSTAT RELIEF FROM KARATEPE (c.700 BC) (PHOTO: HTTPS://I.PINIMG.COM/736X/59/E1/DA/59E1DAE1F9B9DC4434822775733A97A7--RUNE-STONES-ADANA.JPG).	85
FIGURE 2.25. ORTHOSTAT FROM THE FACADE OF HILANI IV, ZINCIRLI (c.732-711 BC) (DRAWING: GILBERT 2011: 131, FIGURE 64).....	86
FIGURE 2.26. BOGASKÖY KYBELE (PHOTO: ROLLER 1999: 59, FIGURE 10).	87
FIGURE 2.27. MONKEY PLAYING THE DOUBLE-PIPES, A GIRL DANCES TO THE SOUND OF THE MUSIC, LOUVRE MUSEUM E 25 309 (PHOTO: HTTPS://WWW.FLICKR.COM/PHOTOS/130870_040871/26279625432/IN/PHOTOSTREAM/).....	88
FIGURE 2.28. WALL-PAINTING FROM THE THEBAN TOMB OF NEBAMUN (DETAIL), 18TH DYNASTY, c.1360 BC. THE SCENE SHOWS FEMALE MUSICIANS AND DANCERS, INCLUDING A WDNV PLAYER, AT A BANQUET (PHOTO: SHAW AND NICHOLSON 2008: 89).	89
FIGURE 2.29. A FOX LOOKING AFTER ITS FLOCK; NEW KINGDOM (THE BRITISH MUSEUM 10016) (DRAWING: MANNICHE 1991: 22, FIGURE 10).	89
FIGURE 2.30. THE TWO-DOG PALETTE, OR THE OXFORD PALETTE (3500-3050 BC) (PHOTO: HTTP://WWW.ASHMOLEAN.ORG/TWO-DOG-PALETTE).	90
FIGURE 2.31. ARTEFACT 69837 (DETAILED), THE MUSEUM OF EGYPTIAN ANTIQUITIES IN CAIRO, EGYPT (PHOTO: HICKMANN 1949, PLATE LXXXVI).....	91
FIGURE 2.32. DIVERGENT DOUBLE-PIPES; ARTEFACTS 69821 (A), 69822 (B), 69823 (C) (HICKMANN 1949, PLATE LXXXV).	94
FIGURE 3.1. ATTIC GEOMETRIC OINOCHOE, MID-EIGHTH CENTURY BC, NATIONAL ARCHAEOLOGICAL MUSEUM, ATHENS. A SEATED PHORMINX PLAYER BETWEEN TWO SEATED PERSONS WHOSE ACTIVITY REMAINS UNCLEAR (PHOTO: RIETHMÜLLER AND ZAMINER 1989: 127).	106
FIGURE 3.2. A SCENE FROM AN AEGEAN GEOMETRIC HYDRIA, LATE EIGHTH CENTURY BC, ANTIKENMUSEUM, STAATLICHE MUSEEN PREUßISCHER KULTURBESITZ, BERLIN. (ABOVE) A PROCESSION CONSISTING OF AN AULETES, A PHORMINX PLAYER, AND NINE WOMEN HOLDING PALM BRANCHES. (BELOW) AN AULETES LEADS A PROCESSION OF TWELVE MEN, WHO ARE PROBABLY ARMED SOLDIERS (PHOTO: RIETHMÜLLER AND ZAMINER 1989: 131).	107
FIGURE 3.3. THE NIMRUD JEWEL, AROUND SEVENTH CENTURY BC. THE SCENE SHOWS TWO MUSICIANS, ONE ON EACH SIDE OF A TREE. ONE MUSICIAN PLAYS THE LYRE, WHILE THE OTHER PLAYS THE DOUBLE-PIPES (PHOTO: MALLOWAN 1966: 114, FIGURE 58).	108
FIGURE 3.4. DIOSKURIDES SAMIOS (c.3RD CENTURY BC), ARCHAEOLOGICAL MUSEUM, NAPLES. MOSAIC EMBLEMA DEPICTING A GROUP OF MUSICIANS, AN AULETRIDE PLAYS THE DOUBLE-PIPES (GINGRAS) (PHOTO: PEDLEY 2007: 381, FIGURE 10.56).....	114
FIGURE 3.5. ATTIC-RED-FIGURE PELIKE (c.440-420 BC), LONDON, THE BRITISH MUSEUM (PHOTO: HTTPS://WWW.BRITISHMUSEUM.ORG/COLLECTION/OBJECT/G_1910-0615-1).	119
FIGURE 3.6. BOEOTIAN LEKANE (NO. 1879,1004.1), c.550 BC, THE BRITISH MUSEUM, LONDON. SACRIFICIAL PROCESSION IN HONOUR OF THE GODDESS ATHENA, A PROCESSION OF MEN IS BEING LED BY AN AULETES (PHOTO: HTTPS://WWW.BMIMAGES.COM/PREVIEW.ASP?IMAGE=00051340001).	124
FIGURE 3.7. PROCESSIONAL SCENE FROM THE AGHIA TRIADHA'S SARCOPHAGUS (c.1400 BC), IRAKLION MUSEUM, CRETE. AN AULETES PLAYS MUSIC, WHILE THE PRIEST WASHES HIS HANDS (PHOTO: PEDLEY 2007: 80, FIGURE 3.26).	124
FIGURE 3.8. STAMNOS BY EUCHARIDES PAINTER (C 10754), LOUVRE MUSEUM, PARIS. (L-R) A PRIEST SPRINKLE SOME WATER OVER THE SACRIFICIAL VICTIM. THE AULETES OBSERVES THE ACTION BUT HE DOES NOT ACCOMPANY IT WITH MUSIC (PHOTOS: NORDQUIST 1992: 127-8).	125
FIGURE 3.9. RED-FIGURE KRATER ATTRIBUTED TO NIKIAS PAINTER (INV. NO. 630), c.425-327 BC. MUSEO PROVINCIALE SIGISMONDO CASTROMEDIANO, LECCE (PHOTO: HTTPS://WWW.CVAONLINE.ORG/VASES/SPIFF/IMAGES200/IT06/CVA.IT06.248.1/CC001001.JPE).	126

FIGURE 3.10. ATTIC BLACK-FIGURE AMPHORA FROM KAMIROS, RHODES (NO. B 361), c.520-500 BC. THE BRITISH MUSEUM, LONDON. A BEARDED AULETES ACCOMPANIES DIVERSE ATHLETIC FEATS (PHOTO: https://www.beazley.ox.ac.uk/XDB/ASP/RECORDDETAILS.ASP?ID=8001BDF5-6BC4-49A6-9D62-977293EA1A54&noResults=&recordCount=&databaseID=&search=).	129
FIGURE 3.11. ATTIC BLACK-FIGURE AMPHORA (NO. 1849, 0620.9), c.500-480 BC, THE BRITISH MUSEUM, LONDON. MUSICAL CONTEST, AULESIS CATEGORY (PHOTO: https://www.britishmuseum.org/collection/object/G_1849-0620-9).	132
FIGURE 3.12. ATTIC BLACK-FIGURE PELIKE (530-520 BC), METROPOLITAN MUSEUM OF ART, NEW YORK. MUSIC PERFORMANCE, AULOIDIA. A BEARDED AULETES TOGETHER WITH A SINGER ON A PODIUM (PHOTO: RIETHMÜLLER AND ZAMINER 1989: 140).	132
FIGURE 3.13. BLACK-FIGURE AMPHORA FROM VULCI (F 1686), c.525 BC, ANTIKENSAMMLUNG, BERLIN. FEAST OF ATHENA. (L-R): SACRIFICE OF A COW AT AN ALTAR OF ATHENA. A PROCESSION OF TWO AULETAI AND TWO KITHARA PLAYERS (PHOTOS: https://weblimc.org/page/monument/2112743).	138
FIGURE 3.14. DETAIL OF THE CENTRE-NORTH FRIEZE OF THE PARTHENON SHOWING THE PANATHENAIC PROCESSION, ACROPOLIS MUSEUM, ATHENS. IT SEEMS THAT MALE AULOS-PLAYERS MAINLY ACCOMPANIED THIS PROCESSION (PHOTOGRAPH BY THE AUTHOR).	139
FIGURE 3.15. ATTIC RED-FIGURE CALYX KRATER PAINTED BY EUPHRONIOS, AROUND 510 BC. STAATLICHE ANTIKENSAMMLUNGEN, MÜNCHEN (PHOTO: RIETHMÜLLER AND ZAMINER 1989: 222).	141
FIGURE 3.16. LOUTROPHOROS (NO. 1453), c.430 BC. NATIONAL ARCHAEOLOGICAL MUSEUM, ATHENS. A PROCESSION TO BRIDAL BATH WITH AULOS PLAYER ON EXTREME RIGHT SIDE OF VASE (PHOTO: BUNDRICK 2005: 185, FIGURE 106).	143
FIGURE 3.17. PROTCORINTHIAN OLPE (NO. 9004217), c.675-625 BC. MUSEO NAZIONALE ETRUSCO DI VILLA GIULIA, ROMA. A BATTLE SCENE FROM THE SO-CALLED 'CHIGI VASE' (PHOTO: BROODBANK 2013: 559, FIGURE 10.37).	146
FIGURE 3.18. MARBLE HERM, SATYR PLAYING THE PLAGIAULOS. THE BRITISH MUSEUM, LONDON (PHOTO: https://www.britishmuseum.org/collection/object/G_1805-0703-26).	154
FIGURE 3.19. BRONZE FIGURINE OF A PHRYGIAN MUSICIAN PLAYING THE DOUBLE-PIPES OR HORNPIPES (NO. 134975), ASIA MINOR, HEIGHT 7.6 CM. THE BRITISH MUSEUM, LONDON (PHOTO: https://www.britishmuseum.org/collection/object/W_1968-0424-1).	155
FIGURE 4.1. WALL PAINTING FROM THE TOMBA DEI LEOPARDI (TOMB OF THE LEOPARDS), TARQUINIA, ITALY (PHOTO: FLEISCHHAUER 1964: 35, FIGURE 10).	165
FIGURE 4.2. SARCOPHAGUS AT THE MUSEO NAZIONALE ETRUSCO DE CHIUSI IN SIENA, TUSCANY, ITALY (PHOTO: https://twitter.com/DAVIDSTUTTARD/status/1002139374946004992/photo/3).	165
FIGURE 4.3. TOMBA DEL TRICLINIO (TOMB OF THE TRICLINIUM), TARQUINIA, ITALY (PHOTO: WEEGE 1921: 57, FIGURE 54).	166
FIGURE 4.4. TOMBA DELLA CACCIA E DELLA PESCA (TOMB OF HUNTING AND FISHING), TARQUINIA, ITALY (PHOTO: WEEBER 1980: 18, FIGURE 5).	167
FIGURE 4.5. BOXERS AND AULETES, WALL PAINTING FROM A LUCAN TOMB, BASILICATA, ITALY (PHOTO: https://media.gettyimages.com/photos/boxers-and-double-flute-player-fresco-from-lucan-tomb-basilicata-picture-id479638411?s=2048x2048).	168
FIGURE 4.6. SARCOPHAGUS, CAERE, ITALY (FIFTH CENTURY BC) (PHOTO: FLEISCHHAUER 1964: 41, NO 15).	168
FIGURE 4.7. A PRIEST OF KYBELE. THE RELIEF SHOWS THE PHRYGIAN AULOS, THE CYMBALA AND THE TYMPANA (PHOTO: FLEISCHHAUER 1964: 85, FIGURE 47).	173
FIGURE 4.8. TIBIA PLAYER WITH SCABELLUM AND DANCER (PHOTO: MOORE 2012: 160, FIGURE 9).	176
FIGURE 4.9. THE AULOI OF PYDNA, RECONSTRUCTION (PHOTO: PSAROUDAKES 2008: 207, FIGURE 2).	184
FIGURE 4.10. THE ELGIN AULOS (PHOTO: https://www.britishmuseum.org/collection/object/G_1816-0610-502).	184
FIGURE 4.11. THE POMPEII AULOI OR TIBIAE (PHOTO: MELINI 2014: 341, FIGURE 2).	185
FIGURE 4.12. TWO WOMEN, POSSIBLY PRIESTESSES, RIDING ON A CAMEL. ONE PLAYS THE DOUBLE-PIPES ABUBA, WHILE THE OTHER A DRUM. ROMAN PERIOD, DAMASCUS (PHOTO: POCHÉ 1983: 68, FIGURE 3).	188
FIGURE 4.13. STONE ETCHING FROM THE HARRA DESERT, AMMAN, JORDAN (PHOTO: BRAUN 2002: 218, FIGURE V.18).	189
FIGURE 4.14. MOSAIC FLOOR, SEPPHORIS (PHOTOS: WANER 2014: 278, FIGURES 6-10).	190

FIGURE 4.15. ARGHUL PLAYER FROM THE MASTABA OF NIANJNUM AND KHNUMHOTEP IN SAQARA (PHOTO: PÉREZ ARROYO 2001: 190, FIGURE 5).....	196
FIGURE 5.1. THE ENTRANCE TO PERRA’S HOUSE (PHOTOGRAPH REPRODUCED BY KIND PERMISSION OF PITANO PERRA).	209
FIGURE 5.2. BLACK-FIGURE AMPHORA (LATE SIXTH CENTURY BC), ANTIKENSAMMLUNGEN MUSEUM, BASLE. SATYRS IN A VINEYARD; PICKING, TREADING, MUSICKING, AND DECANTING (PHOTO: HTTPS://UPLOAD.WIKIMEDIA.ORG/WIKIPEDIA/COMMONS/4/4A/BELLY_AMPHORA_WITH_SATYRS_AT_THE_GRAPE_HARVEST%2C_AMASIS_PAINTER%2C_540-530_BC%2C_L_265_-_MARTIN_VON_WAGNER_MUSEUM_-_WÜRZBURG%2C_GERMANY_-_DSC05615.JPG).	210
FIGURE 5.3. A CABINET HANGED ON THE WALL. IT CONTAINS DIFFERENT TYPES OF REEDS (PHOTOGRAPH BY THE AUTHOR).....	213
FIGURE 5.4. PERRA IN HIS WORKSHOP (PHOTOGRAPH BY THE AUTHOR).....	214
FIGURE 5.5. (L-R) PITANO PERRA AND HIS MASTER ATTILIO SCROCCU (PHOTOGRAPH REPRODUCED BY KIND PERMISSION OF PITANO PERRA).	215
FIGURE 5.6. (L-R) PITANO’S HAND INDICATING THE KABITTSINAS (MOUTHPIECES) OF THE LAUNEDDAS; AN EGYPTIAN ARGHUL (PHOTOGRAPHS BY THE AUTHOR).	217
FIGURE 5.7. ATTIC RED-FIGURE AMPHORA OF THE KLEOPHRADES PAINTER FROM VULCI (C.480 BC), THE BRITISH MUSEUM, LONDON. AULOS PLAYER WITH PHORBEIA. PIPES ARE DISTINCTIVELY CONICAL (PHOTO: RIETHMÜLLER AND ZAMINER 1989: 142).	218
FIGURE 5.8. ATTIC RED-FIGURE AMPHORA OF THE PELEUS PAINTER (C.440 BC), THE BRITISH MUSEUM, LONDON. THE MUSE MELOUSA INSERTS A MOUTHPIECE INTO THE AULOS (DETAIL). PIPES ARE DISTINCTIVELY CYLINDRICAL (PHOTO: RIETHMÜLLER AND ZAMINER 1989: 168).....	219
FIGURE 5.9. RECONSTRUCTION PLAN AND MODEL OF THE SELINOS AULOS (PHOTOGRAPH REPRODUCED BY KIND PERMISSION OF PITANO PERRA).....	223
FIGURE 5.10. RECONSTRUCTION PLAN AND MODEL OF THE SELINOS AULOS (PHOTOGRAPH REPRODUCED BY KIND PERMISSION OF PITANO PERRA).....	224
FIGURE 5.11. A RECONSTRUCTION OF THE SELINOS AULOS (PHOTOGRAPH REPRODUCED BY KIND PERMISSION OF PITANO PERRA).....	224
FIGURE 5.12. RECONSTRUCTION OF THE AGHIA TRIADHA’S AULOS (PHOTOGRAPH REPRODUCED BY KIND PERMISSION OF PITANO PERRA).	225
FIGURE 5.13. PITANO PERRA PLAYING ONE OF HIS AULOS’ RECONSTRUCTIONS (PHOTOGRAPH BY THE AUTHOR).	228
FIGURE 5.14. THE PRESENT WRITER AT THE NATIONAL ARCHAEOLOGICAL MUSEUM OF CAGLIARI (PHOTOGRAPH BY THE AUTHOR).....	230
FIGURE 5.15. FRONTAL AND PROFILE VIEW OF THE ‘ITHYPHALIC LAUNEDDAS (FLUTE) PLAYER’, NURAGIC BRONZE STATUETTE (C.800-700 BC) NATIONAL ARCHAEOLOGY MUSEUM OF CAGLIARI (PHOTOGRAPHS BY THE AUTHOR).....	232
FIGURE 5.16. MR ZAKARIA IBRAHIM POINTING TO THE SIMSIMIA, A SMALL EGYPTIAN LYRE (PHOTOGRAPH BY THE AUTHOR).....	238
FIGURE 5.17. (L-R) MIZMAR, KAWALAS, AND ARGHUL IN AN ILLUMINATED GLASS BOX (PHOTOGRAPH BY THE AUTHOR).	239
FIGURE 5.18. EXHIBITION OF PAST EVENTS ON ONE OF THE APARTMENT’S WALLS (PHOTOGRAPH BY THE AUTHOR).	240
FIGURE 5.19. MR AMIN ARGHOULI (SHAHIN) AND THE PRESENT WRITER (PHOTOGRAPH BY THE AUTHOR).	243
FIGURE 5.20. MR AMIN’S CASE CONTAINING ARGHULS AND KAWALA (PHOTOGRAPH BY THE AUTHOR).	244
FIGURE 5.21. DIFFERENT TYPES OF ARGHULS (PHOTOGRAPH BY THE AUTHOR).	246
FIGURE 5.22. (L-R) THE PRESENT WRITER, MR MAHMOUD ABDEL HADY, AND MR ZAKARIA IBRAHIM (PHOTOGRAPH BY THE AUTHOR).....	249
FIGURE 5.23. MR MAHMOUD ABDEL HADY PLAYING THE ARGHUL (PHOTOGRAPH BY THE AUTHOR). 250	
FIGURE B. 1. THE ELGIN AULOI (PHOTO: HTTPS://WWW.BRITISHMUSEUM.ORG/COLLECTION/IMAGE/195345001)	323
FIGURE B. 2. PYDNA PIPE: THE FIVE SECTIONS (PHOTO: PSAROUDAKES 2008: 208).	325
FIGURE B. 3. PYDNA PIPE: CUP (PHOTO: PSAROUDAKES 2008: 208).....	325
FIGURE B. 4. PYDNA PIPE: CUP (PHOTO: PSAROUDAKES 2008: 208).....	325
FIGURE B. 5. PYDNA AULOS: BULBS (PHOTO: PSAROUDAKES 2008: 208).	325
FIGURE B. 6. PYDNA PIPE: SOCKET OF THE BULB SECTION (PHOTO: PSAROUDAKES 2008: 208).	326
FIGURE B. 7. PYDNA AULOS: EXTENSIONS (PHOTO: PSAROUDAKES 2008: 208)	326

FIGURE B. 8. A SELECTION OF BEST PRESERVED AULOS FRAGMENTS FROM MEROË (PHOTO: HTTPS://MFA.ORG/ARTICLE/2013/CONSERVATION-PROJECT-AULOI-OF-MEROE-INTRODUCTION)	327
FIGURE B. 9. THE TIBIA PARES OF MOOK (PHOTO: RIMMER 1976: 46, PLATE IV).	328
FIGURE B. 10. FOUR TIBIAE FROM POMPEII, ARTEFACTS NOS. 76891-4 (PHOTO: HOWARD 1893: 48, PLATE II).....	329
FIGURE B. 11. THE MAENAD PIPES (PHOTO: WARDLE 1981: 180).....	333

LIST OF TABLES

TABLE 1. MEASUREMENTS OF PIPE 1 (HICKMANN 1949: 140).	92
TABLE 2. MEASUREMENTS OF PIPE 2 (HICKMANN 1949: 140).	92
TABLE 3. MEASUREMENTS OF THE DISTANCES BETWEEN THE HOLES ON PIPE A1 AND PIPE A2 (HICKMANN 1949: 140).....	93
TABLE 4. DIAMETERS OF THE HOLES ON PIPE A1 AND PIPE A2 (HICKMANN 1949: 141).....	93
TABLE 5. ARTEFACT 69821 (A) DISTANCES FROM HOLES AS VIEWED FROM LEFT TO RIGHT (HICKMANN 1949: 124).....	94
TABLE 6. ARTEFACT 69821 (A) DISTANCES BETWEEN THE HOLES (HICKMANN 1949: 124).....	95
TABLE 7. ARTEFACT 69821 (A) DIAMETER OF THE HOLES (HICKMANN 1949: 124).....	95
TABLE 8. ARTEFACT 69822 (B) DISTANCES FROM HOLES AS VIEWED FROM LEFT TO RIGHT (HICKMANN 1949: 124).....	95
TABLE 9. ARTEFACT 69822 (B) DISTANCES BETWEEN THE HOLES (HICKMANN 1949: 124).....	96
TABLE 10. ARTEFACT 69822 (B) DIAMETER OF THE HOLES (HICKMANN 1949: 124).....	96
TABLE 11. ARTEFACT 69823 (C) DISTANCES OF HOLES FROM RIGHT TO LEFT (HICKMANN 1949: 125). ..	96
TABLE 12. ARTEFACT 69823 (C) DISTANCES BETWEEN HOLES (HICKMANN 1949: 125).....	97
TABLE 13. ARTEFACT 69823 (C) DIAMETER OF THE HOLES AS VIEWED FROM RIGHT TO LEFT (HICKMANN 1949: 125).....	97
TABLE 14. MEASUREMENTS OF THE BRAURON <i>AULOS</i> (LANDELS 1963: 116)	322
TABLE 15. DISTANCES MEASURED FROM A TO THE UPPER EDGE OF EACH HOLE (LANDELS 1963: 117)	322
TABLE 16. DISTANCES BETWEEN THE HOLES (LANDELS 1963: 117)	323
TABLE 17. <i>AULOI</i> OF PYDNA'S MEASUREMENTS (PSAROUDAKES 2008: 199-201)	324
TABLE 18. MEASUREMENTS OF THE <i>TIBIA</i> OF MOOK (RIMMER 1976: 42).....	328
TABLE 19. <i>TIBIA</i> OF MOOK DISTANCES OF HOLES (RIMMER 1976: 42).....	328
TABLE 20. ARTEFACT No 76891 MEASUREMENTS (HOWARD 1893: 48-9; HAGEL 2012: 104-5).....	330
TABLE 21. ARTEFACT No 76892 MEASUREMENTS (HOWARD 1893: 49; HAGEL 2012: 105-6).....	330
TABLE 22. ARTEFACT No 76893 MEASUREMENTS (HOWARD 1893: 49-50; HAGEL 2012: 106).....	331
TABLE 23. ARTEFACT No 76894 MEASUREMENTS (HOWARD 1893: 50; HAGEL 2012: 106-7).....	331
TABLE 24. ARTEFACT 84 – 4 – 9 – 5 (3A) DISTANCES OF HOLES (HOWARD 1893: 56-7).....	333
TABLE 25. ARTEFACT 84 – 4 – 9 – 6 (3B) DISTANCES OF HOLES (HOWARD 1893: 57).	333
TABLE 26. DESCRIPTION OF THE <i>TIBIAE</i> FRAGMENTS FROM DAMASCUS (WARDLE 1981: 11-2).	334
TABLE 27. READING <i>AULOS</i> MEASUREMENTS (LANDELS 1968: 231-4).....	334
TABLE 28. COMPLETE DESCRIPTION OF THE FRAGMENTS OF <i>AULOI</i> , ATHENIAN AGORA (WARDLE 1981: 14-5)	335

CD TRACK LIST

CD Track 1: *Launeddas*

CD Track 2: *Aulos*

CD Track 3: *Nodas*

CD Track 4: Amin Arghouli (Shahin)

CD Track 5: Amin Arghouli (Shahin)

CD Track 6: Mahmoud Abdel Hady

CHAPTER I: INTRODUCTION

Of all the musical instruments of the ancient world, the *aulos* was perhaps the most popular. While it was known as the *aulos* (Gk.: tube) in Ancient Greece, Rome knew it as the *tibia* or *fistula* (Lat.: pipe). This aerophone was common in the Mediterranean and the Near East and consisted of two divergent cylindrical pipes with a single or double-reed for a mouthpiece (Bélis 2001: 178-84). The *aulos* was used in religious contexts, in drama, during private gatherings (symposia), revels, and weddings (Roberts 2005: 487). The story of this musical instrument is comparable to a jigsaw puzzle where the pieces consist of scattered remarks in classical texts, depictions found mainly on vases, and fragmentary instruments retrieved at archaeological sites. As a result, a study of the *aulos* involves a cross-disciplinary field of research and therefore, different approaches.

This thesis presents a study based on material finds, as well as inquiries into textual and iconographical sources of the musical past of different cultures with a particular focus on the *aulos*. So as to present a review of the history of this musical instrument, this thesis examines written and material sources from the Mediterranean and the Near East. The sources range from prehistoric times to late antiquity. Thus, this investigation results in a synchronically and diachronically examination of sources. At times, the research takes the form of a dialogue between the ancient sources and the ethnomusicological present so as to emphasize the idea of continuity of musical practices of the past, and evidently of the *aulos*. It also presents an idea on to how musical practices related to this aerophone disseminated from one culture to another.

This research is supported by extensive fieldwork in Sardinia and Egypt where the musical instruments, the *launeddas* and the *arghul* respectively, are investigated in order to search for parallels between these instruments and the ancient *aulos*. One of the objectives of this fieldwork is to attempt to fill unaccounted gaps in the story of this iconic instrument.

1.1 The Aims of this Research

The main objective of this research is to present a holistic view of the *aulos*; its past and consequential history, as well as to trace how this instrument was transformed from classical antiquity (c.1000 BC-AD 395) to late antiquity (c.395-AD 600).¹ The reason why this research is being conducted lies in the fact that the history of the *aulos* presents unclear passages that need to be explained, such as its origins, and ensuing past.

Much of the literature on ancient musical instruments is descriptive rather than explanatory (e.g. Schlesinger 1939; Sachs 1940; Hickmann 1949; Manniche 1991; Melini 2014; Köpp-Junk 2018; Jiménez Pasalodos and Pippa Holmes 2018; Klavan 2021). This study aims to review existing literature so as to account for past changes. In order to do so, the research makes use of historical explanation while focusing on cultural processes, specifically on how these influenced changes in musical instruments. Based on the fact that social processes have a strong impact on musical practices, the study aims to determine the manner in which the processes of acculturation, diffusion and syncretism influenced changes in the morphology and meaning of the musical instrument of our concern.

Acculturation implies cultural change as a result of immediate contact between peoples of different cultures, regardless of their social complexity (Rice 2001: 67). Diffusion has to do with the spread of cultural traits from one society to another through the movement and exchange of people, trade, or any other social interaction (Winthrop 1991: 82). Sometimes, this involves the study of the origins and distribution of distinctive traits (ibid). Syncretism refers to a fusion or blending of, for instance, musical practices which can be evaluated through the analysis of similarities between two or more music traditions (Rice 2001: 850-1).

Another objective of this study is to formulate hypotheses and construct models to be deduced and validated. The research aims to answer specific questions regarding the reconstruction of the history of this musical instrument, rather than to produce material evidence. Last but not least, the study will attempt to trace the

¹ Classical antiquity begins with the rise of the Greek city-states (c.1000 BC) and ends with the death of the Emperor Theodosius I (c.AD 395). After this event, the Roman Empire split into two parts, namely, the Eastern and the Western Empire. Late antiquity begins with the further split of the Western Roman Empire into Germanic Kingdoms and ends with the Persian and Arab invasion of the Eastern Roman Empire (Cameron 1993: 1-11).

technological progress of this instrument, focusing on its manufacture, different techniques, and details of production.

1.2 Studies in Music Archaeology

The research presented in this thesis relies principally on the theory and methodology of historical ethnomusicology and organology. Historical ethnomusicology can be defined as the ‘ethnomusicological scholarship on the musical past’ (Sturman 2019: 1089), while organology is broadly defined as the ‘systematic study of musical instruments’ (Nettl 2015: 364). As this thesis is primarily about an ancient musical instrument, namely the *aulos*, both approaches related to these disciplines are suitable for this research.

Organology, encompasses issues that include design, classification, and historical development of musical instruments (Post 2019: 1627). As a result, its methods are mostly applied in museums and places where collections of musical instruments are exhibited. In 2017, I had the opportunity to take part in the XV Symposium of the ICTM Study Group on Music Archaeology & Workshop of the Music Archaeology Project (EMAP). The event was held at the Slovenian Academy of Science and Arts and at the National Museum of Slovenia, in Ljubljana, Slovenia. The main topic of the Symposium was the music in the Stone Age. Research on prehistoric sound tools and their implications on the origins of music were discussed. A panel and roundtable was also held so as to consider different views on the so called ‘Neanderthal flute’. This find, discovered in Slovenia, stimulated further research over the last two decades, and the debate is ongoing. Another important event was an afternoon with a guided tour to the travelling multimedia music exhibition *Arheomuzika* (Archaeomusica) at the National Museum of Slovenia. Here, a number of replicas of musical instruments, which ranged from the Stone Age to Classical Antiquity, were exhibited. This method of acquiring knowledge of past musical practices by making replicas of instruments is very important within the discipline of archaeomusicology. The reconstruction of ancient musical instruments is further discussed in Chapter V. I have to remark that the exhibition was well curated and interactive, thus it enabled the audience to feel close to the past and its music, both physically and sensorially.

This symposium served to highlight the importance of the field of archaeomusicology, to some extent, a subfield of ethnomusicology, which mainly depends on the study of musical instruments as artefacts (Nettl 2015: 364). Secondly, it also shed a light on the ever increasing importance of organology to various disciplines and subfields such as musicology, ethnomusicology, historical ethnomusicology, and musical iconography.² It is worth mentioning that, like organology, historical ethnomusicology also focuses on the study of musical instruments, as their study is essential for the understanding of performance practices of the past. In other words, musical instruments provide tangible evidence of past ways of life and the role of music in those contexts. Ethnomusicologist Beverly Diamond, for instance, sees artefacts, including musical instruments, as embodiments of historical relationships. She claims that artefacts can make reference to history through mimesis (imitation, in the sense of re-presentation) and thus they embody change (Diamond 2013: 169). This is further discussed in Chapter V.

Historical studies in ethnomusicology involve data collection, analysis, and interpretation. Data may include images, musical artefacts, sound recordings, music notation, and interviews (Sturman 2019: 1089-90). Historical ethnomusicology may also involve fieldwork and ethnography. According to Bernard Lortat-Jacob (1995: ix), ethnographic work should portray ‘living people and their behaviour rather than focusing primarily on their institutions, examining the techniques they bring into play and their ways of seeing the world, as well as the material signs of their existence’. In January 2017, I carried out fieldwork on the Mediterranean island of Sardinia. There, I interviewed Mr Pitano Perra, a *launeddas* player and maker. He was very kind in sharing his knowledge with me both on the *launeddas* and the ancient *aulos*. Overall, I can say that Mr Perra is a ‘hunter of ancient sounds’, as he enabled me to comprehend his own way of understanding the musical past, not only of Sardinia but also of the Mediterranean world. His creations, which consist of *launeddas* and replicas of *auloi*, make clear his commitment to the research into different types of cane, sounds, and inquiries on the musical past. This dovetails with what Scott L. Marcus (2007: xiii-xiv) claims regarding ethnography. Marcus states that ethnography should show how ‘people experience music and through it express shared culture’. He also claims that

² See conference program:
https://www.academia.edu/50978670/The_Conch_Shell_as_a_Musical_Instrument_in_Prehistoric_Malta

the ethnographer may focus on ‘a specific culture or a few countries within a larger region’ (ibid). With regards to ethnographic reporting, he claims that this should describe the contemporary musical situation and provide historical information on the traditions investigated, as these explain the present (ibid). This links to Tim Ingold (2013: 3) explanation of ethnography. Ingold (2013: 3) claims that ‘ethnography is a study of and learning about, its enduring products are recollective accounts which serve a documentary purpose’. Ethnography, for instance, studies a person from whom one learns. As a matter of fact, Ingold (2013: 3) claims that ethnography is ‘essentially documentary’. Thus, one has to ‘look back over the information collected so as to account for trends and patterns’ (ibid).

Such observations of current musical practices can provide a better understanding of past ones. Thus, the researcher can elaborate on an interpretation, although sometimes hypothetical, by combining historical and ethnographic data (see, for instance, Wong 1991; Wade 2014; Nettl 2015). Research outcomes may shed intriguing information on ancient musical instruments, both socially and culturally, and help to speculate on the ways artists performed music in the past.

The analysis of past discourses and practices, with specific reference to ancient authors who wrote about different aspects of music, may also help to construct past cultural patterns, which evidently differ from our own (Tomlinson 1993: ix). Cultural patterns are a set of norms that govern the behaviour of an organised group of people. The nature of this set of norms determines, amongst other domains, the character of music (Nettl 2015: 239). For instance, as a basic cultural characterization, ancient Greek society had significant values and laws that governed civic life, and these could also be seen in sound and musical behaviour. One such value that ancient Greeks embraced was the notion of *ēthos* (character). Within music making, they linked different musical genres with different kinds of personality, emotion, or disposition (Klavan 2021: 72). Consequently, they believed that the use of certain harmonies and rhythms could shape the moral character of young men, who eventually would lead governments and pass legislation (e.g. Plato *Respublica* Book III 397-401b). By extension, one can also say that music helped shape politics in ancient Greece, enabling music to be a powerful force for cultural change (Klavan 2021: 71-84).

Tomlinson (1993: ix) suggests that a researcher can analyse the past in view of cultural difference.³ This can be done by exemplifying the history of difference, simplistically, by contrasting and comparing one culture to another. For example, our information about how the *aulos* was perceived in ancient Greece, as well as in another parts of the ancient world, comes principally from written sources. Ancient Greek poets and philosophers wrote texts in which they comment on how they saw the world of musical culture. Herodotus (?484 BC-420s) and Athenaeus of Naucratis (fl. c.AD 200), drew up reports on the customs of the people they encountered. Such reports may be considered ethnographic with the added value that these authors were closer in time, at times indeed contemporary, to the people about whom they were writing. Herodotus (Book II.48), for instance, informs us that like the Greeks, Egyptians also used the *aulos*. He describes that the role of *auletai* (*aulos*-players) was to lead a procession of women who carried puppets with prominent genitals around the villages. They also led the singing of these women who sang hymns to Osiris during the procession.⁴ The people of ancient Greece carried out similar ceremonial practices, where the *aulos* had a predominant role. Herodotus (Book II.58-59) claims that the Greeks learnt these practices from the Egyptians.⁵

Tomlinson's notion on how to analyse the past is, in some way, complementary to that of the French philosopher Michel Foucault. In this regard, Foucault (1989) notes that 'archaeology is needed to unearth both the limits and the conditions of how people thought and talked about the world in previous ages' (Andres 2017). In order to know, for instance, the limits and conditions of how people thought and talked about the *aulos*, one needs, evidently, to examine both ancient and contemporary written sources. For example, we know that Aristoxenus (b. c.370 BC) classified (and probably referred) to the *aulos* as *ekphula organa*, that is, a foreign musical instrument (cited from Werhli 1967: 33). Naturally, since the times of Aristoxenus, the way people thought and talked about the *aulos* has changed. Some contemporary sources may be misleading, implying that the *aulos* was of Greek origin, whilst the earliest evidence of it comes from the Aegean (see, for instance, Comotti 1989; Bélis 2001; Klavan 2021). Other sources mention that the *aulos* was Hellenised,

³ Cultural difference involves the integrated and maintained system of socially acquired values, beliefs, and rules of conduct which impact the range of accepted behaviours distinguishable from one societal group to another (Jackson and Guerra 2011).

⁴ Hdt., pp. 115-6.

⁵ Hdt., p. 119.

that is, was adopted and transformed by the Greeks during the fifth century BC (see, for instance, Wilson 1999; Wallace 2003). This claim suggests a terminus post quem to this event, which is however hypothetical. I will expand on this in the general conclusion of this work.

As mentioned earlier, the writings of ancient authors provide information about peoples. Thus, in some way, such descriptions function as ethnographic reports. According to Skinner (2012: 3), the practice of writing about peoples, their customs, habits, and cultural differences knows its beginning in ancient Greece. This ancient ethnography can be defined as ‘the self-conscious prose study of non-Greek peoples’ (Skinner 2012: 3). Such studies on foreign peoples and cultures led Greeks to define the ‘self’ through contrast with the ethnically ‘other’ (Futo Kennedy 2015: 345). In their book, *Ancient Ethnography*, Eran Almagor and Joseph Skinner (2013: 10) attempt to ‘extend [the] definition of ancient ethnography to encompass any act of representation indicative of an interest in the habits and customs of foreign peoples’. This includes a move away from the Greek vs. Barbarian paradigm, and to adopt instead a pluralistic approach. In other words, attention must also be given to what other cultures thought about the Greeks and Romans. In order to do this, Almagor and Skinner (2013) suggest the analysis of other types of sources such as archaeological, epigraphic, artistic representations, and architecture in combination with written sources (see also Jin Kim 2013: 32). Due to the fact that the information regarding the *aulos* is found in different types of sources, this thesis examines written texts, material finds, and musical iconography. Such sources belong to the musical past of different cultures such as Greek, Roman, Egyptian, Judaic, Arabic, and others. This thesis attempts to examine the origins of the *aulos* using these types of sources. Archaeological evidence, in the form of a marble figurine representing an *aulos* player, indicates that the *aulos* was used as early as 3000 BC in the Aegean. Therefore, one can put forward the notion that the *aulos* is not a Greek invention. In fact, the Aegean islands were not part of the Greek world at that time. The rise of the Greek city-states occurred in 1000 BC. Moreover, the origins of the *aulos* cannot be traced back to the Near East, as the silver pipes discovered at the cemetery of Ur date back to 2500 BC. Moreover, it is not clear whether these pipes were played in pairs. In fact, Mesopotamian iconography does not substantiate this. The earliest representation of pipes goes back to the Iron Age 1200 BC. This notion can be further substantiated by the writings of Aristoxenus (b. c.370 BC) who claimed that the *aulos* was a foreign

invention (cited from Werhli 1967: 33). Athenaeus (Book XIV 618b-c), for instance, claimed that the *aulos* was invented by a Lybian-Numidian man called Seirites. However, Athenaeus must have completed his work *Deipnosophists* shortly after the death of the Roman Emperor Commodus in AD 192. Therefore, it is highly unlikely that this reference indicates the true origin of the *aulos*.

The relevance of a study on the *aulos*, and probably on any other type of musical instrument, is that musical instruments are evidence of people making music meaningful and useful in their lives (Marcus 2007: xiii). Due to the fact the *aulos* is widely associated with ancient Greece, it is valid to examine it from a Greek perspective and the manner by which they sought to give this instrument value. One of the ways that they did this was through the establishment of a classification. Ancient Greeks had their own way of classifying musical instruments. Their system consisted of two main categories: ‘voice’, the animate human voice, and ‘no voice’, the inanimate instruments, which were subdivided into string and wind (Wade 2013: 44-5). It is worth mentioning that Greeks preferred the human voice over instrumental music. As a matter of fact, music was considered to be the servant of the text (poetry) and thus of the words (see Klavan 2021: 2). The *aulos* was classified as a ‘no voice’ instrument. Therefore, for the Greeks the *aulos* was an ‘inanimate’ sound tool which had no life and no soul. This dovetails with the fact that *auletai* and *auletrides* were not capable of articulating words while playing the instrument (Barker 1984: 178). Nonetheless, the *aulos* played an important role in Greek society and was particularly used during religious ceremonies, implying that the *aulos* had spiritual associations.⁶

Ancient Greeks believed that the sound of the *aulos* pleased the gods. Therefore, the *aulos* was considered an essential element for ritual ceremonies. As a matter of fact, the hiring of an *auletes* for religious activities was considered a must, both in Greek and Roman society. Thus, whether the gods accepted an offering depended on whether or not a musician was playing the *aulos* (see Plutarch *Quaest. Conv.* Book II.1.5).⁷ It is believed that this practice lasted until the advent of Christianity. The early Church Fathers viewed those activities as unholy so they sought to eradicate them (see, for instance, *Sybilline Oracles* VIII, 113-21). As the

⁶ For a more insightful discussion about musical instruments and their association with the spiritual, see Wade 2013: 51-2.

⁷ Pl. *Quaest. Conv.*, III, 235.

aulos played a primordial role in such activities, the instrument was also stigmatised. In great part, this provoked its eventual disappearance.

We can also say that the *aulos* was iconic in both ancient Greece and Rome because it was repeatedly depicted on vases portraying daily life activities (see Nettl 2015: 368). However, it is paradoxical that such a popular and in-demand musical instrument was associated with such low prestige.⁸ Nevertheless, it seems this was not always the case. The *aulos* was apparently prestigious in certain contexts. For instance, during public festivals such as the one of Panathenaea, a number of *auletai* were hired and lavishly dressed to honour the goddess Athena (Wilson 1999: 73; Klavan 2021: 11). Such religious events were never detached from politics so in some way such a scenario probably formed part of political propaganda (Pedley 2005: 78). With regards to payment, it is not clear how much *auletai* received during such festivals. However, the Greek Constitution forbade citizens from paying more than two drachmas to performers (Aristotle *Athenian Constitution* 50.2).⁹

The study of musical instruments provides relevant information for gender studies. As Nettl remarks (2015: 368), musical instruments help to examine the interaction of the different sections of a society. In the case of the ancient *aulos*, the instrument was played by both males and females. However, the *aulos* was mainly associated with women. Female *aulos*-players of slave status, that is, *auletrides* and *hetairai* performed in male dominated contexts, mainly private gatherings (*symposia*), where no (free) women were allowed (Klavan 2021: 41).

Ancient Greeks accorded sexual connotations to the *aulos*. These refer to the physical body and specifically biological attributes of male and female (see Wade 2013: 52). The so-called ‘wedding *aulos*’ was meant to represent the bride and the groom. The longest pipe represented the male, while the shortest one the woman (Pollux *Onomasticon* IV. 80; Wilson 1999: 70). This case echoes the condition of sexual dimorphism, where the male is taller than the woman.

Instruments have always been items of technology (Nettl 2015: 368). The *aulos*, for example, was transformed from a simple piece of bone with holes into the Imperial *tibia* found at Pompeii. As described by Hagel (2012: 103-14) and The Workshop of Dionysus’ Blog (2021), *tibiae* manufacturers increased the number of

⁸ See Wade 2013: 52-3.

⁹ Arist. *Const. Ath.*, p. 92.

holes of the instrument because the increment of these is proportional to the length of the tube. Technological progress enabled the joining together of short sections of bone by means of spigot and socket. With this technological development, the tonal range of the instrument increased, and *tibia* players were able to perform more than one scale. One has to remark that performers were not able to change the tuning in former instruments. The extra holes were covered with metal collars or sleeves before the performance, enabling the player to select a determined scale. Each collar had a knob lever soldered to it so it that it could rotate around the pipe (Hagel 2012: 103-14; The Workshop of Dionysus 2021).

Economically speaking, the *aulos* was an item of commodity. In other words, this instrument was manufactured by artisans in workshops where people bought it and sold it.¹⁰ The *aulos* was undoubtedly a popular instrument, well known in the Mediterranean and the Near East. Consequently, it can be said that it was manufactured in different places and thus imported and exported, as people may have preferred instruments manufactured in specific regions (see Franklin 2020: 229-242). Greek *auloi*, for instance, have been discovered in Egypt, Spain and Sicily (see Klavan 2021: 28-32). The evident commercialization of the *aulos* gave rise to different traditions of *auloi* manufacturing. These traditions are distinguishable through the choice of material. For example, *auloi* makers may have used wood instead of ivory or cane, as wood probably was readily available in that specific area (see, for instance, Theophrastus *Historia plantarum* Book IV.3.1-4).¹¹

The quality of the sound of an instrument, that is, its timbre, as well as the aesthetics of its sound are two important points to consider when discussing musical instruments (Wade 2013: 58-9). Ancient Greek authors indeed described the sound of the *aulos* by using the words strong, intense, forceful, sweet-breathed, pure-toned, wailing, enticing, and lamenting (Pollux *Onomasticon* Book IV. 72). The considerable amount of epithets which refer to its sound indicates that there were more than one type of *aulos*. Consequently, the need for reconstructing *auloi* has become imperative amongst study groups specializing in ancient music. Apart from providing insights, replicas of musical instruments provide inquiries on different matters such as the instrument's capacity. The *aulos* had particular capabilities which undoubtedly met

¹⁰ For a more insightful discussion about musical instruments as items of commodity see Wade 2013: 57-8.

¹¹ Theophr. *Hist. pl.*, pp. 303-7.

the players' expectations. Nonetheless, we can only say this with regards to sophisticated models, as former versions were somewhat restricted. In fact, *aulos*-players could only play one scale on each instrument. If they wanted to play other scales, they needed to have different instruments (see Terzēs 2020: 213-228).

1.3 Acculturation, Diffusion, and Syncretism

In a 2019 entry in the *SAGE International Encyclopedia of Music*, ethnomusicologist Fang Yuan Liu (2019: 1) argues that acculturation refers 'to the bidirectional process of change that occurs as a result of long-term contact between groups of people of two or more cultural backgrounds [and that] acculturation is a dynamic process of cultural exchange'. Before proceeding further on this it is important to note that the key concept 'acculturation' comes from anthropology (Schönpflug 2009: 104). As highlighted by Liu (2019: 1), anthropologists' interest in the study of acculturation originated from colonial studies carried out on Native American and African Americans. Since ethnomusicologists followed the currents of anthropology, they also studied acculturation and how this interrelates with music in diverse world music traditions (Nettl 2015: 8-9). Ethnomusicologists became interested in the processes of acculturation in their cultural context in order to understand the effects of cultural contact through and on music (Wade 2013: 164).

The same entry, Liu (2019: 1) refers to a 1936 publication by North American anthropologists Robert Redfield, Ralph Linton, and Meville Herskovits. Liu points out that these authors defined acculturation as a 'reciprocal process of cultural change that results from constant contact between groups with distinct cultures' (Redfield et al., as cited in Liu 2019:1). According to Liu (2019: 1), this definition is seminal because it establishes some sort of demarcation between acculturation and other kinds of social contacts. Later definitions of acculturation considered and built further on the definition provided by Redfield's et al. For instance, a 1961 article published by the International Musicological Society states that 'acculturation comprehends those phenomena which result when groups of individuals having different cultures come into sustained first-hand contact, with subsequent changes in the cultural patterns of either or both groups' (as cited in Wade 2013: 164).

The aforementioned definitions seem to converge on the fact that acculturation is a reciprocal, that is, a bidirectional process of change. In this sense, acculturation

functions in two directions. It is a reciprocal process of change between the home and the host cultures. In an anthropological sense, this differentiates acculturation from other social processes such as assimilation.

According to anthropologists, acculturation differs from assimilation because in the latter the cultural influence is exerted on one of the parts only, thus the process is unidirectional (Nur Saputra 2020: 64). In relation to this, Shawn M. Higgins (2019: 246), a scholar in Cultural Studies, defines assimilation as ‘the process of adopting the habits, attitudes, and lifeways of a dominant culture’, linking assimilation with contexts such as migration, colonization, and annexation. Whilst anthropologists maintain that individuals become integrated into the ‘standard culture’ through assimilation sociologists see assimilation as a one-way process of producing ‘cultural citizens’ (Thomson 1996: 112; Ray 2006: 24). As a matter of fact, in sociology the term assimilation is interchangeably used for cultural naturalization (Higgins 2019: 246). Indeed, most sociologists use the term assimilation to refer to acculturation (Scott 2014: 28). As most literature in social sciences shows, anthropologists see acculturation and assimilation as two distinct processes whilst sociologists see them as one.

Sociologist Scott Lash (2018: 101) defines assimilation as the ‘process of ethnic change whereby “foreigners” become nationals even as the characteristics of a national may change’. This definition suggests that only the immigrant community, that is, the non-dominant groups (cultures) undergo cultural change. Nevertheless, since this definition also refers to the fact that ‘the characteristics of a national may change’ it implies that in some sense, like anthropologists, sociologists also consider assimilation as a bidirectional process, where both the host and the immigrant groups experience ethnic change, a process which may eventually lead to a total decline of ethnic distinction (Alba and Nee 2003; Jiménez 2017).

This shows the importance of determining whether the influences are bidirectional (reciprocal) or unidirectional (one-way), as this helps to distinguish between one process and another. However, this will depend much on the perspective employed. In every case, the distribution of influences produces different results. For example, acculturation may generate social and political issues of equality or inequality. According to Redfield et al. (1936: 151), when the influences are shared by all interacting groups, therefore the influences are bidirectional, we speak of equality. Conversely, when the influences are unidirectional they result in issues of

inequality (ibid). In other words, the dominant group exerts influences on the non-dominant group, therefore changes occur only in this group, a situation which can generate differences in power (ibid.). This is akin to the assimilation cycle proposed by sociology. According to Higgins (2019: 246), this cycle, like acculturation, begins with intercultural contact that later develops into conflict, where the non-dominant group establishes its own values in opposition to the mainstream. The cycle continues with a process of accommodation where the non-dominant group simply conforms to the expectations of the dominant group. This paves the way to assimilation where the non-dominant group accepts and internalises the values and culture of the dominant group (Higgins 2019: 246).

In the encyclopaedia entry mentioned previously, Liu (2019: 1) describes acculturation as the result of long-term intercultural contacts. As Redfield et al. (1936: 149) note in order for acculturation to take place, the contact must be constant and lasts for some time. This contrasts with diffusion, that is, with that social process 'in which cultural elements, such as values, religions, languages, technologies and artifacts are diffused from one group of people to another through contact' (Liu 2019: 1; Risk 2019: 736-7). Diffusion, understood here as the dissemination of cultural elements, normally happens during activities where people interact briefly. Such activities include war, trade, and employment (Winthrop 1991: 82; O'Toole 2019: 495). Thus, in order to differentiate between acculturation and diffusion, one needs to know whether the intercultural contact lasted for a significant time period or not. For example, trade-related activities do not involve a lot of time. They facilitate the exchange of cultural elements, that is the technologies and the artefacts but also the words that refer to them and their meanings. This explains why such activities and their implied interactions are more associated with diffusion (Buera and Oberfield 2020: 83-114).

It is worth mentioning here that the study of diffusion knows its beginning in anthropology. It was later taken up by studies in archaeology, and subsequently by cultural geography. The American anthropologist Alfred L. Kroeber (1948: 425) affirms that diffusion and acculturation are in some way connected. Kroeber (1948: 425) claims that diffusion contributes to acculturation and that acculturation necessarily involves diffusion. Moreover, he states that diffusion has to do with what happens to the elements of a culture, while acculturation involves an entire culture

(ibid). This shows that anthropologists consider diffusion and acculturation as two different processes.

For archaeologists, the diffusion of ideas does not necessarily involve movement of people. They suggest that ideas can spread through different means, for instance, through commerce. Like the German ethnologists Fritz Graebner and Wilhelm Schmidt, who claimed that ideas and technologies came from cultural circles (*kulturkreise*) (Nettl 2015: 332; Risk 2019: 736), archaeologists suggest that ideas and innovations spread from a place of origin (centre) to the surrounding regions.

The relativistic view of the German-American anthropologist Franz Boas changed archaeologists' perspective on diffusion. Boas suggested that both savages and civilized races were capable of creating their own innovations (Brown 2008: 364-5), thus demolishing the evolutionary belief in a hierarchy of races, where the inferior ones are considered incapable of producing innovations (Morgan 2020), as well as the idea that these emanate from a cultural centre (Lowie 1937; cited in Risk 2019: 736). Apart from supporting these changes, the advent of radiocarbon dating helped archaeologists to recognize that things can develop independently, in different social conditions, and different periods of time (Schulz Paulsson 2019: 3460-5).

Cultural geographers define diffusion as 'the spread of a phenomenon, such as an idea, a technological innovation, or a disease, over space and time' (Hall 2005: 249). Hall (2005: 249-50) explains that they recognise six types of cultural diffusion:

1) relocation diffusion: occurs when people move from one place to another bringing their culture with them;

2) expansion diffusion: occurs when an idea spreads through a population so that the number of individuals influenced increases;

3) contagious diffusion: occurs through a distance-controlled spread of an idea among a population through contact from person to person, in the same manner of a disease;

4) hierarchical diffusion: occurs when an idea spreads first amongst the most connected individuals, filtering down to other individuals.

5) stimulus diffusion: occurs when an idea spreads from its cultural core outwards, but is changed by the adopters;

6) maladaptive diffusion: occurs through the adoption of diffusing traits that are not practical or reflective of a region's environment or culture.

These six types of cultural diffusion explain the phenomenon of the manner by which concepts or ideas can spread through humanity. These differ according to the geographical area, type of society as well as the power of both influencer and influenced. Different diffusions spread at different speeds according to the society and the context. All this dovetails well with the definition of diffusion provided by Winthrop previously (1991: 82).

Ethnomusicology, although embracing musical change, human movement, cultural hybridity, nevertheless investigates musical diffusion and transmission (Risk 2019: 737). The latest theoretical insights that may support the study of musical diffusion come from sociology. According to Everett M. Rogers (2003: 11-30), the process of diffusion can be divided into four elements:

- 1) the channels by which an innovation is communicated;
- 2) the varying lengths of time that people require to adopt (or reject) the innovation;
- 3) the social system within which the diffusion takes place; and
- 4) those characteristics of the innovation that hinder or accelerate the diffusion process.

As these elements imply, the process of diffusion depends heavily on the means of communication and how receptive, or otherwise, the receiving society is. This is naturally linked to the degree of sophistication of the same society. For instance, a society that is democratic and technologically developed is in a potential position to discern and subsequently accept or reject this diffusion at a quick rate.

It is worth noting that sometimes what anthropologists refer to as diffusion seems to be acculturation for psychologists. For instance, psychologist John W. Berry (1980: 11) asserts that ‘the least acculturation can take place [...] where the contact is of short duration’, while for anthropologists acculturation occurs over longer periods of time. Berry cites trade as an example because this is a short-term activity (ibid). When describing acculturation, psychologists speak of ‘acculturation strategies’ or outcomes of acculturation. Berry’s bidimensional model consists of four strategies: assimilation, separation, integration, and marginalization (Berry 1997: 5-68; Liu 2019: 4). Such strategies are embodied in a theoretical framework which consists of two components: attitudes and behaviours, as these are generated by intercultural contact and experienced by individuals (ibid).

Assimilation occurs when an individual or a group of individuals voluntarily abandon their native cultural identity to adopt the dominant culture (Schwartz et al. 2010: 239). Separation has to do with individuals who highly value their cultural heritage. They remain in contact with people of their own culture, avoiding contact with the dominant culture (Liu 2019: 5). Integration refers to individuals who maintain their culture, keep close relationships with people from their own culture, accept the dominant culture, while participating with the dominant group (Schwartz et al. 2010: 238). Integration is also known as biculturalism (Schwartz and Zamboanga 2008: 275-85). Marginalization refers to individuals who have little, or no interest at all, in preserving their own culture or coming into contact with the dominant one (Fox et al. 2013: 271; Liu 2019: 5). As aforementioned, integration is also known as biculturalism. Bicultural individuals identify with both ethnic and mainstream (dominant) cultures. This feeling may increase to such an extent that individuals see themselves as part of a third combined culture (Benet-Martínez and Haritatos 2005: 1019-20). This parallels the process of syncretism.

In syncretism, a fusion of beliefs and practices occurs between different cultures, that is, syncretism occurs when two cultures come together. From this union, which synthesizes characteristics of both cultures, a third culture is born (Merriam 1964: 313-15; De Ortega y Gasca 1978: 18-9; Nettl 2015: 286-7). Syncretism is also associated with assimilation, as often it is the non-dominant culture which disappears (De Ortega y Gasca 1978: 18-9). According to Nettl (2015: 218), the term syncretism, which the *Encyclopedia Britannica* defines as ‘fusion of elements from different cultural sources’ serves to explain why societies make certain musical choices (as cited in Nettl 2015: 286). Ethnomusicologists, for instance, made use of this term to explain the considerable number of musical styles deriving from African cultures, particularly from the Americas to Africa (see, for instance, Herskovits 1945; Waterman 1952) (Nettl 2015: 119, 219).

When applied to music more specifically the above definitions and perspectives bring forth processes which may impact strongly a musical tradition and its musical practices. For instance, the study of acculturation allows us to understand the effects of intercultural contact through and on music. Acculturation is a dynamic process of cultural exchange, in which a musical instrument, for example, may be adopted, rejected, or transformed by one of the interacting cultures. Eventually, the adopting culture may decide to further develop the musical instrument. This would

imply, amongst other things, changes in the morphology of the same musical instrument. Interestingly enough, the musical culture from which an instrument originates may end up accepting the new and transformed version of the same instrument following complex processes of acculturation. Such a scenario fits into acculturation as seen from the anthropological perspective, where the process of change is reciprocal, that is, bidirectional.

As noted, in sociology assimilation is interchangeably used for acculturation. Here it is described as a process of ethnic change which can be either unidirectional or bidirectional. This perspective matches some situations of immigrant musicians. Their unavoidable contact with a dominant culture often leads them to set up their own values in opposition to the mainstream. Very often, and gradually, these musicians start adopting the culture of the mainstream, while simultaneously losing some of their native culture (Higgins 2019: 246). In this scenario, the rescue of the sounds of the minorities who are being absorbed by the mainstream becomes a must in order to avoid a loss of culture, including traditional music (Nettl 2015: 406). Nevertheless, one may always find cases where immigrants remain immersed/rooted in their own ethnic communities (Higgins 2019: 246). In this context one may include minority groups within society and their efforts to preserve their own traditions and hence their music. Immigrants may also adopt a mainstream culture, while retaining their native one by maintaining contact with their ethnic communities (ibid). In this scenario, it is important to understand, accept, and celebrate the heterogeneity of a society and avoid the marginalisation of minorities (Nettl 2015: 406).

As noted earlier, psychologists speak of acculturation strategies composed of assimilation, separation, integration, and marginalization, incorporated in a theoretical framework consisting of attitudes and behaviours (Berry 1997: 5-68; Liu 2019: 4). Assimilation strategy is one where individuals abandon their native culture and adopt the dominant one (Schwartz et al. 2010: 239). The music of these individuals may disappear completely or be absorbed into the mainstream. On the other hand, the music would remain intact if those individuals remain immersed/rooted within their own culture, especially if they avoid contact with the dominant culture as proposed by the separation strategy. This can perhaps be observed in a first generation of immigrants whose children are more likely to adopt the mainstream (Liu 2019: 5). When first generation immigrants wholeheartedly adopt a mainstream culture, it is often their children who attempt to revert to the minority culture.

Ideally, individuals should maintain their culture, interact with their peers, and accept the dominant culture (Schwartz et al. 2010: 238). Psychologists refer to this process as integration strategy; however, the term biculturalism is also used (Schwartz and Zamboanga 2008: 275-85). This strategy prevents native cultures, and by extension their music, from being absorbed by the dominant stream. However, a society is also composed of individuals who lack interest in both their own culture and the dominant one (Liu 2019: 5). Such individuals may begin the acculturation process but do not achieve a new, defined cultural affiliation (Fox et al. 2013: 271). This is what psychologists refer to as the marginalisation strategy (Liu 2019: 5). That said, however, such a process may take other directions that make it more complex to analyse. In music, for example, genres such as the blues were viewed as marginalised in the past. However, these views have changed when this musical style travelled from underground to mainstream music. Nowadays, this is evident in the prosperity and commercialisation of this musical style itself (Bjerstedt 2013: 1-2).

All of the aforementioned perspectives on acculturation can be applied to the study of ancient music. However, this is not always plain sailing. First, the nature of the sources does not always allow for exact observation of first-hand contacts and gradual change. Secondly, one has to consider that ancient societies were not homogeneous but rather complex. Another important point to consider is that societies developed historically (Toral-Niehoff 2012). Historian Ulrich Gotter (2002) proposes some relevant points on this matter. First, cultural entities must be understood as identity groups. Second, we can speak of acculturation when groups can be determined and delimited. This involves the degree of differences between groups, the dynamics of reception which can be described and the transformation of the ‘original patterns’ which can be observed.

This thesis finds acculturation, along with diffusion, as probably the most important causes of sociocultural change. Syncretism emerges as equally important here and may be considered as a particular type of acculturation that further stresses cultural change. This thesis applies syncretism in order to explain the creation of different types of *aulos*, as well as the eventual transformation of this musical instrument. Diffusion, on the other hand, is used to explain what happened to the *aulos*, as well as to elaborate on a hypothetical reconstruction of its spread across regions. For example, a hypothetical process of diffusion may follow this order of events: the adopting culture borrows an innovation from another culture, internalises it,

homogenises it, and transforms it (Nutini 1988: 407). Whenever necessary, this thesis makes use of this model.

Aspects of diffusion occur in the context of syncretism. This process involves three stages: the confrontation of two cultural traditions, a developmental cycle, and synthesis (Nutini 1988: 407-10). Hypothetically, the spread of a musical instrument such as the *aulos*, passes through a process of acceptance by the receiving culture. It is worth mentioning at this stage that the acceptance of an innovation (a musical instrument in this case) is sometimes met with suspicion, resistance and contestation by individual members within a culture. Innovation may also pass through a process of adaptation, where the receiving culture adapts it for their own needs. Often, this gives rise to new syncretic forms of the innovation (O'Toole 2019: 495). One has to mention that with the adoption of a musical instrument comes the adoption of a musical repertoire. The host culture often modifies this repertoire, adapting it to its daily activities and needs as well as to special events that mark the cycle of life.

1.4 Methodology

The research presented in this thesis relies principally on the theory and methodology of historical ethnomusicology and organology.¹² Historical research in ethnomusicology shares some aspects with the field of ethnohistory because it stresses the complementary narratives of documentary materials and ethnographic, or archaeological data.¹³ At the same time, it highlights the combination of historical and anthropological angles in the study of social and cultural process and history (Axtell 1979: 1-9).¹⁴ According to Bielawski (1958: 10), historical research in

¹² Organology, first defined in Germany as *Instrumentenkunde*, is the study of musical instruments based on the criteria of their history and social function, design, construction, and relation to performance (Libin 2001: 657-8).

¹³ Ethnohistory studies cultures and peoples' customs by examining historical records and ethnography. It may also be defined as the study of extant or extinct ethnic groups. Ethnohistory mainly relies on historical and ethnographic data. It makes use of sources such as recorded music, iconographies, archaeological artefacts, oral tradition, philological studies (language), site surveys, and so on (Axtell 1979: 1-13). It is worth mentioning that ethnography is a subsection of cultural anthropology concerned with the study of contemporary cultures through first-hand observation (Hamilton 2002: 186-8; Stone 2008: 4-6). Such studies would enable an understanding of past societies through analogy, while archaeology is a subdiscipline of anthropology which studies our past from the dawn of humanity. Archaeology searches and collects manufacts of our ancestors which are interpreted to provide a holistic historical interpretation (Michaels 1996: 42).

¹⁴ We ought to mention that anthropology is the academic study of man, normally divided into three subdisciplines: physical anthropology, cultural (social) anthropology, and archaeology (Daniel 1977: 20).

ethnomusicology ‘includes the past of music and of music cultures covered by this discipline [history], no matter what sources are used, what methods are applied, or how detailed and certain are the results; whether, for instance, it is based on relative, or absolute chronology’.¹⁵

The discipline of ethnomusicology ‘studies the musical culture of a society through the observation of the present’ (Nettl 2005: 277). However, ‘any picture of the present that is not informed by an appreciation of the historical dimension is sadly incomplete’ (Widdess 1992: 219). Thus, the understanding of past events and circumstances provides a better understanding of present musical cultures and vice versa. Historical ethnomusicology makes use of different approaches so as to understand social processes and the past. This is mainly reached through ethnography, archival work, and e-fieldwork.¹⁶ Thus, the historical ethnomusicologist understands that social processes are historically constructed and that these may follow a relative or absolute sequence of events. For this reason, it is crucial to take into account the chronological, as well as geographical aspects of social processes. The historical ethnomusicologist aims to explain and reconstruct past musical behaviours of different cultures, no matter what cultural period they belong to (Stone 2008: 184-6).

As aforementioned, studies on music in the past rely mainly on written sources, material culture, iconographical representations, and archaeological artefacts because these complement each other (Hickmann 2001: 848-54).¹⁷ However, in some cases, these sources do not provide information on particular music-related behaviours. This issue limits the investigation causing unaccounted gaps in the report. Whenever relevant, this thesis makes use of ethnographic data so as to fill in these gaps. Ethnographic methods and observations can be an aid to reconstruct past human behaviour such as musical practices. For instance, the ethnography of living communities could be useful in the understanding of past cultures because such societies might hold evidence and crafts comparable with the past. In this case, ethnography is used as an indirect approach to the understanding of past societies and their cultural practices (David and Kramer 2001).

¹⁵ Absolute dating or chronometric dating is ‘the determination of age with reference to a specific time scale, such as a fixed calendrical system’ (Renfrew and Bahn 2008: 578). Relative dating is ‘the determination of chronological sequence without recourse to a fixed time scale, such as the arrangement of artefacts in a typological sequence or seriation’ (ibid: 584).

¹⁶ E-fieldwork is internet-based research. For more information on this, see Wood 2008:170-87.

¹⁷ The term material culture encompasses the physical artefacts such as tools and buildings that can be deduced to constitute the material left by former societies (Orser 2002: 339-42).

Ethnographic data can be used to interpret and explain archaeological artefacts, including musical instruments (Stiles 1977: 88). In the field, the ethnographer can identify past behaviours, in this case, musical practices. These may differ from our own and may be described in ethnographic reports. The ethnographer can acquire further information about these practices through experimentation on replicas of artefacts (Gould 1974: 29). In light of this information, ethnographic data are comparable with other types of data, for instance archaeological and iconographical data. However, the degree of validity of these studies depends on the standard features that the sets of data share. In other words, there must exist a connection between them, namely, between the culture that is providing the ethnographic data and the one in question. In some cases, the data is significantly unrelated but can still be used to make comparisons and elaborate interpretations (Stiles 1977: 94-5). For example, while discussing the distinctive plants found at the lakes of Copais and Cephisos in the city of Orchomenos (modern Boeotia) in Greece, Theophrastus¹⁸ (*Historia plantarum* Book IV.11.4)¹⁹ makes the following references about the reeds used for manufacturing pipes:

Also, it is said to differ from other reeds, to speak generally, in a certain luxuriance of growth, being of a fuller and more fleshy character, and, one may say, 'female' in appearance. For it is said that even the leaf is broader and whiter, though the plume is smaller than that of other reeds, and some have no plume at all; these they call 'eunuch-reeds.' From these they say that the best mouthpieces are made, though many are spoiled in the making (Hort 1916: 371).

One of the aims of my recent fieldwork in Sardinia (January 2017) was to investigate the manufacturing techniques of the *launeddas* so as to establish parallels between these and the methods described by ancient authors on *aulos*' making.²⁰ The *launeddas* is an aerophone, that is, a woodwind instrument which consists of three divergent pipes of unequal length and three single-reeds for mouthpieces (Baines

¹⁸ Theophrastus (c.371-c.287 BC) was born in Eresus, Lesbos. He was an associate and successor of Aristotle. He became the head of the Lyceum of Athens after Aristotle's departure from that city on the death of Alexander the Great. Theophrastus is renowned by his work *Historia plantarum* (Enquiry into Plants) which survives intact (Roberts 2005: 702).

¹⁹ Theophrastus, *Enquiry into Plants Books I-V*, trans. by Arthur Hort, Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press, 1916), p. 370 (Hereafter, Theophr. *Hist. pl.*). At times, this thesis uses the word pipe or pipes interchangeably with *aulos*.

²⁰ Sardinia is an island situated to the West of Italy that measures 270 km on the north-south axis and 145 km east to west.

1957: 195-204). I was told by a Sardinian *launeddas* player and maker that they normally used one type of cane, specifically *arundo donax*, to manufacture this instrument. At this stage, it is worth noting that *launeddas* makers differentiate between diverse features in this cane, which they label as ‘female’, ‘male’, and ‘eunuch’ (Figure 1.1). These particular ‘canes’ are used for manufacturing specific parts of the instrument which require different qualities. Theophrastus’s narrative above indicates a similar practice. Theophrastus’s informants may have lived by the river Cephisos and Lake Copais in the city of Orchomenos and were able to search for specific features of the reed, as well as to recognise these by examining their morphology.



Figure 1.1. (L-R) ‘Male’ and ‘Female’ cane (*arundo donax*), Maracalagonis, Sardinia (photographs by the author).

Ethnography is an important tool for this research. In this respect, I would like to underscore the fact that there were a number of authors in antiquity such as Herodotus (?484 BC-420s) and Athenaeus of Naucratis (fl. c.AD 200) who drew up reports on the customs of the people they encountered. In this sense, we could say that their respective reports serve as ethnographic reports with the added value that these authors were closer in time (at times indeed contemporary) to the people about whom they were writing. Thus, such reports are of crucial importance to this research.

In order to address issues vis-à-vis music-related objects, a multidisciplinary approach such as archaeomusicology which includes the disciplines of organology, music iconography, ethnohistory, and philology, is necessary.²¹ Archaeomusicology is the application of the methods of archaeology to the study of music. Excavations,

²¹ Philology is the study of written historical sources, including language, history, and literary criticism (Clausen 1990: 13-5).

that is, the uncovering of artefacts are the starting point of any research in archaeomusicology. The archaeological site becomes the primary source of information vis-à-vis socio-cultural contexts and dating. The fundamentals of archaeomusicological research are based on Gordon Childe's theories.²² Childe (1958: 10) affirmed that 'objects in context are more valuable than the recovery and interpretation of isolated ones'. This means that we must look at the context in which an artefact was found before proposing and elaborating on an interpretation. By looking at the context, the object is brought to life, a process akin to joining pieces of a jigsaw puzzle to construct a picture of the past. The objects of research in archaeomusicology are various and involve music-related artefacts, or artefacts which might have had a function as sound producers, depictions and carvings portraying musical content, written sources, inscriptions, and musical notations (Hickmann 2001: 848-54). It is worth noting that archaeomusicology studies artefacts belonging to any cultural period. It does not make a distinction between fragmentary and complete objects as these are always considered to be pieces of a larger picture. In other words, archaeomusicology studies all cultural periods and helps to fill the gaps unaccounted for by historical ethnomusicologists, philologists, and musicologists. The following is the complete archaeomusicological system of classification as published by Hickmann in 2001. In archaeomusicology, music related objects are classified as follows:

1. Objects whose primary purpose was to produce sound, that is, musical instruments, such as bronze lurs, bone flutes, bells, and jingles.
2. Objects whose primary purpose was probably to produce sound such as pig bone bullroarers.
3. Objects which, judging by analogous items, were made to fulfil more than one function including that of producing sound (such as items of personal adornment made of snail shells or bronze plaques).
4. Objects probably not made with the intention of producing sound but whose construction enabled them to do so, as well as fulfilling their primary function, for instance, silver or iron bracelets.
5. Items whose function is unknown, but which produce sound as a result of their structure and could therefore have been used as musical instruments, for example, items of bone with carved grooves that were used as scrapers. These are classified on the basis of analogy, the context of the find, the interpretation

²² Gordon Childe: Australian leading archaeologist of the mid 20th century. Professor at Edinburgh and London Universities. His major contribution has to do with an emphasis on the study of the human society, that is, culture (Bray and Trump 1970: 58).

of the archaeomusicologist or other interpretation and/or in the light of other circumstances.

The research presented in this thesis incorporates a study of technology which can help to set the production of this musical instrument, that is, the *aulos* in its social context. This study can shed light on the material needed for the manufacture of this instrument, as well as on the degree of investment required. Investment, in such cases, involves seasonal or year-round activities as well as individual and communal division of labour in order to perform the various tasks required. Ethnographic parallels may suggest alternative modes of production, such as domestic, or professional activity. Distributional studies can help to discover different areas of production and trade. In fact, commercial activities, in which *auloi* (pl. for *aulos*) were traded invariably involved social contact associated with processes of migration, acculturation, diffusion, and syncretism (Orton et al. 1993: 31-2).

In order to provide a wider view of the *aulos*, that is to say its history, social function, construction design, and performance contexts, this research relies on organological studies of this instrument, which encompasses a significant area of knowledge in this project. Scholars, such as Praetorius, Mersene, and Kircher, have employed the methods of organology since the seventeenth century.²³ These methods include the study of depictions and fragments of musical instruments, their classification within a system of categories, the recording of their shape by means of drawings and photographs, manufacturing materials, decorations, and sound, as well as information about their function and meaning within a society. Since the twentieth century, new scientific methods of dating such as dendrochronology (tree ring counting) have been employed in organology. This method provides accurate dating for ancient instruments made out of wood. For example, Ratcliff and Hoffmann (2014) used this method to date violins. Innovative scanning techniques, such as tomography provide detailed images of sections within a solid body. Such images have served to make reliable reproductions of ancient musical instruments (Libin 2001: 657-8).

This thesis makes use of the Hornbostel-Sachs classification system, which is based on the vibration that a musical instrument makes to produce sound. The system classifies musical instruments into four categories: aerophones, chordophones,

²³ For more information on this, see Praetorius' *Syntagma Musicum II* (1618), *Theatrum Instrumentorum* (1620) and the encyclopedic works by Mersenne (1636) and Kircher (1650).

idiophones, and membranophones. The following are fundamental definitions of these terms:

1. Aerophones are wind-blown instruments.
2. Chordophones are instruments in which strings are stretched across the surface.
3. Idiophones are self-sounding instruments. These also produce sound from the instrument's construction material.
4. Membranophones consist of a membrane stretched across an opening, so that the surface is struck (Hornbostel and Sachs 1961; Burgh 2006: 8).

The Hornbostel-Sachs classification system not only helps musicologists to methodically organise musical instruments but is of aid to museum curators, ethnologists, ethnomusicologists, and historians. The system provides a systematic arrangement and terminology which facilitates the study and interpretation of musical instruments. In other words, the system prevents confusion created by inaccurate descriptions and names of sound-instruments as a result of nicknames, popular etymology and homonyms which can mislead researchers. For example, the English jew's (properly 'jaw's') harp is not actually a harp. In the Congo, the word 'marimba' denotes a set of lamellae known as 'sanza' while elsewhere it represents a xylophone (Hornbostel and Sachs 2001: 425).

In order to describe and catalogue musical instruments, this system makes use of the Dewey numerical method. Therefore, it employs figures instead of a conglomeration of numbers, letters, and double letters by decimal fractions (Hornbostel and Sachs: 427). It also makes use of subdivisions where 'every further subdivision is indicated by adding a new figure to the right-hand end of the row' (ibid). By using this method, one can specify a musical instrument to any limits and recognise from the position of the last figure the ranking of a given term with the system. For example, the figures 111.242.222 mean that we are dealing with an idiophone, that is, code-figure 1. This idiophone is struck so another 1 is added (struck idiophones=11). Moreover, the instrument is struck directly, hence, category 111. The number 2, that is the fourth digit, means that the instrument is a percussion idiophone. The following figure, namely number 4, denotes a percussion vessel while the subsequent 2 represents a bell. The seventh figure, that is 2, implies a set of bells while the last two figures, eight and nine respectively, represent a set of hanging bells-with internal strikers (Hornbostel and Sachs 2001: 427).

The sources, namely artefacts and music depictions included in this thesis are mainly reproduced from renowned museums, such as the Naples National Archaeological Museum, the British Museum, the National Archaeological Museum of Cagliari, the Museum of Egyptian Antiquities in Cairo, the National Archaeological Museum of Athens, and the Museum of Cycladic Art. In the course of this research I establish contacts with personnel responsible for these collections. The research will also rely on online sources, as well as published reports and inventories by diverse organisations and personalities, such as the Musical Instrument Museums Online (MIMO), the International Group on Music Archaeology (ISGMA), the International Conference of Near Eastern Archaeomusicology (ICONEA), the International Society for the Study of Greek and Roman Music and its Cultural Heritage (MOISA), the Study Group on Musical Iconography (IMS), The Study Group on Music Archaeology of the ICTM, The European Music Archaeology Project (EMAP), The Material Relics of Music in Ancient Palestine and its Environs: An Archaeological inventory by Bathyah Bayer, amongst others. Onsite fieldwork is carried out on the island of Sardinia and in Egypt, where interviews with musicians and craftsmen are conducted. This work is supported by archival work and extensive e-fieldwork, that is to say, internet-centred research (Wood 2008). Groups of people make use of internet technology to discuss and share information on subjects that are relevant to the purpose of this thesis. Such examples include mailing lists such as the SEM list, Facebook groups, and access to archived material on the Web. Knowledge is also acquired from the available reconstruction of a few replicas of divergent and parallel double-pipes. Observations and conclusions acquired from such experiments are presented accordingly.

1.5 Organisation of Thesis

Chapter I, the introduction to this thesis presents the theory, methods and background knowledge to the work. The archaeological, iconographical, and written sources at the heart of this work are discussed.

Chapter II attempts to provide a historical overview of the precursors of the *aulos* from prehistoric times to the second millennium BC. The chapter examines artefacts, mainly bone pipes, their social context and any technological developments that may have prompted their invention. It evaluates the possible transmission and

continuation of music-related practices. This is done through the presentation of possible scenarios of musical exchanges between peoples. This chapter attempts to provide an answer as to the origins of the *aulos*.

Chapter III examines most aspects of the *aulos* during classical antiquity. It also attempts to shed light on the role of this instrument during Homer's times. Some of Homer's narratives are studied in tandem with archaeological sources, thus generating interesting insights. Often, the two complement each other. This chapter also discusses the introduction of the *aulos* into mainland Greece, as well as the contexts in which it was used by the Greeks. Although most practices associated with this instrument did not originate in Greece, the *aulos* had an evident impact on that society. This chapter also examines the impact of social processes such as acculturation, diffusion, and syncretism on the *aulos*.

Chapter IV provides a historical overview of the *aulos* on the Italian mainland. Thus, it includes a description of the Etruscans, that is, of the first people who adopted the *aulos* in that Mediterranean region. The Etruscans introduced the *aulos* to the Romans who renamed it as the *tibia*. Roman music was highly influenced by Greek music and, like the *aulos* in Greece, the *tibia* became very important in Roman life and particularly within the Roman theatre. A system of classification of *auloi* and *tibiae* is also provided in this chapter. The system, mainly based on written sources, is supported by excavated instruments, thus providing an overall view of *auloi* and *tibiae* that existed in antiquity. The chapter also explores how the *aulos* was transformed during late antiquity, its survival, and eventual disappearance from the musical scene.

Chapter V attempts to provide a better understanding of the *aulos*. This chapter presents a study based on a combination of sources (written, iconographical, and archaeological) with ethnographic data, with each discipline adding value to the other. The complementarity of the sources creates a dialogue between the past and the ethnographic present. The data presented in this chapter was collected on the island of Sardinia and in Egypt, where fieldwork on the *launeddas* and the *arghul* was undertaken respectively. This chapter presents parallels between these aerophones and the *aulos*. These are highlighted in an attempt to provide a better understanding of the *aulos*.

1.6 The Research Question(s)

How did the *aulos* change from classical antiquity (c.1000 BC-AD 395) to late antiquity (c.AD 395-600)? A complete answer to this question is of interest to scholars from different disciplines such as history, classics, ethnomusicology, and archaeology.²⁴ To answer this question, we should commence by defining what an *aulos* is. The *aulos* is an extinct aerophone, that is to say, a wind musical instrument of unclear origins but generally described as Greek (Bélis 2001: 178). This short definition immediately leads us to another question regarding the true origins of this musical instrument. It is clear, however, that the *aulos* descends from other extinct aerophones that go back as far as prehistoric times.²⁵ In fact, the art of manufacturing and playing cylindrical bone pipes was a tradition which different groups of people adopted and evidently transmitted to others. We can say that such phenomena of cultural exchanges often result from social processes such as acculturation, diffusion, and syncretism. These processes obviously produce changes not only at a social level but also at a cultural level. This is quite evident in objects such as musical instruments.

The word '*aulos*', Greek for 'tube' or 'pipe', clearly represents the shape of this instrument, namely a cylindrical-bore tube with finger holes. In antiquity, the term was probably used to denote other wind instruments as well, for instance the *syrinx*. Why did the Greeks refer to the *aulos*, as well as to other instruments using such a general term? This may only indicate a lack of standardization but could also hold further significance. Another point of discussion has to do with the *aulos*' mouthpieces. It is not clear how the sound was reproduced in the *aulos* but scholars seem to agree that it was through the vibration of a double-reed (e.g. Howard 1893: 23; Comotti 1989: 68; West 1992: 81; Bélis 2001: 181; Moore 2012: 39). Pollux, in his *Onomasticon* (Book IV.70) refers to the parts of the *aulos* as the *glotta* (reed), *trupemata* (holes), *bombukes* (resonators), *holmoi* (bulbs), and *hupholmia* (the upper joint of the *aulos*) (Figure 1.2).

²⁴ The interest of the Classicists is particularly aroused by the study of the Greco Roman world. This thesis, apart from providing narratives from antiquity, presents a significant amount of references to Greek and Roman literature. The historian may find in this work narratives constructed from extant literary works and physical artefacts which may serve to account for historical past events.

²⁵ A survey into the precursors of the *aulos* and its possible origins is presented in chapter II.

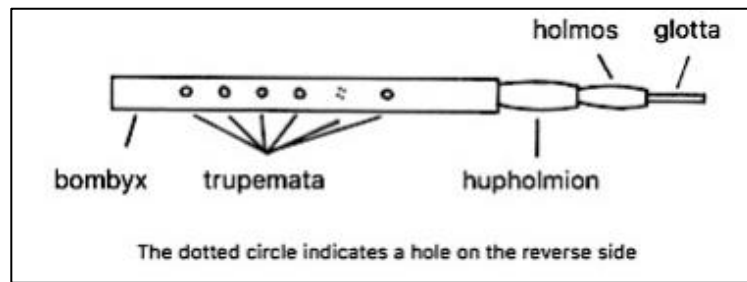


Figure 1.2. Parts of an *aulos* (redrawn from Mathiesen 1999: 186).

Different types of *aulos* existed in antiquity. These varied in size and tonal range. *Auloi* were made out of reed, bone, ivory, wood, or metal (Mathiesen 1999: 183). The following is a summary of the parts of the *aulos* and its respective functions as described by West (1992: 85-9). The pipe or *bombyx* has five finger holes, a thumb hole or second hole located underneath the pipe. Sometimes a sixth hole located lower down the pipe functioned as a vent hole. This limited the effective acoustics of the pipe. The pipe has a narrow bore of between eight to ten millimetres and was usually constructed from two or more sections joined together by means of sockets. The mouthpiece (*glotta*) fitted into the *holmos* or bulbous section of the *bombyx*. The two bulbs, that is, the *holmos* and the *hupholmion* were socketed together. The hole through the bulbs was narrow and cylindrical.

West's summary describes an archaic type of *aulos* with few finger holes. The limited number of holes was an impediment for performers, as they could not play more than one musical scale on such *auloi*. Thus, in order to play other scales, performers needed to have more than one instrument, ideally of different sizes. However, the *aulos* did not retain this simple character for long. Like any other tool, this aerophone was constantly improved and perfected. For example, Athenaeus (*Deipnosophistae* Book XIV 631e) speaks of Pronomus (c.400 BC), a Theban composer, performer, and possibly *aulos* maker, who invented an *aulos* in which he was able to reproduce the whole *harmonia*, which comprised the Dorian, the Phrygian, and the Lydian musical scales.²⁶ Before this contribution, *aulos* players (sing. *auletes*; pl. *auletai*) had only three types of *aulos*, one for Dorian music, another for Phrygian melodies and a third for Lydian modes (Pausanias *Description of Greece* Book

²⁶ Athenaeus, *Deipnosophistae*, English *The Deipnosophists or, Banquet of the Learned, of Athenaeus*, trans. by Charles Duke Yonge, 3 vols (London: Henry G. Bohn, York Street, Covent Garden, 1854), III, 1008 (Hereafter, Ath.).

IX.12.5).²⁷ Pronomus, who delighted his audience with his facial expressions and bodily movements, was a skilled performer and composer. He created a processional melody for the Chalcidians on the Euripus for their use in Delos, so that in consequence, the people of Thebes put up a statue of him to commemorate their favourite *auletes* (Paus. Book IX.12.6).²⁸

According to Comotti (1989: 67-8), Pronomus may have increased the number of holes of the *aulos* and fitted the instrument with a system of rotatable collars which enabled holes to be opened and closed. In the same vein, West (1992: 87) describes that *auloi* had up to twenty-four holes closed by collars operated by means of a system of hook-shaped levers. He also explains why the *aulos*' holes differed in size, and that smaller holes are usually found on the side of the pipe (ibid). It is worth noting that collars sometimes exposed only a part of the hole and that subsidiary tubes like chimneys were fitted to the holes (Howard 1893: 7-11). The Pergamum *aulos* (c.200 BC), for example, is fitted with a system of half collars which enabled the opening and closing of the two lowest holes. A system of rods with buttons located at the top end were used to push down the half collars (Hagel 2009: 349).

Iconographical sources show *aulos* players (Gk. *auletai* [masc.] and *auletrides* [fem.]) wearing the *phorbeia*, namely a leather mouth-band with two holes into which the reeds were inserted. The use of the *phorbeia* granted the performer a sealed embouchure (Bélis 1986: 212), as it restrained the full inflation of the player's cheeks reducing the facial distortions while providing a 'secure oral grip of the instrument' (Wilson 1999: 70). The *phorbeia* is shown in an Anatolian orthostat (c.700 BC) and in the Chigi vase (see Figures 2.24 and 3.17, p. 85 and 146). Sophocles claims 'he blusters no longer on his small, delicate *auloi*, but with savage blasts and no *phorbeia*', suggesting that the *phorbeia* helped the performer to produce a more controlled sound (cited from Wilson 1999: 71). We also know through iconographical sources that *auloi* were kept in a bag called a *sybene* or *aulotheke*. This bag was made out of leopard-skin and served to protect and carry the double-pipes (Bundrick 2005: 35).

The *aulos* was usually played in pairs, that is, two pipes at once. This begs the question as to the origins and purpose of this practice. This thesis attempts to

²⁷ Pausanias, *Description of Greece*, trans. by William Henry Samuel Jones, 5 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1935), IV, 225 (Hereafter, Paus., IV).

²⁸ Paus., IV, p. 225.

determine this. Although the purpose is unknown it is evident that two pipes playing at once produce a louder sound. The utility of each pipe is also unclear. Scholars have suggested that both pipes played the same melody in unison, or that one pipe played the melody while the other produced a drone (Grout 2006: 11). The aforementioned features illustrate continuous changes in the *aulos* which evidently occurred over a significant span of time.

A point of fundamental importance here is chronology. Since a span of time is involved, the research must inevitably follow a logical sequence of events. Chronology has to do with periodization, hence with the study and process that divides the past into proportions of time, that is, into historical periods (Arnold 2000: 20-7). We are fortunate that civilisations of the ancient world were literate and recorded their history. Their texts give us access to past experiences which are traceable and organised accordingly. It enables us to immerse ourselves into the historical periods in question. Openly, we can say that the term classical antiquity encompasses an extended period of cultural history. It begins with the rise of the Greek city-states (c.1000 BC) and ends with the death of the Emperor Theodosius I (c. AD 395)—an event that led to the splitting of the Roman Empire into two, namely, the Eastern and Western Empire (Cameron 1993: 1-11). The further break-up of the Western Roman Empire into separate Germanic Kingdoms denotes the beginning of late antiquity. This period came to an end when Persians and Arabs invaded the Eastern Roman Empire (c.AD 600) (ibid).

A study of former times entails a retrospective look at past human behaviour and practices. This is the reason why this thesis focuses on three diverse social processes: acculturation, diffusion, and syncretism. Such processes, as defined on page 2 of this study, differ from one another and, evidently stem from diverse courses of action.

The above-mentioned processes may have played a significant role in the development and transformation of the *aulos*. A case in point is that this instrument had a non-Greek origin. This automatically leads to the question as to which region of the ancient world can this instrument be traced to. If the origins are not to be found in the Mediterranean, who were the people responsible for introducing this instrument into the region? It is worth mentioning that Aristoxenus classified the *aulos* as *ekphula organa*, that is, a foreign musical instrument (cited from Werhli 1967: 33). According to Athenaeus (Book XIV 618b-c), the *aulos* was invented by a Lybian-Numidian man

called Seirites, implying that *aulos* playing is particularly associated with foreigners.²⁹ In light of this information, one can hypothesise that this immigrant possibly introduced the instrument into Greece and, evidently had direct contact with that culture.

This research also attempts to investigate the contexts in which the *aulos* was played. According to Herodotus (*Histories* Book I.141), the *aulos* was used during activities such as fishing.³⁰

The story of the fluteplayer [*auletes*] who saw some fish in the sea and played his flute [*aulos*] to them in the hope that they would come ashore. When they refused to do so, he took a net, netted a large catch, and hauled in. Seeing the fish jumping about, he said to them: “It is too late to dance now: you might have danced to my music—but you would not” (De Sélincourt 2003: 64).

This story may be partly fictitious and partly historical; thus, one can deduce that it was orally transmitted. It is very likely that Greeks used the *aulos* during activities such as fishing because they believed that music had the ability to control people’s and animals’ minds (Plutarch [*De Mus*] 1140b-c).³¹ Returning to Athenaeus (Book XIV 618c), he also states that Seirites played the *aulos* in sociocultural activities, such as the cult of Kybele in Athens.³² By extension, one can also deduce that Seirites shared his native musical practices through each performance. Greek musicians may have adopted Seirites’ practices and, probably transformed these into new syncretic forms.

The next topic to be investigated is the change of the *aulos* within a period which spans from classical antiquity to late antiquity. This investigation is not a simple one because these changes depend on many factors. To commence with a point of fundamental importance, the instrument from classical antiquity which, by the fifth century BC was known as Hellenistic, is the product of cultural changes that occurred over millennia. Such changes could have occurred either at a local level, namely in a specific place, or at regional level. Furthermore, aerophones of similar characteristics,

²⁹ Ath., III, p. 986.

³⁰ Herodotus, *The Histories*, trans. by Aubrey de Sélincourt (London: Penguin Books), p. 64 (Hereafter, Hdt.).

³¹ Plutarch, *Moralia Volume XIV*, trans. by Benedict Einarson and Phillip H. De Lacy, Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press, 1967), p. 413 (Hereafter, Plut. [*De Mus*]).

³² Ath., III, p. 986.

which in this thesis I refer to as pipes, sprang from diverse areas of the ancient world at different points in time. Therefore, it is crucial to think of culture processes specifically, on how music cultures and sound tools change, as well as to consider temporal and geographical aspects.

1.7 The Recovery of Music in Antiquity and the Auletic Tradition

Archaeological Sources

Research on music in antiquity, particularly in ancient Greece and Rome, has been an area of interest since the fifteenth century. The siege, and eventual fall of Constantinople (c.AD 1396-1453) forced Byzantine scholars to escape to Europe. Most of them fled to Italy, bringing numerous classical texts on diverse subjects, including music. Such texts were studied and translated throughout the Renaissance period (c.AD 1400-1500). Writings, such as the nineteenth book of the Pseudo-Aristotelian Problems and the Harmonic Elements of Aristoxenus (third century BC) inspired the work of Renaissance music theorists and composers (Grout 2006). A significant contribution to the arts of the time is the publication of a collection of hymns attributed to Mesomedes (second century AD). The hymns, written in ancient Greek notation, were published by Vincenzo Galilei in 1581. This work, along with Bellermann's *Anonyma de Musica Scripta Bellermanniana* (1841) may be considered as the earliest body of literature for the study of music in antiquity. Nonetheless, research on music in antiquity was limited because of the lack of archaeological evidence, that is to say, music-related objects (Comotti 1989: 1).

The following centuries focused on the revival of the civilisations of the ancient world. The discovery of the cities of Pompeii and Herculaneum along with the retrieval of numerous artefacts, including musical instruments, contributed to further understanding of musical practices in antiquity. The fate of Pompeii and Herculaneum was marked by the eruption of Mount Vesuvius in AD 79. The cataclysmic event buried the cities under several meters of volcanic ash (Delaware 1879: 191-5). However, their existence was never forgotten, especially by the inhabitants of Resina (Ercolano). Sannazaro, in his *Arcadia* (1504: 196-97) mentions the cities which were uncovered two centuries later. In 1709, the Austrian Prince d'Elboeuf located part of the stage wall of Herculaneum's theatre, however this site only started to be systematically excavated in 1738. The city of Pompeii began to be excavated in 1748.

The digs were financed by the Bourbon rulers of Naples (De Caro 2015: 2). The numerous artefacts recovered from both cities, that is, Herculaneum and Pompeii, were first kept at the Royal Palace (Reggia of Portici) and later transferred to the National Archaeological Museum of Naples. Amongst the findings, there are numerous *tibiae*, that is, Roman *auloi* (Figure 1.3), as well as several iconographical representations, such as paintings and statues (Melini 2014: 340-1).



Figure 1.3. Roman *aulos* or *tibia* from Pompeii, National Archaeological Museum of Naples (photograph by the author).

In 1883, Ramsay discovered a funerary stele at Aidin (Smyrna, Lydia), near Tralles in Asia Minor. The artefact dates back to the first century AD and bears an inscription of an Epitaph by someone named Seikilos. The relevance of this inscription lies in the fact that it contains alphabetic characters above the words, which correspond to music notation (Seidenadel 1898). The stele was destroyed during the Greco-Turkish war in 1922 (Sohma 2016). In 1892, Homolle, director of the École Française d'Athènes, discovered an assemblage of ashlar blocks at the ancient site of Delphi (mainland Greece). The slabs were part of a structure identified as the Athenian Treasury at Delphi. Fourteen of these blocks bear inscriptions, namely a number of lines of Apollo's hymns which date from the second century AD (Solomon 2010: 497). While musical texts provide information on the music itself, as well as socio-cultural aspects, the fragments of musical instruments enrich such information by providing technical aspects such as design as well as social function and performance contexts.

Between the years 1904-1905, Hogarth explored the ancient city of Ephesus (West coast of Turkey), focusing on the Ephesian Artemision. Two flutes (possibly pipes) were found at the site, both with open ends, dating to c.600-550 BC. On one

side, the pipes have a mouth-hole in the centre while on the other side there are five finger holes (Hogarth 1908: 194). The same area yielded a mouthpiece which Hogarth described as belonging to a bagpipe (ibid: 194). The expedition to Sparta (Laconia) in 1907 by the British School of Athens significantly contributed to the recovery of artefacts with musical connotations. During excavations at the Hieron of Athena, Chalkioikos (Sparta, Peloponnese), a statuette of a trumpeter was unearthed (Dawkins et al. 1907: 147). The following year, the School excavated the Sanctuary of Orthia. At this site, the team retrieved an archaic terracotta figurine of a flute player with a double pipe (*aulos*) (Dawkins et al. 1908: 52). Moreover, thirteen fragments of bone flutes (possibly *auloi*) with finger holes, c.750 BC were also found. Two fragments bear inscriptions, one with the word Orthia while the other bears the name ΑΧΠΑΔΑΤΟΣ (Axpados) (Dawkins 1929: 236-7). The Campagne di Scavo at Locri excavated the sites of Lucana (Basilicata, South Italy) and Bruttii (Calabria, South Italy) between 1914 and 1915. Among the artefacts, a bone flute (*aulos*) was unearthed. The instrument is divided into two parts and does not have a mouthpiece (Atti della R. Accademia dei Lincei 1917: 104). During excavations of a well at the Athenian Agora, a section of a bone flute (*aulos*) was found. The find dates back to the mid-fifth century BC. The pipe has three finger holes in the front and one at the back, specifically between the second and third holes (Boulter 1953: 114).

After Napoleon's expedition to Egypt 1798-1801, Western scholars were attracted to the wonders of ancient Egypt. The decipherment of hieroglyphic writing by Champollion (1782-1832) in 1822 provided an overall view of a range of customs, including musical practices of this civilisation. In Champollion's time, the Louvre Museum displayed only one Egyptian flute (inv. no. 29). Champollion (1827: 99) as the curator, describes the instrument as a 'reed pierced in the shape of a flute', and kept it at the Salle Civile of the Musée Charles X (Louvre Museum). Rosellini (1830: 3-4) states that Champollion's discoveries brought to life the science of the Egyptian scriptures which helped to determine the importance of each object and to categorize artefacts accordingly. Rosellini also describes an Egyptian flute kept at the Museum of Florence (inv. no. 2688, no. 15). He refers to it as 'un piffero di canna' ('a cane pipe'), which was discovered in the royal tombs at Thebes in Egypt (ibid: 26). Fétis, a Belgian musicologist (1784-1871), analysed the artefact claiming that the whole system of ancient Egyptian music could be retrieved from this flute (*aulos*) (Rehding 2014: 545). Loret (1913: 17-9) mentions twelve Egyptian flutes (*auloi*) in the Louvre,

three of which are broken. He also provides a list of flutes held in personal collections such as those of Loret and Maspero, as well as of artefacts kept at the Museums of Turin, Leyde, Berlin and the British Museum. In addition, the Department of Egyptian Antiquities of the Louvre holds a double wooden *aulos* in an excellent state of preservation. The instrument can be dated from the end of the fourth century and consists of two pipes with seven and nine finger holes, with one for the thumb on each pipe (Loret 1913: 17-9).

The wide array of objects discovered in 1922 by Carter and Carnarvon in the tomb of the pharaoh Tutankhamun (fourteenth century BC), shed light on Egyptian burial practices and beliefs in the afterlife. King Tut was buried with all sort of artefacts that he might need in the next life. Amongst these were two trumpets. One is made out of bronze or copper with gold overlay while the other was made of silver. Along with the instruments, a wooden stopper was found that fits into the tube and bell. This could have been used with a cloth to clean the instrument, or to prevent it being damaged and lose its shape (Figure 1.4) (The Griffith Institute, University of Oxford 2017). In 1850, Rawlinson (1810-1895) deciphered the Mesopotamian cuneiform script (Cathcart 2011). The body of clay tablets retrieved at different Mesopotamian sites provide evidence of the transition between music illiteracy to literacy (Dumbrill 2005: 16). All the different civilisations that inhabited the land between the rivers, namely the Sumerian, Akkadian, and Babylonian contributed to the development of a musical system which most probably inspired other developments in the West (Bayer 2014).

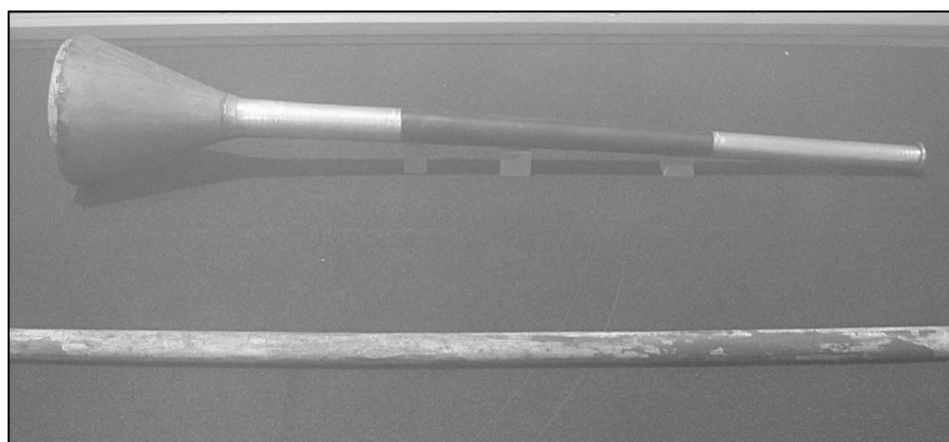


Figure 1.4. Tutankhamun trumpet, the Museum of Egyptian Antiquities in Cairo (photograph by the author).

Iconographical evidence attests musical culture in Mesopotamia as early as 3000 BC (Kilmer 2001). The analysis, transliteration, and further interpretation of four single cuneiform texts provide knowledge about Mesopotamian music theory. Two tablets namely, UET VII, 74 and UET VII, 126 were discovered by Woolley between 1922 and 1934 at the ancient city of Ur, Modern Iraq (Ur Online 2017). The former dates to the old Babylonian period around 1800 BC while the latter to the late Babylonian, around 1000 BC, however it has been suggested that this tablet is a copy of an earlier text (Dumbrill 2005: 37). The other two tablets, that is, CBS 1766 and CBS 10996 hold different provenances. The former was a piece of the Khabaza collection in Baghdad which the University of Pennsylvania purchased in 1889. The tablet is from Nippur and dates to the Neo-Babylonian period around 626-539 BC. The latter belongs to the Cassite Period, about 1400-1100 BC. Professor Peters, Lecturer in Hebrew at the University of Pennsylvania, discovered it during the second Babylonian expedition to Nippur (Penn Museum 2017). The foremost evidence of written music in the ancient Near East consists of twenty-nine fragmentary clay tablets discovered at the site of Ras Shamra, ancient Ugarit, in North West Syria. The tablets, discovered by the French archaeologist Claude Schaeffer, date from about 1400 BC, and are written in Hurrian language with syllabic Babylonian cuneiforms (Dumbrill 2005).³³ Excavations at the Royal Cemetery at Ur (c.2600 BC) conducted by Woolley between 1926-1931 yielded several fragments of lyres and four fairly complete specimens, two harps, as well as other instruments (Ur Online 2017). For our purposes, the most relevant discovery consists of five fragments of a pair of silver pipes bearing finger holes (Figure 1.5) (Rimmer 1969). The surviving remains of *auloi* are several. Some of this evidence is very fragmentary but quite informative. Despite the difficulties of working with such evidence, researchers have reconstructed different types of *auloi*. Complete specimens are rare but do exist.

³³ For more information on this see Mission archéologique syro-française de Ras Shamra-Ougarit <<https://www.mission-ougarit.fr>>.

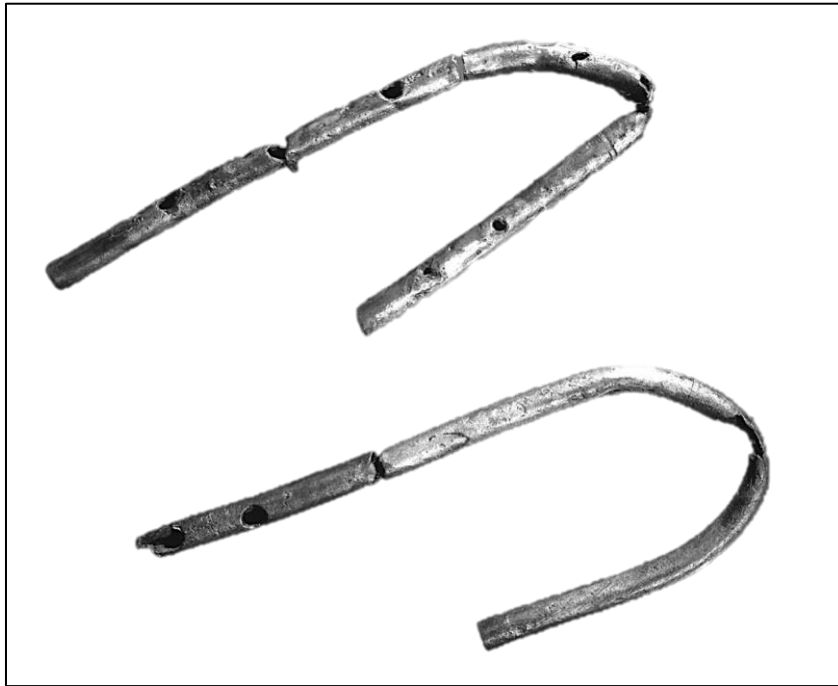


Figure 1.5. Fragments from silver pipes found at Ur, Early Dynastic III, c.2500 BC, The University of Pennsylvania Museum of Archaeology and Anthropology (photo: https://www.penn.museum/collections/object_images.php?irn=224933#image1).

At the site of Brauron, on the east coast of Attica, a nearly complete specimen was discovered in 1961. Dr I. Papadimitriou (Director General of the Greek Archaeological Service) conducted these excavations. The *aulos* was found ‘in a sacred spring near the north-west corner of the ancient temple’ (Landels 1963: 116), and it was dated to the late sixth, or early fifth century BC. The context in which this instrument was found suggests that it may have been used in processional events on the way to the temple, therefore during a festivity with religious connotations. It is, however, not clear whether the instrument was used in the temple itself. The proximity to water may suggest the use of this instrument in rituals pertaining to purification of the body. In any case, Greeks considered springs and rivers as natural barriers, so they used them to determine the *poleis*’ frontiers (Pedley 2005: 24). The find consists of two lower sections of an instrument which can be assembled. The fragments are made out of bone and apparently belong to the same instrument. One section has three finger holes and a thumb hole (A-B). The other has two finger holes (B-C) (Figure 1.6). From left to right, section A has a socket for the attachment of another section. Section C does not have a spigot or socket. Hole 5 is a vent hole. Hole T is a thumb hole (Landels 1963: 116-19).³⁴

³⁴ For a detailed description of this *aulos*, see Appendix B.

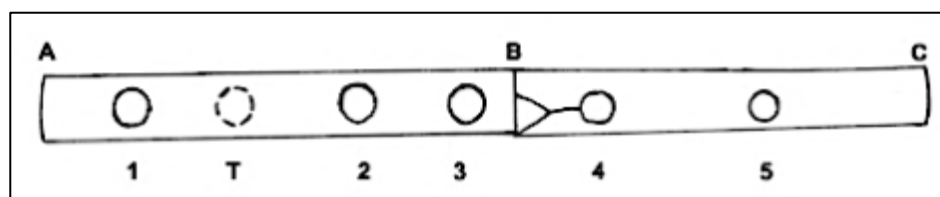


Figure 1.6. Brauron *aulos* (redrawn from Landels 1963: 116, Figure 1).

A group of Greek-Egyptian *auloi* were found at the ancient city of Meroe, Egypt (modern Sudan). The instruments were recovered between the 23rd to 25th of March 1921. The fragments were found in Pyramid number VI and can be dated to 15 BC (Bodley 1946: 217). The artefacts were described as follows:

Many fragments of at least four (possibly five) flute-like [*aulos*] musical instruments. Straight tubes of ivory cased in bronze, made in sections; with round and oblong holes, mouthpieces, stops, and fittings. Length not obtainable, but cannot be less than ca. 45 cm. jointed section preserved of length-13.1 cm. Appear to be large and small (Bodley 1946: 217).

At the site of Daphne, two fragments of a wooden *aulos* were discovered in 1981. The pieces were found in a tomb marked Grave II. The instrument is kept at the Archaeological Museum of Piraeus in Athens (Psaroudakes 2013: 93-121). In 1991, Leonidas Chatzeagkelakes, of Volos, discovered fragments of an instrument at the Necropolis of Argithea (Grave 175) in Athamania. The remains are sections of a wind instrument, specifically cylindrical bored tubes made out of bone with finger holes, including a thumb hole and bronze bands around the ends. The artefacts can be dated to the end of the third century or beginning of the second century BC (Psaroudakes 2002: 335). In 1996, during excavations in one of the cemeteries of Pydna, Makedonai (first half of the fourth century BC) a pair of *auloi* was discovered. The instruments were found in a tomb marked Grave 324 along with a complete skeleton. The burial is located at the Northern Cemetery of the city. The *auloi* are kept at the Archaeological Museum of Thessalonike (catalogue no. Pydna 100) (Psaroudakes 2008: 197-216).

The above accounts of some of the archaeological evidence show that these artefacts are significant thus, this evidence needs to be individually assessed so as to establish parallels which can provide new interpretations. Some of this archaeological evidence will be assessed in this thesis to support investigations. Thus, some chapters

will rely mostly on this type of evidence while others will depend on other types of sources, such as written records or iconographical sources.

Iconographical Sources

Iconographical sources are in themselves archaeological artefacts. Music iconography studies visual evidence, that is, pictorial documentation of music. The sources are various, however the most relevant to our purpose are figurative art, illustrations of texts, decorations of musical instruments, and numismatic evidence (Seebass 2001: 54). A great deal of information vis-à-vis music in antiquity has been obtained through the analysis of pottery bearing musical depictions. The most significant collection of Greek vases is held at the British Museum. Most of the artefacts come from funerary contexts of the sixth and fifth centuries BC. In 1772, the museum purchased numerous vases from Hamilton, an English diplomat who had worked for the Court of Naples (The British Museum 2017). Several museums around the globe have collections of Greek painted pottery, such as the National Archaeological Museum of Athens, the Metropolitan Museum of Art (New York), the Staatliche Museen zu Berlin, and the Bibliothèque Nationale (France), amongst others (Corpus Vasorum Antiquorum 2017).

For the researcher, the scenes depicted in friezes, paintings, mosaic, and Athenian pottery are documents whose symbols and signs are charged with meaning portraying ideals and values of that specific culture (Bundrick 2005: 3). Fifth century Athenian art provides various images of the *aulos* and its performers, along with other musical instruments of the time. Some examples include the amphora by the Kleophrades Painter (c.500-450 BC) (Figure 1.7) and the plate by Epiktetos (c.500 BC) (Figure 1.8).



Figure 1.7. Amphora by the Kleophrades Painter with *aulos* player, collection E270 (c.500-450 BC). London, The British Museum (http://www.britishmuseum.org/research/collection_online/collection_object_details/collection_image_gallery.aspx?assetId=221978001&objectId=399287&partId=1#more-views).



Figure 1.8. Plate by Epiktetos with satyr holding auloi, c.500 BC. Bibliothèque Nationale, Paris (photo: Bundrick 2005: 38, Figure 23).

The study of iconographical sources provides information which can validate musical facts, especially when these are complemented by written sources. However, the idea is not to use iconography as a secondary source to a written text because iconographical sources are themselves meant to be read (Bundrick 2005: 3). Vase paintings, frescos and friezes tell stories, with some including short inscriptions complementing the scene depicted. Images and symbols provide significant information on the musical culture of the time and place (Seebass 2001: 55-6).

Written Sources

Written sources include many literary works, some epigraphic. Historical accounts can take us back as early as 3000 BC. The people of Mesopotamia invented writing around that time. Literary works left by former societies, such as the ones that developed in Mesopotamia and Greece, provide references about the theory of music, its role in society and everyday life. For instance, we know that music in ancient Greece had a direct relationship with the sciences, the performing arts (drama and dance), and philosophy (education) through references found in works by Pythagoras, Aristides Quintilianus, and Plato (Grout 2006: 10-22).³⁵

The earliest reference to the *aulos* is found in Homer's *Iliad* (c.750 BC).³⁶ This literary work, an epic poem consisting of twenty-four books, narrates some events of the Trojan War and the Greek siege of the city of Ilios, or Troy (Roberts 2005: 349). In Homer's times (c.900-800 BC), poems were transmitted orally and chanted in halls by an entertainer accompanying himself on the *phorminx* (Comotti 1989: 5).³⁷ It is worth noting that Classicists of the eighteenth and nineteenth centuries labelled *auloi* as flutes. The *aulos* was certainly a reed instrument and thus may possibly be associated with the oboe, or clarinet family and not with flutes. The *aulos* is mentioned a number of times in the *Iliad* during different episodes. Examples include the battle of Troy and public activities, particularly weddings. Another account where the *aulos* is mentioned in the context of a wedding is provided by Hesiod in *Shield of Herakles*.

In Homer's times, the *aulos* was considered barbarian because it lacked Greek identity, considered dominant, which resulted in foreign traditions being referred to as barbarian. As a matter of fact, the *Iliad* (Book X lines 11-13) relates the instrument to the people of Troy in Asia Minor, whom the Greeks considered barbarians. Moreover,

³⁵ Pythagoras (c.mid. sixth century BC-?) was born in Samos and died in Metapontum (Magna Graecia). He discovered the musical consonances: the ratios 2:1, 3:2, and 4:3 thus, the octave, the fifth and the fourth (Roberts 2005: 638). Aristides Quintilianus (flourished late third-early fourth century AD) author of the music treatise *Peri Musike* (lit. *On Music*) (Karp 2017). Plato (428-347 BC), whose works are mostly written in the form of philosophical dialogues. Some of his writings contain references to music related to moral education, musical structures, and the science of the harmonics, following the Pythagorean style (Roberts 2005: 576-80).

³⁶ It is not clear whether Homer was one poet, or several poets. Whatever the case, it is common practice to refer to Homer as one person (Roberts 2005: 348-51).

³⁷ The *phorminx* was a chordophone (string instrument) in the shape of a semi-circular box with perpendicular arms, sometimes depicted in vases with three, four, or seven strings. This instrument was famous amongst the bards, that is, the singers of verses such as the mythic Homer and his successors. By the seventh century, the *phorminx* developed into early forms of *kithara* (Barker 1984: 14; Comotti 1989: 61).

the commander-in-chief of the Greeks, that is, Agamemnon never allowed the use of the *aulos* in social occasions such as banquets (Athenaeus Epitome Book I.16a-b).³⁸ The instrument is however mentioned again in the *Iliad* (Book XVIII lines 490-496) on the occasion of a marriage-feast.

Homer's literary works do not provide much information about the *aulos*, although the above excerpts link the *aulos* to festivity. Double pipes were used in several contexts which involved some sort of celebration such as sacrifices and praise to Apollo. Greek vases from the eighth and early seventh century BC attest that the instrument served to accompany secular and sacred festivals, as well as marches to battle (West 1992: 15). According to Plutarch ([*De Mus*] 1140c), the Lacedaemonians, that is, the Spartans, used the *aulos* in war. To them, it was customary to approach the enemy playing the *castoreum melos* on the *aulos*.³⁹ This ritual is further described by Plutarch in *Vitae Parallelae* when he narrates the life of the Spartan lawgiver Lycurgus.

By the seventh century BC, the poems of Hesiod, Terpander and Archilochus of Paros were performed as in Homer's times. However, poems were also recited in public, for instance, in the festival of Delos, and Panathenaea in Athens. The reciters were known as *Rhapsodoi* and made no use of musical instruments (Barker 1984: 18). Concurrently, innovative musical forms from distant places were being introduced into mainland Greece. Archilochus of Paros, for instance, invented the *parakatalogē*, a form of recitative accompanied by the *aulos* at an interval of an octave (Plut. [*De Mus*] 1141a-b; Comotti 1989: 18-9).⁴⁰ This form was introduced into Sparta by Thaletas of Gortyn, a musician and a poet from Crete (ibid: 18-9). From the seventh century, the *aulos* was practically established in mainland Greece (West 1992: 82). The musical innovations by Archilochus of Paros, as well as the work of the lyric songwriters and elegists of the seventh and sixth century BC had a direct influence on the use of this musical instrument. Changes in metre, rhythm, melody, and structure encouraged new musical forms, in which the *aulos* was used as an accompanying instrument. Thus, apart from being used in festivities and battles, the *aulos* is also

³⁸ Ath., I, p. 26.

³⁹ Plut. [*De Mus*], pp. 410-3. *Castoreum Melos* (lit. Hymn of Castor), Castor was one of twin brothers (Castor and Pollux, or Dioscuri). He was son of Tyndareos, King of Sparta. The hymn was probably composed by Castor himself and performed during the Trojan War (Roberts 2005: 793).

⁴⁰ Plut. [*De Mus*], p. 417.

incorporated in lyric and elegiac poetry (Barker 1984: 48). For instance, the Ionian *auletes* Mimnermus, according to the sixth century BC poet Hipponax, used the *nomos cradias* to accompany elegiacs (Plut. [*De Mus*] 1134a).⁴¹ It seems likely that the *nomos cradias* or fig *nomos* was part of a repertoire of melodies performed during specific rites. According to Almazova (2016: 20), the *auletes* Mimnermus played the *nomos cradias* during a rite which consisted of driving out a scapegoat from the city by beating him with fig branches.

One of the assumptions of this study is that the *aulos* may have been introduced into mainland Greece by people from Asia Minor. If this was the case, the *aulos* may relate to the cult of Dionysus because the cult of this god was prominent in the regions of Phrygia and Thrace (Roberts 2005: 231-2).⁴² This is suggested by written evidence. Literary sources also reveal the exchange of ideas and the cultural interaction that existed between one region and another. A poem by Sappho (44 LP) illustrates the above.⁴³ Sappho's poem was probably a wedding song which, most likely, was sung at Lesbian marriages to celebrate a bride's arrival from a distant place. The poem recounts the arrival of Andromache, a Theban bride, to Troy (as quoted in Fränkel 1973: 174).⁴⁴

Hector and his comrades bring the beautiful-eyed one from sacred Thebe [sic. Thebes] and the ever-flowing waters of Placia, the delicate Andromache, on ships [...] Sweet-toned flutes [*aulos*] and the lyre mingled, and crashing cymbals; clear-voiced maidens chanted a pure song, the divine sound ascended and the Olympians smiled...Everywhere in the streets...Mixing bowls and cups...Myrrh and cassia and incense mingled. The women shouted out, all the older ones, and all the men sang out a lovely song summoning Paeon (Apollo) the far-darter, him of the lovely lyre, and sang of Hector and Andromache, like unto the gods (Fränkel 1973: 174).

⁴¹ Plut. [*De Mus*], p. 371. The word *nomos* (pl. *nomoi*) refers to a set of traditional melodies performed by ancient Greek musicians. The term also denotes the art form performed by soloists during, for instance, music competitions (Barker 1984).

⁴² Phrygia was located in the centre of western Asia Minor. It was first invaded and controlled by the Lydians, then absorbed by the Achaemenid Empire in 545 BC. Later, it was dominated by the Greeks and then by the Romans. Two Phrygian regions are known: Asia and Galatia (Haywood et al. 1998: 1.40). Thrace was located in the southern Balkans, between the Aegean and the Danube. Thracians possibly occupied that area since the seventh century BC. A horse-riding elite distinguished them from other peoples. Thracians had strong cultural links with the Greeks, a fact that contributed to the setting up of the Thracian state during the fifth century BC (ibid: 1.43).

⁴³ See also Barker 1984: 48 no. 23 (a).

⁴⁴ Thebes was a Boeotian city located in central Greece. The city of Troy was probably geographically located where modern Hisarlik stands, that is, in the north-west of Asia Minor (for more information on Thebes see Roberts 2005: 748, on Troy see Roberts 2005: 786-7).

In the present writer's opinion, Sappho refers to musical instruments to denote identity. Thus, the *aulos* symbolises the Trojan identity while the lyre the Theban one. The celebration of this symbolic marriage unites both cultures, thus involving the exchange of cultural traits, or diffusion. The introduction of the *aulos* in mainland Greece suggests the adoption of foreign cultural practices which can only be associated with social processes such as acculturation.

The Pseudo Plutarch *De Musica* is perhaps the most renowned treatise on music in ancient Greece. This book was written between the first and second century AD, and therefore, is a later source. Nevertheless, the text refers to writers from the fourth and fifth century BC, such as Glaucus of Rhegium, Heracleides Ponticus, Plato, Aristotle, and Aristoxenus.⁴⁵ The treatise provides several remarks on the *aulos*. The most relevant is perhaps a list of *auletai* whose names are the following: Hyagnis, Olympus, Marsyas, and Olympus the younger. Most of these performers were Phrygians, that is, from Asia Minor (Plut. [*De Mus*] 1132f).⁴⁶

⁴⁵ Glaucus of Rhegium (c.400 BC) was a Greek writer from Rhegium, modern Reggio Calabria (south-west coast of Italy). He is well-known for his treatise *On the Ancient Poets and Musicians*. Unfortunately, this text is lost but it is quoted at length in the Plutarchian treatise *De Musica*. Glaucus commented on *aulos* playing techniques and on the use of the *aulos* as accompaniment to singing. In a certain manner, he advocated in favour of the *aulos* thus, he did not reject it like other authors, such as the poet of Old Attic Comedy Aristophanes (Anderson and Mathiesen 2001: 937). Heracleides Ponticus (c.400 BC) was a pupil of Plato. He wrote a number of books such as *Zoroaster*, *On the Underworld*, and *Disputed Questions in Natural Philosophy*. In his collection, Heracleides claims that the art of singing poetry to the accompaniment of the *kithara* was the first invention in music. He also mentions that this was invented by Amphion, son of Zeus and Antiope, but evidently taught by his father. A manuscript kept at Sicyon (Peloponnese) attests to this. It is believed that Heracleides obtained the names of the priestesses at Argos, the composers, and musicians from this manuscript (Plut. [*De Mus*] 1131f-1132a). Plato (428-347 BC) was a philosopher who wrote mostly in the form of dialogues. He wrote about music, education, and science (for more information on this see Roberts 2005: 576-80). Aristotle (384-322 BC) was born in Stagira, son of Nicomachus. His contributions to the study of music explore the effect of music on people's character and behaviour. In other words, Aristotle studied the way music can be used in education (Grout 2006: 16). Aristoxenus of Tarentum (b. c.370 BC) was a philosopher, biographer, and a historian. He was also a musician, a reason why he wrote extensively about the subject (for more information on this, see Roberts 2005: 73).

⁴⁶ Plut. [*De Mus*], p. 363. Hyagnis was a musician father of Marsyas (Plut. [*De Mus*] 1133f). He was the first to play the *aulos*, but he did not invent it (Plut. [*De Mus*] 1132f; 1135f). Olympus the elder or the Mysian (Probably flourished c.700 BC) was an *aulete* and a composer. He is acclaimed for introducing instrumental music, and *auletic nomoi* into Greece. He is also regarded as the inventor of the Lydian mode, the enharmonic genus, and rhythms, such as the *Bacchic*, the *prosodiac*, and the *choreic* (Anderson and Mathiesen 2001: 402-3). Marsyas, also called Masses, was the son of Hyagnis. He was probably the first musician to play the *aulos* with *phorbeia*. Marsyas taught the art of playing the *aulos* to Olympus the elder (Anderson and Mathiesen 2001: 902-3). Olympus the younger was a legendary figure who according to the poet Pratinas invented the *Polykephalos* or Many-headed *nomos* (Plut. [*De Mus*] 1133e).

By the end of the sixth century, the social status of both *auletai* and *auletrides* was lower in relation to the singers of mainland Greece. As a matter of fact, Plutarch ([*De Mus*] 1141c-d) implies that *aulos* players were servants.⁴⁷ The poet Pratinas of Phlius wrote: ‘Song, the Muse had decreed it king, let the *aulos* keep its second rank for it is its servant. Let it only take command in unruly processions, and the fistfights in which drunken young men indulge on the doorsteps of whore-houses’ (cited from Rouget 1985: 215). The reason why *aulos* players were considered servants may lie in the fact that most of them were foreigners. The following passage from Athenaeus (Book XIV 621b-c) illustrates that music had a subordinate status in ancient Greece.⁴⁸ As a matter of fact, poets were responsible for paying musicians. It also indicates that prizes were offered to musicians during events but due to their low social status, these were not granted.

But the Hilarodus, as he is called, is a more respectable kind of poet than these men are; for he is never effeminate or indecorous, but he wears a white manly robe, and he is crowned with a golden crown: and in former times he used to wear sandals, as Aristocles tells us; but at the present day he wears only slippers. And some man or woman sings an accompaniment to him, as to a person who sings to the flute [*aulos*]. And a crown is given to a Hilarodus, as well as to a person who sings to the flute [*aulos*]; but such honours are not allowed to a player on the harp or on the flute [*aulos*] (Duke Yonge 1854: 990).⁴⁹

Athenaeus indicates that prizes were allocated to musicians during events but they were very often not delivered. According to Wilson (1999: 74-5), musicians that played the *aulos* during the Athenian festivals belonged in their majority to the Theban School (late fifth/early fourth century BC). They came from places such as Argos, Sicyon, Aegina, Tegea, Epidamnos. *Auletai* such as Ismenias, Pronomus, Antigenidas, Caphisias, and Thimotheus belonged to this School. Apart from performing in events, they taught their art, mainly to people of means, as they paid well (Roesch 1989: 203-14). Athenian *aulos*-players were almost unknown (Wilson 1999: 74-5).

⁴⁷ Plut. [*De Mus*], p. 421.

⁴⁸ Ath. III, p. 990. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press; London: William Heinemann, 1959), VI, 346.

⁴⁹ Hilarodus was a wandering singer like the Italians and Savoyards of modern Europe. He was superior to the Magodos and Lysiodos (St. John 1842: 238).

Despite their lower status, foreign *auletai* and *auletrides* always preserved their own traditions and consequently diffused them socially. This practice gradually led to a change in the role of the *aulos*. Thus, its use expanded from marches and drinking songs to solo and choral singing pieces, including soloist pieces for *aulos* (Barker 1984: 52). These latter forms were mainly used in competitions, such as the Pythian games in 586 BC (Plut. [*De Mus*] 1134a).⁵⁰

In religious festivals such as the cult of Dionysus, god of wine and fertility, a large-scale choral composition, known as the *dithyramb*, was performed (Mathiesen 1999: 71). The *dithyramb* was a song dedicated to the god Dionysus, in which the *aulos* played a significant role. Archilochus of Paros, a *dithyramb* composer himself, refers to it as the ‘lovely song of Lord Dionysus’ (Ath. Book XIV 628a-b).⁵¹ During the performance of the *dithyramb*, the *auletes* stood upon an altar while dancers danced around him as he played (Haldane 1966: 102). The reciter himself was responsible for hiring the *aulos* player. Later, the *chorēgos*, a sort of choir coordinator, performed that function (Mathiesen 1999: 79). By the late sixth century, the *dithyramb* developed into an art form. The work by Lasus of Hermione particularly contributed to this development (Plut. [*De Mus*] 1141c). Lasus, apart from being a composer, was an *auletes* himself, and innovations on *aulos*’ performance practices are attributed to him (ibid).⁵² Another *auletes* who excelled in the performance of *Dithyrambos* is Ariston of Miletus (second/third quarter of the fourth century BC). This information is recorded on the base of a statue of *Dithyrambos* (Digital LIMC 2020).

Specific music for the *aulos*, as well as for other instruments such as the *kithara*, were based on melodic forms known as *nomoi* (sing. *nomos*). According to Plutarch ([*De Mus*] 1133a-b), the *nomoi* sung to the *aulos* were invented by Clonas, a composer either from Tegea, Arcadia or from Boeotia, Thebes.⁵³ Clonas, who flourished after the poet Terpander, was a composer of prosodies, that is, solemn

⁵⁰ Plut. [*De Mus*], p. 371.

⁵¹ Ath., III, 1002. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1959), VI, 386.

⁵² Lasus of Hermione (fl. c.530-20 BC) was born in Hermione, modern Kastrì, Argolis. This Greek lyric poet is considered to be the earliest music theorist. Lasus was a composer of hymns, such as the hymn to Demeter, and *dithyrambos* (Anderson and Mathiesen 2001: 322). Plut. [*De Mus*], p. 419.

⁵³ Plut. [*De Mus*], pp. 363-5. From the fifth century BC onwards, the *nomoi* can be described as solo pieces whose forms were established by fixed rules. The *auletic nomoi* or solo pieces for the *aulos* were performed at Delphi from the beginning of the sixth century BC. The *auledic nomoi* were pieces sung to an *aulete*’s accompaniment.

marches for public processions to the temples, as well as of elegies and epic pieces (Plut. [*De Mus*] 1132c).⁵⁴

Each region of ancient Greece had its own *nomoi*, that is, its own set of melodies which were used during diverse events. These forms were brought to Greece by wandering travellers and professional musicians from distant places. The Greek word *nomoi* means laws. The use of this term so as to indicate melodic forms suggests that *nomoi* were strictly observed in an attempt to keep their characteristics intact (Comotti 1989: 16). According to the Pseudo Plutarch (*De Mus*] 1132c), Terpander invented the *nomoi* for the *kithara* and gave names to these forms. At public games, he sang *nomoi* adaptations of Homer's and his own verses.⁵⁵ As I already stated, Clonas was the first musician to create *nomoi* for the *aulos*. He also was a composer of various musical genres. Clona's style was followed by the composer Polymnestus of Colophon (Plut. [*De Mus*] 1132c).⁵⁶ Both composers used various *nomoi* for the *aulos*. These are described in Chapter III of this study.

Julius Pollux, a Greek lexicographer of the second century AD, remarks on the importance of the *aulos* in dramatic representations by emphasizing its expressive abilities. A fragment from his *Onomasticon* (IV.84) is perhaps the best example of this. The contest between Apollo and the Serpent is represented through the *auletic pythicos nomos* and is divided into five parts, as detailed in Chapter III of this study.

According to Strabo (*Geographica* Book IX.3.10), *aulos* players and *kitharists*, performed the *pythikos nomos* at the Pythian games so as to commemorate Apollo's battle against the monster. This representation included the *angkrousis*, that is, a prelude. This was followed by the *amperia*, a characterisation of the first onset of the contest, and the *katakeleusmos*, namely, the contest itself. The *iambus* and *dactylus* form part of a song of triumph and victory, where the iambic rhythm is suitable for reproaches, while the dactylic is suited to hymns of praise played on

⁵⁴ Plut. [*De Mus*], pp. 359-61. Terpander (fl. c.675 BC) was a lyric poet of Lesbos. The fact that he was renowned in the city of Sparta, where he attempted to promote calm in times of conflict with his music, demonstrates the power of the ethos. He introduced the seven-stringed *lyra* and is regarded as the inventor of the lyric *nomoi*, and the *skolion* (Anderson and Mathiesen 2001: 300-1). The Pseudo Plutarch ([*De Mus*]1132f), quoting Alexander affirms that Terpander was a poet and musician whose melodic style was based on Orpheus. Terpander was victorious at the festival of Carnea and four times at the Pythian games (Bowra and Krummen 2012: 1443).

⁵⁵ Plut. [*De Mus*], p. 359. The *nomoi* for the *kithara* were created earlier than the ones for the *aulos*. The *kithara*'s *nomoi* are the following: the *Boeotian*, the *Aeolian*, *Trochaïos*, *Oxis*, *Kepion*, *Terpandreios*, and *Tetraoidios* (Barker 1984: 209).

⁵⁶ Plut. [*De Mus*], pp. 359-61.

syringes, where the last hissings of the dying serpent were represented through the ‘*syrinx* of the *aulos*’, that is, a device similar to a speaker hole.⁵⁷ By the fifth century, the *aulos* became fairly significant in dramatic tragedy. Dramatists found a suitable accompaniment for their demands such as expression and tonal flexibility (Wilson 1999). The type of *aulos* which probably fulfilled these demands was known as the *gringas*. According to Alcides, this instrument was Phoenician in origin. Alcides, quoting Xenophon, states that the *gringas* measured about ‘a span in length’ (approximately nine inches) and that it had ‘a shrill and mournful tone’ (cited from Ath. Book IV 174f).⁵⁸

Aristoxenus, in his treatise *Αὐλῶν Τρήσεις* (*On Flute-Boring*), affirms that there are five types of *aulos*: the *parthenius*, the *paedicus*, the *kitharisterius*, the *teleioi*, and the *hyperteleioi* (cited from Ath. Book XIV 634e-f).⁵⁹ According to Bélis (2001: 179), this indicates a classification of the *aulos* by range based on the voices of individuals at different stages of life. This is further expanded in Chapter III of this study. Another point of note is that *auloi* were not exclusively designed and meant for men but also for women. The Greek word for female *aulos*-players is *auletrides*. In ancient Greece, female musicians and dancers worked as entertainers during male drinking parties (*symposia*), which flourished during the Hellenistic period (c.321-31 BC) and continued through the Byzantine times (Touliatos 1993: 114). *Auletrides* or *hetairai*, often of slave status, may have also been prostitutes (Glazebrook 2016: 705). Female *aulos*-players also accompanied maiden-songs such as the *partheneia*, which was a choral hymn sung by virgins (Touliatos 1993: 114).

The *aulos* was one of the most popular instruments in the Greek musical scene, however from the fifth century onwards, philosophers such as Plato and Aristotle started to question its role in society.⁶⁰ In a dialogue in *Respublica* (Book III 398c-

⁵⁷ Strabo, *The Geography of Strabo*, trans. by Horace Leonard Jones, 8 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1954), IV, 363. See also Barker 1984: 51-2 no. 25; Mathiesen 1999: 24-5. Aristoxenus (*Elementa harmonica* 1.21) mentions a part of the *aulos* called *syrinx* which served to raise the pitch of the instrument (cited from Barker 1989: 139-40).

⁵⁸ Ath., I, p. 279.

⁵⁹ Ath., III, p. 1013.

⁶⁰ Socrates, while discussing the best form of political organization with Glaucon and Adeimantus, proposes that this may be established through ‘organizers’, that is, educated people trained in gymnastics and *mousike* (music). However, Plato considered that training futile and affirms that the function of education lies in the perfection of the soul and the harmonization of its aspects (Barker 1984: 127).

399e), Plato elaborates on Socrates' analysis on *harmoniai*. Socrates responds this dialogue by stating that the Phrygian and Dorian modes are the most suitable for the education of a warrior, as well as of a peaceful man. Based on this statement, Plato affirms that they shall not need many strings (*polychordia*) in the city or a collection of all the *harmoniai* in songs and melodies. Therefore, *aulos* players and its makers would not be admitted into the city because this instrument can reproduce many notes thus, the whole *harmoniai*, and was therefore excessive.⁶¹

According to Aristotle (*Politica* Book VIII 1341a), the *aulos* could not be used educationally because it was an amoral instrument. For that reason, it should be reserved for performances that encourage catharsis, that is, an outlet to emotion afforded by drama rather than learning.⁶² Another reason was that the performer could not articulate words while playing the *aulos* and that was contrary to education (Barker 1984: 178). Aristotle's predecessors banned the study of this instrument, specifically for young people and free men. However, as soon as they noticed that the *aulos* did not compromise the integrity of the individual, the instrument was re-introduced as a subject for study (Arist. *Pol.* Book VIII 1341a).⁶³ The *aulos* became popular and fashionable among the upper classes (Rouget 1985: 215). Nevertheless, whether men or women played it, these were either slaves or people of very low social status. In Sparta, the *aulos* was used by chorus-leaders themselves, and it became very popular in Athens. The latter is attested by an inscription on a tablet dedicated to Thrasippus, a *chorēgos* (chorus-leader) and *auletes* of the Athenian comic poet Ecphantides (500 BC) (Barker 1984: 178). Nevertheless, the *aulos* was rejected again (Arist. *Pol.* Book VIII 1341a).⁶⁴ This was underlined when Athena herself stated that its playing did not contribute to intelligence (Barker 1984: 179). The study of the *aulos* itself and training for competitive performances was banned because the performer's objective was to

⁶¹ Plato, *The Republic Books I-V*, trans. by Paul Shorey, 2 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd, 1937), I, 245-51 (Hereafter, *Pl. Resp.*). *Harmoniai* (Gk. plural of *harmonia*), this term means joining together or adjustment of parts. Plato defines the ordering of the cosmos as *harmonia*. In his *Republic*, Plato uses the term in a musical sense of an octave (eight notes) (Mathiesen 2001: 851).

⁶² Aristotle's *Politics*, trans. by Benjamin Jowett (Oxford: Clarendon Press, 1908), pp. 312-3. (Hereafter, *Arist. Pol.*). See also Barker 1984: 177-8.

⁶³ *Arist. Pol.*, p. 312-3.

⁶⁴ *Arist. Pol.*, p. 313.

promote an immoral pleasure in the listeners instead of cultivating his own virtue (Arist. *Pol.* Book VIII 1341b).⁶⁵

The *aulos* was undoubtedly an instrument meant for professionals. In ancient Greece, professional musicians were those who participated in contests. However, a professional *auletes* was never highly regarded socially because he was paid to give pleasure and that activity was considered vulgar (Arist. *Pol.* Book VIII 1341b).⁶⁶ Mythological tales portray the differences in value that existed between the *kithara* (lyre) and the *aulos*. We find the following remark about the *aulos* in the work of Melanippides, specifically in his *Marsyas*: ‘Minerva [Athena] cast away those instruments [*aulos*] down from her sacred hand; and said in scorn “away, you shameful things—you stains of the body! Shall I now yield myself to such malpractices?” (cited from Ath. Book XIV 616e-f).⁶⁷ It is presumed that she is referring to cheek pumping. This technique was widely used among *aulos* players. The constant use of such practice may cause distension of the cheeks. The skin may stretch so much that it fails to return to shape forming drooping dewlaps. This deformation may have been abhorrent to the Greeks with their emphasis on bodily perfection (Montagu 2007: 75).

Some authors, however, paid tribute to the *aulos* and its performers. Pindar (b. probably in 518 BC), a Greek lyric poet from Cynoscephalae, Boeotia, composed a victory song in the form of an ode for Midas of Acragas, a winner in the *aulos* playing competition at the Pythian games of Delphi in 490 BC (Pindar *Pythian* XII). In this ode, Pindar mostly praises the gods by stating that Midas won the competition through the art that Pallas Athena invented. The goddess was the first to make the many-voiced music for *auloi* so as to imitate the cry of the Gorgon Euryale. Mortal men could only play this music after Pallas Athena named it a many-headed *nomos* (*polykephalos nomos*) (Pindar *Pythian* XII).⁶⁸

The fact that Athena invented the *aulos* and the many-headed *nomos* to mimic the screams of the Gorgons as they mourned Medusa’s death emphasises on the non-

⁶⁵ Arist. *Pol.*, p. 313.

⁶⁶ Arist. *Pol.*, pp. 313-4.

⁶⁷ Ath., III, 984; see also Barker 1984: 273.

⁶⁸ *The Odes of Pindar*, trans. by John Sandys, Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1915), pp. 306-11 (Hereafter, Pind.). Pindar was a prolific composer of hymns, *paeans*, and *dithyrambs* as well as processional songs, maiden songs, and dance songs. Pindar’s most important works are probably his choral victory songs composed to celebrate victories at the four *panhellenic* athletic festivals (Roberts 2005: 570-71).

Greek origin of the *aulos* since the Gorgons are creatures that Herodotus (*Histories* Book II.91) locates in Lybia.⁶⁹ This corresponds with Athenaeus stating that the *aulos* was invented by a Lybian-Numidian man called Seirites (Book XIV 618b-c).⁷⁰ Athena undoubtedly captured and bound in her invention the mournful screams of the Gorgons, that is, those emotive cries which can be translated into both victory and defeat. This could be the reason why the *aulos* is an instrument of high emotion used in celebrations and funerals, amongst other contexts. The *aulos* is capable of reproducing a wide range of uncontrollable sounds and thus to translate the above-mentioned feelings, and a reason why the *aulos* is meant to represent all that is frenzied and emotional.

⁶⁹ Hdt., p. 129.

⁷⁰ Ath., III, p. 986.

CHAPTER II: THE PRECURSORS OF THE AULOS: ART AND TRADITION FROM PREHISTORY TO THE SECOND MILLENNIUM BC

The art of manufacturing bone pipes can be traced back to prehistoric times, in other words, such traditions have been passed from one generation to another at least since the Middle Palaeolithic (c.250,000-50,000 years ago). Archaeological excavations have yielded a vast number of objects which can be identified as bone pipes. Such artefacts are evidently older than the *aulos* (c.2800 BC-2300 BC), thus suggesting that they paved the way for this instrument to come into existence. This chapter attempts to show how the intentionality of sound has left imprints in the form of bone pipes since the middle Palaeolithic period to the second millennium BC. Some examples however trespass this time frame and are mentioned in order to achieve a better understanding of the topic. One of the aims of this chapter is to provide a historical view of the technological developments that prompted the invention of the *aulos*. A description of the materials out of which these aerophones are made is also provided.

Another aim of this chapter is to evaluate the possible continuation of music related practices. For this purpose, the chapter makes use of iconographic evidence from different periods in order to attempt interpretation. The possible continuation of music-related practices can be seen in artefacts which do not necessarily belong to the same culture and period of time. The analogies presented in this chapter echo the idea that the activities of early man, particularly those related to music, were passed on from generation to generation, surviving to posterity, such as antiquity. This chapter is strongly grounded in the belief that when people moved across regions, they carried their musical heritage with them. As one would expect, musical exchanges normally occur in areas where trade and production are carried out. For example, in any commercial activities where musical instruments are traded, social contact is invariably established.

This chapter is divided into nine parts. Section one discusses the origins of the art of producing sound by directing a stream of air into a hollow object. This is undertaken through the analysis of archaeological artefacts, specifically bone pipes.

The debatable Neanderthal flute and its implications are discussed at length, as well as bone pipes found in other archaeological contexts, such as those discovered in the caves in the Ach valley in Germany. This section is strongly based on the notion that there was intentionality behind the manufacture of such artefacts, where attributes such as finger holes determine the functionality of such objects.

Section two focuses on the Neolithic and the profound changes that it brought about. It mentions the new palette of aerophones found in Neolithic contexts, such as pipes, horns, clay whistles, and bullroarers and how these instruments show a refinement of early manufacturing techniques. Clay whistles, for instance, are testimony to the new techniques that sprang up during the Neolithic. It also extensively discusses a clay whistle from Yarim Tepe I and the Neolithic bone pipes discovered at the site of Jiahu in central China. This section is strongly based on the belief that the rapid expansion of farming across Eurasia may have played an important role in the diffusion of music-related practices, such as the manufacture of bone pipes. It also begs the question whether Chinese people reached the Mediterranean in the early Neolithic and whether Chinese aerophones served as models for Western peoples.

Section three is dedicated to the eastern land of Anatolia. It presents a study of three different depictions, one from Çatal Hüyük and two from ancient Greece. The study attempts to find correlations between the depictions even though they are from different regions and historical periods.

Section four discusses a bone pipe discovered at the Palaeolithic site of Karain Cave in Antalya, Turkey. The relevance of this artefact lies in the fact that it belongs to a period that was characterised by a continuous process of change and cultural diversity which started to develop as far back as the Middle Palaeolithic. Such a process of continuous change was highly influenced by sporadic dispersals of people from the west to the east.

Section five discusses the bone pipes from prehistoric Greece, specifically those from Dispilio, a site situated in Thessaly on Lake Orestiada in Kastoria. The other site discussed is Avgi, located in the region of Kastoria, close to the modern city of Argos Orestiko.

Section six examines the music evidence of Anatolia, such as depictions and sound producing devices of the Neolithic and chalcolithic periods. It also studies the possible interaction between Mesopotamia and Anatolia through the analysis of bone

pipes. Lastly, it discusses at length the mouthpieces from Tepe Gawra so as to make possible correlations with the ancient *aulos*.

Section seven asks whether metal was used for the manufacture of pipes or flutes during the Early Bronze Age in Anatolia. The section establishes parallels with Mesopotamia where a pair of silver pipes were found.

Section eight discusses the earliest evidence of the *aulos* and the context in which this object was found. Along the same lines, a review of the origins of playing two pipes at once is provided. This section also examines the role of music and dance in Hittite society, particularly during festivals, and the use of double pipes through the analysis of depictions on the orthostats of Alaca Höyük and Carchemish and the Kybele statue of Bogasköy.

Section nine examines the wind instruments in ancient Egypt, which included the flute (*m3t*), the clarinet (*mmt*), and the oboe (*wdny*). This section explores the relationship that existed between music and religion in ancient Egypt. It also presents parallels between the Egyptian oboe (*wdny*) and the ancient *aulos*.

2.1 In the Beginning, There Was Whistling

The art of producing sound by directing a stream of air into a hollow object is ancient in origin. Archaeological artefacts indicate that this practice was performed as early as the Middle Palaeolithic⁷¹ Period (c.250,000-50,000 years ago) (Turk 2007-2014) when the European continent was dominated by an early species of *Homo*, that is, the Neanderthals (*Homo neanderthalensis*)⁷² (Pettitt 2005: 125). The earliest evidence consists of a bone, specifically a diaphysis of a femur from a bear (Figure 2.1). On one side, it has two recognisable holes and semi-circular features at both ends. The opposite side has an A-shaped slit which is located at the lower end. The object was probably longer and may have held more holes (Morley 2013: 39). The artefact was discovered at Divje Babe cave, in Slovenia, and it comes from Mousterian contexts which date back to 60,000 years BP (Turk 2007-2014: 253-68). This date coincides with Neanderthal presence in Europe but pre-dates the arrival of modern humans to

⁷¹ The Palaeolithic period begins with the emergence of man and the manufacture of the most ancient tools some 2.5 million years ago and ends with the advent of agriculture c.10,000 BC. This period is subdivided into lower Palaeolithic, middle Palaeolithic, and upper Palaeolithic (Renfrew and Bahn 2008: 583).

⁷² The Neanderthals are the best-known archaic human group from the Pleistocene. They allegedly appeared in the middle Pleistocene, about 130,000 BP and disappeared around 30,000 years ago (Trinkaus 1996: 489-91).

the continent (Pettitt 2005: 125). In light of this information, it has been suggested that this artefact was a flute, or pipe made by *Homo neanderthalensis* (Turk 2007-2014: 253-68). This early species of *Homo* inhabited Europe for at least 200,000 years before the dispersal of modern humans (*Homo sapiens*) into that continent, around 45,000 years ago (Pettitt 2005: 126 and 156-7). Both species coexisted for some thousands of years, specifically during the Middle/Upper Palaeolithic transition (c.45,000-30,000 years ago) until Neanderthals became extinct around 30,000 years ago (ibid: 126).

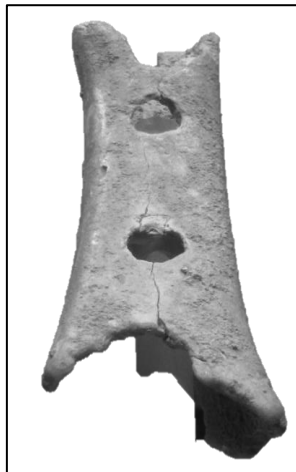


Figure 2.1. Bone pipe from Divje Babe (60,000 BC), Narodni Muzej Slovenije, Ljubljana (photograph by the author).

The interaction between Neanderthals and Modern humans may have allowed the diffusion of musical behaviours. In fact, the ‘Neanderthal Flute’ may indicate a degree of acculturation of Modern humans by the indigenous Neanderthals. Nevertheless, this artefact has been a great source of debate that questions both its interpretation and validity (e.g. d’Errico et al. 1998; Chase and Nowell 1998; Albrecht et al. 2001; Fink 1997; Fink 2000; Otte 2000). According to Mithen (2005: 243), Neanderthals were not sophisticated enough to produce pipes, an assertion that is also debatable. Recent studies on cave art in Spain reveal that certain paintings are 64,800 years old (Hoffmann et al. 2018: 912-5). This date is thousands of years before the arrival of modern humans to Europe (45,000 years ago), thus Neanderthals possibly created these paintings. It is possible that modern humans learnt how to paint in caves by imitating Neanderthals. This species (Neanderthals) was able to produce a variety of utensils (Pettitt 2005: 151-2) so it is not farfetched to imagine that they were also capable of producing wind instruments. In any case, it is widely accepted that ‘European’ modern humans manufactured and played pipes in the Upper Palaeolithic.

The best evidence comes from two European caves located in the Ach valley in Germany (Morley 2013: 43-5). Both sites have yielded Upper Palaeolithic art in the form of engraved ivory and bone, painted walls, and figurines (Pettitt 2005: 158). Twelve fragments of a pipe made from a Griffon Vulture's radius were unearthed at the cave of Hohle Fels (Conard et al. 2009: 737-40) (Figure 2.2). The remains date back to more than 35,000 years cal BP (ibid). This date coincides with the Aurignacian occupation of the site c.40,000 years ago (Pettitt 2005: 157-8). The reconstruction of this pipe shows five well-preserved holes, an incomplete hole at the lower end, and two carved v-shaped cuts at the proximal end (Conard et al. 2009: 737-40). The cave of Geissenklösterle yielded two pipes made from swan wing bones (Morley 2013: 47). The artefacts are catalogued as Flute I and Flute II (Conard et al. 2009: 737-40). The best-preserved is Flute I, which has three holes. It measures 126.5 mm, yet may have been longer, around 180 to 200 mm. Flute I dates to between 43,150-39,370 years cal BP (ibid).

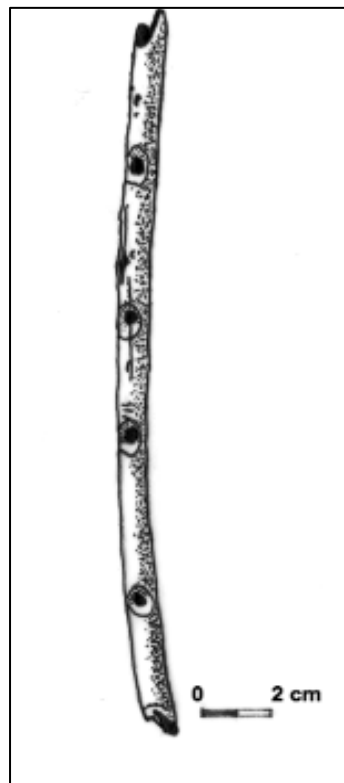


Figure 2.2. Bone pipe from Hohle Fels Cave, c.40,000 years ago, Ach Valley, Germany (redrawn from Conard et al. 2009: 737, Figure 1).

It is worth noting that most prehistoric artefacts which interchangeably have been categorised as pipes or flutes consist of hollow bones, occasionally ivory, with

finger holes. Indeed, the presence of such attributes, that is, finger holes, has determined the function of these objects. The problem arises when there are no finger holes. Morley, in his *Prehistory of Music* (2013: 35), records a hundred and four pipes, of which four are made out of mammoth ivory, fifty-four of bird-bone, thirty-three of bones from different mammal species, and thirteen of unspecified bones. Morley's work provides a significant amount of data. The appendix records a number of hollowed bone tubes discovered in Spy, Belgium. The artefacts range from 37 to 70 mm in length, and date from the Aurignacian period, around 32,000-17,000 years ago (Morley 2013). The function of these objects is unknown; however, it is very likely that these were panpipes. Thus, sound is produced by holding the tube vertically against the lower lip and blowing over the top of the tube. The objects possibly had their bottom ends sealed with a bung, although the palm of the hand may also have been used for this purpose. This probably allowed the performer to reproduce diverse sounds and sonorous effects. This begs the question as to what type of sound they produced. Taking into consideration the short length of the tubes, it is evident that these produce high-pitched sounds. Whether there was intentionality behind the manufacture of such objects is not clear. It is possible that the purpose behind the manufacture of such aerophones was to replicate the sounds of nature, such as those of birds. Moreover, it is very likely that a belief in supernatural forces capable of attributing a living soul to inanimate objects has a strong link with the art of producing sound. According to Farmer (1957: 256) when early man blew into a hollowed tube and perceived the resulting sound, he most likely deduced that the sound he heard was the voice of the object. The constant occurrence of materials such as bone and ivory in the archaeological record proves that these materials survive well in most environments, while cane and wood are more prone to disintegrate. Certain materials, however, are more abundant in some parts of the world. For example, the cane is commonly found in Mediterranean areas, while bird bone, such as that of the vulture, is far more common in central Europe.

2.2 Piping and Whistling within the First Farming Communities

The onset of agriculture is undoubtedly one of the most important events in human history. This episode marks the beginning of the New Stone Age or Neolithic in the Near East (10,000 BC-2000 BC). It is during this period that man started to cultivate

crops, to domesticate animals and to live in villages (Scarre 2005: 183). The Neolithic period brought profound cultural changes, most essentially in the social structure. According to Foster (2007: 120-3), proto agriculturalists of the Upper Palaeolithic lived in egalitarian bands which developed into settled tribes. The establishment of agriculture, and evidently its surpluses, made people affluent. This fact changed the tribal system to chiefdom, which characteristically has a hereditary chief who makes decisions for the rest of the community (ibid). One can imagine that, as a community, such societies celebrated life and the abundance of surplus harvest with festivals that included music making and dancing.

In this context, the aerophones commonly found in Neolithic times are pipes, horns, clay whistles, and bullroarers (Kilmer 2001: 481). These instruments evidently show a refinement of early manufacturing techniques, as well as the development of new ones. Clay whistles, for instance, display the ability to turn raw materials into something unique during this period.

One of the oldest agricultural centres in the Near East is the Sinjar Valley, which is located in North-Western Iraq (Watkins 2005: 232). Primitive farmers settled here from the beginnings of the Neolithic (ibid). This area became an active route, enabling cultural contacts between peoples from Mesopotamia, Syria and the Eastern Mediterranean (Potts 1994). Several archaeological sites in this region attest to different periods of occupation. Yarim Tepe is probably the most relevant in this context. This site consists of two settlements. The oldest is associated with the Hassuna culture (6000 BC), while the other to the Halaf culture (5000 BC) (Charvát 2002: 18-21). Merpert and Munchajev (1971: 16-7) describe that in one of the rooms of the fifth level of Yarim Tepe I, a unique object was found in the form of a prolonged empty clay cigar (Figure 2.3). One of its ends is shaped into a sharp cone and painted with ochre, while the other is modelled into a ram's head (ibid). The object, dated to the sixth millennium BC, has regular holes across the body allowing us to deduce that it is a musical instrument, more specifically, a whistle, or ocarina (Rashid 1996: 20).

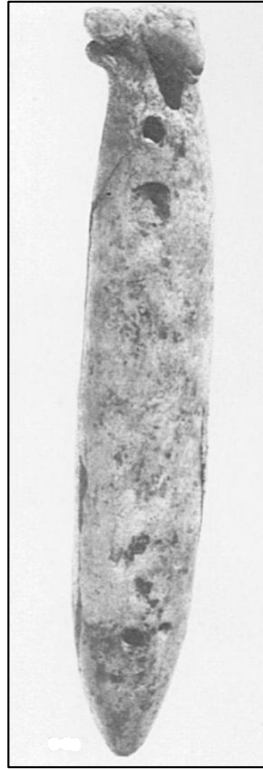


Figure 2.3. Clay whistle from Yarim Tepe I, sixth millennium BC (photo: Merpert and Murchaev 1973, Plate XLIII).

Hitherto, the earliest evidence of Neolithic aerophones is an assemblage of twenty-five bone pipes discovered at the site of Jiahu in central China (Figure 2.4). According to Juzhong and Xinghua (2002: 147-8), the artefacts can be dated between 9000 to 7600 years BP. Their condition varies so that seventeen specimens are well-preserved, six are broken, and two are unfinished. Fourteen of the well-preserved pipes have seven holes while the other three have five, six and eight holes (ibid). Juzhong and Xinghua (2002: 147-8), describe that the most studied specimens are M280:20 and M341:1. The former has seven holes, as well as a small bore near the seventh. M280:20 can reproduce six sounds plus the octave by covering the seventh hole. Each sound is associated with Chinese classical phonetics and coincides to the tonality of this ancient language. In view of this, the sounds of this particular pipe can be represented as follows: 1 2 3 4 5 6 b7. However, M341:1 has five holes. It reproduces five sounds plus the octave; thus, a performer can play the tetrachord and the pentatonic scale. In line with classical Chinese phonetics, the sounds of M341:1 are as follows: 1 3 5 6 and the octave (Juzhong and Xinghua 2002: 147-8).

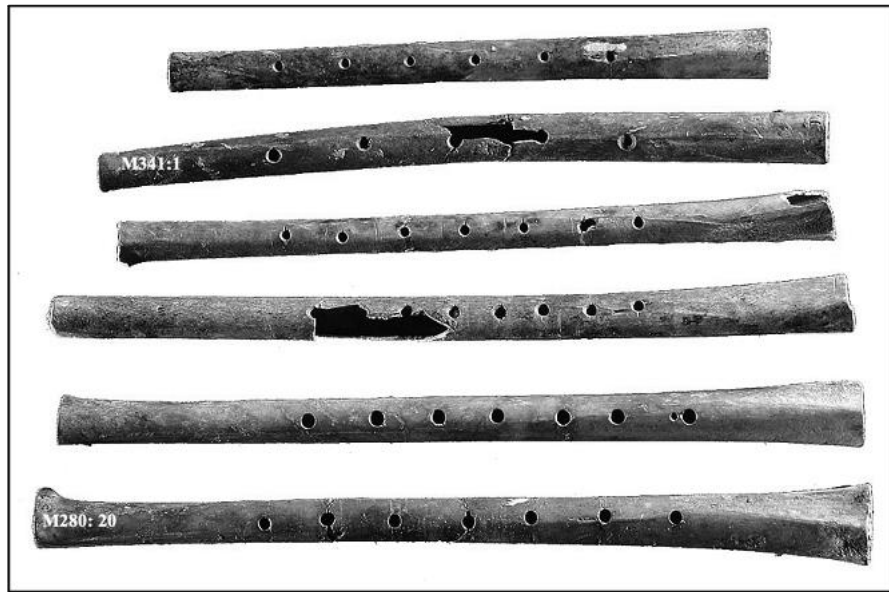


Figure 2.4. Bone pipes from Jiahu, China (photo: <https://nutcrackerman.files.wordpress.com/2016/01/jiahu.jpg>).

The rapid expansion of farming across Eurasia (Diamond 1997: 180-91) may have played an important role in the diffusion of music-related practices. In other words, the spread of farming and the resultant affluence may have facilitated musical exchanges between one group of people and another through the aforementioned festivities. Namely, by being drawn into a life of farming by their neighbours, hunter-gatherers may have either transmitted or received musical knowledge, including new ways of making aerophones. For the most part, the diffusion of such practices was influenced by expanding farming practices that constrained groups of hunter-gatherers to move to other places (Scarre 2005: 187).

Whether Chinese people reached the Mediterranean in the early Neolithic is not known. Thus, one cannot presume that Chinese aerophones, such as the Jiahu flutes, served as models for Western peoples. It seems more likely that such ideas first emerged in the west then travelled to the east, even before the advent of the Neolithic. The evidence may have been found in the Upper Palaeolithic sites of Kamenka and Khotyky, in the Trans-Baikal region of Siberia, North Asia which yielded a bone whistle and a flute (as well as fragments of such instruments) made out of bird bone (Lboba et al. 2012: 1-5). The fact that both sites are seasonal indicates that the people who devised and performed music on such instruments were constantly moving from one place to another, most probably to track animals. The flute dates to $32,700 \pm 1400$ BP and it resembles the ones from Hohle Fels (see Figure 2.2 on p. 57) and Geissenklösterle in Germany (Lboba et al. 2012: 3-5). In light of this information, it

is very likely that certain music-related practices first developed in central Europe and then spread eastwards. Dispersals of people during the Palaeolithic period may have contributed to the dissemination of such ideas in the East, possibly as far afield as China.

2.3 The Eastern Legacy

Ancient Greeks called the eastern land ‘Anatolia’. This territory, which roughly corresponds to the Asian part of Turkey, was home to different cultures such as the Hatti, the Hittite, the Urartian, the Phrygian, and others (Matthews 2005: 434). Music traditions in Anatolia started to develop in prehistoric times. As a matter of fact, a number of hunting scenes from Çatal Hüyük—a Neolithic settlement located in south-central Anatolia—show people dancing and playing musical instruments such as frame drums, horns, and sticks (Mellaart 1967: 173-76). The fresco (Figure 2.5), which decorates the east wall of ‘the hunting shrine’ at Çatal Hüyük (A.III.I) is one such example. The scene shows two deer surrounded by dancing hunters who are armed with bows and sticks (ibid).



Figure 2.5. The Hunting Shrine of Çatal Hüyük (A.III.I) (photo: Mellaart 1967: 134-5, Figures 61 and 63).

The relevance of this painting to our study lies in its evocative details which allude to a continuity of particular music-related practices. Moreover, such details serve to make correlations between this, and other paintings found elsewhere, irrespective of their cultural origin, historical period, and geographical region (e.g. Stiles 1977: 94-5). Iconographical sources such as paintings are an important aid to understand the distant past because, in essence, these are a product of the past with all its inevitable changes (Seebass 2001: 55-6). The parallels presented in this section are based on the notion that the activities of early man, specifically those that included music manifestations, in some manner survived into later historical periods, such as antiquity. Music manifestations, being by their very nature celebratory, are often also

depicted for posterity through images. Such images allow us to compare and contrast in order to establish relationships. This is portrayed later in this section.

A very comprehensive analysis of Figure 2.5 shows that some individuals are dressed in leopard-skin while others wear deerskin (Mellaart 1967: 175). This detail alludes to the existence of some sort of social hierarchy or apprenticeship in the art of hunting. As evidenced in the scene, such activity (hunting) also included music manifestations. Like most early man's activities, hunting was believed to be influenced by supernatural forces. The scene represents these supernatural forces as headless individuals, possibly dead ancestors, who the shaman calls forth to assist the hunters (Mellaart 1967: 175). The shaman is the only person who holds a frame drum (shown in the fresco as a disc) (ibid). Along with another two individuals he wears leopard-skin, while the outfit is embellished with a white collar (ibid). As stated above, leopard-skins may have symbolised principles and ideals as well as rank in that society. The same may apply for the white collars. There seems to be only one musician in this representation, that is, the shaman. However, the absence of recognisable musical instruments in the scene does not rule out that bows, sticks, and other utensils, particularly the human voice, were used to produce sound. As a matter of fact, we can say that this fresco portrays a collective music manifestation in which even unarmed people take part as acrobatic dancers.

The custom of covering the body with skins, particularly leopard-skin, was also observed among the Phrygians. Phrygia (c.900-600 BC) was an Anatolian kingdom located in what nowadays corresponds to western Turkey (Matthews 2005: 467). In antiquity, leopard-skins may have denoted important people in a community whose prestige was manifested through the symbolism of this powerful animal.

The following depiction (Figure 2.6) dates from the classical period (c.360-350 BC). It shows the Phrygian Marsyas playing the double-pipes, Apollo seated on a rock playing the *phorminx* and Calliope with a lyre and a drum. The scene narrates a musical contest between Marsyas and Apollo, where rules dictated that the winner could do what he wished with the loser (Van Keer 2004: 20-37). The unfortunate Marsyas loses the contest and ends up tied to a pine tree and flayed alive (ibid). One must keep in mind that ancient Greek artists had the task of reinforcing Greek identity. In other words, ideals of 'Greekness', which defined the specific character of the various ethnic groups which inhabited Greece in antiquity were transmitted through the arts (Skinner 2012: 19-30). For example, ancient Greek painters denoted identity

by using certain details in their works. Such details were taken from that specific tradition and evidently were part of a body of customs and beliefs. Thus, in order to indicate that Marsyas was a Phrygian, therefore, an Anatolian, he is depicted wearing a leopard-skin tied over his chest and playing the double-pipes (*aulos*) (Figure 2.6). The Anatolian origin of the *aulos* was always acknowledged through the symbol of the leopard-skin. Some vase paintings, for instance, show the *aulos* carrying-case known as *sybene* or *aulotheke* (Figure 2.7), which generally consisted of a bag made out of leopard-skin (Bundrick 2005: 35). The use of leopard-skin to make this bag was not arbitrary. On the contrary, the skin was purposely used to denote the origin of this musical instrument, namely, Anatolia.

Moreover, the use of leopard-skin itself denoted rank. Nys and Bretschneider (2007: 4-9) describe that Egyptian priests mentioned in texts from the 17th and 18th dynasties are depicted dressed majestically in leopard-skin denoting their power and high status while showing the outer world that they rank between men and gods. Akin to this, in the Aegean, a dignitary depicted in the palace of Pylos wears leopard-skin with similar pride (ibid). In contrast, in the same palace, a painted scene of Mycenaeans at war with Barbarians shows the Barbarians wearing leopard-skin (Nys and Bretschneider 2007: 4-9). This is noteworthy because the Greeks often considered the Anatolians as non-Greek and therefore barbarians (ibid).

The leopard skin bag in which the *aulos* was carried suggests the origins of the *aulos* as Anatolian. As a matter of fact, it has been suggested that people from Phrygia introduced the *aulos* into mainland Greece (Plut. [*De Mus*] 1132f).⁷³ Considering all the above, we can say that, on the whole, the *sybene* (the bag which served to protect and carry the *aulos*) evokes Çatal Hüyük sociocultural practices, particularly in terms of the chosen material, in this case leopard-skin. The connections that exist between these two images, notwithstanding their different historical periods, lead us to conclude that prehistoric traditions survived into later epochs, such as antiquity. Moreover, at different sites in Anatolia precursors of the *aulos* have surfaced, in the form of bone pipes which date back to the Palaeolithic and Chalcolithic (see sections 2.4 and 2.6). Such finds may indicate an uninterrupted tradition of pipes making which may have started in prehistoric times and survived to antiquity.

⁷³ Plut. [*De Mus*], p. 363.



Figure 2.6. Lid of Paestan red-figure lekanis, c.360-350 BC, attributed to Asteas, Musée du Louvre, Paris (photo: <https://digitalcollections.nypl.org>).



Figure 2.7. Attic red-figure cup attributed to the Brygos Painter, around 490-480 BC. The leopard-skin sybene hangs on the wall behind the main figure (photo: <https://www.picuki.com/media/2165989819241690581>).

2.4 Western Pipes in the East

In 2016, a team of archaeologists excavated the Palaeolithic site of Karain Cave, which is located 30 kilometres north north-west of Antalya in Turkey (ancient Anatolia). Amongst the finds, archaeologists unearthed a bone flute or pipe which dates back to between 20,600 and 16,400 BC (Taşkıran 2017: 36-41) (Figure 2.8). This date coincides with the Last Glacial Maximum (LGM), the coldest phase of the last glaciation (Würm), and the first 1600 years of the Epipalaeolithic, a period which spanned from c.18,000 to 9500 BC (ibid). We can say that the European Epipaleolithic summarizes a continuous process of change and cultural diversity which started to develop at least since the Middle Palaeolithic (Watkins 2005: 204-5). Such a process of continuous change was very much influenced by sporadic dispersals of people. These were mainly caused by harsh climate conditions, as people moved from one place to another in search of a more temperate climate (ibid). The Karain Cave is located in an area which, at that point in time, may have offered such favourable conditions (Watkins 2005: 201-5). The surrounding environment and, in particular the cave, ensured people's survival along with the preservation and improvement of traditions such as the manufacture of bone flutes or pipes. The discovery of this bone flute, apart from attesting to the intentionality of sound, indicates that arbitrary sounds may have reached another dimension at this particular point in time. It is very likely that early man was already organising random sounds into musical patterns. The way in which they planned their daily activities probably serve as a model for the creation of such musical innovations.



Figure 2.8. Palaeolithic bone pipe from Karain Cave, Antalya, Turkey (photo: Taşkıran 2017: 40, Figure 6).

2.5 Bone pipes from Prehistoric Greece

The land which nowadays corresponds to the boundaries of Greece and to other nearby countries has been inhabited since prehistoric times. The region of Epirus, northern Greece, has been populated at least since 40,000 BC (Broodbank 2013: 109-19). People also dwelt in the cave of Franchthi in Argolid (Peloponnese) prior to 20,000 BC (ibid). Obsidian from the island of Melos indicates communication with the Aegean around that date (Jacobsen 1973: 76). People who lived in the Neolithic village of Dispilio—a site situated in Thessaly on Lake Orestiada in Kastoria, Macedonia, Greece—made music part of their daily lives, as evidenced by archaeological finds. Dispilio is a waterlogged site (Broodbank 2013: 219) from which wooden and clay structures were retrieved. The site also yielded a number of utensils which served for hunting and fishing. This indicates that people largely depended on these economic activities for survival (Nikolaidou 2015). Artefacts which carry some sort of meaning were also retrieved, particularly, a tablet bearing an inscription and three fragments of bone pipes (AncientPages.com 2014) (Figure 2.9). The aerophones date between 6000-5000 BC (ibid).

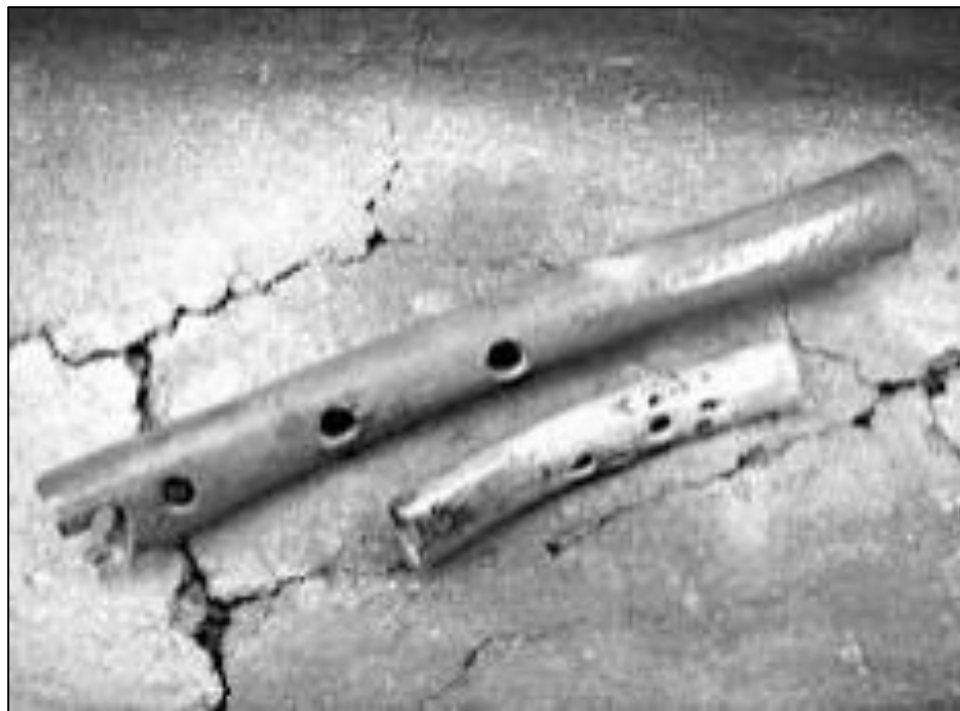


Figure 2.9. Neolithic bone pipes from Dispilio, Kastoria, Greece (photo: <http://www.ancientpages.com/2014/10/28/ancient-dispilio-disk-and-traditional-history-of-writing/dispilioflutes01/>).

Avgi is yet another Neolithic site located in Greece. This settlement provides evidence of music activity and particularly of bone pipes (Figure 2.10). The site is located in the region of Kastoria, close to the modern city of Argos Orestiko, about seven kilometres to the east. It dates from the middle Neolithic (c.5700-5300 cal BC) and extends to the late Neolithic (c.5300-4500/4300 cal BC) (Avgi Kastoria 2008).



Figure 2.10. Neolithic bone pipe from Avgi, Kastoria, Greece (photo: http://www.neolithicavgi.gr/?page_id=50).

2.6 Anatolia: the Land that Gives and Receives

Except for a number of artefacts, specifically bullroarers, scrapers, and a bone pipe, few are the remains of musical instruments found throughout Anatolia which date back to the Neolithic (c.10,000-6000 BC) and the Chalcolithic (c.6000-3000 BC). Nonetheless, there is a considerable number of frescos which show diverse activities involving music manifestations. Such depictions are mainly found at sites such as Çatal Hüyük, Tirişin, and Taht-i Melik (Bachmann 2001: 589). In all three sites, however, one can suggest that utensils not necessarily made to produce sound, may have played a secondary role as musical instruments. Music-related scenes are also found engraved in artefacts such as a limestone bowl discovered at Nevalı Çori (ibid: 589-90) (Figure 2.11). The figures represented in this bowl show that dancing was an appealing activity to the Neolithic communities of Anatolia, as early as the ninth millennium BC. It is very likely that such dances were undertaken around the centre of a circle. The accompanying music was probably cyclical, thus mirroring the dancers' steps. The dances were very likely attached to some sort of totemistic belief. This may explain the presence of an animal in the scene, in this case a turtle. This particular figure may also represent a masked individual. Similar dance scenes show people playing musical instruments such as the drum (see Figure 2.5, p. 62). This artefact is further proof of the existence of musical manifestations in this part of the world.



Figure 2.11. Stone bowl (limestone) from Nevalı Çori (8500-7900 BC) (photo: <http://www.danel.com.hr/Lepenski%20Vir.html>).

In addition, a fragment of a bone pipe, dating from the Chalcolithic period (c. 6000-3000 BC), was discovered at the archaeological site of Arslantepe. This site is a *tell*, that is, a mound, surrounded by mountains and located in the centre of Malatya Plain, Anatolia, around 12 km from the right bank of the Euphrates (Frangipane 2011: 968). According to Frangipane (2004: 180), the artefact consists of a cylindrical bone tube with one finger hole in the central part while the pipe is completely hollowed (Figure 2.12). Its surface is well-polished and bears a repetitive pattern of crossed lines as decoration. The tube has a length of 7.5 cm and its section range from 1.1-1.4 cm (ibid).



Figure 2.12. Chalcolithic bone pipe from Arslantepe, Malatya, Turkey (3800-3400 BC) (photo: Frangipane 2004: 42).

The bone pipe dates to the late Chalcolithic (sequence 3-4), Arslantepe period VII, between 3800-3400 BC (Frangipane 2004: 180). This date coincides with the early and middle Uruk culture in Mesopotamia (Matthews 2005: 434). Although Arslantepe itself was an Uruk-influenced centre (Frangipane 2001: 325), it was already occupied before the Uruk-contact periods. As a matter of fact, its material culture suggests a continuity which started at earlier levels of occupation and remained extant throughout the Uruk-contact periods (Frangipane 1993: 133-61). The Arslantepe period VII (3800-3400 BC) shows a limited interaction with Mesopotamia, as evidenced by the partial incorporation of Mesopotamic style and material cultural elements (Stein 1999; Matthews 2005: 442).

However, the discovery of a number of bone pipes at the site of Tepe Gawra in Northern Mesopotamia suggests possible musical exchanges between Arslantepe and that region. The aerophones attest to a musical tradition which may have started even before the seventh millennium BC thus before the Chalcolithic period (Tobler 1950: 214-5). The bone pipes have a decoration on one of the sides which consists of an incised pattern of inverted V-shaped marks, namely chevrons (*ibid*) (Figures 2.13 and 2.14). The purpose of this decoration may be simply ornamental. However, it may have served as a grip for the thumbs. This type of decoration resembles the one engraved on Arslantepe's pipe and may indicate some sort of style particular to the northern Mesopotamic region (Figure 2.12). Tepe Gawra lies between the Tigris River and the first foothills of the Zagros Mountains. It is located 18 miles northeast of Mosul in the piedmont zone adjoining the Assyrian Plains in north-eastern Iraq. Tepe Gawra was part of a trading network which mainly dealt with lapis lazuli and exotic goods from the highlands and the Upper Tigris basin into Mesopotamia (Charvát 2002: 49-53).

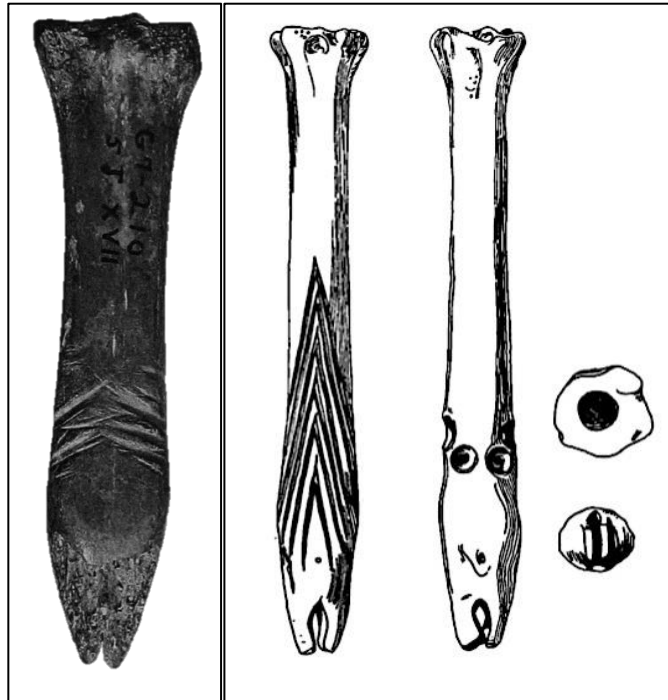


Figure 2.13 and 2.14. (L-R) Bone pipe from Tepe Gawra, Stratum XVII, Halaf period (c.6700 BC). Bone pipe from Tepe Gawra, Stratum XII, Ubaid period (c.4500 BC) (photo and drawing: Tobler 1950, Plate XCIX and CLXXXII).

As Tobler (1950: 214-5) describes, the Tepe Gawra's pipes are made out of animal leg bones. The earliest specimen has a closed bottom end. A natural bifurcation divides the extreme part of that end into two. The upper end consists of a thick joint which serves as a mouthpiece, thus, to place the lower lip and to blow into the bone so as to produce sound. Certain pipes have a thin wall in the middle of the bone which divides it into two (ibid). The earliest specimens do not have finger holes, so there is a strong possibility that they were used as stoppered vertical pipes (Tobler 1950: 214-5). Therefore, the music was made entirely with the natural harmonics of the tubes, so the performers needed to blow as hard as they could to reproduce certain sounds. The extent of the bone pipes depended on the length of the animal's leg. For example, a complete specimen measures 16.5 cm in length (Tobler 1950: 214-5). The oldest specimen (Figure 2.13) measures 8.8 cm and it was discovered in Stratum XVII, which dates back to c.6700 BC (Halaf period) (ibid).⁷⁴ Another two early pipes come from Stratum XVI, c.4500 BC (Ubaid period) but these do not have a dividing wall within the bone (ibid). Stratum XV (c.4500 BC) yielded one pipe, while Stratum XII (c.4500

⁷⁴ Stratum: stratigraphic excavations involve the organization of deposits (layers) into sequences. Deposits lay one above the other akin to a sandwich. From a perspective of relative dating, the underlying deposit is the earlier, while the overlying ones are later. A stratum is a layer (Renfrew and Bahn 2008).

BC) yielded three (Tobler 1950: 214-5). A grave located in Stratum XII (Locus G36-171) yielded one pipe (c.4500 BC) (ibid). The artefact (Figure 2.14) was found beneath the skull of a skeleton belonging to a child of about 10 years old (ibid). This suggests that music was a cultural practice that was passed from one generation to another and held in high esteem by society. The artefact has a tiny hole on both sides of the lower end and four recognisable finger holes, two on its surface and another two adjoining these on the sides (Tobler 1950: 214-5).

Bone pipes have also been found at Mosul, in Northern Iraq. The site of Arpachiyah is a prehistoric mound dating to the Chalcolithic age. It lies four miles away from the Tigris River and the ancient city of Nineveh (Charvát 2002: 42-5). According to Mallowan and Rose (1935: 103), the buildings discovered at the site date back to the Tell Halaf period (c. 6700 BC). The most notable is a large house located in the centre of the mound. The house seems to have been destroyed by a fire because its mud-plastered walls are burnt to terra-cotta (ibid). Several objects were recovered from this house, particularly a set of bone tubes with a trumpet-shaped mouthpiece in mottled grey limestone (c.6114 BC) (Mallowan and Rose 1935: 103). This is probably the earliest object identified as a mouthpiece. It is very likely that this artefact was part of a musical instrument which also included the set of bones found at the same site. Mouthpieces aimed to provide support for the performer's lips and to obtain a particular effect on the sound. This depends on the speed of the air that passes through the tube. As in modern trumpets, the pitch was certainly controlled or altered by changing the pressure of the lips.

Tobler (1950: 214-5) describes that the site of Tepe Gawra yielded five mouthpieces made out of bone (Figure 2.15). Three of the objects have a tubular shape (A, B, and C), while specimen D and E are square, however, their interior is tubular (ibid). The objects, apart from being well-polished and ornamented, have a particular size and shape which accommodates the insertion of a reed (Tobler 1950: 214-5). Thus, it is very likely that these were part of a reed musical instrument (ibid). An analysis of their shape allows us to conclude that Figure A was probably the upper joint (*huphormion*) of some sort of *monoaulos* or *aulos*. This particular object has the shape of a barrel, quite similar to the one found in modern clarinets. Whether artisans of that time sought technicalities such as better intonation, tone colour, or response on these devices, we will never know. These are qualities which contemporary performers look for in clarinet barrels. Despite little information, we can say that these

artefacts are part of a reed musical instrument which was not necessarily played in pairs. The objects are, undoubtedly, innovative and refined in comparison to the earliest bone pipes found at Tepe Gawra (see Figure 2.13 and 2.14, p. 71). Objects B and C resemble a candle holder. Therefore, they have a similar shape to the bulb (*holmos*), namely, to the part which receives the reed (*glotta*) in an *aulos*. In both objects, the upper end terminates in a bell-shaped rim, while the bottom seems to be narrower than the upper. Although their proper use is unclear, objects B and C were most likely mouthpieces. If this interpretation is correct, the artefacts were meant to be joined either with the barrel, as in the case of the *aulos*, or with the tube. In any case, the reed was meant to be inserted on the upper end, where the bell-shaped rim is found. This however suggests a possible use as a trumpet mouthpiece, where the rim served to place the lips. Object B is clearly the most ornamented. The purpose of such decoration is unknown although it produces a ribbed surface which affords grip.

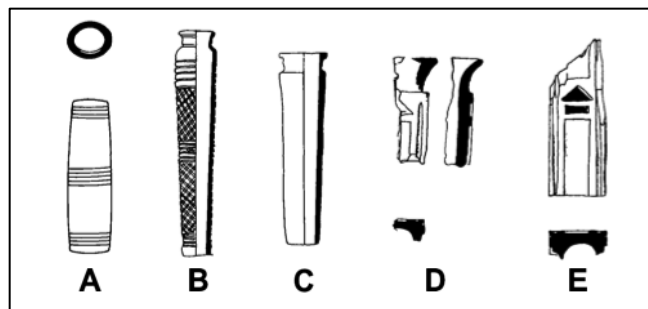


Figure 2.15. Bone tubes from Tepe Gawra (drawing: Tobler 1950, Plate CLXXXII).

Tobler (1950: 214-5) describes that the five bone tubes (Figure 2.15) do not date from the same period because these were found in different strata. Object A, for instance, comes from Stratum XII, which corresponds to the Ubaid period, c.4500 BC. Object B dates from the Early Uruk period, Stratum XI-A, c.4200 BC. The artefacts C and D were found in Stratum XI which coincides with the Early Uruk period, c.4000 BC, while object E dates from the Early/Middle Uruk period, Stratum IX, c.3800 BC (Tobler 1950: 214-5). The fact that mouthpieces first appear in Stratum XII (c.4500 BC) and not earlier, suggests a change in music-related practices at that particular point in time. Primitive bone pipes (Figures 2.13 and 2.14) seem to be replaced by innovative aerophones equipped with mouthpieces and reeds. Although the evidence is incomplete, it is very likely that such aerophones were some sort of pipes.

2.7 What If They Used Metal?

In Anatolia, the Early Bronze Age (3000-2000 BC) is marked by a cultural break. According to Frangipane (2011: 970), this rupture is clearly shown at the archaeological site of Arslantepe. The early levels of occupation of this site which date to the Chalcolithic (c.6000 BC) show close links with Mesopotamia (Uruk); however, by 3000 BC, the site experienced broad changes which indicate that connections with the Syro-Mesopotamian world ceased and turned towards eastern Anatolia and the Transcaucasia (Frangipane 2011: 970). Material evidence of the Early Transcaucasian type includes pottery and rich burial sites with metal objects (Matthews 2005: 445).

Bachmann (2001: 590) describes that at sites such as Alaca Höyük, Horoztepe, and other central sites musical instruments were found which were made out of arsenical copper, bronze, and silver. The objects' provenance is mainly funerary contexts such as graves and hoards which date to c.2400-2000 BC (ibid). It is worth noting that Anatolian people fashioned copper objects as early as the eighth millennium BC (Matthews 2005: 476). Small finds of relatively pure copper at the site of Çayönü Tepesi (south-eastern Turkey) evidence this (Muhly 1989: 5-8; Maddin 1991: 375-80).

The site of Çatal Hüyük has yielded artefacts made out of lead suggesting that such a material started to be used around 7000 BC (Matthews 2005: 476). According to Bachmann (2000: 145-6), Early Bronze Age contexts yielded a considerable number of musical instruments made out of metal and a few specimens made out of clay and bone. The musical instruments range from stemmed cymbals, sistra, clappers, and rattles. Remarkable objects of a high level of artistry were recovered at the royal graves of Alaca Höyük and Horoztepe (ibid: 146).

In addition to the above-mentioned metal idiophones, the palette of musical instruments in Anatolian Early Bronze Age also included pipes, flutes, scrapers, and bullroarers made out of bone and readily available materials, such as cane (Bachmann 2000: 148). Like the shamanic drum, these instruments were produced in Anatolia since the Neolithic (Mellaart 1967: 175). It is not clear whether metal was used for the manufacture of pipes or flutes during the Early Bronze Age, however a pair of silver pipes found in southern Mesopotamia may sustain such an assumption (Figure 2.16). The tubes were found at the 'Royal' Cemetery of Ur, specifically in one of the sixteen

tombs, which possibly contain the remains of kings or high priests of Ur (Woolley 1934: 258-9).

The ancient city of Ur is located some two hundred twenty miles south of Baghdad in Iraq. This city became a major city-state in the Early Dynastic Period (c.2900-2350 BC) (Postgate 1994). Its 'Royal' cemetery yielded a number of artefacts of gold, lapis lazuli, and silver (Woolley 1934). There is also evidence of human sacrifice, particularly of slaves, attendants, and guards (ibid). All this indicates that the ruling elite of Ur were wealthy and powerful (Matthews 2005: 444). On the silver tubes, Woolley (1934: 258-9) reported the following:

In PG/333 there were found what seemed to be bars of silver wantonly twisted and bent. These were scientifically cleaned in the University Museum and proved to be of great interest. The apparently meaningless mass consists of silver tubing, with a total length of 0.408 m.; it is broken into five pieces, but may originally have consisted of two parts each of an approximate length of 0.260 m. Along one side of each there are five (?) holes 0.006m. in diameter placed at intervals of 0.025 m.; the last hole comes at 0.025 m. from the end of the tube, and the first at 0.14m. from the unbroken end which may be the mouthpiece. At 0-07m. from the (complete) end of one tube there is a double incised band, and a similar band on the second tube close to its broken end.



Figure 2.16. Fragments from silver pipes, Ur, Early Dynastic III (c.2500 BC), The University of Pennsylvania Museum of Archaeology and Anthropology (photo: https://www.penn.museum/collections/object_images.php?irn=224933#image2).

Woolley (1934: 259) concluded that the objects were the remains of one of the double-pipes found on Sumerian carvings. There are few depictions of double-pipes from early Mesopotamia which predate the Iron Age (c.1200-334 BC). The stela of Ur-Nammu (Figure 2.17), which dates back to c.2334-2000 BC, is one example. The object shows a sacrifice of a bull and a lamb while a figure plays a sort of pipe (Canby 2001: 22-3). Ur-Nammu was the first king of the 3rd dynasty of Ur (r. 2112-2095 BC). He established an imperial state in Mesopotamia (Postgate 1994: 39 and 42). Although

the silver pipes (catalogue number U. 8605) were in quite bad shape, both were successfully reconstructed (Figure 2.18). The replicas are made out of silver and have similar lengths however they differ in the number of holes. One specimen has four holes while the other has only one (Rimmer 1969: 35-6). This fact suggests that one pipe played the melody while the other played a drone, however whether they were used in pairs is not clear. The pipes date back to the Early Dynastic Period III (c.2500 BC) and show no evidence of mouthpieces and reeds.

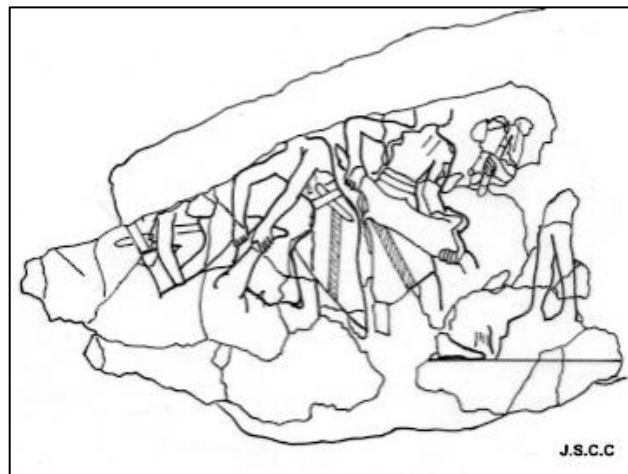


Figure 2.17. Detail of the stela of Ur-Nammu. To the right, a figure stands on a pedestal holding a pipe (redrawn from Canby 2001, Plate XI).

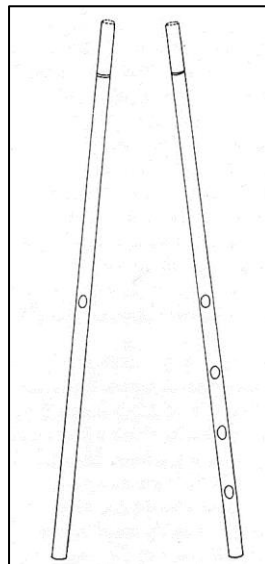


Figure 2.18. Silver pipes from Ur, reconstruction (drawing: Rimmer 1969: 39, Figure 9).

During the Middle Bronze Age (2000-1650 BC), aerophones, such as pipes, flutes, and probably horns continued to be manufactured and used in Anatolia.

According to Bachmann (2001: 593), a fragment of an idol from Zencidere—a site near Kültepe in the plain of Kayseri—shows three stylised figures who apparently are playing end-blown flutes (Figure 2.19). However, Özgüc (1957: 76) states that the three figures have their hands folded on their chests. Thus, we may say that none of the figures is playing a musical instrument. He adds that the figures wear short skirts and that one representation, in particular, has a rectangular beard (Özgüc 1957: 76). This latter is undoubtedly the middle figure which, in my opinion, is the best preserved and therefore worthy of analysis. The figure has its arms at a ninety-degree angle. The hands seem to be holding a tube. One hand holds the upper part while the other holds the lower part. This position reflects flute players, saxophone players, and so on. The tube seems to have a spiral shape like an ibex horn. Maybe we are looking at an aerophone consisting of an ibex horn with as much as eight finger holes. Apparently, the sound was produced through a mouthpiece, considering the length of the tube and the direct connection to the mouth. If this interpretation is correct, the instrument may have been some type of primitive hornpipe.

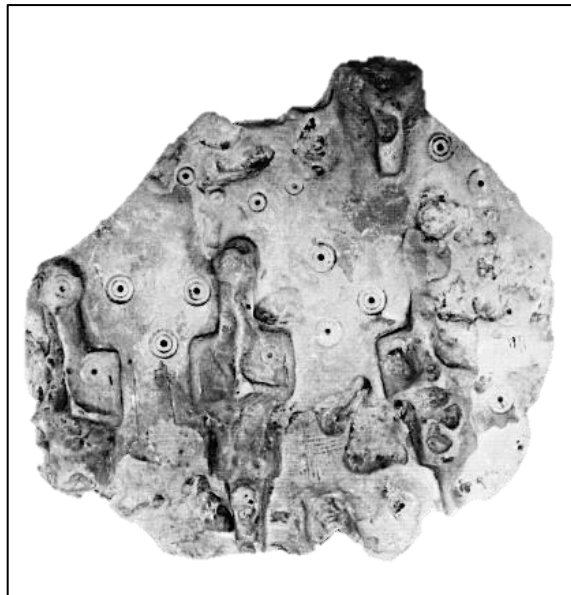


Figure 2.19. Fragment of an idol, Zencidere (2000-1650 BC) (photo: <https://www.pinterest.ca/pin/533535887088243998/>).

Michel (2011: 317) describes that at the beginning of the second millennium BC, certain cities in Anatolia expanded. In part, this was due to a phase of urbanisation (ibid). The magnitude of sites such as Kültepe (fifty hectares), Acemhoyük (fifty-six hectares) and Karahoyük (fifty hectares) attracted the interest of Assyrian merchants from Assur (Michel 2011: 317). It was during the first centuries of the second

millennium BC that these merchants organised commercial exchanges with Anatolia (ibid). According to Postgate (1994: 211-6), they created *karums* (an Akkadian word meaning quay or port which in Anatolia was used to refer to the Assyrian merchant district and its administrative building), namely, trading posts at different places in Anatolia. The centre of this 'Assyrian trading network' was located at Kanesh, later Nesa (modern Kültepe) (ibid). This site is situated in the north of the Taurus Mountains in the region of Cappadocia, central Turkey, specifically 1200 km northwest of Ashur. The network also encompassed the north of the Levant and the coasts of the Black Sea (Postgate 1994: 211-6). The creation of *karums*, as well as *wabartums* (small trading posts), brought socio-political and economic changes which undoubtedly influenced local material culture (ibid).

It is worth noting the importance of trade in musical exchanges. The Assyrian commercial network evidently reinforced and re-established old trade routes that may have already been used in the Neolithic, while metal goods became more popular in the Anatolian plateau in the Early Bronze Age (Steadman 2011: 232). Trade in ceramics reached as far as Liman Tepe, on the Aegean coast, to Tarsus on the southern Anatolian coast, and beyond (ibid). Such trade routes also incorporated the region of the Black Sea and south-eastern Anatolia (Matthews 2005: 453). It should be noted that Mesopotamia imported metals and stones from Anatolia (Steadman 2011: 232). In theory, it is possible to trace the geological origins of such materials. Silver exploitation in Anatolia is documented as early as the fourth millennium BC, particularly at the Nahkalah mines (Muhly 2011: 859). It is not clear whether some objects, in particular the silver pipes, discovered at the royal cemetery of Ur are made out of Anatolian silver. The only certainty is that they were found in a tomb, thus we can say that this artefact was of prestige, probably belonging to a court musician. Objects of prestige are commonly brought from distant places, so there is the possibility that the silver pipes were manufactured in Anatolia, however, it may also be the case that only the raw material was brought to southern Mesopotamia. Nonetheless, the idea that the pipes were brought as a luxury good, along with the other trade goods, is appealing.

Apart from horizontal pipes and horns, aerophones are remarkably rare in Sumerian culture (c.3000-2000 BC) (Dumbrill 2005). However, cuneiform texts, original finds and pictorial representations prove the use of end-blown flutes, double-pipes, vessel flutes, trumpet instruments, and horns at least as from the Old Babylonian

period (c.2000-1600 BC) (ibid). Thus, the practice of playing two pipes simultaneously may have flourished in southern Mesopotamia. According to West (1992: 81), this practice was universal in the ancient Near East. However, whether the silver pipes of Ur were a set is not clear. Moreover, the pipe with one hole may be an unfinished instrument, thus substantiating our assumptions in an analogous find on the island of Keros, in the Aegean, where a Cycladic figurine representing a double-pipe player dating from 2800 BC, was discovered (Figure 2.20, p. 80). This all points to the assumption that the earliest evidence for this musical trait, that is to say, the practice of playing two pipes at the same time, is to be found in the Aegean as the following section investigates.

2.8 The Aulos in the Cycladic and Hittite Tradition: the Art of Playing Two Pipes Simultaneously

The aforementioned find from Keros consists of a marble figurine representing a man playing the double-pipes (Figure 2.20). As already stated, it was discovered on the island of Keros, in the Aegean, in the nineteenth century and dates back to the Early Bronze Age (2800-2300 BC). The exact provenance of the artefact is not clear, however it is thought to be part of the so-called 'Keros hoard', a group of about three hundred fifty figurines ostensibly found in a deposit situated at the north of the settlement of Kavos (Getz-Preziosi 1982). Unfortunately, the site in which this deposit is found was looted, a fact which hinders its interpretation. Based on the material culture discovered on site, this was probably a cemetery (Doumas 1972: 163) or a pan-Cycladic sanctuary (Renfrew 1984: 27-9). If the figurine comes from this deposit, its use was basically of a ritualistic nature. The statuette may be the likeness of a late musician whose remains possibly rest in one of the tombs at the site. It may also be an idol deposited in this sanctuary as an offering in exchange for some kind of help provided by the divinity. In any case, the figure represents a musician of that particular historical period who played the double-pipes, thus testifying to the use of this type of instrument in the Aegean Sea by the Early Bronze Age. It should be noted that the region of the Aegean Sea and therefore its islands, the Cyclades, were subject to external influences from early times, in other words, the islands were not isolated from the rest of the world. According to Pedley (2007: 37), the Cyclades had an influx of immigrants from the west in the Early Bronze Age. The islands served as a port for

Asian routes to Europe, thus connecting Asia Minor, Crete, and Greece (Barber 1987: 17). The communication between the islands, as well as with other places beyond the Aegean was carried out through maritime routes (Broodbank 2013). The aforementioned marble representation of the *aulos* player along with another of a harp player was probably made during the Early Cycladic Period II (c.2500-2200 BC). This period was of great prosperity because Western immigrants began to use materials such as marble, metal, emery, and obsidian (Barber 1987: 17). Although, the Cycladic Islands were influenced by mainland Greece and Crete during the Early Bronze Age most artistic developments were made by island precursors (Pedley 2007: 37-40). In Cycladic society the role of musician may have been performed exclusively by its male members. All known figurines of musicians depict male figures.



Figure 2.20. Figurine of a double-pipe player from Keros, Parian marble (Early Cycladic II, c.2500-2200 BC) The National Archaeological Museum of Athens (3910) (photograph by the author).

It was during the Late Bronze Age that the Hittite civilization developed in Anatolia. These people came from central Anatolia, specifically from the region of Hatti, approximately in the seventeenth century BC. It is very viable that proto Hittites migrated to Anatolia during the Early Bronze Age, around 2300 BC (Matthews 2005: 454). Their written sources tell us that they came from the city of Kussara, whose location is unknown, so as to take control of central Anatolia in about 1700 BC (Bryce 2002: 8-9). The Hittites settled in the city of Hattusa *circa* 1680 BC (Seeher 2011:

378). The immediate predecessors of the Hittites were the Hattians (c.2500-2000 BC) who dwelt in the central, southern, and southern-eastern regions of Anatolia (Haywood et al. 1998: 1.34). Hattians inhabited those lands at least since the third millennium BC (ibid). Little is known about these people, and even less about their music. Some scholars suggest that the Hattians were illiterate and thus needed scribes at their disposal (Akurgal 1996: 541-8). The little information on them is found in Hittite sources, and the reason may lie in the fact that both cultures coexisted in approximately 1750 BC (ibid: 541-8). As a matter of fact, Anatolia was ruled by the Hattians along with Hittite principalities (ibid).

The Hittite empire (1430-1200 BC) dominated a large part of the central, southern, and south-east Anatolia, besides northern Syria (Haywood et al. 1998: 1.34-1.35). Hittite society incorporated music in cults, ceremonies, and feasts (Bachmann 2001: 593-4). Narratives of such events have come down to us in the form of inscribed clay tablets (cuneiform texts) and iconographic sources such as cylinder seals, reliefs on pottery vases, rhyta, and orthostats (ibid: 593-4). Such sources attest that Hattians exerted great influence on the Hittites in all aspects, including music. For example, the priests of Hattusa (capital of the Hittite empire) recited verses in Hatti language (Akurgal 1996: 541). This is known because such verses were inserted in cuneiform texts and were accompanied by a translation (ibid). Most of these verses were parts of liturgical chants and were mainly accompanied by the sistrum and sometimes by rattles (Akurgal 1996: 541). Both idiophones are of Hatti origin (ibid). The Hittites, as well as the Hattians, incorporated aerophones such as pipes in certain ceremonies and festivals (De Martino 1997: 484-87)

The role of music and dance in Hittite society is perhaps best represented in the images found on vases. One of the best examples is the Inandik vase which dates back to the sixteenth century BC (Figure 2.21). Between the years 1966-1967, Temizer (director of the Ankara Museum) led rescue excavations near the village of Inandik, some hundred and nine kilometres along the road from Ankara to Çankiri (Temizer 1988: xxxi). The diggings uncovered the foundations of a thirty-room complex dating to the Hittite period (ibid). The site yielded an assemblage of forty-nine vases, in addition to an almost intact specimen known as the Inandik vase (Temizer 1988: xxxi).

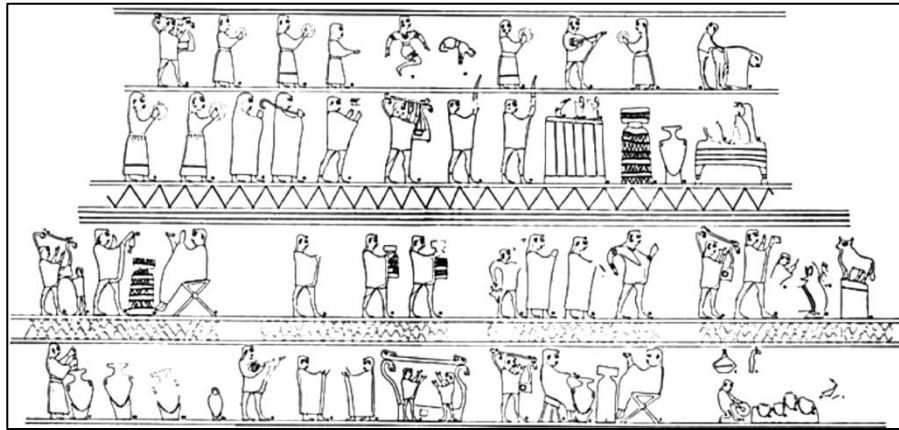


Figure 2.21. The four superimposed registers of the Inandik Vase (c.1600 BC) (drawing: <https://ar.pinterest.com/pin/524106475380549381/?lp=true>).

This object measures 82 cm high and 51 cm wide (Özgüç 1988: 84). The Inandik vase displays representations of ritual ceremonies in low relief on four superimposed registers surrounding the body and the neck of the vase. Özgüç (1988: 84-104) describes the registers in the following manner. The top register measures 10.5 cm high and depicts, from left to right, a procession of seven musicians: two men, one playing the harp while the other plays the lute; five women, of which four play the cymbals and one sings. There are also two acrobatic dancers and a couple having intercourse, a ritual scene which may be interpreted as the sacred marriage.

The second register of the vase measures 13 cm high and shows a procession on its way to a temple or shrine. The square figure with vertical bands may represent the entrance to such a building. Beyond the entrance, there is an altar, a torpedo amphora, and a piece of furniture, probably a bed on which two figures rest. There are six musicians in this register: four women playing the cymbals, while one man plays the lyre and another the lute.

The third register measures 13.5 cm and shows scenes of libation, offering, and sacrifice. The latter occurs in front of the statue of a bull. These solemn rites are evidently accompanied by music, specifically by a lyre player. Whether a young man on the left corner is helping the lyre player to hold the instrument or is actually playing the lyre is not clear.

The bottom register shows scenes of food preparation, probably beer or wine. Two figures dance to the music of the lute and the lyre. The lyre is of a considerable size and is played by two musicians at the same time. Another lyre player plays for two seated men who are drinking beer or wine, while on the right end, a figure organises and carries the amphorae (Özgüç 1988: 84-104).

It is evident that the reliefs on this vase do not show any wind instruments. This may indicate that aerophones were not used during these particular rites. It seems that the ceremonies illustrated on this vase have to do with the god of the storm because the bull is the usual representation of this divinity. The bull represents the main attribute of the Storm-god which, in principle symbolises male fertility (Brison 2014: 194). This may indicate that the musicians represented in the vase are accompanying marriage ceremonies and cultic sex (Collon 1993: 491).

The musical instruments represented in the vase, in particular, the chordophones (lyres) were prominent in Hittite cults; thus, as in Mesopotamia, such chordophones were sacred and evidently associated with some divinity, as evidenced in the representations of bulls common on seals dating to the Karum period (Kilmer 2006: 669). Hittite sources confirm the existence of an instrument of the goddess Inanna which seemingly was the lyre (Schuol 2004: 102-6). The lute, apart from being used in these rites, was also employed to accompany songs and acrobatic dancing, as well as funerary rites (ibid 2004: 206). This suggests that double pipes, as well as other aerophones, were mostly used in secular contexts as is shown in the Alaca Höyük and Carchemish reliefs (Figures 2.22 and 2.23, pp. 84-5) and thus pipes may not have had sexual connotations in the Hittite world.

The sphinx's gate at Alaca Höyük portrays the image of a Hittite king worshipping a bull. Bryce (2002: 188) describes that the relationship of the Hittites with their gods was like that of a king with his servants.⁷⁵ The Hittite official calendar incorporated up to hundred and sixty-five festivals (ibid).⁷⁶ It is very likely that scribes were responsible for the organisation of such events. They may have had the task of collecting all the necessary equipment, the sacrificial offerings, the foodstuffs for the banquet which included food for both the god and the worshippers (Bryce 2002: 61-2). Scribes certainly organised the programme for the musicians, entertainers, and athletic contests (ibid).

A particular relief located in the city of Alaca Höyük shows the use of aerophones in Hittite festivals (Figure 2.22, p. 84). This city is located about one

⁷⁵ According to Bryce (2002: 188), the great gods lived in magnificent temples with other subordinate gods who assisted them in their tasks. As humans, the gods had emotions thus understood love, hate, jealousy and fear. From time to time, they also indulged in earthly pleasures. Accounts of festivals held in honour of diverse divinities indicate that they enjoyed music, dance, and contests.

⁷⁶ Some festivals were held every year, while others were held every eight or nine years (Bryce 2002: 188).

hundred-and fifty-kilometres northeast of Ankara. The scene shows a sword swallower and some men with a ladder. One man is on the ladder, while the other observes what the man on the ladder is doing. Although it is not clear what the two men are doing, it is very likely that the ladder was part of some type of acrobatic act which evidently required such a tool to achieve height (Gurney 1994: 219-20). Figure 2.22 also shows a bagpiper being accompanied by a lutenist (Bryce 2002: 192). If this interpretation is correct, this image may be the earliest representation of a bagpiper and thus evidences the existence of this sophisticated aerophone as early as the second half of the 2nd millennium BC.



Figure 2.22. Orthostat panels of the Sphinx Gate, Alaca Höyük (photo: <https://funkystock.photoshelter.com/image/I0000MH4a.hEPmBw>).

According to Sachs (1940: 141), the origins of bagpipes are unknown. There is evidence, however, which attests to its use as early as the eighth century BC. Excavations at the ancient city of Susa (southwestern Iran) yielded two terracotta figurines of musicians that appear to be playing the bagpipes (Schlesinger 1910-11: 205; Morgan et al. 1900: Plate VIII).⁷⁷ Bagpipes are closely related to double-pipes instruments, in particular to the hornpipe (Baines 1960). Nevertheless, there is some ambiguity about their origins. On the other hand, with regards to the *aulos*, we can confidently say that the Hittites used it. Two orthostat reliefs, one from a small entrance near the King's Gate at Carchemish (Figure 2.23), and another from near the North Gate at Karatepe (Figure 2.24) depict *aulos* players. Both representations date from the Iron Age (c.1200 BC-550 BC).

⁷⁷ On the figurines Schlesinger (1910-11: 205) observed that 'the chaunter [*sic*], curved in the shape of a hook from the stock, is clearly visible, the bag under the arm is indicated, and the lips are pursed as if in the act of blowing, but the insufflation tube is absent; a round hole in one of the figures suggests its presence formerly.'

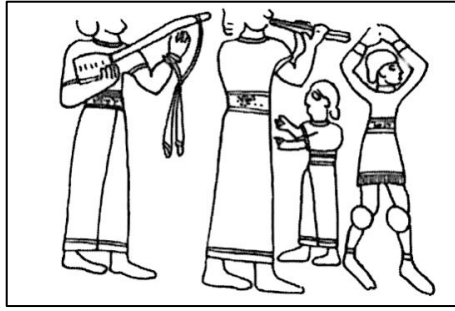


Figure 2.23. Orthostat relief from Carchemish, Ankara (c.1200-1000 BC) (drawing: Dumbrill 2005: 339, Plate 46).

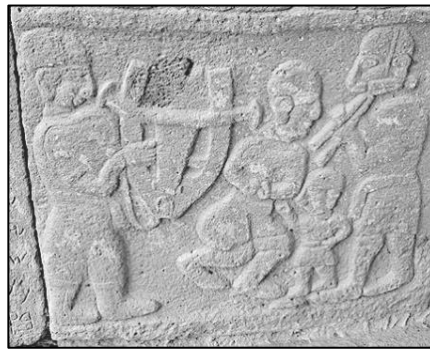


Figure 2.24. Orthostat relief from Karatepe (c.700 BC) (photo: <https://i.pinimg.com/736x/59/e1/da/59e1dae1f9b9dc4434822775733a97a7--rune-stones-adana.jpg>).

Figure 2.23 shows a group of four performers, specifically a lutenist, an *auletes*, a rattle player and a dancer. This type of set-up was probably common among the Hittites living in the Iron Age. This ensemble, in particular, seems to be playing at a festivity where instrumental performance is commonly accompanied by dancing. Moreover, the musicians do not seem to be part of a procession or a formal ritual. On the contrary, the context seems to be informal. Nevertheless, such festivities were commonly associated with some divinity. Figure 2.24 shows an *aulos* player wearing a mouth-band (*phorbeia*), two dancers and a lyre player. The context seems to be similar to Figure 2.23, namely an informal one. The Hittites also incorporated the *aulos* in their formal festivities, such as those organised by the royal court. The orthostats at the facade of Hilani IV in Zincirli, dating to the reign of the King Barrakib (c.732-711 BC) depicts the King and his courtiers along with a procession of musicians which includes an *auletes* (Figure 2.25, p. 86). The scene undoubtedly takes place in a palatial context in which the performers were court musicians (Gilibert 2011: 130-1). The seven performers are led by the *aulos* player whose melodies were undoubtedly pleasant to the King's ears. Musically speaking, the scene clearly shows a tripartite division, where the melody is played by the *aulos*, the accompaniment by

the lyres and the rhythm by the drums. However, one cannot ascertain the existence of polyphony, but definitely that of heterophony. The intention behind this representation may have been purely political, but undoubtedly strengthens Hittite identity and culture.

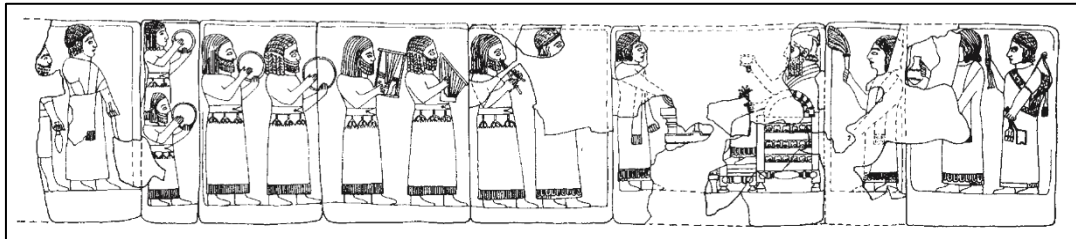


Figure 2.25. Orthostat from the facade of Hilani IV, Zincirli (c.732-711 BC) (drawing: Gilibert 2011: 131, Figure 64).

The scene shows that the *aulos* played a leading role in the ensemble, emphasising its importance and precedence over the other instruments. Whether the Hittites associated the *aulos* with a particular divinity or god is not clear, however, a statue of the Goddess Kubaba (Gk. Kybele) suggests that they did. The Bogasköy statue (Figure 2.26 p. 87), as it is known, shows the goddess with two musicians on each side, where one musician plays the double-pipes while the other plays the lyre. This suggests that the instruments chosen for her cult were probably the above mentioned.

Kubaba was a minor deity of the Hittite pantheon. She was the city goddess of Carchemish and most probably of Zincirli as well (Cornelius 2012). Her importance rose after the fall of Hattusa, namely in the neo-Hittite period (c.1200-700 BC), in the regions of northern Syria and south-eastern Anatolia (Roller 1999: 44). Her cult was adopted by the Phrygians, as well as the Lydians, where she was called Kybebe (Herodotus *Histories* Book V.102).⁷⁸ As a result of the interaction between the Aegean and the western coast of Anatolia, Kubaba's cult spread even further. The Greek world also worshipped her with the name Kybele or Cybele (Roberts 2005: 196). Her cult was also adopted by the Romans (Bryce 2002: 149). In contrast with the Greco-Roman cult of Kybele, in which the nature of the music was orgiastic and cathartic while the instruments of the cult were mainly the *aulos*, the *tibia*, drums and cymbals (Barker 1984: 15-7), it seems that the Hittites worshipped Kubaba in a restrained manner. This

⁷⁸ Hdt., pp. 352-3.

is reflected in the instruments used in her cult which were probably restricted to the double-pipes and the lyre (Roller 1999: 110).

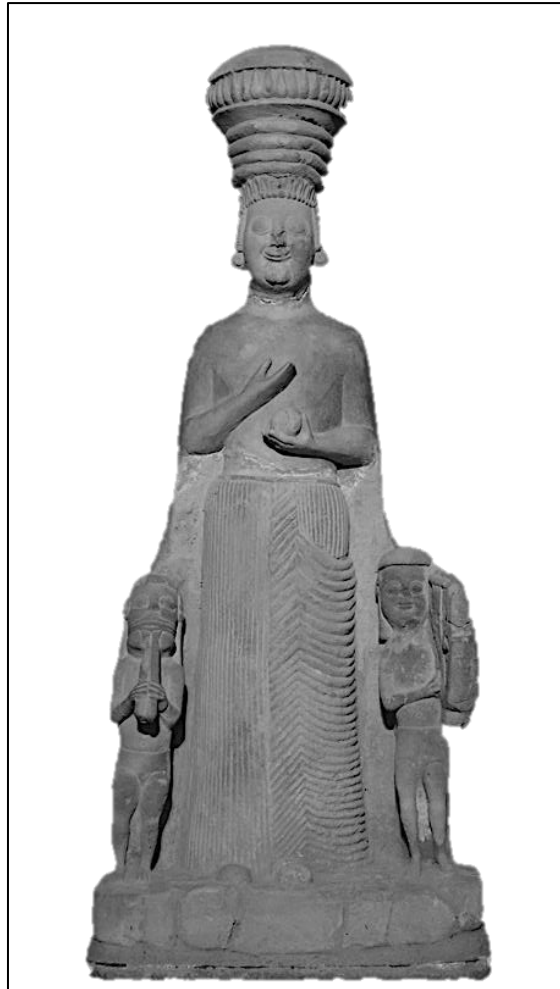


Figure 2.26. Bogasköy Kybele (photo: Roller 1999: 59, Figure 10).

2.9 Wind Instruments in Ancient Egypt

The existence of wind instruments in prehistoric times has been attested, particularly some types of flutes made out of bird or mammal bone dating back to at least 40,000 years ago (Morley 2013: 43-5). Current investigations do not reveal any Egyptian flute from prehistoric times. Nevertheless, this fact does not rule out their possible existence. The extreme fragility of the material out of which they were constructed, specifically *arundo donax*, may be one of the reasons why such artefacts have not been retrieved (Hickmann 1951). It is known that ancient Egyptians used horns to make utensils. Such utensils may have played a double role in the past namely that of producing sound besides their more mundane function. Totemistic cultures, such as

the Egyptian, often turned everyday utensils such as plates or pots into sound-producing devices (Farmer 1957: 256-8).

It goes without saying that music making was an everyday activity in ancient Egypt (Manniche 1991). The patron god of the arts was Ihy (Anderson 2001: 1). Music, however, was invented by Thoth, a god whose Greek equivalent was Hermes (Plutarch *De Iside et Osiride* 68).⁷⁹ Thoth was the god of writing and knowledge. He was the inventor of all the arts and sciences such as arithmetic, geometry, astronomy, soothsaying, magic, medicine, and music with wind and string instruments, to name a few (Viaud 1981: 27). Thoth was generally depicted in the form of two animals: the baboon (*Papio Cynocephalus*) and the ibis (*Threskiorn aethiopicus*) (Wilkinson 2008: 245). Figure 2.27 shows a baboon, probably the god Thoth, playing the double-pipes.



Figure 2.27. Monkey playing the double-pipes, a girl dances to the sound of the music, Louvre Museum E 25 309 (photo: https://www.flickr.com/photos/130870_040871/26279625432/in/photostream/).

Wind instruments were known to Egypt since predynastic times (Quibell and Green 1902: Plate XXVIII). It is believed that the art of manufacturing musical instruments in Egypt may have developed in tandem with totemistic beliefs (Farmer 1957: 256-8). This may explain why Egyptians attributed a divine origin to such devices. The god who probably invented musical instruments was Atum. The flute, however, was invented by Osiris but it was nevertheless associated with the god Amun (Viaud 1981: 16).

Three types of wind instruments were known to ancient Egyptians: the flute (*m3t*), the clarinet (*mmt*), and the oboe (*wdny*) (Lawergren 2001: 450). All of them

⁷⁹ *Plutarch's Morals*, translated from the Greek by several hands corrected and revised by William Watson Goodwin (Boston: Little, Brown, and Company, 1878), IV, 125.

belong to the category of cylindrical bore pipes (ibid). Some instruments consisted of two pipes. Parallel double-pipes (*mnt*), for instance, were commonly used in the Old Kingdom (c.2663-2160 BC), while divergent double-pipes (*wdny*) (Figure 2.28), such as the *aulos*, only emerged in the New Kingdom (c.1549-1069 BC) (Manniche 1991: 28; Anderson 2001: 2-3).

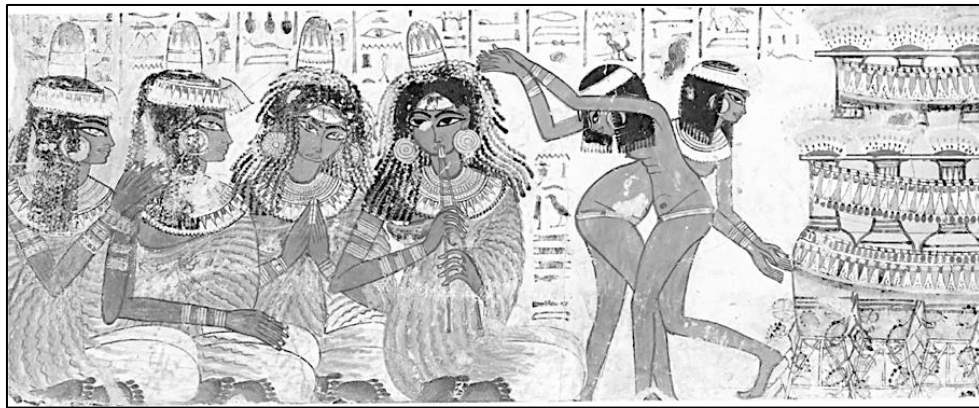


Figure 2.28. Wall-painting from the Theban tomb of Nebamun (detail), 18th Dynasty, c.1360 BC. The scene shows female musicians and dancers, including a *wdny* player, at a banquet (photo: Shaw and Nicholson 2008: 89).

Wind instruments were played in diverse contexts, ranging from private and public celebrations (such as rituals and festivals) to country activities (Emerit 2013: 9). Figure 2.29, for example, shows a fox playing the double-pipes while caring for his animals.

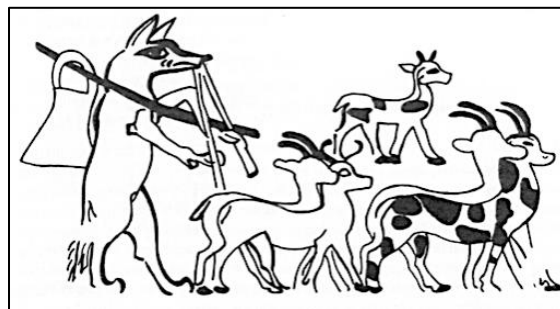


Figure 2.29. A fox looking after its flock; New Kingdom (The British Museum 10016) (drawing: Manniche 1991: 22, Figure 10).

The attitude of the fox is clearly based on everyday human actions. In some way, this attests to the existence of music repertoires meant for secular and sacred contexts. Nevertheless, another perhaps more cynical reading of this rather strange iconography is a form of secular lesson not to trust the enemy. The fox, like many wily

individuals plays sweet music to the flock in order to distract them from their likely fate at the hands of the same fox.

The fox also makes an appearance in one of the oldest evidences of aerophones from Egypt. The cosmetic palette known as the ‘two dog palette’ or ‘Oxford palette’ bears the representation of a fox playing the oblique flute or *m3t* (Figure 2.30). The figure (highlighted by the dashed line) may also represent a masked man because it has human-like fingers and toes, a belt, and a phallic case. The palette was found in the city of Hierakonpolis and dates back to the Nagada II, or III period (3500-3050 BC) (Quibell and Green 1902: Plate XXVIII). According to Hickmann (1949: 117-22), the oblique flute or *m3t* was an end-blown instrument. It consisted of a long tube of cane which measures between 60 to 90 cm in length and 1.5 to 2 cm in diameter. Due to its considerable length the tube was sometimes reinforced by means of one or two bronze rings (ibid). The instrument had between three to four finger holes located at the lower end (Manniche 1991: 28). Oblique flutes are the most characteristic aerophones of the Old Kingdom (Pérez Arroyo 2001: 168-9). They appear in the majority of the scenes represented in tombs and temples (ibid). Another ancient aerophone from Egypt is the double-clarinet or *mnt* whose first representation dates back to the end of the third or beginning of the 4th dynasty (c.2621-2547 BC) (Pérez Arroyo 2001: 184).



Figure 2.30. The Two-dog Palette, or the Oxford Palette (3500-3050 BC) (photo: <http://www.ashmolean.org/two-dog-palette>).

According to Hickmann (1949: 138-42), double-clarinets, that is, parallel double-pipes or *mnt* were most probably single-reed instruments. Their mouthpieces may have consisted of a piece of cane, covered on one side by the natural nodule, with a vibrating tongue in its centre. These aerophones had between four to six finger holes. Retrieved specimens measure between 25.1 to 31 cm in length (without mouthpieces) and range from 1.1 to 1.4 cm in diameter (ibid). These instruments resemble the modern *zummarah* and the *arghul*, an Egyptian aerophone which consists of two equal pipes lashed or waxed together (Conner 2001: 885). It should be noted that although the holes of both pipes appear to be completely alienated, they are not. This creates a dissonant effect when playing the notes, perhaps the most desired in ancient times. Another reason is that the pipes are not perfectly aligned. Through time the tubes evidently lost their original shape. One can see that the tubes are slightly bent as depicted in Figure 2.30 (Hickmann 1949: 138-42; Manniche 1991: 28-9).

Artefact 69837 (Figure 2.31) consists of two wooden cylindrical tubes. The front view shows a formed gap between the pipes which is filled with a layer of resin. Each tube has six finger holes. The length of the tubes is 31 cm, and both have a diameter of 1.2 cm (Hickmann 1949: 139-41). The wall thickness of the tubes is 0.2 cm. Little is known about this artefact (ibid). It was purchased by the Museum of Cairo and the date of its origin is unknown (Journal d'entrée du Musée No 27315) (Hickmann 1949: 141-2).

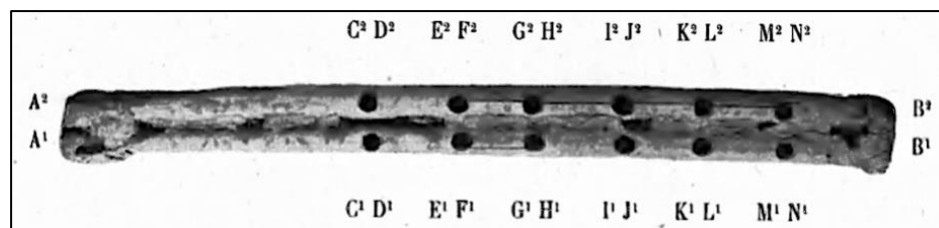


Figure 2.31. Artefact 69837 (detailed), the Museum of Egyptian Antiquities in Cairo, Egypt (photo: Hickmann 1949, Plate LXXXVI).

Pipe A1, as viewed from left to right, is characterised by the following measurements. These are the distances from the holes on the A1 side:

Table 1. (Hickmann 1949: 140).

• A1-C1: 11.4 cm
• A1-D1: 12.0 cm
• A1-E1: 14.7 cm
• A1-F1: 15.5 cm
• A1-G1: 17.5 cm
• A1-H1: 18.2 cm
• A1-I1: 20.8 cm
• A1-J1: 21.6 cm
• A1-K1: 23.7 cm
• A1-L1: 24.5 cm
• A1-M1: 26.8 cm
• A1-N1: 27.5 cm

Pipe A2, as viewed from left to right, diverges slightly in measurement so that the distances from the holes on the A2 side read:

Table 2. (Hickmann 1949: 140).

• A2-C2: 11.2 cm
• A2-D2: 11.8 cm
• A2-E2: 14.5 cm
• A2-F2: 15.2 cm
• A2-G2: 17.3 cm
• A2-H2: 18.0 cm
• A2-I2: 20.6 cm
• A2-J2: 21.4 cm
• A2-K2: 23.6 cm
• A2-L2: 24.53 cm
• A2-M2: 26.6 cm
• A2-N2: 27.3 cm

The measurements of the distances between the holes on pipe A1 and pipe A2 are the following:

Table 3. (Hickmann 1949: 140).

• D1-E1: 2.7 cm
• F1-G1: 2.0 cm
• H1-I1: 2.6 cm
• J1-K1: 2.1 cm
• L1-M1: 2.3 cm
• N1-B1: 3.5 cm
• D2-E2: 2.7 cm
• F2-G2: 2.1 cm
• H2-I2: 2.6 cm
• J2-K2: 2.2 cm
• L2-M2: 2.3 cm
• N2-B2: 3.7 cm

The diameters of the holes on pipe A1 and pipe A2 read as follows:

Table 4. (Hickmann 1949: 141).

• C1-D1: 0.6 cm
• E1-F1: 0.8 cm
• G1-H1: 0.7 cm
• I1-J1: 0.8 cm
• K1-L1: 0.8 cm
• M1-N1: 0.7 cm
• C2-D2: 0.6 cm
• E2-F2: 0.7 cm
• G2-H2: 0.7 cm
• I2-J2: 0.8 cm approx.
• K2-L2: 0.7 cm
• M2-N2: 0.7 cm

Double-oboes, that is, divergent double-pipes or *wdny* were made out of a single piece of cane. Figure 2.32 shows that such aerophones had few finger holes, normally around three to five. This may lead to the possibility that some were used to play melodies while others served as drones. Two pipes evidently complemented each other to produce the necessary number of notes to perform more sophisticated melodies.

Artefact 69821 (a) (Figure 2.32) consists of a long tube of cane with three finger holes. According to Hickmann (1949: 123), the tube has a length of 43.2 cm and a diameter of 0.9 cm to 1 cm. It has a wall thickness which varies from 0.5 to 1 cm (ibid). The provenance and date of the artefact is unknown, and it is kept at the Museum of Cairo. The tube presents traces of reed in its upper end which penetrates up to 1 cm inside the pipe (Hickmann (1949: 123). There is evidence that this piece of reed was longer and formed a true mouthpiece. The finger holes were made with a hot iron (ibid: 123-4).

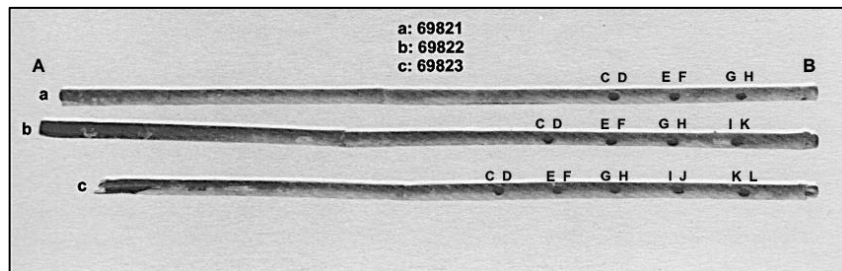


Figure 2.32. Divergent double-pipes; artefacts 69821 (a), 69822 (b), 69823 (c) (Hickmann 1949, Plate LXXXV).

The following table lists the artefact 69821 (a) distances from holes as viewed from left to right.

Table 5. (Hickmann 1949: 124).

• A-C: 31.3 cm
• A-D: 31.9 cm
• A-E: 34.7 cm
• A-F: 35.3 cm
• A-G: 38.5 cm
• A-H: 39.1 cm
• H-B: 4.1 cm

The following table lists the artefact 69821 (a) distances between the holes:

Table 6. (Hickmann 1949: 124).

• D-E: 2.8 cm
• F-G: 3.2 cm

The artefact 69821 (a) diameter of the holes is standard throughout:

Table 7. (Hickmann 1949: 124).

• 0.6 cm

Artefact 69822 (b) (Figure 2.32) also consists of a single tube of cane. According to Hickmann (1949: 124), this pipe has a length of 44.3 cm and the diameter of the pipe varies from 0.8 to 0.9 cm. It differs from artefact 69821 (a) in that it has four finger holes. The artefact also presents traces of reed in its upper end. Its origin and date are unknown (ibid).

The artefact 69822 (b) distances from holes as viewed from left to right read as follows:

Table 8. (Hickmann 1949: 124).

• A-C: 28.7 cm
• A-D: 29.3 cm
• A-E: 32.25 cm to 32.3 cm
• A-F: 32.85 cm to 32.9 cm
• A-G: 35.7 cm
• A-H: 36.3 cm to 36.4 cm
• A-I: 39.4 cm
• A-K: 40 cm
• K-B: 4.3 cm

The following is a list of the artefact 69822 (b) distances between the holes:

Table 9. (Hickmann 1949: 124).

• D-E: 3 cm
• F-G: 2.8 cm to 2.9 cm
• H-I: 3 cm

Once again, the artefact 69822 (b) diameter of the holes is standard:

Table 10. (Hickmann 1949: 124).

• 0.6 cm

Artefact 69823 (c) (Figure 2.32) consists of a single tube of cane. This instrument has five finger holes. It is damaged in its upper end thus does not present traces of reed. According to Hickmann (1949: 124-5), the tube has a length of 41 cm and a diameter which varies from 0.9 to 1 cm. It has a wall thickness of 0.1 cm in places where there is no growth node (ibid). The provenance and date of the artefact is unknown (Hickmann (1949: 124-5).

The artefact 69823 (c) distances of holes from right to left as viewed from the bottom read as follows:

Table 11. (Hickmann 1949: 125).

• B-L: 3.9 cm
• B-K: 4.55 cm
• B-J: 7.6 cm
• B-I: 8.3 cm
• B-H: 11.2 cm
• B-G: 11.9 cm
• B-F: 14.5 cm
• B-E: 15.1 cm
• B-D: 17.8 cm
• B-C: 18.5 cm

The artefact 69823 (c) distances between holes are the following:

Table 12. (Hickmann 1949: 125).

• K-J: 3.05 cm
• H-I: 2.9 cm
• F-G: 2.6 cm
• D-E: 2.7 cm

The artefact 69823 (c) diameter of the holes is not standard. The following table lists the diameters as viewed from right to left:

Table 13. (Hickmann 1949: 125).

• K-L: 0.55 cm
• I-J: 0.7 cm
• G-H: 0.7 cm
• E-F: 0.6 cm
• C-D: 0.7 cm

Conclusion

It is evident that the practice of using hollow bones so as to make flutes or pipes is very ancient, with some scholars sustaining that this practice can be traced back to Neanderthal times (e.g. Turk 1997; Fink 1997, 2000; Otte 2000). Thus, we may say that it is highly possible that this species transmitted that knowledge to us (*Homo sapiens*) probably during the period of time in which both species coexisted, a process which we may label acculturation. Although this is difficult to prove, the scenario is reasonably viable. Neanderthals and *Homo sapiens* shared the earth for a number of thousands of years, specifically during the Middle/Upper Palaeolithic transition (c.45,000-30,000 years ago) until Neanderthals died out around 30,000 years ago (Pettitt 2005: 126), a period which is long enough for some sort of acculturation to take place.

Once early man discovered how to reproduce sounds on hollow and semi-hollow tubes, it can be reasonably argued that the next step was the practice of adding finger holes to that same tube. However, before taking that step, primitive man probably used tubes where, in order to produce different sounds, one end was covered by the palm of the hand. This practice allowed the performer to produce sonorous

effects specifically by covering or uncovering certain areas of the end of the tube. Archaeological excavations have yielded a number of hollow bone tubes which possibly served as sound producing devices used in such a manner (Morley 2013). Since there are no holes in these tubes, the task of ascribing music functionality to such objects is challenging, suggesting the possibility that certain artefacts may have been misinterpreted or overinterpreted.

Early Neolithic communities developed independently in different parts of the world (Haywood et al. 1998). The establishment of agricultural communities in China occurred between the eighth and seventh millennium BC (Higham 2005: 235). Although the Jiahu site, associated with the Peiligang culture, has produced the earliest evidence for cultivated rice, its occupation dates to 6500 BC (ibid: 239), and thus later. The Jiahu's pipes (9000-7600 BP) may therefore belong to an earlier period and not specifically to the Neolithic. However, the site has yielded a number of objects attesting to a high cultural development, including the earliest evidence of a written script in China (Higham 2005: 558). Therefore, it is very likely that early attempts at music literacy were undertaken in this place. These may have been directly associated with ancient Chinese language.

Archaeological evidence attests that during the Neolithic period, people changed their lifestyle from a nomadic existence to a sedentary one (Foster 2007: 16). This change involved less time expenditure on hunting activities, such as tracking animals (ibid). Thus, Neolithic man was able to spend more time experimenting with new techniques and materials for the manufacture of utensils, including musical instruments (Foster 2007). The clay whistle from Yarim Tepe (c.6470-5000 BC) (Merpert and Munchajev 1971: 9-22) is the stereotypical evidence of such a social change and Neolithic innovation which attests to the creativity and ability of transforming materials into a desired object that was not strictly utilitarian. This change hints at a cultural revolution where the human being began searching for things beyond the mundane to those of emotional and artistic value.

In a similar argument, the number of bone pipes discovered in Mesopotamia, specifically at Tepe Gawra in modern day Iraq (Tobler 1950: 214-5), attests to the improvement of old artisanship in the use of such material. The practice of making such innovative bone aerophones may have started prior to the seventh millennium BC (ibid). The pipes bearing V-shaped incised patterns as decorations suggest possible musical exchanges with certain cultures of Anatolia. For example, the decorations

found on an Anatolian bone pipe from Arslantepe (3800-3400 BC) (Frangipane 2004: 180) seem to echo Tepe Gawra's traditions in the choice of decoration and possible functionality where the V-shaped incisions may serve as grips for the performer's fingers.

In early agricultural centres, such as the Sinjar valley in northwest Iraq, cultural contacts between Mesopotamia, Syria and the Mediterranean permitted the exchange of ideas as well as commodities (Watkins 2005: 232; Potts 1994). Thus, the common elements found on bone pipes from different regions imply shared ideas with regional specifications varying according to each unique culture.

The land of Anatolia in modern day Turkey has long evoked the temporal continuum of its past and materiality through its paintings and artefacts. Anatolia was an auspicious place for trade and cultural exchanges (Michel 2011: 317). Its natural resources caught the attention of neighbouring peoples at a very early stage (ibid). The music-related practices of Anatolia trespass their own historical provenance in the sense that they are reflected and echoed in later periods. The vestiges of ancient practices reappear in later cultures, as these may have survived in the oral tradition. Certain materials or utensils associated with particular activities remain in the collective memory, thus denoting identity and a sense of belonging.

The Hellenes (Greeks), for instance, may have been aware that the *aulos* came from Anatolia, and it may be for this reason that the instrument was kept in a bag made out of leopard skin (Bundrick 2005: 35). This material recalls the association of the *aulos* with the Phrygian goddess Kybele, who is often depicted with two leopards on each side, while also denoting the prestige of the instrument itself (Guirand 1981: 150). It is thus clear that the *aulos* did not belong to a single culture but to several. The diverse cultures which contributed to the different aspects of the *aulos* developed their own instruments, such as the Phrygian *aulos* and the Roman *tibia*.

The commercial exchanges between Anatolia, Mesopotamia, and Syria (Postgate 1994: 211-6) greatly contributed to the different aspects of the double-pipes, for instance, in the use of different materials for its construction. The choice of materials depended mainly on the wealth of the culture where it was used. Instead of bone and ivory, precious materials such as silver was also used, although the use of grey limestone for making mouthpieces is anterior to the use of metals (Woolley 1934: 258-9; Mallowan and Rose 1935: 103). These materials were undoubtedly imported and expensive, a reason why certain hierarchies, such as the one of Ur in

Mesopotamia, used them as a symbol of their economic power (Woolley 1934: 258-9).

The popularity of particular aerophones may have assured their survival to later historical periods. The *aulos* was undoubtedly a very popular instrument (Comotti 1989: 67), while bone pipes were prolific in prehistory (Morley 2013), perhaps because as an instrument, it was easy to carry around from place to place. The fact that people travelled constantly from one place to another made pipes a very utilitarian instrument to carry around and to hide beneath their clothes. Bone pipes and particularly the *aulos* was generally used in religious festivals, and much of their popularity resulted from such cultic ceremonies which were rapidly attracting more people in different places.

Nevertheless, the meaning given to both instruments depended very much on each culture. The Hittites, for example, used the *aulos* in formal contexts particularly in those organised by the hierarchy (Gilibert 2011: 130-1). This instrument played a major role in these events, where *aulos* players led processions (Figure 2.25 on p. 86). It should be noted that double pipes can be both very noisy and mellow instruments. An aerophone of such characteristics may produce diverse effects on the audience, as well as on the environment in which it is played. The professionalism of the performer may have been crucial, as a number of techniques, which we do not know anything about, may have been necessary. The best-known technique is the circular breathing technique, which was probably not used at all times but according to the musical genre suitable for the occasion.

During the Bronze Age and earlier, the Aegean Sea and its islands maintained constant communication not only between each other but also with the East and the West of Europe (Barber 1987: 17). Consequently, it cannot be ascertained that the practice of playing two pipes simultaneously began in the Aegean Sea. The practice may have been copied from a neighbouring state, but apart from the Mesopotamian silver pipes of Ur, similar figures or instruments dating from earlier or contemporary periods have not been found in the west (mainland Greece) or in the east (Asia Minor). Moreover, with the silver pipes of Ur, it is not clear that the pipes were played together. What is clear is that the earliest representation of an *aulos* player that we have was produced in the Aegean, specifically in the early Bronze Age. It remains, to date, one of a kind.

The act of devoting one section of this study to the wind instruments of ancient Egypt finds its *raison d'être* in the fact that their assemblage provides a clear picture of their manufacture in antiquity, providing precise measurements and therefore a possibility for such instruments to be reconstructed today. In this study, the focus lies mainly on parallel and divergent double-pipes.

Parallel double-pipes such as the ancient double-clarinet *mnt* is a single-reed instrument (Hickmann 1949: 138-42). The mouthpieces of the *mnt* were similar to the ones found in the Sardinian *launeddas*, and the Egyptian *arghul* (ibid). This type of mouthpiece, known as the single, beating, or simple reed, consists of a piece of cane plugged on one end. The tongue lies in the middle of one of the sides of the cane, and consists of a cut section on three sides that vibrates when air is blown through the cane.⁸⁰ The first evidence of the double-clarinet or *mnt* consists of a statuette that dates back to the 3rd or 4th Dynasty (Hickmann 1951). After this date, the iconography that follows belongs to the Old kingdom, mostly showing male musicians playing double-clarinets and accompanying singers (see Manniche 1991: 29 fig.14).

Divergent double-pipes, on the other hand, appeared at a later date in Egypt. Thus, one can suggest that the instrument may have been introduced from a distant land and may have become particularly prolific with the arrival of the Greek dynasty of the Ptolemies (332-30 BC) (Anderson 2001: 1). It is believed that divergent double-pipes, that is, the *wdny* or oboes were introduced into Egypt via Mesopotamia, specifically from the Sumerian city of Ur in the beginning of the New Kingdom (c.1549-1069 BC) (Manniche 1991: 48). One cannot say, however, that Egyptian divergent double-pipes are similar to the Greek *aulos*. Neither can one claim that these were manufactured in the same way. The Egyptian divergent double-pipes seem to be less sophisticated. As a matter of fact, these are made out of a piece of cane and it seems that this way of manufacturing them continued during the Ptolemaic period. The *wdny* was mainly played by female performers and was popular during banquets as the *aulos* (Manniche 1991: 48). The aerophone most probably had a double-reed for a mouthpiece (Hickmann 1949: 124).

Apart from playing the *wdny*, ancient Egyptians also used sophisticated Greek *auloi* and Roman *tibiae* which they imported from their respective sources. Egyptians

⁸⁰ This information was provided by the *launeddas* maker Mr Pitano Perra, who I interviewed in Sardinia in January 2017. The same information was corroborated by the *arghul* players Mr Amin Arghouli and Mahmoud Abdel Hady, who I interviewed in Egypt in September 2018.

musicians played the double-pipes during processions, particularly at the Festival of Dionysus, that is, the Egyptian Osiris, where it was believed that the aerophone was invented by Osiris himself. According to Herodotus (Book II.48), the role of double-pipe players was to lead a procession of women who carried puppets with prominent genitals around the villages. *Auletai* or *wdny* players also led the singing of these women who sang hymns to Osiris during the procession.⁸¹ These practices were also common in Greece, particularly during classical antiquity. They are relevant to this study because the *aulos* played an important role in such ceremonies. For this reason, apart from further exploring the development of the *aulos* in classical antiquity, the next chapter examines these practices at length.

⁸¹ Hdt., pp. 115-6.

CHAPTER III: THE AULOS OF CLASSICAL ANTIQUITY

(c.1000 BC-AD 395)⁸²

This chapter consists of five sections: section one provides a definition of the term classical antiquity and elaborates on what this encompasses. Section two stresses the importance of Homer's narratives, particularly when these are compared with the archaeological record, as they offer interesting comparisons and contrasts. It underscores the historical musical value of certain passages from the *Iliad*. This section analyses the introduction of the *aulos* into mainland Greece and provides parallels between pictorial representations and the *aulos*' possible role in society. It also makes reference to the acoustic attributes of the *aulos* and mentions particular types of *auloi*, such as the *gingras*, exploring the implications of this instrument.

Section three analyses the contexts in which the *aulos* was played, which include sacrificial ceremonies, contests, the symposion, and others. Section four attempts to show how social processes, such as acculturation, diffusion, and syncretism had an effect on the development of the *aulos*.

3.1 Classical Antiquity

The term Classical Antiquity encompasses an extended period of cultural history. This historical period begins with the rise of the Greek city-states (c.1000 BC) and ends with the death of the Emperor Theodosius I (c.AD 395)—an event that led to the splitting of the Roman Empire into two, namely, the Eastern and Western Empire (Cameron 1993: 1-11).⁸³ It is worth noting that Classical Antiquity is preceded by the

⁸² BC: before Christ; AD: anno Domini (= in the year of our Lord).

⁸³ 'The Greek *polis*, or city-state was a political formation that sprang during the Archaic period (750-480 BC). The *polis* was an autonomous unit that embraced both a central urban settlement and its rural hinterland. Its people were bound together not only to political ties, but by economic and religious links as well; full members of this community (free-born males) possessed the status of citizen. Not all parts of Greece followed this developmental path, but Greek or Greek influenced city-states would ultimately be established over a vast domain, stretching from the western Mediterranean to the eastern reaches of the Black Sea' (Alcock and Cherry 2005: 486). Theodosius I 'the Great' was born in c. AD 346. He was the last Roman Emperor to rule over both the eastern and western parts of the Empire. First, as a *magister militum* (head of the soldiers) and after as Augustus (imperial title) of the eastern parts, he conducted campaigns against the Goths. Failing to eject the Goths from the empire, he signed a treaty with them, recognising the Goths as federates. He also signed a treaty with the Persians in AD 386. After defeating the usurpers Maximus and Eugenius, Theodosius died in Milan in January 395. He was succeeded by his sons Arcadius and Honorius in the east and west respectively (Roberts 2005: 751-2).

collapse of the Mycenaean culture (c.1200 BC) and that Classical Antiquity itself includes the so-called Greek 'Dark' Age (c.1000-750 BC) (Cartledge 2011: 20).

The Mycenaean culture (c.1490-1200 BC) developed in mainland Greece, specifically in the region of the Peloponnese. The remnants of this civilisation, in particular its fortified citadels, are located in the northeast corner of the peninsula. Scholars have attempted to link this site with Homer's *Iliad*, but this is not self-evident (Arnott 1972: 23-4). It can be said that Mycenae was a kingdom of undetermined boundaries because palaces of Mycenaean style can be found in different places, such as Tiryns (Mycenae), Pylos (south-central Peloponnese), Menelaion (near Sparta) and Thebes (Boeotia) (Alcock and Cherry 2005: 485). The causes that led to the collapse of this civilisation are not clear. Scholars have suggested a possible invasion by the Dorians, and raids by the so-called 'Sea Peoples' (ibid: 486).⁸⁴ According to Renfrew (1979: 481-9), the causes may have been simpler and most likely associated with local issues, such as crop failure and internal warfare.

3.2 Homer, the Light Bearer in Dark Times

The end of the Mycenaean civilisation marks the beginning of the Greek 'Dark' Age (c.1000-750 BC). This period is strictly dark to us because of a complete absence of written records. Apart from Cyprus, where a descendant of Linear B, the Mycenaean Greek language script, continued to be used, the use of writing apparently ceased (Cartledge 2011: 20). As a consequence, the assumptions presented in this section are based on later literary sources and on music-related scenes depicted on vases, mainly on those dating from the Geometric period (c.1100-700 BC). This phase of Greek art, characterised by representations of animals, geometric patterns, and schematic figures, along with later literary sources are, to a certain extent, our window into the Greek 'Dark' Age (Pedley 2007: 105-23).

According to Barker (1984: 18-32), the 'Dark' Age was the time of the epic singer or bard. This entertainer, apart from being a professional singer, was also a storyteller or minstrel who accompanied himself with a *phorminx*, that is, a lyre (Grout

⁸⁴ The Dorians were the people who spoke Doric Greek in the southeast and northeast Peloponnese (Sparta, Argos, Corinth, Megara), in the south Aegean (Melos, Crete, Rhodes, Cos), and on the mainland (Cnidus, Halicarnassus) (Roberts 2005: 238). The Sea Peoples were 'immigrants of uncertain origin. They may have included elements from Libya, the northern Aegean, Asia Minor, and even Sardinia. They raided widely around the eastern Mediterranean, as far south as Egypt, in about 1200 BC' (Haywood et al. 1998: 1.41).

2006: 11-13). The absence of written material could itself be linked to this phenomenon where the oral tradition passed from one generation to another encouraged the assumption that written material was not necessary in order to transmit knowledge from father to son. It is not known exactly when and where this music-literary tradition started, however we can assume that it is very ancient. Between the years 1974 and 1975, a corpus of more than fifteen thousand cuneiform texts was discovered at Ebla, an ancient Mesopotamian city located in what is now modern Tell Mardikh, in the northern Syrian Plateau between Hama and Aleppo (Pettinato 1976: 44-52). This corpus, known as the royal archives of Ebla, implies that this type of entertainment was practised as early as 3000 BC (Tonietti 2010: 67-86). In any case, this art was certainly practised during Homer's times and his epics were narrated in this fashion (West 1992: 24). Homer's narratives are relevant to our study because they bring us closer to distant times, such as the Greek 'Dark' Age. Moreover, these may give us a glimpse of the musical practices of the Mycenaeans and probably their predecessors, the Minoans, protagonists of a Bronze Age civilization that developed in the island of Crete c.3500-1100 BC (Roberts 2005: 477).

The nature of Homer's works, such as the *Odyssey* and the *Iliad*, is partly mythological and partly historical, so one could deduce that these were orally transmitted (Jablonka 2011: 724). On the whole, the epics recount stories and past events which probably took place during Mycenaean times, namely during the Late Bronze Age when this civilization was at its peak (Lactaz 2004: 216-48). Consequently, we may say that these preserve memories, poetry, and music traditions from an era prior to 750 BC (the date in which the *Iliad* was probably written). For this reason, Homer's narratives offer interesting comparisons to the archaeological record. Such comparisons can be used for the understanding of past musical practices. For example, geometric vases may represent similar narratives to Homer's epics, where iconographical sources may function as texts and therefore be read (Bundrick 2005: 3).

Nevertheless, like written sources, images may also recount fictional occurrences. Thus, such material may require further analysis and be complemented by other types of sources. Figure 3.1, for instance, shows a bard entertaining during some sort of celebration. The representation dates back to the mid-eighth century BC, therefore showing one possible way in which bards provided entertainment during the late Greek 'Dark' Age. Whether the individuals on each side are picking some sort of

fruit or extracting its juice is not clear. In any case, the scene recalls the following passage from the *Iliad* (Book XVIII lines 567-572).⁸⁵

Girls and cheerful boys were carrying the honey-sweet fruit in woven baskets, and in their midst of them a boy played lovely music on his clear-sounding phorminx [lyre] and sang the beautiful Linos song in a piping voice. The others followed him, stamping in unison, skipping on their feet with singing and joyful shouts (cited from Barker 1984: 23 no 7).



Figure 3.1. Attic geometric oinochoe, mid-eighth century BC, National Archaeological Museum, Athens. A seated phorminx player between two seated persons whose activity remains unclear (photo: Riethmüller and Zaminer 1989: 127).

The *aulos* may have been introduced into mainland Greece during the eighth century BC (West 1992: 82). Although it is not possible to know with exactitude who introduced it, scholars (e.g. Comotti 1989; West 1992; Mathiesen 1999) assume that the instrument was brought to the mainland by people from Asia Minor, probably by the Phrygians, an Indo-European people who inhabited central Anatolia. However, it is clear that the earliest representation of the *aulos* was found in the Aegean, specifically in the island of Keros. This artefact consists of a marble figurine which dates back to the Early Cycladic Period II, c.2800-2300 BC (Figure 2.20 p. 63). According to West (1992: 330), ‘from at least the fifth century [BC] the Greeks believed that they owed the introduction of *aulos* music to a Phrygian or Mysian piper called Olympus, a semi-legendary figure who had learned his art from the *satyr* Marsyas’.⁸⁶ Like Homer’s works, this story is part myth and part history, so one can

⁸⁵ Barker 1984: 23 no. 7.

⁸⁶ The real origin of Olympus is uncertain. Whether he was Mysian or Phrygian is not known, but he was certainly from Asia minor. Olympus was an *auletes* and a composer who flourished in c.700 BC.

deduce that it lived in the oral tradition. One can also say that people did not know exactly who brought the *aulos* to the mainland and that several stories were made up regarding it. It is possible and feasible that the *aulos* was introduced and re-introduced in different areas of the mainland by different people at diverse points in time. A music-related image from the Aegean dating from the Geometric period, specifically from the late eighth century BC, shows how the *aulos* was used during the Greek 'Dark' Age (c.1000-750 BC) (Figure 3.2).



Figure 3.2. A scene from an Aegean geometric hydria, late eighth century BC, Antikenmuseum, Staatliche Museen Preußischer Kulturbesitz, Berlin. (Above) a procession consisting of an *auletes*, a *phorminx* player, and nine women holding palm branches. (Below) an *auletes* leads a procession of twelve men, who are probably armed soldiers (photo: Riethmüller and Zaminer 1989: 131).

This depiction may be considered a composite scene because it can be divided into two registers. The upper register shows a procession consisting of an *auletes* (male *aulos* player), a male *phorminx* player, and nine women holding palm branches.⁸⁷ Remarkably, the *aulos* player is leading the procession. The context in which this activity is carried out is unknown, however the presence of certain elements in the scene suggests three possible scenarios.

To him is attributed the introduction of instrumental music and the *auletic nomoi* (solo pieces for the *aulos*) into mainland Greece. Such contribution incorporated the *aulos* in most Greek activities (Anderson and Mathiesen 2001: 402-3). The silenus or satyr Marsyas invented or found the *aulos* after Athena cast it away. According to Athena, playing the *aulos* disfigured her face. Marsyas challenged Apollo to a musical contest between the *aulos* and the lyre. Marsyas lost and was suspended from a tree and flayed alive by Apollo (Dowden 2012: 904). It is also believed that the *aulos* was invented by the Phrygian father of the satyr Marsyas (Wallace 2003: 79).

⁸⁷ The *phorminx* was a string instrument consisting of a semi-circular box with perpendicular arms. The instrument may have had three, four, or seven strings. By the seventh century BC, the instrument developed into early forms of *kithara* (Barker 1984: 14; Comotti 1989: 61).

Firstly, the symbol of the palm branch is very common in Near Eastern representations. In ancient Mesopotamia, for instance, the palm tree and its fruits were considered sacred and associated with fertility rites (Sjöberg 1988). As a matter of fact, the Goddess Inanna, that is, the Sumerian goddess of love, fertility, procreation, and war was ‘the one who makes the dates be full of abundance in their panicles’ (Sjöberg 1988: 169). In light of this information, we may say that the upper register scene recounts some sort of rite of passage, most likely a sacred female sexual initiation ceremony.

Secondly, the meaning of the use of palm branches may be associated with the cult of the sacred tree, a rite which extended throughout the Near East and Anatolia (Belli 1982; Giovino 2007). The ‘Nimrud jewel’—a pendant with a gold chain—has an engraving of an *aulos* and lyre player on either side of a tree (Figure 3.3).



Figure 3.3. The Nimrud jewel, around seventh century BC. The scene shows two musicians, one on each side of a tree. One musician plays the lyre, while the other plays the double-pipes (photo: Mallowan 1966: 114, Figure 58).

The scene may be interpreted as a ritual in which the musicians help the tree to grow and produce fruit (Mallowan 1966). The pendant was found in room DD of the Northwest Palace in Nimrud (Nineveh), specifically in a grave belonging to an Assyrian princess.⁸⁸ The artefact dates back to Esarhaddon’s period (681-669 BC) and

⁸⁸ Nimrud is an archaeological site located in northern Iraq, on the east bank of the Tigris River, southeast of Mosul. In Assyrian texts the city is known as Kalhu. It is also known as the Neo-Assyrian capital. Nimrud was occupied since prehistoric times, in periods such as the Halaf and Ubaid. This city was destroyed by the Medes (Curtis 1997: 141-4).

consists of an oval pendant of pale mauve chalcedony which measures 22x12 mm (Mallowan 1966: 114-15).⁸⁹

Thirdly, the palm branch was used as a symbol of victory in competitions and musical contests. It was given to successful competitors, such as athletes and performers, to carry in the hand (Tarbell 1908: 264). According to Plutarch (*Quaestiones Convivales* Book VIII. 4.3), the palm branch (Lat. *spadix*) was associated with the Delian games of Theseus which were celebrated at the Panegyris (great celebratory gathering) on the island of Delos in the Aegean (Schmitz 2008: 610-1).⁹⁰

In light of this information, one may suggest the following reading of Figure 3.2. The lower register shows an *auletes* leading a procession of twelve men, who are probably armed soldiers. If one considers both scenes, namely the upper and the lower registers as a whole, the scene recalls the story of Theseus and the Minotaur, where Athens was forced to pay a tribute of seven young girls and seven young boys to King Minos (Plutarch *Vitae Parallelae*—Theseus).⁹¹ The young were used as food to feed the Minotaur, a creature who was half human half bull and that lived in a labyrinth in the Cretan palace. So as to put an end to the sacrifices of young Athenians, Theseus, the Greek hero, volunteered as one of the sacrifices. Theseus knew that he could kill the creature but not escape from the labyrinth. Ariadne, the Cretan princess, helped Theseus to overcome the Minotaur and find his way out of the labyrinth by giving him a ball of thread (Plutarch *Vitae Parallelae*—Theseus 15-19).⁹² Whether or not the image and the myth are linked is not clear. However, what is evident is that the number of individuals depicted in the image differs to the one stated by Plutarch. Whereas Plutarch speaks of seven boys and seven girls, the image shows nine girls and twelve boys. Nevertheless, one has to keep in mind that such legends were transmitted by

⁸⁹ Esarhaddon was one of the Kings of the Assyrian Empire (1420-609 BC) who rebuilt Babylon and gained the trust of the Babylonian army. He overcame revolts in Babylon and border conflicts with Egypt and Elam. After him, the kingdom began to crumble under pressure from the Babylonians (Bancroft Hunt 2004: 99). The cult of the sacred tree is still carried out by Christian farmers in the region of Mosul, northern Iraq (Mallowan 1966: 114-5).

⁹⁰ Plutarch, *Plutarch's Morals*, translated from the Greek by several hands corrected and revised by William Watson Goodwin (Boston: Little, Brown, and Company, 1878), III, 413 (Hereafter, *Quaest. conv.*).

⁹¹ Minos was a mythical king of Crete. He lived three generations before the Trojan war. Minos was the son of Zeus and Europa. The Minoan civilization is named after him (Roberts 2005: 477-8).

⁹² Plutarch, *Plutarch's Lives*, trans. by Bernadotte Perrin, 11 vols., Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press, 1959), I, 29-41 (Hereafter, *Plut. Vit.*).

word of mouth, where the story may vary with each re-telling. It is clear that this element needs further exploration. What is remarkable is that both scenes depict an *aulos* player guiding a procession of people. This shows that music was an essential element in different types of rituals, such as processions, and sacrificial ceremonies during the Greek 'Dark' Age (c.1000-750 BC).

Despite the fact that there is a considerable number of texts which provide information on the *aulos*, it seems at this point necessary to underscore the musical historical value of certain passages from the *Iliad* (c.750 BC). A number of lines inform us that the *aulos* was used in Anatolia, specifically by the Trojans (*Iliad* Book X lines 1-13).⁹³

All the night long the captains of the Greeks [Achaeans] Slept at the ships, and pleasant was their sleep, — save only Agamemnon, Atreus' son, The shepherd of the people. Not to him — Vexed with a thousand cares — came gentle sleep. As when the husband of the light-haired queen Of heaven sends forth his thunders, ushering in Some wide-involving shower,— rain, hail, or snow Whitening the fields,— or opening o'er some land The ravenous jaws of unrelenting war,— So frequent were the groans which from his heart Atrides uttered ; for within his breast His heart was troubled. Looking toward the plain Of Troy, he wondered at the many fires Blazing before the city, and the sound Of flutes [*auloi*] and fifes [*syringes*], and tumult of the crowd (Cullen Bryant 1870: 251-2).

In view of the above, one may suggest that the musical instrument which best represented Trojan idiosyncrasy was the *aulos*. To some extent, this is shown in the *Iliad*, where *syringes* are also part of the musical scene.⁹⁴ The *Iliad*—an epic which consists of twenty-four books—narrates the confrontation between two different peoples, Trojans and Greeks, but it is not clear whether the Trojans were Greeks. According to Hall (1997: 44), the fact that both states offer sacrifices to the same gods

⁹³ Homer, *The Iliad*, trans. by William Cullen Bryant, 2 vols in 1 (Boston and New York: Houghton Mifflin Company the Riverside Press, 1870), I, 251-2 (Hereafter, Hm. *Il.*). See also Homer, *The Iliad*, trans. by Augustus Taber Murray, Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press, 1946), I, 436.

⁹⁴ The term *syringes* (sing. *syrinx*, that is, whistle) may refer to panpipes or to a part of the *aulos*. However, considering the date in which the *Iliad* was written (750 BC), the term most probably refers to panpipes rather than to a mechanical feature of the *aulos*. This feature consisted of a small hole located in the upper part of the aerophone. The *auletes* operated the aperture and the closing of this hole through a mechanism, most probably a ring. By opening it, the performer was able to reproduce high-pitched sounds. It is adventurous to assume that such improvements on the *aulos* occurred before that date. For more information on the *syrinx* see Howard 1893: 32-5.

suggests that they were. However, Mackie (1996: 161-5) recognises two-different speech cultures in the epic, that is, the Achaean (the Greek) and the Trojan. She affirms that the Achaean language is associated with public, political, and aggressive speech, while the Trojan is introspective, private, and poetic (ibid). This observation may serve to hypothesise on certain aspects of Anatolian music, as Troy itself was located in the west coast of Anatolia, and particularly on how this relates to the *aulos*, as, in some way, the language mirrors the music demands of a particular culture. For example, the cult of the goddess Kubaba (Gk. Kybele) in Anatolia may have been celebrated in a more restrained manner than in Greece or Rome. Although the cult was the same, the choice of musical instruments for the celebration of the goddess seems to have varied from one place to another. It is known that both Greeks and Romans worshipped the goddess with music played on the *aulos* and percussion instruments (Comotti 1989: 54). In Anatolia, probably this was not the case. A statue discovered in central Anatolia portrays the goddess flanked by two musicians, where one is playing the *aulos* while the other plays the lyre. The statue is known as the Bogasköy Kybele and dates back to the sixth century BC (Figure 2.26 p. 70). In a manner, the use of the lyre mirrors the introspective, private, and poetic language of the Trojans in Homer's *Iliad*. The use of the *aulos* along with the lyre reflects a musical source that is far less exuberant and loud than the *aulos* accompanied by percussion instruments.

The site which has been identified as Troy or Illios (modern Hisarlik) is located in the west coast of Anatolia, specifically on the Asiatic area of the Dardanelles. Evidently, scholars have attempted to link the site with the epic (e.g. Schliemann 1881, 1884; Dörpfeld 1902; Blegen et al. 1958) but their efforts have only led to ambiguity. Nonetheless, a number of Hittite texts—found at the city of Hattusa—refer to specific names which suggest some connection (Forrer 1924: 113-18).⁹⁵ Examples include the names Wilusa ([W]ilios), Ahhiyawa-Achaioi (the Achaeans/Greeks), and Alaksandu

⁹⁵ The Hittite civilization developed in Anatolia during the Late Bronze Age. These people came from Central Anatolia, specifically from the region of Hatti, approximately in the seventeenth century BC. It is viable that proto Hittites may have migrated to Anatolia during the Early Bronze Age, around 2300 BC. Written sources indicate that they came from the city of Kussara, whose location is unknown, so as to take control of central Anatolia in approximately 1700 BC (Bryce 2002: 8-9). Hittites settled in the city of Hattusa around 1680 BC (Seeher 2011: 378). The Hittite empire (1430-1200 BC) dominated a large part of the central, southern, and south-east Anatolia, besides northern Syria. Hittite society incorporated music in cults, ceremonies, and feasts. Narratives of such events have come down to us in the form of inscribed clay tablets (cuneiform texts) and iconographic sources such as cylinder seals, reliefs on pottery vases, rhyta, and orthostats (Bachmann 2001: 593-4).

(Alexandros) (ibid). According to Bryce (2011: 367-8), Wilusa was a state located in northwest Anatolia and its main city was Troy.

The narratives presented in the *Iliad* may be grounded in confrontations between the people of Wilusa (Troy) and the Mycenaeans (Greeks), where such events may have occurred by the end of the second millennium BC (Lactaz 2004: 216-48). One needs to remark on the significance of such confrontations. These may have permitted the diffusion of cultural practices and particularly the movement of musical instruments within that specific region, but this is not self-evident. Although there is not enough evidence to substantiate such conflicts, we can say that the Hittites were concerned with the political and economic stability of Wilusa (Illios or Troy). A letter from Manapa-Tarhunda to the Hittite king Muwatalli II states that an army was sent to Wilusa to re-establish order (Bryce 2011: 367). Thus, we may say that Hittites interacted with the people of Wilusa, but we are not in a position to state that they exchanged cultural practices including music. Nevertheless, both being Anatolian cultures, they may have shared certain cultural traits. The city of Wilusa or Troy was occupied for a very long time, specifically from c.3000 BC to AD 600. According to Jablonka (2011: 717), the city was part of a network of sea and land routes which extended from the Aegean to the Black Sea and from Anatolia to the Balkans. Accordingly, it is very likely that in Troy, by the end of the Bronze Age, there was a considerable influx of immigrants, bringing with them diverse foreign influences (ibid: 727).

It is important to mention that the *Iliad*'s narratives survived the fall of Troy, the Hittite Empire, and the destruction of the Mycenaean Palaces, thus one cannot completely rely on such stories, as these may not be completely accurate. This may also apply to Homer's references to the *aulos*. There is a possibility that Homer used the word '*aulos*' indiscriminately. In other words, whilst using the term, he may not be referring to a particular aerophone, such as the double-pipes, but to a tube-like instrument that may have existed prior to his times. As a matter of fact, Bélis (2001: 178) mentions that this term (*aulos*) may have denoted different types of aerophones in antiquity. Nevertheless, as Homer refers to the *aulos*, it is a clear indication that Trojans made use of this instrument as early as the second millennium BC, but this is not self-evident. Nonetheless, it is worth noting that a marble figurine from the island of Keros shows that double-pipes were used in the Aegean as early as 3000 BC (Figure 2.20 p. 63) and that the Minoans of Crete used a different type of *aulos*,

possibly before 1400 BC (Figure 3.7). The Minoans (c.3500-1100 BC) were a Bronze Age civilization that developed in Crete. According to Castleden (1990: 152), they had a particular type of *aulos* which had a horn attached to one of its pipes. The horn, apart from being an ornamentation, functioned as a bell amplifying the sound (ibid). This type of *aulos* is depicted on a sarcophagus discovered at the Cretan archaeological site of Aghia Triadha and dates back to c.1400 BC (Pedley 2007: 80) (see Figure 3.7 on p. 124).

The *Iliad* paints a picture that the Trojans might have used the *aulos* to intimidate the enemy. In fact, Agamemnon (the King of Mycenae, leader of the Achaean army) speaks of a crowd of Trojans celebrating a good day of battle, which he, ‘vexed with a thousand cares’ interprets as a threat for his people (Hm. *Il.* Book X lines 11-13).⁹⁶ Agamemnon listens to the Trojans creating a noisy environment by the campfires which may have included war cries, music, and dance (ibid). This military strategy not only intimidated the enemy but also kept them awake throughout the night.

Agamemnon [the commander-in-chief of the Greek expedition against Troy]-looking toward the plain of Troy, he wondered at the many fires blazing before the city, and the sound of flutes [*auloi*] and fifes [*syringes*], and the tumult of the crowd (Cullen Bryant 1870: 252).

As far as one can tell, the text provides little information on the *aulos*, however, it gives room for speculation on its acoustic attributes. When looking towards the plain of Troy, Agamemnon is not only captivated by the scenario and the crowd, but also by the sounds coming from the *auloi* and the *syringes*. Undoubtedly, the sound of such instruments was loud and could be heard from a distance. Based on the *aulos* ability to accompany louder instruments, such as the *tympanon* (a frame drum with one skin) and the *kymbala* (small cymbals) we can say that the *aulos* had an all-pervading sound.

Pollux (*Onomasticon* Book IV. 72), provides a number of adjectives applicable to *aulos*-playing, which include: strong, intense, forceful, sweet-breathed, pure-toned, wailing, enticing, lamenting (cited from West 1992: 105). Evidently, the register of an *aulos* depended much on the length of the instrument. According to Alcides, a musician present at the banquet of the learned, the Phoenicians used a type of *aulos*

⁹⁶ Hom. *Il.*, I, p. 252.

called *gingras* which, according to Xenophon, measured a span in length (nine inches approximately) and had a very shrill sound (Athenaeus *Deipnosophistae* Book IV 174f).⁹⁷ The *gingras* fits the profile of an instrument which may have served for military purposes. With its short length tubes, one can deduce that the *gingras* reproduced high-pitched sounds which could be heard from a considerable distance. On the other hand, the *gingras* may have been a utilitarian instrument to carry around and hide beneath clothes. A mosaic by Dioskourides Samios, an ancient Greek artist who lived between the third and second century BC, bears the representation of an *auletride* (a woman who plays the *aulos*) playing the *gingras* (Comotti 1975: 220-22) (Figure 3.4).



Figure 3.4. Dioskourides Samios (c.3rd century BC), Archaeological Museum, Naples. Mosaic emblem depicting a group of musicians, an auletride plays the double-pipes (*gingras*) (photo: Pedley 2007: 381, Figure 10.56).

The mosaic, discovered at the so-called Villa of Cicero in Pompeii in 1763, depicts four individuals on a stage moving towards the door of a house. In the foreground, two individuals are dancing and playing different instruments. One plays the *tympanon* (a frame drum with one skin), while the other the *kymbala* (small cymbals). On the left, a boy holds a curved shaped aerophone, possibly a horn. In the background, a woman (*auletride*) plays the *aulos* (*gingras*) while further right, there is a closed door.

⁹⁷ The Phoenicians were people who inhabited the coast of the Levant, mainly on the coast of modern Lebanon. Their main cities were Tyre, Sidon, and Byblos. Their history is tied to the sea, as shown by their island-harbours of Tyre and Aradus, as well as trading posts in the western Mediterranean. Phoenicians were expert shipbuilders and seafarers (Roberts 2005: 566). Xenophon (c.428-c.354 BC): son of Gryllus from the Athenian deme of Erchia. He was an ancient Greek philosopher, historian, mercenary, and soldier. He studied with Socrates (Roberts 2005: 827). *Ath.*, I, p. 279. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (London: William Heinemann Ltd; New York: G. P. Putnam's Sons, 1927), II, 292.

Although the image above comes from a late context (c.3rd century BC), it is central to our study. Apart from corroborating what has been stated about the *gingras* in diverse sources, the image shows that the Romans included the aerophone in their daily life. Curiously a woman is playing the instrument. In ancient Greece such women were known as *auletrides* or *hetairai* (Goldman 2015: 29; Touliatos 1993: 114). This fact may indicate that Romans not only adopted the musical instrument but also its music tradition. The precursors of Roman culture, that is, the Greeks, may have copied this tradition from the Carians of Anatolia (Ath. Book IV 174f-175d), where principally women played this musical instrument.⁹⁸ This practice was then passed on to the Romans. The mosaic clearly indicates that the *gingras* was used to entertain. To date, this image may be the only representation of the *gingras*.

As aforementioned, the *gingras* was used by the Carians (Ath. Book IV 174f).⁹⁹ In classical antiquity, the state of Caria was situated in southwestern Anatolia (Bryce 2011: 372). However, based on Cretan accounts, Herodotus (*Histories* Book I.171) comments that the Carians were Aegean islanders, and that they settled in Anatolia after being attacked and driven out of their homes by Harpagus and his army of Dorians and Ionians.¹⁰⁰ The Carians, however, always denied this, claiming that they were mainlanders from the beginning and that they had always been known as Carians (ibid). The name Caria may be etymologically linked with that of Karkiša, namely to an Anatolian independent state which, at times, collaborated with the Hittites (Bryce 2011: 372). Thus, the ancestral roots of the Carians may be found in the Anatolia of the late Bronze Age (ibid). Moreover, the *Iliad* (Book II lines 867-869) comments that Carians spoke a barbarian language, clearly indicating that they were not Greeks.¹⁰¹

⁹⁸ Ath., I, pp. 279-80. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (London: William Heinemann Ltd; New York: G. P. Putnam's Sons, 1927), II, 292-6.

⁹⁹ Ath., I, p. 279.

¹⁰⁰ Hdt., pp. 75-6. Harpagus: Median marshal who from c.550 BC fought for Cyrus against the Lydians, Ionians, Carians, and Lycians (Högemann 2004: 1147). The Dorians spoke Doric Greek. They inhabited the southeast and northeast of the Peloponnese (e.g. Corinth, Sparta, Argos), the south Aegean islands (e.g. Melos, Crete, Rhodes) and the mainland facing Cos (Cnidus, Halicarnassus) (Roberts 2005: 238). The Ionians inhabited the central part of the west coast of Asia Minor. They were colonised by Greeks from the mainland. Ionians are all those who trace their descent from Athens and keep celebrating the Ionian festival Apaturia (Roberts 2005: 373).

¹⁰¹ Hm. II., I, p. 66. See also Homer, *The Iliad*, trans. by Augustus Taber Murray, Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press, 1946), I, 114.

The music of the Carians, such as the Carian *aulemata* (*aulos* tunes) and songs, was particularly linked to lamentation, however *auletrides* or *hetairai*, that is, women who played the *aulos*, also played tunes at drinking gatherings (Barker 1984: 115). It is not known with exactitude how Carian laments, that is, how funeral hymns were performed, but considering that the Carians intermingled with the Greeks (Hellenes), we can assume that they performed these in a similar way to the Greeks. As a matter of fact, Strabo (*Geographica* Book XIV.2.28) remarks on the close relationship that existed between the Greeks and the Carians.¹⁰²

The Greeks called laments *threnodies*. Such a musical genre consisted of two parts: the *epikedeion* and the *threnos* (Barker 1984: 69 and 159). According to Proclus (*Chrestomathia*), the former differed from the latter because ‘the *epikedeion* was uttered at the funeral itself, while the body is exposed, but the *threnos* is not limited by time’ (cited from Mathiesen 1999: 132). The *aulos* and wailer women were essential elements to *threnodies*, so both were hired for their services (Sultan 1993: 93-5). In his description of a royal funerary ritual, that is, *Sallis Wastais* (great loss), Rutherford (2007: 223-36) informs us that Hittites hired women wailers (*taptara*), and musicians (*Lu.mes nar*). Although no specific references to musical instruments are made, we may suppose that the *aulos* was used and that the Greeks probably copied the ritual from Anatolian peoples. According to Comotti (1991: 25), Greeks acknowledged their sources whenever they chose to imitate or copy others by, for instance, calling the musical modes after their places of origin, such as Lydian, Phrygian, and Ionian modes. However, Plutarch (*Quaest. Conv.* 657a) mentions that Greeks used the *epikedeios aulos* during funeral lamentations (as quoted from Barker 1984: 159 footnote no. 97). This type of *aulos* was probably similar to the *gingras*. The concept of the *gingras* was probably brought to Greece, where its production was undertaken and given a Greek name. It is worth noting that Carians used the *gingras*

¹⁰² Strabo, *The Geography of Strabo*, trans. by Horace Leonard Jones, 8 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1960), VI, 304-6. ‘This was particularly the case with the Carians, for, although the other peoples were not yet having very much intercourse with the Greeks nor even trying to live in Greek fashion or to learn our language—with the exception, perhaps, of rare persons who by chance, and singly, mingled with a few of the Greeks—yet the Carians roamed throughout the whole of Greece, serving on expeditions for pay. Already, therefore, the barbarous element in their Greek was strong, as a result of their expeditions in Greece; and after this it spread much more, from the time they took up their abode with the Greeks in the islands; and when they were driven thence into Asia, even here they were unable to live apart from the Greeks, I mean when the Ionians and Dorians later crossed over to Asia’ (Jones 1960: 305-7).

because they had strong connections with the East, therefore with the Phoenicians, and particularly with the Hittites, thus there is the possibility that the Greeks also incorporated the *gingras* into laments (Ath. Book IV 174f-175b).¹⁰³

While referring to the first treatise of music by Aristoxenus, Soterichus, a musician of Alexandria, tells us that the first melody composed in the Lydian mode was a funeral hymn (*epikedeion*) on the death of Python, and that Olympus, a Mysian or Phrygian *auletes* who flourished in c.700 BC, performed it on the *aulos* (Plutarch *De Musica* 1136c).¹⁰⁴ This fact attests to the existence of an *aulos* in the Lydian mode—as Pausanias stated (*Description of Greece* Book IX.12.5)—but it remains doubtful whether this ‘Lydian *aulos*’ was in some way associated with the *gingras*.¹⁰⁵ One can imagine, however, that like the *gingras*, the Lydian *aulos* was short in length because the Lydian mode has a high tessitura, that is, a high melodic range (West 1992: 182). It is to be noted that the shorter the tube of the *aulos*, the higher the notes that it is able to produce.

What is clear is that this tradition continued throughout the centuries. For example, Ion of Chios (480s-c.421 BC), a poet and prose author, specifically made use of the Lydian *harmoniai* in his tragedies and *satyr* plays. As a matter of fact, in his Satyric drama *Omphale* (fr. 26a; 26b; 42 Leurini), we find the Lydian singer, the Lydian *magadis aulos*, and the *aulos* performing Lydian hymns (cited from Prauscello 2011: 295). Callimachus of Cyrene (285-246 BC), in his Iambus thirteen (*Iambi* 13.47), mentions the ‘Lydian *aulos*’ and ‘strings’, probably referring to a particular string instrument (cited from Prauscello 2011: 295). The verses of Callimachus are fragmentary so it is not possible to have a complete picture, however it is very likely that a particular type of *aulos* which reproduced the Lydian *harmoniai* existed, and that it was played along with a string instrument, a musical practice known as *synaulia*.

The varieties of string instruments, namely, the *phorminx*, the *kithara*, and the *lyra*, along with the *aulos* were the main producers of melody in Greece at least up to

¹⁰³ Ath., I, pp. 279-80.

¹⁰⁴ Aristoxenus of Tarentum (b. c.370 BC) was a Greek philosopher, biographer, and a historian. He was likely trained in music. Aristoxenus is widely known for his treatise on harmonics, of which three incomplete books survive. Before joining Aristotle’s Lyceum, he studied with the Pythagorean Xenophilus (Roberts 2005: 73). Plut. [*De Mus*], p. 385.

¹⁰⁵ Paus., IV, p. 225.

the Hellenistic period (c.323-31 BC) (Barker 1984: 2).¹⁰⁶ The combination of sounds resulting from a string instrument and the *aulos* is considered *synaulia*. Music performed by at least two *auloi* without singing was also considered *synaulia* (Ath. Book XIV 617f-618b) (Figure 3.5).¹⁰⁷ Sophocles (*Ajax* 610), the Athenian tragic poet of the fifth century BC, says that when Ajax (son of Telamon, king of Salamis) was apprehended for ‘murderous frenzy he was literally *synaulized* by divine madness’ (cited from Rouget 1985: 214). Here, the term may refer to the effect of madness that produces the music of the *aulos*.

According to Pollux (*Onomasticon* Book IV. 83), the *synaulia* was practiced at the great civic festival of Panathenaea in Athens, where a considerable number of *auletai* accompanied the procession that marched from Kerameikos to the Acropolis to honour Athena with the dedication of a robe (*peplos*) (cited from Neils 2012: 199). The musical function of each *auletes* may have been organised in some way. This may have been organised in a similar manner to the *mizmār* players of upper Egypt, where a *rayyis*, that is, the chief or master bears the melodic part, while the *garar* (perseverance, ground, bottom) provides the tonal base by playing different notes on the drone, and the *tib’a* follows parts of the melody, creating a bridge between the drone and the melody (Elsner 2019: 7). The term *tib’a* may itself be a derivation of *tibia*, the Roman version of the *aulos*.

Of note is the magnificent attire of the *auletai* during festivals (Figure 3.5). Wilson (1999: 73) says that this contrasts with the social status of the *aulos* players, which evidently was low, and that this splendid attire is due to an appropriation of the *aulos* by the Athenians of the fifth century BC. As Pedley (2005: 78) has pointed out, during festivals there were no distinctions of gender, class, and age, so the magnificent dress may have been necessary to obscure the actual social status of *aulos* players (Wilson 1999: 74). Figure 3.5 shows two *aulos*-players ‘in *synaulia*’, that is, playing together. The *auletes* on the podium seems to be the lead musician, while the one

¹⁰⁶ The *phorminx* consisted of a semi-circular sound box from which arms extended perpendicularly to the end of the diameter of the *echeion* (sound box). It usually had four strings. The *kithara* consisted of a considerable-sized resounding body in the shape of an isosceles trapezium. The instrument had short and stumpy arms, seven strings, and produced a loud sound. The *lyra* or lyre consisted of a sound box which was sometimes made out of tortoise-shell with curved arms joined at the top by a crosspiece. The number of strings of the lyre ranged from four to eleven or twelve strings (Comotti 1989: 57-63).

¹⁰⁷ Ath. III, p. 985. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1959), VI, 326-8.

below, who is kneeling as a sign of submission, probably played a secondary role. Moreover, this figure seems to represent a woman *auletride*, as it bears long hair. If this was the case, this is a clear indication of gender segregation. Two *Nikai* (mythological beings) are depicted on either side of the scene.

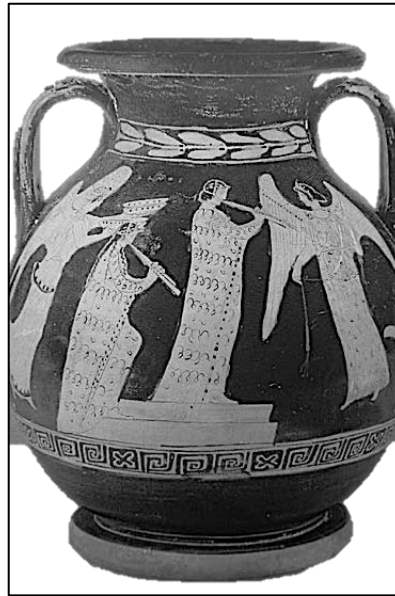


Figure 3.5. Attic-red-figure pelike (c.440-420 BC), London, The British Museum (photo: https://www.britishmuseum.org/collection/object/G_1910-0615-1).

3.3 The Contexts in which the Aulos was Played

Festivals

It is worth mentioning that music predominated most activities that the Greeks carried out. Music particularly prevailed in public festivals, thus in purposely organised events where people worshipped the gods (Roberts 2005: 486-8). Such festivals were held annually or monthly. Some were bound to the agrarian calendar, while others celebrated human and earth fertility (Pedley 2005: 78). Their relevance to our study is that they included a mixture of religious and artistic elements, which according to West (1992: 14) were expressed as singing processions, choral dances, and sacrifices accompanied by ritual hymns. Graf (2016: 1) describes ancient public festivals in the following manner:

Festivals are periods of time during which a group interrupts daily life in order to focus on communal activities that most often are thought of as communications with the superhuman world of gods or ancestors. In a festival, a group constitutes, renews, and reinforces its identity. Main elements of Greek and Roman festivals are processions, sacrifices, and athletic and musical performances, often organized as contests (*agōnes*).

Processions

As Graf (2016: 1) describes, festivals consisted of four major elements: the procession, the sacrifice, the meal, and the contest. In essence, processions were parades of people who solemnly walked towards a sanctuary where the sacrificial altar was located (Kubatzki 2018: 130-34). According to Pedley (2005: 78), processions were carried out publicly or privately. For example, in public processions people usually walked through the city to the sanctuary, and from there back to the city (ibid).

Moreover, those people who participated in such activities came from different social sectors, as during festivities, there were no distinctions of class, gender, and age (Pedley 2005: 78). Nevertheless, politics was never far detached from religious activities (ibid). It is worth mentioning that processions were known as *pompe* from the sixth century onwards (Kubatzki 2018: 130). Musically speaking, a procession may have included a singing chorus or choruses who danced as they sang or a number of professional dancers who danced to the musical accompaniment of either or both an *aulos* player or a lyre player (West 1992: 14). The role of the *aulos* was to accompany a specific processional hymn known as *prosodion* (pl. *prosodia*) (Pollux *Onomasticon* Book IV. 80-82). These solemn marches were performed while the cortege moved towards the temple, specifically to the altar (West 1992: 14). According to Furley (1995: 32), *prosodia* were part of processional sacrifices and choirs. Plutarch ([*De Mus*] 1132c), affirms that Clonas and his successor Polymnestus of Colophon were renowned composers of *prosodia*.¹⁰⁸ This music-poetic genre was also cultivated by the Greek lyric poets Alcman (mid-to late seventh century BC), Pindar (c.518 BC), Simonides (fl. 514 BC), and Bacchylides (c.520-450 BC) (Plut. [*De Mus*] 1136f), who, in this order, attest to a tradition of about three centuries, namely from the seventh century to the fifth century BC.¹⁰⁹

It appears that a particular type of *aulos*, which reproduced a determined mode, was used during processions and hence to accompany *prosodia*. Pollux (*Onomasticon*

¹⁰⁸ Plut. [*De Mus*], pp. 359-61. Clonas was a poet and a musician. It is not clear whether he was from Tegea, Arcadia or from Boeotia, Thebes (Plut. [*De Mus*], pp. 363-65). He contributed to the development of *aulodic nomoi* and of musical genres, such as *elegies* (musical poems dedicated to the deceased) *prosodia* (music specifically composed for processions) and *epê*, (music accompanying narrative epics) (Plut. [*De Mus*], pp. 359-61). Clonas composed in the *apothetos* and *schoinion nomoi* (Plut. [*De Mus*], p. 365). He invented the *trimeles nomos* (Plut. [*De Mus*], p. 371). Polymnestus of Colophon was a lyric poet and a musician who wrote *elegies*, *prosodia* and *epê* (Plut. [*De Mus*], p. 361). He flourished not long after Terpander, but earlier than Alcman (Plut. [*De Mus*], p. 365). He composed the Polymnestian *nomoi* (ibid).

¹⁰⁹ Plut. [*De Mus*], p. 389.

Book IV. 80-82), affirms that the appropriate *auloi* to accompany the *prosodion* were the *daktyloi* and the *embaterioi*. The term *daktyloi* may be associated with a unit of measurement used by the Greeks, which nowadays is known as fingerbreadth. One *daktylos* was approximately 19.3 mm (about $\frac{3}{4}$ of an inch). In an interview conducted in Egypt for the purposes of this study with Mr Abdel Hady, an *arghul* performer, the researcher was told that in Egypt, and probably in ancient Egypt too, this unit of measurement serves to manufacture the *arghul*, namely an archaic aerophone of similar characteristics to the *aulos*.¹¹⁰ The term *embaterioi* means marches (Ath. Book XIV 630f).¹¹¹ This type of *aulos* was mainly used to accompany processions (Pollux *Onomasticon* IV. 82). However, based on the fact that the *daktyloi* were also used to accompany dance songs (West 1992: 94), the *embaterioi* may have also served to accompany military marches (Pollux *Onomasticon* IV. 82).¹¹²

In a short remark, Proclus (*Chrestomathia*) gives us to understand that the *prosodion* and the hymn (*paean*) were in some way linked. He sustains that ‘the hymn [*paean*] was sung to the accompaniment of the *kithara* [a kind of lyre] while they [the procession] stood’ (cited from Henry 1959-1977: 159-60). Proclus’ observation lets us conclude that *prosodia* were performed while the cortege marched, and thus the procession had to stop for the hymn (*paean*) to be sung, so it is very likely that *prosodia* preceded the performance of the hymn (*paean*). It is worth noting that Figure 3.2, p. 107 (above, upper register) shows a *phorminx* player who is not playing, as his hands clearly do not touch the strings, thus the *prosodion* may not have been accompanied by the sound of the *phorminx*. All this shows that processions were bound by a number of rules and followed some sort of programme, as these were part of larger events organised by scribes (Bryce 2002: 61-2).

According to Vergara (2014: 8), the *aulos* accompanied the procession, namely the sacrificial procession, and the choir. However, the instrument played a different role in each case and the two musical genres associated with such activities, namely, the *prosodion* and the hymn (*paean*) (ibid). It is clear that the *aulos* had a predominant role in the procession. As shown in Figure 3.2 (p. 107), an *aulos* player

¹¹⁰ This conversation with Mr Abdel Hady took place on the 4th September 2018 at the Mastaba Center in Cairo.

¹¹¹ Ath., III, p. 1006. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1959), VI, 402.

¹¹² See also Barker 1984: 290.

is leading the cortege, so that the musician can be seen as conducting, that is, providing the *tempo* and melodic accompaniment to the procession. When accompanying the choir, the *auletes* may have played only in specific sections, however during the dance, the role of the *auletes* predominated (Vergara 2014: 8). The dance customarily followed the hymn (*paean*) (ibid). We may say that the *auletes* is an intermediary between the sacrificial offering and the god. This may be another reason to believe that the individuals depicted in Figure 3.2 (p. 107) are the sacrificial offering and therefore possibly associated with the myth of Theseus. The *auletes* can also be an intermediary between cult officiants and the king, as shown in Figure 2.25 (p. 86).

The way in which the Greeks carried out processions may not have originated in the Greek mainland. As a matter of fact, Herodotus (Book II.58-59) affirms that they learnt these practices from the Egyptians.¹¹³ So, the use of the *aulos* in processions may be a hallmark of such foreign practices, and thus their use is not arbitrary. This also substantiates the words of the Greek philosopher Aristoxenus who considered the *aulos* an alien musical instrument (*ekphula organa*) (cited from Wehrli 1967: 33). Similar processional scenes to those depicted in Figure 3.2 (p. 107) are represented on an orthostat from the façade of Hilani IV in Zincirli, Anatolia (c.732-711 BC) (Figure 2.25 p. 86). This representation shows an *auletes* leading a cortege made up of musicians and cult officiants. As in Figure 3.2 (p. 107), the piper is followed by a lyre player, but the context in which the scene develops differs because the procession moves towards the Hittite King Barrakib, therefore, the context in which the scene develops differs from the one of Figure 3.2. In fact, we may say that the context, in this case, is palatial. One can also suggest that the musical accompaniment is professional, as this incorporates a considerable number of musicians, namely drummers and lyre players. The fact that the musicians are playing together suggests the existence of some sort of consort or ensemble formed by the court's musicians, a phenomenon that also indicates the status and prestige of the celebration. When one considers the time expenditure on rehearsals for an ensemble, it is clear that this celebration is not only prestigious but also costly. Such practices were usually encouraged by the royal court, and may thus suggest music patronage in the Hittite world.

¹¹³ Hdt., p. 119.

Sacrifices

The animal sacrifice (*thysia*) was an inherent part of processions, therefore, it could take the form of a public or private event (Kubatzki 2018: 129). This ritual had a special significance for the Greeks because it propitiated the communication between gods, humans, and animals (Ekroth 2014: 324). Theophrastus (*Peri Eusebias* fr. 12.42-9) affirms that it served to honour, to thank the gods and to request their help (cited from Pötscher 1964: 169).¹¹⁴ The animal sacrifice was, in essence, an offering to the gods, consisting of a series of elaborate actions and devotions. The ritual, apart from including invocations, libations, and the burning of incense, was generally accompanied by music played on the *aulos* (Haldane 1966: 101). The sacrifice demanded special requirements, such as the donning of specific clothing, diverse offerings, and the abstinence from certain foods and conducts (Homer *Odyssey* Book III lines 418-472).¹¹⁵

The ritual was far from arbitrary. As a matter of fact, it followed a planned course of action. One of the preparations for this ritual was to embellish the sacrificial animal (Hom. *Od.* Book III lines 425-426).¹¹⁶ The attendants often used wreaths, garlands, pieces of fabric, and so on (Kubatzki 2016: 8). Later, the animal was taken to the sanctuary and then to the altar in a procession (*pompe*) so as to be immolated to the gods (Figure 3.6) (Kubatzki 2018: 129).

¹¹⁴ η γάρ διά τιμην η διά χάριν η διά χρείαν των αγαθων (Pötscher 1964: 168). ‘Im übrigen ist doch auch aus drei Gründen den Göttern zu opfern: Wegen der Ehrung nämlich oder wegen des Dankes oder wegen des Bedürfnisses an Gütern’ (Pötscher 1964: 169). That is, for the rest, there are also three reasons to sacrifice to the gods: namely, because of the honour or because of thanks or because of the need for goods (my translation).

¹¹⁵ Homer, *The Odyssey*, trans. by Augustus Taber Murray, 2 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: Willian Heinemann Ltd., 1945), I, 99-103 (Hereafter, Hom. *Od.*).

¹¹⁶ Hom. *Od.*, I, p. 99.



Figure 3.6. Boeotian Lekane (no. 1879,1004.1), c.550 BC, The British Museum, London. Sacrificial procession in honour of the goddess Athena, a procession of men is being led by an *auletes* (photo: <https://www.bmimages.com/preview.asp?image=00051340001>).

Once at the sanctuary, the procession dispersed. The initial rites began (*χατ-αρχω*) when the animal was brought to the altar (Vergara 2014: 24). The first rites had to do with purification, namely cleansing (*καθαρχεσται*). The priest, as well as the assistants, washed their hands with water, otherwise, the sacrifice could not be performed (Nordquist 1992: 126). Figure 3.7 shows an individual, probably a priestess, performing this act, while an *auletes* plays in the background (Haldane 1966: 101).



Figure 3.7. Processional scene from the Aghia Triadha's Sarcophagus (c.1400 BC), Iraklion Museum, Crete. An *auletes* plays music, while the priest washes his hands (photo: Pedley 2007: 80, Figure 3.26).

The priest washed the head of the animal and spread grain and salt over its body (Ekroth 2014: 325). He also cut some hairs from the animal's head (*ibid*). These were then thrown into the fire as a sign of consecration to the god (*ibid*). The act of washing the animal's head may not have been accompanied by the sound of the *aulos* (Vergara 2014: 28). Figure 3.8 (right) shows an *auletes* observing the action, while he holds the *aulos* in one of his hands.

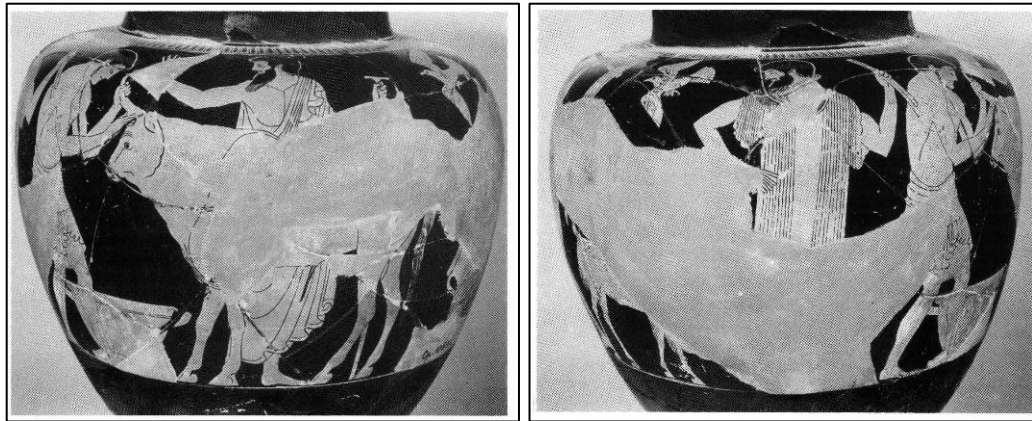


Figure 3.8. Stamnos by Eucharides Painter (C 10754), Louvre Museum, Paris. (L-R) A priest sprinkle some water over the sacrificial victim. The *auletes* observes the action but he does not accompany it with music (photos: Nordquist 1992: 127-8).

The next actions of the ritual are described by Ekroth (2014: 326) as follows: after the rite of purification, the animal was killed, and its blood collected in a vessel (*sphageion*). Some blood was scattered over the altar, while the rest was kept for the preparation of particular items of food. The animal's abdomen was then opened up and the entrails inspected (*haruspex*), particularly the liver, whose reading provided omens (*hepatomancy*). Certain parts of the animal were offered to the gods and burnt in the altar fire. Usually these were the thighbones, the tail, and the gall bladder. The priest expected the tail to twist upwards, as this meant that the gods accepted the sacrifice (Ekroth 2014: 326). The music of the *aulos* played an important role in this because it favoured the gods' benevolence (West 1992: 15).

This contrasts with the Persian tradition, where the *aulos* was not used in sacrifices (Hdt. Book I.132). According to Herodotus (Book I.131-2), Persians did not even accept the building of structures such as temples, altars, and statues. Things such as the kindling of fire, libations, *aulos*-music, garlands, and meals were not part of their rituals (ibid). In the Persian religious system, Zeus is considered omnipotent so that he is said to be the whole circle of the heavens. This is the reason why Persian sacrifices to Zeus were performed on the tops of mountains.¹¹⁷

For the Greeks, however, as stated above, the *aulos* had a primordial role in sacrifices. This recalls the story told by Plutarch about Ismenias, a famous *aulos* player from Thebes (*Quaest. Conv.* Book II.1.5).¹¹⁸

¹¹⁷ Hdt., pp. 61-2. The Persians were an Indo-European speaking people who settled in Iran before the rise of the Achaemenid empire (550-331 BC). Cyrus became ruler of the Persians in 559 BC (Roberts 2005: 551).

¹¹⁸ Pl. *Quaest. Conv.*, III, 235.

And Ismenias piping at a sacrifice, when no good omens appeared, the man that hired him snatched the pipe [*aulos*] and played very ridiculously himself; and when all found fault, he said: To play satisfactorily is the gift of Heaven. And Ismenias with a smile replied: Whilst I played, the Gods were so well pleased that they were careless of the sacrifice; but to be rid of thy noise they presently received it (Goodwin 1878: 235).



Figure 3.9. Red-figure krater attributed to Nikias painter (inv. no. 630), c.425-327 BC. Museo Provinciale Sigismondo Castromediano, Lecce (photo: <https://www.cvaonline.org/Vases/SPIFF/Images200/IT06/CVA.IT06.248.1/cc001001.jpe>).

A sacrifice needed to be validated by the gods. In order to obtain that validation, the individual offering the sacrifice needed to please the gods with music played on the *aulos*, amongst other things. Thus, the hiring of an *aulos* player for such events was essential. Figure 3.9, for instance, shows that activities carried out either by the priest or the assistants, such as the act of consuming meat by the altar, were accompanied by music played on the *aulos* (Vergara 2014: 29). In the scene, an *auletes* standing on a podium plays his music. The fact that he is standing on a podium suggests that *aulos* players were probably considered one more element, a prerequisite of the ritual placed on the same level as material objects such as the altar and the sacrificial basket. Customarily, a portion of the animal's viscera (*splanchna*) was offered to the gods and burned at the altar (Nordquist 1992: 126). This portion was then placed on a table by the altar (ibid). The assistants also grilled another portion for themselves to be consumed around the altar (Ekroth 2014: 326). After the thigh bones had been burnt, the priest extinguished the fire of the altar with a libation of wine and water (ibid: 326-7). The rest of the meat was eaten in a meal held at the sanctuary or at home (ibid). 'What sacrifice is acceptable to the gods without the participants in the

feast?’ (Cohoon 1949: 149). The words of Dio Chrysostom (*Orationes* 3.97) indicate that the meal, which usually followed the offering, was an inherent part of the sacrifice.¹¹⁹

The Meal

A properly conducted sacrifice would include a festival meal, as well as athletic, musical, and dramatic competitions (Jameson 1988: 962-72). The meal was characteristically sacred and secular. The sacred aspect of the meal has to do with its direct association with the sacrifice, while its secularity lies in its profane aspect (Smith 2003: 67-79).

The Contest

Apart from processions, sacrifices, and meals, festivals also incorporated athletic competitions and music contests. Based on the degree of involvement of the different organising associations, Aneziri (2007: 67-84) recognises three categories of music contests, namely:

- (i) contests solely organized by the associations in order to celebrate their own festivals;
- (ii) those in which the associations acted as co-organisers, along with a city or a federal organisation, and;
- (iii) those for which the associations supplied artists, without being involved in the organisation itself.

Correspondingly, music contests were organised either by religious or secular associations. Diverse sources attest that musicians from different associations and geographical areas took part in such competitions. Nevertheless, there were occasions in which associations provided their own artists, disallowing others from joining in. The fact that participants came from different regions of Greece substantiates the notion that the competitive element, as a means of social cohesion at local or *poleis* (city-states) level, was in some way significant to these societies.

In the case of athletic competitions, these were probably organised in a similar manner. Like music contests, athletic contests served to strengthen socio-political ties. We ought to mention that athletic competitions were accompanied by music played

¹¹⁹ *Dio Chrysostom*, trans. by James Wilfred Cohoon, 5 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1949), I, 149.

on the *aulos* (Figure 3.10). The Argives, that is, the residents of the city of Argos in the Argolis, Peloponnese, Greece, used the *aulos* to accompany wrestling matches at the festival of Stheneia, while Pentathlic contests were also conducted to the sound of the *aulos* (Plut. [*De Mus*] 1140c-d).¹²⁰ According to Vos (1986: 121), double-pipes were played while athletes exercised in the *palaestra* and also during contests. Performers, such as acrobats and dancers were also accompanied by music played on the *aulos*, however, women were accompanied by *auletrides* (female *aulos*-players), while men were accompanied by *auletai* (male *aulos*-players) (ibid). This suggests that both women and men could play the *aulos* in public.

As a matter of fact, boys and girls learned to play the *aulos* at school, but it is possible that there were some restrictions for women, since a number of vase paintings show them playing music at home, that is, in a private context (Touliatos 1993: 115). It seems paradoxical that at public events, both *auletai* and *auletrides* could musically accompany only performers of their own sex, while at the symposion, that is, a male-dominated private event, the only women who could take part in the ceremonies were the *auletrides* or *hetairai* (Dalby 2006: 683).

Whether male or female, the skills of the *aulos* player added prestige and status to any gathering. *Auletai* and *auletrides* participating in athletic competitions seemed to be highly appreciated, so that organisers often erected commemorative stelae in their honour. A passage from Pausanias (Book VI.14.10) describes such events.¹²¹

[...] at the Olympic Festival he [Pythocritus of Sicyon] fluted [played the *aulos*] six times for the pentathlum [sic. Pentathlon]. For these reasons the slab at Olympia was erected in honour of Pythocritus, with the inscription on it. — This is the monument of the flute-player [*aulos* player] Pythocritus, the son of Callinicus (Jones 1933: 87)

¹²⁰ The festival of Stheneia was an agonistic festival associated with marriages. The festival was originally instituted in honor of Danaüs and was later dedicated to Zeus Sthenius (Haland 2014: 443). Plut. [*De Mus*], p. 413.

¹²¹ Pausanias, *Description of Greece*, trans. by William Henry Samuel Jones, 6 vols., Loeb Classical Library (London: William Heinemann Ltd.; New York: G. P. Putnam's sons, 1933), III, 87 (Hereafter, Paus., III).



Figure 3.10. Attic black-figure amphora from Kamiros, Rhodes (no. B 361), c.520-500 BC. The British Museum, London. A bearded *auletes* accompanies diverse athletic feats (photo: <https://www.beazley.ox.ac.uk/XDB/ASP/recordDetails.asp?id=8001BDF5-6BC4-49A6-9D62-977293EA1A54&noResults=&recordCount=&databaseID=&search=>).

Pythocritus' work entailed effort and responsibilities. At athletic competitions, such as the pentathlon which included running, long jump, discus, javelin, and wrestling, *aulos* players were responsible for generating rhythm and boosting focusing, both essential elements during contests (Swaddling 2008). Unfortunately, it is not known what sort of music was played during these contests. However, one can imagine that this type of music was part of a specialized repertoire to which some *aulos* players had access. This repertoire was most probably taught in schools and based on specific modes and rhythms. One can imagine that the *auletes* Pythocritus was an expert in this type of music, probably another reason why a dedicatory slab honours him. This monument probably served more than one purpose. Apart from commemorating Pythocritus' participation in the Olympic festival, it probably served as promotion for that festival as well. Pythocritus' slab probably also served as a pull factor for emerging musicians. In a manner, it invited new talents to take part in such events. Emerging musicians saw an opportunity in festivals to become known and famous, as the case of the *auletes* Pythocritus.

Apart from both male and female *aulos*-players, festivals often included *aulodes*, that is, individuals who sang along to the music produced by the *aulos* (Figure 3.12). Both *aulodes* and *aulos* players may have started to take part in competitions only after the invention of *aulodic* and *auletic nomoi*, that is, accompanied and solo pieces for the *aulos* respectively.¹²² The development of *aulodic* and *auletic nomoi* resulted from the work of different composers. The poet Clonas, for instance, contributed to the development of *aulodic nomoi* and of musical genres, such as

¹²² The difference between *aulodes* and *aulos* players is that *aulodes* accompanied singers, while *aulos* players were solo players.

elegies (musical poems dedicated to the deceased), *prosodia* (music specifically composed for processions), and *epê*, (music accompanying narrative epics) (Plut. [*De Mus*] 1132c).¹²³

Olympus the younger was a creator of a number of *auletic* and *aulodic nomoi*, such as the *harmateion*, that is, public laments, and the *polykephalos*, many-headed *nomos* (Plut. [*De Mus*] 1133e).¹²⁴ This term (*polykephalos*) is mentioned in Pindar XII which is a Pythian ode that praises the gods by claiming that the *auletes* Midas was successful through the intervention of the art (music) that Pallas Athena invented. The goddess Pallas Athena named the music many-headed *nomos* (*polykephalos nomos*) enabling mortal men to play it on the *auloi* to replicate the cry of the Gorgon Euryale. In the ode, Pindar invokes the city of Agrigentum which personifies the character of the goddess. He describes the invention of the *aulos*, attributing it to Minerva (the Etruscan counterpart to Greek Athena). The instrument, through its shrill tones echoed the cry of the Gorgon slaughtered by Perseus. Pindar also articulates the other uses of the *aulos* such as exciting or encouraging combatants at war while terrorising the enemy. The ode concludes with highly poetical reflections on the changes in human fortune (Pindar *Pythian* XII).¹²⁵

The *auletes* Mimnermus is renowned for his *nomos cradias*, which he famously played on the *aulos* during the rite of expelling a scapegoat, who was beaten with fig branches whilst driven out of the polis (Plut. [*De Mus*] 1133f-1134a; Almazova 2016: 20). Polymnestus of Colophon, like his predecessor Clonas, furthered the same musical genres, thus making use of the *nomoi apothetos*, *elegoi*, *comarchios*, *schoinion*, *cepion*, and *trimeles* (Plut. [*De Mus*] 1132c-d).¹²⁶ While *apothetos* is a more sombre type of music used on solemn occasions, *elegiac nomos* is, as the name suggest, songs or laments (Barker 1984: 252). *Comarchios* literally means ‘of the leader of the revels’. It may be associated with jovial revels and the sympotic *komos* (Einarson and De Lacy 1967: 360 footnote c).¹²⁷ *Schoinion* literally means ‘cable’ (rope-like). It may be compared to Pindar’s fragment 61.1 which describes ‘rope-like

¹²³ Plut. [*De Mus*], pp. 359-61.

¹²⁴ Plut. [*De Mus*], p. 369.

¹²⁵ Pind., pp. 309-11.

¹²⁶ Plut. [*De Mus*], p. 361.

¹²⁷ The *komos* was a merry procession formed by men. It was usually carried out in the street after a symposion. It aimed to demonstrate the cohesion and power of a particular group of men (Roberts 2005: 735).

song of the dithyramb’, that is, loose and long (ibid footnote d; see also Barker 1984: 59). The *cepion nomos* is named after a disciple of Terpander called *cepion* or *capion* (Plut. [De Mus] 1133c).¹²⁸ The *trimeles* is, as the name suggests, composed of three *nomoi*, or ‘three-membered’ or ‘three-tuned’ (Einarson and De Lacy 1967: 360 footnote g).

The composer Polymnestus created another two *nomoi*: the *Polymnestus* and *Polymnesta* (Plut. [De Mus] 1132d).¹²⁹ The invention of the *nomos trimeres*, an *aulodic* and choral composition which consists of three parts is attributed to Sacadas of Argos. Pollux (*Onomasticon* IV. 79) asserts that Sacadas invented the *auletic pythicos nomos*, a musical piece based on Apollo’s fight with the Serpent. This piece consists of five sections: the *peira* (test), the *katakeleusmos* (challenge), the *iambikon* (fight), the *spondeion* (the victory), and the *katachoreusis* (dance of triumph) (Pollux *Onomasticon* IV. 84; cited from Barker 1984: 51).

According to Pausanias (Book X.7.2-4), the first musical contest (*agone*) was held at Delphi. This competition included the singing of hymns and *kitharoidia* (poetry sung accompanied by the lyre). It was in 586 BC that the Festival of Delphi or Pythian Games included two new categories related to *aulos* playing, that is, the *auloidia* (poetry sung to the accompaniment of the *aulos*) and the *aulesis* (solo *aulos*-playing).¹³⁰

The oldest contest and the one for which they first offered prizes was, according to tradition, the singing of a hymn to the god. The man who sang and won the prize was Chrysothemis of Crete, whose father Carmanor is said to have cleansed Apollo [...] In the third year of the forty eighth Olympiad [586 BC], at which Glaucias of Crotona was victorious, the Amphictyons held contests for harping [*kitharoidia*] as from the beginning, but added competitions for flute [*aulos*]-playing [*aulesis*] and for singing to the flute [*aulos*][*auloidia*] (Jones 1935: 403)

In view of this, we may extrapolate that music contests were propitious events in which composers could introduce and exhibit new *auletic nomoi*. We ought to mention that *aulos* players participated in the *aulesis* competition, while *aulodes* in the category of *auloidia*, that is, poetry sung to the accompaniment of the *aulos* (Figures 3.11 and 3.12 respectively).

¹²⁸ Plut. [De Mus], p. 367.

¹²⁹ Plut. [De Mus], p. 361.

¹³⁰ Paus., IV, p. 403. The date of the 1st Pythian Games may have been 582 BC.



Figure 3.11. Attic black-figure amphora (no. 1849, 0620.9), c.500-480 BC, The British Museum, London. Musical contest, *aulesis* category (photo: https://www.britishmuseum.org/collection/object/G_1849-0620-9).



Figure 3.12. Attic black-figure pelike (530-520 BC), Metropolitan Museum of Art, New York. Music performance, *auloidia*. A bearded *auletes* together with a singer on a podium (photo: Riethmüller and Zaminer 1989: 140).

At the Pythian Games of 586 BC, the *aulode* Echembrotos of Arcadia won the category of *auloidia* and Sacadas of Argos the *aulesis*. After such games, the category of *auloidia* was excluded because the music was considered to be sad and inauspicious (Paus. Book X.7.2-6).¹³¹ Nevertheless, according to West (1992: 337), this is not feasible, as there was also a niche for joyful *auloidia*. The *aulesis*, on the contrary, continued to be held so that records show that the *auletes* Sacadas of Argos won the category in the next two Games (Paus. Book X.7.4-5).¹³²

¹³¹ Paus., IV, pp. 403-5.

¹³² Paus., IV, p. 405. After Sacadas, the *auletes* Pythocritus of Sicyon won the Pythian Games no less than six times (see also Paus. Book X.7.4-6; Book VI.14.10; Book IX.30.2).

In the third year of the forty-eighth Olympiad [586 BC] [...] The conquerors proclaimed were Melampus, a Cephallenian, for harping, and Echembrotus, an Arcadian, for singing to the flute [*aulos*], with Sacadas of Argos for flute-playing [*aulos*-playing]. This same Sacadas won victories at the next two Pythian festivals (Jones 1933: 403-5).

Little is known about the musical contributions of Sacadas of Argos and even less about his life. The scarce information available consists of scattered remarks found in different sources, such as the Plutarchian treatise *De musica*, Pausanias, and Athenaeus, which reveal that Sacadas of Argos (fl. c.580 BC) was a skilled *aulos* player, a composer of lyric songs and elegiac poems (Plut. [*De Mus*] 1134a).¹³³ His elegiacs were usually accompanied by music, that is, by standard melodies which the *auletes*, probably Sacadas himself, could repeat or vary as long as required (ibid). Mimnermus (fl. c.600 BC), an elegiac composer and *auletes*, probably used the same technique.¹³⁴ This practice was unusual for Sacadas' times, in fact, elegiacs were mainly performed without musical accompaniment (Anderson and Mathiesen 2001: 69). As mentioned above, Sacadas won the *aulesis* category in the Pythian Games three times, with the first time being in 586 BC. He won the first Pythian Games at Delphi with an interpretation on the *aulos* of Apollo's fight with the Serpent (Paus. Book II.22.8-9).¹³⁵ On one occasion, Sacadas performed the elegy entitled *Sack of Troy* (Nobili 2016: 44). The narrative of this work mentions many names of warriors of the Trojan horse, thus emphasizing the Argives' role in the Trojan War (Bowie 2014: 41-6).

One may deduce that this poem was musically accompanied by Sacadas on the *aulos*. In Sacadas' times only three modes were used: the Dorian, the Phrygian, and the Lydian (Plut. [*De Mus*] 1134a). West (1992: 177) explains that the references to Dorian, Phrygian and Lydian modes go back to the times of the poet Alcman, that is, to the mid-late seventh century BC. The Dorian mode was used for processional, *paeans* (hymns), laments, amongst others (Plut. [*De Mus*] 1136f-1137a).¹³⁶ The

¹³³ Plut. [*De Mus*], p. 371.

¹³⁴ Mimnermus was from Smyrna. His poetry consists of two books: *Smyrneis* and *Nanno*. *Nanno* compiles a number of short elegies. It is believed that Nanno is the name of a girl who played the *aulos* and apparently whom Mimnermus loved (Roberts 2005: 476).

¹³⁵ Pausanias, *Description of Greece*, trans. by William Henry Samuel Jones, 6 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's sons, 1918), I, 367 (Hereafter, Paus., I).

¹³⁶ Plut. [*De Mus*], p. 389.

Theban lyric poet Pindar refers to it as the most honourable and solemn, while the Athenian tragic poet Pratinas compares his Dorian song with a wild performance where the *aulos* is distinguished by its predominant role (cited from West 1992: 179-80). Plato (*Respublica* Book III 399a), the Athenian classical philosopher, compared the Dorian mode to reflect life itself because it imitates ‘the utterances and the accents of a brave man who is engaged in warfare’.¹³⁷ For the philosopher and polymath Aristotle (*Politica* Book VIII 1340b)¹³⁸, the Dorian mode produces a moderate and settled temper, to the extent that, in his opinion it was the best for education (Arist. *Pol.* VIII 1342b).¹³⁹

The Phrygian mode was the mode that was considered to be directly related to the *aulos* (Arist. *Pol.* VIII 1342b).¹⁴⁰ Plato (*Resp.* Book III 399b), in his consideration on his model of an ideal state incorporated the Phrygian mode because it expresses the character of a ‘man engaged in works of peace, not enforced but voluntary, either trying to persuade somebody or something and imploring him—whether it be a god, through prayer...’.¹⁴¹ For Socrates, the Athenian Classical philosopher, the Phrygian mode is akin to the *aulos* because both have the same potential as they are equally exciting and orgiastic (cited from Arist. *Pol.* VIII 1342b).¹⁴² This is evident in the fact that both (the mode and the *aulos*) served to accompany Bacchic festivities. The *Dithyramb*, that is, choral hymns dedicated to Dionysus were usually composed in the Phrygian mode, but also in the Dorian mode (Arist. *Pol.* VIII 1342b). The music used in the cult of Kybele (the mother of the Gods) was also composed in the Phrygian mode and performed on the *aulos* (West 1992: 181). West (1992: 181-2) describes that the Lydian mode was considered ‘slack (slow-moving), soft, and sympotic’, that is, pertaining to the symposion, however, its tessitura or melodic range, was high. Typically, Pindar mainly used it in celebratory odes for young athletes, while Sophocles, the Athenian tragic poet, used it in tragedies (cited from West 1992: 181-2). Moreover, for Aristotle (*Pol.* VIII 1342b), the Lydian mode was suitable for the

¹³⁷ Pl. *Resp.*, I, pp. 247-9.

¹³⁸ Arist. *Pol.*, p. 310.

¹³⁹ Arist. *Pol.*, p. 316.

¹⁴⁰ Arist. *Pol.*, p. 316.

¹⁴¹ Pl. *Resp.*, I, 249.

¹⁴² Arist. *Pol.*, p. 316.

education of ‘children of tender age because it possesses both the elements of order and of education’.¹⁴³

Sacadas, using what he had at his disposal, that is, the Dorian, the Phrygian, and the Lydian mode, composed an ode of three strophes. The idea was that each strophe had to be sung in a respective mode. Sacadas himself instructed the choir to do so. A result of this innovative composition technique is the *trimeres nomos* (Plut. [De Mus] 1134a-b).¹⁴⁴ Sacadas is also considered to be the inventor of the *auletic pythicos nomos* which represents the contest between Apollo and the Serpent (Paus. Book II.22.8-9; Pollux *Onomasticon* IV. 84).¹⁴⁵

Through the performance of this piece, Sacadas showed the expressive capability of the *aulos*, particularly, when imitating the hissing of the expiring serpent (Mathiesen 1999: 24-5). In order to perform this piece, some improvements may have been made to the *aulos*. These may be attributed to Sacadas himself because he is portrayed playing a particular type of *aulos*. Pausanias (Book IX.30.2-3) mentions a statue of Sacadas at Helicon, where he is portrayed playing an outstandingly long *aulos*.¹⁴⁶ According to West (1992: 90), the name of this *aulos* may have been *Sacadeion*. The *pythicos nomos* probably became a traditional repertoire piece but, whether later *aulos* players performed it in the manner of Sacadas is not known. Sacadas along with Xenodamus, Xenocritos, and Polymnestus contributed to the development of Greek music, and particularly to the so-called second period (ἡ δευτέρα κατάστασις) of Greek music (Plut. [De Mus] 1134c).¹⁴⁷ Xenodamus of Cythera and Xenocritus of Locri were both composers of *paeans*, while Polymnestus of Colophon was a composer of *Orthian* pieces (ibid). Sacada’s major contribution was perhaps the introduction of elegiacs at the Gymnopaedia, a festival held in Apollo’s honour in Sparta (Nobili 2016: 44).

¹⁴³ Arist. *Pol.*, p. 317.

¹⁴⁴ Plut. [De Mus], p. 371.

¹⁴⁵ Paus., I, p. 367. This piece is structured in five sections. The *peira* (lit. test), Apollo tests the land for the contest. The *katakeleusmos* (challenge) is where Apollo challenges the Serpent to a duel. The *iambikon* (fight) is a manifestation of the fight. The *spondeion* (the victory), is Apollo’s victory over the Serpent. The *katachoreusis* (dance of triumph) is where a dance is performed by the gods (Barker 1984: 51 no. 24).

¹⁴⁶ Paus., IV, p. 301.

¹⁴⁷ Plut. [De Mus], p. 373.

The Games

The Games or *agōnes* were official contests offered in honour of a god or a local hero (Instone and Spawforth 1998: 294). There were four principal festivals in ancient Greece: the Olympia, Pythia, Nemea, and Isthmia and they all held their respective Games. The Agonistic Festival at Olympia, thus, the Olympic Games were founded by Heracles (Pindar *Olympian* II.3-4).¹⁴⁸ The Games honoured Zeus and commemorated the victory of Pelops in his chariot-race over King Oenomaus of Pisa (Roberts 2005: 515).¹⁴⁹ In view of this, one may say that the Olympic Games were rooted in religious and political beliefs.

The Games were allegedly established in 776 BC however, this probably may have happened at an earlier date (Littlewood 2006: 514). The Olympic Games were held at the sanctuary of Zeus in Olympia once every four years in the months of August or September (Pindar *Olympian* X.57; Richardson 2012: 1037).¹⁵⁰ They consisted of a wide range of athletic competitions, personal combats, chariot-races, and musical contests (Pindar *Olympian* X.60-75; Roberts 2005: 515).¹⁵¹ We ought to mention that the pentathlon, a competition which included running, long jump, discus, javelin and wrestling, was accompanied by the music of the *aulos*, while horse-races were accompanied by the sound of the trumpet (Busby 1819: 155). The chariot-race was another activity accompanied by the music of the *aulos* (ibid: 155). Records of winners in diverse categories go back to 776 BC up to AD 217 (Christesen 2007: 1-268). The Olympic Games were eradicated by Theodosius I in AD 393 (Richardson 2012: 1037).

The Pythian Games honoured Apollo, Artemis, and Leto (Schmitz and Beare 2008: 528).¹⁵² Apollo established the Games himself and commemorated his victory over the serpent Python (Ath. Book XV 701b-f).¹⁵³ According to Pausanias (Book II.32.2), Diomedes, King of Etolia, was the first to hold the Games.¹⁵⁴ They were

¹⁴⁸ Pind., p. 19. Heracles is the greatest of the Greek heroes. His name means Glorious through Hera. Heracles was born to a human mother (Alcmene) and a god (Zeus) (Roberts 2005: 332).

¹⁴⁹ Zeus is the main divinity of the Greek pantheon. He was known as the weather god and was worshipped at the Olympus mountain (Roberts 2005: 833).

¹⁵⁰ Pind., p. 115.

¹⁵¹ Pind., p. 117.

¹⁵² Apollo was a Greek god son of Zeus and Leto. He was the twin brother of Artemis, who was considered older. Leto was the Titaness mother of Apollo and Artemis, daughter of Coeus and Phoebe.

¹⁵³ Ath., III, pp. 1121-2. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961), VII, 266-70.

¹⁵⁴ Paus., I, p. 423.

usually convened at the Pythium in Macedonia and in Delphi (Schmitz and Beare 2008: 528) once every eight years (Mathiesen 2001: 645). Prior to their reorganisation (582 or 586 BC), the Pythian Games consisted of a single contest: the singing of a hymn to Apollo accompanied by the lyre (Paus. Book X.7.2).¹⁵⁵ Its reorganization brought changes. First, the Games became quadrennial, so they started to be held in late August of the third year in each Olympiad (Mathiesen 2001: 645; Roberts 2005: 639). Second, the Games included new music contests and the *pankration* (*Greek Anthology* 16.23).¹⁵⁶ Prizes consisted of a wreath of beech leaves or a crown of laurel (Instone and Spawforth 1998: 294). It is very likely that the Pythian Games started to be celebrated in 582 BC (Roberts 2005: 639).

The Nemean Games were first established by Adrastus in remembrance of Olphetes, the child who got killed by a snake during the expedition of the Seven against Thebes (Richardson 2012: 1006). They were re-established and re-organised in honour of Hercules after his conquest over the Nemean lion (Beare 2008: 227; Roberts 2005: 498). The Games were held at the Panhellenic sanctuary of Zeus in Nemea, Argolis, every second and fourth year of each Olympiad (Richardson 2012: 1006; Roberts 2005: 498). The organisation of the event was the responsibility in turn of the Argives, Corinthians, and the people from Cleone (Busby 1819: 161; Beare 2008: 227-8). Prizes consisted of olive crowns; however, these were replaced by smallage, a variety of celery, that was considered to be a funerary plant (Busby 1819: 162).

The Isthmian Games, named after Isthmus of Corinth, were established in memory of Melikertes, son of Athamas King of Orchomenos and Ino (Beare 2008: 1023-4). The Games were reorganised as Panhellenic festival in c.582 BC (Roberts 2005: 376). Prior to their reorganisation, the Games were held in honour of Poseidon, but afterwards in honour of the son of Ino. The Isthmian Games were celebrated biennially in April or May (Roberts 2005: 376; Richardson 2012: 749) and comprised of poetical and music contests, chariot, and horse racing (Beare 2008: 1025). Prizes consisted of garlands of pine leaves, but during the Classical period, a crown of dry parsley was awarded to the winner (Richardson 2012: 749).

¹⁵⁵ Paus., IV, p. 403.

¹⁵⁶ *The Greek Anthology*, trans. by. William Roger Paton, 5 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's Sons, 1918), V, 171. The *pankration* is a dangerous sport that combined boxing and wrestling with kicking, strangling, and twisting (Decker 2004: 447-8).

Apart from the above-mentioned Festivals and Games, one ought to refer to the great civic festival celebrated at Athens, that is, the Panathenaea. This festival, and by extension its Games, honoured the city's patron goddess Athena (Parker 2012: 1073). The Panathenaea was first established by Orpheus and reorganised by Theseus (Roberts 2005: 531). The festival was held in the month of *Hekatombaion* which corresponds roughly to the month of August (Graf 2016: 9). Various activities were undertaken in the festival, but probably the most significant was the procession that marched from Kerameikos through the Agora to the Acropolis (Roberts 2005: 531). This particular procession honoured Athena through the offer of a robe (*peplos*) (Neils 2012: 199). The cortege was usually accompanied by music played on the *aulos*. This is shown in certain vase-paintings and in the friezes originally at the Parthenon (see Figures 3.13 and 3.14 on p. 138). The presence of *auletai* in such a procession is not arbitrary, as this event was usually followed by sacrifices where they played a predominant role (Villing 2005: 12). The music of the *aulos* was also present in the Pannychis or night festival. This event was celebrated the night before the Panathenaea, and it included the performance of boys and maidens' choirs and circular dances (Davidson 1958: 25). The Panathenaea comprised athletic and music competitions where citizens from different areas of Greece could take part (Villing 2005: 12). The festival lasted for several days and the prizes consisted of money and amphoras of olive oil (Roberts 2005: 531; Graf 2016: 9).



Figure 3.13. Black-figure amphora from Vulci (F 1686), c.525 BC, Antikensammlung, Berlin. Feast of Athena. (L-R): sacrifice of a cow at an altar of Athena. A procession of two *auletai* and two *kithara* players (photos: <https://weblimc.org/page/monument/2112743>).



Figure 3.14. Detail of the centre-north frieze of the Parthenon showing the Panathenaic procession, Acropolis Museum, Athens. It seems that male *aulos*-players mainly accompanied this procession (photograph by the author).

The fragmentary inscription IG II2 2311, from the region of Attica (c.400-350 BC), records a list of the music competitions convened at the Panathenaea and their corresponding prizes. However, due to the precarious condition of the slab, Johnston (1987: 125) claims that the inscription has at least three missing lines, thus the first line of column 1 was probably preceded by an entry that would read *rhapsoidoi* (rhapsodes), where participants competed with each other reciting poetry without musical accompaniment.

The following is a description of IG II² 2311 as published by Vos (1986: 122). The inscription presents a sequence of the following music contests' categories: *kitharoidoi*, *auloidoi*, *kitharistai*, and *auletai*. The *kitharoidoi* consist of singers who accompany themselves on the *kithara*. The *auloidoi* are vocalists who sang to the music of the *aulos*. The *auletai* is itself a contest based on *aulos* playing. The *kitharistai* are competitive *kithara* players. Remarkably, it also mentions the categories of *andres auloidoi* and *andres kitharistai*, where the term *andres* signifies that these contests were exclusively meant for youths. The Panathenaea offered five prizes for *kitharodes* taking part in the *kitharoidoi*. The winner's prize consisted of a golden wreath worth 1000 drachmas and 500 drachmas in silver. The other prizes worth 1200, 600, 400, and 300 drachmas respectively were doled out as the second, third, fourth, and fifth prizes. Two prizes were offered for the category of *aulodes* which consisted of a wreath worth 300 drachmas for the winner and one of 100 drachmas for the second prize. Equally, two prizes were offered for the category of *auletai* and these also consisted of a wreath, but due to the fragmentary condition of the inscription, the value is not known. The winner of the *Kitharistai* category was awarded a wreath worth 500 drachmas and 300 drachmas in silver. Unfortunately, the

second prize is not known. The third prize consisted of 100 drachmas (Vos 1986: 122).¹⁵⁷

The Symposium

The word symposion literally means drinking together (Roberts 2005: 735). The symposion was a convivial ritual or drinking party where only male citizens could participate (Murray 2012: 1418). Figure 3.15 shows a symposion scene with *aulos* player. A *kithara* and a *sybene* (*aulos*' case) hang on the wall. To the right of the *auletride*, two revellers, drink on the wine and music, lift their heads up, perhaps singing. The symposion aimed to strengthen social relations through the enjoyment of the pleasures of life, such as eating, gaming, and entertainment (Dalby 2006: 683). The event was also a niche for poetry and philosophy (ibid). The symposion was usually preceded by a meal (*deipnon*) where Greeks did not usually drink. Thus, it was not until the conclusion of the meal that the wine was introduced (Marindin 2008: 740; Murray 2012: 1418). The symposion, that is, the drinking party only started after the libations were made and the *paean* (hymn) sung (Marindin 2008: 740). The closing of the event was also marked by libations and prayers (Roberts 2005: 735). The room (*andron*), in which the gathering was held, was square (Murray 2012: 1418). It fitted between seven to fifteenth couches and was furnished with low tables, cushions, and wall hangings (Roberts 2005: 735). An average assembly of attendants ranged from fourteen to thirty individuals (Murray 2012: 1418). The custom was that one or two persons reclined on the left elbow on a couch (Dalby 2006: 683). A mixture of wine and water was poured in a large vessel known as *krater* and placed in the centre of the room (Marindin 2008: 740). The wine was usually served by young male slaves (Murray 2012: 1418). The entertainment was provided by professional artists whose music-poetic repertoire mainly consisted of elegiac poetry and drinking songs (West 1992: 25).

¹⁵⁷ See also Searchable Greek Inscriptions <<https://inscriptions.packhum.org/text/4550>>,(2020).



Figure 3.15. Attic red-figure calyx krater painted by Euphronios, around 510 BC. Staatliche Antikensammlungen, München (photo: Riethmüller and Zamminer 1989: 222).

Most of the activities carried out at symposia revolved around conversation, drama, and music. A common pastime was to play *kottabos*. This game consisted of flinging the last drops in the wine cup at a target located in the middle of the room (Smith 2003: 34). The prize for the winner often consisted of sexual favours provided by slaves (ibid). The host had the duty of hiring slaves for entertainment. The hiring of an *auletris*, a female *aulos* player, for instance, was essential, so much so that it figured as indispensable in the list of luxury items for the symposion (Aristophanes *Acharnenses* 551).¹⁵⁸ While a bowl of wine was mixed, an *auletris* played a Carian melody for the guests (Ath. Book XV 665d).¹⁵⁹ Although *auletrides* were much in demand, their remuneration was controlled. Greek law forbade payment of more than two drachmas to them (Aristotle *Athenian Constitution* 50.2).¹⁶⁰

During the classical period, the only women allowed at symposia were *auletrides* or *hetairai* (Dalby 2006: 683). The custom was to introduce the *auletrides* during or after the opening ceremonies of the symposion (Ath. Book XV 665c).¹⁶¹ Nevertheless, the *paean* sung at the opening was often accompanied by an *auletris* (Peschel 1987: 35-6). This may be the reason why *auletrides* were essential to symposia and to other private settings. As aforementioned, the performances by the *auletrides* extended throughout the evening and fundamentally aimed to provide pleasure (enjoyment) for the guests. As slaves, *auletrides* could be prostituted, but

¹⁵⁸ Aristophanes, trans. by Benjamin Bickley Rogers, 3 vols., Loeb Classical Library (London: William Heinemann Ltd., New York: G. P. Putnam's Sons, 1930), I, 55 (Hereafter, Ar. *Ach.*).

¹⁵⁹ Ath., III, p. 1063. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961), VII, 64.

¹⁶⁰ Aristotle, *Athenian Constitution*, trans. by Frederic George Kenyon (London: G. Bell and Sons, Ltd., 1912), p. 92 (Hereafter, Arist. *Const. Ath.*). The word *auletrides* is the plural for *auletris*.

¹⁶¹ Ath., III, p. 1062. See also Athenaeus, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961), VII, 62-4.

they were not considered mere harlots, although some of them were (Goldman 2015: 42). Other entertainers at the symposion included dancers, acrobats, and a variety of musicians (Smith 2003: 35).

Weddings

Two passages, one from Homer's *Iliad* (a) and another from Hesiod's *Shield of Herakles* (b), seem to complement each other, thus providing an overall idea of the role of the *aulos* during weddings.

(a) There placed he two fair cities full of men. In one were marriages and feasts; they led the brides with flaming torches from their bowers, along the streets, with many a nuptial song. There the young dancers whirled, and flutes [*auloi*] and lyres [*phorminges*] gave forth their sounds, and women at the doors stood and admired (Hm. *Il.* Book XVIII lines 490-496) (Cullen Bryant 1870: 185-6).¹⁶²

(b) [He (Hephaestus, the god of fire and metal-working) engraved in the shield two cities of mortal men. One of them shows scenes of a wedding: ...] Next, there was a city of men with goodly towers; and seven gates of gold, fitted to the lintels, guarded it. The men were making merry with festivities and dance; some were bringing home a bride to her husband on a well-wheeled car, while the bridal song swelled high, and the glow of blazing torches held by handmaidens rolled in waves afar. And these maidens went before, delighting in the festival; and after them came frolicsome choirs, the youths singing soft-mouthed to the sound of shrill [loud] pipes [*syringes*], while the echo was shivering around them, and the girls leading on the beautiful dance to the sound of lyres [*phorminges*]. Then again on the other side was a rout of young men revelling, with flutes [*auloi*] playing; some frolicking with dance and song, and other laughing all in time with the flute [*aulos*] player as they went along.

¹⁶² Hm. *Il.*, II, pp. 185-6. See also Homer, *The Iliad*, trans. by Augustus Taber Murray, Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press, 1947), II, 324.

And the whole town was filled with mirth and dance and festivity
(Hesiod *Shield of Heracles* lines 270-285) (Evelyn-White 1914:
239-41).¹⁶³

It goes without saying that weddings changed the bride's social status. Marriages were arranged, normally between the heads of the households, and consisted of elaborate preparations such as sacrifices. According to Bundrick (2005: 179-93), a preparatory ritual was the bridal bath where water was collected by a procession of women from the family. A particular vase, known as the *loutrophoros* was used for this purpose. Wedding songs were chanted to the accompaniment of the *aulos* while that ritual was carried out (Figure 3.16). The feast was usually celebrated at the bride's home. At some point in the celebration, the couple boarded a chariot to be led in procession by torchlight to the husband's home. The procession was accompanied by wedding songs and particularly by the *aulos*, as well as by the cheering of passers-by. At the door of the bridegroom, his mother would wait for the young couple with burning torches in her hand (Bundrick 2005: 179-93).



Figure 3.16. Loutrophoros (no. 1453), c.430 BC. National Archaeological Museum, Athens. A procession to bridal bath with *aulos* player on extreme right side of vase (photo: Bundrick 2005: 185, Figure 106).

¹⁶³ Hesiod, *The Homeric Hymns and Homerica*, trans. by Hugh G. Evelyn-White, Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1914), pp. 238-40.

The procession that led the brides from their bowers and guided them through the streets to their new house included musicians, mainly *aulos* players and lyre players, as well as dancers and individuals probably playing other types of utensils (Barker 1984: 22). Bridal torches are the symbol of the god Hymenaios, god of love and weddings (Guirand 1981: 120). Torches suggests some sort of ritual associated with light in which the procession led the brides from a road of darkness to the light while good auguries rained on them.

As depicted in some images, processions were usually led by an *auletes*. It is however not clear whether this is the case in Homer's narration. The music accompaniment may have consisted of nuptial marches, in particular the hymn to Hymenaios or Hymn to Hymen (Barker 1984: 22 footnote 11). According to Homer, the music was played by a number of *aulos* players and *phorminx* players. Conversely, Hesiod mentions both instruments as well as *syringes* but describes a scene where instruments are played by different groups of people. In this case, one can conclude that each instrument is played separately rather than as part of an ensemble. The scene described by Homer seems to be far more organised than the one described by Hesiod where he mentions *syringes* and choirs playing together. The difference between both narrations may allude to a variance in context or stages of the same ceremony. It is important to mention that at Greek weddings music was played during the feast, during the procession that accompanied the bride to the groom's house, and outside of the bridal chamber on the day and the next morning (Barker 1984: 22 footnote 11).

While Homer's context may be viewed as more ceremonial, Hesiod's has a far more festive feeling to it. Music has always encouraged people to dance and both Hesiod and Homer suggest that music was played throughout the two-day nuptial celebrations. As Homer states, dancers whirled to the sound of the *aulos* and the lyre. Apart from musically accompanying the procession and the festivities, *aulos* players also took part in the procession which carried gifts to the couple's house (Bundrick 2005: 180). This activity was customarily performed on the second day (ibid). A particular *aulos*, which can be identified as the 'wedding *aulos*', was used in such ceremonies (Pollux *Onomasticon* IV. 80; Wilson 1999: 70). The instrument consisted of a 'male' and a 'female' pipe which represented the couple (ibid). The male pipe was considerable larger than the female pipe (ibid).

War

Another context in which the *aulos* was used was as an accompaniment during times of conflict (Figure 3.17). In antiquity, battles were carried out both on land and at sea. Records of oarsmen rowing to the music of the *aulos* are mentioned in Plutarch (*Vitae Parallelae*—Alcibidades 32.2) as he describes the atmosphere on a ship on its way to war. The *auletes* Chrysogonus, a Pythian victor, along with Callipides, a tragic actor, helped the oarsmen to keep the time by reciting poems to the accompaniment of the *aulos* (ibid).¹⁶⁴ The Spartans (Lacedaemonians), meanwhile, used the *aulos* as a signalling instrument so as to keep the army's line of battle (Paus. Book III.17.5).¹⁶⁵ They also used the *aulos* to accompany hymns and marching songs called *embateria* (Barker 1984: 290), in order to boost the morale of the troops. Spartans performed *paeans*, that is, hymns to exalt their identity and particularly to encourage the warriors to battle (Thucydides Book VI.32.2).¹⁶⁶ While referring to the events that occurred during the second Messenian war, specifically when the Messenians won the battle, Pausanias (Book IV.16.6) asserts that the Messenians, under the leadership of Aristomenes, drove out the Spartans from their territory. After this defeat, the Spartans were thrown into despair and ready to surrender, but the poems, that is, the hymns of Tyrtaeus encouraged them to return to battle.¹⁶⁷ The following passage from Plutarch's *Vitae Parallelae* (Lycurgus 21.1-2) gives us an idea of Spartan character, which was clearly both musical and warlike.¹⁶⁸

Nor was their training in music and poetry any less serious a concern than the emulous purity of their speech, nay, their very songs had a stimulus that roused the spirit and awoke enthusiastic and effectual effort; the style of them was simple and unaffected, and their themes were serious and edifying. They were for the most part praises of men who had died for Sparta, calling them blessed and happy; censure of men who had played the coward, picturing their grievous and ill-starred life; and such promises and boasts of valour as befitted the different ages. Of the last, it may not be amiss to cite one, by way of illustration.

¹⁶⁴ Plutarch, *Plutarch's Lives*, trans. by Bernadotte Perrin, 11 vols., Loeb Classical Library (London: William Heinemann Ltd., Cambridge, and Massachusetts: Harvard University Press, 1959), IV, 93-5.

¹⁶⁵ Pausanias, *Description of Greece*, trans. by William Henry Samuel Jones and Henry Arden Ormerod, 6 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's Sons, 1926), II, 107. (Hereafter, Paus. II).

¹⁶⁶ *Thucydides*, trans. by Benjamin Jowett, 2 vols (Oxford: Clarendon Press, 1881), I, 431.

¹⁶⁷ Paus., II, p. 259.

¹⁶⁸ Plut. *Vit.*, I, 270-2.

They had three choirs at their festivals, corresponding to the three ages, and the choir of old men would sing first: “We once did deeds of prowess and were strong young men.” Then the choir of young men would respond: “We are so now, and if you wish, behold and see.” And then the third choir, that of the boys, would sing “We shall be sometime mightier men by far than both” (Perrin 1959: 271-3).

According to Plutarch ([*De Mus*] 1140c), the Spartans would advance towards the enemy playing the hymn of Castor, that is, the *castoreum melos* on the *aulos*.¹⁶⁹ In mythology, Castor was one of the twin brothers of the Dioscuri (the other was Pollux) and the son of Tyndareos, the King of Sparta (Guirand 1981: 188-91). The *castoreum melos* may have been composed by Castor himself and probably played during the Trojan War, as Castor was the brother of Helen, the daughter of Tyndareos (Roberts 2005: 793). A description of a similar event is found in the following passage by Plutarch (*Vitae Parallelae*—Lycurgus 22.2-3).¹⁷⁰

And when at last they were drawn up in battle array and the enemy was at hand, the king sacrificed the customary she-goat, commanded all the warriors to set garlands upon their heads, and ordered the pipers [*aulos* players] to pipe [play] the strains of the hymn to Castor [*castoreum melos*]; then he himself led off in a marching paeon, and it was a sight equally grand and terrifying when they marched in step with the rhythm of the flute [*aulos*], without any gap in their line of battle, and with no confusion in their souls, but calmly and cheerfully moving with the strains of their hymn into the deadly fight (Perrin 1959: 275).

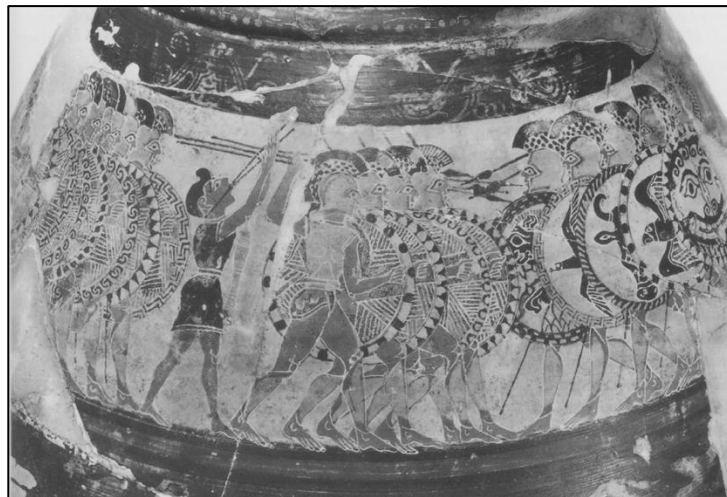


Figure 3.17. Protocorinthian olpe (no. 9004217), c.675-625 BC. Museo Nazionale Etrusco Di Villa Giulia, Roma. A battle scene from the so-called ‘Chigi vase’ (photo: Broodbank 2013: 559, Figure 10.37).

¹⁶⁹ Plut. [*De Mus*], pp. 411-3.

¹⁷⁰ Plut. *Vit.*, I, 274.

The role of the *auletes* during battle not only consisted of playing hymns and marches to encourage the warriors. The *auletes* was also responsible for sending specific signals to soldiers, where different sounds probably denoted different orders. Figure 3.17 shows an *auletes* playing his pipes upward. This position probably improved the intensity of the sound, thus allowing the soldiers to hear the signals better.

The remains of the Spartan citadel, specifically its distinctive absence of fortifications, evidences the military power of the Spartans (Cartledge 2011: 57). Their musicality, however, is attested through a number of artefacts found at the sanctuaries of Athena Chalkioikos, on the Acropolis, and of Artemis Orthia in the west bank of the Eurotas (Sparta). Between the years 1907 and 1908, the British School of Athens excavated both sites. The Sanctuary or Hieron of Athena Chalkioikos yielded a statuette of a trumpet player (Dawkins et al. 1907: 147). The relevance of this object to our study is not purely iconographical, as it is clear that particular objects had a strong relationship with cult. Consequently, we may say that this figurine was deposited at the sanctuary as a votive offering, probably, by a local or pilgrim musician or warrior. In antiquity, it was customary to deposit statuettes at the shrine so as to ask for favours or to thank the gods. Statuettes were meant to represent both the worshipper's intentions and the worshipper himself while carrying out his day-to-day activities. In addition to offering figurines, worshippers or musicians also offered musical instruments in dedication to the gods (Papadopoulou 2004: 347-62). The sanctuary of Artemis Orthia, apart from producing a terracotta figurine representing an *aulos* player (Dawkins et al. 1908: 52), yielded thirteen fragments of bone flutes (possibly *auloi*) with finger holes which date to c.750 BC. Two of the fragments are notable for the inscriptions on them, one bearing the word Orthia while the other bears the name ΑΧΠΑΔΑΤΟΣ (Axpados) (Dawkins et al. 1929: 236-7). According to Marconi (2014: 108-9), dedicatory inscriptions on musical instruments were a manner by which musicians augured themselves health, success, and protection especially during war time. The considerable number of *aulos*' fragments from the sanctuary of Artemis Orthia suggests that this aerophone was in some way connected with the worship of Athena. The fragments are parts of real instruments thus, some sort of ritual was associated with this particular type of offering. Priests were responsible for such

offerings, but when there were too many of them to display in the temple, these were deposited in sacred pits (Pedley 2005: 112).

Spartans were renowned for practising a type of dance called *pyrrhic*. This dance originated in Crete and spread all over Greece, particularly to Sparta where it was performed as an exercise for the preparation for war (Moutsopoulos 1959: 146). The *pyrrhic* dance probably owes its name to a Spartan man named Pyrrhichus (Ath. Book XIV 630e).¹⁷¹ We ought to mention that Spartans learnt to master it as early as the age of five years (Ath. Book XIV 631a). Athenaeus (Book XIV 631a-b) describes the *pyrrhic* dance as some sort of Bacchic dance where the dancers carry *thyrsos*, that is, wands covered with ivy vines and leaves instead of spears. They dart fennel-stalk to their counterparts and carry torches (ibid). They either dance the story of Bacchus and India or Pentheus, various melodies, and Orthian rhythms (Athenaeus Book XIV 631a-b).¹⁷² According to Plato (*Leges* Book VII. 815), this dance displayed physical beauty and nobility of character in the young, because it imitated the gestures of valiant warriors.¹⁷³ The *pyrrhic* dance was famous during the festival of Panathenaea (Moutsopoulos 1959: 146). It is highly likely that the *aulos* played a role in these celebratory dances, as the *aulos* itself was identified and ‘referred to indifferently by the two terms *aulos* and *pyrrhikine*’ (Moutsopoulos 1959: 146)

3.4 Coalescing Situations and Processes

This section attempts to show how social processes such as acculturation, diffusion, and syncretism affected the history of the *aulos*. As defined in the introductory Chapter of this thesis, the terms acculturation, diffusion, and syncretism refer to different manners by which culture is transmitted between different peoples. While acculturation refers to cultural changes which result from direct contact between individuals of different cultures, irrelevant of how complex their society, diffusion results from migration and trade whereby individuals inadvertently spread their culture to one another (Rice 2001: 67; Winthrop 1991: 82). Syncretism refers to a blending of beliefs and cultural practices which result when different cultures meet (Rice 2001: 850-1). In order to provide a clear idea of the above, it was necessary to

¹⁷¹ Ath., III, p. 1006.

¹⁷² Ath., III, p. 1007. See also Barker 1984: 290.

¹⁷³ Plato, *Laws*, trans. by Robert Gregg Bury, 2 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam’s Sons, 1926), II, 91.

restrict the number of sources for the purposes of this study. Since the main idea is to contribute to the understanding of the *aulos* and under no circumstances to impose scenarios, this section mainly focuses on some relevant aspects of this musical instrument.

It is noteworthy that the earliest evidence of an *aulos* was found in the Aegean, specifically, in the island of Keros. The evidence consists of a marble figurine representing a man playing the double-pipes. The artefact probably dates back to the Early Cycladic Period II (c.2500-2200 BC) or earlier, possibly between 2800-2300 BC. The provenance of the artefact is uncertain; however, it may be part of the ‘Keros hoard’, that is, a group of about three hundred fifty figurines found in Kavos (Getz-Preziosi: 1982). Whether this site was a cemetery (Doumas 1972: 163) or a pan-Cycladic sanctuary is not clear (Renfrew 1984: 27-9), however the distinction between the two can be relevant to this study. If this site was a cemetery, it is possible that the figurine was left there in memory of a deceased, perhaps of a musician, but if the place was a sanctuary, it is most likely that the figurine was left there as an offering, perhaps to ask some favour of some divinity. Figurines were faithful representations of individuals, a reason why these were deposited in sanctuaries on behalf of people, essentially a representation of themselves as they carry on with their daily lives or travels. Whatever the case, all this implies movements of people locally or abroad, therefore, exchanges of ideas, customs, and music traditions.

Another point to take into consideration is that the Aegean islands, that is, the Cyclades are all very close together. This means that they interacted with each other. According to Broodbank (2013), paddle longboats were used for trading and raiding. Any type of interaction between the islands may have contributed to the diffusion of the *aulos*. The *aulos*, and by extension music, was probably part of a cultural flow that went hand in hand with architecture, sculpture, and pottery during the Early Cycladic Period II. Where exactly this cultural flow started is not known, but significant architectural developments occurred on the islands of Syros (Khalandrini) and Naxos (Pedley 2007: 37-43). The marble was extracted from the island of Naxos, as well as from Paros. This material was used to make sculptures, whose themes were generally the male and the female figure, and the renderings of musicians (ibid: 37-43).

In light of this information, we may say that the island of Syros was potentially a cultural centre from which artistic expressions diffused to neighbouring islands. With regards to pottery, the favourite shapes were cups, jars, beakers, and cosmetic

boxes. Cycladic pottery and stonework achieved a high level of representational art during the Early Cycladic Period II (2500-2200 BC). Outstanding exemplars have been found in Syros, Naxos, and Keos (Pedley 2007: 37-43). This diffusion of both mundane and cultural material is part of a social, political, and economic exchange system within which one cannot omit the diffusion of musical instruments and by extension, musical practices from one place to another. (Dawe 2003: 274-83).

In this context, the question whether the *aulos* was a totally Aegean invention or was the product of an amalgamation of ideas that came from other regions of the Mediterranean remains a moot question. According to Pedley (2007: 37), the Cyclades received a western flow of immigration in the Early Bronze Age. Most of the immigrants came from mainland Greece and Crete. According to Barber (1987: 17), the immigrants brought prosperity to the islands because they began to use materials such as marble, metal, emery, and obsidian. This may have influenced Cycladic art in the type of material used. Nevertheless, on the whole Cycladic art remained true to the traditions as inherited by local forerunners. In addition, if we compare Cycladic art with those of Greece and Crete, the former is undoubtedly the more advanced (Pedley 2007: 40).

It is therefore not simply a question of stating that the *aulos* was an Aegean product. It is possible that certain ideas related to its construction may have come from these immigrants but considering that Aegean art was local and traditional, albeit exported to other parts of the Mediterranean, there are strong indications that the *aulos* is an Aegean product. In addition, there is no evidence similar to the figurine found in Keros in other parts of the Mediterranean dating from the same period.

Since the Cycladic islands served as a port for Asian routes to Europe, connecting Asia Minor, Crete, and Greece (Barber 1987: 17), it is viable to think that the practice of playing two pipes simultaneously came from a far land. As a matter of fact, silver pipes have been discovered in southern Mesopotamia (Woolley 1934). The tubes were found at the royal cemetery of Ur and date back to c.2500 BC. This date coincides with the Aegean figurine, but it is not clear whether the Ur pipes were double-pipes or not. In fact, one of these pipes has only one hole. This may indicate that this pipe is either unfinished or served exclusively as a drone. In consequence, it is more likely that the practice of playing two pipes simultaneously sprang from the Aegean.

However, there is the possibility that the Minoans of Crete played the double-pipes prior to 1400 BC. The sarcophagus of Aghia Triadha (c.1400 BC) depicts a musician playing a double pipe aerophone (Castleden 1990: 152). On one of its pipes, this instrument has a horn attached which functions as a bell. According to Castleden (1993: 11), the Minoan population may have resulted from the interbreeding of natives, that is, the Neolithic people of Crete with immigrants from mainland Greece and Anatolia. Although the Minoans were in part influenced by foreign ideas and goods coming from the Cyclades and Anatolia, they also had their own local traditions and developments (ibid: 29). Thus, it could be that this particular set of pipes developed exclusively in Crete. It is also noteworthy that the Phrygians (fl. c.800 BC) developed a similar instrument. This particular type of *aulos* was known in Greece as the ‘Phrygian’ *aulos*. It is believed that the Romans adopted this instrument and called it *elymos* (West 1992: 91-2).

The invention of the *aulos* has been attributed to different people and divinities. In one example, according to Athenaeus (Book XIV 618b-c), the *aulos* was the work of a Libyan-Numidian man called Seirites.¹⁷⁴ This assertion is obviously late, as Athenaeus must have completed his work *Deipnosophists* shortly after the death of the Roman Emperor Commodus in AD 192. It is highly unlikely that this reference indicates the true origin of the *aulos*, yet Athenaeus is quite informative. He categorically states that Seirites invented the *aulos*, however, based on the Aegean evidence, it is more likely that Seirites created a ‘type of *aulos*’ which was probably used in Numidia, that is, in North Africa. This information complements an earlier reference from c.412 BC. In his *Helena* (164-74), Euripides refers to the *aulos* as the Libyan *lōtos*.¹⁷⁵ Evidently, this alludes to the existence of a Libyan-Numidian tradition of *auloi* manufacture.

Helen. Stricken as I am with great griefs and troubles, what lament shall I find to rival them? Or to what music shall I turn, with tears or wailing or mourning? *Aiai!*

Come Sirens, youthful winged maidens, virgin daughters of earth, come to join my laments with the Libyan *lōtos* or the *syrinx* or the *phorminx*, with tears to accompany my sorrowful misfortunes (cited from Barker 1984: 67 no 42).

¹⁷⁴ Ath., III, p. 986.

¹⁷⁵ Eur., I, pp. 480-2.

This type of *aulos* probably had a particular timbre, as, to a certain extent, the characteristic sound of a musical instrument has to do with the material used for its construction. In his *Historia plantarum* (Book IV.3.1-4), Theophrastus tells us that the wood of the Libyan *lōtos*, that is, of the *Celtis Australis* or nettle-tree, was used for the manufacture of *auloi*, and that this tree mainly grows in Libya and in some other parts of North Africa.¹⁷⁶ This information, apart from suggesting the existence of a North-African tradition of *auloi* manufacturing, puts forward the possibility that the task of acquiring reed in the Libyan region was difficult, a reason why *auloi* manufacturers used wood instead of cane.

The words of Euripides above also indicate that this particular type of *aulos*, that is, the Libyan *lōtos* was used to accompany laments. Based on studies by West (1992: 179-80), one may suggest the possibility that this particular type of *aulos* was tuned in the Dorian mode, as this mode was particularly suitable to accompany laments. Euripides (*Phoenissae* 784-91) also informs us that the *lōtos* was associated with the cult of Dionysus.¹⁷⁷

Chorus. Ares, bringer of toil, why are you surrounded by blood and death? Why are you in discord with the festivals of Dionysus? You do not loose [sic] your hair among the garlands and fine dances of girls in the ripeness of youth, singing in accord with the breadth of the *lōtos* a song full of graces that creates the dance, but with your men at arms you inspire the Argive army with desire of Theban blood, leading the chorus in a revelling dance accompanied by no *aulos* (cited from Barker 1984: 73 no. 60)

The music played at Bacchic celebrations usually revolved around the Phrygian mode, as, like the *aulos*, this was orgiastic in nature (Arist. *Pol.* VIII 1342b).¹⁷⁸ Therefore, it is very likely that the *lōtos* was not solely associated with one particular musical genre. Like the contemporary *arghul*, the Libyan *lōtos* may have been tuned in a number of different modes thus its name may allude to the material from which it was built rather than the way it was tuned (see Chapter IV section 4.7 and 4.8).

¹⁷⁶ Theophr. *Hist. pl.*, pp. 303-7.

¹⁷⁷ Eur., III, pp. 410-12.

¹⁷⁸ Arist. *Pol.*, p. 316.

With the regards to context, Euripides, (*Iphigenia Aulidensis* 435-9 and 1036-57) describes that the Libyan *lōtos* was used during weddings.¹⁷⁹

Messenger. Come then, get ready the sacred baskets for these rites; garland your heads; and you, lord Menealus, prepare the wedding. Let the *lōtos* cry out inside the tents, let feet be set beating! This dawn will be a blessed one for the maiden (cited from Barker 1984: 80 no 80)

Chorus. What a joyous cry did the god of wedding songs set up with the Libyan *lōtos*, the *kithara* that loves the dance, and the reeds of the *syrinx*, when the Muses with their lovely hair, beating their gold-sandalled [sic] feet upon the ground, came up Mount Pelion to the marriage of Peleus, among the feasting of the gods, praising Thetis and the son of Aeacus with melodious voices all through the woods of Pelion on the mountains of Centaurs. The son of Dardanus, Phrygian Ganymede, cherished delight of Zeus' bed, poured out the libation wine in the golden hollow of mixing-bowls; and over the white-shining sand the fifty daughters of Nereus whirled in the circling dance (cited from Barker 1984: 80 no 81)

The above references indicate that the Libyan *lōtos* played an important role during wedding preparations. The word 'tents' suggests a North African context, but this is not self-evident. People responsible for the wedding preparations expected *lōtos* players to play inside these tents. They also indicated to them to play as loudly as possible, while women beat their sandaled feet. It is very likely that this ritual aimed to drive away bad omens while blessing the maid's wedding day. This ritual was most probably practised the night before the wedding and may have lasted till dawn. Such references also show us how embedded the Libyan *lōtos* was in ancient Greek culture, particularly within mythology. However, few are the references that hint to its structure and sound. It is believed that this particular *aulos* was similar to the *photinx* (*plagiaulos*), that is, to the transverse single-pipe *aulos* which had a reed inserted in one of its sides (Villoteau 1809: 189-91; Barker 1984: 264), and that according to Euripides (*Bacchae* 151-67) was lovely of sound but loud (Figure 3.18).¹⁸⁰

¹⁷⁹ Eur., I, p. 42 and pp. 98-100.

¹⁸⁰ Eur., III, p. 16. See also Barker 1984: 74-5 no. 65.



Figure 3.18. Marble herm, satyr playing the *plagiaulos*. The British Museum, London (photo: https://www.britishmuseum.org/collection/object/G_1805-0703-26).

As aforementioned, the *aulos* is likely to have been introduced into mainland Greece by individuals from Asia Minor, possibly the Phrygians. According to West (1992: 82), this may have occurred during the eighth century BC. A Phrygian figurine representing a man playing the double-pipes (Figure 3.34 below) and an orthostat relief from Karatepe (Figure 2.24, p. 85) (c.700 BC) may substantiate this. It is important to mention that Greeks never considered themselves as the inventors of the *aulos*. As a matter of fact, they classified it as an imported musical instrument, that is, *ekphula organa* (Werhli 1967: 33). Thus, it is very likely that the instrument was brought from a foreign land. As most *aulos* players in Greece were Phrygians, it is believed that the *aulos* was brought from Phrygia (Plut. [*De Mus*] 1132f).¹⁸¹ This is also substantiated by the fact that most *auletai* and practically all *auletrides* were non-Athenians but may have come from different parts of the Mediterranean or the Near East (Wilson 1999: 74-5). Such is the case of Seirites, a Libyan-Numidian *auletes* who, according to Athenaeus (Book XIV 618b-c), invented the *aulos*.¹⁸² While this may be true, it cannot be corroborated. It is more likely that he could have invented a type of this musical instrument. What is clear however, is that the influences and mechanisms that moved the *aulos* from one place to another may have been several.

¹⁸¹ Plut. [*De Mus*], p. 363.

¹⁸² Ath., III, p. 986.



Figure 3.19. Bronze figurine of a Phrygian musician playing the double-pipes or hornpipes (no. 134975), Asia Minor, height 7.6 cm. The British Museum, London (photo: https://www.britishmuseum.org/collection/object/W_1968-0424-1).

The spread and adoption of religious cults may have strongly influenced the diffusion of the *aulos*. On one of the sides of the Cretan sarcophagus of Aghia Triadha (Late Minoan c.1400 BC) lies a depiction of the cult of the sacred tree, where offerings consisting of food and drink were dedicated to the tree while music was played on the *aulos* (Figure 3.7, p. 124). The scene also shows a cow and two goats that are about to be sacrificed (Castleden 1990: 152). As aforementioned, the cult of the sacred tree was also practiced in the Near East and in Anatolia (Belli 1982; Giovino 2007), where the *aulos* also played a role. This is evidenced by a pendant from Nimrud (c.700 BC) which shows an *auletes* and a lyre player playing their instruments on either side of a tree (Figure 3.3, p. 108). This may lead to the conclusion that when a culture adopts a foreign cult, the adoptive culture attempts to replicate a number of its elements, which, in this case, includes the *aulos* and its music.

However, the adopting culture may add or subtract elements of the cult, thus adapting it to their own needs. This gives rise to new syncretic forms which spring from the fusion or blending of practices (Rice 2001: 850-1). Outstandingly, the *aulos* depicted on the sarcophagus of Aghia Triadha has an upwards-curved horn on one of its pipes. This distinctive feature is also present in the *elymos*, an *aulos* invented by the Phrygians (Pollux *Onomasticon* IV. 74). Haarmann (1995: 155) points out that evidence for *elymoi auloi* comes from the first millennium BC or later, yet there are some references to their existence in the Aegean in the late Bronze Age (1700-1400

BC). According to Cratinus Junior, the Cypriotes and the Phrygians played the instrument suggesting the possibility that the instrument was brought to Cyprus by Aegean people at the end of the Bronze Age (cited from Haarmann 1995: 155).

It is well known that the Greeks adopted cults of foreign gods along with their practices. For example, they adopted the cult of Dionysus, whose origins are found in the Southeast of Europe or in Asia Minor, specifically in Thrace or Phrygia (Roberts 2005: 230-2). Since the beginnings of the cult, the *aulos* held a notable role, so that its spread mirrors the diffusion of the cult. According to Guirand (1981: 155), the spread of the cult of Dionysus started when Thracian tribes established themselves in Boeotia, central Greece. After some time, Boeotian colonists introduced the cult in Naxos from where it dispersed throughout the Aegean, returning to Greece. Despite objections and statements such as that the cult encouraged immorality, it infiltrated into the Greek world, to the extent that the Greeks built a temple and a theatre close to the Acropolis of Athens to honour the divinity (Roberts 2005: 230-2). Nonetheless, the orgiastic and wild nature of the cult was somewhat disturbing to the much-aspired harmony and order of the Greeks. It is documented that the music that accompanied the cult of Dionysus was both emotional and ecstatic (Barker 1984: 15). Euripides in *Bacchae* (378-81) confirms the dominance of the *aulos* thus,¹⁸³

Chorus. His [Dionysus'] powers are these: to revel in dances, to laugh with the *aulos*, and to put an end to cares (cited from Barker 1984: 74 no 62)

Sophocles (*Trachiniae* 205-21) echoes these sentiments in the following extract.¹⁸⁴

Chorus. Let the house that will soon receive its husband ring with the *ololygmos*, with *alalagai* at the heart. Let the men join in cry to Apollo of the fine quiver, our champion, and with them, maidens, raise the paeon, and shout to his sister, Ortygian Artemis, huntress of the deer, bearer of two torches, and to the Nymphs, her neighbours.
I am uplifted: I shall not reject the *aulos*, oh king of my mind. See, the Ivy rouses me to frenzy-euoi! -whirling the Bacchic company. Io, io Paian! (cited from Barker 1984: 78 no 75)

¹⁸³ Eur., III, p. 32.

¹⁸⁴ *Sophocles*, trans. by Francis Storr, 2 vols., Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1913), II, 272-4.

The plant known as ivy was associated with the cult of Dionysus. In some way, this plant symbolizes the effects that wine and music produced on those attending the cult and the festival. The music, and therefore the sound of the *aulos*, impregnated even the soul of the attendants, a process which can only be compared with the vine, that is, a climbing, trailing, and creeping plant which forms dense coverings over trees and other supports. The iconography associated with the cult of Dionysus supports this analogy.

By the fifth century BC, Greeks adopted the cult of Kybele. This goddess was a minor deity in the Hittite pantheon, where she was known as Kubaba (Cornelius 2012). Her centre of worship was the city of Carchemish and probably Zincirli as well (ibid). Kybele's cult spread in the regions of northern Syria, and throughout Anatolia. Her cult was also adopted by the Phrygians and the Lydians, where she was called Kybebe (Hdt. Book V.102).¹⁸⁵ In Greece, the goddess of the earth was known as Kybele, while in Rome she was called Rhea (Guirand 1981: 150). She was usually represented as seated on a throne, adorned with a mural crown, from which a veil falls, with lions crouching right and left of the throne. She was also sometimes depicted riding a chariot drawn by lions (ibid). According to Barker (1984: 15-7), the nature of the music that accompanied her cult was orgiastic and cathartic, very similar to the Dionysus cult. Her worship was said to induce ecstatic states, prophetic trance, and insensibility to pain (Guirand 1981: 150). The music of the *aulos*, along with the sound of percussion instruments such as the *krotala* (hand-held clappers), the *kymbala* (cymbals), and the *tympana* (small hand-drum or tambourine), was undoubtedly the most suitable for the exuberant and frenzied dancing in the cult of Kybele (Barker 1984: 15-7). According to Pollux (IV. 74), the *elymos aulos*, that is, the Phrygian *aulos*, was used to worship the goddess. This particular *aulos* was made out of boxwood and had a deep tone, probably because one of its *auloi* had a horn attached to one of its ends (ibid).

Conclusion

When one refers to the origins of the *aulos*, one can say that the instrument spread first to the coast of Anatolia and Crete via the Aegean. It is known that contact existed between the Cyclades, Crete, and the coast of Anatolia as far back as

¹⁸⁵ Hdt., pp. 352-3.

prehistoric times (Broodbank 2013). Based on Homer's accounts, one can speculate that the Trojans, who lived in the east coast of Anatolia, made use of the *aulos* as early as Mycenaean times, specifically by the end of the second millennium BC (Lactaz 2004: 216-48). By extension, one can also say that Greeks probably knew the *aulos* prior to the eighth century BC, a date in which allegedly people from Asia Minor brought the aerophone to the mainland (West 1992: 82). The introduction of the *aulos* into Greece probably occurred at an earlier date, as Mycenaeans colonized the Anatolian coast as early as 1500 BC (Haywood et al. 1.23).

The hostilities between the people of Troy and Greece (Mycenaeans, that is, Achaeans) are detailed in the *Iliad* (Lactaz 2004: 216-48). Such confrontations may have served as a vehicle for the diffusion of cultural practices, such as the movement of musical instruments within that region, but this is not self-evident. What is clear however, is that both cultures offered sacrifices to the same gods (Hall 1997: 44). This raises the question as to whether the Greeks (Achaeans) used the *aulos* in sacrifices before the eighth century BC. The *Odyssey* of Homer (Book III lines 418-472), an epic poem based on events that probably occurred before the eighth century BC, narrates an animal sacrifice with no musical accompaniment and therefore without the *aulos*.¹⁸⁶ Thus, there is the possibility that prior to the eighth century BC Greeks did not use music during sacrifices. In other words, they probably knew the instrument but they did not incorporate it in their activities.

Mackie suggests that Trojans were not Greeks, as in the *Iliad* she discerns two separate speech cultures (1996: 161-5). Such differences in language may also be mirrored in the way Trojans made music. Mackie (1996: 161-5) claims that the Trojan language is somewhat associated with the softer side of life and describes it as introspective, private, and poetic. In some way, this is portrayed in the statue of Kybele from Bogasköy (a Phrygian settlement by 800 BC) which shows an *auletes* and a lyre player on either side of the goddess (Figure 2.26, p. 87). Mackie's observations on the nature of Trojan language leads us to believe that phases of restraint may have existed in the Phrygian cult of Kybele. These may have been accompanied by the music of the lyre. As a consequence, the Anatolian cult of the goddess probably differed from the Greco-Roman one, where the nature of the music was mainly orgiastic and

¹⁸⁶ Homer, *The Odyssey*, trans. by Augustus Taber Murray, 2 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1945), I, 99-103 (Hereafter, Hom. *Od.*).

cathartic (Barker 1984: 15-7). This leads us to believe that the *aulos* was used to accompany certain stages of the Anatolian cult. Thus the ritual may have been divided into stages, perhaps with the first stage articulating frenzy while the second expressed restraint and catharsis.

By the seventh century BC, the *aulos* was established in mainland Greece and played an important role in Greek ceremonies, particularly in sacrifices (West 1992: 82). The instrument was used in the procession that led the victim to the altar as well as in purification and cleansing rituals, particularly, when the priest and attendants washed their hands. The washing of the animal's head, however, was not accompanied by music played on the *aulos* (Vergara 2014: 24-28). It is also known that the aerophone played an important role during the acceptance of the sacrifice (West 1992: 15).

In light of this information, one can say that music played on the *aulos* served to contact the gods and to draw their attention. For instance, during the procession (an early stage of the sacrifice), the animal was led to the altar accompanied by the sound of the *aulos*. Actions, such as those of purification, where the priest, attendants, and gods joined in close communion during the sacrifice, were also accompanied by the *aulos*. However, those linked to the sacrificial animal, such as its purification, were not musicalized by the *aulos*. The sound of this aerophone served to support the petitions and prayers of both the priest and the attendants at the sacrifice. Ancient Greeks believed that the music of the *aulos* pleased the ears of the gods. Thus, whether the gods accepted a sacrifice depended on whether or not a musician playing the *aulos* was hired for the ceremony. It is worth mentioning that most of these traditions were borrowed and adopted by the Greeks from neighbouring cultures. This explains why most *auletai* were foreigners. The influx of foreign musicians is also evident in athletic and musical contests (Aneziri 2007: 67-84).

The relevance of music and athletic contests to our study lies in the fact that musicians from different groupings and geographical areas took part in such competitions (ibid: 67-84). This implies direct contact between peoples of different cultures, thus allowing potential exchange of ideas. Both music and athletic contests were in part or completely organised by either secular or sacred associations which, sometimes, supplied their own performers (Aneziri 2007: 67-84). *Aulos* players who were part of those associations clearly had an advantage over the ones who were not. They had more chances of being employed and to take part in contests which in turn

made them more popular. The fact that both secular and sacred associations existed in different geographical areas of the Mediterranean suggests a wide diffusion of the *aulos*. Moreover, one can say that the frequent organisation of both athletic and music contests undoubtedly contributed to the spread of this musical instrument.

It is known that athletic competitions and their training were accompanied by music played on the *aulos* (Vos 1986: 121). The rhythmic tunes of the *aulos* may have served as an aid for competitors, thus helping them to achieve the required timing and coordination of movement in disciplines such as throwing the javelin or disk (Swaddling 2008). However, *auletai* and *auletrides* could only accompany athletes, acrobats, and dancers of their own sex (Vos 1986: 121). Thus *auletai* could only accompany male competitors, while *auletrides* accompanied female contestants.

As aforementioned, the *aulos* players who took part in music and athletic contests came from different city-states located in different regions of the Mediterranean. Their participation was very much valued by the organisers of such events, particularly when it was frequent (Paus. Book VI.14.10).¹⁸⁷ For example, a stela was dedicated to the *auletes* Pythocritus of Sicyon to commemorate his participation in the pentathlon. Pythocritus took part in this athletic contest six times at the Olympic festival (Jones 1933: 87).

Musical contests were propitious events where composers and *aulos* players could exhibit their new inventions and skills. Some of these included *aulodic* and *auletic nomoi*, new developments on *auloi* making, and musical performance techniques. The fact that contestants were from different parts of the Mediterranean implies an exchange of cultural traits from one society to another through the movement of people. The composer Clonas, for instance, a native either from Arcadia or Boeotia, is renowned for having invented the *nomoi* sung to the *aulos* (Plut. [*De Mus*] 1132c).¹⁸⁸ One can imagine that his music was performed during contests, where it probably achieved popularity among the people, composers, and performers. Clonas' music probably became a common repertoire for foreign musicians who in turn blended it with their own music, thus producing new syncretic forms.

Despite the fact that we have only indirect evidence for such processes, the inclusion of new categories in such contests may help to substantiate such

¹⁸⁷ Paus., III, p. 87.

¹⁸⁸ Plut. [*De Mus*], pp. 359-61.

speculations. The inclusion of new categories of competition such as the *auloidia* and the *aulesis*, both categories involving music played on the *aulos*, may have been the result of a greater demand by foreign participants who wanted to show off their art (Paus. Book X.7.2).¹⁸⁹ With every foreign participant came a flow of ideas from that specific geographical region and this was acknowledged by the receiving culture. There are records of winners who made history through their great achievements, such as the *aulode* Echembrotos from Arcadia and the *auletes* Sacadas from Argos, both winners in the Pythian Games of 586 BC (Jones 1933: 403-5). One can imagine that in order to win, the contestant may have presented something new from his place of origin, and that his or her performance techniques were also evaluated. Sacadas of Argos, for example, invented the *auletic pythicos nomos*, that is, a solo piece for the *aulos* which portrays the fight between Apollo and the Serpent (Paus. Book II.22.8-9).¹⁹⁰ Sacadas himself performed this piece during the first Pythian Games, where he impressed the audience with sounds that imitated the actions of certain characters. Sacadas probably played the musical piece on a particular type of *aulos* which permitted him to produce unconventional sounds. This *aulos* was most probably his own invention and it was called *Sacadeion* (West 1992: 90).

Successful contestants such as Sacadas of Argos were awarded prizes. The music competitions held at the Panathenaea, for example, awarded contestants by category. According to Vos (1986: 122), the category of *aulodes* received two prizes. The first prize consisted of a wreath worth 300 drachmas, while the second was worth 100 drachmas. The category of *auletai* received two prizes consisting of a wreath (ibid: 122). In comparison to the prizes which *kitharodes* received, the major one consisting of a golden wreath of 1000 drachmas and 500 drachmas in silver, *aulodes* and *auletai* received considerably much more modest prizes (ibid: 122). This may be due to their place of origin and social status. In mainland Greece, the status of *aulos* players was lower in relation to that of singers and thus were considered servants (Plutarch [*De Mus*] 1141c-d).¹⁹¹ The reason lay in the fact that most *aulos* players were foreigners (Wilson 1999: 74-5).

¹⁸⁹ Paus., IV, p. 403.

¹⁹⁰ Paus., I, p. 367.

¹⁹¹ Plut. [*De Mus*], p. 421.

Auletrides, for example, were servants in the renowned male gatherings known as the Symposium (Roberts 2005: 735). The host hired them to perform the opening *paean*, as well as to provide the entertainment during the gathering (Peschel 1987: 35-6). The *auletris* was essential for the event, so much so that their remuneration was controlled (Aristophanes *Acharnenses* 551).¹⁹² Greek law forbade payment to them of more than two drachmas (Aristotle *Athenian Constitution* 50.2).¹⁹³ The host expected them to provide pleasure, as some of them were prostitutes, and enjoyment for the guests (Goldman 2015: 42). The miserable payment for their services implies their low social status. Despite this, their presence in the Symposium was sought after by the Grecian elite. All of the abovementioned music-related practices are only associated with the *aulos*. However, there is the possibility that other societies contemporary to the Greek experienced similar processes. Here I am referring to the Nuragic society (c.1700 BC- 238 BC) of the island of Sardinia. This society developed a triple-pipe aerophone of similar characteristics to the *aulos*. This instrument is still used on that island and is known as the *launeddas*. The fact that it is still extant provides interesting insights that can be used for the further understanding of the ancient *aulos*.

CHAPTER IV: THE AULOS OF LATE ANTIQUITY (c.AD 395-600)

In order to understand how the *aulos* was transformed during late antiquity, it is necessary to refer to Roman music and particularly to an aerophone of similar characteristics, that is, the *tibia* (pl. *tibiae*). Like the *aulos*, the *tibia* consisted of two cylindrical pipes with finger holes. It was played in pairs thus both pipes were blown simultaneously (Moore 2012: 26). It is not clear, however, how the sound was reproduced in the *tibia*, but most probably it was through the vibration of a double-reed used as a mouthpiece (ibid: 39). The *tibia* is remarkably similar to the *aulos*, a reason why it is considered as the Roman version of the *aulos*. For this reason, this chapter uses the terms *aulos* and *tibia* interchangeably, and at times together taking into account the context in which the terms are used. Studies on the Greek *aulos* help

¹⁹² Ar. *Ach.*, I, p. 55.

¹⁹³ Arist. *Const. Ath.*, p. 92.

to elucidate facts about the Roman *tibia* because both instruments are the same (Melini 2014: 341). The archaeological record has provided a number of fragments of *tibiae*, while written sources attest to its relevance in the music of the Romans.

This chapter consists of seven parts. Section one explains who the Etruscans were, that is, the first people to adopt the *aulos* on the Italian mainland. It also describes Etruscan double-pipes, while detailing the context in which they were used. Section two discusses Greek influence on Roman music. It describes the Roman *tibia* and the musical panorama in which the instrument was embedded, as well as the activities during which it was played. Section three discusses the importance of the *tibia* in Roman theatre, highlighting its role during dramatic performances, such as the tragedy and the comedy. It also discusses the role and social status of *tibia* players within the theatre, as well as the different types of *tibiae* used during plays. Section four discusses the importance of *tibia* players in Roman life, including their organisation, role, and social status, throughout Republican and Imperial times. As the main theme of this part of this study relates to Roman Music, it is necessary to point out that music in ancient Rome can be divided into the following periods: the era of the Kings (c.750-510 BC), the Early Republic (509-265 BC), the Middle Republic (264-133 BC), and the Late Republic (c.147-30 BC), the blossoming of Roman music during the Augustan principate (27-14 BC), the imperial dynasties of Julio-Claudians (14 BC-AD 68), the Flavians (AD 69-96), and the Antonines (AD 96-192) (Fleischhauer 2001: 606-7). The *tibia* may have reached its full development, both in size and technical capacity, during Imperial times (McKinnon and Anderson 2001: 461). Section five reviews a system of classification of *auloi* and *tibiae* based on written sources. It provides the reader with an idea of the different types of *auloi* and *tibiae* that existed in antiquity. The system presents a body of terms, technical descriptions, and information concerning the utilization of certain instruments. This section interrelates with section six which describes excavated *auloi* and *tibiae*, both fragmentary as well as those which were found almost complete. Thus, the combination of written and archaeological sources provides a better understanding of this ancient aerophone. A number of inferences are provided by the end of section six while section seven investigates the possibilities whereby the *aulos* or *tibia*, as the Romans called it, was transformed in late antiquity, suggesting possible scenarios by which the *aulos/tibia*, in its various forms, survived late antiquity and possibly to later times.

4.1 Etruscan Double-Pipes

The Etruscans (Lat. *Tusci*, *Etrusci*; Gk. *Turrhenoi*, *Tursenoi*) were the first people to adopt the *aulos* on the Italian mainland. It is believed that the Etruscans brought the *aulos* from Lydia and then passed it on to the Romans (Wardle 1981: 26). The land of Lydia was located in western Asia Minor. Being a trading post situated between the west coast of Asia Minor and the interior of Anatolia, Lydia was constantly influenced by Greek and Anatolian cultures (Roberts 2005: 438).¹⁹⁴

Among all indigenous peoples of pre-Roman Italy, the Etruscans are historically and artistically the most important (Roberts 2005: 271). The Etruscans probably originated in the eastern Mediterranean and migrated to north-west Italy in the ninth to eighth centuries BC (Fleischhauer 2001: 408). They inhabited the region between the Arno and the Tiber and were highly influenced by Eastern cultures and the Greeks (Roberts 2005: 271). The Etruscans were part of a trade network that extended as far as the coast of Asia Minor (Haywood et al. 1998: 1.33). Their economy was based on agriculture, fishing, and hunting, while they were skilled metalworkers in bronze, gold, and iron (ibid). According to Athenaeus (*Deipnosophistae* Book IV 184a), the Etruscans were adept at manufacturing horns and trumpets, which skills they passed on to the Romans.¹⁹⁵ Unlike the Greeks, who had a wide range of string instruments, the Etruscans were keen on wind instruments (Fleischhauer 2001: 409). Apart from horns and trumpets, double-pipe instruments were also popular in Etruria. These were characterized by a conical bell at the end (Wardle 1981: 26-7).

The double-pipes of the Etruscans were like the *aulos*. This is evidenced by a wall painting from the Tomba dei Leopardi (Tomb of the Leopards) in Tarquinia (Figure 4.1). The instrument seems to be made out of reed or wood. It has *bombukes* (resonators), *holmoi* (bulbs), and *hupholmia* (the upper joints). The reeds (*glotta*) cannot be seen because they are inside the player's mouth. The lower part of the instrument ends in a flaring bell, a detail which may be considered an Etruscan trait. This bell probably served to equalize the quality of the low notes with those of the upper register. In this type of *aulos*, high notes probably vented through the lower

¹⁹⁴ Lydia was a powerful and wealthy kingdom during the Mermnad dynasty, c.700 to 545 BC, (Haywood et al. 1998: 1.37). Croesus, the last king of Lydia, was overthrown by the Achaemenid Empire in 545 BC (ibid).

¹⁹⁵ Ath., I, p. 285.

open holes, which included the vent hole and the bore of the tube as well. Lower notes however could only vent through the vent hole and the bore of the tube, thus affecting the consistency of tone. The addition of a bell to the instrument may have solved this issue. The bell could also have served as a reflector to lift the sound from the floor (see Figure 3.17, p. 146). The Etruscans also used the *phorbeia* or *capistrum* (Lat.: mouth-band) as evidenced by a sarcophagus at the Museo Nazionale Etrusco de Chiusi in Siena, Tuscany, Italy (Figure 4.2).

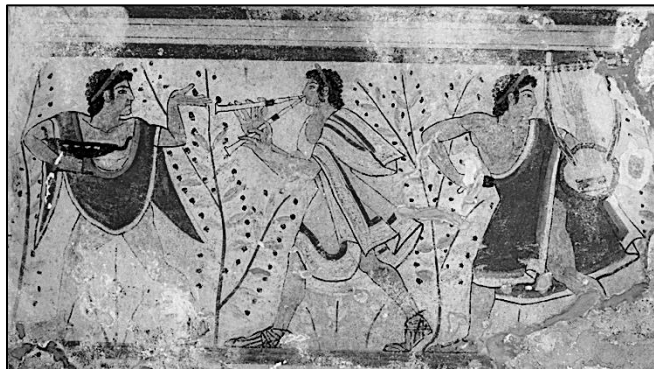


Figure 4.1. Wall painting from the Tomba dei Leopardi (Tomb of the Leopards), Tarquinia, Italy (photo: Fleischhauer 1964: 35, Figure 10).



Figure 4.2. Sarcophagus at the Museo Nazionale Etrusco de Chiusi in Siena, Tuscany, Italy (photo: <https://twitter.com/davidstuttard/status/1002139374946004992/photo/3>).

As aforementioned, the Etruscan *aulos* was characterized by a conical-bell extension on each pipe, supposedly to enhance the intensity of the sound (McKinnon and Anderson 2001: 461). In some way, such conical bells echo the Phrygian *aulos* or *elymos* (pl. *elymoi*) where one of the pipes has a horn attached to its end. The Phrygian *aulos* was made up of two pipes, one longer than the other (see Figure 5.12, p. 224).

Double-pipe instruments played an important role in Etruscan life. The Etruscan *aulos* was mainly used during funerals. According to Fleischhauer (2001: 410), the aerophone was played with the body *in situ* and served to accompany sacrificial rites and laments for the dead. As a consequence, one can suggest that Etruscan funerary rites were similar to the ones practiced by the Greeks. As mentioned in Chapter III, the music of the *aulos* was an essential element during such ceremonies. Greeks customarily performed laments, that is, *threnodies* to the accompaniment of the *aulos* (Chew and Mathiesen 2001: 433-4; Plutarch [*De Mus*] 1136c).¹⁹⁶ This musical genre (*threnodies*) was divided into two parts: the *epikedeion* (*epikideios aulos*) and the *threnos*. The *epikedeion* was played at the funeral itself, while the body was exposed, while the *threnos* could have been played during the whole ceremony (Mathiesen 1999: 132).

It is known that the Etruscans absorbed elements from Greece, particularly, *aulos* playing, and adapted them for use within their own traditions. This is evidenced by the burials found at the city of Tarquinia, a province of Viterbo in Lazio, Italy, and especially in a painted chamber known as the Tomba del Triclinio (Tomb of the Triclinium) which dates to 470 BC (Figure 4.3). The scenes depicted on this tomb reveal that the Etruscans had the unusual custom of depicting celebratory scenes such as a meal within a funerary context. Like the Greeks, they favoured the *aulos* as an instrument to accompany various activities.

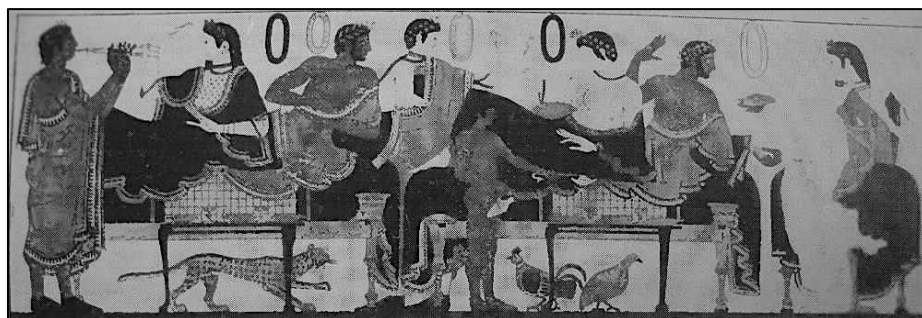


Figure 4.3. Tomba del Triclinio (Tomb of the Triclinium), Tarquinia, Italy (photo: Weege 1921: 57, Figure 54).

Figure 4.3 shows that Etruscans used the double-pipes during banquets. Several Etruscan graves, particularly those found in the region of Tarquinia, are decorated with banquets scenes. According to Gravili (2011: 29), such scenes started to appear during the sixth century BC and were continuously depicted up to late

¹⁹⁶ Plut. [*De Mus*], p. 385.

Roman sarcophagi. The elements shown in banqueting scenes, such as the use of musical instruments and particular clothing, not only recall the images found on Greek vases but rather prove the hypothesis that Etruscan artists based their art on Greek models (Weege 1921: 108). The Tomba della Caccia e della Pesca (Tomb of Hunting and Fishing, c.510 BC) in Tarquinia shows a reclining couple on mattresses being served by two cupbearers (Figure 4.4). The couple seem to be concerned with the erotic, echoing sympotic scenes found in Greek art (see Figure 3.15, p. 140). This may explain the presence of a double-pipe player in the scene. The musician is dressed in a typical Greek costume, that is, tunic and mantle, and wears a wreath on his head. According to Fleischhauer (2001: 410), the music of the double-pipes encouraged Etruscan people to dance during banquets.



Figure 4.4. Tomba della Caccia e della Pesca (Tomb of Hunting and Fishing), Tarquinia, Italy (photo: Weeber 1980: 18, Figure 5).

The Etruscan *aulos* also served to entertain the audience during boxing matches (Fleischhauer 2001: 410) (Figure 4.5). In the Greek world, athletic competitions were also accompanied by music played on the *aulos*. Double pipes were played while athletes exercised in the *palaestra* as well as during contests (Vos 1986: 121). Plutarch (*De [Mus]* 1140c-d) comments that the Argives, that is, the people from Argos used the *aulos* during wrestling matches at the festival of Stheneia. This festival was formerly held in honour of Danaus but later in honour of Zeus Sthenius.¹⁹⁷ It is probable that Greeks and Etruscans both gave importance to musical training. The use of the *aulos* during activities where one would not normally expect music, is evidence of this. It is also possible that, like the Greeks, Etruscans believed that youthful minds could be shaped and adapted through music (Plut. [*De Mus*] 1140b-c).¹⁹⁸

¹⁹⁷ Plut. [*De Mus*], p. 413.

¹⁹⁸ Plut. [*De Mus*], p. 411.



Figure 4.5. Boxers and *auletes*, wall painting from a Lucan tomb, Basilicata, Italy (photo: <https://media.gettyimages.com/photos/boxers-and-double-flute-player-fresco-from-lucan-tomb-basilicata-picture-id479638411?s=2048x2048>).

According to McKinnon and Anderson (2001: 461), the Etruscans followed the ‘hunt or even accompan[ied] the scourging of the slaves’ to the sound of the double-pipes. On the one hand, this shows an urge to control people’s minds through music while, on the other hand, it shows the popularity of the aerophone among powerful and wealthy people. Double pipes were also used during wedding ceremonies (Wardle 1981: 28). Figure 4.6 shows a number of musicians taking part in an Etruscan wedding procession. The use of typical Greek musical instruments, in this case, the *aulos* and the *phorminx*, along with the Etruscan *cornu* and *lituus* evidences a blending of musical practices resulting, most probably, from a process of acculturation. Although the scene reflects Greek influence on Etruscan musical practices, the *cornu* and the *lituus* attest to the development of an authentic Etruscan music tradition by the fifth century BC.



Figure 4.6. Sarcophagus, Caere, Italy (fifth century BC) (photo: Fleischhauer 1964: 41, no 15).

4.2 The Roman Tibia

Since its foundation in 753 BC, Rome was highly influenced by the Greeks (Rasmussen 2010: 13-25). After Rome’s victory against Tarentum (209 BC) and the

outbreak of the First Punic War (264-241 BC), Rome developed better relations with southern Italy (ibid: 20). Greek influence is also seen in Central Italy through the Etruscans (Comotti 1989: 48). The eventual conquest of the kingdoms of Macedonia, Syria, and Egypt after the second century BC gave rise to new syncretic musical forms which presented both Hellenistic and oriental features (Fleischhauer 2001: 606). Roman music, as a consequence, was mainly influenced by three cultures: the Etruscan, the Greek, and the Eastern (Scott 1957: 404). Music in ancient Rome served both sacred and secular purposes with the latter including both military and working contexts (ibid: 411-20).

The Roman version of the Greek *aulos* was the *tibia* or *fistula* (Lat.: pipe) (McKinnon and Anderson 2001: 461). In contrast with Greece, where the instrumentalists called *auletai* were an indispensable complement in recreational moments, religious practices, drama, and even during war, in Rome, the *tibia* did not dominate the panorama of musical instruments but was placed on the same level as the stringed instruments, the hydraulic organ, the percussion, and the wind instruments such as the *cornu* and *lituus* (Petretto 1995: 108) (Figure 4.6). The *aulos* (Lat.: *tibia*) was probably discovered following contacts with the musical customs of the Etruscans, where this instrument enjoyed enormous prestige. Like the word *aulos*, the word *tibia* could refer to any pipe instrument (Bélis 2001: 178). The term *tibia*, in its singular form may have applied to reed-less pipes. Aulus Gellius (*Noctes Atticae* Book I.11.10), a Roman author and grammarian (AD 125-c.180), mentions a *tibia* player who assisted the orator Gaius Gracchus when he addressed assemblies. Gellius uses the words *fistula* and *tibia* to refer to double pipes.¹⁹⁹ According to Landels (1999: 69), the word *fistula* was occasionally used to refer to the *syrinx*, that is, the panpipe.

Like the *aulos*, the *tibia* also evolved over time. The main material used for its construction was deer bone (Baines 1957: 189). The *tibia* was formerly a bone pipe with three or four finger holes which later evolved into a divergent double-pipe instrument like the *aulos* (Scott 1957: 407). This clearly suggests that the *tibia* and the *aulos* were the same instrument, so that resultingly, as some authors sustain, the *tibia* was the Roman version of the Greek *aulos* (e.g. Howard 1893; Scott 1957; McKinnon

¹⁹⁹ Aulus Gellius, *The Attic Nights*, trans. by William Beloe, 3 vols (London: Printed for J. Johnson, St. Paul's Church-Yard, 1745), I, 47-9.

and Anderson 2001). The *tibia* was played in pairs and was structured in the same manner as the *aulos* (Scott 1957: 407).

The *tibia* played a key role in numerous areas of Roman life, in other words, it was played in diverse contexts. *Tibicines* (male *tibia*-players) and *tibicinae* (female *tibia*-players) often accompanied banquets, sacrifices, funerals, orgiastic ceremonies with religious connotations, such as the rites of Dionysus (Bacchus) and Kybele (Magna Mater), many festivals, and private religious ceremonies (Moore 2012: 35). In the early days of Rome, the pipers who played during such ceremonies were Etruscan in origin (ibid: 1-2). The word *subulo* (Lat.), meaning piper, derives from the Etruscan word *suplu* (Wardle 1981: 30).

The Roman poet Horace or Quintus Horātius Flaccus (65-8 BC) provides a picture of the layout of Roman Banquets during the first century BC (*Epodes* IX. 1-6).²⁰⁰ He describes them as celebratory events in which people gathered to drink wine (*caecuban*) and to eat.

When, happy Maecenas, shall I drink with you, in joy at Caesar's
victory, in your house (for that's what the god intends) the Caecuban
that has been laid by for a banquet of celebration, while the lyre sounds
forth its Dorian music mingled with the foreign notes of the pipe?
(Rudd 2004: 293)

For Horace, Caesar's victory was an important celebration that had to be accompanied by Dorian music played on the lyre. However, he hints that a session on the lyre should include sporadic barbarian melodies played on the *tibia*. This suggests that, like the Greeks, Romans considered the double-pipes a foreign instrument. This may be because Etruscans brought the *aulos* from Lydia and then passed it on to the Romans (Wardle 1981: 26). It is worth noting that the most honourable and solemn mode was the Dorian mode. It reflected the character of the man who is brave in battle (West 1992: 179-80). This corresponds to Horace's longing to join Maecenas, that is, his patron, to celebrate Caesar's victory to the accompaniment of Dorian music. Whether the *tibia* played Dorian melodies in this context is not clear, however, the Athenian poet Pratinas affirms that Dorian songs are only comparable to wild

²⁰⁰ Horace, *Odes and Epodes*, trans. by Niall Rudd, Loeb Classical Library (Cambridge, Massachusetts, London: Harvard University Press, 2004), p. 292. (Hereafter, Hor. *Epod.*).

performances where the double-pipes play a predominant role (cited from West 1992: 179).

According to the Roman poet Martial or Marcus Valerius Martiālis (c.AD 40-c.102) modest banquets were also accompanied by the music of the *tibia* (*On the Spectacles* Book V 78.22-32).²⁰¹

My poor dinner is a small one—who can deny it?—but you will say no word insincere nor hear one, and, wearing your natural face, will recline at ease; nor will your host read a bulky volume, nor will girls from wanton Gades with endless prurience swing lascivious loins in practised writhings; but the pipe [*tibia*] of little Condylus shall play something not too solemn nor unlively. Such is your little dinner. You will follow Claudia. What girl do you desire to meet before me? (Ker 1961: 351)

Martial suggests that, like the Greeks, the Romans considered the music of the double-pipes essential for banquets, even for a modest dinner. Unlike the Greek banquet where only women could play the double-pipes, the Roman banquet seemed to allow men to play the *tibia* during these events. As a matter of fact, Marcial mentions a *tibicen* in the fragment, whose name is Condylus and who appears to be very young. Additionally, the Roman advocate and rhetorician Quintilian (Marcus Fabius Quintiliānus) (b. c.AD 35-end of first century AD) suggests that banquets held during the first century AD were usually accompanied by music played on stringed instruments, such as the lyre or *kithara*, and the *tibia* (*Institutio Oratoria* Book I.10.20).²⁰² It is worth mentioning that Quintilian generally uses the term *fides* to refer to stringed instruments (Kolyada 2014: 168).

In Rome, *tibia* players, known as *tibicines* were extremely important during ritual practices. The priests of the college *Fratres Arvales* in Rome, for instance, sang a ritual song called *Carmen Arvale* (Comotti 1989: 48-9) where, during the ritual, *tibicines* had the task of producing imperceptible maleficent noises. The purpose of this practice was to exorcise evil and to invoke well-being (Seyffert 1895: 74).²⁰³ According to the Roman political leader Cicero (*De Lege Agraria* 2.34.93) *tibicines*

²⁰¹ Martial, *Epigrams*, trans. by Walter Charles Alan Ker, 2 vols., Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press; London: William Heinemann 1961), I, 350.

²⁰² Quintilian, *Institutio Oratoria Books I-III*, trans. by Harold Edgeworth Butler, Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press, 1996), p. 169.

²⁰³ In early Rome, the Latin word *Carmen* conveyed religious utterances, especially spells and charms. The word is also considered the standard Latin term for song and poem.

were present at the time of the founding of the colony of Capua in 83 BC.²⁰⁴ In Republican Rome, each town had its own official musicians. The *Lex Coloniae Genetivae Juliae*, the municipal charter of Urso (Osuna) in Spain also included *tibicines* among the servers (Wardle 1981: 31). They were mainly employed to play during sacrifices (ibid). *Tibicines* were the lowest paid, receiving 300 sesterces, the same rate as a copyist, while a *lictor* received 600, a personal servant, 700, and a scribe 1200 sesterces (Wardle 1981: 31).²⁰⁵

Despite the lack of financial remuneration, the music of the *tibia* was crucial as without it rituals were rendered invalid (West 1992: 15). The *tibia* played a particular role in the cults of Kybele and Dionysus. According to Roberts (2005: 196), the cult of Kybele was introduced to Rome around 205-204 BC. Festivals dedicated to the goddess were held every year and lasted for several days in the temple dedicated to her in the Aventine, the southernmost hill of Rome (McKinnon and Anderson 2001: 461). The image of the goddess was carried by the priest in a procession accompanied by the music of the Phrygian *aulos* or *Berecynthiae tibiae* (Kybele's *tibiae*) along with bronze *cymbala* (cymbals), *tympana* (tambourines) and *cornua* (horns) (Scott 1957: 404) (Figure 4.7). Romans referred to the Phrygian *aulos* as *tibia berecynthia* because of a mountain located in Phrygia which was sacred to the goddess (McKinnon and Anderson 2001: 461).

²⁰⁴ Cicero, *The Speeches*, trans. by John Henry Freese, Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961), p. 469 (Hereafter, Cic. Leg. agr.).

²⁰⁵ 'Lictors were attendants, who carried a bundle of rods and a single-head axe for magistrates' (Roberts 2005: 283 and 421-2).



Figure 4.7. A priest of Kybele. The relief shows the Phrygian *aulos*, the *cymbala* and the *tympana* (photo: Fleischhauer 1964: 85, Figure 47).

According to the lyric poet Horace (*Ars Poetica* 202-203), *tibiae* were bound with brass and had a considerable number of finger holes.²⁰⁶ In other words, the Phrygian *aulos* and *Berecynthiae tibiae* were equipped with movable metal rings so as to increase technical dexterity (Fleischhauer 2001: 610). Both aerophones, that is, the Phrygian *aulos* and *Berecynthiae tibiae* were played during the orgiastic dances of the priests in their respective temples (McKinnon and Anderson 2001: 461).

The cult of Dionysus was introduced to Rome in the second century BC (Guirand and Pierre 1981: 220). The nature of the music that accompanied the cult of Dionysus was cathartic and orgiastic (ibid). Diverse musical instruments were used in the *Bacchānaliā* (*orgia*) such as the *tibiae elymoi*, that is, *auloi* of different lengths, *cymbala* (cymbals), *tympana* (tambourines), small bells, and others (Fleischhauer 2001: 607). After the conquest of Egypt (31 BC), Romans adopted the cult of Isis. This also implied the adoption of melodies and dances attached to the cult, in particular the use of an idiophone known as the *sistrum* (Apuleius *The Golden Ass* Book XI. 4).²⁰⁷

²⁰⁶ Horace, *Satires, Epistles, and Ars Poetica*, trans. by Henry Rushton Fairclough, Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961), p. 467.

²⁰⁷ Apuleius, *The Golden Ass being the Metamorphoses of Lucius Apuleius*, trans. by William Adlington, Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1947), p. 545.

4.3 The *Tibia* in the Theatre

As early as 364 BC, performances of pantomimic dances accompanied by the music of the *tibia*, were produced in Rome (Moore 2012: 1-2). Such performances were run by Etruscan actors and dancers, that is, by *ludiones* (Comotti 1989: 49). Romans artists learnt and imitated the art of the *ludiones*, adapting their own musical variations to be played on the *tibia* (ibid). These Roman artists were known as *histriones* from *ister*, the Etruscan name for a dancer, and their music-literary compositions called *saturae* (Moore 2012: 1-2). In view of the above, we can say that the theatrical use of the *tibia* had Etruscan precedents (ibid).

The *tibia* was the standard accompanying instrument during both tragedies and comedies, while lyres were used mainly for special effects (Moore 2012: 26 footnote no. 3). When it comes to percussion instruments, it is very likely that these were particularly associated with mimes, in other words, with ‘low-brow’ performances (Garelli-François 2000: 98-9). Under the Roman Empire, various stringed and percussion instruments and panpipes were used during dramatic performances, yet the *tibia* remained dominant (Bieber 1961: 236-50).

After the first Punic War (c.241 BC), Romans became familiar with the theatrical productions of southern Italy and Sicily, namely with Greek productions of tragedies and comedies performed in Latin (Comotti 1989: 49). As a result, Roman theatre became very much influenced by Greek drama (Fleischhauer 2001: 608). Some of those responsible for disseminating the classical repertoire throughout Italy were the Dionysiac artists of Magna Graecia, an association of peripatetic Greek actors and musicians that formed in the third century BC (Roberts 2005: 232). Most members of this guild fled to Italy after the conquest of Macedonia in 167 BC and the destruction of Corinth in 146 BC (McKinnon and Anderson 2001: 461). Tragedies included sung parts, solos, and duets alternating with spoken dialogue (Comotti 1989: 50). The show was usually introduced by a solo of a *tibicen* and songs were also accompanied by the *tibia* (Fleischhauer 2001: 609; Morley 2012: 135-9). Thus, the music of the *tibia* lay at the heart of Roman theatre. This is also evidenced in Roman comedy, a theatrical genre which blended the literary style of Greek comedies with aspects of the Hellenistic song and the Euripidean monody (Fleischhauer 2001: 609).

[By the time of Plautus (c.254-185 BC),] *Tibicines* performed a prelude at the beginning [of the play], accompanied the *cantica* [sung portions]

and various (spoken) verse passages of the actors and singers, and provided music between the acts as well as an accompaniment for dance interludes. *Tibicines* from the slave classes were commissioned to compose the accompanying music for Plautus's *Stichus* and for the six surviving comedies of Terence (c.190-159 BC) (Fleischhauer 2001: 609).

Clearly, the standard instrument which accompanied the plays of Plautus and Terence was the *tibia*. According to Scoditti (2008: 52), the *didascaliae*, that is, the stage directions of Plautus and Terence's plays provide the names of two *tibicines*. The name of the first *tibicine* is Marcipor, a slave of Oppius. He accompanied the comedic Latin play *Stichus* written by the Roman playwright Titus Maccius Plautus. The *didascalia* to *Stichus* describes that Marcipor used the *tibia sarrana*, that is, a pair of pipes of equal length and number of holes derived from Phoenicia.²⁰⁸ The name of the second *tibicine* is Flaccus, a slave of Claudius. He accompanied all the plays written by the Roman playwright Terence (Scoditti 2008: 52). Although both *tibia* players were slaves, they were important for the theatrical company. According to Moore (2012: 27), their names were given equal prominence as the writers of the Latin play, and its Greek model, in the billing in the production notice. The notice also listed the magistrates who paid for the festival at which the play was performed, and the main actor with the same prominence (ibid).

A variety of *tibiae* were used in comedies: *tibiae pares* (of equal length), *tibiae impares* (of unequal length), *tibiae sarranae* or *Phoenician* and Oriental *auloi* (Comotti 1989: 51). The *tibia* of imperial times was mostly played at the theatre (McKinnon and Anderson 2001: 461). As aforementioned, *tibicines* were commissioned to compose, as well as to perform, the musical accompaniment for plays (Scoditti 2008: 52). A prominent figure of the theatre was the *scabillarius*, a sort of theatrical musical director who played the *tibia*, while beating time with his foot on the *scabellum* (Scott 1957: 409-15). Moore (2012: 159) defines the *scabellum* or *scabillum* as 'a set of clappers, sometimes with little cymbals inside, which would make a pronounced percussive sound when the *tibicen* lowered his foot to the ground' (Figure 4.8).

²⁰⁸ On *tibiae sarranae* see section 4.5 on this chapter.

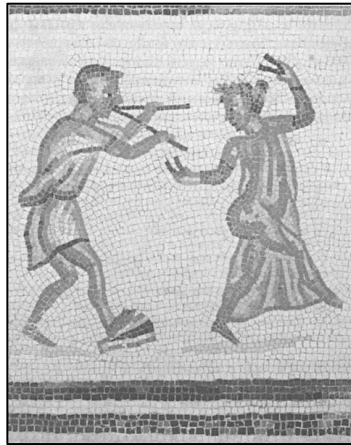


Figure 4.8. *Tibia* player with *scabellum* and dancer (photo: Moore 2012: 160, Figure 9).

The performance culture of Imperial times was highly influenced by the pantomime or *fabula saltica* (Zanobi 2010: 270-2). According to Rocconi (2015: 19-20), pantomime was a performance in which a silent dancer (*orchêstês*), wearing a costume and a mask, impersonated different characters through the dance, while a chorus sang. The pantomime was usually accompanied by music played on different musical instruments, such as the *tibia*, the *syrinx* (panpipes), the *cymbala* (cymbals), the sistrum, and the *kroupezion* (a shoe with an iron sole similar to the *scabellum*) (Rocconi 2015: 19-20).

4.4 The *Tibia* in Roman Life

During the Republic, *tibicines* created the organisation *collegium tibicinum Romanorum* (Fleischhauer 2001: 607). ‘Plutarch [*Vitae Parallelae*—Numa 17.2] listed the *tibicines* as the first of the trade groups organised by the ancient Roman King Numa’, who reigned from 715 to 673 BC (cited from McKinnon and Anderson 2001: 461).²⁰⁹ The King Numa Pompilius, (fl. c.700 BC) was the second of the seven kings who ruled Rome before the founding of the republic in c.509 BC (Roberts 2005: 652-3). This shows that *Tibicines* were valued in Roman society and had some privileges. Every year they celebrated a strike they had organised in 311 BC in Rome, with a festival and processions to the temple of Jupiter (Fleischhauer 2001: 607). The legend of the strike was told by the Roman poet Ovid and the Roman historian Livy as follows:

²⁰⁹ See also Plut. *Vit.*, I, 365.

In 309 BC, the *tibia* players were discontented because certain of their privileges had been curtailed—in Livy’s version, their ancient custom of eating in the temple of Jupiter—and they therefore went into voluntary exile at Tibur. The senate, distressed that the sacred rites might be unaccompanied by *tibia* playing managed to get the players drunk, load them into a cart and return them to Rome before they had recovered full consciousness. Their former privileges were restored, and in addition the *tibicines* were permitted once a year to go about the city in full regalia playing their instruments; this was the origin of the mid-June festival called the *Quinquatrus minores* (McKinnon and Anderson 2001: 461)

During the Late Republic ‘members of the municipal Roman *collegium tibicinum* were freedmen, whereas the trumpeters of the state religion held the rank of priest’ (McKinnon and Anderson 2001: 461). According to Macrobius (*Saturnalia* 3.14.4), during Imperial times, music started to be studied by both young men and women of the elite (cited from Horsfall 2003: 35). The edict of the censors Lucius Caecilius Metellus Delmaticus and Gnaeus Domitius Ahenobarbus of 115 BC mentions that restrictions were imposed on the use of instruments but not on the *tibia* (cited from Comotti 1989: 51). The *tibia* was considered almost sacred, while the *kithara*, on the other hand, was seen as a symbol of refinement and luxury by conservative and agrarian Romans (McKinnon and Anderson 2001: 462).

As a result of immigration or slavery in Imperial times, a number of artists (singers, dancers, and instrumentalists) from Greece travelled to Rome (Fleischhauer 2001: 606). They also came from other parts of the empire, such as Egypt, Syria, and Spain (ibid: 610). This evidently created a new musical environment in Rome.

The development of the *aulos*, and by extension of the *tibia*, may have reached its peak during the Roman Imperial dynasties (14 BC-AD 192). ‘In AD 284, the emperor [Marcus Aurelius] Carinus [, who reigned from AD 283 to 285,] organised a concert in which participated hundred trumpet players, hundred horn players, and two hundred *tibicines*’ (*Vita Carini* 19.2) (cited from Comotti 1989: 54).

Until the death of the Emperor Theodosius I in AD 395, the Roman Empire was a unit which incorporated all the provinces that bordered the Mediterranean and much more besides (Cameron 1993: 1). The inevitable slave trade provided services of all kinds. It is worth mentioning that some slaves were people with varied knowledge and instruction, which included musicians, dancers, and actors (Fleischhauer 2001: 606-7). The death of Theodosius I divided the Roman Empire into two: the eastern and western empire, and the eventual splitting up of the Western

Roman Empire into separate Germanic Kingdoms denotes the beginning of late antiquity, a period which came to an end when Persians and Arabs invaded the Eastern Roman Empire in c.AD 600 (Cameron 1993: 1-11). During the entire Roman period, the *tibia* was constantly evolving. For this reason, it is important to provide a system of classification of this instrument and its counterpart, the *aulos*.

4.5 System of Classification

The following is a review of a system of classification of *auloi* and *tibiae* based on Howard's publication called *The Aulos or Tibia*.

Romans categorised double pipes into two main classes. These are described by the fourth century grammarian Servius (*Aeneid* Book X. 615) as *nam tibiae aut Serranae dicuntur, quae sunt pares et aequales habent cavernas: aut Phrygiae, quae et impares* [sic. *impares*] *sunt et inequales habent cavernas*, that is, 'for *tibiae* are either called *Serranae* (these are equal [in length] and have bores of the same size), or Phrygian (these are unequal [in length] and have bores of different sizes)' (cited from Moore 2012: 61).

The Roman writer Tibullus (*Elegiae* Book II. 1.85) describes the following: *Phrygio tibia curva sono*, that is, the Phrygian *tibia* is curved.²¹⁰ This shows that curved pipes were of Phrygian origin. As Servius describes above (*Aeneid* Book X. 615), these *tibiae* were *impares*, that is, unequal in length. The longer pipe ended in an abrupt hook-like semicircle (see Figure 4.7, p. 172). However, Festus (109M=97L) writes: '*impares* [sic. *impares*] *tibiae numero foraninum discretas*', that is, 'unequal *tibiae* are distinguished by the number of their holes' (cited from Moore 2012: 62). Thus the words *pares* and *impares* may not necessarily apply to length. *Pares* may denote pipes with the same number of holes, while *impares* those with a different number, thus, pipes of equal length may in fact be *tibiae impares*, which differ in the number of holes they hold.

The *tibiae sarranae* refers to Sarranus, that is, to the city of Sarra, the ancient Punic name of the Phoenician Tyros (Tyre). According to Servius the *tibiae sarranae* were *tibiae pares*, with both pipes producing the same sounds and holding the same number of holes (cited from Scoditti 2008: 51). The Greeks knew of a particular type

²¹⁰ Catullus, Tibullus, *Pervigilium Veneris*, trans by Francis Warre Cornish, John Percival Postgate, and John William Mackail, Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1988), p. 259.

of *aulos* which, like the *sarranae*, was also derived from Phoenicia, which they called the *gingras*.

In his description of the γαμήλιον αὐλημα (*aulema gamelion*), Pollux (*Onomasticon* Book IV. 80) asserts that these were two pipes where one was longer than the other. Pollux most probably refers to the form, that is, to the αὐλημα (*aulema*) of the Phrygian pipes as these are αὐλοί ἐλυμοί (*auloi elymoi*) as evidenced by Athenaeus (Book IV 176f).²¹¹

The *didascalia*, that is, the stage directions of *Heauton Timoroumenos* and *Phormio*, where both plays were written by the dramatist of the Roman Republic Terence, describe that *tibiae impares* were used for each play. *Tibiae impares* probably played at an octave interval from one another (Comotti 1989: 51). *Tibiae impares* were in fact Phrygian pipes.

Hesychius of Alexandria, a Greek grammarian of the fifth or sixth century AD, while describing the term (s.v. ἐγκεραύλης=*egkeraules*, that is, Phrygian pipes) notes that the way of properly playing the Phrygian pipes was by holding the curved pipe in the left hand (cited from Howard 1893: 37). According to Pérez Arroyo (2001: 245-314), the Egyptian iconography does not show bent pipes, only upright ones, however, sometimes one pipe is longer than the other. The Egyptian performer usually held the longer pipe in the left hand.

The scholar Marcus Terentius Varro (116-27 BC) (cited from Servius *Aeneid* Book IX. 615) describes the following: *tibia Phrygia dextra unum foramen habet, sinistra duo, quorum unum acutum sonum habet, alterum gravem*, that is, ‘the right-hand Phrygian *tibia* has one stop, the left-hand one two, one of which has a high sound, the other one a low one’ (Bloemendal 2010: 742-3). Varro is clearly referring to *tibiae impares* consisting of two pipes, one *dextra* and one *sinistra*. Hagel (2008: 55) argues that the longer pipe was held in the left hand, while the shorter in the right. This suggests that the left Phrygian pipe, that is, the curved pipe is longer and therefore produces a lower tone than the right one, namely the straight one. According to the scholar and philosopher Porphyry (AD 234-c.305), Phrygian pipes had a narrow bore and reproduced deeper tones (cited from Howard 1893: 38).

The Roman grammarian Servius (*Aeneid* Book X. 615), who flourished in the fourth century AD, indicates that pipes with equal length also existed. Moreover, he

²¹¹ Ath., I, p. 282.

mentions that these had the same internal diameter. He states that *pares sunt et aequales habent cavernas*, that is, ‘these are equal and have bores of the same size’ (cited from Moore 2012: 61). In his *Deipnosophistae* (Book XIV 634e), Athenaeus mentions that Aristoxenus refers to such pipes in the first book of his treatise *Αὐλῶν Τρήσεων* (*On Flute-Boring*).²¹²

There were also five classes of double pipes: the παρθένιοι (parthenius), παιδικοί (paedicus), κιθαριστήριοι (kitharisterioi), τέλειοι (perfect), and ὑπερτέλειοι (superperfect). Athenaeus (Book IV 176f) identifies the last two as ἀνδρείοι (andreioi).²¹³ Herodotus (*Histories* Book I.17) provides a classification based on sound. He distinguishes between the *aulos* ἀνδρείοι (andreioi) and the *aulos* γυναικεῖοι (gynaikeioi) describing that the former produces a low sound like the male voices, while the latter a high-pitched sound like the female voices.²¹⁴

According to Aristoxenus (*Harmonica* 20.32-4), the highest note of the παρθένιοι (parthenius) as compared with the lowest note of the ὑπερτέλειοι (superperfect) produces an interval of more than three octaves (cited from Barker 1984: 267 footnote 30). According to Aristotle (*Historia animalium* 581b) (cited from Kousoulini 2019: 116), the παρθένιοι (parthenius) was higher in pitch than the παιδικοί (paedicus), while Athenaeus (Book IV 182c) asserts that the ημίοποι (hemiopoi-half-holed or the smaller), a similar *aulos* to the παιδικοί (paedicus), was shorter than the τέλειοι (perfect) and that these were used during banquets.²¹⁵ The παροίνιοι (paroinioi), along with the αὐλοὶ ἐμβατήριοι (embaterioi) and δακτυλικοί (daktyloi), may belong to this class (Pollux *Onomasticon* IV. 80-82). The ἐμβατήριοι (embaterioi) was used during processions while the δακτυλικοί (daktyloi) was used to accompany the *hyporchema*, a mimic dance performed during Apollos’ worship songs. Additionally, Pollux (*Onomasticon* Book IV. 81) states that the ὑπερτέλειοι (superperfect) was used to accompany male voices. The ὑπερτέλειοι (superperfect) were the lowest pitch of all the *auloi* and were probably used in the temples.

The classification also includes pipes of very high pitch. These were the γίγγροι (gingras or gingrinae) which measure a span in length and produced very shrill tones (Athenaeus IV 174f) and the *miluina* described by Festus as *genus tibiae acutissimi*

²¹² Ath., III, p. 1013.

²¹³ Ath., I, p. 282.

²¹⁴ Hdt., p. 9.

²¹⁵ Ath., I, pp. 282-3.

soni, that is, a kind of *tibia* of a very clear tone.²¹⁶ The σκυταλία (*skytalia*) (Pollux *Onomasticon* IV. 82) made up of short pipes also falls into this category which also includes the παρατρητοί (*paratretoi*) (Pollux *Onomasticon* IV. 81) and the νίγλαρος (*niglaros*) (Pollux *Onomasticon* IV. 82).

According to Pollux (*Onomasticon* IV. 81), the κιθαριστηριοί (*kitharisterioi*) were probably used with the lyre. According to Photius and Hesychius, this class also includes the μεσόκοποι (*mesokopoi*) which were shorter than the τέλειοι (*perfect*) (cited from Howard 1893: 40). The Phrygian pipes also belong to this category. As a matter of fact, Horace (*Epodes* IX. 5) mentions that they were played together with the lyre.²¹⁷ The μάγαδις αὐλός (*aulos magadis*) can also be included in this class (Athenaeus XIV 634c).²¹⁸

Other distinctions between various types of *aulos* are due to their use during different occasions or their link with different local traditions. A particular *aulos* known as πυθικοί (*pythikoi*) was used in Pythian contests and belong to the category of τέλειοι (*perfect*). According to the fourth century-AD grammarian Diomedes (*Ars Grammatica* Book III. Keil I. 492. 9-14), these instruments were used to accompany songs in drama, such as the *cantica* of the Roman comedy (cited from Moore 2012: 58).²¹⁹ It seems that the πυθικοί (*pythikoi*) produced particular low and deep sounds. This could be the reason why it was called ἄρρην (*árrin*) virile (Aristides Quintilianus *De Musica* Book II. 16) (cited from Petretto 1995: 114). The *aulos* χορικός (*choricos*) had a sweet timbre and a comfortable tessitura to support the singing of the chorus (Moore 2012: 58). This type of *aulos* was also known as κύκλιος (*kuklios*) because it accompanied the singing and the dance of the cyclic choir during *dithyramb* performances (Pollux *Onomasticon* Book IV. 81). The θώτιγξ (*photinx*) was a form of πλαγίαυλος (*plagiaulos*) that came from Egypt (Athenaeus Book IV 182d-e).²²⁰

This system of classification, mainly built and derived from written sources, hints that Roman writers were mainly concerned with the technical aspects of *tibiae*. They recognised two main classes: the *sarranae* or *serranae*, and the Phrygian (Comotti 1989: 51). The former were equal in length with bores of the same size, while the latter were unequal in length with bores of different sizes (Moore 2012: 61). The

²¹⁶ Ath., I, p. 279; Howard 1893: 39.

²¹⁷ Hor. *Epod.*, p. 292.

²¹⁸ Ath., III, p. 1013.

²¹⁹ See also Bloemendal 2010: 428-9.

²²⁰ Ath., I, p. 283.

terms *pares* and *impares* probably referred to the number of holes, where *pares* pipes had the same number of holes on each pipe on the same instrument while *impares* had a different number of holes on each pipe (ibid: 62).

It is worth noting that both *sarranae* and Phrygian pipes were foreign musical instruments. The origins of the *tibia sarrana* are found in Phoenicia, while the Phrygian ones are found in Asia Minor (Comotti 1989: 51). However, as was typical of the Romans, the concept of the instruments was brought to Rome, where their production was undertaken and given a Roman title. For example, the *tibia berecynthia*, a double-pipe instrument used during the cult of Kybele in Rome, was in fact a Phrygian *tibia* (McKinnon and Anderson 2001: 461). The same type of pipes was also known as *elymos* in Rome (West 1992: 91-2).²²¹

Phrygian pipes consisted of two pipes, where the one held with the left-hand was longer than the one held with the right-hand (see Figure 5.12, p. 224). The left pipe was curved and had a horn attached to its bottom end. It is believed that it produced low notes because it had considerable length. The right pipe, on the contrary, was shorter and straight and did not have a horn attached to its extreme end. It is believed that it produced slightly higher notes than its counterpart as it was shorter.

An interesting fact is that both Phrygian and *sarranae* pipes were used in the Roman theatre (Comotti 1989: 51). Other pipes used in the theatre were the *choraulicae* and the *pythaulicae*. The *tibia choraulicae* was probably similar to the *aulos χορικός* or *κύκλιος*.²²² It was mainly used to accompany choruses (Moore 2012: 58). The *pythaulicae* may have resembled the *aulos πυθικοί* (Pythikoi). The *pythaulicae* was used to accompany the *canticum* which consisted of a musical piece performed by one singer (ibid).

If one considers that the *pythaules* was similar to the *aulos πυθικοί* (Pythikoi), that is, to a τέλειοι (perfect) *aulos* which reproduced low notes, the sound of the *pythaules* evidently contrasted with the sweet timbre of a female voice when

²²¹ The *elymos aulos* or Phrygian *aulos* is depicted on one of the frescoes of the sarcophagus of the Aghia Triadha in Crete, c.1400 BC (Castleden 1990: 151). This type of *aulos* probably existed in the Aegean area as early as the Late Bronze Age. Cratinus Junior, an Athenian comic poet who flourished in the middle of the fourth century BC, describes that the *elymos aulos* was played by the Cypriotes and Phrygians and it is possible that people from the Aegean area brought the instrument to Cyprus by the end of the Bronze Age (cited from Haarmann 1995: 155).

²²² The word κύκλιος (*kuklos*), a “circle”, suggests a possible connection between this type of *aulos* and the Aegean area. The word Cyclades, which stands for the islands of the Aegean Sea, derives from the word *kuklos*.

performing the *canticum* at the theatre. One must note however that the *canticum* was not only sung by women but also by men (Moore 2012: 64-5).

When accompanying a chorus, the *tibicen* followed their rhythm and was therefore led by them (Bélis 1999: 32-4). The musician accompanied the chorus by playing sweetly and harmoniously ensuring that the chorus remained predominant (ibid). It is very unlikely that *tibicines* reinforced the rhythm with the *scabillum*, instead they might have stressed the rhythm through repeated increases in volume (Moore 2012: 161). Such a musical technique is not observable amongst the *launeddas* players of Sardinia, but to a certain extent, it is practised by Egyptian *arghul* players (Weiss Bentzon 1969: 94-5) (CD track 4).

Due to little information through written sources with regards to the morphology of the *auloi* and *tibiae*, this investigation finds it necessary to include a description of excavated *auloi* and *tibiae*, both fragmentary as well as those which were found in an almost complete state. These artefacts are extremely valuable for the investigator because they provide information which is complementary to written sources. Thus the combination of written and archaeological sources allows the researcher to build a more holistic view of this musical instrument. A description of some of these findings is provided in the next section. The section concludes with observations on this musical instrument deriving from the combination of written and archaeological sources.

4.6 Description of Excavated Auloi and Tibiae

The Auloi of Pydna

According to the ethnomusicologist and classicist Stelios Psaroudakes (2008: 198), the *Auloi* of Pydna were discovered by the archaeologist Manthos Besios at one of the cemeteries of Pydna in 1996. Despite Psaroudakes naming the discovery in the plural, what Besios actually uncovered was one instrument. This was found in a Grave (No 324-Field 951) which dates back to the first half of the fourth century BC. The burial contained a full skeleton and an *aulos*, probably deposited there as an offering. The pipes are kept at the Archaeological Museum of Thessalonike (No Pydna 100) (ibid: 198).

Psaroudakes (2008: 199) believes that the pipes are a pair because the thumb holes are displaced in opposite directions. He also describes that they are unequal in

length, therefore, the holes are located at different distances in both pipes, that is, they present different hole patterns (ibid). The two pipes are made out of bone and consist of five sections linked to each other by means of spigots and sockets. The first section is a conical cup located at the upper end which received the reed. The second section is the bulb while the third is an extension, namely a piece of tube without holes. The fourth is the central section with four holes, including the thumb hole, and the lower section which has two holes (Psaroudakes 2008: 199-203).²²³

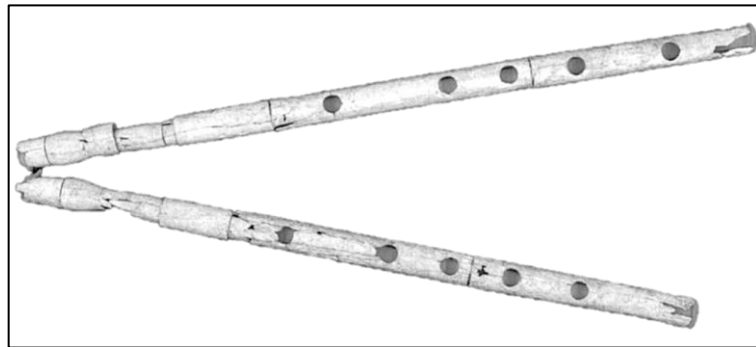


Figure 4.9. The *auloi* of Pydna, reconstruction (photo: Psaroudakes 2008: 207, Figure 2).

The Elgin Aulos

The pipes were discovered in Athens and date back to the fifth century BC. The artefacts are kept at the British Museum, catalogue No 1816,0610.502. They consist of a pair of cylindrical pipes made out of sycamore wood (Schlesinger 1939: 360). Each pipe has a pear-shaped barrel made out of the same type of wood (Wardle 1981: 13). The instruments measure 35 and 31.2 cm in length. They have six tone holes of which one is a thumb hole (Howard 1893: 59; Schlesinger 1939: 360).



Figure 4.10. The Elgin *aulos* (photo: https://www.britishmuseum.org/collection/object/G_1816-0610-502).

²²³ For further descriptions and detailed measurements, see Appendix B.

The Pompeii Auloi or Tibiae

Four *auloi* or *tibiae* were discovered at Pompeii. The artefacts are kept at the National Archaeological Museum of Naples, inventory numbers: 76891-2-3-4. The pipes are perhaps the best examples of an Imperial Roman *tibia*. The artefacts were found together, and they differ in length. They consist of ivory tubes encased in metal, with bands of bronze or silver (Hagel 2012: 103). The number of finger holes per pipe varies from ten to nineteen (Schlesinger 1939: 79). The pipes are fitted with a mechanical system which consists of rotary rings or bands of silver so as to open or close holes (West 1992: 87). Such rings are made out of overlapping sections of silver and copper alloy (Hagel 2012: 103). According to Hagel (2012: 103), there is a separate band for each hole. Some bands or rotary rings retain turning mechanism in the form of small knobs pierced with a hole (ibid). The function of the rings is to cover or uncover a single finger hole or, in some cases, two finger holes (ibid). Each pipe is cylindrical and has an internal diameter of 0.95 cm and an external diameter of 1.42 cm (Howard 1893: 48). These *tibiae* clearly do not have irregularities in the bore, and the advantages of the material are evident. Each pipe has an ivory bulb. The bulb and the tube have the same bore (Hagel 2012: 105).²²⁴

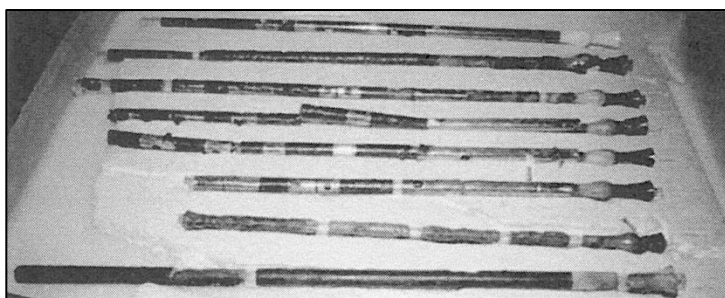


Figure 4.11. The Pompeii *auloi* or *tibiae* (photo: Melini 2014: 341, Figure 2).

The descriptions presented above provide an idea of how the *aulos* was transformed from a simple piece of bone with holes into the Imperial *tibia* found at Pompeii. Technological progress enabled the joining together of short sections of bone by means of spigot and socket. Probably, the most striking features of the Imperial *tibia* are the mechanical parts which facilitated the change in tuning. This mechanism

²²⁴ For further descriptions and detailed measurements, see Appendix B.

was based on rings or rotary bands and seems to have been gradually adapted. I must emphasise however that dates are not absolute, but rather indicators within a period of time. As a consequence, it is not possible to know exactly how these changes occurred. Nevertheless, these examples serve as a visual reminder of how metals started to be incorporated as parts of this musical instrument.

Of one thing we can be certain: the *auloi* of Pydna were *impares* pipes and thus differed in length. The left pipe is longer than the right one and thus has a low register. Unfortunately, it is not known what sort of scales this instrument played. Nonetheless, Psaroudakes (2008: 199) describes that they are similar to the Elgin pipes, but slightly longer. Experiments carried out on the Elgin *auloi* indicates that one of its pipes, namely the straight one, plays the Dorian, the Phrygian, the Lydian, and the Hypolydian scales, while the curved pipe plays the Lydian and the Mixolydian scale (Schlesinger 1939: 360).²²⁵

Both the *auloi* of Pydna and the Elgin *auloi* cannot be identified as Phrygian pipes and thus as *berecynthia* or *elymos* pipes, because there is no horn attached to one of the pipes. In the fifth century BC, only three modes were used: the Dorian, the Phrygian, and the Lydian (Plut. [*De Mus*] 1134a).²²⁶ In some way, this information substantiates the experiments carried out on the Elgin *auloi*. In other words, it is likely that both the Pydna and the Elgin *auloi* played Dorian, Phrygian, and Lydian scales, as both *auloi* date to *circa* fifth century BC. If this interpretation is correct, both *auloi* were used to accompany different types of music. Thus the Dorian scale was used for hymns, processions, laments, and war marches (West 1992: 179-80). Moreover, like the Phrygian scale, the Dorian also served for religious purposes, while the Lydian was mainly used at private gatherings, such as the symposion (ibid: 180-2).

One can say that during the Roman period, double pipes were made out of bone, ivory, or wood encased in metal, particularly bronze. The inner core of the *tibiae* from Pompeii is made out of bone encased in metal which provides extra strength. Bone is more durable and readily available than reed. In some places wood was also used for the manufacture of *auloi* or *tibiae*, such as the example of the Elgin *auloi* which are made out of sycamore wood. It is likely that wood was cheaper than ivory or bone.

²²⁵ The experiments consisted of playing the pipes with different types of mouthpieces. These were inserted at different amounts of extrusion from the resonator, thus obtaining the different scales.

²²⁶ Plut. [*De Mus*], p. 371.

Tibiae manufacturers increased the number of holes of the instrument because the increment of these is proportional to the length of the tube. With this technological development, the tonal range of the instrument increased, and *tibia* players were able to perform more than one scale. The extra holes were covered with metal collars or sleeves before the performance, enabling the player to select a determined scale. Each collar had a knob lever soldered to it so it could be rotated around the pipe. According to Hagel (2009: 351-61), the Imperial *auloi* from Pompeii were most probably played in pairs. These instruments play a number of different scales, such as the Dorian, the Phrygian, the Aeolian, and the Lydian (ibid). Thus they served to play different musical genres in various contexts. These *auloi* were definitely sophisticated musical instruments and meant for professional performers. If they belonged to some category, they probably were *ὑπερτέλειοι*, that is, superperfect.

4.7 Possible Transformation of the Aulos in Late Antiquity

According to Montagu (2007: 75), there is no information about the *aulos* beyond Roman times. However, there is always the possibility that musical practices of antiquity were passed on to itinerant musicians, whose secular music of the time left no trace whatsoever (ibid). In the same vein, it is very difficult, if not impossible, to know which traditional instruments are the true descendants of the *aulos*. Most traditional wind instruments, whether of single or double-reed with cylindrical or conical tubes, seem to have inherited some features of the extinct *aulos*. As mentioned in Chapter III, the *aulos* probably had a double-reed for a mouthpiece. If this hypothesis is correct, we may classify the *aulos* as a double-reed instrument.

According to Jähnichen and Yoshitaka (2019: i), double-reed instruments can be found in most of Eurasia and parts of Africa. However, their place of origin remains debatable. Places corresponding to the boundaries of ancient Persia (Sassanid Empire), south Asia, and the Middle East have been suggested (ibid). Although the origins of double-reed instruments are unknown, it is generally accepted that they originated from a specific region, and that they spread to other areas through trade, migration, warfare, and religious and colonial expansions (Sachs 1940). According to Elsner (2019: 2), the expansion of Islam may be considered responsible for disseminating double-reed instruments eastwards, particularly during the occupation of Egypt in AD 639-40, and the eventual conquest of all North Africa in AD 709. However, it is worth noting that double-reed instruments have been attested to in North

Africa, particularly in Egypt since the New Kingdom (1549-1069 BC), that is, in pre-Islamic times (Hickmann 1961). These aerophones were called *wdny* and like the *aulos*, consisted of two pipes that were blown simultaneously (Anderson 2001: 2-3). Similar aerophones were used in late antiquity (Levy 1999: 598). In Roman Syria (64 BC-AD 637), for instance, double-pipe instruments were known as *abuba*, and were mainly played by women, possibly priestesses, while riding on a camel (Poché 2001: 771). The sound of the *abuba* was mainly accompanied by the drum (ibid) (Figure 4.12). This is also attested by Menander, a leading writer of the Athenian New Comedy, who mentions the *aulos* of the Arabs as early as the second century BC (cited from Menandri 1862: 4).



Figure 4.12. Two women, possibly priestesses, riding on a camel. One plays the double-pipes *abuba*, while the other a drum. Roman Period, Damascus (photo: Poché 1983: 68, Figure 3).

The Semitic triconsonantal root *Z-M-R* (relating to “sing”) goes back to pre-Islamic times (al Faruqi 1981: 189). It probably denotes an instrument consisting of two parallel pipes with few notes, possibly without a drone (Poché 2001: 771). A stone etching discovered in the Harra desert, specifically in the north-eastern Transjordan, bears a depiction of a double-pipe player and an inscription written in Safaitic, an ancient southern Arabic dialect (Braun 2002: 218) (Figure 4.13). The artefact is dated

to the late Hellenistic/early Byzantine period, that is, between the first century BC and the fourth century AD (ibid). The Safaitic inscription reads: ‘By Aqraban ben Kasit ben Said the beautiful one (*dmyt*) plays the pipe (*zmrt*)’ (Braun 2002: 218). This early iconographic piece attests the use of double-pipe instruments by Bedouin nomads. It is worth noting that the double-pipes depicted are unequal in length, so we can say that this aerophone probably had some similarities with the *aulos*, the *tibia*, the *wdny*, and the modern *arghul*. The *arghul* consists of two parallel pipes of unequal length. One pipe plays the melody while the other the drone. The tubes, apart from being tied with a thread, are attached with tar or wax (Conner 2001: 885).

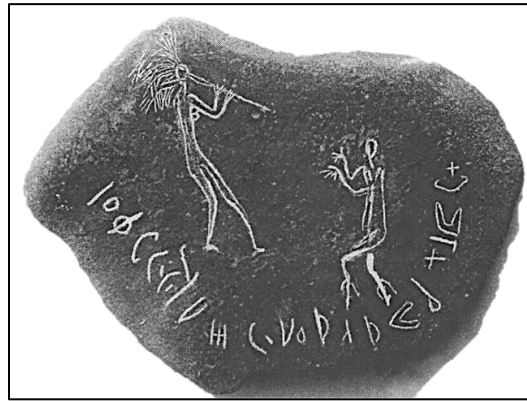


Figure 4.13. Stone etching from the Harra Desert, Amman, Jordan (photo: Braun 2002: 218, Figure V.18).

The word *miZMāR* (pl. *mazāmīr*) comes from the root Z-M-R and it is a ‘generic term for any woodwind instrument employing a double-reed, like the oboe, as distinguished from the clarinet and recorder types’ (Robson 1938: 240; al Hafnī 1971: 178-9). The *mizmār* is frequently used in pairs as is the *aulos*. A short pipe, known as *sibs*, performs the melody, while a larger pipe, the *jawra*, shadows the melody (al Hafnī 1971: 179). Early evidence of the *mizmār* is found in the writings of al Hamdani, a Yemenite historian of the ninth-century AD. Al Hamdānī (1931, 8: 160) describes that he saw ‘two mutilated statues of singing-girls [*qaynatān*], one holding an ‘*artaba* [*tanbūra* or *tunbūra*] [a long-necked lute], the other a *mizmār*, also mutilated’ (cited from Poché 2002: 360).

The *mizmār muzāwaj* or *mizmār al muzawwaj* literally means ‘paired *mizmār*’. According to al Fārābī (c.AD 870-950), this term denotes any double-pipe instrument (1967: 795-800). Al Fārābī also comments that double-pipes were known as *muthanna* or *dūnāy* (ibid). According to Oostrum (2019: 25), the *dūnāy* had two double-reeds.

Al Fārābī (1967: 795-800) describes the above instruments as ‘having two pipes of the same length, fastened close together near the mouthpiece and spreading towards the lower extremities. Generally there were five finger holes in the right tube and four in the left’. The above information suggests a possible continuation of double-pipe instruments, such as the *aulos* and the *tibia*, in the Arab world.

The *aulos* and the *tibia* also occupied an important place in ancient Israel, particularly, during the third or fourth century AD. This is indicated by the discovery of a mosaic in the city of Sepphoris (Zippori). This city is located in Galilee, five kilometres north-west of the old city of Nazareth. The mosaic floor comprises the whole area of a *triclinium*, that is, of a dining room which is situated in a large house that dates back to the third or fourth century AD (Weiss 2001: 15-26). This house probably belonged to a Roman or a Hellenised Jew (Braun 2002: 262). It is worth noting that during this period, the city of Sepphoris had a mixed population which was mainly made up of Romans, Jews, and Christians (ibid: 262).

The mosaic floor is divided into fifteen sections which deal mainly with the life and cult of Dionysus. Only five sections depict the *tibia* (Talgam and Weiss 2004: 69; De Marini 1961: 382-4) (Figure 4.14). The relevance of this mosaic lies in its syncretism. Some scenes show Hellenistic, Jewish and Christian elements, such as the halo, the ass and the rider, and the cockerel offering (Waner 2014: 283).



Figure 4.14. Mosaic floor, Sepphoris (photos: Waner 2014: 278, Figures 6-10).

This suggests that Romans, Jews, and Christians made use of a common inventory of symbols which they, most probably, interpreted differently (Goodenough 1964: 207-8). This also included musical instruments, such as the harp and the *tibia*, as these are ‘symbolic and emblematic of peoples and places’ (Dawe 2003: 274). As

a matter of fact, the *tibia* was used in Pagan, Jewish, and early Christian contexts during the late first and beginning of the second century AD. Clement of Alexandria (*Paedagogus* III, xi) portrays the syncretism that existed among the first Christian communities by describing how people enjoyed pagan music after a Christian service.

After reverently attending to the discourse about God, they left what they had heard within, while outside they amuse themselves with godless things, with the plucking of strings (χρουμάτων) and the erotic wailing of the aulos, defiling themselves with dancing (χρότου), drunkenness and every sort of trash. Those who sing thus and sing in response are those who hymned immortality before, but sing finally, wicked, and wickedly, that vicious recantation: “Let us eat and drink, for tomorrow we die” (McKinnon 1987: 34 no 56).

Clement (c.AD 150-c.215) evidently shows a condemnatory attitude towards pagan music. However, it seems that this was not always the case. The apocryphal work of Sirach, written in the second century AD, uses a less condemnatory tone towards pagan music. It is important to note that all the instruments mentioned in the following passage can be defined as pagan or at least as secular instruments. Sirach (40. 21) describes the following: ‘the flute and the harp make sweet melody, but a pleasant voice is better than either’. Undoubtedly, the attitude towards the flute, that is, towards the *aulos* or *tibia* and the harp, probably a *psalterion*, is less radical than the preceding passage by Clement of Alexandria. One can conclude that music was not totally reprehensible at that time, but that there was a strong preference for vocal music. As a matter of fact, the voice, namely the singing of the word of God, that is, cantillations, became a hallmark in the Judeo-Christian tradition.

The prophets not only condemned pagan music but also the customs associated with it. The prophet Isaiah, for instance, wrote: ‘Ah, you who rise early in the morning in pursuit of strong drink, who linger in the evening to be inflamed by wine, whose feasts consist of lyre and harp, tambourine and flute and wine, but who do not regard the deeds of the LORD, or see the work of his hands!’ (Isaiah 5. 11-12). This passage shows that prophets condemned both the addiction to strong drink and musical entertainment, as this was an aspect of an ostentatious life (e.g. Amos 6. 1, 4-7). The Greco-Roman tradition was renowned for such customs. However, condemnatory references to music-related practices did not start with the Judaic tradition but within the Greek tradition itself. The philosopher Aristoxenus, for example, considered the

aulos a foreign musical instrument (*ekphula organa*) thus condemning the aerophone and its players to a lower rank in the social stratification of the epoch (Wehrli 1967: 33). Plato (*Respublica* Book III 399c-d), in his model of an ideal state, affirms that society does not necessarily need many strings (*polychordia*) in the same way that it does not need a collection of all the *harmoniai* in songs and melodies. As a result, *aulos* players and its makers should be banned from the city because the *aulos* was deemed excessive due to its capability of reproducing many notes and therefore, the whole *harmoniai*.²²⁷

Emperor Constantine (r. 310-37) issued the Edict of Milan in AD 313. The edict decriminalised Christianity and allowed the church to establish itself throughout the Empire (Drake 1999: 390). Christianity, however, became the official religion of the Empire during the reign of Theodosius I (r. 374-95), who suppressed other religions, except Judaism (Lim 1999a: 208-11). The eventual eradication of non-Christian beliefs is reflected in the writings of the early Church Fathers, who tackled every aspect of such customs, including music (Levy 1999: 598). They also refer to the *aulos* or *tibia* thus providing important information (ibid). Basil the Great (c.AD 330-379), for instance, calls people to embrace the word of God, and not to engage in pagan practices. He uses the *aulos* as a symbol for such wicked customs. Basil the Great was the Bishop of Caesarea (AD 365). He also lived in Constantinople and Athens, and travelled throughout Egypt, Palestine, Syria, and Mesopotamia (Rousseau 1999: 336-7). In his *Homilia* in *psalmum* lix, 2, he evidences a clear separation between Jews and early Christians, as pagan practices were still found appealing by Jews.

So the psalm was not written for the Jews of that time, but for us who are to be transformed, who exchange polytheism for piety and the error of idolatry for the recognition of him who made us, who choose moderation under the law in place of illegitimate pleasure, and who substitute psalms, fasting and prayer, for auloi, dancing and drunkenness (McKinnon 1987: 66-7 no 135).

Both the *aulos* and *auletai* were castigated, so much so that they were compared to the devil himself. The *aulos* was considered an instrument through which the devil could speak, and its sounds were evil spells. In his work *Panarion* (medicine

²²⁷ Pl. *Resp.*, I, p. 249.

chest), Epiphanius of Salamis (c.315-403) attempts to put an end to several heresies, including pagan music, through descriptions such as the following:

In fact the aulos itself is an imitation of the serpent through which the Evil One spoke and tricked Eve. For it was in imitation of that type that the aulos was made, for the purpose of deceiving mankind. And observe the type, which he who plays the aulos represents upon the instrument. For the player throws his head back, then bows forward; he inclines to the right, then similarly to the left. Now the devil has used the same gestures in order to flaunt blasphemously at the inhabitants of the heaven, and to bring utter destruction to things on earth, at once encompassing the entire world, causing ruin right and left to those persuaded and charmed by his treachery, as if by the deceptive tones of a musical instrument (*Panarion* xxv, 4) (cited from McKinnon 1987: 78 no 160).

The *aulos* was linked to a set of ancient Greco-Roman beliefs, largely due to its pastoral origins. Peasants regarded the *aulos* as a magical object capable of casting spells and seducing the listener, whether human or animal. Both Greeks and Romans included it in their male gatherings (symposion) because to them the *aulos* had a seductive voice and was thus associated with the feminine (Wilson 1999: 84). It is believed that the first *aulos* player to sway his body as he played was the Sicilian Andron of Catana (late fifth/early fourth century BC) (Ath. Book I 22c; West 1992: 106).

The *aulos* was excluded from temples and churches because of the profane character of the music of the time and its inherent association with non-Christian beliefs (Levy 1999: 598). Undoubtedly, the writings of the early Church Fathers, such as the ones presented above, contributed to the eventual disappearance of pagan customs and by extension of the *aulos* and *tibia*. The propagation of Christianity first secularised such practices thus establishing parallels between the sacred and secular, but later, the new song of Christ ended up silencing all pagan voices (e.g. Ambrose *De virginibus ad Marcellinam sororem* III, iv, 19; Clement *Protepticus* I, 5, 3-7, 3).²²⁸ The *Sybilline Oracles*, a work incorporated in the Apocryphal New Testament (c.AD 200), provides an apocalyptic view of the eventual disappearance of Roman customs, such as the usual sacrifice accompanied by music. The passage narrates the following:

²²⁸ McKinnon 1987: 133 no. 301; McKinnon 1987: 30 no. 45. See also Levy 1999: 598.

They pour no blood on altars in sacrificial libations, The tympanum sounds not nor does the cymbal, Nor does the much pierced aulos with its frenzied voice, Nor the syrinx, bearing the likeness of a crooked serpent, Nor the trumpet, barbarous herald of wars; Neither are the drunkards in lawless carousals or in dances, Nor the sound of the cithara, nor a wicked contrivance; Nor is there strife, Nor manifold wrath, nor a sword Among the dead, but a new era for all (*Sybilline Oracles* VIII, 113-21) (cited from McKinnon 1987: 26 no 39).

This text depicts the imminent replacement of one set of beliefs for another. It also describes the practices of recent converts, who clearly did not incorporate music in their religious practices, and thus no musical instruments were used in early Christian rituals (Levy 1999: 599). A rather more realistic view is provided in the *Apostolic Constitutions* or *Constitutions of the Holy Apostles*. This work is a compilation of legislative and liturgical texts (Anonymous and Donaldson D. D. 2013: 7-9). It is the most extensive of the church orders, that is, of a genre of early Christian literature (ibid). This compilation may have been written by a Syrian man around AD 380 (ibid). A portion of this compilation known as the *Apostolic Tradition* contains a passage that lists a number of professions and activities which, as a requirement for baptism, the person has to abandon (Lim 1999b: 720; McKinnon 1987: 111). The fragment describes the following:

If one of those who work upon the stage approaches, either man or woman, or charioteer, or gladiator, or runner, or wagerer, or athlete, or aulos player (χοραύλης), or chitara player, or lyre player, or one who performs the pantomime, or a hukster, let them desist or be rejected (*Apostolic Constitutions* VIII, xxxii, 9) (cited from McKinnon 1987: 111 no. 240).

This statement shows that several professions associated with the performing arts and entertainment were condemned by the early Church Fathers. The *Apostolic Constitutions* clearly states that both *auletai* and *tibia* players could not be baptised unless they renounced that occupation. Such circumstances may have led *auletai* and *tibia* players to abandon their careers, a fact which may have contributed to the eventual disappearance of the *aulos* and the *tibia* especially in the west. However, musicians may have travelled to distant places for work, for instance, to the east (Dietz 1999: 731-2). Al-Ḥijāz, a commercial land located in west Saudi Arabia, was an

important cultural centre in pre-Islamic Arabia (first to the sixth century AD) and the first centuries of the Christian era (Hourani 1991: 12; Cook 1999: 596).²²⁹ According to Farmer (1929: 3-4), this region was a religious and cultural melting pot, where itinerant musicians, including slaves, showed off their art at the principal markets. It is known that musicians played the *mizhar* (lute), *mi'zafa* (probably a psaltery), *quṣṣāba* (flute), *mizmār* (reed pipe), and *duff* (tambourine) (ibid).

As aforementioned, the word *mizmār* comes from the Semitic root Z-M-R, and probably denotes an aerophone consisting of two parallel or divergent melodic pipes (Poché 2001: 771). This definition makes it something similar to the *aulos* and the *tibia*. As a matter of fact, we are probably speaking of the same instrument. Later sources, however, suggests that there was more than one type of double pipes. Al Fārābī (c.AD 870-950), for instance, refer to these instruments as *mizmār muzāwaj* or *mizmār al muzawwaj* (paired *mizmār*), as well as, *muthanna* or *dūnāy* (1967: 795-800). According to him, these instruments consisted of two equal pipes, where the right pipe had five finger holes and the left four. We know through Oostrum (2019: 25) that the *dūnāy* had two double-reeds like the *aulos* and the *tibia* (see Figure 4.7, p. 172). Since al Fārābī does not describe mouthpieces, there is the possibility that some of these double-pipes were single-reed instruments. Moreover, al Hafnī (1971: 179) mentions that the two pipes were of different lengths. Thus the *sibs*, that is, the short pipe played the melody, while the *jawra*, the large pipe, echoed the melody, a musical practice which may be defined as heterophony. This suggests the existence of different types of double pipes in pre-Islamic Arabia. However, based on the number of finger holes, these instruments probably belonged to the pastoral type and were usually made out of cane, bone, or wood (see Figure 4.9, p. 183)

Apart from itinerant musicians, the people responsible for disseminating musical practices, and by extension double-pipe instruments, were the Badawī or Bedouin Arabs. It is known that they travelled across the deserted regions of North Africa, the Arabian Peninsula, Mesopotamia, and the Levant (Drijvers 1999: 308). The afore-described stone etching and inscription from the Harra desert may serve as evidence for their participation, at least from the first to fourth century AD (Braun 2002: 218). Thus, nomadic or seminomadic desert dwellers were spreading double-

²²⁹ Despite the rise of Christianity (c. 4th century), the Arabs of the Hījāz adhered to ancient pagan cults (Cook 1999: 596).

pipe instruments across the Middle East as early as the pre-Islamic period, that is, from the first century to the sixth century AD. Outstandingly, the abovementioned inscription is written in Safaitic, an ancient Arabic dialect (Braun 2002: 218). The text refers to pipes as *zmrt*, making use of the Semitic root of the word *miZMāR* (ibid). The stone etching shows a performer playing a pair of unequal pipes (see Figure 4.13, p. 189). This contrasts greatly with al Fārābī's description of double pipes, thus suggesting the existence of different types of such instruments (1967: 795-800). As a matter of fact, the engraving depicts a pair of pipes which resemble the ancient *aulos* and *tibia*, as well as the *arghul*. As aforementioned, the Egyptian *arghul* consists of two parallel pipes. The origins of this instrument can be traced back to the Old Kingdom. Scenes from the mastaba of Nianjjnum and Khnumhotep in Saqara, show the instrument (Figure 4.15). The mastaba dates from the middle of the 5th dynasty, probably from the Niuserra period (2445-2414 BC) or from the Menkauhor period (2414-2405 BC). In other words, we can say that the *arghul* was contemporary to the ancient *aulos* and the *tibia*. Such facts led me to conduct fieldwork in Egypt. There I interviewed a number of people and visited the Museum of Egyptian Antiquities in Cairo so as to establish parallels between these ancient double-pipe instruments and the *arghul*.



Figure 4.15. *Arghul* player from the mastaba of Nianjjnum and Khnumhotep in Saqara (photo: Pérez Arroyo 2001: 190, Figure 5).

Conclusion

The beginnings of Rome, after its foundation in 753 BC, were humble. As a matter of fact, in the eyes of the Etruscans and Greeks, that is, the founders of the first

civilisations of Italy, Rome was just another village occupying the Latium (Rasmussen 2010: 13). While Greek colonies established themselves in southern Italy and Sicily, Etruscans developed their civilisation in the north (ibid). Romans had close contact with the Etruscans, whose art was highly influenced by the Greeks (Roberts 2005: 272). In other words, while adopting Etruscan culture, Romans were being Hellenised (Rasmussen 2010: 13). This is remarkable because of two facts: firstly, if one considers that *auloi* started to be manufactured as early as 2800 BC, this tradition was at least two thousand years old by this period (753 BC); secondly, the eventual Hellenization of the Etruscans and their own culture transfer to the Romans, assured the survival of the *aulos*, as far as we know, up to late antiquity.

Due to the fact that Etruscans had their own wind instruments such as the *cornu* and the *lituus*, one can say that they had a passion for this class of instruments. (Athenaeus *Deipnosophistae* Book IV 184a; Fleischhauer 2001: 409).²³⁰ This may be one of the reasons why they adopted the *aulos* and considered it as theirs. Etruscans also transformed it by adding a conical-bell extension on each pipe, which possibly served to increase the intensity of the sound (McKinnon and Anderson 2001: 461). As in Greece, the *aulos* was popular in Etruria, even among the powerful and wealthy (Wardle 1981: 26-7). This is the reason why they used it during different activities. It seems that like the Greeks, Etruscans sought to control people's minds through music. This may explain the use of the *aulos* during events such as the hunt and scourging of slaves, where the objective was to exert power and control over the prey or the slave (McKinnon and Anderson 2001: 461).

Romans discovered the *aulos* through the Etruscans with whom they had a long and close contact. They had their own version of the Greek *aulos* which they called *tibia* or *fistula* (Lat.: pipe) (McKinnon and Anderson 2001: 461). Romans placed the *tibia* on the same level as other musical instruments of the epoch. However, the Roman poet Horace (*Epodes* IX. 1-6)²³¹ hints that a session on the lyre should include sporadic barbarian melodies played on the *tibia*, suggesting that, like the Greeks, Romans considered the double-pipes an alien instrument. This is very likely because Etruscans brought the *aulos* with them from Lydia and introduced it to the Romans (Wardle 1981: 26).

²³⁰ Ath., I, p. 285.

²³¹ Hor. *Epod.*, p. 292.

Like the Etruscans, Romans got accustomed to the sound of the *tibia* and thus incorporated it in different activities. However, it seems that it took some time for them to start playing it themselves, as in the early days of Rome, most pipers were Etruscan in origin (Wardle 1981: 30). Through time, *tibicines* and *tibicinae* grew in importance, particularly during ritual practices. In some way, this was expected as Romans imitated Greek culture, where the *aulos* predominated in religious ceremonies. However, in Rome, this went far further. People hired a *tibicine* or *tibicina* for the most unusual events, such as the founding of a colony (e.g. Cicero *De Lege Agraria* 2.34.93).²³² Despite the low payment, it seems that a considerable number of musicians played the *tibia*. This may be one of the reasons why they organised themselves and created the *collegium tibicinum Romanorum* during the Republic (Fleischhauer 2001: 607). By the late Republic, *tibicines* were no longer slaves but freedmen (cited from McKinnon and Anderson 2001: 461).

The *tibia* played a predominant role in the Roman theatre. The theatrical use of this instrument had obvious Etruscan precedents. As a matter of fact, early pantomimic dances accompanied by the music of the *tibia* were run by *ludiones*, that is, Etruscan actors and dancers (Comotti 1989: 49). Such performances were then imitated by Roman artists known as *histriones* (Moore 2012: 1). *Tibicines* accompanied both tragedies and comedies, usually with musical pieces authored and played by themselves (Scoditti 2008: 52).

The *didascaliae* of Plautus and Terence comedies indicate that such plays were accompanied by music played on the *tibia*. For instance, the *didascalia* of *Stichus*, a play by Plautus, indicates that this was accompanied by a *tibicen* named Marcipor, who was a slave of Oppius (Moore 2012: 27). It is documented that Marcipor played the *tibiae sarranae*, a Phoenician *tibia* which consisted of two pipes of equal length and an equal number of holes (Scoditti 2008: 52). Taking into consideration that Marcipor was a slave who played Phoenician pipes, it is very likely that he was not Roman. Moreover, the music of the play *Stichus* probably contained eastern influences. *Tibia* players were important for the theatrical company as their names featured in the billing with equal prominence as, for example, the main actor (Moore 2012: 27).

²³² Cic. Leg. agr., p. 469.

Tibicines played different types of *tibiae* at the theatre but, probably because it was the most sophisticated, the *tibia* of Imperial times was most frequently used (McKinnon and Anderson 2001: 461). In comedies, for example, *tibicines* used *tibiae pares* (of equal length), *tibiae impares* (of unequal length), *tibiae sarranae* or Phoenician and Oriental *auloi* (Comotti 1989: 51). In order to mark the time, *tibicines* played the *scabellum* using a foot (Scott 1957: 409-15).

It was during the Roman Imperial dynasties (14 BC-AD 192) that the development of the *aulos*, and by extension of the *tibia*, reached its peak. As a matter of fact, the *tibia* was considered almost sacred during Imperial times (McKinnon and Anderson 2001: 462). After the death of Theodosius I, the Roman Empire divided into two: the eastern and western Empire. The further split of the Western Roman Empire marks the beginning of late antiquity, a period which ended with the fall of the Eastern Roman Empire to the Persians and Arabs (Cameron 1993: 1-11)

After Roman times, the fate of the *aulos* or *tibia* is somewhat obscure. However, we can confidently say that by this time the aerophone was known in most parts of the Mediterranean, North Africa, and the Middle East. In other words, the instrument was widely diffused. This may have resulted in an eventual transformation of the *aulos* and the *tibia*. The people who inhabited these regions may have adopted and adapted the instrument to their own needs, thus transforming it into a new syncretic form under a different name. Nonetheless, such instruments retained some features of the *aulos* or *tibia* which allow us to establish parallels between them. For example, both the Sardinian *launeddas* and the Egyptian *arghul* seem to derive from the *aulos* or *tibia*, as these have similar features, while both instruments were contemporary to the *aulos* and the *tibia*.

The Greek rhetorician and grammarian Athenaeus must have completed his work *Deipnosophistae* shortly after the death of the Roman Emperor Commodus in AD 192. This date, along with the information described by Athenaeus, is useful as a starting point. From this point in time, one can start to recreate possible scenarios to understand what happened to the *aulos* or *tibia* during late antiquity. Athenaeus describes that the *aulos* was devised by a Libyan-Numidian man called Seirites (Book XIV 618b-c).²³³ However, based on the statuette of an *aulos* player found on the island of Keros which dates back to 2800 BC, it is more likely that Seirites invented a ‘type

²³³ Ath., III, p. 986.

of *aulos*'. The aerophone mentioned by Athenaeus was probably used in Numidia, a territory that sat west and south of Carthaginian territory. If this was the case, the Numidian nomadic lifestyle may have contributed to its diffusion, at least across North Africa. Bedouin nomads probably played an important role in this.

Archaeological evidence from the eastern Transjordan indicates that between the first to the fourth century AD ancient Arabs played a double-pipe instrument which they called *zmrt* (Braun 2002: 218). This evidence supports the hypothesis that Bedouin nomads play a role not only in the dissemination of this musical instrument but also in its survival, at least, from the first century to the fourth century AD, that is, from the late Hellenistic to the early Byzantine period. Thus one can deduce that while Jews and early Christians were ostracizing the *aulos* or *tibia*, the aerophone, as the evidence indicates, was being diffused among nomadic tribes in North Africa and the East.

As aforementioned, both prophets and early Church Fathers condemned pagan practices, including its music and particularly the *aulos* and the *tibia* (McKinnon 1987). To some extent, this fact may have prompted people to transform the instrument into a relatively similar aerophone so as to disassociate it from pagan customs. Both *auletai* or *tibicines* and makers may have contributed to this. They probably travelled in search of work, as early Christian Fathers forbade them from being baptised unless they renounced their professions (Lim 1999b: 720).

Returning to the previous argument, it is very likely that Bedouin nomads contributed to the dissemination and by extension to the preservation of double-pipe instruments. The fact that they referred to them using a Near Eastern term indicates that Bedouin nomads used double-pipe instruments prior to the first century AD. As a matter of fact, the Semitic root *Z-M-R* is very ancient in origin. Akkadians, for instance, used the verb *ZaMaRu*, that is, 'to play of [*sic*] a musical instrument' as early as the second millennium BC (Dumbrill 2005: 405 and 453). The aforementioned inscription written in Safaitic (first to fourth century AD) refers to pipes as *zmrt*. The root *Z-M-R* goes back to pre-Islamic times (al Faruqi 1981: 189), that is, it predates the sixth century AD and therefore the end of late antiquity. Poché (2001: 771) describes that the root *Z-M-R* denotes an instrument consisting of two parallel pipes with few notes, possibly without a drone. This evidently brings to mind the *aulos*, the *tibia*, the Egyptian *ZuMmaRah*, and the *arghul*, whose form sometimes consists of two pipes of different lengths. Like the Sardinian *launeddas*, whose earliest evidence goes

back to 700 BC, the origins of the *arghul* go back to the Old Kingdom (2663-2160 BC).

Later sources describe that the word *miZMāR* (pl. *mazāmīr*) comes from the root Z-M-R. According to Robson (1938: 240), this word denotes any double-reed aerophone, such as the oboe. Al Hafnī (1971: 179) claims that the *mizmār* is frequently used in pairs. Considering both definitions, as well as the aforementioned evidence, one can conclude that inhabitants of certain regions of north Africa and the Near East used the Semitic root Z-M-R to refer to double-pipes, at least from the first to the sixth century AD. In Roman Syria (64 BC-AD 637), however, double-pipes were known as *abuba* (Poché 2001: 771). This term probably comes from the Akkadian word *ebbubu* which means ‘a flute’ (Dumbrill 2005: 406).

The advent of Islam in AD 600, and the eventual end of late antiquity, brought new attitudes towards music. Like most Hebrew Prophets and early Church Fathers, the Prophet Muhammad condemned musical instruments. Early Muslims considered the *mizmār* a diabolic musical instrument hence *mizmār al-shaitān*, that is, the pipe of the devil (Farmer 1929: 26). Nevertheless, double-pipe instruments continued to be used, probably for a couple of centuries more, or even beyond that. Al Fārābī, who lived between AD 870-950, comments that words such as *mizmār muzāwaj* or *mizmār al muzawwaj* mean ‘paired *mizmār*’ and that they denote any double-pipe instrument (al Fārābī 1967: 795-800). He also comments that double-pipes are known as *muthanna* or *dūnāy* (ibid). In the same vein, Oostrum (2019: 25), comments that the *dūnāy* had two double-reeds. In light of this information, one can suggest a possible continuation of the *aulos* or *tibia* in certain regions of North Africa and the Near East. However, the instrument, as it passed from one generation to the next, was evidently transformed and called by different names. This reason, along with the condemnatory view of the emerging religions, was a contributing factor to the eventual disappearance of the *aulos* and the *tibia* from the musical scene. However, some vestiges of this aerophone still survive, particularly, in instruments such as the Egyptian *arghul* and the Sardinian *launeddas*.

CHAPTER V: THE MUSICAL PAST AND PRESENT IN FIELDWORK

5.1 Introduction

The importance of fieldwork to this thesis is directly linked to data collection. This thesis makes use of that data in combination with other types of sources, such as written, archaeological, and iconographical ones (for similar approaches see, for instance, Wong 1991; Wade 2014; Nettl 2015). This combination of sources enables an attempt to provide a hypothetical interpretation of the musical practices of the past (ibid). The collected data, which mainly consists of documentary material (interviews, recordings, and videos), shows us how music has always been part of life. It sheds light on what and how people think about music, ways of expressing and sharing it with others, as well as how identity and difference are projected through it.²³⁴ Music also helps us understand how people view the world and react to that. After interviewing my contact on the island of Sardinia, I was struck by the idea that what people think about music is largely historically constructed. I say in great part because there is always a degree of intuition, especially when referring to the distant past. In this aspect, Mr Pitano Perra, my informant in Sardinia, relies very much on his instincts, yet nevertheless remains logical at the same time. His personal views on the music of the past, particularly regarding the *aulos*, and his close relationship with the ‘tradition’ of *launeddas* making and playing are described at length in this chapter.

The word ‘tradition’ implies history but more importantly, for the purpose of this work, oral history. Musical traditions, such as the crafting and playing of the *launeddas* in Sardinia, were and are being passed on from one generation to another.

²³⁴ See Wade 2013.

Unmistakeably, this is heritage. For example, Perra acquired most of his knowledge in the *launeddas* from the master craftsman Attilio Scroccu. However, long before they met, Perra sensed that the only way of knowing things is through a process of self-discovery.²³⁵ This notion is quite apparent when he reconstructs *auloi*. While I admired his creations, I noted that Perra's all-encompassing passion for *launeddas* making was both a journey of self-discovery and self-development. It is very likely that this was the way how these things became a part of him.²³⁶ Similarly, my Egyptian contact, Mr Zacharia Ibrahim also works at preserving heritage. However, he mostly concentrates on forgotten musical 'traditions' and therefore on repertoires where the *arghul* (a double-pipe aerophone of archaic features) is sometimes included. Following my fieldwork in Egypt, I noted that the *arghul* is on the verge of extinction from the Egyptian musical scene, and it is only thanks to the work of people such as Zacharia Ibrahim that the aerophone is being preserved for posterity.

5.2 Methodology

The reasons which led me to carry out fieldwork in Sardinia and Egypt were various. One of them is that important civilizations namely the Nuragic and the Egyptian sprang from these locations. Studies on these civilizations are very useful for our purposes (see, for instance, Dyson and Rowland 2007; Gadalla 2018). First, they tell us that both civilizations made music part of their everyday life, and second is that they provide the necessary historical background on which one can elaborate and substantiate possible interpretations of the past.

Another reason has to do with instrument playing. In both locations one finds musicians playing multiple-pipe aerophones. I use the term 'multiple-pipe' because, while the Egyptian *arghul* has two pipes, the Sardinian *launeddas* has three. Both aerophones however, are significant in many aspects. Consistent with archaeological and iconographical evidence, these instruments were contemporary to the ancient *aulos*. The origins of the *launeddas*, for instance, can be traced back to the Nuragic period (c.1700 BC-238 BC). This is attested by the discovery of a statuette at the city of Ittiri in Sassari, Sardinia which represents a human figure playing a triple-pipe aerophone (c.800 BC) (Taramelli 1982). In the case of the *arghul*, its origins can be

²³⁵ See Ingold 2013: 1-2.

²³⁶ See Ingold 2013: 1.

traced back to the Old Kingdom. A depiction from the mastaba of Nianjjnum and Khnumhotep in Saqara (5th Dynasty between 2445-2414 BC or 2414-2405 BC) shows a musician playing the double-pipe instrument. Moreover, the retrieval of complete specimens at different locations in Egypt also substantiates this. Such objects are exhibited at the Museum of Egyptian Antiquities in Cairo. This is also the reason why both the *launeddas* and the *arghul*, with all their inevitable changes, survived to contemporary times. This is very intriguing and, hence, worth investigating. Moreover, the fact that these instruments still retain archaic features is fascinating, as they are strikingly similar to antique aerophones and therefore to the *aulos*. This chapter highlights those similarities in an attempt to acquire a better understanding on the extinct *aulos*.

Geographically speaking, one may say that Sardinia and Egypt are strategically located. The island of Sardinia is somewhat located in the middle of the Mediterranean, specifically to the West of Italy. This island has never been isolated from the rest of the world. As a matter of fact, it was constantly influenced by other cultures which evidently contributed to its identity. Maritime activity between Sardinia and other islands, such as Lipari, and Palmarola, as well as with the Italian peninsula and the south of France, can be traced back to the sixth millennium BC (Scarre 2013: 404).

Sardinia and Egypt were both rich in maritime activity which may have made it more possible for them to interact and connect with other Mediterranean cultures. In contrast to the Egyptian civilization, the Nuragic left no written records. As a consequence, what is known about this civilization comes from archaeology (see, for instance, Dyson and Rowland 2007). It is known, for instance, that during the Bronze Age (3000-2000 BC), they traded metal alloys across the Mediterranean basin. Trading activities may have served as a means for the spread of ideas and commodities, such as musical instruments like the *aulos*. In light of this information, one can speculate on the possibility that Nuragic people adopted the *aulos* during the Bronze Age (ibid). We know through archaeological evidence that the *aulos* was invented in the Aegean area (Getz-Preziosi 1982). Moreover, it was during this period that Nuragic people enjoyed constant interaction with Aegean traders who were interested in metal resources (Alcock and Cherry 2013: 486). However, there is also the possibility that they adopted the *aulos* during the Iron Age (c.1200 BC-550 BC), but not later than that. During the Iron Age, Nuragic people exported metallurgical

products throughout the Mediterranean (ibid: 493). Such trading activities probably served as a mean for the eventual diffusion of the *aulos*, not only to Sardinia but to other places as well.

In ancient Egypt, *aulos*-like aerophones only appeared during the New Kingdom (c.1549-1069 BC) (Manniche 1991: 28; Anderson 2001: 2-3). Therefore, one can say that the *arghul*'s forerunners, that is, parallel-pipes (*mmt*) were used at an early stage in Egypt, specifically during the Old Kingdom (c.2663-2160 BC) (ibid). Whether *auloi*-like aerophones (*wdny*) were introduced by the Greeks during the New Kingdom is not known. This type of aerophones (*wdny*) were most probably made locally, as, apart from being unsophisticated, the materials used for their construction seem to have been readily available throughout Egypt (see Figure 2.32, p. 94). The eventual Greek conquest of Egypt in 332 BC undoubtedly served as a mean for further diffusion of Greek customs into that territory. This may have prompted the import of musical instruments from Greece, such as the *aulos*, which were then copied and manufactured locally.

As mentioned earlier, both in Sardinia and Egypt musicians still play the *launeddas* and the *arghul* respectively. On the basis of this, I chose to interview Pitano Perra both because he represents such continuity as well as due to his expertise in the manufacturing of *launeddas*. He is also a professional performer on the same instrument, where he plays during wedding festivities, masses as well as during the procession in honour of Sant' Efisio in Cagliari. During this latter festivity, he is joined by other *launeddas* players. In addition, Perra boasts vast knowledge of the ancient *aulos* which includes its history and organology. In other words, he does not only know the history of this fascinating instrument but also how to reconstruct it. When reconstructing an *aulos*, Perra adopts an approach which one may compare to initiatives in experimental archaeology.

Experimental archaeology is the study of past behavioural processes by experimenting on material culture and a range of practices (Busuttil 2010). Such experiments allows us to understand past behaviours, such as musical practices, which may differ from our own. Experimental archaeology is an essential tool to heritage centres and museums (Busuttil 2010; Paardekooper 2010). An important task of experimental archaeology is the replication of excavated material. The validity of these experiments, that is, their degree of authenticity, depends on the experiment itself. The use of original materials, for instance, is a central issue. According to

Bussutil (2013: 61), ‘it is through the active use of materials that we can start revealing meaning and the choices people make to construct an understanding of the world they live(d) in’. For example, the reconstruction of an ancient musical instrument must not only satisfy visual needs but also practical ones. Therefore, a replica should be constructed with authentic materials by using methods faithful to the original manufacture of the instrument. The resulting object may help to tests hypotheses on the creation, production, and use of the artefact (Mathieu 2002: 2-3).

Since practices are linked to the use of musical instruments, their replicas are ‘behavioural reproductions’. It is important to mention that any experimentation carried out on replicas should be objective. Thus the replicas need to mirror different aspects of function, use, and behaviour of the artefact. Such observations may be complemented with ethnographic work so as to understand the relationship between those practices (human behaviours), the musical instrument (material culture), and the physical environment in a functioning observable setting.²³⁷

In contrast to the work in Sardinia, my fieldwork in Egypt was in itself a form of improvisation. My only contact consisted of the name and telephone number of Dr Mustafa Garranah, Professor at the Academy of Arts of the University of Cairo. His particulars were kindly provided by Dr Mario Frendo, Head of Department of Theatre studies at the University of Malta. My first days in Cairo were disappointing as nobody at the University of Cairo knew of an *arghul*-player. Eventually, Dr Ashraf Heikal, coordinator of the Higher Institute of Arabic Music, University of Cairo, put me in touch with the *arghul* player, Mr Amin Arghouli (Shahin). While searching the internet, I came across El Mastaba Center for Egyptian Folk Music. There, I met Mr Zakaria Ibrahim, founder of that association, who kindly introduced me to another *arghul* player, Mr Mahmoud Abdel Hady. During this fieldwork, I was fortunate to meet the academic staff of the higher Institute of Arabic Music, and thus renowned musicians within the classic Arab music tradition, such as Dr Amin Nagy, and Dr Heikal himself. Both *arghul* players are not only renowned in Egypt but also internationally known.

The politics of identity dominated both fieldwork experiences. Pitano Perra conveyed a strong sense of Sardinian (Sarda) identity, to the extent that one may call it nationalistic. Whether or not this was intentional, I cannot say, but Perra’s sense of

²³⁷ For more information on experimenting on replicas, see Ingersall et al. 1977: xv.

identity emanated from his pores. Similarly, while interviewing Zacharia Ibrahim in Cairo, I sensed the same sentiment. Both Perra and Ibrahim are proud of their heritage and share common aims, such as the rescuing and preservation of musical traditions so as to prevent their potential disappearance.²³⁸ One can say that the places in which my informants work namely ‘Il Museo delle Launeddas’, in the case of Perra, and the Mastaba Center for Egyptian Folk Music, in the case of Ibrahim, were established and shaped through music.²³⁹ In other words, music gives them energy to continue preserving their cultural identity. Indeed, music is in itself a symbol of identity and belonging by which helps different ethnic and/or social groups distinguish themselves (Baily 1997: 48). Moreover, identity is also linked to place. ‘Place refers to the physical setting of social activity as situated geographically’ (Giddens 1990: 18). Hence, ‘music informs our sense of place’ (Stokes 1994: 3). My contacts, Perra and Ibrahim, gave me a number of CDs as a gift. The CDs not only contained musical traditions of their respective countries but also of the traditions that they represent.²⁴⁰ Perra, as a *launeddas*’ performer and maker, is an authority and thus represents that tradition not only in the place where he lives but also in other cities, while Ibrahim is an authority on the *simsimia* tradition. He founded the ensemble ‘El Tambura’ in Port Said with the aim of reviving this musical heritage that was slowly disappearing. The CDs, apart from providing me with a better understanding of my contacts’ views, also enable me to retrace my experiences with these two remarkable individuals. Music not only evokes and organises collective memories but also allows the listener to experience its place of origin. Thus it articulates idiosyncratic places and boundaries (Stokes 1994: 3).

Along with the gifts, my informants explained the significance of their music. For instance, Ibrahim remarked that the CDs contain forgotten songs that they have been retrieved through research. He added that this music makes them different from other people, particularly those from other Arabic countries. In other words, one can say that he emphasised the originality of his music, stressing its uniqueness, both deeply rooted in Egyptian culture.²⁴¹

²³⁸ On music and identity, see Baily 1997: 46-8.

²³⁹ For a deep understanding of the way in which music shapes both social and cultural worlds, see Stokes 1994: 1-5.

²⁴⁰ On preservation of music, see Nettl 2015: 179-83.

²⁴¹ On the discourse of authenticity, see Stokes 1994: 7

5.3 Understanding the Past through the Present: Exploring Similarities between the Sardinian Launeddas and the Ancient Greek Aulos

My fieldwork trip in the Mediterranean island of Sardinia took place during January 2017. Sardinia is situated to the West of Italy and measures 270 km on the north-south axis and 145 km east to west. The island is abundant in natural resources which favoured the development of complex societies such as the Nuragic. This particular culture emerged in the mid second millennium BC, that is, in the Early Bronze Age (Dyson and Roland 2007: 54). The name Nuragic is derived from a particular type of architecture, namely the large circular towers known as Nuraghi (Melis 2003: 7). It is believed that Nuragic people originated from indigenous Sardinians who formed pre-Nuragic cultures during the Neolithic and the Chalcolithic periods (3rd to 2nd millennium BC) (ibid: 7). The Nuragic, apart from being builders, were skilled in the use of metals, with one of their main activities being bronze work (Dyson and Rowland 2007: 73). Owing to its central position in the Mediterranean, Sardinia has never been isolated. As a matter of fact, like other Mediterranean islands, Sardinia has historically been the recipient of external influences which have contributed to its identity (ibid: 54).

In preparation for the field trip, I made preliminary contacts through social media, specifically through Facebook. Interaction with study groups interested in the subject took place through discussion threads which I readily joined. Within the music archaeology study group of the ICTM, I made the acquaintance of Pitano Perra, a Sardinian resident interested in music archaeology. Through further communication via private messenger, I was able to request a formal interview with the Sardinian musician and craftsman. A meeting was set up for the 2nd January 2017, in Sardinia. The approach taken during these interviews was one where the interviewee spoke freely during informal conversation. The interviewee was very willing to answer particular questions that I had prepared in advance.

The meeting with Perra took place in Maracalagonis, a commune in the city of Cagliari, situated twelve kilometres' northeast of Cagliari itself. The actual meeting place was the church of Maracalagonis and while waiting for Perra to arrive, I took the opportunity to have a coffee at a nearby café. The waitress at the bar was particularly friendly and wanted to know what brought me, obviously a foreigner, to that part of the world. Upon learning that I was meeting Pitano Perra, a local *launeddas*

maker and player, she provided the information that he works in his family's tobacco shop, just a few doors away from the café. On entering the tobacco shop, Pitano Perra immediately knew who I was and was very happy that the meeting was actually taking place. He accompanied me through the streets of Maracalagonis to a traditional Sardinian house 'Il Museo delle Launeddas' where Perra has his workshop. At the entrance of the house, he pointed out a few citrus trees and a surprising amount of different types of cane reeds. Perra explained the differences between the different types of cane reed (Figure 3.18). It is to be noted that apart from these small cane shrubs, Perra has a large cane field in the city of Mara, a commune in the province of Sassari about 140 kilometres northwest of Cagliari. *Launeddas* makers normally use one type of cane, that is, the *arundo donax*. Perra pointed out that, as manufacturers of *launeddas*, they differentiate between one cane and another within the *arundo donax* family, which they label as 'female', 'male', and 'eunuch'. Such canes serve for manufacturing specific parts of the instrument, as these parts require different qualities. One can say that this information was the starting point for my eventual understanding of the organology of the *launeddas*. First, it describes what type of material is used for the construction of this musical instrument and secondly, it presents the varieties of this type of material. This knowledge is crucial for the manufacture of the *launeddas*.



Figure 5.1. The entrance to Perra's house (photograph reproduced by kind permission of Pitano Perra).

Perra enthusiastically showed me round the cellar of the house, where wine is made in traditional ways. Perra usually harvests the grapes himself and selects the best

clusters. They are placed in a vat and treaded by his own feet. Perra stressed that there is a close relationship between winemaking and the music of the *launeddas*. This comment brought to mind the image of an Athenian vase in which a group of *silens* or *satyrs*, that is, imaginary naked beings who inhabited the wild and who had an insatiable desire for sex and wine, produce their favourite tipples to the sound of the *aulos* (Figure 5.2).



Figure 5.2. Black-figure amphora (late sixth century BC), Antikensammlungen Museum, Basle. Satyrs in a vineyard; picking, treading, musicking, and decanting (photo: https://upload.wikimedia.org/wikipedia/commons/4/4a/Belly_amphora_with_satyrs_at_the_grape_harvest%2C_Amasis_Painter%2C_540-530_BC%2C_L_265_-_Martin_von_Wagner_Museum_-_W%C3%BCrzburg%2C_Germany_-_DSC05615.jpg).

Courteously, the host Perra offered me some wine, and was amazed and somewhat bemused to find out that I did not drink. It is evident that the Sardinian found this almost incredulous. “How can you play music if you do not drink?” According to Perra, *launeddas* players drink wine before, during, and after performances. He claimed that drinking helps one to feel the music. The tendency for one to lose one’s inhibitions through the ingestion of wine so as to play music can be traced back to antiquity.

As a matter of fact, this music-related behaviour echoes Dionysiac practices. The god Dionysus was the inventor of wine and thus the wine-god. He was the one who offered the drink, that is, the joy of mortals which brought joy and madness (Guirand 1981: 155-62). Wine festivals were celebrated throughout Greece, but the oldest, the Ionian-Attic Anthesteria was held in Athens in the month of Anthesterion, which roughly corresponds to late February (Roberts 2005: 231). The spread of the

cult of Dionysus, which supposedly originated in Thrace (southeast Europe) or Phrygia (Asia Minor), may have contributed to the diffusion of the *aulos*.²⁴² The reason is that this aerophone was a main element in this cult, while there is the possibility that this was the case since the beginning of the cult.²⁴³ It is known that this cult, along with the *aulos*, were introduced to Greece during the eighth century BC (West 1992: 82). The spread of this cult and how it possibly contributed to the diffusion of the *aulos* is clarified in the general conclusion.

The *aulos* is the aerophone most often associated with Dionysus. It was used in Dionysiac settings, such as the *dithyramb* performance, drama, and symposia, as well as during sacrifices, competitions, weddings, and funerals (Comotti 1989: 67-72). The *aulos* was the instrument of choice of *satyrs* who were often associated with Phrygia. *Satyrs* were the typical *auletai* of myth depicted on vases (ibid: 69). Aristotle (*Pol.* Book VIII 1342b) tells us that ‘Bacchic frenzy and all similar emotions are most suitably expressed by the *aulos*’.²⁴⁴ The music made in the cult of Dionysus was performed using *auloi*, drums, and cymbals. Obviously, each of these instruments had a particular role in that music which produced trance, but perhaps the most responsible for such altered states of consciousness were the melodies played on the *aulos*. For Plato it was the sound of the *aulos* that made people dance and fall into a state of trance and not the loud sound of drums or clappers (cited from Rouget 1985: 213-4). According to Rouget (1985: 213), Plato makes use of the word *aulos* (in its various forms) to refer to possession or trance, in other words, Plato links trance with the instrument itself or with its melody and asserts that melodies were behind undesirable emotions and behaviours (*Respublica* Book III 399 c-d).²⁴⁵ In his *Edonians* (fr. 57), Aeschylus mentions an *aulos* called *bombyx* and states that this instrument and its melodies lead to madness (cited from Lamberto 2015: 37).²⁴⁶ Euripides (*Bacchae* 151-67) also mentions a particular type of *aulos* called *lōtos* that was used during the cult

²⁴² On the spread of the cult of Dionysus, see Roberts 2005: 231-2. On the importance of the *aulos* to this cult, see Klavan 2021: 27.

²⁴³ On the role of the *aulos* in the cult of Dionysus, see Haldane 1966: 102.

²⁴⁴ Arist. *Pol.*, p. 316.

²⁴⁵ Pl. *Resp.*, I, pp. 249-51.

²⁴⁶ ‘One, holding in his hands the *bombykes*, labor of the lathe, fills out the finger-thrown song, clamor/harmony bringing on madness and another clatters with bronze-bound *kotylai*...’ (Aeschylus *Edonians* fr. 57 (radt); cited from Lamberto 2015: 37).

of Dionysus.²⁴⁷ The *aulos* was the instrument of choice to accompany dramatic choruses, *dithyramb*, that is, choral hymns dedicated to Dionysus that were usually composed in the Phrygian mode, but also in the Dorian mode (Arist. *Pol.* VIII 1342b).²⁴⁸ The *aulos* also accompanied *satyr* plays. Such genres are in some way associated with the worship of Dionysus (ibid).

Back in the cellar, Perra also showed me a conchiglie-didgeridoo which he uses in order to practise circular breathing. Upon learning that I had no knowledge of how to practise circular breathing, Perra offered to guide me in this technique. Circular breathing is a performance technique in which the *launeddas* player can reproduce one or a succession of notes continuously without drawing breath (e.g. Kynaston 1978). This technique allows the musician to play the instrument through the mouth continuously while occasionally breathing in through the nose in order to simultaneously refill the lungs. This is accomplished by expelling air via cheek compression in the anterior oropharynx during nasal inhalation (Peng et al. 2014: 412).

According to Perra, circular breathing is natural to human beings. He asserts that in the past, nearly all the instruments were played in such a fashion. The origins of circular breathing is very intriguing. It is most likely that this technique was used by ancient craftsmen and metalworkers.²⁴⁹ The Nuragic culture was renowned for its metalwork, especially bronze (Dyson and Rowland 2007: 73). This tradition seems to have been maintained until contemporary times, as the manufacture and sale of bronze products is popular in Sardinia. Such products include replicas of Nuragic statuettes, as these are symbols of Sardinian identity, which are sold as souvenirs in shops, museums, and so on.²⁵⁰ It can be said then that the use of circular breathing in Sardinia, particularly to play the *launeddas*, is in some way associated with the knowledge of ancient metal workers and probably with glass blowers as well, both Sardinian traditional craft work. Both also involve the constant blowing into a pipe, which makes it necessary for the craftsman to use some kind of continuous or circular breathing.

In order to guide me in this technique, Pitano brought a glass of water and a straw and instructed me to blow and try to breathe occasionally. Although it was possible to do this exercise, it was difficult to do it with a chanter's mouthpiece in the

²⁴⁷ *Euripides*, trans. by Arthur S. Way, 4 vols., Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1912), III, 17 (Hereafter Eur., III). See also Barker 1984: 74-5.

²⁴⁸ Arist. *Pol.*, p. 316.

²⁴⁹ For more information on circular breathing, see Peng et al. 2014.

²⁵⁰ On music and identity, see Stokes 1994: 1-27.

mouth. In order to satisfactorily master circular breathing, several hours a day must be devoted to training. The *launeddas* itself is an instrument that requires a lot of practice from both the technical aspect as well as musically, particularly in intonation. I was then invited to Pitano's workplace for further investigation into the work carried out by the *launeddas* maker.

The workshop (Perra's pride and joy), is organised so that there were several tools on the left-hand side corner. On the adjacent wall two shelves hold Perra's pre-cut cane in plastic containers. He also has a collection of figurines representing musicians and other motifs. One of the most fascinating objects is a hanging cabinet on the right-hand side. This cabinet contains various types of reeds of different sizes, where some are particularly large (Figure 5.3).



Figure 5.3. A cabinet hanged on the wall. It contains different types of reeds (photograph by the author).

His desk holds two lamps: one of them with a magnifying lens, some pieces of cane for future projects, a tuner, as well as a cardboard knife and a few designs for *launeddas* (Figure 5.4).



Figure 5.4. Perra in his workshop (photograph by the author).

Perra has mastered the *launeddas* very well thus, apart from manufacturing his own instruments, he is also a performer. Perra's late father loved music. His instrument of choice was not the *launeddas* but the clarinet. His grandad's brother played the mandolin. In short, Perra said he has always been surrounded by music, whether this was at home, in school, during activities organized by the Catholic Church and most certainly during Mass where he still plays to this day. The *launeddas* is frequently used in religious ceremonies, during weddings, and at religious festivals, mainly within the Catholic Church.²⁵¹ Perra was quick to give credit to his master, Attilio Scroccu, with whom he studied for ten years (Figure 5.5). When Attilio retired owing to old age, he left everything in Perra's hands.

Perra started manufacturing *launeddas* some thirty years ago. Like other *launeddas* makers, he began copying models that he found in books. This resonates with Name Ingold's assertion: 'Know for yourself! [...] the only way one can really know things [...] is through a process of self-discovery' (Ingold 2013: 1). Perra is humble in attitude regarding his ability to build these instruments. In fact, he does not allude to himself as a *launeddas* maker, rather as someone who tries to build them. He stated that it is not very easy to make *launeddas*. In truth, it is far from easy and one needs both talent and knowledge.

²⁵¹ For a more insightful discussion about musical instruments and their association with the spiritual, see Wade 2013: 51-2.



Figure 5.5. (L-R) Pitano Perra and his master Attilio Scroccu (photograph reproduced by kind permission of Pitano Perra).

This was precisely the reason why Perra sought out Attilio Scroccu, who lives in the city of Muravera, Sardinia. According to Perra, Attilio is such a very special person that people call him the Sardinian shaman. Attilio is one of those unique people in the world who is oblivious to the world around him as he hunts for new sounds. According to Perra, visiting Attilio is itself a mystical experience. Attilio does not know how to read or write and Perra describes him as sitting in his chair with a bottle of wine underneath it, from time to time, drinking a glass of wine but never offering any. The day that Perra met Attilio, Perra showed him the instruments he had built, instruments that Perra himself describes as experiments. As soon as Perra started playing one of his *launeddas*, Attilio told him that what he was producing was not the sound of the *launeddas*. He promptly reached out for one of the hundred *launeddas* hanging on the walls of his house and instructed Perra to listen carefully to the sound he produced. Attilio specifically instructed Perra to mark the sound of the drone, which, according to him, contains all the notes necessary to produce a melody. This information, along with the one that follows, is relevant to our understanding of the organology of the *launeddas*. What Attilio says here is that all the notes produced by the *launeddas* are found in the drone and that the instrument is tuned to those sounds accordingly.²⁵²

In the drone there are ten sounds and a resonator that one should look for, probably referring to the harmonics. Attilio makes it clear that the science of the sounds of the *launeddas* are found in the drone and not in the chanter and that all the sounds of nature are present in that tube of cane. Attilio's method may contrast with the reality of the *aulos* since this consists of two melodic pipes, but it is possible that

²⁵² For more information on this compare Lortat-Jacob 1995: 46-7.

the way in which Attilio finds the notes in the drone to make his *launeddas* may have been used in the past to construct the *aulos*. A tube without perforations, that is, a drone, may have provided a number of notes to be distributed between the two pipes, thus enabling the notes of the two pipes to complement each other. This hypothesis, however, needs to be tested through experimentation. These experiments usually consist of replicas of *auloi*. It is important to mention that the authenticity of replicas depends on whether the researcher uses proper materials and methods for the reconstruction. This enables the researcher to make objective observations.²⁵³ Perra explained that the *launeddas* consists of three canes, a drone (*su tumbu*) and two melodic canes (chanters). The word *launeddas* is plural so it encompasses the three pipes, the drone and both chanters (Weis Bentzon 1969). Thus, the instrument consists of basically two parts. The left-hand part (*makossa manna*) is made up of the drone (*su tumbu*) which is tied to a chanter with a string. This section is known as *sa loba* in Campidano (south-western of Sardinia), and as *sa kroba* in Sarrabus (south-eastern of Sardinia) (Weis Bentzon 1969). The right-hand part (*mankosedda*) is made up of another chanter (*sa mankosedda*).

Each part of the *launeddas* is made out of a different type of cane. For example, the drone is made from female cane (*kanna femina*). This type of cane is thick (about 50 mm in diameter), light and has great resonance. When harvesting cane, *launeddas* makers search for these features. The drone is often made out of two or three parts mounted together by means of tenons and sockets. For the chanters, male cane (*kanna masku*) is used. This type of cane is thin and therefore has a narrow inner diameter of about 18 to 20 mm. Male cane is ideal for fingering, that is to say, the narrower the diameter, the shorter the distance between the fingers. This also allows the manufacturer to produce more notes, that is, finger holes on short lengths of cane. Another characteristic of this cane is that it maintains the air pressure. The Sardinian word for mouthpieces is *kabittsinas* (beating reeds), and these are identical to those of the Egyptian *arghul* (Figure 5.6). The *kabittsinas* consist of a hard piece of cane covered on one side by the natural nodule of the cane. The tongue is cut right in the middle of the piece and is thinned out with a cardboard knife until it can vibrate easily. *Kabittsinas* are made of *kanna masku* (male cane) which is more resistant than female

²⁵³ For more information on this, and particularly on the methods of experimental archaeology, see Busuttil 2013. On reconstructing *auloi*, see Hagel 2019: 177-97.

cane. With regards to the *aulos*' mouthpieces, the evidence is somewhat scarce, however, it is very likely that these consisted of a split straw or double-reed, somewhat similar to the mouthpieces of the modern oboe. There is, however, always the possibility that single reeds were used for this purpose. It is worth mentioning here that some of Perra's *aulos* reconstructions have single-beating reeds for mouthpieces. It is not possible to determine whether this is a proper representation or not. Nevertheless, Perra thinks that single-beating reeds were also used by *aulos*-players. Since material evidence is scarce and no complete specimens of reeds have survived, iconographic evidence is very helpful. Theophrastus' account of the 'tongue' or *zeugos*, as he refers to it, is also of note (cited from West 1992: 84). This account describing the mouthpieces of the *aulos* could possibly be part of a treatise by Theophrastus on the organology of this aerophone.²⁵⁴ In this particular account, however, Theophrastus could only have been referring to the twin flaps of the double-reed mouthpiece. The difference between single-beating reeds and double-reed mouthpieces lies in the fact that the latter provide more control and nuance of pitch, as well as a greater dynamic range (Moore 2012: 39-40).



Figure 5.6. (L-R) Pitano's hand indicating the *kabittsinas* (mouthpieces) of the *launeddas*; an Egyptian *argmul* (photographs by the author).

According to Howard (1893: 23), there is evidence of two pipes which suggest that *aulos*' mouthpieces consisted of two superimposed pieces of cane. One pipe is in the British Museum while the other is in the Museum of Turin. Both pipes still conserve a piece of cane inserted in one of its ends, thus indicating the aforementioned (*ibid*).

²⁵⁴ On the organology of the *aulos*, see Hagel 2008; 2009; 2012; 2019; 2020.

Despite the fact that iconography has some degree of stylization, it enables a better understanding of musical instruments.²⁵⁵ In the two images below one can observe that the *aulos*' mouthpieces possibly consisted of double-reeds. In antiquity these were made by simply flattening the end of a hollow stem (West 1992: 83). Figure 5.7 shows two pieces of cane in the shape of an almond. Most likely both pieces are tied by some type of thread at one end, but this is not self-evident. What is clear, however, is that the pieces are divided by a line which reaches up to the level of the lips. In some way, this supports the hypothesis that *aulos*' mouthpieces (reeds) consisted of two superimposed pieces of cane tied by means of a thread.



Figure 5.7. Attic red-figure amphora of the Kleophrades painter from Vulci (c.480 BC), The British Museum, London. *Aulos* player with *phorbeia*. Pipes are distinctively conical (photo: Riethmüller and Zaminer 1989: 142).

Figure 5.8 shows an *auletride*, a female *aulos* player placing or checking the mouthpiece, that is, the reed or *glotta*. The figure clearly shows that mouthpieces were inserted into a part of the *aulos* called *holmos* (bulb). Whether this is a matter of stylization is not clear. The pipes shown in Figure 5.7 are distinctively conical, while those shown in Figure 5.8 are cylindrical. According to West (1992: 83), ‘the difference is acoustically important, because in response to overblowing, a conical pipe raises its note by an octave while a cylindrical one raises it by a twelfth’, pretty much like the modern oboe and the clarinet respectively. Double-reed instruments with conical-bores reproduce a loud, sharp and penetrating sound, partly the reason why they are more suitable for outdoor performances, while cylindrical ones

²⁵⁵ The use of iconography in combination with other sources is a method used by historical ethnomusicologists to provide interpretations on, for example, musical instruments of the distant past. Depictions of musical instruments, apart from providing technical information, also convey ideals and values about musical life in different periods and cultures. For more information on this, see Seebass 2001; Bundrick 2005; Nettle 2015.

reproduce deeper and softer sounds and are thus more frequently used indoors, often accompanied by softer-sounding instruments, such as the lyre (Jähnichen and Yoshitaka 2019: i). Most complete and fragmentary surviving *auloi* are cylindrical (Hagel 2009: 327-64).



Figure 5.8. Attic red-figure amphora of the Peleus Painter (c.440 BC), The British Museum, London. The Muse Melousa inserts a mouthpiece into the *aulos* (detail). Pipes are distinctively cylindrical (photo: Riethmüller and Zaminer 1989: 168).

In his *Historia plantarum*, Theophrastus reports on the variety of trees and plants that grow by the Lake Copais, which is located near Orchomenos. Theophrastus (Book IV.10.1) states that the goat-willow, the water-lily reeds, and the *galingale phleos* bulrush were used to manufacture *auloi*.²⁵⁶ Theophrastus (Book IV.11.4) asserts that the type of reed used for manufacturing mouthpieces was waterlogged and did not have a plume. He defines it as a eunuch (ibid).²⁵⁷ Evidently, this type of reed was flexible enough to be bent and shaped.

With regards to the *launeddas*' chanters, a *launeddas*' chanter has five finger holes, but only the upper four are fingered, while the fifth, that is, the 's' *arrefinu* is a vent hole. The word *arrefinu* means 'to adjust', namely, it has the task of adjusting the sound frequencies of the rest of the notes. The 's' *arrefinu*, like the other notes, is tuned to a certain interval found in the drone. It has a rectangular shape and is sometimes covered with bee wax to adjust its intonation. The Sardinian word for finger

²⁵⁶ Theophr. *Hist. pl.*, p. 361.

²⁵⁷ Theophr. *Hist. pl.*, p. 371.

hole is *una krai*, a term which is also used for notes. The *aulos*' finger holes were known as *trupemata* (Pollux *Onomasticon* IV. 70).

A typical *aulos* had between four to six holes on each pipe, including a vent hole and a thumb hole (Howard 1893: 2-5). The vent hole is located low down on the pipe, this being the reason why it is not fingered. The thumb hole is located between the index and middle fingers. This modest type of *aulos* had circular holes (ibid). By the fifth century, Pronomus increased the number of holes of the *aulos*.²⁵⁸ This technological progress permitted *aulos* players to perform different *harmonia* on one instrument so that there was no longer any need for one *aulos* for each *harmonia* (Paus. Book IX.12.5; Ath. Book XIV 631e).²⁵⁹ Sophisticated *auloi* had up to twenty-four holes (Bélis 2001: 181). Such instruments were equipped with a mechanical system of collars which enabled holes to be opened and closed. Late specimens had collars, hook-shaped levers, and half collars which operated by means of rods with buttons (Bodley 1946: 224). These *auloi* had different types of holes. Some were circular in shape, while others were oval (probably for the semitones) (Bélis 2001: 181). Cat eye shaped holes may have resulted from corrections to the tuning, while rectangular holes were mainly operated by collars (ibid). Small holes were usually bored on the side of the pipe (Bélis 2001: 181). Elongated holes were narrower at one end and operated by means of collars which either exposed the wider or narrower part of the openings (ibid).

Another piece of valuable information that Perra provided was that the cane which serves for *launeddas* making must be cut between December and March (Autumn-Winter season), possibly during the full moon. *Launeddas* makers believe that the intense moonlight provided during that lunar phase has an effect on the cane which makes it last for a long time.²⁶⁰ In Sardinian folklore, the full moon plays an important role in many traditions and customs. This corresponds to what the ancient Greek Theophrastus (*Hist. pl.* Book IV.11.4-5), an associate and successor of Aristotle, observed where he asserted that the cane used for making *auloi* should be harvested between the months of *Boedromion* (September-October) and the months

²⁵⁸ Historical ethnomusicologists make use of written sources, both early and contemporary ones, in combination with other types of sources, for instance, archaeological and iconographical, as this provide insights on musical instruments of the past, amongst others. For more information on this, see Wong 1991; Wade 2014; Nettle 2015.

²⁵⁹ Paus., IV, p. 225. Ath., III, p. 1008.

²⁶⁰ For more information on this, see Weis Bentzon 1969: 16.

of *Skirrophorion* (June-July) or, *Hekatombaion* (July-August). That is to say, the cane must be cut between the last month of Spring (*Skirrophorion*) and the end of Summer (*Boedromion*) (ibid).²⁶¹ The difference between the Sardinian tradition and that of ancient Greece is that *launeddas* makers harvest the cane when it is green. However, they do not make use of it until it is completely dry, the drier the better. According to Perra, this process takes about six months. This may suggest that the ancient Greeks used to cut the cane when it was neither too green nor too dry. This practice may have shortened the process of drying. Theophrastus (*Hist. pl.* Book IV.11.4-5) also notes that in Orchomenos (modern Boeotia, Greece) cane grows by the lakes. Such cane was evidently waterlogged, especially in seasons when the lakes were full. Thus, it is very likely that the drying process took longer but nevertheless depended very much on the time of year. It is worth mentioning that the *aulos* had strong associations with Boeotia and the Peloponnese. The idea of establishing parallels between the past and the present, in this case, between the contemporary *launeddas* and the extinct *aulos*, is based on the concept that contemporary cultures might hold evidence and crafts comparable to the past (Anon 2009: 140). Ethnography, in this case, is used as an indirect approach. Its data can serve to create parallels with ancient written and other types of sources. The ideas which emanate from such parallels may provide a better understanding of the musical practices of the past.

Perra distinguished between different types of *launeddas*. The most common types are known as *puntu di organo*, *fiorassio*, and *mediana*. These aerophones have their own tuning (*puntus*) and can only reproduce a part of a major scale. Therefore, a *launeddas* player is able to perform a restricted number of melodies on each model. The specific range of each *launeddas* makes them suitable for certain contexts. According to Perra, in the past, the *launeddas* were made to measure. The first thing that a *launeddas* maker produced was a drone which sounded good. This was followed by adding the notes to the chanter (finger holes). Nowadays, *launeddas* makers produce small instruments which, according to Perra, are made specifically for the tourist market. In the past, there were standard instruments tuned in SOL or FA (*puntu di organo*). Such *launeddas* had a low register and were played in the Catholic Church. This tradition is ongoing and can still be seen during contemporary Masses and weddings. In contrast, small instruments such as the *mediana* and the *fiorassio*

²⁶¹ Theophr. *Hist. pl.*, p. 371.

reproduce a high-pitched sound which encourages people to dance (CD Track 1). As a result, such instruments were forbidden in church. The priest would stop anyone from entering the temple with such instruments because these incited pleasure rather than composure.

Perra's classification of different types of *launeddas* brought to mind the fact that like the *launeddas*, different types of *aulos* also existed. The most common types of *aulos* were the *parthenius* (lit. young woman or, of young girls), the *paedicus* (lit. belonging to children), the *teleioi* (perfect) and the *hiperteleioi* (superperfect) which may stand for male voices (Ath. Book XIV 634e-f).²⁶² The above-mentioned terms suggest a possible classification by range where the *parthenius* is the highest voice, the *paedicus* is the middle range, and both *teleioi* and *hiperteleioi* are the lowest voices (Bélis 2001: 179). The terminology also alludes to a variety of *aulos* of different sizes which may have been intended for people of diverse ages and levels of competence and, perhaps, different contexts. In contrast to the Sardinian tradition, the dramatists of the fifth century made use of a small *aulos* (*gingras*) to accompany their theatrical set-ups and religious ceremonies (Ath. Book IV 174f).²⁶³

Besides his clear passion for the *launeddas*, Perra is equally enthusiastic and passionate regarding the reconstruction of ancient *auloi*. Through the reconstruction of *auloi*, Perra attempts to understand the musical practices of the past. As already noted, Perra's approach is similar to the one used in experimental archaeology, where studies on material culture are carried out in order to understand past human behaviours (Busuttil 2013).²⁶⁴ Perra made his first replica of the *aulos* fifteen years ago. The project was for a university student who turned up with a photocopy with the measurements of the *aulos* exhibited in the Louvre. It took Perra one week to complete the reconstruction. Perra also worked on the reconstruction of the Selinus *aulos* (see Figures 5.9, 5.10, and 5.11 on pp. 223-4). This fragmentary *aulos* was discovered in the temple of Selinus which is located on the southwest coast of Sicily in the city of Selinunte (CD Track 2). The artefact corresponds to an early type of *aulos*, such as the *aulos* of Orthia and Brauron. After performing these reconstructions, Perra realized how far music has changed over time. Perra asserts that with the *aulos* you cannot play

²⁶² Ath., III, p. 1013.

²⁶³ Ath., I, p. 279.

²⁶⁴ For more information on experimental archaeology, see Mathieu 2002; Busuttil 2013.

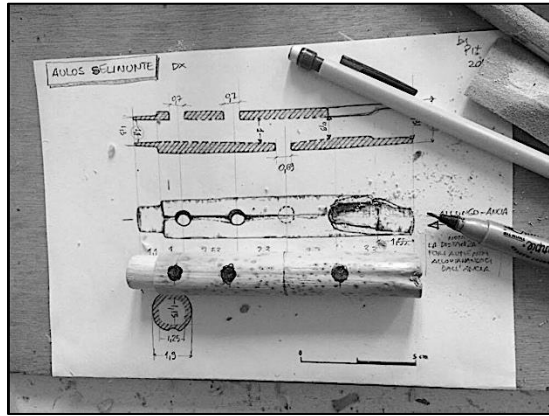


Figure 5.10. Reconstruction plan and model of the Selinos *aulos* (photograph reproduced by kind permission of Pitano Perra).



Figure 5.11. A reconstruction of the Selinos *aulos* (photograph reproduced by kind permission of Pitano Perra).

Perra also worked on the reconstruction of Aghia Triadha's *aulos*. In this work, he demonstrates a particular way of proceeding. He states that the first thing he does is identify with the musician depicted in the sarcophagus as a fellow Mediterranean musician. The *auletes* was undoubtedly an average Mediterranean man with his own technical difficulties. In short, Perra analyses both the physical aspects and the musician's possible dexterity before beginning to reconstruct the instrument. Perra takes precise measurements of the face of the *auletes*, particularly, of his nose, ears, and length of his face. In order to create a rapport between him and the musician, Perra also measures his own face. It is only at this stage that he gauges the length and width of the musical instrument. After analysing the data, Perra begins to reconstruct the instrument (Figure 5.12).



Figure 5.12. Reconstruction of the Aghia Triadha's *aulos* (photograph reproduced by kind permission of Pitano Perra).

The reconstruction of the instrument aims at replicating the original, but this does not contribute to solving the dilemma as to what type of music to assign to such an instrument. Perra asserts that he can make this instrument play the song 'O Sole Mio'. He just needs to make the instrument produce the necessary notes for that song. This however is a baseless activity because it would be highly anachronistic. It is clear that it is necessary to study the instrument in the context of the civilization to which it belongs. It is therefore necessary to investigate how this people lived and played. Perra believes that the Minoans were peaceful navigators because there are no representations of weapons in their art. They apparently never liked war or death. Apart from studying the Minoan civilization, Perra conducted a thorough study of this particular instrument, the Aghia Triadha's *aulos*. This differs from other *auloi* because one of its pipes has a horn attached to its end. The Romans called this instrument the Phrygian *aulos* or *elymos* (McKinnon and Anderson 2001: 461).

According to Perra no matter how hard you study, you always end up trusting your instincts, in other words, one cannot totally rely on academics such as archaeologists or philologists. Once again, this is akin to Ingold's (2013: 2) words regarding intuition: 'In the academic pantheon, reason is predestined to trump intuition, expertise to trump common sense, and conclusions based on the facts to trump what people know from ordinary experience or from the wisdom of their forebears'. According to Perra, music is made up of contrasts. One begins with a note, in this case the tonic or fundamental, and immediately one's ears start to vibrate. The next note to be produced is the dominant, which transmits tension and thus the need to return to the vibration, that is, to the tonic. This knowledge, apart from being

instinctive, can be found in physical acoustics. What Perra was sure about was that the instrument he was reconstructing was used in sacrifices and funerary contexts. Relying on both his instincts and his knowledge, Perra decided to make a Phrygian scale for this *aulos*.

According to Aristotle (*Pol.* 1340b), the Phrygian mode encourages enthusiasm in men.²⁶⁷ ‘The Phrygian is to the modes what the flute [*aulos*] is to musical instruments—both of them are exciting and emotional. Poetry proves this, for Bacchic frenzy and all similar emotions are most suitable expressed by the flute [*aulos*] and are better set to the Phrygian than to any other harmony’ (Arist. *Pol.* 1342b).²⁶⁸ After playing his replica, Perra was surprised that the sound was completely different to other *auloi* that he had reconstructed. He felt that the sound was not a good sound, neither a bad one, but rather a sound that induces anxiety in the listener. Thus, in this case, Perra is not in agreement with Aristotle who claimed that the Phrygian mode encourages enthusiasm rather than anxiety.

The sound that Perra produced was both strong and powerful so that it made the listener shiver in a manner that affected the whole body, including the spine. In effect, one can even describe it as a strange sound which makes one think of death. Perra speculated that the sound of this *aulos* imitates the bulls’ cries when they are about to be sacrificed. Its sound may have also served to mask the frantic animal cries as they are about to be slaughtered. Perra has reflected on this and believes that these are ancestral noises which in some way exist inside the human psyche. These are inner noises that one cannot control and which no science can explain or interpret. These are the animal instincts that are part and parcel of all living things which makes one experience uncontrollable emotions. Such feelings are associated by most people with something bad, dangerous, and even death. Such emotions often encourage one’s instinct to flee from danger and death.

One must note that the Phrygian mode greatly differs from the Dorian mode. While the former can be described as passionate, the latter is ethical. For Aristotle, the Dorian mode was ‘the steadiest and the one that most has a manly character’, and consequently, he considered it ‘suitable for the education of boys’ (cited from West 1992: 179-82). In contrast, the Phrygian mode was not meant for educational purposes,

²⁶⁷ Arist. *Pol.*, p. 310.

²⁶⁸ Arist. *Pol.*, p. 316.

but to be listened and performed solely by people of low social status, that is, the uneducated and at times, unethical (Rouget 1985: 220).

It is clear that Perra's talent as an artist, instrument builder, and philosophical researcher is a godsend for this research. While Perra is evidently a deep thinker regarding the work he conducts, he is also very specific and informative regarding technical issues in the construction of the *aulos*. Perra claimed that the cane which best serves to construct *auloi* has to be at least 1 cm in diameter. This type of cane is rare and difficult to find. This could be the reason why people in Antiquity turned to other types of materials such as wood and bone as these materials were able to be carved into hollow tubes with a number of finger holes. As noted earlier, Busuttill (2013: 61) claims that with regards to replicas of artefacts, the validity of these experiments depends on the materials used for the construction of the artefact. This also applies in the case of musical instruments. It is worth noting here that Euripides (*Helena* 170-1) suggests that in North Africa, particularly in Libya, people used the stems of the nettle-tree, the Libyan lotus (*Celtis Australis*) to make *auloi*.²⁶⁹ This may suggest the possibility that the task of acquiring reed was particularly difficult in the region he was describing. As a matter of fact, in modern Libya, cane only grows in the Saharan dessert around salt-water lakes, specifically in the volcanic area known as Wau Namus.

Before Diodorus of Thebes increased the number of holes of the *aulos*, this instrument had four finger holes (*trupemata*) on each pipe (*bombyx*) (Comotti 1989: 67). Therefore, one could reproduce a limited number of notes, that is, between four or five notes. Perra suggests that the distance between finger holes may have been significant because of the wide diameter of the tube. Therefore, one can say that on this type of *aulos*, a performer was able to play only melodies composed of five tones (pentatonic). It is very likely that two melodies, one on each pipe, were performed simultaneously. The practice of employing two tubes was mainly intended to achieve intensity of sound. This is very possible because cylindrical bored instruments do not project sound very well (Figure 5.13).

²⁶⁹ *Euripides*, trans by Arthur S. Way, 4 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's Sons, 1930), I, 483. (Hereafter, Eur., I). See also Barker 1984: 67.



Figure 5.13. Pitano Perra playing one of his *aulos*' reconstructions (photograph by the author).

It is very likely that the practice of manufacturing and playing double-pipe instruments developed in the Aegean as early as the third millennium BC. Although the silver pipes from Mesopotamia date from c.2500 BC, we cannot be certain that these were played simultaneously. Moreover, few are the depictions of pipes from early Mesopotamia that predate the Iron Age (1200 BC). The stela of Ur-Nammu (c.2334-2000 BC) is one example, however it only shows a figure playing some sort of pipe (Canby 2001: 22-3). In support of the theory that this development took place in the Aegean, a marble figurine discovered in the island of Keros depicts a man playing the *aulos* (Figure 2.20, p. 80).

In Sardinia, this practice may have started during the Nuragic period (c.1700 BC-238 BC). This is suggested by the discovery of a bronze statuette at Ittiri, province of Sassari, in 1900. The figurine represents a human figure playing an archaic aerophone which resembles an *aulos*. Some scholars date this artefact to the seventh or eighth century BC (Lortat-Jacob 2001: 284). However, the accuracy of these dates cannot be ascertained due to a lack of archaeological context (Dyson and Rowland 2007: 76). According to Melis (2003: 52) small cast-bronze figurines were already circulating in Sardinia as early as the ninth century BC. Consequently, it is highly likely that these objects were brought to the island from the Middle East and used as templates for local production. This interpretation stems from the *Lux et Oriente* paradigm of Diffusionism. This theory claims that new ideas developed first in the eastern Mediterranean and were taken westward by merchants (Trigger 1989: 150-55). Another hypothesis suggests that Nuragic people adopted the *aulos* during the Early Bronze Age (3000-2000 BC), as a result of frequent contact with Aegean merchants during this period. Such interaction may have facilitated cultural exchange,

and therefore innovations like the *aulos*, between these people.²⁷⁰ There are a number of reasons which indicate that Nuragic people adopted the *aulos* during a process of diffusion. First, the Nuragic society had a strong identity. Their architecture, a unique one within the Mediterranean, is evidence of this.²⁷¹ Secondly, although Nuragic people adopted cultural elements from other civilizations, such as the Phoenicians and the Greeks, those influences did not involve the entire culture.²⁷² This phenomenon, however, indicates both diffusion and acculturation. The difference lies in the fact that Nuragic people transformed those cultural elements, and therefore the *aulos*.²⁷³ As a matter of fact, they adapted it to their own needs. One of these changes involved the addition of another pipe. Hitherto, apart from the Sardinian example, there is no evidence of triple-pipe aerophones in the ancient Mediterranean. In light of this information, one can say that on the whole this was a one-way process of change, most likely linked to diffusion rather than to acculturation.

The cast bronze statuette mentioned above is exhibited at The National Archaeological Museum of Cagliari. I visited this Museum as part of the fieldwork for this thesis and I am deeply grateful for the assistance received from the efficient staff in this place (Figure 5.14). Once they were informed that the visit was part of a research into the ‘Suonatore di *launeddas* itifallico’ (ithyphallic *launeddas* (flute) player) I was allowed to take detailed photographs of this figurine. The staff also pointed out that a local craftsman makes replicas of all the figurines on display and that they were available in the museum shop. Unfortunately, this particular replica was out of stock because it is somewhat in demand as a souvenir. The museum shop assistant was nonetheless kind enough to call the craftsman in order to find out if he had any in stock. I was able to return to the shop a few hours later in order to collect the replica.

²⁷⁰ For more information on trading activities between Sardinia and the Aegean in the Early Bronze Age, see Alcock and Cherry 2013: 486.

²⁷¹ See, for instance, Melis 2003.

²⁷² See Liu 2019.

²⁷³ For more information on adoption and adaptation of innovations, see O’Toole 2019: 495.



Figure 5.14. The present writer at the National Archaeological Museum of Cagliari (photograph by the author).

The original cast bronze statuette is 120 mm tall and depicts a hermaphrodite human being who is holding two pipes in his left hand and one in his right (Figure 5.15). The individual has both breasts and prominent male genitals. The body is completely naked, except for the head which is covered by some sort of helmet (Taramelli 1982: 287). The presence of overemphasized sexual attributes, namely prominent breasts and male genitalia suggests that this figure may be connected to some sort of fertility ritual which, undoubtedly, included musical manifestations. Many interpretations attempt to clarify why this figurine is depicted with an erect phallus. In discussing this with Perra during another meeting he came out with the hypothesis that the overemphasized sexual attributes on this figurine were specifically undertaken by the artist in order to represent moments of ecstasy that this musician was experiencing whilst playing this instrument. In contrast, Rouget (1985: 7) claims that ecstasy is only attained in silence, immobility, and solitude while trance, that is to say, an altered state of consciousness, is obtained by means of sounds, agitation, and in the presence of other people. Consequently, it is very likely that the erect phallus was mainly intended to symbolise trance which, according to Plato (*Respublica* Book III 399 c-d), is directly associated with melody, and, by implication, with melodic instruments, such as the *aulos*.²⁷⁴

The *aulos* was undoubtedly considered the most melodic of ancient Greek instruments and consequently incited trance through melody. Another important element of trance is rhythm. In fact, there is a powerful connection between rhythm and trance. The rhythms which induce trance are characterized by regularity. A pulse of about 200 beats a minute can cause people to go into a trance (Rouget 1985;

²⁷⁴ Pl. *Resp.*, I, pp. 249-51.

Vitebsky 1995; Becker 2004). Although it is not specified, the element of rhythm is in some way implied by Plato. He (*Resp.* Book III 398c-399e) claimed that it is not the whole *harmoniai* in songs and melodies, naturally holding their own rhythms, that are suitable for the education of man, but, like Socrates, he maintained that the Phrygian and the Dorian modes were the most appropriate modes in order to instruct people.²⁷⁵ The *aulos* was an instrument on which the performer could play the whole *harmoniai*, however, Plato made it clear that it was only when it was played in the Phrygian and Dorian modes that it was suitable for the education of man. This may be one of the reasons why it was sporadically banned in ancient Greece (Arist. *Pol.* Book VIII 1341b).²⁷⁶ The Nuragic statuette recalls the figure of the *satyr* and the *silen* which are often portrayed in classical art with an erect oversized phallus in ancient Greece. Like the Sardinian bronze, these mythological beings are depicted naked while playing the pipes. At this stage, it is worth noting that the practice of making representations of the phallus can be traced back to prehistoric times. In ancient Greece, the Phallus was considered a symbol of abundance. It was also associated with fertility gods, such as Pan and Priapus, at least from the fifth century BC. However, these associations may have arisen at an earlier date, even before the eighth century BC, a date when the cult of Dionysus was supposedly introduced into mainland Greece.²⁷⁷ One reason may be that Dionysus is often depicted in the company of imaginary beings (*sylens* and *satyrs*) who are usually portrayed with overemphasised genitalia. This suggests a diffusion of artistic and musical practices all the way from Greece to Sardinia. Moreover, seen from a diachronic point of view, the date for the introduction of Dionysus' cult into Greece, that is, the eighth century BC, roughly coincides with the one estimated for the Sardinian figurine (c.800-700 BC). Consequently, it is possible that one thing led to another. However, the Sardinian statuette shows an androgynous figure, as the representation has both phallus and breasts. This feature may be understood as a Sardinian trait and certainly holds different meanings. From an ethnomusicological perspective, this may have some connection with the issue of music and gender.²⁷⁸ Thus, the most logical answer is that the *launeddas* was probably played by both men and women. However, the androgynous aspect of this

²⁷⁵ Pl. *Resp.* I, 245-51.

²⁷⁶ Arist. *Pol.*, p. 313.

²⁷⁷ See, West 1992: 82.

²⁷⁸ On music and gender, see Wade 2013: 49-51.

representation leads us to think on the possibility that the aerophone was played by sexual minorities, such as homosexuals and lesbians. Whether they were the only people allowed to do that or not, is not known. As a consequence, one can only speculate on this.



Figure 5.15. Frontal and profile view of the 'Ithyphallic launeddas (flute) player', Nuragic bronze statuette (c.800-700 BC) National Archaeology Museum of Cagliari (photographs by the author).

The *Suonatore di launeddas itifallico* statuette has distinctive features. For example, the partial squatting position of the body may be interpreted as a dance step (Taramelli 1982: 7), possibly part of some sort of choreography. In view of this, the figurine may be considered as one of a number of people taking part in a procession, which would certainly have included dancing and marching. Such processions may have had military or religious purposes, as well as to celebrate special events. This could be related to a number of bronze figurines discovered across the island which portray Nuragic people during different activities. The most common statuettes represent warriors, archers, and boats. Accordingly, it is very likely that Nuragic people played the pipes in military contexts, such as the one described by Plutarch ([*De Mus*] 1140c) where Spartan soldiers (Lacedaemonians) march to the sound of the double-pipe (*aulos*) to engage the enemy. However, whether Nuragic people were war-oriented or not is not clear. Whatever the case may be, similar artefacts representing religious individuals, musicians, dancers, as well as women holding children and mythological beings found in Sardinia suggest other contexts (Lilliu

1956). According to Melis (2003: 54), the statuettes were used as votive offerings and deposited at sanctuaries in wells as requests or thanks for divine assistance in battles, abundant harvest, illness, and so on.²⁷⁹ Some cast figurines were also retrieved from graves and domestic contexts (Ferrarese Ceruti 1985).

Returning to the fieldwork with Pitano Perra, one of questions for which I sought an answer was whether the *launeddas* is authentically Sardinian. Perra was adamant that this was certainly the case.²⁸⁰ He claimed that the proof lies in the bronze statuette, yet he nevertheless admitted that there was always the possibility that it was brought from somewhere else. As examples of imported culture Perra pointed to the bow and arrow as well as the shield which were imported from outside the island by the Nuragic people. Perra muses that civilizations evolve with time. To hurt the opponent, for instance, one needs to contemplate how to attack him. If one has a stone, one throws it at him, but with time, one realises that the rounder the stone, the further it reaches. Similarly, a sharply pointed cane is more damaging to the opponent. Over time, one starts to manufacture more precise ammunition.

Perra implies a process of diffusion here, where people adopt an innovation from another culture (see, for instance, Liu 2019). Remarkably, he underscores the importance of human instincts and explains how these contribute to improve innovations. As Tim Ingold (2013: 2) remarks, what people know through intuition, common sense, ordinary experience, and the wisdom of their forebears is as valid as what we learn through academia, as this allows us to understand different ways of life. Perra claimed that there was no need for the Phoenicians to teach the native Sardinians of the time how to use certain weapons and how to kill the enemy. One always seeks to protect himself and his own because this is a natural instinct. If a stone is thrown towards you, one instinctively places an arm in front of one's head, and if one has a shield, one uses it. It was not the Romans or the Babylonians who taught the natives how to do this. These are instincts that every human being has, but perhaps not uniformly across different cultures.

In the same vein, Perra hypothesises that it is likely that the *launeddas* was played somewhere else, with similar structure and called by a different name, as in the case of the *aulos*. The need for making music in Sardinia sprang from the Nuragic people,

²⁷⁹ For more information on this compare Pinza 1901: 150-56.

²⁸⁰ On music and identity, see Bailly 1997: 46-8.

as it sprang from the Babylonians, the primitive peoples, and so on. As a result, Perra concludes that he believes that the *launeddas* is autochthonous because it is only found in Sardinia in this particular form. Apart from the statuette, there is no further proof.

5.4 Fieldwork in Egypt: The Arghul as a Case Study for a Better Understanding of the Ancient Aulos

Although I planned my trip to Egypt very well, I encountered a number of difficulties from the beginning. My contact in Egypt was Dr Garranah, a professor at the Academy of Arts, University of Cairo. Dr Frendo, a lecturer in theatre studies at the University of Malta, kindly put me in touch with him back in July 2018. The first difficulty arose before travelling, because, for some reason, Dr Garranah was not replying to my emails. I must have written a few stating the purpose of my visit. I also tried to call him several times but when I could talk to him, I could not understand anything. Soon I realised that Dr Garranah could not speak English very well. I was wondering what was happening, so I asked a Syrian friend Hassan, who has a shop in Gzira, to call him on my behalf. Fortunately, my friend spoke with him explaining the purpose of my visit. Dr Garranah assured Hassan that he would put me in touch with an *arghul* player on my arrival in Cairo. This news put my mind at rest because there were only a few days in which to accomplish a number of tasks.

I arrived in Cairo on the 31st of August 2018. I could not do much that day because it was Friday, which is equivalent to a Sunday in a Muslim country and the University was closed. Then I received an email telling me that I could meet Dr Garranah on Sunday 2nd September. This was not good news because I had limited time and I needed to find someone who plays the *arghul*. At the hotel, I began to search for contacts. The hotel staff informed me about a market named Souq khan El-Khalili, where people sell diverse musical instruments and where musicians sometimes play. This market is quite popular with tourists, so I expected to find some traditional instruments and if I was lucky, some musicians to talk to.

The next morning, Saturday 1st September, I started the day with a visit to the Egyptian Museum of Antiquities, commonly known as the Egyptian Museum or Museum of Cairo. The Museum is located in Tahrir Square which is situated in downtown Cairo. Following the Egyptian revolution of 2011, Tahrir Square and its surroundings remain occupied by a number of military personnel and the police. At

the time of my visit, security was still high so that when I tried to take a picture of the Square, I was intercepted by a soldier who insisted that I deleted the photo. In order to enter the Museum, one has to pass two military checkpoints. The first is located in Tahrir Square, while the second is at the museum's entrance.²⁸¹ The purpose of my visit to the museum was to gather information about ancient woodwind instruments, particularly double-clarinets, oboes, and flutes.²⁸² Unfortunately, I was informed by the museum's personnel that such collections were not on exhibition. Due to ongoing restoration, the museum had a number of halls closed off to the public. Nevertheless, I was able to see and photograph a number of other artefacts, such as Tutankhamun's trumpets. After several hours at the museum, mesmerised by the vast number of precious artefacts, I headed for the museum's bookshop in search of written sources. I came across an interesting old museum catalogue with some descriptions of musical instruments which I purchased. Some of the material contained in this catalogue is used in this thesis.²⁸³ Since my intentions at the museum were not achieved, I decided to head to Souq khan El-Khalili in order to gather information about the *arghul*.

Later that afternoon, I went to the market. There were a number of instrument sellers, but it was disappointing to hear that none of them knew what an *arghul* was. I thought they were playing the fool, but they were serious. The market is quite large, so I continued searching for what I was looking for. Suddenly, I saw a number of *arghuls* hanging in a corner shop. I immediately noticed that they were reduced in size, so I asked the shop attendant if they were *arghuls*. When he answered in the affirmative, I questioned the small size of the instruments. He answered that this would normally be the case because they come in different sizes, but the ones on show were the shortest ones. I thought that they looked like toys and not professional instruments. I thanked the salesperson and left. I thought that probably all *arghuls* were like that, but then I realised that I needed to find a professional player to investigate a proper instrument or instruments. Most of the market stores sold *ouds*, *darbukas*, and *nays*. I was impressed by the popularity of the latter as most stores had them in stock. Back at the hotel, I questioned the staff about the *arghul*, but they thought that I was talking about the *nay*. It was then that I realised that they had no idea what the *arghul* was.

²⁸¹ For more information on popular protest music and the 2011 Egyptian revolution, see Valassopoulos and Said Mostafa 2014.

²⁸² Some of these artefacts are described in Chapter II.

²⁸³ See Eldamaty and Trad 2002.

The only solution was to start searching the internet for some places where live music was performed and for musical instruments stores. I must have visited a few that afternoon but my efforts were in vain. I could not find a single musician who played the *arghul* or a store selling it, so I decided to wait until I met Dr Garranah.

I met Dr Mustafa Garranah on Sunday 2nd September at the Academy of Arts, specifically at the Higher Institute of Conservatory, which is located in Khatem El Morsaleen, Al Omraneyah Al Gharbeyah street in Giza. On entering the University of Cairo, one has to pass through a security check point, soldiers with machine guns checked my passport and queried the purpose of my visit as well as the identity of the person I was there to meet. I must mention that the security in Egypt was more intense after the recent Egyptian revolution and terrorist attacks. I told the soldiers that I was there to meet Dr Garranah from the Music Department. They did not know who he was but after some verbal commotion, a messenger came along to escort me to the department. After looking at me with suspicion and X-raying my belongings they greeted me with various ‘welcomes’. After walking through the campus, the officer led me to a vast building where you could hear music from various western musical instruments, in particular the pianoforte. I was led through a sort of reception area where employees were working. The messenger spoke to an employee in Arabic and after various courtesies such as ‘As-Salaam-Alaikum’ and ‘Marhabas’ I was led to Dr Garranah’s office.

Once there, we cordially greeted each other, and he asked me where I was from. I told him that I live in Malta, but I am from Chile, a country in South America. He was pleased to meet someone from so far away. At this point, he asked me how he could be of help. I told him that I need to interview someone who plays the *arghul*. For some reason, I felt that I was in the wrong place. Garranah explained to me that in this department there was no one who studies folk instruments and that they only study classical music but there was another department, the Higher Institute of Arabic Music (العربية للموسيقى العالي المعهد). He directed me to Dr Ashraf Heikal, the coordinator of such department.

Once there, I asked the secretary if I could speak to Dr Ashraf Heikal. She said that he was not in his office and that I would have to wait. While waiting, a person approached me. He introduced himself as Dr Amir Nagy. He was very kind to me. He led me to his office and asked me how he could be of help. I told him that I needed to interview someone who plays the *arghul*. Dr Nagy told me that they do not teach

courses on the *arghul* and that the only wind instrument that they teach is the *nay*. He asked me if I was interested in interviewing a *nay* player. I told him I would love to but unfortunately, I had no time and I could not change my research objectives. Dr Nagy informed me that there is a place where I could find an *arghul* player. The place is called theatre Balloon and it is located in the Corniche El Nil' Agouza, Giza Governorate. There, traditional music shows are often held, but it would be better if I called first. I thanked him for his time and help. Whilst waiting for Dr Heikal, there was commotion in the office because one of the university staff had just lost her husband and was receiving condolences from co-workers. I remained silent observing what was happening.

Dr Heikal took a while to arrive at his office, but I could speak to him. We introduced each other and was offered a Turkish coffee with cardamom. Unfortunately, he told me that in that department they study classical Arabic music and that the *arghul* does not form part of such ensembles.²⁸⁴ Moreover, he did not know anybody who played that instrument. He made a couple of phone calls so as to try to help but his efforts were in vain. He said that he would try to contact someone in the coming days and would give me a call. For a moment my heart skipped a beat and I must have gone pale, wondering if I had come all the way to Cairo for nothing. Dr Heikal then advised me to visit the musicology department. I spoke to some people there, but they did not know anybody who plays the *arghul*, so I went back to each department to say goodbye and thank everyone, as well as to remind them to give me a call in case they find an *arghul* player.

Back at the hotel, the only solution that I could think of was to start browsing on the internet again. One of my searches showed 'El Mastaba Center for Egyptian Music' which is located in Sweqat Elsabbacen Street-El Sayeda Zeinab in Cairo. I decided to take a taxi and look for this place, so I went to the reception and I asked for an Arabic translation of the address so I could give it to the taxi driver. Unfortunately, El Sayeda Zeinab Street is a very long road with a number of awkward side roads. The taxi driver got lost and decided to use the GPS of his own phone. This was not of much help even though he asked several people for directions. Then he decided to ask for directions at a garage where a mechanic told him that the Mastaba Center was in the

²⁸⁴ Some of the instruments studied at the Higher Institute of Arabic Music are for example the 'ud, kaman, qanun, nay, riqq or daff, and the rababa. For a detailed study of classical Arabic music, see Marcus 2007: 96-138.

same building but on the fourth floor. I felt a sense of relief, paid, and thanked the driver for his help. I went into the building and took the stairs to the fourth floor. On approaching the apartment I saw several posters of local bands which clearly indicated that I was in the right place. I knocked on the door and a gentleman opened it, but before he said anything, I could see a number of instruments hanging on the walls. We introduced each other and he welcomed me inside the apartment. Mr Zakaria Ibrahim (Figure 5.16) told me that I was lucky to find him there because he had been about to leave. What first impressed me was that he had an *arghul* in an illuminated glass box (Figure 5.17). It was like seeing a museum piece. This also gave me the impression that the *arghul* was slowly disappearing from the Egyptian musical scene. In some way, this answered my question as to why there was a total absence of such a traditional instrument at University. The *arghul* is a folk instrument which serves to accompany folk songs, ballads, and the *mawwal*.²⁸⁵ This aerophone is mainly used in festive contexts, such as weddings and dances. The *arghul*, along with the *mizmār*, one or two *kawalas*, three *rababas*, and the *riqq*, forms part of Nile musical ensembles (Conner 2001; Marcus 2007: 86-7).²⁸⁶ The sound of these ensembles is heterogeneous. They are heterogeneous because they are made up of instruments of different timbre.²⁸⁷ We started talking and he asked me how I had found the place. I told him that I found it through the internet but that it was quite difficult to find the centre. I told him where I came from and the purpose of my visit. He kindly agreed to be interviewed and gave me permission to record our conversation.



Figure 5.16. Mr Zakaria Ibrahim pointing to the *simsimia*, a small Egyptian lyre (photograph by the author).

²⁸⁵ *Mawwal*: vocal music genre. Sung poetry with melodic improvisation (Marcus 2007: 179).

²⁸⁶ *Mizmār*: Arab oboe. *Kawala*: end-blown reed flute. *Rababa*: bowed string instrument. *Riqq*: tambourine (Marcus 2007).

²⁸⁷ On heterogeneous and homogeneous sound ideals, see Wade 2013: 64-7.



Figure 5.17. (L-R) *Mizmār*, *kawalas*, and *arg hul* in an illuminated glass box (photograph by the author).

Mr Ibrahim told me that back in 1989 he founded a music ensemble known as ‘El Tanbura’ in Port Said which brought masters of the *simsimia* (a small Egyptian lyre) together (Figure 5.16). He encouraged them to revive their musical heritage. Most of them had stopped playing because their music was no longer in demand. El Tanbura aims to revive, to legitimise, to document, and to promote traditional Egyptian music. This group makes use of different technologies to preserve their musical heritage. The most common are sound recordings in CD format. Musical activities are also preserved through photographs, DVDs, and videos. Apart from being a performer and coordinator of the ensemble, Ibrahim makes musical transcriptions.²⁸⁸ He stressed that the *simsimia* musical tradition was slowly disappearing and that only a limited number of musicians knew about it. On this issue, Bruno Nettl (2015: 283-4) rightly notes that musical traditions do not disappear completely but that vestiges of these can remain in the memory of some people.

El Tambura is made up of twenty members who are master musicians, singers, philosophers, builders, plumbers, fishermen, and vendors who range in age from twenty-five to eighty-four years old. They sing and play instruments: the *simsimia*, the *tanbura* (a large lyre), the *nay* (end-blown flute), the *kawala* (reed-flute), *tabla* (vase-shaped drum), triangle, *sagat* (small cymbals), *shakhalil* (a type of castanets) and *Riqq* (open wooden frame drum with jingling discs in the frame). Their collective oral repertoire consists of more than twenty hours of traditional songs where much remains to be documented. The Tanbura ensemble has performed all over the world.

²⁸⁸ On ways of preserving music, see Nettl 2015: 179-83.

They are often invited to participate in international music festivals, such as Womad in UK, Abu Dhabi, Womex in Spain and Womad in Russia.

Based on the success of El Tanbura and other ensembles in the canal zone, Ibrahim established El Mastaba Center for Egyptian Music in the year 2000. Ibrahim told me that ‘El Mastaba Center’ organises a number of activities such as performances, productions, and international tours while also developing archives and documentation. The main aim is to show the diversity and distinctiveness of Egyptian music and to present it as one entity to the world. The Mastaba Center promotes the value of traditional performance contexts and folk musicians in Egypt by raising their profile and marginal status through multi-media marketing. According to Mr Ibrahim, the Mastaba Center functions as a mentor and producer to a number of ensembles and musicians, founding and reconvening ensembles in marginalised areas, and offering them opportunities for regular performances. These performances contribute to the development of musicianship, musicians’ pride, and self-confidence. The success of these projects is reflected in the demand for their music at diverse events such as weddings. The Mastaba Center has inspired other groups to establish themselves as performing groups centred around their communities. The Mastaba is part of a loose network of traditional music where the mutual collaboration and exchange of knowledge and experiences is encouraged. I spoke at length with Mr Ibrahim and was given a tour around the apartment which holds his recording studio, his office, a music library and an exposition of different instruments and memorabilia (Figure 5.18).



Figure 5.18. Exhibition of past events on one of the apartment’s walls (photograph by the author).

Although the recording studio was akin to a fully equipped home studio, their production of CDs is of a good quality. Mr Ibrahim showed me the music library which

consists of a considerable amount of CDs from which he selected a few and handed them to me as a gift. One of the CDs contained music from Upper Egypt which is characterised by a diversity of musical instruments, such as the *arghul* (a double-pipe, single-reed woodwind), the *kawala* (an end-blown flute), and the *rababa* (spike fiddle). The singing is performed in a call and response form. Mr Ibrahim told me that the songs deal with various subjects such as love, marriage, Egypt's geography (the river, the palm tree, and the land), circumcision, birthdays, and the overall material that encompasses the cultural identity of Upper Egypt. The band who recorded this CD is called 'El Nil Band' and often consists of just five musicians, all from the Upper Egypt region. El Nil has joined the network of El Mastaba Center for folk music. Another CD contained the music of diverse bands from different regions of Egypt: 'El Tanbura' from Port Said, 'Henna' from the city of Suez, 'El Wazery' from the Sudanese-Egyptian musical heritage related to *zar* (*rango*), 'NobaNoor' from Nubia, 'Darawish Abou El Gheit' (spiritual Sufi music related to *zar*), 'El Baramka' from Lake Manzalla-Dakahlia governorate, 'Bedouin Jerry-Can' from North Sinai region, and 'El Kafafa' and the 'Mazamer El Nil' from Upper Egypt. After our conversation and tour of the Centre, I asked Mr Ibrahim if I could fulfil my purpose in Egypt and interview an *arghul* player. He checked his contacts and phoned Mr Mahmoud Abdel Hady, an *arghul* player from Upper Egypt, who agreed to meet me on Tuesday 4th September. Abdel Hady is a renowned musician, a student of the late famous *arghul* player Mostafa Abdel Aziz. He agreed to meet me in the evening for a small fee of 500 Egyptian pounds, and just before his trip to Upper Egypt to perform in a wedding. In a way, I was lucky that he was still in Cairo. I thanked Mr Ibrahim for his kind help and gifts and left.

Back at the hotel, I found a missed call from Dr Ashraf Heikal. I called him back and he told me the good news that he had traced an *arghul* player who was ready to meet me the following morning at the University of Cairo. Dr Heikal asked me if I was able to pay the musician one hundred U.S dollars but we eventually haggled and agreed on a price of 500 Egyptian pounds in order to meet the following morning at 10 o'clock in Dr Heikal's office at the University. I felt relieved and happy that after nearly giving up on finding an *arghul* player, I could now look forward to two meetings with two different musicians. That evening I was slightly more relaxed and set out to enjoy Cairo at night, a city bustling with people. Cairenes prefer to go out at night rather than during the day because of the hot weather. Cairo has a typical city

life, shopping orientated, with cafes, perfumeries, boutiques, and bakeries (selling local sweets and ice-cream). The shops in Cairo were all brightly lit up and attractive. In Western shops, this is normally only seen during Christmas time. In Cairo, it is an everyday thing. I tried to look for live music in a typical Egyptian restaurant where most tourists dine, but there was no such entertainment, in other words, music was reproduced through some electronic device.

The next morning, before heading to the University of Cairo, I stopped by El Abd patisserie, a renowned bakery in downtown Cairo, to buy some local sweets to take with me to the meeting because the giving of sweets in the Arab world is considered very courteous. I took a taxi and headed off to University, to find a musician who I presumed to be the *arghul* player, waiting at the security point. I told security that I have a meeting with Dr Heikal and the messenger escorted me to the Department of Arabic music. Once at Dr Heikal's place of work, I found that his office was full of people, most of whom were musicians and lecturers from the Arabic Music Department. He introduced me to everybody, and I presented him with the gift of sweets, which he promptly offered to each person in the room and requested tea and coffee to be served.

The *arghul* player arrived moments later, and I was right in my deductions that he was the musician that I had seen earlier at the check point. After I introduced myself to the *arghul* player, he told me he was Mr Amin Arghouli (Figure 5.19), which evidently is not his last name but his nickname, one derived from the instrument he plays. His real surname is Shahin. Arghouli lives in Cairo but he is from Shatanuf, Al Minufiyah Governorate, in the northern part of the country, within the Nile Delta. We sat together on a sofa. He was carrying a black case which he put next to a coffee table. Before we started our proper interview, we had a coffee while he smoked several cigarettes. I knew that many Arab men are heavy smokers and I wondered how he was able to play a woodwind instrument after smoking so many cigarettes. As a flute player myself, I know that wind instruments require lung capacity, but he proved me wrong later on when he exhibited his skills. Mr Heikal suggested that after the interview we should record the occasion by taking various photos for Facebook because he believed that Mr Amin was the best *arghul* player he knew. I also noticed that Mr Amin was very professional. Our interview was rather informal, and I let my informant speak freely. Mr Amin was sweating profusely both because he was nervous and owing to

the hot weather. Although his English was not fluent, we could understand each other well. In any case, if we had a difficulty, members of the staff were prompt to help us.



Figure 5.19. Mr Amin Arghouli (Shahin) and the present writer (photograph by the author).

Mr Amin opened his case which held a number of different *arghuls* along with other instruments (Figure 5.20). We went through each one of them. As stated above, the *arghul* is a cylindrical bore instrument (a sort of double clarinet) consisting of two pipes, one for the melody and the other for the drone. In some way, this contrasts with the ancient *aulos* and the *tibia*, where, as far as is known, both pipes played the melody. Nevertheless, there is always the possibility that one of the pipes served as a drone. The pipes of the *arghul* are usually bound with string, tar, or wax. In other words, they are parallel double-pipes and not divergent, as in the case of the ancient *aulos* and *tibia*. Each pipe of the *arghul* has six holes (no thumb hole) and its own single-beating-reed. At times, the drone is longer than the melody pipe. The main tube of the *arghul* measures 31 cm in length. Specimens at the Museum of Cairo measure more or less the same (see Chapter II, section 2.9). The two short tubes in which the simple reed mouthpieces are inserted are about 7.5 cm. The mouthpieces measure 5.7 cm while the tongue is about 2 cm. The resultant overall length of the instrument is about 45 cm in length. The *arghul* is made out of cane. Mr Amin remarked that makers use cane from Busiris, modern day Bana Abu Sir, a city located in lower Egypt by the Delta. This type of cane does not grow by the Nile but in the fields so the only water that it absorbs comes from the rain. This is the reason why this cane is strong and does not break easily and thus lasts for a long time. Sardinian cane grows in similar conditions. These plants grow dispersed like thickets, sometimes close to water

sources, but are not waterlogged. This contrasts with Theophrastus' report, which describes that the reed used for the manufacture of *auloi* grew by the lakes and thus was waterlogged (*Historia plantarum* Book IV.10.1).²⁸⁹ Cane which is waterlogged may be less durable however it is far more flexible and hence suitable for the manufacture of mouthpieces.



Figure 5.20. Mr Amin's case containing *arghuls* and *kawala* (photograph by the author).

We find two types of double clarinets in Egypt: the *zummarah* and the *arghul*. The first is a short instrument. It has two tubes of equal length and the same number of finger holes, very much like the instruments found in the Museum of Cairo. The *arghul*, however, may have tubes of the same length or different lengths. The melodic tube, that is, the chanter, has finger holes while the other, the drone, does not have finger holes, and is limited to one prolonged sound. The two tubes are cylindrical, and their inner diameter does not exceed 1 cm.

In turn, according to the placement of the vibrating tongue on the mouthpiece, that is, according to the direction of the cut with respect to the air flow emitted by the performer, Egyptian musicians distinguish two forms: the *zummarah* and the *mashurah*. The *zummarah* type has the vibrating reed cut located at the lower end, while the *mashurah* type has it at the upper end. According to Mr Amin, the *arghul* fitted with mouthpieces of the *zummarah* type has to be played horizontally. This type of mouthpiece along with the horizontal position adopted by the performer allows a better articulation of high sounds. Conversely, the *arghul* fitted with mouthpieces of

²⁸⁹ Theophr. *Hist. pl.*, p. 361.

the *mashurah* type has to be played at a downwards-sloping angle. The combination of both elements allows the performer to produce better sounds in the low register.²⁹⁰

Mr Amin remarked that there are only two persons in whole of Egypt that manufacture the *arghul*. An *arghul* costs around one thousand Egyptian pounds which approximately corresponds to fifty-six euro. Mr Amin explained that there are seven types of *arghul* in total (Figure 5.21). The highest ranged instrument is rather small. Although this is not proper terminology, it can be labelled as soprano, but its proper name in Arabic is *gawab*. This *arghul* is tuned in C. It has six holes and a length of twelve thumb-breadth. A performer can confidently reproduce the maqam *rast* or *nahawand* on this instrument. I have to remark that *arghul* makers measure their instruments by thumb-breadth which is somewhat similar to fingerbreadth but instead of using the digit they use the thumb.

Mr Amin described that the *arghul gawab* is followed by a slightly longer instrument which is tuned in A. This *arghul* does not have a proper name in Arabic but it can be labelled as alto. The instrument measures fourteen thumbs in breadth and has six holes. There is also an *arghul* tuned in G on which a performer can confidently reproduce the maqam *nawa athar*. Mr Amin referred to this instrument as ‘orma’. It has six holes and a length of fifteen thumbs. While he was playing it, this *arghul* went out of tune as it was affected by the high temperatures of Cairo, however, Mr Amin could retune the instrument with the help of a piano available in the room. Since the *arghul* is an ancient instrument which survived in the oral tradition, its design is considered as not perfect thus it is expected to vary in intonation, even in the hands of expert players such as Mr Amin. There is also an ‘orma’ tuned in B consisting of six holes and measuring thirteen thumbs. This instrument is fitted with a longer drone tuned in E or D by adding an extension. When the chanter is in C, a drone in A can be added. Another *arghul* is known as the ‘makrona’ and consists of two chanters with five holes. The instrument is tuned in D thus comfortably reproducing the maqam *bayati*.

²⁹⁰ For more information on this compare Gadalla 2018: 166.

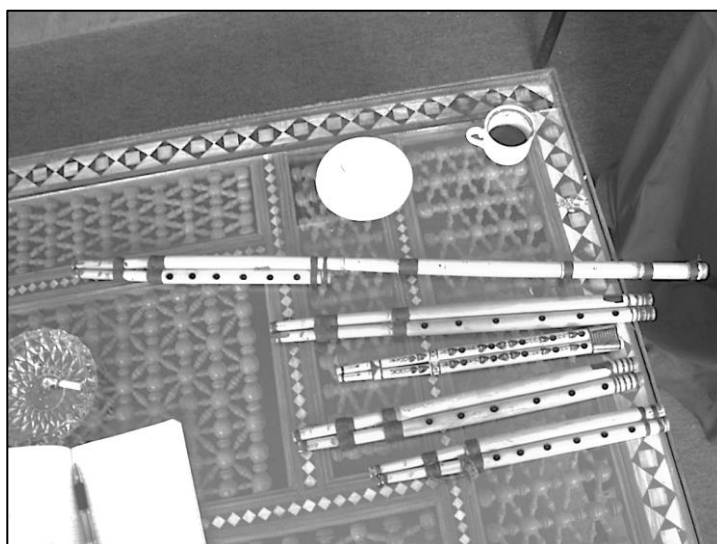


Figure 5.21. Different types of *arghuls* (photograph by the author).

Mr Amin started to play the *arghul* at the age of twelve years. He also plays an Egyptian flute known as the *kawala*, which belonged to his father. Mr Amin began playing a song which he claimed was a traditional Maltese song, but he did not know the name. I nevertheless appreciated the fact that he played something to honour the fact that I was a student at the University of Malta. I asked Mr Amin if he had more *arghuls* at home, apart from those that he brought to the interview. He said that he had various at home, but they were similar to the ones that he brought with him. He ended the interview with a performance (improvisation) on the *arghul* accompanied by one of the lecturers of the department on the *darbuka*, a pleasant way of ending such an interesting interview amidst the clapping and cheering of fellow professors and staff. Mr Amin performed a tune which reminded me of the western musical form of theme and variation. From time to time, the piece presented a theme, and this was followed by variations, mostly improvised passages (impromptus). Mr Amin played the tune on the smallest *arghul* known as *gawad*. This type of *arghul* is tuned in C and is suitable for playing maqam *rast* or *nahawand*. As a matter of fact, the tune performed by Mr Amin revolved around those maqams. Before the end, however, the tune changed to maqam *sikah*. This temporary modulation completely changed the character of the tune. The sound became harsh but graceful at the same time. After a few bars, the tune returned to maqam *rast* and ended up in some sort of cadence.

Like ancient *aulos* players and modern *launeddas* players, Mr Amin used the technique of circular breathing. This ancient technique allows him to play one or a succession of notes continuously. This is accomplished by expelling air via cheek

compression while occasionally breathing in through the nose so as to refill the lungs. Mr Amin played an *arghul* fitted with mouthpieces of the *zummarah* type. Such mouthpieces are single-beating-reeds, pretty much like the ones found on the modern *launeddas*, and probably used in the ancient *aulos* as well. Pipes fitted with such type of mouthpieces should be played horizontally, and although Mr Amin was performing sitting down, he maintained a horizontal playing position. Mouthpieces of the *zummarah* type has a vibrating reed cut located at the lower end. This allows the performer to better articulate the high sounds. The music interpreted by Mr Amin was in some way similar to the Sardinian *nodas*, folk music consisting of repeated melodies with some variation in melody and rhythms. They probably are similar in structure but clearly differ melodically. While Arabic music includes the division of the semitone, the Sardinian tradition makes use of the diatonic system. However, the Sardinian tradition may include nuances and bending of notes yet remains based on the diatonic system. The music of the *aulos*, particularly of the archaic one, had few notes. As a matter of fact, melodies were composed of three notes with no modulations. However, one can imagine that as Arabic music, ancient Greek music included nuances and bending of notes so as to enrich the palette of sounds (CD Track 5).

I thanked everybody who had collaborated and attended this meeting, and very courteously, they insisted on thanking me because I had brought to their attention this instrument which was slowly disappearing from their world and consequently promoted interest in further research on it. We promised each other to keep in touch through social media.

On Tuesday 4th September, I kept my appointment with Mr Ibrahim at El Mastaba Center for Egyptian Music. We had agreed to meet in the evening, at around 7:00 pm. I took a taxi and for the second time I was lost because the taxi driver could not find the street. My landmark was a green lit mosque, but evidently there was more than one mosque. Eventually the taxi driver stopped at a police station and asked for directions from the two police officers who were on guard. The directions did not seem to be very clear as we still went round a few blocks until finally, I recognised the centre. Although the nearby surroundings seemed different to my previous visit, I could recognise the place. That night there was a market in the street and opposite to the Mastaba Center, there was a new coffee shop. This was proof, if ever I needed it, that the streets of Cairo change when the sun goes down. When I got to the centre, a man in his thirties opened the door. He was expecting me and informed me that Mr

Ibrahim was on his way. This man, Mr Mamdouh ElKady kindly brought me some water.

After a few minutes, Mr Ibrahim arrived and told Mr Mamdouh to add my email address to the mailing list. Mr Mahmoud Abdel Hady (Figure 5.22), the *arghul* player from Upper Egypt, arrived slightly late. The first thing that I noticed is that he was very ornately dressed in traditional Egyptian clothes. He was wearing appropriate attire for a wedding. I knew that he was on his way to a wedding, but I was not expecting such elegance. In some way, this is similar to the reported habits of ancient *aulos* players. It is believed that the *auletes* Antigenidas of Thebes (fl. 400-370 BC), son of Satyrus of Thebes, for instance, wore a saffron robe and Milesian shoes to perform at events (Wilson 2002: 52). It is also claimed that he was the *aulos* player at the wedding feast for Iphicrates and the daughter of Cotys, King of the Thracians (Ath. Book IV 131d).²⁹¹ This suggests that Antigenidas had a good salary. Saffron is known to be one of the most expensive dyes in ancient Greece, while slaves were generally not allowed to wear shoes.

Mr Mahmoud Abdel Hady is a very young man in his thirties (CD Track 6). He was a student of the late famous *arghul* player Mostafa Abdel Aziz. Like contemporary *arghul* players, young *auletai* were also trained by famous *aulos* players. Most of them were winners at the great competitions, while others were famous at religious festivals, such as the ones organised in the cities of Athens, Sparta, Thebes, and Delos (Barker 1984). The art of playing the *aulos* and the *tibia* was also passed on from father to son. For example, the *auletes* Potamon of Thebes (first/second quarter of the fourth century BC) was the father of the famous Pronomus of Thebes (fifth century BC), that is, of the first *auletes* to play all three scales in one pair of *aulos*. It is worth mentioning that Potamon was once a winner of the Pythian festival (IG II 2 8883; West 1992: 366 footnote 39). Like his father and grandfather, the son of Pronomus, Oeniades of Thebes (fifth/fourth century BC), was also a famous *auletes* who won a number of competitions (IG II 2 3064; *ibid*).²⁹² According to Mr. Zakaria Ibrahim, my interviewee (Mr. Mahmoud Abdel Hady) is one of the best *arghul* players in Egypt. One of the reasons is that he was taught by a good teacher famous throughout the country. Another reason may be promotion by the Mastaba Center.

²⁹¹ Ath., I, p. 214-6.

²⁹² See also Searchable Greek Inscriptions <<https://inscriptions.packhum.org>> ,(2020).

Mr. Mahmoud Abdel Hady introduced himself and I could sense that he was a fairly shy man. We started our interview amidst honking from outside traffic, barking dogs, and children playing outside. The noise mellowed down as the interview progressed, and it was clear that Mr Mahmoud seemed unaware of the disturbances. Such background noise as children playing in the street is hardly ever heard in Europe nowadays.



Figure 5.22. (L-R) The present writer, Mr Mahmoud Abdel Hady, and Mr Zakaria Ibrahim (photograph by the author).

In comparison to Amin Arghouli, Abdel Hady brought only a few instruments with him. He was also a smoker, but he did not smoke during our meeting. The first *arghul* that he showed me was tuned in B. When I asked him about the measurements of this instrument, he also used the fingers to indicate the length, but instead of using his thumb, like Amin, he used the index and middle fingers together. The length of this *arghul* was seven double fingers which more or less corresponds to fourteen thumbs. Although this measurement differed to the one belonging to Amin (thirteen thumbs), the instruments were identically tuned. The mouthpieces measured two and a half fingers. I wanted to hear the sound of this particular *arghul*, so I asked him to play something. He started to play a song in the maqam *nahawand* (Figure 5.23). He played different maqams, such as *rast* and *bayati* on the same instrument. Abdel Hady experienced some problems with the mouthpieces as these were new. In order to make them work, he constantly sucked in order to moisten and soften the tongues of the mouthpieces.

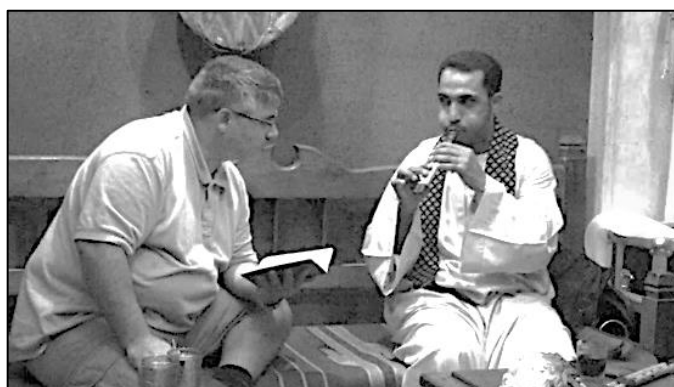


Figure 5.23. Mr Mahmoud Abdel Hady playing the *arghul* (photograph by the author).

At one point during the interview we heard from various mosques around the area the *Isha* call for prayers (*Adhan*). We stopped the interview until the *muezzin* stopped chanting as a sign of respect, and then we continued. The second instrument that Abdel Hady showed me was an *arghul* tuned in C. This instrument had a length of six double fingers. The mouthpieces were evidently shorter, being only two fingers in length. While taking a closer look at this *arghul*, I asked Abdel Hady if he was familiar with the Sardinian *launeddas* or the *duduk*. I told him that these Western instruments were quite similar to the Egyptian *arghul*. I tried to engage him in a conversation on woodwinds, but he was not familiar with such instruments, however, he mentioned the *makrona*, a sort of *arghul* which consists of two chanter and has no drone. He remarked that this was the only other instrument that he played. In the *arghul* on C, Abdel Hady played a melody on the maqam *bayati*. He compared *bayati* with a sort of minor scale which suits well on an instrument tuned in C. The last instrument that Abdel Hady showed me was an *arghul* tuned in G. He started improvising on the maqam *hijaz*. He once again had problems with the mouthpieces as these were also new. Although my trip to Egypt was originally intended to research parallels between the ancient *aulos* and the contemporary *arghul*, it is evident that, besides the obvious parallels between the two instruments, there are also many differences. The *arghul* and the *aulos* are both ancient instruments, with the *arghul* surviving to this day in this part of the world.

CONCLUSION

This final section of the thesis does not aim to replicate each of the chapters' conclusions but to reiterate the main implications of the evidence. These are then drawn together, to build up a holistic picture of the *aulos* both in classical and late antiquity.

The art of manufacturing wind instruments, such as pipes, takes us back to Neanderthal times. Here, the term wind instrument is used to refer to sound tools in which sound is produced by the vibration of air, characteristically by the musician blowing into the instrument. The earliest evidence for such devices dates back to 60,000 BC (Turk 2007-2014: 253-68). If this interpretation is correct, there is the possibility that our species (*Homo sapiens*) learnt how to make pipes from the Neanderthals. Such knowledge may have been transmitted during the Middle/Upper Palaeolithic transition (c.45,000-30,000 years ago) when both species inhabited Europe. The likelihood that Neanderthals and *Homo sapiens* exchanged ideas and material culture can only be associated with a process of acculturation which normally occurs as a result of long-term contact between two different peoples, in this case, two different species.²⁹³

The invention of agriculture marks the beginning of the new stone age or Neolithic in the near east (10,000 BC-2000 BC). This period brought profound changes. For instance, people changed their lifestyle from a nomadic existence to a sedentary one (Scarre 2005: 183). This change permitted Neolithic man to spend more time in activities that were perhaps not totally associated with hunting and gathering but much more oriented to the manufacture of objects that were not solely utilitarian. Although a clay whistle discovered at Yarim Tepe (c.6470-5000 BC) may have also served to entice birds into a trap (Merpert and Munchajev 1971: 16-7) one cannot claim the same for the assemblage of bone pipes (9000-7600 BP) discovered in Jiahu, China, as these clearly served a musical purpose only. The tuning of these bone pipes indicates the existence of a musical system based on the ancient Chinese language (Juzhong and Xinghua 2002: 147-8).

The eventual spread of farming may have contributed to the diffusion of music-related practices which, evidently, included the manufacture of sound tools.²⁹⁴ It is

²⁹³ On acculturation, see Liu 2019.

²⁹⁴ On diffusion, see Risk 2019.

very likely that musical exchanges between one group of people and another went hand-in-hand with activities related to trade and festivities. Diffusion, for instance, usually occurs during activities where people interact briefly such as war, trade, and employment (Winthrop 1991: 82; O'Toole 2019: 495). Musical exchanges become evident when comparing material culture from different Neolithic societies. For example, bone pipes discovered at the site of Tepe Gawra in northern Mesopotamia and Arslantepe in Anatolia bear decorations. While Tepe Gawra's bone pipes are ornamented with chevrons, the one of Arslantepe has engraved lattice decorations on its external surfaces (Tobler 1950: 214-5; Frangipane 2004: 180). The fact that Tepe Gawra's bone pipes are older than the one from Arslantepe, suggests a possible diffusion of music-related practices from northern Mesopotamia to southeast Anatolia. The dissemination of cultural elements between these regions, such as technologies and artefacts, is attested to as early as the sixth millennium BC (Matthews 2013: 433-47). Tepe Gawra's bone pipes attest to a musical tradition which may have started before the seventh millennium BC and came to an end by c.4500 BC, while the one from Arslantepe dates to 3800-3400 BC (ibid).

The site of Tepe Gawra (northern Mesopotamia) yielded a number of objects which possibly served as mouthpieces and parts thereof of some sort of pipe instrument (Tobler 1950: 214-5). One of these objects, for instance, resembles the upper joint, that is, the *hupholmion* of an *aulos* or *monaulos*, while another two objects have the shape of the bulb or *holmos*, that is, of the uppermost part of the *aulos* in which the double-reed or *glotta* was inserted. These objects, which date from c.4500 BC to c.3800 BC, suggest the introduction of a new array of aerophones in which sound was most probably produced through the vibration of a double-reed. If this interpretation is correct, these aerophones replaced the aforementioned bone-pipes discovered on this site, a musical tradition which probably lasted until c.4500 BC. However, this remains, to a certain extent, hypothetical.

The material from which the *aulos*' carrying case was made allows us to establish parallels between this aerophone and the land of Anatolia (modern Turkey). This carrying case, known as *sybene* or *aulotheke*, consisted of a bag made out of leopard-skin (Bundrick 2005: 35). The use of this material can be traced back to Neolithic Anatolia. Hunting scenes from Çatal Hüyük, a Neolithic site located in central Anatolia, depict people of power and high status dressed in leopard-skin (Mellaart 1967: 175). This custom was likely passed on from one generation to

another, as observed in later cultures such as the Phrygian (c.900-600 BC). Greek depictions often show Phrygian people dressed in leopard-skin. This is the case of the legendary figure of Marsyas, an *auletes* who challenged Apollo to a musical contest. An Attic depiction of this contest shows Marsyas wearing a leopard-skin, while Apollo is dressed in a typical Greek costume (see Figure 2.6 on page 65). This evidence, apart from tracing Marsyas' origins to Anatolia, shows the *aulos* as a symbol or emblem of that particular region. This is very likely because musical instruments are iconic for some societies (Nettl 2015: 368).²⁹⁵ According to Greek accounts, Phrygian musicians were responsible for bringing the *aulos* to mainland Greece, an event which probably occurred during the eighth century BC (West 1992: 82). In light of this information, one can deduce that, apart from intentionality, there was also meaning behind the manufacture of the *sybene*. In other words, leopard-skin was purposely chosen so as to link the *aulos* to a specific area, in this case, to Anatolia.

The origins of the *aulos* can be traced back to the Early Bronze Age, specifically to the Early Cycladic period II, 2800-2300 BC. This is attested by the discovery of a marble statuette which represents a man playing the *aulos* (Figure 2.20 p. 80). The artefact, retrieved in the Cycladic island of Keros in the Aegean, comes from a site which was either a cemetery or a pan-Cycladic sanctuary (Doumas 1972: 163; Renfrew 1984: 27-9). In both cases, one can deduce that both the statuette and the music behaviour that it represents were possibly connected to ritual practices. This site, that is, Kavos Daskaleio also yielded a statuette of a harpist. Outstandingly both figurines, namely, the *auletes* and the harpist, are men. This may suggest the possibility that music activities in the Aegean were only carried out by men.

The Nuragic bronze statuette, however, suggests a different story. The fact that it represents an androgynous being playing the *launeddas* suggests that the aerophone was either played by both men and women or solely by gender-defined minorities, such as homosexuals and bisexuals. In contemporary India, for example, people having atypical sexual organs (intersexuality) are considered to be a caste, that is, a community. The Hijras (eunuchs), as they are known, mostly work as musicians and entertainers (Nettl 2015: 408).

²⁹⁵ The piano, for instance, is an icon of middle-class Western society (Nettl 2015: 368).

Like other cultural manifestations, such as architecture, sculpture, and pottery, music-making and, by extension *aulos*-playing, probably experienced significant developments during the Early Cycladic period II.²⁹⁶ For example, the Aegean islands of Syros (Khalandrini) and Naxos show important architectural developments that lead us to deduce that such progress also existed in the music of the epoch. This dovetails with what Almagor and Skinner (2013: 10) claim in their book on *Ancient Ethnography*. They state that the architecture of a society indicates the habits and customs of that people. Thus, one can say that the architectural developments of Aegean societies give testimony of a culture with a constant awareness for all that is sensorial, which naturally includes sound manifestations.

It is known that the Cycladic islands received immigrants from the West, mainly from Greece and Crete, during the Early Bronze Age (3000-2000 BC) (Barber 1987: 17). However, whether they contributed to the development of the *aulos*, as they did in other cultural manifestations, is not clear. What is clear however is that they moved from their places of origin and brought with them their culture to the Cyclades.²⁹⁷ This social process is known as relocation diffusion (Hall 2005: 249-50). Whether Greeks and Cretans shared their musical knowledge with Cycladic people, is not clear. However, this seems very unlikely, as there is evidence which indicates that these immigrants had their own music. This is suggested by the discovery of bone pipes at the sites of Dispilio and Avgi in Kastoria, Greece. The aerophones date back to 6000 BC (AncientPages.com 2014). We can however be certain that they shared knowledge and skills on activities such as stone working and pottery making (Pedley 2007: 37-40). Although these activities are not directly related to music, they probably helped natives to further develop their inner musicality, a trait which facilitates the undertaking of different tasks, such as the coordination of activities through sound signalling.

What may be clear however is that the practice of playing two pipes simultaneously began in the Aegean. Apart from the Cycladic marble figurine, which dates back to 2800 BC, there is no similar evidence found in other regions of the Mediterranean and the Middle East. However, the silver pipes discovered at the cemetery of Ur (c.2500 BC) in Mesopotamia may be one such example. Nevertheless,

²⁹⁶ For more information on architecture, sculpture, and pottery in the Aegean during the Early Cycladic period II, see Pedley 2007: 37-40.

²⁹⁷ On diffusion, see Hall 2005.

it is not clear whether they were, in fact, *aulos*. The iconography of this region does not help either, as this only provides a few examples from periods before the Iron Age, that is, prior to 1200 BC (Dumbrill 2005).

The use of double-pipes is also attested to on the island of Crete, where the iconography of a sarcophagus shows a piper accompanying a sacrifice. The artefact, dating to 1400 BC, shows a double pipe instrument which differs from the Aegean one, as it has a horn attached to one of its pipes (Castleden 1990: 152). Whether Cretans played this instrument before 1400 BC is not known. However, based on sacrificial scenes depicted on the sarcophagus, one may claim that this tradition most likely developed a long time before 1400 BC. As to whether the *aulos* was invented in Crete remains unknown.

Written sources attribute the invention of the *aulos* to different personalities and even to divinities. Athenaeus, who wrote by the end of the first century AD, mentions a Libyan-Numidian man called Seirites (*Deipnosophistae* Book XIV 618b-c).²⁹⁸ This man, apart from being an *aulos* maker, was most probably an *auletes* too. Being a Libyan, Seirites was probably linked with a tradition of *aulos* making in North Africa. References from the fourth century BC, specifically those found in the poetry of Euripides (*Bacchae* 151-67; *Helena* 170-1), speak of the *lōtos* or Libyan *aulos*.²⁹⁹ Theophrastus (*Historia plantarum* Book IV.3.1-4), who wrote in the third century BC, mentions that Libyans used the wood of the *lōtos*, that is, of the *Celtis Australis* or nettle tree, to manufacture *auloi*.³⁰⁰ This particular tree grows in Libya and other parts of North Africa. From a diachronic point of view, one can say that Greeks knew about this Libyan-Numidian tradition of *auloi* making as early as the fourth century BC. Athenaeus' commentary illustrates Foucault's (1989) claim that 'archaeology is needed to unearth both the limits and the conditions of how people thought and talked about the world in previous ages' (cited from Andres 2017). Athenaeus' commentary implies that Greeks never considered the *aulos* as one of their own musical instruments. This may be the reason why Athenaeus attributes its invention to a Libyan-Numidian man. There may be other reasons, most probably associated with politics. Moreover, it seems that Athenaeus did not know the true origins of the *aulos*, as these were likely forgotten and therefore associated with myths and legends.

²⁹⁸ Ath., III, p. 986.

²⁹⁹ See Barker 1984: 67, 74-5.

³⁰⁰ Theophr. *Hist. pl.*, pp. 303-7.

Euripides (*Helena* 164-74), also comments on the Libyan *aulos* or *lōtos*. The tragedian mentions that the aerophone was used to accompany laments. In light of this information, one can deduce that this instrument was probably tuned in the Dorian mode, as this mode was used to accompany laments (West 1992: 179-80). Similar sources mention that the *lōtos* was associated with the cult of Dionysus, therefore, there is also the possibility that it was tuned in the Phrygian mode (Euripides *Phoenissae* 784-91).³⁰¹ The music played at bacchanals was based on the Phrygian mode, as this, along with the *aulos*, was considered orgiastic in nature (Arist. *Pol.* VIII 1342b).³⁰² In sum, the Libyan *lōtos* was probably tuned in different modes and certainly used on different occasions. The term *lōtos* probably encompassed a number of instruments which, due to being tuned differently, differed in length. While discussing the modern *arghul* with Mr Amin in Egypt, I noticed that this aerophone presents similar characteristics to the Libyan *lōtos*. Mr Amin told me that there are seven types of *arghuls* which reproduce different maqamat. Although this could have been the case of the *lōtos*, it is believed that there was a version of this aerophone that was a transverse single-pipe instrument where the reed was inserted on a tube protruding from the main pipe (see Figure 3.18, p. 153). This type of *aulos* is known as *plagiaulos* or *photinx* and, according to Euripides (*Bacchae* 151-67), sounded “lovely but loud”.³⁰³ However, not all types of *photinx* or double pipes were oblique; there were some in the form of two pipes attached close to each other, similar to those which are still in use today in Egypt, and which are known under the name of *zummarah* or *arghul*.

After conducting fieldwork in Egypt, specifically in Cairo, I learnt that the *zummarah* or *arghul* is an ancient aerophone contemporary with the *aulos*. The instrument is depicted in the tombs or mastaba of Nianjjum and Khnumhotep in Saqqara. The representations date back to the old kingdom, specifically from the middle of the 5th dynasty thus probably belonging to the Niuserra period (2245-2414 BC) or to the Menkauhor period (2414-2405 BC). In some way, this validates the hypothesis that double-pipe instruments sprang from different geographical areas at different points in time. It is not known how sound was precisely produced in the ancient *zummarah* or *arghul*. Unfortunately, there is no material or iconographic

³⁰¹ Eur., III, pp. 410-12.

³⁰² Arist. *Pol.*, p. 316.

³⁰³ Barker 1984: 74-5 no. 65.

evidence of mouthpieces. Nonetheless, based on observations made on modern specimens, as this instrument is still in use in Egypt, one can conclude that sound was most probably produced through the use of single beating mouthpieces, similar to the *kabittsinas* (mouthpieces) found in the Sardinian *launeddas*.

While Euripides (*Bacchae* 151-67) describes the sound of the Libyan *lōtos* as lovely but loud, one may consider the possibility that this instrument was not necessarily a double reed instrument but a single reed one. Moreover, if this hypothesis is correct, one may even conclude that mouthpieces of the *mashurah* type, namely those that have a vibrating reed cut into the upper end, were part of the instrument, as these produce better sounds in the middle and lower register.

Apart from having parallel double pipes (*mmt*), akin to the *zummarah* and the *arghul*, ancient Egyptians also played divergent double pipes (*wdny*) by the time of the New Kingdom (c.1549-1069 BC). Divergent double pipes or *wdny* were made out of a single piece of cane and usually had between three to five finger-holes (Hickmann 1949: 123). This means that some specimens served to play melodies, very likely those with five finger-holes, while others served to produce long notes, namely the drone. It is believed that the *wdny* had double reeds for mouthpieces. Fragments of reed found at the upper end of an ancient pipe suggest this (*ibid*).

It is very likely that the *wdny* was introduced into Egypt. The reason may lie in the fact that Egypt prospered both internally and internationally during the New Kingdom. As a matter of fact, it was during this period that Egypt expanded into Nubia and annexed parts of the Near East such as Syria (Ikram 2010: 98). The New Kingdom period is characterized by Pharaonic building programmes (Kemp 2009: 283). The people who work on those projects were mainly immigrants of slave status (*ibid*: 179-84). Consequently, one may put forward the possibility that the *wdny* was brought to Egypt by Near Eastern immigrants from Syria.

While describing the way in which the Egyptians celebrated the festival of Dionysus (the Egyptian Osiris), Herodotus (II 48) mentions that processions were led by *auletai*, while women sang a hymn to Dionysus.³⁰⁴ Although this remains hypothetical, Herodotus most probably refers to the *wdny* since this aerophone is quite similar to the *aulos*, and he made these remarks almost 2500 years ago.

³⁰⁴ Hdt., p. 115.

There is no doubt that the spreading and adoption of religious cults contributed to the diffusion of the *aulos*. In other words, when a culture adopts a foreign cult, the adoptive culture attempts to replicate much of its elements, including its music. However, this depends heavily on the means of communication and how receptive, or otherwise, the receiving society is (Rogers 2003: 11-30). The music of the *aulos* played a predominant role in certain cults, such as the one of Dionysus, whose origins are found in Thrace (southeast Europe) or Phrygia (Asia Minor) (Roberts 2005: 230-2). Taking into consideration that Greeks adopted the cult of Dionysus during the eighth century BC, a date which coincides with the introduction of the *aulos* to mainland Greece, one may put forward the notion that the *aulos* was a crucial element in this cult since its very beginnings. By tracing the eventual spread of this particular cult, it is possible to reconstruct an important part of the history of this musical instrument. It is known, for instance, that the cult of Dionysus first disseminated from Thrace to Boeotia. After some time, Boeotian colonists introduced it to Naxos from where the cult spread throughout the Aegean, returning to Greece, first to Attica, then to the Peloponnese (Guirand 1981: 155). Based on the spread of the Dionysus cult, which began in the Thrace region (southeastern Balkans), it can be said that the spread of the *aulos* began in the Aegean, that is, from its place of origin, as early as 1490 BC. This is because Dionysus (as a deity) already existed in the Mycenaean pantheon and his cult was probably already celebrated.³⁰⁵ This argument is based on the belief that the *aulos* accompanied the cult since its inception. The cult of Dionysus was later introduced to the central region of Greece which is known as Boeotia. If we consider that the *aulos* was introduced to mainland Greece during the eighth century BC, it is very likely that the aerophone was introduced along with the cult.

Another cult which may shed light on to the spreading of the *aulos* across different regions is the one of Kybele. In Anatolia, the Hittites worshipped her by the name of Kubaba as early as 1400 BC (Cornelius 1953). The Phrygians and Lydians, both Anatolian people, also adopted her cult but knew the goddess as Kybebe (Hdt. Book V.102).³⁰⁶ A statue dating back to the mid-sixth century BC from the city of Bogasköy, Phrygia, shows the goddess with two musicians, one on each side. The one on the left plays the double pipes (*aulos*), while the one on the right plays the lyre,

³⁰⁵ The Mycenaean culture (c.1490-1200 BC) developed in mainland Greece, specifically in the region of the Peloponnese.

³⁰⁶ Hdt., pp. 352-3.

suggesting that the musical instruments used in the worship of Kybele were the *aulos* and the lyre (see Figure 2.26, p. 87). Whether the Hittite cult of Kubaba included double pipes is not known, let alone whether they were included from the very beginning of the cult. However, it is known that the Hittites used the *tympanon* to worship the goddess (Naumann 1983: 28). It is very likely that the Greeks borrowed the Kubaba instruments of worship to honour Kybele (as they called her). These are known to include *cymbals*, double-pipes, and the lyre (Roller 1999: 151 footnote 21), instruments that may also have been adopted by the Greeks from the Hittites.

Greeks and Romans also adopted Kubaba's cult. Greeks called her Kybele, while the Romans called her Rhea (Guirand 1981: 150). Both Greeks and Romans used different musical instruments to worship the goddess. The main difference between the Anatolian cult and the Greco-Roman is that Phrygians included the lyre. Taking this into consideration, one can say that the way in which Phrygians worshipped the goddess differed from the Greco-Roman manner. The fact that the lyre is an instrument meant for indoor activities leads us to conclude that Phrygians probably worshipped Kybele in a restrained manner. This evidently contrasts with the way in which Greeks and Romans worshipped the goddess. First of all, both Greeks and Romans made use of the *aulos/tibia* along with percussion instruments, such as drums and cymbals (Barker 1984: 15-7). Secondly, it is believed that the music was loud enough and repetitive enough so as to encourage uncontrolled behaviours (ibid).³⁰⁷

As a result, religious cults not only contributed to the diffusion of the *aulos* but also had an impact on its music. Since its beginnings in the Early Bronze Age (3000-2000 BC), the development of the *aulos* was very likely associated with religion and the arts.³⁰⁸ As a consequence, the practice of playing two pipes simultaneously probably followed a desire to express emotions. Those sentiments are, of course, long gone and with them our chances of knowing the real purpose of such practices. In reality, it is to the technicalities that we can turn to in order to make our assumptions.

Based on my studies on the Sardinian *launeddas*, I can deduce that the main aim of playing two pipes at the same time is to combine a melodic line with a prolonged sound known as the drone. As regards Early Bronze Age pipes, namely, the

³⁰⁷ On the relationship between music and trance, see Rouget 1985; Vitebsky 1995; Becker 2004.

³⁰⁸ On the development of the Cycladic art, see Pedley 2007: 37-43.

Cycladic *aulos* from the Aegean, one can only speculate on the function of each pipe. It is possible that each pipe had its own set of notes. Thus, the notes of a melody were distributed between the pipes and played in an interlocking manner. However, there is also the possibility that Cycladic pipers intermingled the melody with a tonal base which consisted of long notes, but whether they used prolonged sounds as tonal bases is not known. However, if this was the case, these musicians were possibly able to discriminate between consonant and dissonant sounds in accordance with their own conceptualisation of music. This also suggests a knowledge of musical intervals or ratios whose mathematics is plainly evident in their artistic expressions such as architecture and sculpture.

The aforementioned statuette of a double pipe player from the island of Keros (c.2800 BC) suggests that in Cycladic society men may have exclusively performed the role of the musician (see Figure 2.20, p. 80). All known figurines of musicians dating from the Early Cycladic II period depict male figures. During my fieldwork on the island of Sardinia, I noticed that *launeddas* players are mainly men. However, Mr Pitano Perra, a *launeddas* player and maker, told me that there are records of women playing the instrument that go back forty years. He made it clear, however, that there is no earlier evidence of female *launeddas* players although there are testimonies of women playing the accordion and the tambourine, as well as singer-poetesses or *cantadoras*, who sang improvised verses.

However, there is always the possibility that both men and women played the *launeddas* in a distant past. A cast bronze statuette from Ittiri, province of Sassari, Sardinia, suggests this. The figurine, which dates from the Nuragic period (c.1700 BC-238 BC), represents a hermaphrodite human being playing the *launeddas* (Figure 5.15, p. 231). The fact that the figure has both sexes, as it has breasts and overemphasized male genitals, suggests that both men and women played the instrument during that period. In antiquity, representations of hermaphrodite beings were popular in the east and the Mediterranean where they symbolised fertility and marriage. This may suggest a possible link between these ancient customs and the *launeddas*. In modern Sardinia, the *launeddas* is often used as entertainment during wedding ceremonies.

While researching the *arghul* in Egypt, I noticed that the instrument is also mainly played by men, such as Nile boatmen, shepherds, and professional musicians. In ancient Egypt, however, parallel double pipes (*mmt*) such as the *arghul* were probably played by both men and women, but the iconography does not substantiate

this. As a matter of fact, the instrument is shown being played solely by men (Figure 4.15, p. 196). This contrasts with the Greco-Roman world where both men and women played the double pipes. In fact, we know of the existence of *auletai* and *auletrides* in ancient Greece, and of *tibicines* and *tibicinae* in Rome. However, double pipes of the *aulos* type, that is, divergent double pipes (*wdny*) seem to be played mostly by women in ancient Egypt. The iconography substantiates this (see Figure 2.28, p. 89). As noted earlier, it is very likely that this aerophone (*wdny*) was either brought to Egypt by people from Nubia or from the Near East, most likely from Syria. This may have resulted from the eventual expansion of Egypt to those areas during the New Kingdom (see, for instance, Ikram 2010: 98). Consequently, one can say that it was through a process of relocation diffusion that Egyptians came to know about the *wdny* (see, for instance, Hall 2005: 249). It is clear that Egyptians adopted the aerophone, as substantiated by iconography; however, they also seem to have modified it. In other words, Egyptians probably created a syncretic form of it. As previously mentioned, excavated specimens of *wdny* indicate that they were manufactured locally, while the fact that iconography mainly shows it being played by women suggests some sort of sexual segregation in ancient Egypt. In some way, this parallels with what *auletai* and *auletrides* experienced in ancient Greek society. Both were allowed to play publicly during athletic contests. However, when they accompanied other artists, such as acrobats and dancers, they were able to do that only with those of their own sex (Vos 1986: 121).

The use of the *aulos* during activities where one would not normally expect music suggests that both Greeks and Romans believed that youthful minds could be shaped and adapted through music (Plut. [*De Mus*] 1140b-c).³⁰⁹ Both in classical and late antiquity, the *aulos* was used during different activities which included banquets, sacrifices, funerals, orgies, and festivals, as well as public and private religious ceremonies (West 1992: 81-2). The *aulos* was of crucial importance to rituals, and a ceremony without it was unacceptable (West 1992: 15).³¹⁰ As aforementioned, the music of the *aulos* was associated with the Dionysiac cult and the mystery religions. Such an association may have been purely traditional, however, one cannot deny that the music of the *aulos* was emotionally stirring and thus capable of inducing altered

³⁰⁹ Plut. [*De Mus*], p. 411.

³¹⁰ On musical instruments and their spiritual associations, see Wade 2013: 51.

states of consciousness. This was one reason why its melodies were thought to be behind undesirable emotions and behaviours.

If one considers that the *aulos* started to be produced as early as 2800 BC, this tradition was at least three thousand years old by the period of late antiquity (AD 395). During that significant span of time, it is clear that the *aulos* experienced a number of changes both in morphology and meaning. The diverse cultures that adopted the instrument undoubtedly contributed to these changes. The *aulos* was certainly an aerophone of a pastoral type which, thanks to its popularity, was adopted by professional musicians who in turn contributed to its further development.

It is known that Aegean peoples played the *aulos* as early as the third millennium BC. One can imagine that the *aulos* was quite popular amongst these peoples, who very likely used it during diverse activities. The evident cultural development of these peoples leads us to believe that the aerophone was most likely attached to an artistic milieu which included music, architecture, and sculpture (e.g. Pedley 2007: 37-43).

On the eastern side of the Aegean, the Trojans also used the *aulos* (Cullen Bryant 1870: 251-2). Whether Trojans contributed to the development of the *aulos* is not clear. Nevertheless, based on Homer's accounts, we can say that this is highly likely. A passage from the *Iliad* describes Trojans playing *syringes* (sing. *syrinx*) (ibid). This word may denote the use of panpipes or may refer to a specific part adapted for the *aulos* which allowed the performer to produce shrill tones (Barker 1989: 139-40). Whether the Trojans devised this adaptation is not known. Homer's work also comments that Trojans made use of the *aulos* in warlike settings, probably because the instrument had an all-pervading shrill sound, which made it seem both threatening and menacing (Cullen Bryant 1870: 251-2).³¹¹

The Minoans, a civilisation that developed on the island of Crete, also used the *aulos*. It is known that they used a type of *aulos* as early as 1400 BC, although it is very likely that they knew of the instrument prior to that time. The Minoan *aulos* was different because a horn was attached to the end of one of its pipes. Minoans used the instrument to accompany sacrifices and cults, such as the one of the sacred tree (see Figure 3.7, p. 124).

³¹¹ On musical instruments and their extra musical associations, see Wade 2013: 47-9.

As aforementioned, the *aulos* was probably introduced into mainland Greece during the eighth century BC, that is, during the Dark Age (West 1992: 82). A scene depicted on a geometric hydria from the late eighth century BC shows two *auletai* each leading a procession of people. One procession is accompanied by a lyre player (See Figure 3.2, p. 107). Similar depictions from Anatolia suggest that it was Phrygians who brought the *aulos* to mainland Greece, but this is not self-evident. Nonetheless, luxury items of Phrygian provenance have been found in Aegean Panhellenic sanctuaries (Kisbali 2019: 23). An artefact from Samos bears an inscription which reads ‘Midas of Phrygia sent a gold throne to Delphi’ (Broodbank 2013: 532). These artefacts, apart from giving testimony of the Aegean long-range trading and raiding, indicates that there was communication between the east coast of Turkey and mainland Greece (ibid). As a consequence, there is the possibility that Phrygians introduced the *aulos* into mainland Greece. Another culture which possibly brought the *aulos* to Greece were the Thracian. However, as a result of the spread of the Dionysus cult, it seems that they re-introduced it into Greece. Moreover, Thrace began to take shape only after the seventh century BC (Haywood et al. 1998: 1.40).

In tandem with the *aulos*, foreign artists also introduced innovative musical forms. Archilochus, a poet from the island of Paros in the Aegean, for instance, introduced the *parakatalogē*, a form of recitative accompanied by the *aulos* at an interval of an octave, a fact which clarifies that Greeks did not know harmony (Comotti 1989: 18-9). This shows that the adoption of a musical instrument inevitably leads to the adoption of a musical repertoire. Often, the host culture modifies this repertoire, adapting it to its daily activities and needs as well as to special events that mark the cycle of life. Thus, the adopting culture borrows an innovation, in this case the *aulos*, and by extension its repertoire, from another culture, internalises it, homogenises it, and transforms it (Nutini 1988: 407). Often, this gives rise to new syncretic forms of the innovation (O’Toole 2019: 495).

By the seventh century BC, the *aulos* was practically established in mainland Greece, where it was incorporated in lyric and elegiac poetry. The *auletes* Mimnermus, a poet from the city of Smyrna on the east (Aegean) coast of Anatolia, for instance, used the *nomos cradias* to accompany elegiacs (Plut. [De Mus] 1134a).³¹² Although most *auletai* were from Phrygia (Anatolia), in other words foreigners, a

³¹² Plut. [De Mus], p. 371.

number of them are remembered for their talent and contributions. The *auletes* Hyagnis, for instance, is renowned for being the first musician who played the *aulos*. Although claims have been made that identify him as the inventor of the *aulos*, it is clear that this was not the case (Plut. [De Mus] 1132f; 1135f).³¹³ Another *auletes* is Olympus the Mysian who introduced instrumental music and the *auletic nomoi* into Greece (Anderson and Mathiesen 2001: 402-3). Marsyas is renowned for being the first *auletes* to use the *phorbeia*, that is, a leather mouth-band with two holes into which the reeds were inserted (Anderson and Mathiesen 2001: 902-3). He also taught Olympus the elder how to play the *aulos* (ibid). Another famous *auletes* is Olympus the younger, who is known for inventing the *polykephalos* or many-headed *nomos* (Plut. [De Mus] 1133e).³¹⁴ In the same vein, the composer Clonas invented the *nomoi* sung to the *aulos*, that is, the *aulodic nomoi* (Plut. [De Mus] 1132c).³¹⁵ Thrasippus, a chorus-leader and *auletes* of unknown origin, is known for using the *aulos* in the theatre when he worked for the Athenian comic poet Ecphantides (Barker 1984: 178). Another famous *auletes* is Pythocritus of Sicyon who played the *aulos* while athletes competed for the pentathlon (Jones 1933: 87). Sacadas of Argos was another contributor to the development of the *aulos*. He was a skilled *aulos*-player and a composer of lyric songs and elegiac poems. Sacadas is renowned for composing the *auletic pythicos nomos* and the *nomos trimeres*, both compositions which demanded a high level of competence (e.g. Nobili 2016: 44). During the late fifth/ early fourth century BC, most *auletai* belonged to the Theban School, that is, to an association of *aulos*-players who came from places such as Argos, Sicyon, Algina, Tegea, and Epidamnos (Roesch 1989: 203-14). It is worth mentioning that Athenian *auletai* were almost unknown during this period (Wilson 1999: 74-5). One can say that as a result of acculturation, these immigrant musicians passed through a process of integration in mainland Greece. The information above suggests that these *auletai* maintained their culture, kept close relationship with people from their own culture, accepted the dominant culture, while participating with the dominant group, a process also known as biculturalism.³¹⁶

³¹³ Plut. [De Mus], p. 363 and 383.

³¹⁴ Plut. [De Mus], p. 369.

³¹⁵ Plut. [De Mus], pp. 359-61.

³¹⁶ On acculturation strategies and particularly on integration and biculturalism, see Schwartz et al. 2010: 238; Schwartz and Zamboanga 2008: 275-85.

The Etruscans were the first people to disseminate the *aulos* in the Italian peninsula. It is believed that they brought it from Lydia, an area located in central Asia Minor (Wardle 1981: 26). The Etruscans probably had a strong preference for wind instruments, as they were skilled at manufacturing horns (*cornu*) and trumpets (*lituus*) (Fleischhauer 2001: 409; Athenaeus *Deipnosophistae* Book IV 184a).³¹⁷ This fact may have contributed to the popularity of the *aulos* in Etruria, even amongst the affluent. It seems that Etruscans not only adopted the aerophone, but also the traditions attached to it. The use of the *aulos* in activities where one would not expect music may explain this. In other words, it is very likely that, like the Greeks, Etruscans sought to control people's minds through music, a reason why they made use of it in activities such as the hunt and the scourging of slaves (McKinnon and Anderson 2001: 461). It is believed that the Etruscan *aulos* differed from the Greek one, as the former had a conical-bell extension on both pipes which probably served to enhance its sound (McKinnon and Anderson 2001: 461).

Romans came into close contact with Greek culture through the Etruscans, who were highly influenced by Hellenistic customs (Rasmussen 2010: 13). As a matter of fact, Romans discovered the *aulos* through the Etruscans. Romans, however, developed their own version of the *aulos*, naming it *tibia* or *fistula* (Lat.: pipe) which also became popular in Roman society. However, certain personalities, particularly those who strictly followed the Hellenistic tradition, considered it barbarian (e.g. Rudd 2004: 293). Both *tibicines* and *tibicinae* were allowed to work as performers. People hired them to entertain during secular events, which ranged from private gatherings to public festivals. The music of the *tibia* was also attached to certain religious cults. As a matter of fact, it was of crucial importance to some rituals (Comotti 1989: 48-9). *Tibia* players, however, received low payments, yet by the late republic they were considered freedmen (Wardle 1981: 31). Eventually, by imperial times, the *tibia* was considered a sacred instrument (McKinnon and Anderson 2001: 462).

The use of the *aulos/tibia* in Roman theatrical settings has Etruscan precedents. As a matter of fact, Roman artists imitated the way in which Etruscans made theatre (Comotti 1989: 49). It is known that Romans made use of different types of *auloi* and *tibiae* in their performances (Bieber 1961: 236-50). Some instruments were of

³¹⁷ Ath., I, p. 285.

Phoenician origins, such as the *tibia sarrana*, or from Phrygia in Asia Minor (Moore 2012: 56-63).

By the time of the fall of the Roman Empire, the *aulos/tibia* was widely known in the Mediterranean, North Africa, and the Middle East. In fact, the instrument was already part of different cultures which evidently contributed to its eventual transformation. In other words, the cultures which adopted the *aulos/tibia* not only included it in their music but also adapted it to their own needs. The eventual transformation of the *aulos/tibia* into new syncretic forms may have followed paths which were probably associated with the availability of raw materials, performance practices, and different types of music. For example, both the Nuragic and the modern *launeddas* may essentially be modified *auloi/tibiae*, as these do not differ considerably from the Greco-Roman aerophone. Mr Perra, for instance, a Sardinian *launeddas* player and maker, believes that the *aulos/tibia* and the *launeddas* are the same instruments.

The Nuragic *launeddas* can be traced back to c.700 BC. Like its modern counterpart, it consisted of three pipes. This fact suggests that early Sardinian inhabitants adapted the instrument to their own needs, as attested by the addition of another pipe to the former instrument. However, whether the added pipe served the function of playing melodies or prolonged sounds is not known. Mr Perra believes that it functioned as a drone. Another unsolved problem begs the question of whether the Nuragic *launeddas* was made out of reed. According to Perra, the material of choice was probably cane, but one cannot be completely certain. There is no doubt, however, that mouthpieces were made out of cane, but whether they were single or double reeds is not known.

In order to deduce what happened to the *aulos/tibia* after Roman times, we took as a starting point a North African tradition of *aulos* manufacturing, which according to classical sources differed from the Greco-Roman one. Athenaeus (*Deipnosophistae* Book XIV 618b-c) mentions a Libyan-Numidian man called Seirites, who invented a type of *aulos*.³¹⁸ This aerophone was probably used in Numidia, a territory that sat west and south of the Carthaginian territory. Athenaeus may have written this shortly after AD 192. It is very likely that the Numidian nomadic lifestyle contributed to the dissemination of this aerophone throughout North Africa

³¹⁸ Ath., III, p. 986.

and probably beyond. The contribution of Bedouin nomads to the dissemination of the *aulos/tibia* across Middle eastern regions, as well as, in some way, of preserving this tradition, can be substantiated by the discovery of a stone etching in the Harra desert in the north-eastern Transjordan. The artefact bears the depiction of a double-pipe player and an inscription in Safaitic, an ancient southern Arabic dialect (see Figure 4.13, p. 189). The evidence indicates that between the first to the fourth century AD, Bedouin nomads made use of double-pipes which they called *zmrt*, and that these were unequal in length (Braun 2002: 18).

The factors which contributed to the diffusion of the *aulos/tibia* across the Mediterranean, North Africa, and the Near East had to do with trade, migration, warfare, religion, and colonial expansion. One has to consider however that the eventual spread of the *aulos/tibia* was a process that probably began in the middle Bronze Age (c.2000-1550 BC). During this period, we can deduce that the *aulos* was known in the Aegean, the west coast of Asia Minor, and probably in the Balkan Peninsula. It was during classical antiquity that the instrument spread through most regions of the Mediterranean, North Africa, and the Middle East. The mechanisms attached to Greek colonialism, that is, trade links with the Levant and Italy, and the expansion of Rome, created the necessary circumstances for musical exchanges to occur. This wide diffusion of the *aulos/tibia* undoubtedly contributed to its eventual transformation into new syncretic forms and in turn to its inevitable disappearance.

Although condemned to a degraded status, both during the Hellenistic heydays and then during Roman times, the *aulos/tibia* survived. However, after Emperor Constantine issued the Edict of Milan (AD 313), the *aulos/tibia* and by extension, the people who earned a living by playing the instrument, were further affected.

During late antiquity, *auletai* and *auletrides* born into public entertainment could not escape the legal disadvantages of their degraded social status. As a matter of fact, in AD 371, 'Christian emperors conceded that performers could not be recalled to the stage if they made an unexpected recovery after deathbed baptism' (Clark 2011: 24).

Early Christian writers sought to eradicate non-Christian beliefs, in particular, paganism (e.g. McKinnon 1987). The *aulos/tibia* was undoubtedly an aerophone associated with pagan practices. As a matter of fact, it was considered an instrument through which the devil could speak, and its sounds were considered evil spells (McKinnon 1987: 78 no 160). The Apostolic Constitutions or Constitutions of the

Holy Apostles, a compilation of legislative and liturgical texts (c.AD 380), lists a number of professions and activities which, as a requirement for baptism, the person has to abandon. It states that both *auletai* and *tibia* players could not be baptised unless they renounced their occupation (McKinnon 1987: 111 no 240). Such circumstances probably led them to abandon their careers, a fact which evidently contributed to the eventual disappearance of the *aulos/tibia*, particularly in the West. However, there were many examples of social mobility while there were not enough inspectors to check on actors and musicians in the Empire. Most *auletai* travelled to distant places for work, for instance to the East. Such destinations were probably cultural centres in pre-Islamic Arabia (first to sixth century AD). The region of Al Hijaz, for example, was a religious and cultural melting pot, where itinerant musicians could show off their art at the principal markets. It is known that some of those musicians played double-pipe instruments, most probably the *aulos/tibia*, which according to Farmer (1929: 3-4) were known as *mizmār*, that is, the reed pipes.

The advent of Islam in AD 600 also contributed to the eventual disappearance of the *aulos/tibia*, which by this time was known as *mizmār*. Like the early Church Fathers, the prophet Muhammad condemned musical instruments, declaring that these are powerful means through which the devil seduces men (Farmer 1929: 25). Islamic converts began to consider double-pipe instruments, that is, the *mizmār*, as diabolical musical instruments, hence the pipe of the devil (*mizmār al-shaitān*). Based on the accounts of al Fārābī (c.AD 870-950) double-pipe instruments continued to be used in regions of North Africa and the Near East for some centuries (1967: 795-800). However, the instrument, as it passed from one generation to the next, was transformed and evidently given different names. This reason along with the condemnatory views of both Christianity and Islam contributed to the eventual disappearance of the *aulos/tibia*. Nonetheless, some remnants of this instrument survive in modern aerophones such as the *arghul* and the *launeddas*.

My original contribution to knowledge is to have expanded on the study method of historical ethnomusicology. This method usually elaborates its interpretations using a combination of historical sources (mainly written sources) with ethnographic data (see, for instance, Wong 1991). Historical research provides an expanded context in which to understand present-day music performance. One can say that this thesis makes use of this method but in reverse order, as it makes use of present-day data, gathered through ethnographic methods, in order to understand the

musical past. This approach may be compared to historical re-enactment, as it looks to provide an answer to questions about the past from the point of view of the present.

The research presented in this thesis expands on the study method of historical ethnomusicology because it includes sources such as archaeological, iconographical, and epigraphic. Moreover, these are used in combination with historical and ethnographic sources as they complement each other and therefore can be compared and contrasted. Along with this method, the multidisciplinary approach of archaeomusicology is used. This approach includes studies in organology, music iconography, ethnohistory, technology, and distributional ones. Other data was retrieved from online sources.³¹⁹

Since the sources pertain to different ancient societies both from the Mediterranean and the Near East, approaches to ancient ethnography were employed. These facilitated an analysis of the past in view of cultural difference.³²⁰ The evident interaction that existed between these cultures allowed me to suggest possible scenarios where social processes such as acculturation, diffusion, and syncretism played a role on the dissemination and transformation of the *aulos*.

The significance of this research lies in its main objective, that is, the presentation of a holistic view of the *aulos*, its past and consequential history, and an explanation of its transformation from classical to late antiquity. In order to achieve this objective, a number of questions were asked. Some of these questions, such as, ‘what is an *aulos*?’, ‘What does the term *aulos* imply?’, or ‘how was sound produced in the *aulos*?’ have already been tackled by other scholars but their answers are rather descriptive than explanatory. This thesis both provides an answer to those questions as well as offers an explanatory answer as to the origins of the *aulos*, and thus the origins and purpose of playing two pipes at the same time. Both aspects deserved more in-depth investigation. This thesis also explores the causes which possibly led to the disappearance of the *aulos* from the musical scene, another issue that needed an explanation. It was worth investigating the origins of the *aulos*, as these have been erroneously traced to the Near East or Greece but not precisely to the Aegean, as this research does. Moreover, this investigation reveals that central European bone pipes

³¹⁹ See Wood 2008.

³²⁰ See Tomlinson 1993.

which date back to the Upper Palaeolithic are quite likely to be *aulos*' forerunners, but that the practice of playing two pipes simultaneously originated in the Aegean.

Inquiries on the origins of the *aulos* also shed light on *aulos* making traditions, particularly on those developed in Nuragic Sardinia (*launeddas*' forerunners) and in North Africa (*Libyan Lotos*). These type of *aulos* evidently differ from conventional ones as they are syncretic forms. In other words, Nuragic and Libyan-Numidian peoples adopted the *aulos* and eventually transformed it, adapting it to their own needs. They did this, most probably, through the blending of manufacturing techniques, by adding tubes, horns, or by tying together the tubes.

This also demonstrates how the processes of acculturation, diffusion, and syncretism played an important role in the history of the *aulos*. This thesis shows how ancient peoples, such as the Nuragic, Greeks, and Romans, transformed the morphology and the meaning of this aerophone. For example, eastern people were responsible for introducing the *aulos* into mainland Greece. This is directly associated with the introduction of cultic practices, also coming from the east, and a wide range of customs which were eventually adopted and adapted by the Greeks. This example is clearly one of diffusion and acculturation. Investigations on how these social processes influenced changes in the *aulos* have never been attempted before.

The research presented in this thesis centres on different peoples and individuals from antiquity; however, there is an emphasis on famous musicians because little is known about ordinary people. Thus, issues of power are tackled diplomatically. Chronology is definitely observed but is not critical when establishing parallels between the past and the present. Unable to provide a clear picture of the past solely from historical sources, this research includes other types of sources so as to fill those lacunas.

Historical research provides a better understanding of contemporary musical practices. This research does the same but in reverse. In other words, it makes use of musical practices of the present to understand those of the past. This approach may be similar to that of re-enactment. This provides answers to questions of the past from a point of view of the present. Ancient authors often describe musical practices of the past in their discourses. These reports are in some way ethnographic, as those authors were either closer in time or contemporary to the people who performed those practices. In the same vein, Foucault remarks that archaeology helps us to know the way people thought and talked about something, both in the distant and the recent past.

For this reason, this research examines both ancient (primary) and contemporary (secondary) sources.

It is clear that the contribution of this research is cultural. The results can serve as the basis for a potential revivalism of the cultural heritage of different nations of the Mediterranean and North Africa. This undoubtedly strengthens the identity of a nation. The information contained in this research can be used in museums as complementary knowledge to the subject in question. This not only serves cultural and academic purposes but also touristic and, therefore, economic ones as well.

BIBLIOGRAPHY

Primary Sources

Apuleius, *The Golden Ass being the Metamorphoses of Lucius Apuleius*, trans. by William Adlington, Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1947).

Aristophanes, trans. by Benjamin Bickley Rogers, 3 vols., Loeb Classical Library (London: William Heinemann Ltd., New York: G. P. Putnam's Sons, 1930), I

Aristotle, *Aristotle's Politics*, trans. by Benjamin Jowett (Oxford: Clarendon Press, 1908).

———, *Athenian Constitution*, trans. by Frederic George Kenyon (London: G. Bell and Sons, Ltd., 1912).

Athenaeus, *Deipnosophistae*, *English The Deipnosophists or, Banquet of the Learned, of Athenaeus*, trans. by Charles Duke Yonge, 3 vols (London: Henry G. Bohn, York Street, Covent Garden, 1854).

———, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (London: William Heinemann Ltd; New York: G. P. Putnam's Sons, 1927), II

———, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1959), VI

———, *The Deipnosophists*, trans. by Charles Burton Gulick, 7 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961), VII

Aulus Gellius, *The Attic Nights*, trans. by William Beloe, 3 vols (London: Printed for J. Johnson, St. Paul's Church-Yard, 1745), I

Catullus, Tibullus, *Pervigilium Veneris*, trans. by Francis Warre Cornish, John Percival Postgate, and John William Mackail, Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1988).

Cicero, *The Speeches*, trans. by John Henry Freese, Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961).

Dio Chrysostom, trans. by James Wilfred Cohoon, 5 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1949), I

Euripides, trans. by Arthur S. Way, 4 vols., Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1912), III

———, trans. by Arthur S. Way, 4 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's Sons, 1930), I

Herodotus, *The Histories*, trans. by Aubrey de Sélincourt (London: Penguin Books)

Hesiod, *The Homeric Hymns and Homerica*, trans. by Hugh G. Evelyn-White, Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1914).

Homer, *The Iliad*, trans. by William Cullen Bryant, 2 vols in 1 (Boston and New York: Houghton Mifflin Company the Riverside Press, 1870).

———, *The Odyssey*, trans. by Augustus Taber Murray, 2 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1945), I

———, *The Iliad*, trans. by Augustus Taber Murray, Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press, 1946), I

———, *The Iliad*, trans. by Augustus Taber Murray, Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press, 1947), II

Horace, *Odes and Epodes*, trans. by Niall Rudd, Loeb Classical Library (Cambridge, Massachusetts, London: Harvard University Press, 2004).

———, *Satires, Epistles, and Ars Poetica*, trans. by Henry Rushton Fairclough, Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1961).

Martial, *Epigrams*, trans. by Walter Charles Alan Ker, 2 vols., Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press; London: William Heinemann 1961), I

Pausanias, *Description of Greece*, trans. by William Henry Samuel Jones, 6 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's sons, 1918), I

———, *Description of Greece*, trans. by William Henry Samuel Jones and Henry Arden Ormerod, 6 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's Sons, 1926), II

———, *Description of Greece*, trans. by William Henry Samuel Jones, 6 vols., Loeb Classical Library (London: William Heinemann Ltd.; New York: G. P. Putnam's sons, 1933), III

———, *Description of Greece*, trans. by William Henry Samuel Jones, 5 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1935), IV

Plato, *Laws*, trans. by Robert Gregg Bury, 2 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's Sons, 1926), II

———, *The Republic Books I-V*, trans. by Paul Shorey, 2 vols., Loeb Classical Library (Cambridge and Massachusetts: Harvard University Press; London: William Heinemann Ltd., 1937), I

Plutarch, *Plutarch's Morals*, translated from the Greek by several hands corrected and revised by William Watson Goodwin (Boston: Little, Brown, and Company, 1878).

———, *Plutarch's Lives*, trans. by Bernadotte Perrin, 11 vols., Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press, 1959), I, IV

———, *Moralia Volume XIV*, trans. by Benedict Einarson and Phillip H. De Lacy, Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press, 1967).

Pollux Julius, *Onomasticon*, cum annotationibus interpretum: curavit Guilielmus Dindorfius [Karl Wilhelm Dindorf] (ed.), 5 vols (Lipsiae [Leipzig]: In Libraria Kuehniana, 1824), I

Quintilian, *Institutio Oratoria Books I-III*, trans. by Harold Edgeworth Butler, Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press, 1996).

Sophocles, trans. by Francis Storr, 2 vols., Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1913), II

Strabo, *The Geography of Strabo*, trans. by Horace Leonard Jones, 8 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1960), VI

———, *The Geography of Strabo*, trans. by Horace Leonard Jones, 8 vols., Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press, 1954), IV

The Greek Anthology, trans. by William Roger Paton, 5 vols., Loeb Classical Library (London: William Heinemann; New York: G. P. Putnam's Sons, 1918), V

The Odes of Pindar, trans. by Sir John Sandys, Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co., 1915).

Theophrastus, *Enquiry into Plants Books I-V*, trans. by Arthur Hort., Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press, 1916).

Thucydides, trans. by Benjamin Jowett, 2 vols (Oxford: Clarendon Press, 1881), I

Secondary Sources

Akurgal, Ekrem. 1996. 'Anatolia', in Ahmad Hasan Dani, Jean Pierre Mohen (eds.), *History of Humanity Vol II from The Third Millennium to The Seventh Century BC* (London: Routledge), pp. 529-70

al Fārābī, Abū Nasr. 1967. *Kitāb al Musiqā al Kabīr*. ed. Ghattās 'Abdul-l-Mālik Kashaba & Muhammad Ahmad al-Hifnī (al Qāhira: Dār Kitāb al Arabī)

al Farubi, Lois Ibsen. 1981. *An Annotated Glossary of Arabic Musical Terms* (Westport: Greenwood Press)

al Hafnī, Mahmud Ahmad. 1971. *ʿIlm al Ālāt al Mūsīqīyyah* (Cairo: Al Hay'ah al Misriyyah al 'Ammah lil Ta'līf wal Nashr)

al Hamdānī. 1931. *al-Iklīl*, ed. Anastās Mārī al-Karmalī (Baghdad: n.p)

Alba, Richard, and Victor Nee. 2003. *Remaking the American Mainstream: Assimilation and Contemporary Immigration* (Cambridge and Massachusetts: Harvard University Press)

Albrecht, Gerd, Claus-Stephan Holdermann, and Jordi Serangeli. 2001. 'Towards an Archaeological Appraisal of Specimen no. 652 from Middle-Palaeolithic Level D/(layer 8) of the Divje Babe I', *Archeoloski vestnik*, 52: 11-15

Alcock, Susan E., and John F. Cherry. 2005. 'The Mediterranean World', in Chris Scarre (ed.), *The Human Past: World Prehistory & the Development of Human Societies* (London and New York: Thames & Hudson Ltd), pp. 472-517

_____. 2013. 'The Mediterranean World', in Chris Scarre (ed.), *The Human Past: World Prehistory & The Development of Human Societies* 3rd ed. (London: Thames & Hudson), pp. 472-517

Almagor, Eran and Joseph Skinner (eds.). 2013. *Ancient Ethnography: New Approaches* (London and New York: Bloomsbury)

Almazova, Nina A. 2016. 'Cradias Nomos', *Philologia Classica* 11 (1): 20-30

Ancient Pages. 2017. 'Ancient Dispilio Disk and Traditional History of Writing', <<http://www.ancientpages.com/2014/10/28/ancient-dispilio-disk-and-traditional-history-of-writing/>> [accessed 6 October 2017]

Anderson, Robert. 2001. 'Egypt: Ancient Music', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 8: 1-7

Anderson, Warren and Thomas J. Mathiesen. 2001. 'Glaucus of Rhegium', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 9: 937

_____ and Thomas J. Mathiesen. 2001. 'Lasus of Hermione', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 14: 322

_____ and Thomas J. Mathiesen. 2001. 'Marsyas', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 15: 902-3

_____ and Thomas J. Mathiesen. 2001. 'Olympus the Mysian', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 18: 402-3

_____ and Thomas J. Mathiesen. 2001. 'Sacadas of Argos', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 22: 69

_____ and Thomas J. Mathiesen. 2001. 'Terpander', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 25: 300-1

Andres, Salirick S. 2017. 'Michel Foucault' <<https://salirickandres.altervista.org/michel-foucault/>>

Aneziri, Sophia. 2007. 'The Organisation of Music Contests in the Hellenistic Period and Artists' Participation: An Attempt at Classification', in Peter Wilson (ed.), *The Greek Theatre and Festivals: Documentary Studies* (Oxford and New York: Oxford University Press), pp. 67-84

Anon. 2009. 'Ethnoarchaeology', *Acta Archaeologica* 80 (1): 140-45

Anonymous and James Donaldson D. D. (ed.). 2013. *Constitutions of the Holy Apostles or, the Apostolic Constitutions* (U.S.A: Createspace Independent Publishing Platform)

Arnold, John H. 2000. *History: A Very Short Introduction* (Oxford: Oxford University Press)

Arnott, Peter D. 1972. *Introduction to the Greek World* (London: Sphere Books Limited)

Arnson Svarlien, Diane. 1991. *The Odes of Pindar*, in Perseus Project 1.0 (Yale University Press) <perseus.tufts.edu>

Athanassaki, Lucia. 2011. 'Song, Politics and Cultural Memory: Pindar's Pythian 7 and the Alcmaeonid Temple of Apollo', in Lucia Athanassaki and Ewen Lyall Bowie (eds.), *Archaic and Classical Choral Song: Performance, Politics and Dissemination* (Berlin), 235-68

Atti della R. Accademia dei Lincei. 1917. 'Notizie degli Scavi di Antichità', *Atti della R. Accademia dei Lincei Anni CCCXIV*, 14 (5): 1-351

Avgi Kastoria. 2008. <<http://www.neolithicavgi.gr>> [accessed 03 December 2018]

Axtell, James. 1979. 'Ethnohistory: An Historian's Viewpoint', *Ethnohistory* 26 (1): 1-13

Bachmann, Werner. 2000. 'Frühbronzezeitliche Musikinstrumente Anatoliens', in Ellen Hickmann, Ingo Laufs, and Ricardo Eichmann (eds.), *Studien zur Musikarchäologie II*, Musikarchäologie früher Metallzeiten, Vorträge des 1, Symposiums der International Study Group on Musik Archaeology im Kloster Michaelstein, 18-24. Mai 1998 (Rahden: Orient-Archäologie 7), 146-57

_____. 2001. 'Anatolia', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 1: 589-603

Baily, John. 1997. 'The Role of Music in Creation of an Afghan National Identity, 1923-73', in Martin Stokes (ed.), *Ethnicity, Identity, and Music: The Musical Construction of Place* (Oxford and New York: Berg), pp. 45-60

Baines, Anthony. 1957. *Woodwind Instruments and Their History* (London: Faber and Faber Limited)

_____. 1960. *Bagpipes* (Oxford: Printed at The University Press)

Bancroft Hunt, Norman. 2004. *Historical Atlas of Ancient Mesopotamia* (New York: Thalamus Publishing)

Barber, Robin L. 1987. *The Cyclades in the Bronze Age* (London: Duckworth)

Barker, Andrew. 1984. *Greek Musical Writings Volume I The Musician and his Art* (Cambridge: Cambridge University Press)

_____. 1989. *Greek Musical Writings Volume II Harmonic and Acoustic Theory* (Cambridge: Cambridge University Press)

Barker, Elton. 2006. 'Paging the Oracle: Interpretation, Identity and Performance in Herodotus' History', *G&R* 53: 1–25

Bayer, Bathja. 2014. 'The Mesopotamian Theory of Music and the Ugarit Notation—A Reexamination' in Joan Goodnick Westenholz, Yossi Maurey, and Edwin Seroussi (eds.) *Music in Antiquity: The Near East and the Mediterranean* (Berlin/Boston: Walter de Gruyter GmbH & Hebrew University Magnes Press, Jerusalem), pp. 15-91

Beare, John Isaac. 2008. 'Nemea', in William Smith, William Waite, and George Eden Marindin (eds.), *A Dictionary of Greek and Roman Culture in Two Volumes* (London and New York: I.B. Tauris & Co. Ltd), 2: 227

_____. 2008. 'Isthmia', in William Smith, William Waite, and George Eden Marindin (eds.), *A Dictionary of Greek and Roman Culture in Two Volumes* (London and New York: I.B. Tauris & Co. Ltd), 1: 1023-6

Becker, Judith. 2004. *Deep Listeners: Music, Emotion and Trancing* (Bloomington, IN: Indiana University Press)

Bélis, Annie. 1984. 'Auloi Grecs du Louvre', *Bulletin the Correspondance Hellenique* 108: 111-22

_____ 1986. 'La Phorbeia', *Bulletin the Correspondance Hellenique* 110: 205-18

_____ 2001. 'Aulos', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 2: 178-84

Berry, John W. 1980. 'Acculturation as Varieties of Adaptation', in Amado M. Padilla (ed.), *Acculturation, theory, models, and some new findings* (Boulder, Colo: Westview Press for the American Association for the Advancement of Science), pp. 9-18

_____ 1997. 'Immigration, Acculturation, and Adaptation' *Applied Psychology: An International Review* 46: 5-68

Belli, Oktay. 1982. 'Urartularda Hayat Ağacı İnancı' *Anadolu Araştırmaları*, 8: 237-46

Benet-Martínez, Verónica and Jana Haritatos. 2005. 'Bicultural Identity Integration (BII): Components and Psychosocial Antecedents', *Journal of Personality* 73 (4): 1015-50

Bickley Rogers, Benjamin. 1930. *Aristophanes*, in three volumes (London: William Heinemann Ltd; New York: G. P. Putnam's sons)

Bieber, Margarete. 1961. *The History of the Greek and Roman Theatre* (Princeton: Princeton University Press)

Bielawski, Ludwik. 1958. 'History in Ethnomusicology', *Yearbook for Traditional Music* 17: 8-15

Blegen, Carl W., Cedric G. Boulter, John L. Caskey, and Marion Rason. 1958. *Troy. The Settlements VIIa, VIIb, and VIII. Volume 4* (Princeton, N.J.: Princeton University Press)

Bloemendal, Jan. 2010. *Gerardus Joannes Vossius* (Leiden: Brill)

Bodley, Nicholas B. 1946. 'The Auloi of Meroe: A Study of the Greek-Egyptian Auloi Found at Meroe, Egypt', *American Journal of Archaeology*, 50 (2): 217-40

Boulter, Cedric. 1953. 'Pottery of the Mid-Fifth Century from a Well in the Athenian Agora', *The Journal of the American School of Classical Studies at Athens*, 22 (2): 59-115

Bowie, Ewen. 2014. 'Rediscovering Sacadas', in Alfonso Moreno and Rosalind Thomas (eds.), *Patterns of the Past Epitēdeumata in the Greek Tradition* (Oxford: Oxford University Press), pp. 39-55

Bowra, Cecil Maurice and Eveline Krummen. 2012. 'Terpander', in Simon Hornblower, Antony Spawforth, and Esther Eidinow (eds.), *The Oxford Classical Dictionary*, 4th edn (Oxford: Oxford University Press), p. 1443

Braun, Joachim. 2002. *Music in Ancient Israel/Palestine: Archaeological, Written, and Comparative Sources* (Grand Rapids, Michigan and Cambridge, U.K.: William B. Eerdmans Publishing Company)

Bray, Warwick and David Trump. 1970. *A Dictionary of Archaeology* (London: The Penguin Press)

Brison, Ora. 2014. 'Nudity and Music in Anatolian Mythological Seduction Scenes and Iconographic Imagery', in Joan Goodnick Westenholz, Yossi Maurey, and Edwin Seroussi (eds.) *Music in Antiquity: The Near East and the Mediterranean* (Berlin and Boston: Walter de Gruyter GmbH & Hebrew University Magnes Press, Jerusalem), pp. 185-200

Broodbank, Cyprian. 2013. *The Making of the Middle Sea: A History of the Mediterranean from the Beginning to the Emergence of the Classical World* (London: Thames & Hudson)

Brown, Michael F. 2008. 'Cultural Relativism 2.0', *Current Anthropology*, 49 (3 June): 363-83

Bryce, Trevor. 2002. *Life and Society in The Hittite World* (Oxford and New York: Oxford University Press)

_____. 2011. 'The Late Bronze Age in the West and the Aegean', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 363-75

Buckley, Ann. 1998. *Hearing the Past: Essays in Historical Ethnomusicology and the Archaeology of Sound* (Liège: Etudes et Recherches Archéologiques d l'Université de Liège)

Buera, Francisco J. and Oberfield, Ezra. 2020. 'The Global Diffusion of Ideas', *Econometrica* 88: 83-114

Bundrick, Sheramy D. 2005. *Music and Image in Classical Athens* (Cambridge: Cambridge University Press)

Burgh, Theodore W. 2006. *Listening to the Artefacts: Music Culture in Ancient Palestine* (New York and London: T&T Clark International)

Burkholder, J. Peter and Claude V. Palisca. 2006. *Norton Anthology of Western Music* (New York: W.W. Norton)

Busby, Thomas. 1819. *A General History of Music, from Earliest Times to the Present* (London: G. W. B. Whittaker)

Busuttil, Christopher. 2010. 'Archaeological Traditions in European Experimental Centres' (unpublished MSc dissertation, University of Sheffield, UK)

_____. 2013. 'Experimental Archaeology', *Malta Archaeological Review* 2008-2009: 60-6

Butler, Harold Edgeworth. 1996. *Quintilian Institutio Oratoria: Books I-III* (Cambridge, Mass. and London: Harvard University Press)

Cameron, Averil. 1993. *The Mediterranean World in Late Antiquity AD 395-600* (London and New York: Routledge)

Canby, Jeanny Vorys. 2001. The "Ur-nammu" Stela (Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology)

Cartledge, Paul. 2011. *Ancient Greece: A Very Short Introduction* (New York: Oxford University Press Inc.)

Castleden, Rodney. 1990. *The Knossos Labyrinth: A New View of the 'Palace of Minos' at Knossos* (London: Routledge)

_____1993. *Minoans: life in Bronze Age Crete* (London: Routledge)

Cathcart, Kevin J. 2011. 'The Earliest Contributions to the Decipherment of Sumerian and Akkadian', *Cuneiform Digital Library Journal* (ISSN 1540-8779), Cuneiform Digital Library Initiative, < https://cdli.ucla.edu/files/publications/cdlj2011_001.pdf> [accessed 18 March 2018]

Champollion, Jean-François. 1827. *Notice Descriptive des Monumens Égyptiens du Musée Charles X* (Paris: L' Imprimerie de Crapelet)

Charvát, Petr. 2002. *Mesopotamia before History* (Oxon: Routledge)

Chase, Philip G., and April Nowell. 1998: 'Taphonomy of a Suggested Middle Palaeolithic Bone Flute from Slovenia', *Current Anthropology*, 39 (4): 549–53

Chew, Geoffrey and Thomas J. Mathiesen. 2001. 'Threnos', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 25: 433-4

Childe, Gordon. 1958. *The Prehistory of European Society* (London: Penguin Books Ltd)

Christesen, Paul. 2007. *Olympic Victor Lists and Ancient Greek History* (Cambridge and New York: Cambridge University Press)

Clark, Gillian. 2011. *Late Antiquity: A Very Short Introduction* (Oxford: Oxford University Press)

Clausen, Wendell. 1990. 'Philology', *Comparative Literature Studies* 27 (1) What is Philology?: 13-5

Cohoon, James Wilfred. 1949. *Dio Chrysostom*, in five volumes, Loeb Classical Library (London: William Heinemann; Cambridge and Massachusetts: Harvard University Press), 1

Collon, Dominique. 1993. 'Musik. I. B.', *Reallexikon der Assyriologie und Vorderasiatischen Archäologie*, 8: 488-91

Comotti, Giovanni. 1975. 'L'Aulo Ghringas in una Scena Menandrea del Mosaico di Diocuride' *Quaderni Urbinati*, 20: 215-23

_____1989. *Music in Greek and Roman Culture* (Baltimore and London: The Johns Hopkins University Press)

Conard, Nicholas J., Maria Malina, and Susanne C. Münzel. 2009. 'New flutes document the earliest musical tradition in southwestern Germany', *Nature*, 460: 737-40

Conner, William J. 2001. 'Arghul', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 1: 885

Coogan, Michael D., Marc Z. Bettler, Carol A. Newsom, and Pheme Perkins (eds.). 2007. *The New Oxford Annotated Bible*, Augmented Third Edition with the Apocryphal/Deuterocanonical Books (Oxford: Oxford University Press)

Cook, Michael. 1999. 'Muhammad', in G. W. Bowersock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), pp. 595-8

Cornelius, Izak. 2012. 'In Search of the Goddesses of Zincirli (Sam'al)', *Zeitschrift Des Deutschen Palästina-Vereins* (1953-) 128 (1): 15-25

Corpus Vasorum Antiquorum. 2017. 'Museums & Collections', <<http://www.cvaonline.org/cva/museums.htm>> [accessed 6 October 2017]

Cullen Bryant, William. 1870. *The Iliad by Homer*, 2 vols in 1 (Boston and New York: Houghton Mifflin Company the Riverside Press)

Curtis, John. 1997. 'Nimrud', in Eric M. Meyers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East* (New York and Oxford: Oxford University Press), 4: 141-4

D'Errico, Francesco, Paola Villa, Ana C. Pinto Llona, and Rosa Ruiz Idarraga. 1998. 'A Middle Paleolithic origin of music? Using Cave Bear Bone Accumulations to Assess the Divje Babe I Bone 'Flute'', *Antiquity*, 72: 65-79

Dalby, Andrew. 2006. 'Symposium', in Nigel Wilson (ed.), *Encyclopedia of Ancient Greece* (New York and London: Routledge), pp. 683-4

Daniel, Glyn. 1977. *The Illustrated Encyclopedia of Archaeology* (London and Basingstoke: Macmillan London Limited)

David, Nicholas and Carol Kramer. 2001. *Ethnoarchaeology in Action* (Cambridge: Cambridge University Press)

Davidson, J.A. 1958. 'Notes on the Panathenaea', *Journal of Hellenic Studies* 78: 23-42

Davies, John K. 2007. 'The Origins of the Festivals, Especially Delphi and the Pythia', in Catherine Morgan and Simon Hornblower (eds.), *Pindar's Poetry, Patrons and Festivals: From Archaic Greece to the Roman Empire* (Oxford) pp. 47-70

Dawe, Kevin. 2003. 'The Cultural Study of Musical Instruments', in Martin Clayton, Trevor Herbert, and Richard Middleton (eds.), *The Cultural Study of Music: A Critical Introduction* (London: Routledge), pp. 274-83

Dawkins, Richard McGillivray and others. 1907. 'Laconia: I. Excavations at Sparta', *The Annual of the British School at Athens*, 13: 1-218

_____ and others. 1908. 'Laconia: I. Excavations at Sparta', *The Annual of the British School at Athens*, 14: 1-160

_____ 1929. *The sanctuary of Artemis Orthia at Sparta: excavated and described by members of the British school at Athens, 1906-1910* (London: Pub. by the Council, and sold on their behalf by Macmillan)

De Caro, Stefano. 2015. 'Excavation and Conservation at Pompeii: A Conflicted History', *The Journal of Fasti Online: Archaeological Conservation Series* (ISSN 2412-5229), Published by the International Centre for the Study of the Preservation and Restoration of Cultural Property, < <http://www.fastionline.org/docs/FOLDER-con-2015-3.pdf> > [accessed 18 March 2018]

De Martino, Stefano. 1997. 'Musik. A. III. bei den Hethitern', *Reallexikon der Assyriologie und Vorderasiatischen Archäologie*, 8: 483-88

De Ortego y Gasca, Felipe. 1978. 'Chicanos and Concepts of Culture', *Eric Clearinghouse*, Washington, D. C: 1-27 <<https://eric.ed.gov/?id=ED178246>>

De Sélincourt, Aubrey. 2003. *Herodotus, The Histories*, revised with introduction and notes by John Marincola (London: Penguin Books)

Decker, Wolfgang. 2004. 'Pankration', in Hubert Cancik and Helmuth Schneider (eds.), *Brill's Encyclopaedia of the Ancient World New Pauly* (Leiden and Boston: Brill), 10: 447-8

Delaware Lewis, John. 1879. *The Letters of the Younger Pliny* (London: Trübner & Co., Ludgate Hill)

De Marinis, S. 1961. 'Komos', in Istituto della Enciclopedia Italiana (ed.), *Enciclopedia dell'Arte Antica Classica e Orientale* (Rome: Roma, Istituto della Enciclopedia Italiana), 4: 382-4

Diamond, Beverly. 2013. 'Native American Ways of (Music) History', in Philip V. Bohlman (ed.), *The Cambridge History of World Music* (Cambridge: Cambridge University Press), pp. 155-79

Diamond, Jared. 1997. *Guns, Germs and Steel: A Short History of Everybody for The Last 13,000 Years* (London: Vintage)

Dietz, Maribel. 1999. 'Travelers', in G. W. Bowersock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), pp. 731-2

Digital LIMC. 2020. LIMC Basel and DHLab, limcbasel@unibas.ch. <<https://www.weblimc.org/page/monument/2071344>>

Dörpfeld, Wilhelm. 1902. *Troia und Ilion: Ergebnisse der Ausgrabungen in den vorhistorischen und historischen Schichten von Ilion 1870-1894* (Athens: Beck and Barth. Reprint in 1968, Osnabrück: Zeller)

Doumas, Christos G. 1972. 'Notes on Cycladic architecture', *Archäologischer Anzeiger*, 87: 151-70

Dowden, Kevin. 2012. 'Marsyas', in Simon Hornblower, Antony Spawforth, and Esther Eidinow (eds.), *The Oxford Classical Dictionary*, 4th edn (Oxford: Oxford University Press), p. 904

Drake, Harold. 1999. 'Constantine', in G. W. Bowersock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), pp. 389-91

Drijvers, Han J. W. 1999. 'Arab', in G. W. Bowerstock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), p. 308

Duke Yonge, Charles. 1854. *Deipnosophistae, English The Deipnosophists or, Banquet of the Learned, of Athenaeus*, 3 vols (London: Henry G. Bohn, York Street, Covent Garden)

Dumbrill, Richard J. 2005. *The Archaeomusicology of the Near East* (Victoria and Oxford: Trafford Publishing)

Dyson, Stephen L., and Rowland Robert J. 2007. *Shepherds, Sailors, and Conquerors: Archaeology and History in Sardinia from the Stone Age to the Middle Ages* (Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology)

Einarson, Benedict and Philliop H. De Lacy. 1967. *Plutarch Moralia Volume XIV*, Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press)

Ekroth, Gunnel. 2014. 'Animal Sacrifice in Antiquity', in Gordon Lindsay Campbell (ed.), *The Oxford Handbook of Ancient Animals in Classical Thought and Life* (Oxford: Oxford University Press), pp. 324-354

Eldamaty, Mamdouh and Mai Trad. 2002. *Egyptian Museum Collections around the World, Studies for the Centennial of the Egyptian Museum, Cairo*, 2 vols (Cairo, Egypt: The Supreme Council of Antiquities)

Elsner, Jürgen. 2019. 'Double-Reed Instruments in North Africa', in Gisa Jähnichen and Terada Yoshitaka (eds.) *Double Reeds Along the Great Silk Road* (Berlin: Logos Verlag Berlin), pp. 1-16

Emerit, Sibylle. 2013. 'Music and Musicians', in Willeke Wendrich (ed.) *UCLA Encyclopedia of Egyptology* (Los Angeles: <http://digital2.library.ucla.edu/viewItem.do?ark=21198/zz002h77z9>), pp. 1-16

Ethnohistory. 2017. 'JSTOR:Ethnohistory', <<http://www.jstor.org/ejournals.um.edu.mt/journal/ethnohistory>>[accessed 26 October 2017]

Evelyn-White, G. Hugh. 1914. *Hesiod, The Homeric Hymns and Homeric*, Loeb Classical Library (London: William Heinemann; New York: The Macmillan Co.)

Farmer, Henry George. 1929. *A History of the Arabian Music to the XIIIth Century* (London: Luzac & Co.)

_____. 1957. 'The Music of Ancient Egypt', in Egon Wellesz (ed.), *The New Oxford History of Music*, 1st edn (London: Oxford University Press), 1: 255-82

Ferrarese Ceruti, Maria Luisa. 1985. 'Un Bronzetto Nuragico da Ossi (Sassari)', in Giovanna Sotgiu (ed.), *Studi in onore di Giovanni Lilliu per il suo settantesimo compleanno* (Cagliari: Istituto di Antichità e Archeologia e Arte)

Fink, Robert. 1997. 'Neanderthal Flute: Oldest Musical Instrument: Matches Notes of Do, Re, Mi Scale: Musicological Analysis' (Saskatoon, Sask.: Greenwich)

_____. 2000. 'Chewed or Chipped? Who made the Neanderthal Flute?', <<http://www.webster.sk.ca/greenwich/chewchip.htm>> [accessed 30 May 2017]

Fleischhauer, Günter. 1964. 'Etrurien und Rom', in Heinrich Besseler and Max Schneider (eds.), *Musikgeschichte in Bildern* 5, Band II: Musik des Altertums (Leipzig: Deutscher Verlag für Musik)

_____. 2001. 'Etruria', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 8: 408-12

_____. 2001. 'Rome (Ancient)', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 21: 606-14

Forrer, Emil. 1924. 'Die Griechen in den Boghazköi-Texten' *Orientalische Literaturzeitung*, 27: 113-18

Foster McCarter, Susan. 2007. *Neolithic* (New York and Oxon: Routledge)

Foucault, Michel. 1989. *Archaeology of Knowledge* (London and New York: Routledge)

Fox, Rina S., Erin L. Merz, Martha T. Solórzano, and Scott C. Roesch. 2013. 'Further Examining Berry's Model: The Applicability of Latent Profile Analysis to

Acculturation' *Measurement and Evaluation in Counseling and Development* 46 (4): 270-288 <doi:10.1177/0748175613497036>

Frangipane, Marcella. 1993. 'Local Components in the Development of Centralized Societies in Syro-Anatolian Regions', in Marcella Frangipane and Alba Palmieri (eds.), *Between the Rivers and Over the Mountains* (Roma: Università di Roma 'La Sapienza'), pp. 133-61

_____. 2001. 'Centralization Processes in Greater Mesopotamia: Uruk Expansion as The Climax of Systematic Interactions Among Areas of The Greater Mesopotamian Region', in Mitchell S. Rothman (ed.), *Uruk Mesopotamia and its Neighbors: Cross Cultural Interactions in the Era of State Formation* (Santa Fe: School of American Research Press), pp. 307-47

_____. 2004. *Alle Origini del Potere: Arslantepe, La Collina dei Leoni / A Cura di Marcella Frangipane* (Milano: Electa)

_____. 2011. 'Arslantepe-Malatya: A Prehistoric and Early Historic Center in Eastern Anatolia', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 968-92

_____. 2011. 'Interaction of Uruk and Northern Late Chalcolithic Societies in Anatolia', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 813-35

Franklin, John C. 2020. 'Ancient Greek Music and the Near East', in Tosca A.C. Lynch and Eleonora Rocconi (eds.), *A Companion to Ancient Greek and Roman Music* (Hoboken U.S.A: Wiley Blackwell), pp. 229-242

Fränkel, Hermann. 1973. *Early Greek Poetry and Philosophy* trans. by Moses Hadas and James Willis (Oxford: Alden Press)

Furley, William D. 1995. 'Praise and Persuasion in Greek Hymns' *The Journal of Hellenic Studies*, 115: 29-46

Futo Kennedy, Rebecca. 2015. 'Essays on Ancient Ethnography', *The Classical Review* 65(2): 345-7

Gadalla, Moustafa. 2018. *The Enduring Ancient Egyptian Musical System: Theory and Practice*, Second Edition (Greensboro U.S.A: Tehuti Research Foundation)

Gänsicke, Susanne and Stefan Hagel. 2017. 'The Auloi from Meroë: Preliminary Notes on the Conservation, Technical Examination, and Interpretation of a Cache of Ancient Musical Instruments', in Jens M. Daehner, Kenneth Lapatin, and Ambra Spinelli (eds.), *Artistry in Bronze: The Greeks and Their Legacy* XIXth International Congress on Ancient Bronzes (Los Angeles: J. Paul Getty Museum; Getty Conservation Institute) < <http://www.getty.edu/publications/artistryinbronze/conservation-and-analysis/45-gansicke/> > [accessed 14 January 2020]

Garcia-Ventura, Agnès, Claudia Tavolieri, and Lorenzo Verderame. 2018. *The Study of Musical Performance in Antiquity: Archaeology and Written Sources* (Newcastle upon Tyne: Cambridge Scholars Publishing)

Garelli-François, Marie-Hélène. 2000. 'Le Ludus Talarius et les Représentations Dramatiques à Rome', *Revue de philologie, de littérature et d'histoire anciennes* 74: 87-102

Getz-Preziosi, Pat. 1982. "'The Keros hoard": introduction to an Early Cycladic enigma', in Dieter Metzler and Brinna Otto (eds), *Antidoron: Festschrift für Jürgen Thimme*, (Karlsruhe: C. F. Müller), pp. 37-44

Giddens, Anthony. 1990. *The Consequences of Modernity* (Cambridge: Polity)

Gilbert, Alessandra. 2011. *Syro-Hittite Monumental Art and the Archaeology of Performance: The Stone Reliefs at Carchemish and Zincirli in the Earlier First Millennium BCE* (Berlin and New York: De Gruyter)

Giovino, Mariana. 2007. *The Assyrian Sacred Tree History of Interpretations* (Fribourg: Academic Press Fribourg)

Glazebrook, Allison. 2016. 'Prostitutes, Women, and Gender in Ancient Greece', in Stephanie Lynn Budin and Jean Macintosh Turfa (eds.), *Women in Antiquity: Real Women Across the Ancient World* (London and New York: Routledge), pp. 703-13

Goldman, Max L. 2015. 'Associating the Aulêtris: Flute Girls and Prostitutes in the Classical Greek Symposium', *Helios* 42 (1): 29-60

Goodenough, Erwin Ramsdell. 1953-1968. *Jewish Symbols in the Greco-Roman Period*, 13 vols (New York: Pantheon Books)

Goodwin, William Watson. 1878. *Plutarch's Morals* (Boston: Little, Brown, and Company), 3

Gotter, Ulrich. 2002. 'Griechenland in Rom? Zur politischen Bedeutung von Akkulturation in der klassischen und spät-römischen Republik' (unpublished thesis, Freiburg i.Br.)

Gould, Richard A. 1974. 'Some Current Problems in Ethnoarchaeology', in Christopher B. Donnan and C. William Clewlow (eds.), *Ethnoarchaeology, Monograph IV, Institute of Archaeology*, (Los Angeles: University of California)

Graf, Fritz. 2016. 'Festivals in Ancient Greece and Rome', Oxford Research Encyclopedia of Religion<<http://religion.oxfordre.com/view/10.1093/acrefore/9780199340378.001.0001/acrefore-9780199340378-e-58>> [accessed 17 March 2020]

Gravili, Paraskevi. 2011. 'Musical Scenes of Roman Daily Life: From the Etruscans to the End of Late Antiquity' (unpublished PhD thesis, Universität Wien)

Grout, Donald Jay. 2006. *A History of Western Music*, 7th edn, J. Peter Burkholder, Donald Jay Grout, and Claude V. Palisca (eds.) (New York and London: W.W. Norton & Company)

Guirand, Felix (ed.). 1981. 'Greek Mythology', in *New Larousse Encyclopedia of Mythology*, trans. by Richard Aldington and Delano Ames (London: The Hamlyn Publishing Group Limited), pp. 85-198

_____ and Andre V. Pierre. 1981. 'Roman Mythology', in Felix Guirand (ed.) *New Larousse Encyclopedia of Mythology*, trans. by Richard Aldington and Delano Ames (London: The Hamlyn Publishing Group Limited), pp. 199-221

Gurney, Oliver Robert. 1994. 'The Ladder-Men at Alaca Höyük' *Anatolian Studies*, 44: 219-20

Haarmann, Harald. 1995. *Early civilization and literacy in Europe: an inquiry into cultural continuity in the Mediterranean world* (Berlin: Mouton de Gruyter)

Hagel, Stefan. 2008. 'Re-evaluating the Pompeii Auloi', *The Journal of Hellenic Studies* 128: 52-71

_____. 2009. *Ancient Greek Music: A New Technical History* (Cambridge: Cambridge University Press)

_____. 2012. 'The Pompeii Auloi: Improved Data and a Hitherto Unknown Mechanism', in Ricardo Eichmann, Fang J., and L.-Ch. Koch (eds.) *Studien zur Musikarchäologie 8. Orient-Archäologie 27* (Leidorf: Rahden), pp. 103-14

_____. 2019. 'Reconstructing the Auloi from Queen Amanishakheto's Pyramid', in Ricardo Eichmann, Jianjun Fang, Lars-Christian Koch (eds.), *Studien zur Musikarchäologie 11, Orient Archäologie* (Rahden/Westf.: VML, Verlag Marie Leidorf GmbH), pp. 177-97

_____. 2020. 'Understanding Early Auloi: Instruments from Paestum, Pydna and Elsewhere', in Gabriel Zuchtriegel and Angelo Meriani (eds.), *La Tomba del Tuffatore: Rito, Arte e Poesia a Paestum e nel Mediterraneo d' epoca Tardo-Arcaica* (Pisa: Edizioni ETS), pp. 421-59

Haland, Evy Johanne. 2014. *Rituals of Death and Dying in Modern and Ancient Greece: Writing History from a Female Perspective* (Cambridge: Cambridge Scholars Publishing)

Haldane, Joan Aitken. 1966. 'Musical Instruments in Greek Worship', *Greece & Rome*, 13 (1) April: 98-107

Hall, Jonathan M. 1997. *Ethnic Identity in Greek Antiquity* (Cambridge: Cambridge University Press)

Hall, Michael. 2005. 'Diffusion', in R. W. McColl (ed.), *Encyclopedia of World Geography Volume 1* (New York: Facts On File, Inc; Golson Books, Ltd.)

Hamilton, Scott. 2002. 'Ethnography', in Charles E. Orser, Jr (ed.), *Encyclopedia of Historical Archaeology* (London and New York: Routledge), pp. 186-8

Haywood, John, Charles Freeman, Paul Garwood, and Judith Toms. 1998. *The Cassell Atlas of the Ancient World 4,000,000-500 BC* (Oxford: Andromeda Oxford Ltd)

Henry, René. 1959-1977. *Bibliothèque*, 8 vols (Paris: Société d' Edition<<Les Belles Lettres>>), 5: 159-60

Herskovits, Melville J. 1945. 'Problem, Method, and Theory in Afroamerican Studies', *Afroamerica* 1: 5-24

Hickmann, Ellen. 2001. 'Archaeomusicology', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 1: 848-54

Hickmann, Hans. 1949. *Catalogue Général des Antiquités Égyptiennes du Musée du Caire: Instruments de Musique* (Le Caire: Imprimerie de l'Institut Français d'Archéologie Orientale)

_____. 1951. 'Miscellanea Egyptologica', *The Galpin Society Journal* 4 (June): 25-9

_____. 1951. 'Note on an Egyptian Wind Instrument', *Journal of International Folk Music Council* 3: 52-109

_____. 1961. 'Ägypten', in Heinrich Bessler and Max Schneider (eds.) *Musikgeschichte in Bildern. Musik des Altertums-Lieferung Vol. II* (Leipzig: VEB Deutscher Verlag für Musik Leipzig)

Higham, Charles. 2005. 'Complex Societies of East and Southeast Asia', in Chris Scarre (ed.), *The Human Past: World Prehistory & the Development of Human Societies* (London and New York: Thames & Hudson Ltd), pp. 553-93

_____. 2005. 'East Asian Agriculture and Its Impact', in Chris Scarre (ed.), *The Human Past: World Prehistory & the Development of Human Societies* (London and New York: Thames & Hudson Ltd), pp. 235-63

Higgins, Shawn M. 2019. 'Assimilation', in Jane Sturman (ed.), *The SAGE International Encyclopedia of Music* (Thousand Oaks: Sage Publications, Inc.), 1: 246-247, <DOI: <http://dx.doi.org/10.4135/9781483317731.n71>> [accessed 1 June 2021]

Hoffmann and others. 2018. 'U-Th Dating of Carbonate Crusts Reveals Neandertal Origin of Iberian Cave Art', *Science* 359: 912-5

Hogarth, David George. 1908. *The Archaic Artemisia* (London: Printed by Order of the Trustees)

Högemann, Peter. 2004. 'Harpagus', in Hubert Cancik and Helmuth Schneider (eds.), *Brill's Encyclopaedia of the Ancient World New Pauly* (Leiden and Boston: Brill), 5: 1147

Hornbostel, Erich and Curt Sachs. 1961. 'Classification of Musical Instruments', *The Galpin Society Journal*, 14 (March): 3-39

_____ and Curt Sachs. 2001. 'Appendix, Introduction to the Hornbostel-Sachs Classification System', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 12: 425-8

Horsfall, Nicholas. 2003. *The Culture of the Roman Plebs* (London: Bristol Classics Press)

Hort, Arthur. 1916. *Theophrastus, Enquiry into Plants Books I-V*, Loeb Classical Library (Cambridge, Massachusetts, London, England: Harvard University Press)

Hourani, Albert. 1991. *A History of the Arab Peoples* (London: Faber and Faber Limited)

Howard, Albert A. 1893. 'The Aulos or Tibia', *Harvard Studies in Classical Philology*, 4: 1-60

Ikram, Salima. 2010. *Ancient Egypt: An Introduction* (Cambridge: Cambridge University Press)

Ingersall, D., J. E. Yellen and W. Macdonald (eds.). 1977. *Experimenta! Archaeology* (New York: Columbia University Press)

Ingold, Tim. 2013. *Making: Anthropology, Archaeology, Art and Architecture* (London and New York: Routledge)

Instone, Stephen J., and Antony J.S. Spawforth. 1998. 'Games', in Simon Hornblower and Antony Spawforth (eds.), *The Oxford Companion to Classical Civilization* (Oxford and New York: Oxford University Press), pp. 294-5

Jablonka, Peter. 2011. 'Troy in Regional and International Context', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 717-33

Jackson, Anthony and Norma S. Guerra. 2011. 'Cultural Difference', in Sam Goldstein and Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development* (Boston, MA: Springer), <DOI: https://doi.org/10.1007/978-0-387-79061-9_752> [accessed 1 June 2021]

Jacobsen, Thomas W. 1973. 'Excavation in the Franchthi Cave, 1969-1971, Part I', *Hesperia: The Journal of the American School of Classical Studies at Athens*, 42 (1): 45-88

Jähnichen, Gisa and Terada Yoshitaka. 2019. *Double Reeds Along the Great Silk Road* (Berlin: Logos Verlag Berlin)

Jameson, Michael H. 1988. 'Sacrifice and Ritual in Greece', in Michael Grant and Rachel Kitzinger (eds.), *Civilization of the Ancient Mediterranean: Greece and Rome* (New York: Charles Scribner's Sons), 2

Jiménez Pasalodos, Raquel and Peter/Pippa Holmes. 2018. 'The Aulos and the Trumpet: Music, Gender and Elites in Iberian Culture (4th to 1st century BCE)', in Agnès Garcia-Ventura, Claudia Tavorieri and Lorenzo Verderame (eds.), *The Study of Musical Performance in Antiquity: Archaeology and Written Sources* (Newcastle upon Tyne, UK: Cambridge Scholars Publishing), pp. 173-206

Jiménez, Tomás R. 2017. *The Other Side of Assimilation: How Immigrants Are Changing American Life* (Berkeley: University of California Press)

Jin Kim, Hyun. 2013. 'The Invention of the Barbarian in Late-Sixth Century BC Ionia', in Eran Almagor and Joseph Skinner (eds.), *Ancient Ethnography: New Approaches* (London and New York: Bloomsbury), pp. 25-48

Johnston, A. W. 1987. 'IG II² 2311 and the Number of Panathenaic Amphorae', *The Annual of the British School at Athens* 82: 125-9

Jones, Horace Leonard. 1960. *The Geography of Strabo*, in eight volumes, Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press), 6

Jones, William Henry Samuel. 1933. *Pausanias, Description of Greece*, in six volumes, Loeb Classical Library (London: William Heinemann Ltd.; New York: G. P. Putnam's sons), 3

_____. 1935. *Pausanias, Description of Greece*, in five volumes, Loeb Classical Library (London: William Heinemann Ltd.; Cambridge and Massachusetts: Harvard University Press), 4

Juzhong, Zhang and Xiao Xinghua. 2002. 'Music in the 7th Millennium B.C.: The Natural and Social Background of the Origin of the Jiahu Bone-Flutes, Central China', in Ellen Hickmann, Anne Draffkorn Kilmer, and Ricardo Eichmann (eds.), *Studien zur Musikarchäologie III*, Orient-Archäologie (Rahden: Westf), 10: 147–53

Karp, Theodore. 2017. 'Aristides Quintilianus', in *Encyclopaedia Britannica Inc.* <<https://www.britannica.com/biography/Aristides-Quintilianus>> [accessed 26 November 2017]

Kemp, Barry J. 2009. *Ancient Egypt: Anatomy of a Civilization*, 2nd edn (London and New York: Routledge)

Ker, Walter Charles Alan. 1961. *Martial, Epigrams*, in two volumes, Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press; London: William Heinemann), 1

Kilmer, Anne Draffkorn. 2001. 'Mesopotamia', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 16: 480-7

_____. 2006. 'Review of Hethitische Kultmusik. Ein Untersuchung der Instrumental-und Vokalmusik anhand hethitischer Ritualtexte und von archäologischen zeugnissen, by Monika Schuol' *American Journal of Archaeology* 110 (4): 669-70

Kisbali, T. P. 2019. "'Orientalizing" Art in Anatolia (8th–6th Centuries B.C.)' *The Actual Problems of History and Theory of Art* 9: 22-9.

Klavan, Spencer A. 2021. *Music in Ancient Greece: Melody, Rhythm and Life* (Oxford: Bloomsbury Academy)

Kolyada, Yelena. 2014. *A Compendium of Musical Instruments and Instrumental Terminology in the Bible* (Oxon and New York: Routledge)

Köpp-Junk, Heidi. 2018. 'Textual, Iconographical, and Archaeological Evidence for the Performance of Ancient Egyptian Music', in Agnès Garcia-Ventura, Claudia Tavolieri and Lorenzo Verderame (eds.), *The Study of Musical Performance in*

Antiquity: Archaeology and Written Sources (Newcastle upon Tyne, UK: Cambridge Scholars Publishing), pp. 93-119

Kousoulini, Vasiliki. 2019. *A History of Alcman's Early Reception: Female-Voiced Nightingales* (Newcastle: Cambridge Scholars Publishing)

Kroeber, Alfred Louis. 1948. *Anthropology: Race, Language, Culture, Psychology, Prehistory* (New York and Burlingame: Harcourt, Brace & World, Inc.)

Kubatzki, Jana. 2016. 'Music in Rites. Some Thoughts about the Function of Music in Ancient Greek Cults' *Journal of Ancient Studies* 5: 1-17

_____. 2018. 'Processions and Pilgrimage in Ancient Greece: Some Iconographical Considerations', in Ute Luig (ed.), *Approaching the Sacred Pilgrimage in Historical and Intercultural Perspective* (Berlin: Edition Topoi), pp. 129-57

Kynaston, Trent P. 1978. *Circular Breathing for the Wind Performer* (Van Nuys, CA: Alfred Pub. Co.)

Lactaz, Joachim. 2004. *Troy and Homer: Towards a Solution of an Old Mystery* (New York: Oxford University Press)

Lamberto, Katie Ann. 2015. 'The Power Dynamics of Sound in Dionysiac Cult and Myth' (unpublished PhD thesis, State University of New York)

Landels, John G. 1963. 'The Brauron Aulos', *The Annual of the British School at Athens*, 58: 116-9

_____. 1968. 'A newly Discovered Aulos', *The Annual of the British School at Athens*, 63: 231-38

_____. 1981. 'The Reconstruction of Ancient Greek Auloi', *World Archaeology*, 12 (3): 298-302

_____. 1999. *Music in Ancient Greece and Rome* (Oxon and New York: Routledge)

Lash, Cristina L. 2018. 'Making Americans: Schooling, Diversity, and Assimilation in the Twenty-First Century' *RSF: The Russell Sage Foundation Journal of the Social Sciences* 4 (5): 99-117, <DOI: 10.7758/RSF.2018.4.5.05>

Lawergren, Bo. 2001. 'Music', in Donald B. Redford (ed.), *The Oxford Encyclopedia of Ancient Egypt* (New York and London: Oxford University Press), 2: 450-4

Lboba, Lyudmila, Darya Kozhevnikova, and Pavel Volkov. 2012. 'The musical instruments in Siberia (Early stage of the Upper Paleolithic)', in Jean Clottes (ed.), *L'Art Pléistocène dans Le Monde / Pleistocene Art of The World / Arte Pleistoceno en El Mundo*, Actes du Congrès IFRAO, Tarascon-sur-Ariège, Septembre 2010, Symposium « Signes, symboles, mythes et idéologie... ». N° spécial de Préhistoire, Art et Sociétés, *Bulletin de la Société Préhistorique Ariège-Pyrénées*, LXV-LXVI (2010-2011): 1899-1904

Levy, Kenneth. 1999. 'Music', in G. W. Bowersock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), pp. 598-9

Libin, Laurence. 2001. 'Organology', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 18: 657-8

Lilliu, Giovanni. 1956. *Sculture della Sardegna Nuragica* (Cagliari: Edizione della Zattera)

Lim, Richard. 1999a. 'Christian Triumph and Controversy', in G. W. Bowersock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), pp. 196-218

_____. 1999b. 'Theater', in G. W. Bowersock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), pp. 719-212

Littlewood, Antony R. 2006. 'Olympic Games', in Nigel Wilson (ed.), *Encyclopedia of Ancient Greece* (New York and London: Routledge), pp. 514-5

Liu, Fang Yuang. 2019. 'Acculturation', in Jane Sturman (ed.), *The SAGE International Encyclopedia of Music* (Thousand Oaks: Sage Publications, Inc.), 1: 1-6, <DOI: <http://dx.doi.org/10.4135/9781483317731.n6>> [accessed 1 june 2021]

Loret, Victor. 1913. 'Egypte, Note sur Les Instruments de Musique de l'Egypte Ancienne', in Albert Lavignac (ed.), *Encyclopédie de la Musique et Dictionnaire du Conservatoire*, (Paris: Librairie Ch. Delagrave) 1: 1-34

Lortat-Jacob, Bernard. 1995. *Sardinian Chronicles* (Chicago and London: The University of Chicago Press)

Lortat-Jacob, Bernard. 2001. 'Sardinia', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 22: 284-7

Lowie, Robert H. 2019. *The History of Ethnological Theory* (Koropi, Greece: Alpha Editions)

Mackie, Hilary. 1996. *Talking Trojan: Speech and Community in the Iliad* (London: Rowman & Littlefield)

Maddin, Robert, Tamara Stech, and James D. Muhly. 1991. 'Çayönü Tepesi. The Earliest Archaeological Metal Artifacts', in Jean-Pierre Mohen and Christiane Eluère (eds.), *Découverte du Métal* (Paris: Méditerranée orientale et Proche-Orient), 375-86

Mallowan, Max Edgar Lucien and John Cruikshank Rose. 1935. 'Excavations at Tall Arpachiyah 1933', *Iraq*, 2: 1-178

_____. 1966. *Nimrud and Its Remains* (London: Collins), 1: 216-8; 114-5

Manniche, Lise. 1991. *Music and Musicians in Ancient Egypt* (London: British Museum Press)

Marconi, Clement. 2014. 'A New Bone Flute from Selinunte: Music and Spectacle in the Main Urban Sanctuary of a Greek Colony in the West', in Angela Bellia (ed.), *Musica, Culti e Riti dei Greci d' Occidente* (Roma and Pisa: Fabrizio Serra), pp. 105-16

Marcus, Scott L. 2007. *Music in Egypt: Experiencing Music, Expressing Culture* (Oxford: Oxford University Press)

Marindin, George Eden. 2008. 'Symposium', in William Smith, William Waite, and George Eden Marindin (eds.), *A Dictionary of Greek and Roman Culture in Two Volumes* (London and New York: I.B. Tauris & Co. Ltd), 2: 740-3

Mathiesen, Thomas J. 1999. *Apollo's Lyre: Greek Music and Music Theory in Antiquity and the Middle Ages* (Lincoln and London: University of Nebraska Press)

_____. 2001. 'Harmonia', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 10: 851

_____. 2001. 'Pythian Games', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 20: 645

Mathieu, J.R (ed.). 2002. 'Introduction' , in J. R. Mathieu (ed.), *Experimental Archaeology: Replicating Past Objects, Behaviors and Processes* BAR International Series 1035 (Oxford: Archaeopress), pp. 1-11

Matthews, Roger. 2005. 'The Rise of Civilization in Southwest Asia', in Chris Scarre (ed.), *The Human Past: World Prehistory & the Development of Human Societies* (London and New York: Thames & Hudson Ltd), pp. 432-71

Matthews, Roger. 2013. 'Peoples and Complex Societies of Ancient Southwest Asia', in Chris Scarre (ed.), *The Human Past: World Prehistory & The Development of Human Societies* 3rd ed. (London: Thames & Hudson), pp. 432-71

McKinnon, James W., and Robert Anderson. 2001. 'Tibia', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 25: 461-2

McKinnon, James. 1987. *Music in Early Christian Literature* (Cambridge: Cambridge University Press)

Melini, Roberto. 2014. 'Sounds from Under the Ashes: The Music of Cults and Mysteries in the Ancient Vesuvian Land' in Joan Goodnick Westenholz, Yossi Maurey, and Edwin Seroussi (eds.) *Music in Antiquity: The Near East and the*

Mediterranean (Berlin/Boston: Walter de Gruyter GmbH & Hebrew University Magnes Press, Jerusalem), pp. 340-61

Melis, Paolo. 2003. *The Nuragic Civilization* (Sassari: Carlo Delfino editore)

Mellaart, James. 1967. Çatal Hüyük a Neolithic Town in Anatolia (New York: McGraw-Hill)

Menandri. 1862. *Scriptorum Graecorum Bibliotheca Aristophanis, Menandri et Philemoni* (Paris: Firmin Didot)

Merpert, Nicolai and Rauf Munchajev. 1971. 'Excavations at Yarim Tepe 1970 Second Preliminary Report', *Sumer*, 27: 9-22

Merpert, Nicolai Ya., and Rauf M. Munchaev. 1987. 'The Earliest Levels at Yarim Tepe I and Yarim Tepe II in Northern Iraq', *Iraq*, 49: 1-36

Merriam, Alan P. 1955. 'The Use of Music in the Study of a Problem of Acculturation', *American Anthropologist*, 57: 28-34

_____. 1964. *The Anthropology of Music* (Evanston, Illinois: Northwestern University Press)

Michaels, George. 1996. 'Archaeology as a discipline', in Brian M. Fagan (ed.), *The Oxford Companion to Archaeology* (New York and Oxford: Oxford University Press), p. 42

Michel, Cécile. 2011. 'The Karum Period on The Plateau', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 313-36

Ministero per I Beni e le Attività Culturali Soprintendenza Speciale per I Beni Archeologici di Napole e Pompei. 2010. *The National Archaeological Museum of Naples, Guide* (Naples: Electa Napoli)

Mission archéologique syro-française de Ras Shamra-Ougarit. 2020. <<https://www.mission-ougarit.fr>> [accessed 13 November 2020]

Mitchell, Stephen. 1990. 'Festivals, Games and Civic Life in Roman Asia Minor', *JRS* 80: 183-93

Mithen, Steven. 2005. *The Singing Neanderthals: The Origins of Music, Language, Mind, and Body* (London: Weidenfeld & Nicolson Ltd)

Montagu, Jeremy. 2007. *Origins and Development of Musical Instruments* (Lanham, Maryland: Scarecrow Press Inc.)

Moore, Timothy J. 2016. *Music in Roman Comedy* (Cambridge: Cambridge University Press)

Morgan, Charles G. 1973. 'Archaeology and Explanation', *World Archaeology*, 4 (3): 259-76

Morgan, Jacques de, Gustave Jéquier, and George Lampre. 1900. *Mémoires, Recherches Archéologiques, Fouilles a Suse en 1897-1898 et 1898-1899, Tome I* (Paris: Ernest Leroux)

Morgan, Lewis Henry. 2020. *Ancient Society* (Paderborn, Deutschland: Outlook Verlag GmbH)

Morley, Iain. 2013. *The Prehistory of Music* (Oxford: Oxford University Press)

Moutsopoulos, Evanghélos. 1959. *La Musique dans l'oeuvre de Platon* (Paris: P.U.F.)

Muhly, James D. 1989. 'Çayönü Tepesi and the Beginnings of Metallurgy in the Ancient World', in Andreas Hauptmann, Ernst Pernicka, and Günther A. Wagner (eds.), *Archäometallurgie der Alten Welt: Beiträge zum Internationalen Symposium "Old World Archaeometallurgy"* Heidelberg, Germany 1987 (Bochum: Selbstverlag des Deutschen Bergbau-Museums), pp. 1-11

_____. 2011. 'Metals and Metallurgy', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 858-76

Murray, Oswyn. 2012. 'Symposium', in Simon Hornblower, Antony Spawforth and Esther Eidinow (eds.), *The Oxford Classical Dictionary*, 4th edn (Oxford: Oxford University Press), p. 1418

Naumann, Friederike. 1983. *Die Ikonographie der Kybele in der Phrygischen und der Griechischen Kunst* (Tübingen: Wasmuth)

Neils, Jennifer. 2012. 'The Political Process in the Public Festival: The Panathenaic Festival at Athens', in J. Rasmus Brandt and Jon W. Iddeng (eds.), *Greek and Roman Festivals: Content, Meaning, and Practice* (Oxford: Oxford University Press), pp. 199-215

Nettl, Bruno. 2005. *The Study of Ethnomusicology: Thirty-One Issues and Concepts* (Urbana and Chicago: University of Illinois Press)

_____. 2015. *The Study of Ethnomusicology: Thirty-Three Discussions*, 3rd edn (Urbana, Chicago, and Springfield: University of Illinois Press)

Nikolaidou, Marianna. 2015. 'Dispilio in Macedonia', in Roger S. Bagnall, Kai Brodersen, Craige B. Champion, Andrew Erskine, and Sabine R. Huebner (eds.) *The Encyclopedia of Ancient History* <<https://doi.org/10.1002/9781444338386.wbeah26230>> [accessed 03 December 2018]

Nobili, Cecilia. 2016. 'Choral Elegy: The Tyranny of the Handbook', in Laura Swift and Chris Carey (eds.), *Iambus and Elegy* (Oxford: Oxford University Press), pp. 33-55

Nooter, Sarah. 2017. *The Mortal Voice in the Tragedies of Aeschylus* (Cambridge: Cambridge University Press)

Nordquist, Gullög C. 1992. 'Instrumental Music in Representations of Greek Cult', in Robin Hägg (ed.), *The Iconography of Greek Cult in the Archaic and Classical Periods: Proceedings of the First International Seminar on Ancient Greek Cult, organised by the Swedish Institute at Athens and the European Cultural Centre of Delphi (Delphi, 16-18 Novembre 1990)* (Liège: Presses universitaires de Liège, 1992), pp. 118-40

Nur Saputra, Dani. 2020. 'Culture Change: Case of the use of Traditional Instruments Replaced with Modern Instruments in Keroncong Music' *Jurnal Seni Musik* 9 (2): 59-70

Nys, Nadine and Joachim Bretschneider. 2007. 'Research on the iconography of the Leopard' *Ugarit Forschungen. Internationales Jahrbuch für die Altertumskunde Syrien-Palästinas* 39: 1-58

O'Toole, Michael. 2019. 'Change and Transformation', in Jane Sturman (ed.), *The SAGE International Encyclopedia of Music* (Thousand Oaks: Sage Publications, Inc.), 1: 495-6, <DOI: <http://dx.doi.org/10.4135/9781483317731.n151>> [accessed 1 June 2021]

Oostrum, Anne H. van. 2019. 'The Mizmâr in the Arab World: A Historical Sketch', in Gisa Jähnichen and Terada Yoshitaka (eds.) *Double Reeds Along the Great Silk Road* (Berlin: Logos Verlag Berlin), pp. 17-34

Orser, Charles. 2002. 'material culture', in Charles E. Orser, Jr (ed.), *Encyclopedia of Historical Archaeology* (London and New York: Routledge), pp. 339-42

Orton, Clive, Paul Tyers, and Alan Vince. 1993. *Pottery in Archaeology* (Cambridge: Cambridge University Press)

Otte, Marcel. 2000. 'On the Suggested Bone Flute from Slovenia', *Current Anthropology*, 41 (2): 271-2

Özgülç, Nimet. 1957. 'Marble Idols and Statuettes from the Excavations at Kültepe', *Belleten*, 81: 71-80

_____. 1988. *İnandıktepe, Eski Hitit Çağında Önemli Bir Kült Merkez, An Important Cult Center in the Old Hittite Period* (Ankara: Türk Tarih Kurumu Basım Evi)

Papadopoulou, Zozi. 2004. 'Music: Musical Instruments in Cult and Musicians in Cult', in Griechische Musik. *Thesaurus Cultus et Rituum Antiquorum* (Los Angeles: Getty Museum), 2: 347-57

Parker, Robert. 2012. 'Panathenaea', in Simon Hornblower, Antony Spawforth and Esther Eidinow (eds.), *The Oxford Classical Dictionary*, 4th edn (Oxford: Oxford University Press), p. 1073

Pedley, John. 2005. *Sanctuaries and The Sacred in The Ancient Greek World* (Cambridge: Cambridge University Press)

_____. 2007. *Greek Art and Archaeology*, fourth edition (London: Laurence King Publishing Ltd)

Peng, Tiffany, Clifford Douglas Phillips, Jonathan Dyke, and Michael G. Stewart. 2014. 'Mechanics of Circular Breathing in Wind Musicians Using Cine Magnetic Resonance Imaging Techniques', *The American Laryngological, Rhinological and Otolological Society Inc*: 1-7

Penn Museum. 2017. <<https://www.penn.museum/collections/object/521876>> [accessed 08 October 2017]

_____. 2017. <<https://www.penn.museum/collections/object/527647>> [accessed 08 October 2017]

Pérez Arroyo, Rafael. 2001. *Egipto: La Música en la Era de las Piramides* (Madrid: Ediciones Centro de Estudios Egipcios, S.L., 2000)

Perrin, Bernadotte. 1959. *Plutarch's Lives*, in eleven volumes, Loeb Classical Library (London: William Heinemann Ltd; Cambridge and Massachusetts: Harvard University Press), 1

Peschel, Ingeborg. 1987. *Die Hetäre Bei Symposion Und Komos in Der Attisch-Rotfiguren Vasenmalerei des 6.-4. Jahrh. v. Chr.* (Bern, Switzerland: Peter Lang D)

Petretto, Maria Alessandra. 1995. 'L'Aulos', *Sandalion*, vol. 16-17 (1993-1994): 107-24

Pettinato, Giovanni. 1976. 'The Royal Archives of Tell Mardikh-Ebla', *The Biblical Archaeologist* 39 (2) May: 44-52

Pettitt, Paul. 2005. 'The rise of Modern Humans', in Chris Scarre (ed.), *The Human Past: World Prehistory & the Development of Human Societies* (London and New York: Thames & Hudson Ltd), pp. 124-74

Pinsent, John. 1982. *Greek Mythology* (England: Newnes Books)

Pinza, Giovanni. 1901. 'Monumenti Primitivi della Sardegna', *Monumenti Antichi*, 11: 5-280

Poché, Christian. 1983. 'David and the Ambiquity of the Mizmar According to Arab Sources' *The World of Music*, 25 (2): 58-75

_____. 2001. 'Mizmar', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 16: 771-2

_____. 2002. 'Music in Ancient Arabia from Archaeological and Written Sources', in Virginia Danielson, Scott Marcus, and Dwight Reynolds (eds.), *The Garland Encyclopedia of World Music The Middle East* (New York and London: Routledge), 6: 357-62

Post, Jennifer. 2019. 'Organology', in Jane Sturman (ed.), *The SAGE International Encyclopedia of Music* (Thousand Oaks: Sage Publications, Inc.), 1: 1627-31, <DOI: <http://dx.doi.org/10.4135/9781483317731.n535>> [accessed 23 August 2021]

Postgate, J. Nicholas. 1992. *Early Mesopotamia: society and economy at the dawn of history* (London and New York: Routledge)

Pötscher, Walter. 1964. *Theophrastos: Peri Eusebias* (Leiden: Brill)

Potts, Timothy F. 1994. *Mesopotamia and the East: An Archaeological and Historical Study of Foreign Relations Ca. 3400-2000 B.C.* (Oxford: Oxford University Committee for Archaeology)

Poulsen, Frederik. 1912. *Der Orient und Die Frühgriechische Kunst* (Leipzig: B. G. Teudner)

Prauscello, Lucia. 2011. 'Digging Up the Musical Past: Callimachus and the New Music', in Benjamin Acosta-Hughes, Luigi Lehnus, and Susan Stephens (eds.), *Brill's Companion to Callimachus* (Leiden and Boston: Brill), pp. 289-308

Pruzinszky, Regine and Dahlia Shehata (eds.). 2010. *Musiker und Tradierung : Studien zur Rolle von Musikern bei der Verschriftlichung und Tradierung von literarischen Werken* (Wien: Lit)

Psaroudakes, Stelios. 2002. 'The Aulos of Argitheia', *Studien zur Musikarchäologie*, 3: 335-66

_____. 2008. 'The Aulos of Pydna', *Studien zur Musikarchäologie*, 6: 197-216

_____. 2013. 'The Daphne Aulos', *Greek and Roman Musical Studies*, 1 (1): 93-121

Quibell, James and Frederick Green. 1902. *Hierakonpolis II*, Egyptian Research Account Memoir 5 (London: B. Quaritch) < <https://digi.ub.uni-heidelberg.de/diglit/quibell1902bd2>> [accessed 17 March 2020]

Ramsay, William Mitchell. 1883. 'Inscriptions inédites de l'Asie Mineure', *Bulletin de Correspondance Hellénique*, 7: 258-78

Rashid, Subhi Anwar. 1996. 'Kapitel I. Die Musik der Keilschriftkulturen', in Albrecht Riethmüller and Frieder Zaminer (eds.) *Die Musik des Altertums*, Neues Handbuch der Musikwissenschaft vol. I. (Laaber: Laaber Verlag), pp. 1-30

Rasmussen, Tom. 2010. 'Early Roman Art', in Martin Henig (ed.), *A Handbook of Roman Art: A Survey of the Visual Arts of the Roman World* (London: Phaidon Press Limited)

Ratcliff, Peter and Jascha Hoffmann. 2014. 'Q&A: Violin Detective', *Nature* 513: 486

Ray, Larry. 2006. 'Assimilation', in Brian S. Turner (ed.), *The Cambridge Dictionary of Sociology* (Cambridge: Cambridge University Press), p. 24

Redfield, Robert, Ralph Linton, and Melville J. Herskovits. 1936. 'Memorandum for the Study of Acculturation' *American Anthropologist* 38 (1): 149-52

Rehding, Alexander. 2014. 'Music-Historical Egyptomania, 1650-1950', *Journal of the History of Ideas*, 75 (4): 545-80

Renfrew, Andrew Colin. 1984. 'Speculations on the use of Early Cycladic sculpture', in J. Lesley Fitton and Nikos Goulandrēs (eds.), *Cycladica: studies in memory of N.P. Goulandris*: proceedings of the Seventh British Museum Classical Colloquium, June 1983 (London: Published for the Trustees of the British Museum by British Museum Publications), 24-30

Renfrew, Colin. 1979. 'Systems Collapse as Social Transformation: Catastrophe and Anastrophe in Early State Societies', in Colin Renfrew and Kenneth L. Cooke (eds.), *Transformations Mathematical Approaches to Culture Change* (London: Academic press), 481-506

_____ and Paul G. Bahn. 2008. *Archaeology: Theories, Methods and Practice*, 5th edn (London: Thames & Hudson Ltd)

Rice, Timothy. 2001. 'Acculturation', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 1: 67

_____. 2001. 'Syncretism', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 24: 850-1

Richardson, Nicholas J. 2012. 'Isthmian Games', in Simon Hornblower, Antony Spawforth, and Esther Eidinow (eds.), *The Oxford Classical Dictionary*, 4th edn (Oxford: Oxford University Press), p. 749

_____. 2012. 'Nemean Games', in Simon Hornblower, Antony Spawforth, and Esther Eidinow (eds.), *The Oxford Classical Dictionary*, 4th edn (Oxford: Oxford University Press), p. 1006

_____. 2012. 'Olympian Games', in Simon Hornblower, Antony Spawforth, and Esther Eidinow (eds.), *The Oxford Classical Dictionary*, 4th edn (Oxford: Oxford University Press), p. 1037

Riethmüller, Albrecht and Frieder Zaminer. 1989. *Die Musik des Altertums*, unter Mitarbeit von Ellen Hickmann, Lise Manniche, Subhi Anwar Rashid, Eric Werner, Neues Handbuch der Musikwissenschaft, Herausgegeben von Carl Dahlhaus, Band 1 (Berlin: Laaber-Verlag)

Rimmer, Joan. 1969. *Ancient Musical Instruments of Western Asia in the Department of Western Asiatic Antiquities, The British Museum* (London: Published by the Trustees of The British Museum)

_____. 1976. 'The Tibiae Pares of Mook', *The Galpin Society Journal*, 29: 42-6

Risk, Laura. 2019. 'Diffusion', in Jane Sturman (ed.), *The SAGE International Encyclopedia of Music* (Thousand Oaks: Sage Publications, Inc.), 1: 736-7, < <http://dx.doi.org/10.4135/9781483317731.n222> > [accessed 1 June 2021]

Roberts, John (ed.). 2005. *The Oxford Dictionary of The Classical World* (Oxford and New York: Oxford University Press)

Robson, James. 1938. 'The Kitāb al-Malāhī of Abū Ṭālib Al-Mufaḍḍal Ibn Salama. Translated with Introduction and Notes, Including notes by Henry George Farmer on the Instruments', *Journal of the Royal Asiatic Society of Great Britain and Ireland* 2 (April): 231-49

Rocconi, Eleonora. 2015. 'Music and Dance in Greece and Rome', in Pierre Destrée and Penelope Murray (eds.), *A Companion to Ancient Aesthetics*, 1st edn (Chichester, West Sussex: John Wiley & Sons), pp. 81-93

Roesch, Paul. 1989. 'L'aulos et les aulètes en Béotie', *Boiotika*, Vorträge vom 5. internat. Bötien-Kolloquium, Munich: 203-214

Rogers M, Everett. 2003. *Diffusion of Innovations*, 5th edn., (New York: Free Press)

Roller, Lynn E. 1999. *In Search of God the Mother* (Berkeley and Los Angeles, California: University of California Press)

Rosellini, Nicola Francesco Ippolito Baldassare. 1830. *Breve Notizia degli Oggetti di Antichità Egiziane Riportati dalla Spedizione Letteraria Toscana in Egitto e in Nubia, eseguita negli anni 1828 e 1829, ed esposti al pubblico nell'Accademia delle arti e mestieri in S. Caterina* (Firenze: Stamperia Piatti)

Rosen, Leonard J., and Laurence Behrens. 2003. *The Allyn & Bacon Handbook*, 5th edn (Boston: Allyn & Bacon)

Rouget, Gilbert. 1985. *Music and Trance: A Theory of the Relations between Music and Possession* (Chicago and London: The University of Chicago Press)

Rousseau, Philip. 1999. 'Basil of Caesarea', in G. W. Bowersock, Peter Brown, and Oleg Grabar (eds.), *Late Antiquity: A Guide to the Postclassical World* (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press), pp. 336-7

Rudd, Niall. 2004. *Horace, Odes and Epodes*, Loeb Classical Library (Cambridge, Massachusetts, London: Harvard University Press)

Rutherford, Ian. 2007. 'Achilles and the Sallis Wastais Ritual: Performing Death in Greece and Anatolia', in Nicola Laneri (ed.), *Performing Death: Social Analyses of Funerary Traditions in the Ancient Near East and Mediterranean* (Chicago: The Oriental Institute of the University of Chicago), pp. 223-36

Sachs, Curt. 1940. *The History of Musical Instruments* (New York: W. W. Norton & Company)

_____. 1971. *The Rise of Music in the Ancient World, East and West* (Mineola, New York: Dover Publications, Inc.)

Sannazaro, Jacopo. 1504; repri. 1806. *Arcadia* (Naples: Pietro Summonte; Milano: Società Tipografica de' Classici Italiani)

Scarre, Chris. 2005. 'The World Transformed: From Foragers and Farmers to States and Empires', in Chris Scarre (ed.), *The Human Past: World Prehistory & the Development of Human Societies* (London and New York: Thames & Hudson Ltd), pp. 176-99

Scarre, Chris. 2013. 'Holocene Europe', in Chris Scarre (ed.), *The Human Past: World Prehistory & The Development of Human Societies* 3rd ed. (London: Thames & Hudson), pp. 392-431

Schlesinger, Kathleen. 1910-11. 'Bag-pipe', in Hugh Chisholm and Walter Alison Phillips (eds.), *Encyclopaedia Britannica*, 11th edn (Cambridge: Cambridge University Press), 3: 203-6

_____. 1939. *The Greek Aulos; A Study of Its Mechanism and of Its Relation to The Modal System of Ancient Greek Music, Followed by a Survey of The Greek Harmoniai in Survival or Rebirth in Folk-Music* (London, Methuen & co., ltd.)

Schliemann, Heinrich. 1881. *Ilios. The City and the Country of the Trojans: The Results of Researches and Discoveries on the Site of Troy and throughout the Troad in the years 1871-1872-1873-1878-1879. Including an Autobiography of the Author* (London: Murray, and New York: Harper)

Schmitz, Leonhard. 2008. 'Delia', in William Smith, William Waite, and George Eden Marindin (eds.), *A Dictionary of Greek and Roman Culture in Two Volumes* (London and New York: I.B. Tauris & Co. Ltd), 1: 610-1

_____ and John Isaac Beare. 2008. 'Pythia', in William Smith, William Waite, and George Eden Marindin (eds.), *A Dictionary of Greek and Roman Culture in Two Volumes* (London and New York: I.B. Tauris & Co. Ltd), 2: 528-30

Schoul, Monika. 2004. *Hethitische Kultmusik. Ein Untersuchung der Instrumental- und Vokalmusik anhand hethitischer Ritualtexte und von Archäologischen Zeugnissen*, *Orient- Archäologie* 14 (Rahden: Westf)

Schönpflug, Ute (ed.). 2009. *Cultural transmission: Psychological, Developmental, Social, And Methodological Aspects* (Cambridge: Cambridge University Press)

Schulz Paulsson, Bettina. 2019. 'Radiocarbon Dates and Bayesian Modeling Support Maritime Diffusion Model for Megaliths in Europe', *National Academy of Sciences, Proceedings of the National Academy of Sciences of the United States of America* 116 (9): 3460-5 < <https://doi.org/10.1073/pnas.1813268116>>

Scoditti, Francesco. 2008. 'Le tibiae sarranae di Plauto', *philomusica on-line* 7 (2): 51-61

Scott, J. E. 1957. 'Roman Music', in Egon Wellesz (ed.), *The New Oxford History of Music: Ancient and Oriental Music* (London: Oxford University Press), 1: 404-20

Scott, John (ed.). 2014. *A Dictionary of Sociology* (Oxford: Oxford University Press)

Searchable Greek Inscriptions. 2020. < <https://inscriptions.packhum.org>> [accessed 21 November 2020]

Seebass, Tilman. 2001. 'Iconography', in Stanley Sadie and John Tyrrell (eds.), *The New Grove Dictionary of Music and Musicians*, 2nd edn (London: Macmillan), 12: 54-71

Seeher, Jürgen. 2011. 'The Plateau: The Hittites', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 376-92

Seidenadel, Charles William. 1898. 'Greek Music from the Modern Point of View', *The School Review*, 6 (7): 541-46

Seyffert, Oskar. 1895. *A Dictionary of Classical Antiquities: Mythology, Religion, Literature and Art* (London: W. Glaisher)

Shackleton Bailey, David Roy. 1993. *Martial, Epigrams* (Cambridge, Massachusetts and London: Harvard University Press), 1

Shaw, Ian and Paul Nicholson. 2008. *The British Museum Dictionary of Ancient Egypt* (London: The British Museum Press)

Sjöberg, Åke W. 1988. 'A Hymn to Inanna and Her Self-Praise' *Journal of Cuneiform Studies*, 40 (2): 165-86

Skinner, Joseph E. 2012. *The Invention of Greek Ethnography* (New York: Oxford University Press)

Smith, Dennis E. 2003. *From Symposium to Eucharist: The Banquet in the Early Christian World* (Minneapolis: Fortress Press)

Sohma, Marina. 2016. 'Song of Seikilos: Oldest Known Musical Composition Lay Hidden on a Flower Stand in Turkish Garden', *Ancient Origins*, <<http://www.ancient-origins.net/artifacts-ancient-writings/song-seikilos-oldest-known-musical-composition-lay-hidden-flower-stand-02197>> [accessed 3 October 2017]

Solomon, Jon. 2010. 'The Reception of Ancient Greek Music in the Late Nineteenth Century', *International Journal of the Classical Tradition*, 17 (4): 497-525

Sotirakopoulou, Peggy and Yannis Maniatis. 2006. *The Keros hoard: myth or reality? : searching for the lost pieces of a puzzle* (Los Angeles, Calif: Getty)

St. John, James Augustus. 1842. *The History of the Manners and Customs of Ancient Greece*, three volumes (London: R. Bentley), 2

Steadman, Sharon R. 2011. 'The Early Bronze Age on The Plateau', in Sharon R. Steadman and Gregory McMahon (eds.), *Ancient Anatolia 10,000-323 B.C.E.* (New York: Oxford University Press, Inc.), pp. 229-59

Stein, Gil. 1999. *Rethinking World Systems: Diasporas, Colonies, and Interaction in Uruk Mesopotamia* (Tucson: University of Arizona Press)

Stiles, Daniel. 1977. 'Ethnoarchaeology: A Discussion of Methods and Applications', *Royal Anthropological Institute of Great Britain and Ireland, Man, New Series*, 12 (1 Apr.): 87-103

Stokes, Martin (ed.). 1994. *Ethnicity, Identity and Music: the Musical Construction of Place* (Oxford and New York: Berg)

Stone, Ruth M. 2008. *Theory for Ethnomusicology* (Upper Saddle River, NJ: Pearson Prentice Hall)

Sturman, Janet. 2019. 'Historical Ethnomusicology', in Jane Sturman (ed.), *The SAGE International Encyclopedia of Music* (Thousand Oaks: Sage Publications, Inc.), 1:

1089-90, <DOI: <http://dx.doi.org/10.4135/9781483317731.n345> > [accessed 19 August 2021]

Sultan, Nancy. 1993. 'Private Speech, Public Pain: The Power of Women's Laments in Ancient Greek Poetry and Tragedy', in Kimberly Marshall (ed.), *Rediscovering the Muses: Women's Musical Traditions* (Boston: Northeastern University Press), pp. 92-110

Swaddling, Judith. 2008. *The Ancient Olympic Games* (Texas: University of Texas Press)

Schwartz, Seth J., and Byron L. Zamboanga. 2008. 'Testing Berry's Model of Acculturation: A Confirmatory Latent Class Approach' *Cultural Diversity and Ethnic Minority Psychology* 14 (4): 275-285 <<https://doi.org/10.1037/a0012818>>

_____, Jennifer B. Unger, Byron L. Zamboanga, and José Szapocznik. 2010. 'Rethinking the Concept of Acculturation: Implications for Theory and Research' *Am Psychol.* 65(4): 237-251 <[doi:10.1037/a0019330](https://doi.org/10.1037/a0019330)>

Talgam, Rina and Zeev Weiss. 2004. *The Mosaics of the House of Dionysus at Sepphoris* (Jerusalem: Institute of Archaeology, Hebrew University of Jerusalem)

Taramelli, Antonio. 1982. *Scavi e Scoperte 1903-1910* (Sassari: Carlo Deltino), 1: 283-90

Tarbell, Frank Bigelow. 1908. 'The Palm of Victory' *Classical Philology*, 3 (3): 264-72

Taşkıran, Harun. 2017. 'Excavations at Karain Cave in 2016', *ANMED* 15: 36-41

Temizer, Raci. 1988. 'Introduction', in Tahsin Özgüç (ed.), *İnandıktepe, Eski Hitit Çağında Önemli Bir Kült Merkez, An Important Cult Center in the Old Hittite Period*, (Ankara: Türk Tarih Kurumu Basım Evi), pp. xxiii- xxxii

Terzēs, Chrēstos. 2020. 'Musical Instruments of Greek and Roman Antiquity', in Tosca A.C. Lynch and Eleonora Rocconi (eds.), *A Companion to Ancient Greek and Roman Music* (Hoboken U.S.A: Wiley Blackwell), pp. 213-228

The British Museum. 2017. 'Collection History', *Department of Greece and Rome, History of the Collection*,

<http://www.britishmuseum.org/about_us/departments/greece_and_rome/history_of_the_collection.aspx> [accessed 6 October 2017]

The Griffith Institute, University of Oxford. 2017. 'Tutankhamun: Anatomy of an Excavation' <<http://www.griffith.ox.ac.uk/discoveringTut/>> [accessed 08 October 2017]

The Workshop of Dionysus, <<https://www.doublepipes.info>> [accessed 11 September 2021]

Thomas, Gary. 2009. *How to do Your Research Project* (California: Sage Publications Ltd)

Thompson, Richard H. 1996. 'Assimilation', in David Levinson and Melvin Ember (eds.), *Encyclopedia of Social and Cultural Anthropology* (New York: Henry Holt and Company), 1: 112-5

Tobler, Arthur J. 1950. *Excavations at Tepe Gawra* (Philadelphia: University of Pennsylvania Press), 2

Tomlinson, Gary. 1993. *Music in Renaissance Magic: Toward a Historiography of Others* (Chicago and London: The University of Chicago Press)

Tonietti, Maria Vittoria. 2010. 'Musicians in the Ebla Texts: A Third-Millennium Local Source for Northern Syria', in Regine Pruzsinszky and Dahlia Shehata (eds.), *Musiker und Tradierung : Studien zur Rolle von Musikern bei der Verschriftlichung und Tradierung von literarischen Werken* (Wien: Lit), pp. 67-93

Toral-Niehoff, Isabel. 2012. 'Acculturation (CT)', in Hubert Cancik and Helmuth Schneider (eds.), *Brill's New Pauly*. Brill Online. Antiquity Volumes. Reference (Berlin: Staatsbibliothek zu Berlin Preuss. Kulturbesitz) <<http://referenceworks.brillonline.com/entries/brill-s-new-pauly/acculturation-ct-e15311300>>

Touliatos, Diane. 1993. 'The Traditional Role of Greek Women in Music from Antiquity to the End of the Byzantine Empire', in Kimberly Marshall (ed.), *Rediscovering the Muses: Women's Musical Traditions* (Boston: Northeastern University Press), pp. 111-23

Trigger, Bruce G. 1989. *A History of Archaeological Thought* (Cambridge: Cambridge University Press)

Trinkaus, Erik. 1996. 'Neanderthals', in Brian M. Fagan (ed.), *The Oxford Companion to Archaeology* (New York and Oxford: Oxford University Press), pp. 489-91

Turk, Ivan. 1997. *Mousterian 'Bone Flute' and other finds from Divje babe I cave site in Slovenia* (Ljubljana: Institut za Arheologijo, Znanstvenoraziskovalni Center Sazu)

_____(ed.). 2007-2014. *Divje Babe I: Upper Pleistocene Palaeolithic Site in Slovenia Part II: Archaeology* (Ljubljana: Založba ZRC)

Ur Online. 2017. 'Charles Leonard Woolley', <<http://www.ur-online.org/personorg/10/>> [accessed 08 October 2017]

Valassopoulos, Anastasia and Dalia Said Mostafa. 2014. 'Popular Protest Music and the 2011 Egyptian Revolution', *Popular Music and Society* 37(5): 638-659, <DOI: 10.1080/03007766.2014.910905>

Van Keer, Ellen. 2004. 'The Myth of Marsyas in Ancient Greek Art: Musical and Mythological Iconography', *Music in Art XXIX* no 1-2 (Spring-Fall 2004): 20-37

Vergara Cerqueira, Fabio. 2014. 'The Presence of Music in Greek Worship: An Iconographical Approach' *Chaos e Kosmos*, XV: 1-40

Viaud, J. 1981. 'Egyptian Mythology', in *New Larousse Encyclopedia of Mythology*, trans. by Richard Aldington and Delano Ames (London: The Hamlyn Publishing Group Limited), pp. 9-48

Villing, Alexandra. 2005. *Classical Athens* (London: The British Museum Press)

Villoteau, André Guillaume. 1809. 'Dissertation sur les Diverses Espèces d'Instrumens de Musique', in Nicholas Antoine Nouet, and others (eds.) *Description de l'Égypte, ou Recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française, publié par les ordres de sa majesté l'empereur Napoléon le grand. État modern. Tome premier.* (Paris: A Paris, de l'Imprimerie impériale), pp. 181-206

Vitebsky, Piers. 1995. *Shamanism* (Oklahoma: University of Oklahoma Press)

Vos, M. F. 1986. 'Aulodic and Auletic Contests', in Jaap M. Hemelrijk, Herman A. G. Brijder, A. A. Drukker, and Cornelis W. Neeft (eds.), *Enthousiasmos: Essays on Greek and related Pottery presented to J. M. Hemelrijk* (Amsterdam: Allard Pierson Museum), pp. 121-30

Wade, Bonnie C. 2013. *Thinking Musically: Experiencing Music, Expressing Culture* 3rd ed. (Oxford: Oxford University Press)

_____. 2014. *Composing Japanese Musical Modernity* (Chicago: University of Chicago Press)

Wallace, Robert W. 2003. 'An Early Fifth-Century Athenian Revolution in Aulos Music', *Harvard Studies in Classical Philology* 101: 73-92

Waner, Mira. 2014. 'Aspects of Music Culture in the Land of Israel during the Hellenistic, Roman and Byzantine Periods: Sepphoris as a Case Study', in Joan Goodnick Westenholz, Yossi Maurey, and Edwin Seroussi (eds.) *Music in Antiquity: The Near East and the Mediterranean* (Berlin and Boston: Walter de Gruyter GmbH & Hebrew University Magnes Press, Jerusalem), pp. 273-97

Ward, Colleen and Larissa Kus. 2012. 'Back to and Beyond Berry's Basics: The Conceptualization, Operationalization and Classification of Acculturation' *International Journal of Intercultural Relations* 36: 472-485

Wardle, Maria Angela. 1981. 'Musical Instruments of the Roman World' (unpublished doctoral thesis, University of London)

Waschmann, Klaus P. 1961. 'Criteria for Acculturation', *IMSCR VIII*: New York (Kassel, 1961), 1: 139-49

Waterman, Richard A. 1948. "'Hot'" Rhythm in Negro Music', *JAMS* I: 24-37

_____. 1952. 'African Influence on American Negro Music', in Sol Tax (ed.), *Acculturation in the Americas* (Chicago: University of Chicago Press), pp. 207-18

Watkins, Trevor. 2005. 'From Foragers to Complex Societies in Southwest Asia', in Chris Scarre (ed.), *The Human Past: World Prehistory & the Development of Human Societies* (London and New York: Thames & Hudson Ltd), pp. 200-33

Weeber, Karl-Wilhelm. 1980. 'Tarquinia-Porträt einer etruschischen Metropole', in *Antike Welt, Zeitschrift für Archäologie und Kulturgeschichte*, Year II, Heft I (Feldmeilen: Raggi), pp. 15-24

Weege, Fritz. 1921. *Etruskische Malerei* (Halle: Max Niemeyer)

Wehrli, Fritz. 1967. *Die Schule des Aristoteles: Texte und Kommentar* (Basel and Stuttgart: Schwabe & Co Verlag), 1: 13-80

Weis Bentzon, Andreas Fridolin. 1969. *The Launeddas: A Sardinian Folk-Instrument* (Copenhagen: Akademisk Forlag), 1: 11-158

Weiss, Zeev. 2001. 'Between Paganism and Judaism: Toward an Identification of the Dionysiac Building Residents at Roman Sepphoris', *Cathedra* 99: 7-26

West, Martin Litchfield. 1992. *Ancient Greek Music* (Oxford and New York: Oxford University Press, Clarendon Press)

_____. 2013. *Hellenica: Selected Papers on Greek Literature and Thought Volume III: Philosophy, Music and Metre, Literary Byways, Varia* (Oxford: Oxford University Press)

Widdess, Richard. 1992. 'Historical Ethnomusicology', in Helen Myers (ed.), *Ethnomusicology: An Introduction* (London: Macmillan Press), pp. 219-37

Wilkinson, Tobi. 2008. *Dictionary of Ancient Egypt* (London and New York: Thames & Hudson)

Wilson, Peter. 1999. 'The *aulos* in Athens', in Simon Godhill and Robin Osborne (eds.) *Performance culture and Athenian democracy* (Cambridge: Cambridge University Press), pp. 58-95

_____. 2002. 'The Musician among the Actors' in Pat Easterling and Edith Hall (eds.) *Greeks and Roman Actors: Aspects of an Ancient Profession* (Cambridge: Cambridge University Press), pp. 39-68

Winthrop, Robert H. 1991. *Dictionary of Concepts in Cultural Anthropology* (Westport (USA): Greenwood Press)

Wong, Isabel K. F. 1991. 'From Reaction to Synthesis: Chinese Musicology in the Twentieth Century', in Bruno Nettl and Philip V. Bohlman (eds.), *Comparative Musicology and Anthropology of Music* (Chicago: University of Chicago Press), pp. 37-55

Wood, Abigail. 2008. 'E-Fieldwork: A Paradigm for the Twenty-First Century?', in Henry Stobart (ed.), *The New (Ethno)musicologies* (Lanham, Maryland: The Scarecrow Press Inc.), pp. 170-87

Woolley, Leonard. 1934. *Ur Excavations, Volume 2: The Royal Cemetery. A Report on the Predynastic and Sargonid Graves Excavated between 1926 and 1931* (London and Philadelphia: British Museum and Museum of the University of Pennsylvania. New York: Carnegie Corporation)

Wright, Richard A. 2013. 'The Sounds of Silence: Hearing the Music in Pauline Assemblies', in Caroline Johnson Hodge (ed.), *The One Who Sows Bountifully: Essays in Honor of Stanley K. Stowers, Brown Judaic Studies* 356: 341-9

Xinghua, Xiao. 2003. 'On the Musical Civilization of the Neolithic Age in China as Illustrated by the Ancient Bone-Flutes (from 9,000 to 7,800 years ago) unearthed at Jiahu, Henan Province', *Studien zur Musikarchäologie*, 3: 161-7

Zamminer, Friedrich. 1985. *Die Musik und die musikalischen Instrumente in ihrer Beziehung zu den Gesetzen der Akustik* (Vaduz: Sändig Reprint-Verl. Wohlwend)

Zanobi, Alessandra. 2010. 'Seneca and Pantomime', in Ingo Gilderhand and Martin Revermann (eds.) *Beyond the Fifth Century: Interactions with Greek Tragedy from the Fourth Century BCE to the Middle Ages* (Berlin and new York: Walter de Gruyter GmbH and Co. KG), pp. 269-88

_____. 2014. *Seneca's Tragedies and the Aesthetics of Pantomime* (London and New York: Bloomsbury)

APPENDICES

Appendix A: Written Consent for the Reproduction of Photos and Media



مركز المطبة للموسيقى الشعبية المطرية
El Mastaba Center For Egyptian Folk Music

To whom it may concern

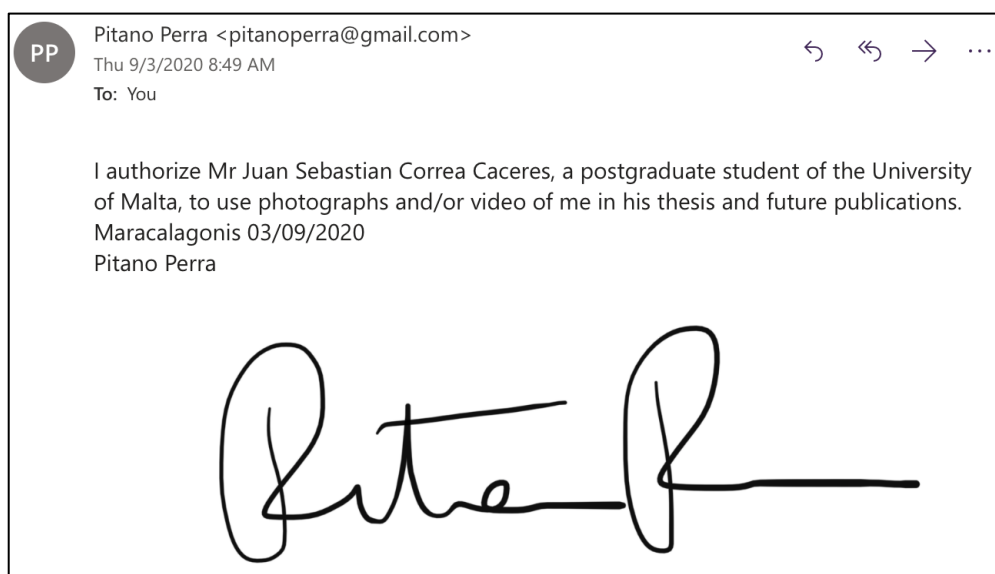
I 'Zakaria ibrahim', Founder of El Mastaba center for Egyptian folk music authorize one 'Juan Sebastian Correa Caceres' for the use of photos of me and Mr Abd El Hady (Arghul player) in his thesis.

Zakaria ibrahim



مركز المطبة للموسيقى الشعبية
El Mastaba Center For Popular Music

4 Sweqat Elsabbacen st. Dawaween (from maglis Elshaab) Sayyida Zainab – Cairo, 11461
Tel: +202 3926768 – 0123226345 - E-mail: info@elmastaba.org - Web: www.elmastaba.org



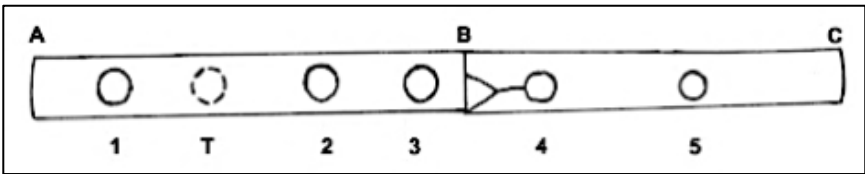
Appendix B: Description of Retrieved Auloi and Aulos Fragments

The Brauron Aulos

- Landels, John G. 1963. ‘The Brauron Aulos’, *The Annual of the British School at Athens*, 58: 116-9

The instrument came to light during excavations at Brauron (east coast of Attica) in 1961. It was specifically found in a sacred spring near the north-west corner of an ancient temple, among artefacts which date back to the late sixth or early fifth century BC.

The artefact (catalogue No 1059) consists of the two lower parts of an *aulos* made out of bone. Both parts fit together. Part A has a spigot and socket. The lower end of part B has neither spigot nor a socket. Hole 5 is a vent hole.



Brauron *aulos*: (L-R) Section A has a socket for the attachment of another section. Section C does not have a spigot or socket. Hole 5 is a vent hole. Hole T is a thumb hole (redrawn from Landels 1963: 116, Figure 1)

Measurements

A-B 12.1 cm	B-C 10.8 cm	A-C 22.9 cm

Table 14. (Landels 1963: 116)

The inner diameter (except for the socket at A) is 0.95 cm. It extends inwards 1.6 cm from A. The inner diameter at A is 1.3 cm approx. The spigot at section A-B has an outside diameter of 1.1 cm. The wall of the spigot is 1 mm thick. Finger-holes are all circular. They measure 0.8 cm in diameter.

The distances measured from A to the upper edge of each hole are as follows:

A-1: 2 cm	A-T: 4.9	A-2: 7.7	A-3: 10.5	A-4: 13.9	A-5: 18.15

Table 15. (Landels 1963: 117)

The distances between the holes are as follows:

1-T: 2.9 cm	T-2: 2.8	2-3: 2.8	3-4: 3.4	4-5: 4.25

Table 16. (Landels 1963: 117)

The Elgin Aulos

- Howard, Albert A. 1893. 'The Aulos or Tibia', *Harvard Studies in Classical Philology*, 4: 1-60
- Schlesinger, Kathleen. 1939. *The Greek Aulos; A Study of Its Mechanism and of Its Relation to The Modal System of Ancient Greek Music, Followed by a Survey of The Greek Harmoniai in Survival or Rebirth in Folk-Music* (London, Methuen & co., ltd.)
- Wardle, Maria Angela. 1981. 'Musical Instruments of the Roman World' (unpublished doctoral thesis, University of London)

The pipes were discovered in Athens and date back to the fifth century BC. The artefacts are kept at the British Museum, catalogue No 1816.6-10. They consist of a pair of cylindrical pipes made out of sycamore wood. Each pipe has a pear shaped barrel made out of the same type of wood. The instruments measure 35 and 31.2 cm in length. They have six tone-holes of which one is a thumb-hole.

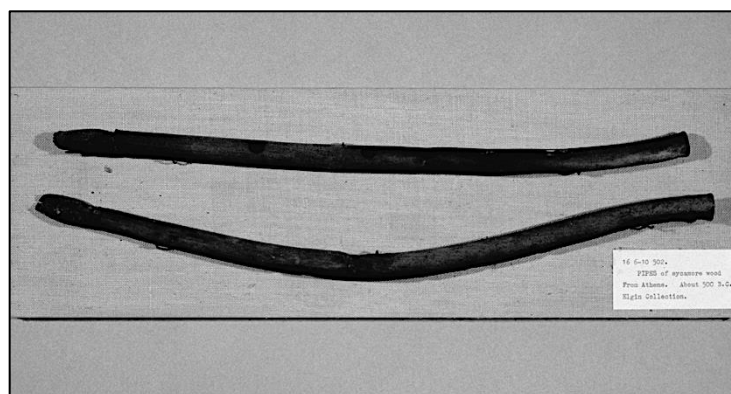


Figure B. 1. The Elgin Auloi (photo: <https://www.britishmuseum.org/collection/image/195345001>)

The Auloi of Pydna

- Psaroudakes, Stelios. 2008. 'The Aulos of Pydna', *Studien zur Musikarchäologie*, 6: 197-216

The archaeologist Manthos Besios, from the 16th Ephorate of Prehistoric and Classical Antiquities, discovered a pair of *auloi* at one of the cemeteries of Pydna in 1996. The instrument was specifically found in Grave 324 (Field 951) in the northern cemetery which dates back to the first half of the 4th century BC. The grave contained a full skeleton and the pair of *auloi*, probably deposited there as an offering. The orientation of the skeleton was from East to West. The upper ends of the *auloi* were placed near the mouth of the skeleton. The *auloi* of Pydna are kept at the Archaeological Museum of Thessalonike (No Pydna 100).

Since the thumb-holes are displaced in opposite directions, there is no doubt that the pipes are a pair. The pipes are unequal in length, therefore, the holes are located at different distances in both pipes. Namely, the pipes present different hole-patterns. The two pipes consist of five sections linked to each other by means of spigots and sockets. The first section is a conical cup located at the upper end which received the reed. The second section is the bulb. The third is an extension, namely a piece of tube without holes. The fourth is the central section with four holes, including the thumb-hole, and the lower section which has two holes.

Table 17. (Psaroudakes 2008: 199-201)

Two cups: one survives in its original length (3.146 cm). The depth of the socket that received the reed is 1.668 cm.
The Bulbs: their original lengths are 5.3 cm and 5.82 cm, that is, they are unequal in length. One bulb has an external diameter of 1.66 cm. The remaining cylindrical part is 1.55 cm.
The extensions: one extension survives in significant detail. There are spigots at both ends. The upper spigot has a band or ring of bone which is 1.536 cm long. The length of the extensions are 4.044 cm and 6.328 cm respectively.
The central parts: sections are cylindrical and have four holes of which one is a thumb-hole. Both sections have a socket at the upper end and a spigot on the other end. The sections are unequal in length. One measures 12.660 cm, while the other 13.65 cm. The holes are not in line. Thumb-holes are placed slightly to the side.
The exit sections: these are cylindrical and unequal in length. Each section has two holes. Both sections have a socket at their upper ends. It is very likely that the holes are vent-holes.

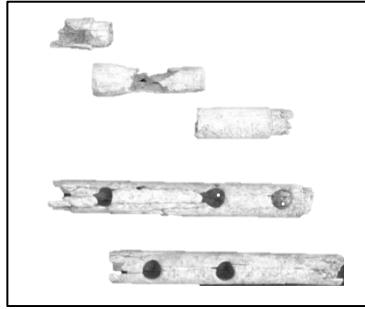


Figure B. 2. Pydna pipe: The Five Sections (Photo: Psaroudakes 2008: 208).

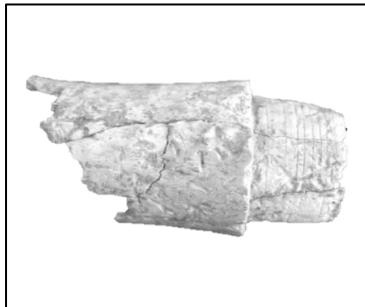


Figure B. 3. Pydna pipe: Cup (Photo: Psaroudakes 2008: 208).

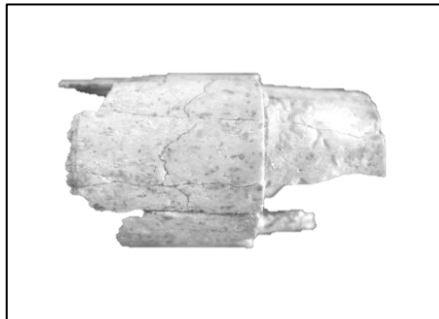


Figure B. 4. Pydna pipe: Cup (Photo: Psaroudakes 2008: 208).



Figure B. 5. Pydna *aulos*: Bulbs (photo: Psaroudakes 2008: 208).

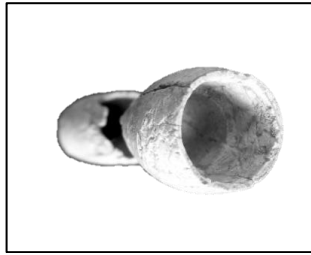


Figure B. 6. Pydna pipe: Socket of the Bulb Section (photo: Psaroudakes 2008: 208).



Figure B. 7. Pydna aulos: Extensions (photo: Psaroudakes 2008: 208)

The Auloi or Tibiae from Meroë

- Bodley, Nicholas B. 1946. 'The Auloi of Meroë: A Study of the Greek-Egyptian Auloi Found at Meroë, Egypt', *American Journal of Archaeology*, 50 (2): 217-40
- Wardle, Maria Angela. 1981. 'Musical Instruments of the Roman World' (unpublished doctoral thesis, University of London)
- Gänsicke, Susanne and Stefan Hagel. 2017. 'The Auloi from Meroë: Preliminary Notes on the Conservation, Technical Examination, and Interpretation of a Cache of Ancient Musical Instruments', in Jens M. Daehner, Kenneth Lapatin, and Ambra Spinelli (eds), *Artistry in Bronze: The Greeks and Their Legacy* XIXth International Congress on Ancient Bronzes (Los Angeles: J. Paul Getty Museum; Getty Conservation Institute) < <http://www.getty.edu/publications/artistryinbronze/conservation-and-analysis/45-gansicke/> > [accessed 14 January 2020]

The *auloi* or *tibiae* from Meroë were found in Sudan by the Egyptologist George A. Reisner in 1921. The artefacts date back to the late first century BC, and were specifically found in Pyramid number VI, in the stair filling of the tomb Reg. no. 21-

3-702. Bodley (1946) describes the findings as ‘many fragments of at least four (possibly five) flute-like musical instruments. Straight tubes of ivory cased in bronze, made in sections; with round and oblong holes, mouthpieces, stops, and fittings. Length not obtainable, but cannot be less than ca. 45 cm. Jointed section preserved of length-13.1 cm. Appear to be large and small’. The artefacts clearly belong to the type of *auloi* or *tibia* but not flutes as they were recorded. The instruments were possibly made in Egypt by Greek craftsmen, or imported into Egypt. The artefacts are similar to the ones found at Pompeii in 1867. They are cylindrical bore reed instruments which probably had a double reed for a mouthpiece.

The fragments have rotary sleeves with small knobs for handling. Such sleeve knobs have small holes. There are no traces of *holmos*, however, there are remnants of bulbs – two of the same size and a third one which, in comparison to the others, is larger in size. The smaller has a bore of 7 mm, while the larger of 9 mm. One of these bulbs has a corroded silver band. The structure of the fragments consists of several section of tubing joined together. The rotary sleeves are fitted over the bronze casing.

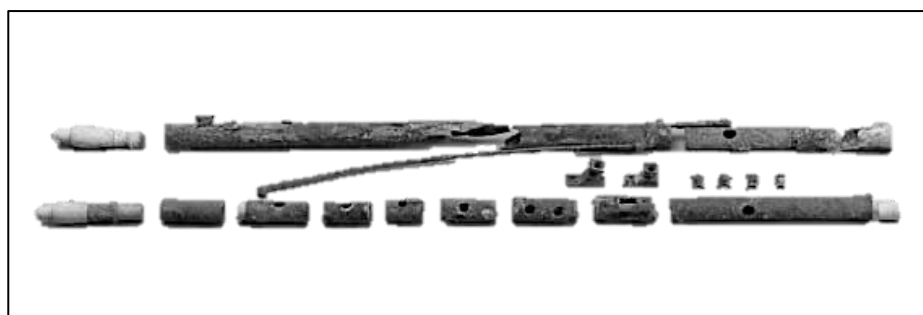


Figure B. 8. A selection of best preserved *aulos* fragments from Meroë (photo: <https://mfa.org/article/2013/conservation-project-auloi-of-meroe-introduction>)

The Tibiae from Mook

- Rimmer, Joan. 1976. ‘The Tibiae Pares of Mook’, *The Galpin Society Journal*, 29: 42-6

The pair of *tibiae* were found in a Roman cemetery at Kloosterberg near Mook, on the Rhine in the Nijmegen area. The artefacts provenance is a tomb which dates back to the first century AD. Both pipes are kept at the Rijksmuseum G. M Kam in Nijmegen. The artefacts are made from elbow bones of a griffon vulture (*gyps fulvus*). The pipes

are divergent cylindrical bore instruments which were possibly played with double reeds.

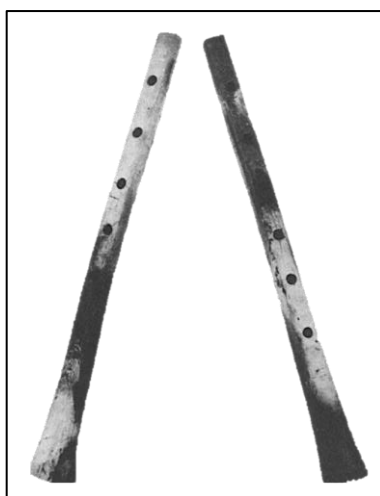


Figure B. 9. The *Tibia* pares of Mook (photo: Rimmer 1976: 46, Plate IV).

Table 18. (Rimmer 1976: 42).

Lengths of the pipes	25.5 cm and 26 cm
Diameter of the bores	1 cm and 1.2 cm
Diameter of the finger-holes	5 mm

Table 19. (Rimmer 1976: 42).

Distance from top of the tube to:		
Hole 1	2.7 cm	2.5 cm
1-2	2.1 cm	2.1 cm
2-3	2.3 cm	2.3 cm
3-4	2.2 cm	2.1 cm
4-5	2.0 cm	2.0 cm
5-6	2.5 cm	2.6 cm
6-lower extreme	8.5 cm	8.5 cm

Observations: Pipes have been burnt, broken, and repaired. Some surfaces of the instrument show wear marks suggesting how they were fingered and which hand held each pipe. The left pipe has heavy wear marks around the third and sixth holes and on the back equivalent to the position of the sixth hole in the front. This is where *tibia* players placed their little finger. Reconstructions of this instrument have reproduced the notes g, b flat, d, e, g (octave unspecified).

The Pompeii Auloi or Tibiae

- Howard, Albert A. 1893. 'The Aulos or Tibia', *Harvard Studies in Classical Philology*, 4: 1-60
- Wardle, Maria Angela. 1981. 'Musical Instruments of the Roman World' (unpublished doctoral thesis, University of London)
- Hagel, Stefan. 2012. 'The Pompeii Auloi: Improved Data and a Hitherto Unknown Mechanism', in Ricardo Eichmann, J. Fang, and L.-Ch. Koch (eds.) *Studien zur Musikarchäologie 8. Orient-Archäologie 27* (Leidorf: Rahden), pp. 103-14

Four *auloi* or *tibiae* were discovered at Pompeii. The artefacts are kept at the National Archaeological Museum of Naples. Their museum inventory numbers are: 76891-4. The pipes are perhaps the best examples of an Imperial Roman *tibia*. The artefacts were found together and they differ in length. They consist of ivory tubes encased in metal, with bands of bronze or silver. The number of finger-holes per pipe varies from ten to nineteen. The pipes are fitted with a mechanical system which consists of rotary rings or bands of silver with holes so as to open or close holes. Such rings are made out of overlapping sections of silver and copper alloy. There is a separate band for each hole. Each pipe has an ivory bulb. The bulb and the tube have the same bore. There is also a reed holder of ivory. Some bands or rotary rings retain turning mechanism in the form of small knobs pierced with a hole. The function of the rings is to cover or uncover a single finger-hole or, in some cases, two finger-holes. The pipes were most probably played in pairs. Each pipe is cylindrical and has an internal diameter of 0.95 cm and an external diameter of 1.42 cm.

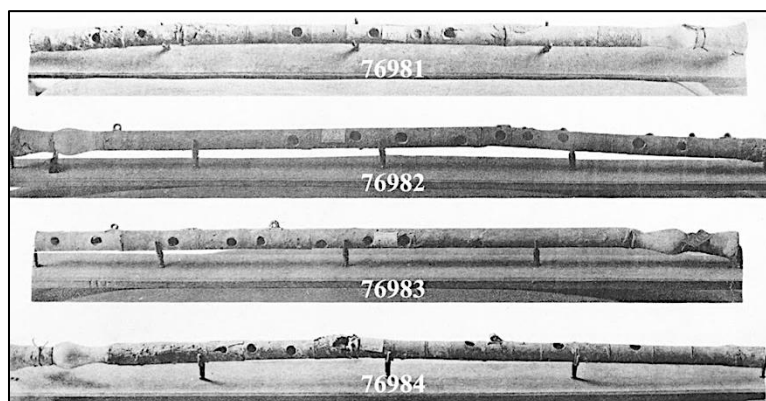


Figure B. 10. Four *tibiae* from Pompeii, artefacts Nos. 76891-4 (photo: Howard 1893: 48, Plate II)

The following is a resume of the measurements of these four *tibiae* (76891-4).

Artefact No 76891 has a length of 49.68 cm. Howard took the measurements from the lower end of the tube to the nearest side of the hole.

Table 20. (Howard 1893: 48-9; Hagel 2012: 104-5).

Hole (cm)	Diameter of the hole (cm)
A 4.28	0.63
B 7.46	0.63
C 11.74	0.63
D 13.97	0.63
E 15.87	0.63
F 18.09	0.79
G band 19.52 to 21.9	With no hole
H 23.49	0.79
I 26.51	0.71
K 28.74	0.79
L 31.75	0.79 on the underside of the tube

Observations: An additional band close to the bulb was corroded. Holes CDE are covered by bands, and the measurements relate to the holes in the bands. The bands covering holes FHI have traces of mechanism knobs, to assist in turning the bands.

Artefact No 76892 has a length of 52.7 cm.

Table 21. (Howard 1893: 49; Hagel 2012: 105-6).

Hole (cm)	Diameter of the hole (cm)
A band at bottom of the tube	No hole, width 1.9 cm
B band 1.9 - 4.4 – band with turning mechanism but no hole	
C 6.03	0.63
D 9.20	0.87
E band – no hole 11.11 to 13.33	
F 13.65	0.79
G 16.03	0.79
H 18.09	0.79
I 20.63	0.95
K 24.76	0.95
L 27.94	0.63
M 29.21	0.63 – (on underside of tube)
N 32.22	0.79

Observations: there is a band of silver, 1.58 cm wide with turning mechanism close to the bulb. The band is not corroded. There is a small hole on the upper side of the instrument near the bulb. Bands BCDEFGH have turning mechanism.

Artefact No 76893 has a length of 49.21 cm.

Table 22. (Howard 1893: 49-50; Hagel 2012: 106).

Hole (cm)	Diameter of the hole (cm)
A 1.27	0.63
B 4.12	0.79
C band has no hole or turning mechanism	
D 9.68	0.79
E 12.06	0.55
F 13.81	0.63
G 15.87	0.63
H 18.09	0.63
I 20.16	0.79
K 23.33	0.63
L 25.71	0.79
M 27.95	0.63 – (on underside of tube)
N 30.95	0.63

Observations: Holes E and H are covered by bands. Bands BDFGHL have turning mechanism.

Artefact No 76894 has a length of 53.65 cm

Table 23. (Howard 1893: 50; Hagel 2012: 106-7).

Hole (cm)	Diameter of the hole (cm)
A 1.4	0.63
B band 2.54 to 5.08 cm – no hole	
C 6.03	0.71
D 8.89	0.79
E 12.22	0.63
F 14.28	0.79
G 16.51	0.63
H 18.41	0.63
I 20.47	0.63
K 22.70	0.63
L 24.76	0.63
M 27.30	0.64
N 29.36	0.64
O 33.17	0.64
P 35.87	0.64
Q 37.95	0.56

Observations: Band H has turning mechanism. Holes ACEGHIK are covered by bands.

The descriptions presented above give us an idea of how the *aulos* was transformed from a simple piece of bone with holes into the Imperial *tibia* found at Pompeii. Probably, the most striking features of this musical instrument are the

mechanical parts which facilitated the change in tuning. This mechanism was based on rings or rotary bands and seems to have been gradually adapted. I must emphasise however that dates are not absolute, but rather indicators within a period of time. As a consequence, it is not possible to know exactly how these changes occurred. In any case, one can get an idea of how metals started to be incorporated as parts of this musical instrument. Below I present other artefacts which are unfortunately not dated. These have similar characteristics to the above mentioned ones.

The Maenad Pipes

- Howard, Albert A. 1893. 'The Aulos or Tibia', *Harvard Studies in Classical Philology*, 4: 1-60
- Wardle, Maria Angela. 1981. 'Musical Instruments of the Roman World' (unpublished doctoral thesis, University of London)
- Zamminer, Friedrich. 1985. *Die Musik und die musikalischen Instrumente in ihrer Beziehung zu den Gesetzen der Akustik* (Vaduz: Sändig Reprint-Verl. Wohlwend)

These instruments were found in Italy. They are kept at the British Museum (B.M No 84 – 4 – 9 5,6 (3a, 3b). The pipes formed part of the Castellani collection. The instruments are made out of wood encased in bronze. It seems that they were fitted with a mechanism which consisted of rotary sleeves. One pipe, specifically 3a, has five finger-holes, while 3b has five plus a thumb-hole. Both pipes have a raised hole in the upper end. The hole is inclined towards the upper part of the instrument and it is decorated with the bust of a maenad.

Artefact 84 – 4 – 9 – 5 (3a)

This pipe has a length of 25 cm. Diameter of the upper (broken end): external 1.7 x 1.62 cm. Internal 0.8 cm. Diameter of the lower end: external 1.5 cm. Internal 1.25 cm.

Table 24. (Howard 1893: 56-7).

Holes in cm (measured from the bottom of the pipe)	Diameter (cm)
A 1.7	0.7
B 4.2	0.7
C 7.00	0.8 x 0.73 (edge of hole damaged)
D 12.2	0.75
E 19.00	7.00 (damaged)
F 24.4	0.6 (Maenad hole of conical shape)

Observations: there are separate bands for each hole and an unperforated sleeve between D and C.

Artefact 84 – 4 – 9 – 6 (3b)

This pipe has a length of 29.8 cm. Diameter of the upper end: 1.6 cm. Diameter of the lower end: external 1.5 cm and internal 1.3 cm.

Table 25. (Howard 1893: 57).

Holes in cm (measured from the bottom of the pipe)	Diameter (cm)
A 1.0	0.55
B 3.2	0.8
C 6.8	0.6
D 13.75	0.79
E 16.00	0.83 x 0.76 (thumb hole)
F 19.3	0.75
G 24.5	0.62 (Maenad hole)

Observations: each hole is on a separate section (band of bronze) and there are two bands between C and D which do not have any traces of fingerholes.



Figure B. 11. The Maenad pipes (photo: Wardle 1981: 180)

Tibiae fragments from Damascus

- Wardle, Maria Angela. 1981. 'Musical Instruments of the Roman World' (unpublished doctoral thesis, University of London)

Eight fragments of *tibiae* of bronze. The tubes may be made out of ivory, bone, or wood.

Table 26. (Wardle 1981: 11-2).

Fragment 1	Two short broken pieces. They may fit together by means of joints. No finger-holes.
Fragment 2	A tube consisting of two parts with two or three holes. Remnants of bands and a bell.
Fragment 3	Part of a tube with four holes which are not in line.
Fragment 4	Piece of a pipe with four finger-holes and a spigot joint.
Fragment 5	Corroded tube made out of bronze, remnants of a knob lever, possibly assisting rotary bands.
Fragment 6	Part of a pipe
Fragment 7	Part of a pipe with five holes which are not aligned.
Fragment 8	Piece of a pipe joined to the bell.

The Reading Aulos

- Landels, John G. 1968. 'A newly Discovered Aulos', *The Annual of the British School at Athens*, 63: 231-38

The provenance of the instruments is unknown, however it is thought to be Asia Minor. The artefact is kept at the Museum of Greek Archaeology at Reading University. The artefact consists of one pipe which is nearly complete but no reed. The pipe can be divided into seven sections which have been put together

Table 27. (Landels 1968: 231-4)

First section (A-B) has a length of 6.7 cm. The top part measures 3.5 cm and is bell-shaped with an external diameter of 2.5 cm. It is made out of bone or ivory covered with silver. The bell is decorated with three rings. The inner tube has an

internal diameter of 8 mm which expands to 11 mm at the top end. Plain tube covered in bronze with a small hole of 4 mm.
Second section (B-C) has a length of 6.3 cm and it consists of two parts, the bulb and the stem. Outer diameter of 3.5 cm. Bulb's inner tube has an external diameter of 1.2 cm and an inner diameter of 9 mm. The bulb is made out of wood, it is 4 cm long and is partially encased in metal. The lower half measures 2.3 cm and is of metal, with elaborated decoration in silver consisting of ridges and grooves.
Third section (C-D) has a length of 4.4 cm and consists of a plain cylindrical section with no holes. It is encased in bronze at the top part and with silver at the lower. Possible outer diameter of 1.5 cm.
Fourth section (D-E) has a length of 8 cm with three finger-holes of which one is a thumb-hole. It is encased in metal. Holes are not in line. Their centres were about 1.8 cm and 7 cm from D. The thumbhole measures 6 mm in diameter, it centres 3.8 cm from D.
Fifth section (E-F) has a length of 6.7 cm with two holes.
Sixth section (F-G) has a length of 4.1 cm section and is in very bad condition but restored.
Seventh section (G-H) has a length of 3.8 cm. At the lower end of the pipe external diameter is 1.3 cm. There is a band of around 8 mm in width below G which is slightly larger in diameter 1.45 cm expanding to 2 mm at H. Inner diameter is 1.1 cm.

Fragments of Auloi from the Athenian Agora

- Landels, John G. 1964. 'Fragments of Auloi Found in the Athenian Agora', *Hesperia: The Journal of the American School of Classical Studies at Athens*, 33 (4): 392-400
- Wardle, Maria Angela. 1981. 'Musical Instruments of the Roman World' (unpublished doctoral thesis, University of London)

Table 28. (Wardle 1981: 14-5)

Fragment A (Inv. BI 593)	Consists of a bulb (<i>holmos</i>). It has a socket at one end and a spigot on the other end. It is made out of bone, possibly ivory. Inner diameter of 1 cm. There is a hole of 0.15 cm in diameter in the side of the bulb. Total length of 8.95 cm while the spigot measures 1.85 cm in length. Utmost outside diameter 1.85 cm. Diameter of the spigot 1.40-1.45 cm.
Fragment B (Inv. BI 517)	Part of an <i>aulos</i> with one finger-hole. On one side it has a socket and a spigot on the other. It is made out of bone, possibly ivory. The finger-hole measures 1.1 cm in diameter. It is centred at 0.5 cm from the edge of the joint.

Fragment C (Inv. BI 672)	Central part of an <i>aulos</i> with three finger-holes and a thumb-hole. It is made out of bone. The spigot is damaged. Total length 11.3 cm. Utmost outside diameter 1.6 cm. The spigot has a diameter of 1.15-1.35 cm. The tube has an inner diameter of 1 cm. The holes have a diameter of 0.85 cm.
Fragment D (Inv. BI 579)	Central part of an <i>aulos</i> made out of bone. It has three holes and traces of a fourth, of which one is a thumb-hole. The diameter of the holes is 0.9 cm. Total length of the part is 15.1 cm. The socket has a length of 1.9 cm, while the spigot has a length of 1.1cm. Utmost outside diameter 1.75 cm. Diameter of the spigot 1.25 cm.
Fragment E (Inv. BI 27)	Central part of an <i>aulos</i> made out of bone. It has four holes. Both ends are damaged. Traces of a socket. Part of a hole is missing. Total length 7.8 cm. Outside diameter 1.8 cm. Inner diameter 1.25 cm. Diameter of the holes is 0.8 cm.
Fragment F (Inv. BI 624)	Bell of an <i>aulos</i> made out of bone, possibly ivory. Total length 5.6 cm. Outside diameter 2.65-3.25 cm. The spigot has a diameter of 2.4 cm. Inner diameter 1.85-2.9 cm.
Fragment G (Inv. BI 645)	Part of an <i>aulos</i> with no holes. On one end there is a socket, and a spigot on the other. The part is made out bone. Total length 5.7 cm. The socket has a length of 1.2 cm. The spigot measures 1.4 cm. Outside diameter 1.6 cm. Diameter of the spigot 1.3 cm. Inner diameter 1 cm.
Fragment H (Inv. BI 594)	Lower part of an <i>aulos</i> made out of bone. It has a spigot in one end. Traces of one hole. Total length 8.9 cm. The spigot has a length of 1 cm. Utmost outside diameter 1.7 cm. Outside diameter of the spigot 1.3 cm. Utmost inside diameter 1.1 cm.
Fragment I (Inv. BI 630)	Part of an <i>aulos</i> , probably from between the centre and the lower end. It has one hole. It is made out of bone and it is damaged on both sides. There is a spigot at one end, while the other presents traces of a socket. Total length 9.15 cm. Length of the spigot 1.8 cm. Outside diameter 1.8 cm. Diameter of the spigot 1.35-1.4 cm. Inner diameter 1.1 cm. The hole has a diameter of 0.95 cm. Its nearest edge is 1.15 cm from the joint.

Observations: the fragments are from various dates, ranging from the fifth to the first century BC. The fragments clearly show the method of joining parts of an *aulos* by means of a spigot and socket.