

West Chester University

Digital Commons @ West Chester University

Anthropology & Sociology Faculty Publications

Anthropology & Sociology

1995

Human Skeletal Remains from the Pre-Colonial Greek Emporium of Pithekoussai on Ischia (NA): Culture Contact in Italy from the Early VIII to the II Century BC

Marshall Joseph Becker

Follow this and additional works at: https://digitalcommons.wcupa.edu/anthrosoc_facpub



Part of the [Archaeological Anthropology Commons](#)

Settlement and Economy in Italy
1500 BC – AD 1500

Papers of the Fifth Conference of Italian Archaeology

EDITED BY NEIL CHRISTIE

Oxbow Monograph 41
1995

socio-economici	<i>Mario Asote, Alva Foschi Nisèadu & Francesco Nisèadu</i>	179
19. The economy of an early Latin settlement, Borgo Le Ferriere-Satricum, 800–200 BC	<i>J. W. Bouma, P.A.J. Attema, A. J. Beijer, A. J. Nijboer & R.A. Olde Dubbelink</i>	183
20. Storia di un tratturo	<i>Emanuella Fabbriotti</i>	197
21. Evoluzione dell'insediamento e dell'economia nella Sabina in età romana	<i>Giovanna Alvino & Tersilio Leggio</i>	201
22. Paesaggio agrario e produzioni artigianali nell'Etruria settentrionale costiera (ager Pisanus e Volaterranus)	<i>Marianella Pasquinucci & Simonetta Menchelli</i>	209
23. L'area del Soratte: un esempio di modellamento territoriale monastico	<i>Stefania Fidanza</i>	219

PART 4: SETTLEMENT AND SOCIETY

24. L'abitato di Torre Mordillo nel quadro dello sviluppo dell'insediamento protostorico nell'alto Ionio (Sibartide)	<i>L. Arancio, V. Buffa, I. Damiani, F. Trucco, A. Tagliacozzo & L. Vagnetti</i>	227
25. Siti costieri dal bronzo medio al bronzo finale nella Calabria centro-orientale	<i>Domenico Marino & Silvia Festuccia</i>	241
26. Note sulla società della Sardegna nuragica e sulla funzione dei nuraghi	<i>Alessandro Usai</i>	253
27. Grave dimensions as a diagnostic tool for palaeodemography and social ranking. The example of Veio-Quattro Fontanili	<i>Wolf-Rüdiger Teege</i>	261
28. Human skeletal remains from the pre-colonial Greek emporium of Pithekoussai on Ischia: Culture contact in the early VIII to the II century BC	<i>Marshall J. Becker</i>	273
29. Gentes romane dei Monti della Tolfa	<i>Enrico Benelli</i>	283
30. La villa romana di Marina di S. Nicola a Ladispoli	<i>Ida Caruso</i>	291
31. La villa romana in località Selvicciola (Ischia di Castro)	<i>Gianfranco Gazzetti</i>	297
32. The evolution of rural settlement in <i>regiones</i> V and VI from the Roman to the early medieval period	<i>Umberto Moscatelli</i>	303
33. Late antique cavemen in northern and central Italy	<i>Neil Christie</i>	311
34. L'Abruzzo fra la tarda antichità e l'altomedioevo	<i>Andrea Staffa</i>	317
35. Considerazioni intorno alle valutazioni demografiche di Paolo Diacono sul <i>Samnium</i>	<i>G. De Benedittis</i>	331

PART 5: NEW RESEARCH IN SOUTH ETRURIA

36. Nuove acquisizioni sulla protostoria dell'Etruria Meridionale	<i>V. D'Ercole & F. Trucco</i>	341
37. The role of interregional contact in the development of Latial society in the Early Iron Age	<i>Anna Maria Bietti Sestieri</i>	353
38. Contatti fra Etruria e Lazio antico alla fine dell'VIII secolo a.C.: la tomba di guerriero di Osteria dell'Osa	<i>Anna De Santis</i>	365
39. Nuovi elementi nello studio del ponte romano sul Fosso di Tre Ponti	<i>Vincenzo Antonelli</i>	377
40. Considerazioni sugli insediamenti in area falisca	<i>G. Cifani & M. Munzi</i>	387
41. Ricognizioni nell'ager Faliscus meridionale	<i>A. Camilli, L. Carta, T. Conti, A. De Laurenzi & M. De Simone</i>	395
42. Nuove ricerche nell'agro capenate	<i>A. Camilli & B. Vitali Rosati</i>	403
43. Notizie preliminare sulle ricognizioni nel territorio di Capena	<i>Rita Turchetti & Fabio Bartolini</i>	413
44. La necropoli della Via Amerina a <i>Falerii Novi</i>	<i>L. Caretta, G. Innocenti, A. Prisco & P. Rossi</i>	421
45. Reconstructing a gateway city: the place of Nepi in the study of south-eastern Etruria	<i>C. Edwards, C. Malone & S. Stoddart</i>	431

Human Skeletal Remains from the Pre-Colonial Greek Emporium of Pithekoussai on Ischia (NA): Culture Contact in Italy from the Early VIII to the II Century BC

MARSHALL JOSEPH BECKER

(West Chester University of Pennsylvania)

Summary: By 775 BC Greek traders from Euboea had established a trading post on a promontory on the island of Ischia in the Bay of Naples, Italy. From this location, on the southern fringe of the Etruscan cultural sphere, these enterprising merchants brought spices, silks, as well as lesser goods from the Orient in exchange for metals and various other products of central Italy. Excavations at Pithekoussai have revealed more than 100 cremation burials among over 700 tombs. Problems with ground water and the intense heat generated by thermal springs have reduced the bones in most of the inhumations to powder, but had little effect on the teeth or the cremations. High temperature alteration of human remains through the cremation process allowed these bones to withstand these soil conditions, providing us with material by which age and gender can be evaluated. A double blind system of analysis demonstrated an extremely high reliability in the determination of gender where at least 100 grammes of bone could be recovered. These results both verify the accuracy of gender evaluation based on associated artifacts as well as providing gender evaluations for the majority of tombs, which have no associated offerings. Age and gender evaluations provide clear insights into mortuary patterning during this period. Studies of the skeletal biology of the residents of the Greek outpost of Pithekoussai reflect daily life and death as well as the social dynamics taking place between these Euboean settlers and their Native hosts as the settlement developed into a major Greek colony. Gender ratios provide information concerning patterns of intermarriage, as well as suggesting the presence of polygyny, slavery, and other cultural behaviours which are difficult to elicit from the archaeological record. Evidence for Canaanite mortuary rituals as recorded in the Bible is here presented for the first time, in addition to further examples of the Roman custom of burying an *os resectum* with the dead.

INTRODUCTION

By the end of the first quarter of the VIII century BC, or decades before any Greek city states attempted to establish colonies in the area of western Italy, merchants from Euboea had established a trading post on an island now known as Ischia (fig.1) near the southern edge of the Etruscan realm. From this easily defended emporium in the Bay of Naples, with its excellent harbor systems for sailing vessels which had limited manoeuvrability, these entrepreneurial Greeks gained access to the market for Etruscan metals and other resources from this rich market. In exchange they delivered ceramics and other luxury goods into the local exchange systems. The knowledge which these Greek traders gained about the lands situated between Ischia and their home cities facilitated the development of the first Greek colonies.

Ultimately, colonists from Euboea came to settle at the trading station of Pithekoussai, joined at some point in time by merchants from the Phoenician or Carthaginian realm. Cumae, a nearby and related Greek colony

on the Italian peninsula, probably was occupied soon after, when the traders at their station on Pithekoussai felt militarily comfortable and could risk exposure to possible attack by the local peoples (Becker 1991). The skeletal remains of the inhabitants of Cumae would provide useful data for comparative studies. Buchner (1977) offers an important review of the archaeological information from Cumae, where the preservation of skeletal materials does not appear to have been a priority during that early period of excavation.

Local Oscan people also must have lived and married among these Euboeans and Phoenicians, creating a rich cultural cluster and an interesting subject for study. The impact of this emporium, and its subsequent colony, on the Iron Age people of this part of Italy was far more extensive than just the material results of trade. The biological impact must have been considerable, and it is this influence which we now hope to reveal.

Excavations at Pithekoussai began during the 19th century; more recently the cemetery area for these ancients was identified along the lower margins of the

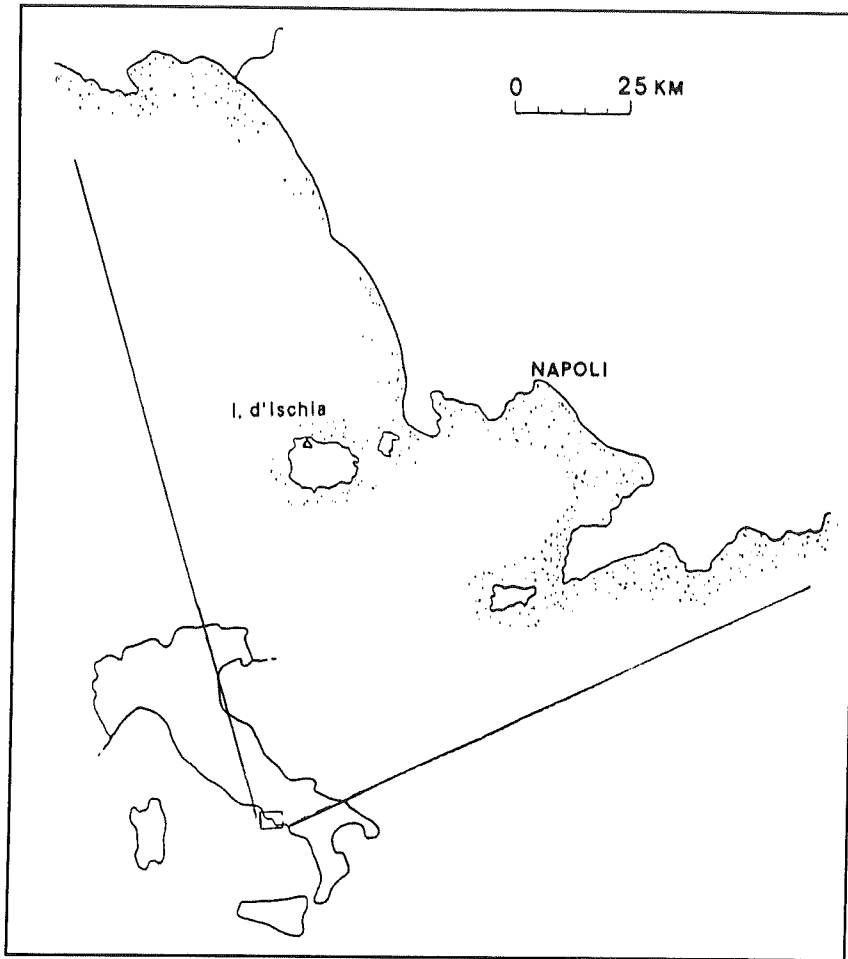


Fig. 1. Location map of Pithekoussai, Ischia.

hill on which the settlement was perched. A constant flow of detritus from the heavily occupied hilltop rapidly covered the graves of all periods, deeply burying them even before occupation of this settlement ended. Today, the most recent of these graves, dating to the Roman period, lie nearly four meters below the modern surface of the ground; the tombs of those first merchants and early colonists lie another four meters lower, or eight meters below the present surface of the ground. This limits access to these graves, with the fortunate effect of restricting casual treasure hunting and weekend looting.

These archaeological conditions protected these skeletal remains until the middle of the 20th century. Modern excavations at the site began in 1952 (Buchner & Ridgway 1993), but found that the preservation of the skeletal material was not particularly good. The excavators recovered all available skeletal material and stored these few remains with care. Initial identification of the gender of each individual in these tombs, as is often the case, has been made on the basis of associated artifacts, where such grave offerings are present. All of the fibulae found in these graves are of a local variety and usually are found as one or more pairs. One subset of these is identified as the dragon type, believed to be the only form associated with males. A bow type, as

well as other forms, are believed to be associated only with women. For those graves lacking such diagnostic artifacts, as well as a means of verifying the initial gender assignments, skeletal analysis is critical. Also important in this research is the determination of the ages of these people at death. This information provides insights into the structure of this society as it progressed from a trading station to a colony.

To date all the known graves excavated from Pithekoussai appear to be those of common folk, or what Buchner describes as middle class Euboean colonists. The unusually deep overburden inhibits systematic and extensive testing of the cemetery, and the aristocratic graves such as those found at Velletri and Cumae remain undiscovered at Pithekoussai. Thus studies of social class variation, so important at other sites (d'Agostino 1969, 1977; Becker 1990, 1993) are not now a part of this program. However, the extensive data from this site offers outstanding comparative information for examining the bones of Greek colonists and others throughout this region.

Even more important to the understanding of the general history of this site (Buchner 1971) is the potential for skeletal research to decode information regarding the ethnic origins of these individuals. Although

Euboean colonists may be the primary inhabitants of these graves, we can have no doubt that many married Oscan women, both to consolidate trade relationships as well as to forge other alliances. Phoenicians also appear to have been resident at Pithekoussai (Moscati 1986, 1989), giving yet another dimension to this potentially rich study. Considerable archaeological evidence suggests that by 750 BC Phoenicians were being buried in this cemetery. Remains of Phoenicians may be identifiable using the information from previously studied colonial Carthaginian populations (cf. Becker 1985, in press), and study of the skeletal material has revealed traces of their customs.

Prior to 1992 only Munz (1970) had discussed this skeletal material, focusing on the dentition from the tombs excavated during the field seasons from 1952 to 1961. In addition to placing these remains in their archaeological context and describing the materials extremely well, this report notes the problems of bone preservation at this site. The determination of gender from the teeth, so successfully achieved at Osteria dell'Osa (Becker & Salvadei 1992), was not attempted.

This report summarizes data from the cremated human skeletal materials from Pithekoussai (Becker ms., c; Becker & Donadio 1992) as well as from 17 of the inhumations more recently studied. While cremations are most commonly found in the period from the second half of the VIII century to the early VI century BC (111 of the 591 tombs known from this period), several examples are known from later periods. In general, however, cremations appear most characteristic of adult burials of the early period of colonization, although some individuals as young as eight years of age now can be identified among these tombs. Table 1 lists data from 112 cremations where human bones have been recovered for study. Data also are provided from the teeth and few traces of bone from 17 of the 126 inhumations studied to date (Table 3). The inhumations will be the subject of a separate study.

MATERIALS AND METHODS

The project described here continues the interest established by the excavators of Pithekoussai in using current scientific techniques to augment our ability to solve archaeological problems (cf. Deriu *et al.* 1986; Becker 1987; Becker & Salvadei 1992). The study of the skeletal materials was conducted at the Villa Arbusto in Lacco Ameno, Ischia, where they were stored. Available for study were 112 cremations recovered from that portion of the burial area including the earliest interments at Pithekoussai, dating primarily from the period from 750 to 675 BC. Also included are two later examples (Roman) of the cremations interred over the next 5 centuries. These data largely relate to those tombs included in the first comprehensive publication of the

archaeological data (Buchner & Ridgway 1993). The analysis of a second set of cremations (number unknown), which appear to be those excavated more recently, relate to an area in which inhumations dominate (to appear in *Pithekoussai II*). Gender and age evaluations (Table 1) are followed by the weight of the bones recovered for analysis and by an estimate of the temperature of the pyre on which the recovered materials appear to have been burned. In most cremations the large pieces of bone which normally survive the burning process were crushed to fit them into small containers (Becker, ms., b). Those cremated individuals whose remains were placed in larger containers, such as an Attic krater or a Villanovan biconical urn, need not be subjected to a comminution process. The fire normally causes cracks and fissures to open in the bone. Comminution and/or the processes of soil compaction in a tomb may leave burned bones in an even more fragmentary state. Where joins were found between the bone fragments recovered from these tombs, they were glued using a water soluble polyvynal acetate solution. Other materials found with the human bone, including animal bone and ceramic fragments, were separated and where possible the categories were repackaged as separate units for future study.

Comparative skeletal data from the Greek homeland is being sought, but at present almost no skeletal remains from Euboea have been recovered and studied. The Early Helladic (3,000 BC) tombs from Manika in Chalkis (Euboea) have been excavated and published (Sampson 1985): these deep chamber tombs are from a period in time nearly as distant from the colonial period at Pithekoussai (2,200 years) as Pithekoussai is from modern times (2,800 years). Although the genetic distance may not be great, at Manika only 22 graves with some 40 people were excavated and preservation was poor. Even the stature of these ancient people from Manika was difficult to calculate (Fountoulakis 1985 focuses on dubious cut marks on the human bones, a recent vogue, but offers no data useful in making biological comparisons).

GOALS

Three general goals sought by this research are:

1. Basic information of concern to the archaeologists, including age and gender of each individual, the possibility that multiple cremations or burials were placed in a single tomb (cf. Becker 1993), and other data useful in reconstructing culture and culture history;
2. Ethnic identification of individuals (Greek, Oscan, Phoenician), which may be revealed both by the skeletal material itself or by the ways in which these bones have been treated in their respective mortuary rituals;

3. Biological change over time, as a reflection of degree or rate of intermarriage as revealed by the odontometric data. As of this date the odontometric data from the inhumations of adults (N=9, see Table 3) includes insufficient numbers to permit valid statistical comparisons.

DISCUSSION

A total of 112 cremations were sought for review during the 1991 study season, of which two (39 and 116) could not be located (see Table 1). In the 110 cremations evaluated, bones representing 112 separate individuals were identified, including three children. Gender evaluations based on skeletal evaluation were attempted for 95 individuals age 19 or older. At the end of this study an evaluation of gender based on archaeological evidence (fibula form, etc.) was provided by the excavators for those individuals which were accompanied by diagnostic grave goods (52 of 95, or 53%). Agreement was found in the majority of *all* cases, but eight of the nine cases in which there are differences in gender evaluations are those which are represented by minimal amounts of bone (e.g. only two grams for T. 149 and 50+ grams for T. 169). If cases in which under 100 grams of bone were available for evaluation are eliminated from the sample, then we have agreement between archaeological and biological evidence in 51 out of 52 cases (98%). In many instances an evaluation was attempted when less than 100 grams of bone was recovered, such as Tomb 179 where only fragments of a femur shaft were used to form the gender evaluation. Surprisingly, accuracy in providing gender data is quite good in these examples. However, the male in Tomb 167 was identified as a female based on the size of a radius head, a trait which was not confirmed as problematical until the end of this research. The male in Tomb 149 was incorrectly identified using only a piece of right maxilla. Age evaluations are, of course, believed to be more than 95% accurate within the range stated in the study (Becker in review). The skeletal evaluation made of the very fragmentary bones from cremation Tomb 223 indicates that they derive from a female of age 60 years (± 10), and are not the bones of a child as suggested earlier (see Buchner & Boardman 1966:10).

Among the many questions posed by this study is one concerning possible status variables within the society as revealed by these graves. Although the excavators do not believe that high status graves are apparent, the vast differences in tomb offerings suggest that status differences are considerable. The individual in Tomb 159 was identified as male on the basis of long bone robusticity, but the grave goods indicate that this may be a female. Quite possibly this is an extremely robust female who was a well nourished member of a high status family (Becker 1988). Alternatively, this may

be a case of confusion in gender by these Greeks, or even a case of a male playing a female role.

Two of the cremations studied (114 and 220) were found to include the remains of a second individual; thus a total of 112 people were evaluated. In Tomb 114 the bones of a young female were found with those of an old adult male, who was more completely represented. While the woman's remains may have been mixed accidentally, she may have been deliberately included with the male and possibly they were cremated together, as may be the case of some tombe principesce (d'Agostino 1969, 1977; Becker 1993). The single fragment of a bone representing the second woman with the female of Tomb 220 is probably an accidental inclusion, and should not be considered a double burial.

A number of questions may be asked regarding differential survival of cremated remains. Quite possibly cremation pyres were of relatively standard size, which would result in smaller individuals (women) being cremated at higher temperatures since their body fluids would not be as highly retardant to the burning process. A pyre which fails to porcelainize the bone of a large male allows that poorly burned material to decay in the ground, resulting in a smaller amount of surviving bone. These factors may result in an apparently larger number of females being represented by surviving bone.

CONCLUSIONS

1. Gender evaluation, where possible, has not been made on the basis of cranial morphology, which has been the focus of many other studies. While cranial dimorphism provides useful indications of gender in northern European populations, Becker and Salvadei (1992) demonstrate that cranial morphology is a poor predictor of gender in central Italy. Therefore, emphasis was placed on the evaluation of the postcranial skeleton. This entire population appears relatively slender. Several specific features of the anatomy, such as the size of the radius head (see Tomb 167), are not considered to be reliable indicators of gender. Despite these difficulties, gender was evaluated (blind) accurately for nearly all (if not all) cremated individuals for whom 100 grams of bone or more were recovered, as confirmed by artifacts from those tombs where these items serve as an independent means of evaluating gender.

2. The ratio of adult males to females, approximately 40/60 as determined through the archaeological evidence (associated artifacts, where present), now has been independently confirmed through the skeletal analysis. This extremely interesting finding may be interpreted as reflecting an extremely high incidence of polygyny, or at least the presence of large numbers of female slaves (concubines?) in these households. This suggests that these colonists may have had a high rate

Table 1. Age & Gender Evaluations of the Cremations, plus weight of skeletal material recovered and temperature of cremation.

Tomb number	Age	Skeletal evaluation of gender	Archaeological evaluation of gender	Weight of Bone	Temperature of Pyre (estimated)
19	65	F	F	19	900
21	65	F	-	43	900
27	70	F??	-	1062	950+
39	The ossilegium in this Roman period glass urn, not found				
40	65	F?	-	1531	950
42	70	M???	M	834	950
61	55	F	F?	197	950
62	50	M???	M	716	950
86	70	M	M	1014	950
87	MA	F	-	187	950
91	55	M	-	1255	900±
93	10	-	-	854	900
94	70	M	-	1988	900
114	65	M	M	1263	875±
114	21	F	/	16	875±
115	OA	M???	F??	46	950
116	No evaluation	M [not located in 1991, 1992]			
117	45	F???	F?	365	950
118	70	F	-	201	925±
119	65	M	-	548	900+
120	65	F???	F	142	925
135	65	F?	-	53	925
136	50	F???	-	189	875
137	65	F?	-	340	875
138	65	F??	-	23	900
139	65	M???	-	167	825
140	8???	-	-	3	900
142	23	F	-	196	900
145	20	F?	F	131	925
146	60	F???	F?	40	875
147	A???	F???	-	26	925
148	A	F???	-	78	900
149	A??	F???	M	2	900
150	A	F??	-	173	925
152	A??	F	F	5	925
154	50	F?	-	1263	925
155	A	-	-	3	900
156	60	M	-	204	875+
157	65	F	F	233	875
158	60	F???	F	227	900
159	75	M	F	296	850±
160	60	F	F	295	875
161	50	M?	-	398	875
162	YA	M	-	341	925
163	MA	F??	-	134	900
164	MA	-	M/F	66	925
165	YA??	-	F	195	875+
168	14	-	M	289	925
170	MA	-	-	34	900+
172	60	-	M	166	875
173	MA	F	F	63	900
174	50	F	F	349	900+
175	60	F??	-	240	900
176	60	M???	-	317	900
177	A	M?	-	41	875
178	60	-	-	38	900
179	YA???	-	F	77	900

Tomb number	Age	Skeletal evaluation of gender	Archaeological evaluation of gender	Weight of Bone	Temperature of Pyre (estimated)
181	A	F???	F	55	900
182	MA	F???	F	49	950
183	70	M???	0	275	900+
184	70	-	0	238	950
185	A	-	unc.	9	950
186	A??	-	unc.	12	950
188	OA	-	F	13	825
189	A	F???	F	161	950
190	60	M	0	460	950
191	45	F???	F	873	950
192	65	F??? (intr.?)	M?	164	900
193	40	M???	0	179	875
194	MA	M???	-	185	950
195	50	F???	F	153	950
196	50	F??	F	627	925
197	70	M??	M???	534	950
198	45	F	F?	903	950
199	YA	F	F	228	925
200	A	F???	-	19	900
201	70	M???	M??	647	950
203	60	M	-	329	900±
204	MA	M?	-	91	900±
206	A	F???	M??	110	950
208A=209B	50	F?	F	870	900
209A=208B	65	M??	-	203	900
210	19	F???	F	97	900±
211	A	M???	-	44	900±
212	55	F??	M?	68	950
213	70	M	M	299	875±
215	MA	M?	M	157	900
216	60	?	M?	124	900+
218	50	F	F	141	900±
219	A	M???	-	183	900
220	A	F	F	285	900
220	A	F	/		
225	YA???	M???	M??	603	900
226	A	F???	F??	99	925
227	40	M?	M??	176	875
229	MA	F???	M???	144	900+
230	55	F	F	117	900+
232	A	F???	F	117	900
235	50	F???	M??	120	900+
236	A	F???	-	61	900+
238	A	F???	-	143	900
239	60	M???	M???	278	900
240	50	M???	-	101	900+
241	MA	M?	M	156	875
242	-	-	-	13	900
243	A	F	F	124	900+

N=112

112

M=36 (38%)
F=58 (62%)M=26 (41%)
F=38 (59%)

A = Adult MA= Mature adult YA= Young adult OA= Old adult
M/F = Associated artifacts provide conflicting gender data.
/ = Second individual, not noted in excavation.
0 = No fibula found in grave.
Unc. = Noted by excavators as *incerto*.

of intermarriage with native (local) women, rather than bringing women from Euboea.

3. The very preliminary data from the study of the inhumations (see Table 3) shows the ratio of adult males (N=3) to females (N=6) as 33/67. This is not drastically distinct from the 40/60 ratio noted in 2, above. However, the eight *inhumed* children for whom we can evaluate gender show a male/female ratio of 63/37, suggesting the possibility that the skewed adult ratio may result from an extremely high male infant and child mortality rate.

4. Only three children below the age of 17 are noted in this sample of cremations (Tombs 93, 140, 168: ages 10, 8, and 14 respectively). Gender could not be determined for any of these cremated children. The low incidence of identifiable children among these graves suggests that many of the tombs from which no skeletal remains were recovered may have been those of children (individuals below the age of 17). The age of ritual passage into personhood (entitled to a burial in the cemetery; see Becker 1986a) in this population appears to have been less than eight, but cannot be made more specific from the data now at hand. Neonates, foetuses, and children under the age of one year (the largest number of deceased individuals expected in such populations) may have been buried in very simple fashions within the residential zone. One jar found beneath a floor in the settlement area, in which no trace of bone was detected, may well have been an *enchytrismos*; several such containers were found in the necropolis and probably represent the burials of infants or young children (see Ridgway 1984: fig. 17; Buchner 1982: 277).

5. Excellent dental health (Table 2) appears to be the rule during all periods at Pithekoussai as reflected by the limited data from the cremations. When tabulated by general period we find that the cremated early colonial population appears to have had an extremely low rate of dental loss (approximately 8%) and that the later people had a similarly low rate. Note should be

Table 3. Summary of age and gender for each inhumation (cf. Becker & Donadio 1992).

Tomb	Gender	Age (in years)
4	M	5.8
22	F?	3.8
23	M?	3.5
29A	F	6.8
B	F	50
33	F?	45
48	F	25
49A	M???	65+
B	F???	45
53A	F??	45
B	F???	4
78	M???	10
389	M???	7
390	To Do	4
395	M??	A
	[M?	A] possible mix
458	F???	20
470	To Do	2
515	To Do	11
519	To Do	[5.5]
529	M	7.5
<hr/>		
N=17	N=21	N=21 (9 adults
	M=8	and 12 children, ages 2-11)
	F=9	
	(4 not yet determined)	
Adults:	M=3 (33%)	
	F=6 (67%)	
Children:	M=5 (63%)	
	F=3 (37%)	

made that molars as well as anterior teeth are represented in the sample of tooth spaces represented among the cremated remains. However, note also should be made that in the case of cremations, alveolar survival itself may be a function of dental health. Individuals from whose jaws teeth have been lost become reduced in

Table 2. Dental attrition from the cremations only, not factored for age (Becker & Donadio 1992).

	No. of Individuals	No. of Tooth spaces	No. of Teeth lost	Loss Rate
End VI-Roman Period	9	136	14	10%*
VIII-VI Century	26	178	14	8%**

* Seven of the 14 teeth lost came from the person in Tomb 27. Removing this individual from the sample reduces the loss rate to about 6%.

** Four of the 14 teeth lost came from the person in Tomb 184, a person of 70 years of age. Removing this person from the sample reduces the loss rate to under 6%.

In both periods dental attrition rates are very low, suggesting dietary and cultural stability. These data should be compared carefully with the findings from the inhumations.

size and therefore more subject to destruction in the context of the cremation process.

6. Although the significance of the incidence of bifurcate roots on maxillary first premolars is not yet clear, note is made of this trait (e.g. Tomb 149) where the actual root is preserved or is suggested by the configuration of the tooth socket. Note should be made that the examination of the tooth socket of the person in Tomb 149 did not easily reveal the bifurcation. Thus many more examples may exist than are specified in the field record. Bifurcation of the root of maxillary first premolars is a trait commonly found in central Italy, particularly during the period from *ca.* 900–600 BC.

7. Disease among these people generally appears in the form of geriatric exostoses. The woman (?) in Tomb 175 has fused cervical vertebrae as well as numerous exostoses on the other surviving examples. The male (?) in Tomb 176 has similar exostoses, as do many other individuals in this sample. While some pitting was noted on the interiors of skull fragments, no inventory of these examples was made. No broken bones or malformations were noted among these sparse remains. The individual in Tomb 150 appears to have had an anaemic disorder, possibly malaria or thalassemia.

8. The cremated bones of the child in Tomb 93 (dated to the V Century BC) include an unburned terminal phalange of an adult which I believe to be an *os resectum*. These artifacts are described indirectly in ancient Roman texts and recently have been documented many times in the archaeological record (Bowmer & Molleson 1986; Becker 1988, *ms.*, a). However, this example from Pithekoussai of an unburned terminal phalange with a child's burned bones, first thought to be an unburned *os resectum*, derives from an adult female. The context of this find, in a red figure Attic krater of the V century which had been placed in a cube of tufa (see Boardman 1980) appears to rule out the possibility that this may be a stray bone; furthermore, the absence of other examples or fragments of unburned bone from this burial context suggests that this phalange was deliberately placed in this krater. This suggests that an adult, probably the mother or a near female relative of the deceased child, had a terminal finger joint cut from a digit (possibly the third on the right hand) to be buried with the *ossilegium* of this child (cf. Becker 1986b). Such customs are known from various parts of the world and this may be the traditional Canaanite mortuary custom noted in the Old Testament, but previously unreported in the archaeological literature of either the Levant or from Italy. This practise appears to be similar to, but not necessarily related to, the custom of taking an *os resectum* so widely known at this time from sites throughout central Italy.

The bones of the female in Tomb 137 also have with them an *os resectum*. This terminal phalange, however,

appears likely to have derived from her own hand.

9. The bones found in Tomb 114 suggest that two cremated individuals were placed in this single tomb, possibly having been burned on separate pyres rather than a single pyre. Although it is possible that the inclusion of the remains of two people in this context may not have been intentional, the presence of young females in inhumation tombs of old adult males certainly has been noted elsewhere in central Italy (Becker 1990). Joint interments have been confirmed but infrequently in cremation burials (Becker 1987, *ms.*, a). However, the cremated remains of an older male together with a young female have been well documented from several tombs principesche of the Orientalizing period (Becker 1993). Burials of secondary individuals with old males may be a reflection of status in these communities (Becker 1990). The second adult female represented in Pithekoussai Tomb 220 is represented by a single bone fragment which probably is an accidental admixture.

10. Burned remains of mammals (generally sheep or goat) also are found among the cremated bones in several of the Pithekoussai burials (e.g. Tombs 94, 114, 167, 184, and possibly Tomb 200). While some of these animal bones may be accidental inclusions, most appear to be the remains of funerary meals or offerings.

ACKNOWLEDGEMENTS

Sincere thanks are due Dr G. Buchner for his kind invitation to study these human remains, and for his extensive aid in arranging for this aspect of the research to be completed. Thanks also are due the Soprintendenza Archeologica for Naples for permission to study these materials, and to Dott.ssa Costanza Gialanella (Ispettrice per Pozzuoli e Ischia) for her co-operation in every aspect of this study. The comments of several colleagues at the Fifth Conference of Italian Archaeology (Oxford) are very much appreciated. Thanks also are due Professor Erminio Braidotti (West Chester University) for his aid with translations, to Dr. A.M.G. Rè, Sig. Ignazio Di Meglio and his family (Lacco Ameno), and all the other people on Ischia who assisted this project in so many ways. Special thanks are due Prof. Mennella, Sindaco of the Municipio di Lacco Ameno, for his kind permission to use the facilities at the Villa Arbusto to initiate this project (May-June 1991 and 1992), and to Alessia Donadio for her invaluable assistance in the field aspect of this project. Portions of this paper were presented in the symposium *Social Dynamics of the Prehistoric Central Mediterranean* organized by Jon Morter for the 1992 meetings of the Society for American Archaeology. Partial funding for this project derived from small grant for travel and research from West Chester University of Pennsylvania. Any errors of interpretation or presentation are the responsibility of the author alone.

Bibliography

- d'Agostino, B. 1969. 'Pontecagnano. Tombe orientalizzante in Contrada S. Antonio', *Notizie degli Scavi di Antichità*, 75-196.
- d'Agostino, B. 1977. 'Tombe "principesche" dell'orientalizzante antico da Pontecagnano', *Monumenti Antichi* (Serie Miscellanea II, 1) 49, 1-74.
- Bartoloni, G., Buranelli, F., D'Atri, V. & De Santis, A. 1987. *Le Urne a Capanna rinvenute in Italia*, Rome.
- Becker, M.J. 1982. Anthropological Appendix (pp. 479-481) to 'Cremation among the Lucanians', by M. Gualtieri, *American Journal of Archaeology* 86, 475-479.
- Becker, M.J. 1985. 'Metric and Non-metric data from a series of skulls from Mozia, Sicily and a related site', *Antropologia Contemporanea*, 8 (3), 211-228.
- Becker, M.J. 1986a. 'Mandibular Symphysis (Medial Suture) closure in modern Homo sapiens: Preliminary evidence from archaeological populations', *American Journal of Physical Anthropology* 69, 499-501.
- Becker, M.J. 1986b. 'An ethnographical and archaeological survey of unusual Mortuary procedures as a reflection of cultural diversity: Some suggestions for the interpretation of the human skeletal deposits from excavations at Entella, Sicily, Italy', *La Parola del Pasato: Rivista di Studi Antichi*, 226: 31-56.
- Becker, M.J. 1987. 'Analisi Antropologiche e Paleontologiche: Soprintendenza di Roma. Appendice I', in *Le Urne a Capanna Rinvenute in Italia*, G. Bartoloni, F. Buranelli, V. D'Atri & A. De Santis, Rome, 235-246.
- Becker, M.J. 1988. 'The contents of funerary vessels as clues to mortuary customs: identifying the Os Exceptum', *Proceedings of the 3rd Symposium on Ancient Greek and Related Pottery* [Copenhagen, 1987], ed. J. Christiansen and T. Melander, Copenhagen, 25-32.
- Becker, M.J. 1990. 'Etruscan social classes in the VI Century BC: evidence from recently excavated cremations and inhumations in the area of Tarquinia', *Die Welt der Etrusker* (International Colloquium, 1988), ed. H. Heres & M. Kunze, Berlin, 23-25.
- Becker, M.J. 1991. 'European trade and colonization in the territory of the Lenape of Pennsylvania during the 17th century: An historical model for Greek colonization in Italy', Paper presented at the International Congress of Americanists, New Orleans.
- Becker, M.J. 1993. 'Human Sacrifice ... the "Tombe Principesche", Numbers 926 and 928 at Pontecagnano (Salerno)', Italy, *Old World Archaeology Newsletter*, 16(2): 23-30.
- Becker, M.J. in press. 'Human Skeletal Remains from the 1987 excavations in Marsala, Sicily', *Annali della Scuola Normale Superiore di Pisa*.
- Becker, M.J. ms., a. 'The os resectum: A review of the literary and archaeological evidence', Manuscript on file, West Chester University of Pennsylvania.
- Becker, M.J. ms., b. 'Tarquinia Tomb 6322: An example of a cremation showing extreme comminution', Manuscript in circulation.
- Becker, M.J. ms., c. 'Cremated human remains from Pithekoussai, primarily from the period ca. 770-600 B.C.'
- Becker, M.J. & Donadio, A. 1992. 'A summary of the analysis of cremated human skeletal remains from the Greek colony of Pithekoussai at Lacco Ameno, Ischia, Italy', *Old World Archaeology Newsletter*, 16 (1), 15-23.
- Becker, M.J. & Salvadei, L. 1992. 'Analysis of the human skeletal remains from the cemetery of Osteria dell'Osa', in *La Necropoli Laziale di Osteria dell'Osa*, ed. A.M. Bietti Sestieri, Rome, 53-191.
- Boardman, J. 1980. *The Greeks Overseas: Their Early Colonies and Trade*, New York.
- Bowmer, M. & Molleson, T. 1986. 'Appendix: Identification of human remains from the hut urns, in "Le urne a capanna: ancora sulle prime scoperte nei Colli Albani," by G. Bartoloni, in *Italian Iron Age Artefacts in the British Museum*, ed. J. Swaddling, London, 238-239.
- Buchner, G. 1966. 'Pithekoussai: oldest Greek colony in the West', *Expedition* 8 (4), 4-12.
- Buchner, G. 1971. 'Recent work at Pithekoussai (Ischia), 1965-71', *Archaeological Reports for 1970-71*, 63.
- Buchner, G. 1975. 'Nuovi aspetti e problemi posti dagli scavi di Pithecusa con particolari considerazioni sulle oreficerie di stile orientalizzante antico', in *Contribution l'étude de la société et de la colonisation eubennes*, Naples, 61-71.
- Buchner, G. 1977. 'Cuma nell'VIII Secolo a.C., Osservata dalla Prospettiva di Pithecusa', in the Proceedings of the International Congress *I Campi Flegrei nell'Archeologia e nella Storia* (Roma, 1976), Rome, 131-148.
- Buchner, G. 1979. 'Early Orientalizing: Aspects of the Euboean connection', *Italy Before the Romans: The Iron Age, Orientalizing and Etruscan Periods*, ed. D. & F. Ridgway, London, 129-144.
- Buchner, G. 1982. 'Articolazione sociale, differenze di rituale e composizione dei corredi nella necropoli di Pithecusa', in *La Mort, Les Mortes dans les Sociétés Anciennes*, ed. G. Gnoli & J.-P. Vernant, Cambridge, 275-287.
- Buchner, G. & Boardman, J. 1966. 'Seals from Ischia and The Lyre-Player Group', *Jahrbuch des Deutschen Archäologischen Instituts* 81, 1-62.
- Buchner, G. & Ridgway, D. 1993. *Pithekoussai I. La Necropoli: tombe 1-723, scavate dal 1952 al 1967*, (Monumenti Antichi, Serie Monografica), Roma.
- Buchner, G. & Ridgway, D., ms., a. *Pithekoussai, Scavi della Soprintendenza alle Antichità di Napoli, II*, (Monumenti Antichi, Serie Monografica).
- Deriu, A., Buchner, G. & D. Ridgway, D. 1986. 'Provenience and firing techniques of Geometric pottery from Pithekoussai: A Mosbauer investigation'. *Annali: Istituto Universitario Orientale, Naples (AION), Archeologia e Storia Antica VIII*, 99-116.
- Dunbabin, T.J. 1948. *The Western Greeks*, Oxford.
- Fountoulakis, M. 1985. The skeletal remains from the Early Helladic Cemetery of Manika-Chalkis, Appendix in Sampson 1985.
- Graham, A.J. 1964. *Colony and Mother City in Ancient Greece*, Manchester.
- Moscato, S. 1986. *Italia punica* (with S.F. Bondi). Milan.
- Moscato, S. 1989. 'Fenici e Cartaginesi in Italia', *Bollettino di Archeologia* 1, 38-41.
- Munz, F.R. 1970. 'Die Zahnfunde aus der griechischen Nekropole von Pithekoussai auf Ischia', *Archäologischer Anzeiger* 85, 452-475.
- Ridgway, D. 1984. *L'Alba della Magna Grecia*, Milano.
- Ridgway, D. in press. 'The eighth century pottery at Pithekoussai: an interim report'. La ceramique grecque ou de tradition grecque au VIIIe siècle en Italie centrale e meridionale, Naples.
- Sampson, A. 1985. *Manika: An Early Helladic Town in Chalkis*, Chalkis.
- Stevenson, P.H. 1924. 'Age Order of Epiphyseal Union in Man', *American Journal of Physical Anthropology* 7, 53-93.
- Ubelaker, D.H. 1989. *Human Skeletal Remains: Excavation, Analysis, Interpretation*, Washington.