LEAD FIGURINES FROM THE MENELAION AND SERIATION

(PLATES 2–6)

THE subject of this study is the series of lead figurines recovered from the recent excavations at the shrine of Helen and Menelaos, ancient Therapne, near Sparta. Almost 6,000 such votives were recovered, though well over half of these were in the form of wreaths. Unfortunately, the wreaths can be divided only into the broadest varieties. In the following we deal with votives other than the wreaths. To clarify our usage in the discussion below we distinguish the following terms: (1) *figurine* refers to an individual votive. It is not uncommon to find several figurines cast form the same mould, so that we refer to (2) a *mould*. It is not the case that the original mould has been found, but its existence is recognized from a degree of similarity among several figurines, or by the uniqueness of one figurine, which can only be explained by their being the products of just one mould. (3) *Variety* is reserved to describe groups of moulds which have features in common, such as warrior figurines with animal blazons on their shields. Finally (4) *category* refers to groups of varieties. Thus the narrowest classification is by votive, referring to each individual figurine. Next is mould; 561 moulds have been distinguished excluding the wreaths. These 561 moulds have been divided among sixty-one varieties. The varieties are in turn grouped into the following categories: warriors, female votaries, dancers and musicians, beasts, gods and goddesses, and ornamental and miscellaneous types. The majority of the moulds are represented by a single figurine, or by a small group restricted to just one archaeological level or context. In 154 cases, however, the products of one mould were found to be shared by two or more levels. Six hundred and seventeen, some 10 per cent of the total votives recorded, are therefore shared between twenty-seven different contexts.

Chronological arrangement of these figurines can be attempted by various methods, and it is the intention of the present paper to compare three methods and to combine their results. The methods concerned are stratigraphy, seriation, and typology.

Stratigraphy. It is necessary to preface the account with a brief explanation of the type of site and levels from which the figurines were recovered. The trenches and soundings excavated in the recent campaign around the monumental altar (FIG. 1.) nowhere revealed floor levels or constructional features.[1] The floors distinguished in the 1909 campaign had evidently been

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[1] For the recent excavations at the Menelaion see: *AR* 1973–4, 14–15; *AR* 1975–6, 13–15; *AR* 1976–7, 24–42; *AR* 1977–8, 31; *AR* 1978–9, 19–20; *BCH* 98 (1974) 613–14; *BCH* 99 (1975) 621–4; *BCH* 100 (1976) 614; *BCH* 101 (1977) 557–60; *BCH* 102 (1978) 673–5; *BCH* 103 (1979) 563; *Lakonikai Spoudai* 2 (1975) 256–69; ibid. 3 (1977) 408–16 esp. 414–15 on the 'Great Pit'. For the 1909 season see *BSA* 15 (1908–9) 108–57.

entirely removed. Thus all the levels in the recent excavations consisted of earth fills or colluvial deposits. The nature of the levels has two immediate consequences: first, the levels in trenches not immediately adjacent cannot always be linked stratigraphically. Secondly, the levels tend not to have been sealed rapidly one after another. They were evidently open for a long period and slowly silted up. As a result the levels were sometimes difficult to distinguish in excavation, and

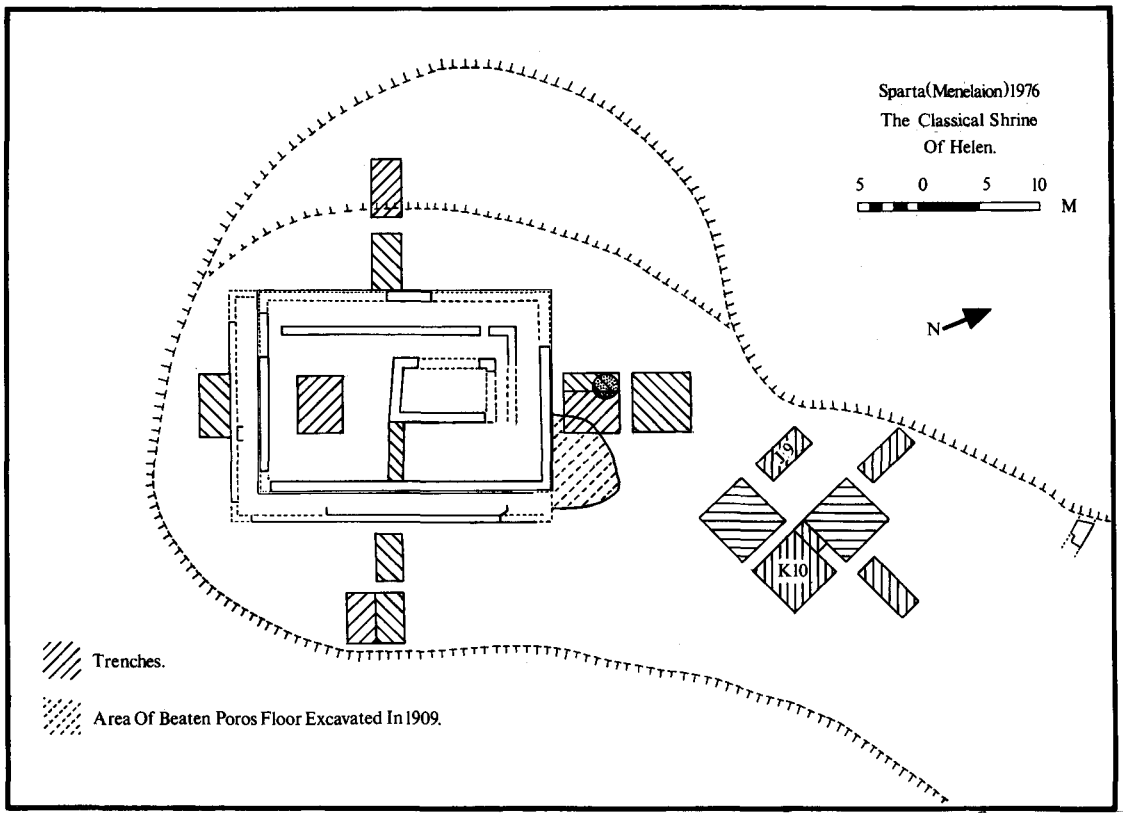

FIG. 1. Plan of the Sanctuary of Helen and Menelaus at Therapne, with the area excavated in 1909 and the trenches of the more recent excavations (after D. Smyth in *AR* 1976–7, p. 34, fig. 21)

earlier material is often included in the make-up of later levels. Without yet entering into details it is clear that stratigraphy alone cannot solve the problem of chronology. Moreover, the nature of the levels will mean that contamination must be expected. It appears that the rite required that the votaries simply dropped their offerings on the ground, which could in time be washed from one context to another.

Seriation. One possible answer to the problem of linking unconnected levels and arranging them in sequence is seriation. In principle it is assumed that the life of each mould will be relatively short. The fact that over 500 types were distinguished in a relatively small sample supports this contention. The second assumption is that the levels closest in time will have the greatest number of products of the same moulds in common. Initially seriation

was attempted with moulds only, as this is the closest connection between one votive and another. Even in those cases where it is suspected that different types were made by the same hand the connection cannot be demonstrated so indisputably. The disadvantage is that much evidence linking disparate levels will at first be ignored. Contamination will also inevitably cause distortion in the seriation. In the event the use of moulds for seriation proved unsuitable for reasons which we discuss later, and varieties were used as a basis for seriation.[2]

Typology. The third method of analysis is more subjective than the two preceding. In broad terms Wace,[3] who established the typology of the figurines, saw a gradual tendency towards more careless products. His analysis, quite naturally, depended mainly on stratigraphy and he recognized that the same types in some cases spanned a number periods. There are two paths open in a strict typological analysis, neither of them entirely satisfactory. First, the arrangement of the various types in series from more to less elaborate, say, or from more to less carefully executed. For example, the typology of archaic Greek stone Kouroi is established on the basis of an ever more faithful rendering of human physiology. The second is by means of comparison with other artefacts whose typology is already established—the most obvious case is painted pottery. Changes in the types produced at any given time must be due to developments either within the votives themselves or within the models from which the votives were copied. Problems of comparison aside, there remains the obvious pitfall in typology that what might appear earlier or later could in fact be contemporary. Stratification and closed archaeological deposits ought to test a typology.

Seriation

Our intitial analysis proceeded by producing an abundance matrix of the moulds common to the twenty-seven contexts. Most of the contexts contained few types and it was decided to concentrate only on those levels which contained a large number in common. Once the richer groups had been ordered those with sparser representation could be fitted into the established sequence. Concentrating on the five most fruitful contexts, the following sequence emerged: trench K 10 levels 6, 7, and 9, trench J 9 levels 6 and 5. Immediately one anomaly becomes apparent: the levels of K 10 descend from upper to lower in a highly satisfactory manner, but when the levels of J 9 are included the direction is reversed and the earlier level 6 precedes level 5. A further check revealed that when placed in stratigraphic order the series of levels in K 10 and those in J 9 each separately produced a reasonable Q matrix. Thus the seriation was being distorted by a factor which made the levels in one trench seem more similar to each other than to the contents of any level in another trench. Such a situation might have arisen, for example, if the same moulds were deposited in one part of the site for cult reasons, rather than purely at random here or there.

Closer analysis revealed that the distinctions betwen J 9 and K 10 are certainly made for a prima-facie case. That is to say, that in those instances where six or more casts from a single mould were found they tended to occur not evenly spread between each trench but predominantly either in one or in the other:

[2] On the seriation see, e.g.: D. G. Kendall 'Seriation from Abundance Matrices', in F. R. Hodson, D. G. Kendall, and P. Tautu, *Mathematics in the Archaeological and Historical Sciences* (Edinburgh 1971); J. E. Doran and F. R. Hodson, *Mathematics and Computers in Archaeology* (Edinburgh 1975); and the recent review by W. H. Marquardt, 'Advances in Archaeological Seriation', in M. B. Schiffer, *Advances in Archaeological Method and Theory* i (1978) 257–314.

[3] Wace in *Artemis Orthia* ch. 9; hereafter cited as *AO*.

Mould	Category	J 9, levels 5, 6, (7)	K 10, levels 6, 7, (8), 9 (10)
5.1	Grille	8 (9)	1
38.1	Warrior	5	7
38.2	Warrior	1	6
39.2	Warrior	0	12
40.7	Warrior	10	0
40.8	Warrior	8	0
41.24	Warrior	0	6 (7)
41.7	Warrior	1	6 (7)
41.2	Warrior	4	9 (10)
41.5	Warrior	17	6
42.1	Warrior	1	6
42.2	Warrior	7	0
45.1	Warrior	10	0
45.8	Warrior	6	1
47.3	Female votary	5 (6)	2
47.9	Female votary	1	6
47.11	Female votary	8	4 (5)
48.2	Female votary	7	7
48.4	Female votary	8	0
49.3	Female votary	9	1
51.6	Female votary	7	0
51.7	Female votary	5	1
57.3	Female votary	4	3
57.7	Padded dancer	2	5
63.2	Horse	1	5
63.3	Horse	3	4
73.5	Artemis	5	1
73.6	Artemis	4	0
74.3	Athena	5	0
75.1	Poseidon	4	0
		156 (158)	99 (103)

It is evident that most of these votives tend to occur largely either in one trench or in the other, and only rarely are they evenly divided between both J 9 and K 10. Nevertheless when the evident cases of bias to one trench or the other are isolated, no obvious principle of division emerges. There are relatively more figurines of soldier varieties in K10 and more of the female votary varieties in J 9; also the deities predominate in J 9. It is possible, however, to consider the varieties and compare them for all levels in J 9 and K 10:

Variety	J 9	K 10
5. Grille	24	12
8. Pair of pins	2	7
10. Pomegranate bud	1	5
15. Volute and Palmette	0	2
19. Palm branch	8	6
38. Warrior w. conc. O shield	36	17
39. Warrior w. bars and o's	2	19
40. Warriors w. asterisks	53	28
41. Warriors w. rosettes	38	75
42. Warriors w. whirling	19	14
43. Warriors w. cross	10	4
44. Warriors w. misc.	0	3
45. Warriors w. blazons	29	4
Warriors total	187	164

Variety	J9	K10
49. Females w. cross hatched	66	51
48. Females w. striped dress	29	39
49. Females plain dress	24	14
50. Females dress w. bars	11	10
51. Female, zigzag dress	21	2
52. Female, vertical panel	0	13
53. Female, maeander dress	2	2
Female total	153	131
54. Bird-masked figure	1	14
55. Flute player	18	8
56. Lyre player	3	2
57. Padded dancer	16	17
61. Archer	0	3
63. Horse	9	23
64. Deer	14	6
65. Goat	0	3
69. Cock	3	3
73. Artemis	26	13
74. Athena	28	7
75. Poseidon	6	1
76. Hermes	3	0
	492	427

The result is still not very informative. If all warriors and all female votaries are considered they now produce a similar percentage of the total in each trench. Jewellery types tend to be found more often in trench K 10, as do bird-masked figures, horse, and goat. The deities still tend to predominate in J 9. The fact that when summed the warrior types and the female types no longer occur more frequently in one trench or in the other indicates that the distinction is after all due to some factor other than the cult reasons suggested above.

It appears then that the moulds are not entirely susceptible to seriation. Perhaps there are two reasons for this. First, the moulds were evidently short-lived in general, even though in some cases their products appear in much later contexts. Thus the moulds are not *per se* a good index of broad periods. That is to say, if there were no contamination the moulds would tend to occur exclusively in one short period or another. The partial success on the one hand of the first seriation is presumably due to the fact that levels close in time will have more contaminants in common than remoter levels. On the other hand, this effect may explain why levels closer in space are more similar, and hence the inversion of the stratigraphic sequence in the first seriation. Secondly, seriation assumes a gradual increase and then decrease in popularity of a given variety.[4] This condition may not apply in the case of moulds. A mould is either in production or not. Provided there are no complicating factors of competition it is to be expected that the same number of votives would be deposited throughout the life of a mould and then cease when the mould was no longer used.

This line of thought led us to try more general if arbitrary varieties. In these cases the types were in competition one with another and tended to become more or less popular as time passed.

Initially, the case of the warrior category was taken. This had been divided into convenient varieties according to the motive on the shield: (38) concentric circles, (39) circle and bar, (40) asterisk, (41) rosette, (42) whorl, (43) cross, and (45) animal blazon. It was decided to take the

[4] R. R. Laxton and C. D. Litton, 'A Simple Theory for Material Culture Change', *Science and Archaeology* 20 (1977) 3–10.

number of moulds represented in any given level and not the total number of figurines, on the grounds that the number and variety of moulds would give a truer indication of the popularity of this or that motive in any given period. Where the same mould appeared in different levels it was counted once for each separate level. The following abundance matrix emerged:

	38	39	40	41	42	43	45
K 10/6	0	1	5	6	4	0	0
K 10/7	5	4	5	12	3	2	1
K 10/9	4	5	12	21	3	2	2
J 9/5	15	1	22	10	4	4	9
J 9/6	2	0	8	6	4	1	0

Here the rows of the matrix represent the levels, and the columns the varieties; thus the number 12 in the second row and fourth column is the number of moulds with a rosette on the shield found in the K 10/7 level. We notice that with the rows in the order given the matrix is 'almost' a Q-matrix, i.e. down all columns except the fifth the numbers never decrease and then increase again, and that even in the fifth this only just happens (i.e. from 4 to 3 and then later from 3 to 4 again). This being so, this order is a strong candidate for chronological ordering of the levels (seriation J 9/6, J 9/5, K 10/9, K 10/7, K 10/6, or the inverse order). Clearly, since the levels K 10/7, K 10/6 are above K 10/9 and J 9/5 is above J 9/6, we must assume that the final order is the correct candidate for the chronological ordering from early to late.

This matrix produced the following similarity matrix:

	K 10/6	K 10/7	K 10/9	J 9/5	J 9/6
K 10/6	16				
K 10/7	15	32			
K 10/9	15	31	49		
J 9/5	16	27	34	65	
J 9/6	15	17	20	21	21

Here, for example, the entry 31 in the third row and second column is the number of varieties that levels K 10/9 and K 10/7 have in common—i.e. their 'similarity'. It is 'almost' an R-matrix in the sense that apart from the 16 in the fourth row and first column, the numbers increase along any row to the diagonal and decrease down any column from the diagonal. This is another way of viewing the fact that the relative ordering K 10/6, K 10/7, K 10/9, J 9/5, and J 9/6 is a strong candidate for a seriation.

The female votary varieties were divided according to the design on the skirt: (47) cross-hatching, (48) stripes, (49) plain, (50) bars, (51) zigzags, (52) vertical panel, (53) maeander. The result was equally satisfactory: the abundance matrix

	47	48	49	50	51	52	53
K 10/6	1	3	3	2	0	0	0
K 10/7	8	10	2	1	1	3	0
K 10/9	23	13	9	5	1	7	2
J 9/5	28	8	9	4	7	0	1
J 9/6	8	5	3	3	0	0	1

has the similarity matrix

	K 10/6	K 10/7	K 10/9	J 9/5	J 9/6
K 10/6	9				
K 10/7	7	25			
K 10/9	9	25	60		
J 9/5	9	20	46	57	
J 9/6	9	16	20	20	20

The result with dancers and musicians was less satisfactory, perhaps because this category is relatively scantily represented in J 9/5: (54) bird-masked figures, (55) flute-players, (57) padded dancers, (58) skirted dancers. The abundance matrix

	54	55	56	57	58
K 10/6	0	1	0	4	0
K 10/7	2	1	0	2	0
K 10/9	6	4	2	6	0
J 9/5	0	3	1	4	0
J 9/6	1	3	1	5	2

has the similarity matrix

	K 10/6	K 10/7	K 10/9	J 9/5	J 9/6
K 10/6	5				
K 10/7	3	5			
K 10/9	5	5	18		
J 9/5	5	3	8	8	
J 9/6	5	3	10	8	12

There are slight anomalies in the positions of K 10/6 and J 9/5.

Animals were distinguished as follows: (63) horse, (64) deer, (65) goat, (66) griffin, (67) lion, (68) panther, (69) cock, (70) centaur, (71) pegasus, (72) sphinx. The abundance matrix.

	63	64	65	66	67	68	69	70	71	72
K 10/6	1	1	0	0	2	0	0	0	0	0
K 10/7	7	2	1	0	1	1	1	0	0	0
K 10/9	5	2	1	0	1	0	2	0	0	0
J 9/5	3	8	0	0	1	0	2	1	1	0
J 9/6	4	0	0	2	2	0	0	0	0	2

has the similarity matrix

	K 10/6	K 10/7	K 10/9	J 9/5	J 9/6
K 10/6	4				
K 10/7	3	13			
K 10/9	3	10	11		
J 9/5	3	7	8	16	
J 9/6	3	5	5	4	8

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Gods and goddesses were assigned as follows: (73) Artemis, (74) Athena, (75) Poseidon, (76) Hermes, (77) Herakles, (78) god with rod, (79) goddesses. The abundance matrix

	73	74	75	76	77	78	79
K 10/6	0	0	0	0	0	0	0
K 10/7	1	1	0	0	0	0	0
K 10/9	8	5	1	0	0	0	0
J 9/5	12	12	1	2	1	1	1
J 9/6	1	0	0	0	0	0	0

has the similarity matrix

	K 10/6	K 10/7	K 10/9	J 9/5	J 9/6
K 10/6	0				
K 10/7	0	2			
K 10/9	0	2	14		
J 9/5	0	2	14	31	
J 9/6	0	1	1	1	1

As with the gods and goddesses so the ornamental varieties include several which are unique to a particular level; these of course do not influence the seriation but are included for completeness: (5) grilles, (8) pairs of pins, (9) orientalizing pin, (10) pomegranate bud, (11) framed amphora, (12) tasseled pendent, (15) volute and palmette, (17) horses-head ornament, (18) ring, (19) palm, (20) mirror, (23) astragalus. The abundance matrix

	5	8	9	10	11	12	15	17	18	19	20	23
K 10/6	2	0	0	0	0	0	0	0	0	0	0	0
K 10/7	0	1	0	1	0	0	1	0	1	2	0	0
K 10/9	7	3	0	2	0	0	1	4	0	3	1	0
J 9/5	5	1	1	0	1	1	0	1	1	4	0	1
J 9/6	7	1	0	1	0	0	0	1	0	1	0	0

has the similarity matrix

	K 10/6	K 10/7	K 10/9	J 9/5	J 9/6
K 10/6	2				
K 10/7	0	6			
K 10/9	2	5	21		
J 9/5	2	4	10	16	
J 9/6	2	3	11	8	11

Again a slight anomaly in the relation between K 10/9 and J 9/5 is apparent.

In brief, then, the typology using varieties does produce a consistent, satisfactory seriation, J 9/6, J 9/5, K 10/9, K 10/7, K 10/6 in all cases with only minor blemishes. Not only is this consistent with the stratigraphical sequence but also with Wace's general typology.

The next step is to distinguish those varieties which predominate relatively early, middle, or late in the sequence:

	38	39	40	41	45	47	48	49	51	52	54	58	63	64	69	73	74	5	8	17	19
K 10/6	0	1	5	6	0	1	3	3	0	0	0	0	1	1	0	0	0	2	0	0	0
K 10/7	5	4	5	12	1	8	10	2	1	3	2	0	7	2	1	1	1	0	1	0	2
K 10/9	4	5	12	21	2	23	13	9	1	7	6	0	5	2	2	8	5	7	3	4	3
J 9/5	15	1	21	10	9	28	8	9	7	0	0	0	3	8	2	12	12	5	1	1	4
J 9/6	2	0	8	6	0	8	5	3	0	0	1	2	4	0	0	1	0	7	1	1	1

Typology

In moving to the third method of analysis, the ideal hoped for is that there should be a stylistic development which progresses. The criteria used are not statistical or quantitative, and they need not be consistent for the whole period. In broad terms the sequence established by a combination of stratigraphy and seriation suggests a typological progression from simplicity to greater elaboration—this is the general trend from J 9/6 to J 9/5; and then from careful execution to greater carelessness—this is the trend from J 9/5 to K 10/9–6. For example, the soldiers in J 9/6 have simpler designs on their shields, and their heads and helmets tend to be of a simple and similar type: 38.1, 40.4, 7, 10, 8, 41.7, 2, 3, 5, 6, 42.1. There are a few which show greater elaboration in the rendering of the helmet: 38.2, 40. 6. And there are just two which approach the sophistication found in J9/5: 42.2, 43.1. In J 9/5 more elaborate shield blazons appear and greater care is taken in the rendering of detail on helmet and greaves: 38.3, 7, 15, 16, 39.1, 41.15, and especially 45.1–9. On the other hand, these elaborate and carefully made types do not form a majority in level J 9/5; the remainder can be considered either simpler or more careless in execution. It is not clear whether there are two sub-phases within J 9/5 which couldn't be distinguished stratigraphically, or whether the two classes of workmanship coexisted. In K 10/9 there are relatively few moulds showing the elaboration of shield design found in J 9/5: 41.21, 45.10, 11, whilst 38.16, 41. 15 are also found in J 9/5. The majority of types in K 10/9 are relatively simple in design. It is thus possible to suggest an underlying progression from a simple phase to a classic elaboration and then a decline.

As it stands, however, this sequence does not test the results achieved by the other two methods. The main point at issue is now seen to be the relative positions of J 9/5 and K 10/9. The scheme does not seem helpful because it is difficult to distinguish 'decline' from 'simplicity'. Thus whilst K 10/9 differs from J 9/5 because the more elaborate types of the latter are missing, its relative position in the sequence is not clarified by this observation. In a few cases such as 40.36, K 10/9 lies close to the types of J 9/6, but moulds such as 39.4 and 5, 41.21 and 27 with a simple shield blazon but more elaborate helmet, could as easily represent a stage after J 9/5 as between J 9/6 and J 9/5. In the attempt to distinguish features of late appearance the helmet of 45.10 might be considered to represent a decline; otherwise the goddesses 73.19, 74.13, 14, and 15 have a crudity which looks more like the result of carelessness than simplicity of design. There are equally crude examples in J 9/5: 74.4, 8, 9. In brief then the general trend of typology is not useful as a means of deciding otherwise uncertain cases. Stylistic grounds are not, in most cases, sufficient for assigning an undated mould to one period or another.

Comparison with the products of the other arts is in most cases just as unhelpful. Thus the warriors with animal blazons on their shields are first found in J 9/5—that is to say, in the course of the sixth century. In vase-painting such blazons occur earlier, in the Proto-Corinthian and contemporary styles of the seventh century. The difference of technique between the lead

figurines and painted vases make comparison in details of style difficult.[5] In one case at least, however, it is possible to argue for an influence from vase-painting on the lead votives. Athena first enters the repertoire of the votives in the course of Lead 3/4. The innovation is evidently not the result of a change in cult; Athena is an important deity in Sparta from much earlier times. On the other hand, the iconographical norm of Athena with an aegis decorated with snakes seems to have been the creation of the artists who painted the first Panathenaic Amphoras. The Burgon Amphora (British Museum B 130) is a case in point.[6] The widespread distribution of these prize vases no doubt made the image familiar throughout Greece, and would have inspired the new types of lead votive in the middle of the sixth century.[7]

Periods and Moulds

In conclusion then it is possible to recognize only the most general trends in the typology of the figurines. On the other hand, the stratified groups suggest that certain moulds were first introduced at certain periods which have been equated J 9/6 as Lead 3, J 9/5 and K 10/9 as Lead 3/4, and K 10/7 and K 10/6 as Lead 4.[8] So that while it is difficult to isolate a given mould as stylistically distinctive of one period or another, it is still possible to list 'type fossils', as it were; that is to say, well-preserved leads which typify the current style of a given period, though this term is not entirely apposite because the moulds represent the current style but do not disappear from later levels.

Lead 3

Warriors: 38.1, 40.7, 41.2, 3, 5, 6, 7, 42.1, 43.1
Female votaries: 47.3, 4, 5, 11, 48.2, 6, 49.3; (Lead I), 50.1–3, 53.1, 54.1
Griffins: 66.1
Sphinxes: 72.1–2.

There are some moulds of Lead 3 which appear to anticipate later developments.

Warriors: 40.6, 42.2, 4, 43.1.
Female votaries: 47.9, 48.4–5.

In the case of the flautist 55.1, the later flautists are more crudely executed, but the degree of modelling might suggest a transitional phase. The same might also be said for the harpist 56.1 and the padded dancer 57.3, whose modelled musculature anticipates that of the gods of Lead 3/4 (moulds 75.2 and 77.1) The Artemis 73.1 is the only deity in Lead 3.

Lead 3/4 A

Warriors: 38.3, 7, 16, 15, 39.1, 41.8, 10, 15, 45.1–9
Females: 47.27, 28, 32, 48.8, 50.4–6
Deer: 64.1–7
Artemis: 73.5–10
Athena: 74.3, 4, 5, 6, 7, 10, 11, 12
Gods: 75.1, 76.1, 77.1.

[5] Payne recognized a similar problem of comparison in the case of the 'Argive-Corinthian' metal reliefs, see *Perarchora I* 144, *Necrocorinthia* 223, and E. Kunze, *Arhcaische Schildbänder* (Olympische Forshungen II, 1950) 227.

[6] Rumpf, *Chalkidischen Vasen* (1927) 143, where he dates the figurines to the last quarter of the 6th c.

[7] Some such prototype seems to lie behind the moulds which show a naked Poseidon with drapery over his arms. The same original must have inspired the series of silver staters issued by Poseidonia from *c.* 525, see C. Kraay, *Archaic and Classical Greek Coins* (1976) 168. (Was it not the Poseidonian Poseidon which inspired the Caulonian Appollo?) Unfortunately we do not know the original.

[8] Arabic numerals are used to distinguish our groups from those of Wace for which the original roman style is retained. By 3/4 is intended a stage after Lead 3, whereas Lead III/IV covers all the phases here distinguished.

LEAD 3/4 B

Warriors: 39.2–5, 40.29, 31, 36, 37, 41.21, 23, 25, 27, 30, 44.2, 3, 45.10–11
Females: 47.37, 39, 46, 53, 55, 48.14, 19, 22, 49.12, 19, 50.7, 10, 52.3, 6, 9
Deer: 64.9–10
Artemis: 73.14, 15, 18, 19
Athena: 74.13–15.

When these findings are compared in detail with the typology of Wace, based on the excavations at Artemis Orthia and the Menelaion, good agreement is found. In Lead 3 confirmation, that is to say first occurrence in Lead III/IV, is found in the cases of 10.1; 17.1; 38.1; 40.7; 43.1; 47.3; 50.3; 53.1; 55.1; 67.1; 73.2. One type, 49.3 is reported to occur first as early as Lead I; whilst 42.4; 47.9; possibly 53.1 and 58.1 occur in Lead II. In Lead III/IV and V 73.2 is said to be common, confirming its position at the end of the period covered by Lead 3. In Lead 3/4 the position is confirmed by 11.1; 17.6; 18.1; 19.5; 38.15; 39.1; 42.6; 45.1–2, 4–9; 45.11; 46.1; 47.32; 47.46; 48.23; 55.4; 55.8; 57.6; 57.7; 57.8; 64.1; 64.4; 69.2; 73.6; 73.9–11; 73.17; 74.2; 74.4; 74.5; 74.7; 74.11; 74.12; 74.15; 75.1–2; 76.2; 77.1. In Lead I occur 15.1; 55.10; 56.3; 65.1; 67.3; 71.1, whilst in Lead II there occur 12.1; 17.3; 17.5; 38.13; 41.26; 43.3; 47.55; 48.19; 62.1; 73.8. To Lead V Wace assigned 38.16; 51.4; 64.10; 73.7; 73.12; 73.20; 74.13; 79.1. Here, therefore, there is a considerable degree of agreement.[9]

In general then there appears to be reasonable agreement between the findings of the two excavations. That is to say, the specific moulds which might be considered to set the style for a given period tend to occur also for the first time in the appropriate levels at Artemis Orthia. When, however, it is attempted to use the stylistic criteria established from these groups to date moulds from elsewhere, the system appears to collapse. Thus warriors such as *AO* pls. 183.10 and 191.1 and 8 show an elaboration which appears to be the hallmark of Lead 3/4 to judge by our stylistic groupings, and yet they are attributed by Wace to Lead I and II. On present evidence it follows that typological and stylistic criteria are misleading as a guide to date. It is possible that the stratigraphical units of Artemis Orthia are unreliable and that there is a degree of contamination, as has been argued elsewhere.[10] Alas, not even Wace was so far ahead of his time to give us the statistical information which might allow us to make a judgement of the issue. At present a good sample of moulds is the best standard of comparison, and the only reliable grounds for dating any given context.

[9] 10.1 = *BSA* 15, fig. 11.22; 17.1 = *BSA* 15, fig. 11.12; 38.1 *BSA* 15, fig. 10.8, 13; 40.7 = *BSA* 15, fig. 10.14; 43.1 = *BSA* 15, fig. 10.7; 47.3 = *BSA* 15, fig. 9.23; 50.3 = *AO* pl. 195.31; 53.1 = *BSA* 15, fig. 9.25; 55.1 = *AO* pl. 195.43, *BSA* 15, fig. 9.39; 67.1 = *BSA* 15, fig. 10.44; 73.2 = *BSA* 15, fig. 9.8; 49.3 = *AO* pls. 181.8, 190.5; 42.4 = *AO* pls. 183.14, 191.13, 14, *BSA* 15, fig. 10.18; 47.9 = *AO* pl. 190.17; 53.1, cf. *BSA* 15, pp. 136 f.; 58.1 = *AO* pls. 191.22, 197.38, *BSA* 15, fig. 10.32; 11.1 = *AO* pl. 194.41; 17.6 = *AO* pl. 194.40, fig. 123*j*; 18.1 = *AO* fig. 118*e*; 19.5 = *AO* pl. 194.47; 38.15 = *AO* pl. 197.5; 39.1 = *AO* pl. 197.2,3; 42.6 = *AO* pl. 197.1; 45.1 = *AO* pl. 197.22; 45.2 = *BSA* 15, fig. 10.20; 45.4 = *AO* pl. 197.25; 45.5 = *AO* pl. 197.19; 45.6 = *AO* pl. 197.24; 45.7 = *AO* pl. 197.21, fig. 126*f*, *BSA* 15, fig. 10.12; 45.8 = *AO* pls. 197.23, 198.5; 45.9 = *AO* pl. 197.20; 45.11 = *BSA* 15, fig. 10.22; 46.1 = *AO* pl. 196.27; 47.32 = *AO* pl. 195.28; 47.46 = *BSA* 15, fig. 9.30; 48.23 = *AO* pl. 195.15; 55.4 = *AO* pls. 196.22, 197.37; 55.8 = *AO* pl. 195.45; 64.1 = *AO* pl. 194.4; 64.4 = *AO* pl. 194.2, *BSA* 15, fig. 11.4; 69.2 = *BSA* 15, fig. 11.7; 73.6 = *BSA* 15, fig. 9.4; 73.9 = *AO* pl. 195.8; 73.10 = *BSA* 15, fig. 9.2; 73.11 = *AO* pl. 195.10; 73.17 = *AO* pl. 196.1; 74.2 = *AO* pl. 196.16; 74.4 = *AO* pl. 196.8; 74.5 = *AO* pl. 196.2; 74.7 = *AO* pl. 196.11; 74.11 = *AO* pl. 196.15; 75.2 = *AO* pl. 198.17, fig. 127*e*, *BSA* 15, fig. 10.35; 76.2 = *AO* pl. 196.30; 77.1 = *AO* fig. 127*i*; 15.1 = *AO* pl. 181.17; 55.10 = *AO* pl. 183.24; 56.3 = *AO* pls. 183.19, 189.10; 65.1 = *AO* pls. 184.19, 189.25, 194.24, *BSA* 15, fig. 10.47; 67.3 = *AO* pls. 184.15, 187.13, 194.9, *BSA* 15, figs. 7.7, 10.43; 12.1 = *AO* pl. 185.8, *BSA* 15, fig. 11.28; 17.3 = *AO* fig. 123*b*; 17.5 = *AO* fig. 123*d*; 38.13 = *AO* pl. 191.17; 41.26 = *AO* pl. 191.10; 43.3 = *AO* pl. 191.9; 47.55 = *AO* pl. 190.19; 48.19 = *AO* pl. 190.4; 62.1 = *AO* pl. 191.19; 73.8 = *AO* pls. 188.7, 195.1; 38.16 = *AO* pl. 198.1; 51.4 = *AO* pl. 198.38; 64.10 = *AO* pl. 199.14; 73.7 = *AO* pl. 198.28; 73.12 = *AO* pl. 198.24; 73.20 = *AO* pls. 198.25, 27, 200.1; 74.13 = *AO* pl. 200.4; 79.1 = *AO* pl. 198.22.

[10] Boardman *BSA* 58 (1963) 1–7.

Absolute Dating

The Old Menelaion and the great pit

Thus far we have dealt with the relative chronology of the leads in the great pit. Even before attempting a seriation it was clear that the pit contained a primary silt, which held very little material and which must have accumulated very rapidly, and then a black carbonized level, in which the earliest deposit was that excavated as J9 level 6. Thus what we have termed Lead 3, it is safe to conclude, represents the first generation of leads after the cutting of the pit. Can an absolute date be given to this horizon?

In the history of the site a major reorganization is clearly to be linked with the construction of the Old Menelaion. On the grounds of architectural fragments, and in particular the distinctive disc acroteria, the building can be placed in the late seventh century or possibly the early sixth.[11] The original excavators placed the construction of the Old Menelaion in the late seventh century because several poros blocks were found in a pocket of black earth together with lead figurines and pottery belonging to that date.[12] This evidently refers to the pocket of black earth on the slope of the hill to the east of the sanctuary; if their stratigraphic position is clear, then presumably they were discarded in the course of construction. At least there is no evidence for stone building earlier than the Old Menelaion. The exact site of the original temple, the Old Menelaion, is uncertain; if it is to be associated with the stratigraphy at all, then the floor of beaten-poros fragments seems the best context. This was found in the earlier excavation at B and associated with 'a house for the staff of the shrine or for use as a store chamber'.[13] This floor is in fact dated quite closely, the deposit below being mainly sub-geometric, Laconian I and with some Laconian II (deposit A), that above consisting of Laconian III, IV, and V. The floor is quite substantial and rests on a sterile-earth packing which seals the level with early pottery. Could the earth packing have been derived from the great pit? In terms of chronology this works well, for the earliest deposit in the great pit coincides in date with the earliest finds above the poros floor. The substantial earth fill, the material used in the fioor's make-up, and the reasonably substantial composition of the walls combine with this chronological evidence to suggest that Wace's 'house or store-room' is in fact to be identified as the scanty remains of what was originally the Old Menelaion: the floor and perhaps internal cross walls, if we assume an original east–west orientation.

Thus the evidence converges to suggest that the Old Menelaion was the earliest temple building on the site; that it was constructed over a level containing Laconian I and some Laconian II pottery; that the great pit was essentially a quarry for material used in levelling the floor of the building; and the Laconian 3 material from the great pit gives an immediate *terminus ante quem* for the construction of the Old Menelaion.

Alkman and Absolute Chronology

These considerations assume further significance when taken into account with Alkman Fr. 14b (Page) '*καὶ ναὸς ἁγνὸς εὐπύργω Σεράπνας*'. Until 1957 Alkman was generally thought to have flourished in the middle of the seventh century, on the authority of Suidas and Eusebius' earlier date. Rohde accutely observed that although the two ancient authors differed in the absolute date, they both referred to the seventh year in the reign of King Ardys of Lydia.[14] Probably Alkman mentioned an event in that year, perhaps a destruction of Sardis by the Cimmerians

[11] *AR* 1976–7, 36; *Lak. Spoud.* 3 (1977) 413; for disc acroteria see now *AJA* 86 (1982) 193–217.

[12] *BSA* 15 (1908–9) 112.

[13] Op. cit. 113 and pl. 5.

[14] Rohde, *Kl. Schr.* 156–8; Page, *Alcman the Partheneion* (1951) 164–6; Bowra, *Greek Lyric Poetry*² (1961) 16–17.

rather than the foundation of Histros.[15] The publication by Lobel of Pap. Oxy. 2390, a commentary on Alkman, has changed the situation. West and Harvey, amongst others, now propose a later *floruit*, because of the mention of King Leotychidas.[16] In fragment 14 quoted above Therapne is given a suitably heroic epithet, but the context makes it clear that a contemporary not a mythical temple is the subject. The dating of the Old Menelaion, the earliest temple on the site, and thus the one mentioned by Alkman, serves to confirm the later date, and Eusebius' less favoured *flourit* of 609/8.

Do these synchronisms help with the dating of the phases of Laconian chronology? The interpretation of the stratigraphy given above suggests that the temple was built towards the end of Laconian II, before the beginning of Laconian 3. Alkman mentions the temple, therefore his life must coincide partly with the currency of Laconian 3. It is difficult at the outside to put Alkman's death later than *c.* 570,[17] and this in turn confirms a date for the transition Laconian 2 to Laconian 3 of *c.* 600/590; a slight brake on Boardman's attempt to lower the chronology.[18]

Conclusions

The main point of this exercise was to establish on firmer ground the chronology of the Laconian lead votives, on the basis of the combined results of three techniques: stratigraphy, seriation, and typology. The nature of the excavated deposits, slowly accumulating earthen fills in a large pit, was not such as to guarantee clear results. Yet such conditions are not rare at sanctuary sites and to that extent our findings might have some interest over and above the particular application to lead figurines. Seriation is a technique whose practice has not proved as simple as its theory.[19] Our first attempt at seriation illustrates the point. By isolating the moulds it was hoped that the results would be given great precision. On the contrary, it was found that the precision was too fine for the model to be applicable. Success was achieved only by using much broader arbitrary varieties which had originally been designed purely to help divide up the material; there was *a priori* no suspicion that any of the broad criteria used to define the varieties would prove sensitive to changing popularity. In the event, a simple and robust categorization proved more useful than a precise and detailed subdivision. The most disappointing method was that which has in the past proved most powerful in archaeological chronology: typology. It was indeed possible to recognize broad trends in the typology of the figurines and to suggest groups of moulds which might be considered to illustrate the current style in Lead 3, Lead 3/4 A, Lead 3/4 B, and Lead 4. On the other hand, it was impossible to define the groups in such a manner that a lead of unknown date could be assigned to one style or another. Thus deposits can be dated securely only on the grounds of a reliable sample which can be compared either through the frequencies of the broad varieties or specifically in terms of moulds.

A tentative chronology can be proposed, though this is clearly subject to the test of the pottery from the same deposits. In studying the deposits it was apparent that Lead O–II were not well represented in the recent excavations. J 9/6 on the other hand appeared to isolate a pure Lead 3 deposit, a part of the sequence which Wace was unable to separate. Further initial analysis by eye suggested that K 10/9 and J 9/5 overlapped and were contemporary with Wace's Lead III/IV. This is in agreement with the seriation and may account for the occasionally maverick

[15] Kaletsch, *Historia* 7 (1958) 25–7, an event which he places (p. 47) in 645 B.C.

[16] *CQ* 59 (1965) 188–94; *JHS* 87 (1967) 62–73.

[17] West *op. cit.*: Alcman precedes Stesichoros, Suidas s.v.

[18] Op. cit. in n. 8.

[19] Marquardt, art. cit. in n. 2.

behaviour of J 9/5 which usually fitted best before but sometimes after K 10/9. The sequence can be summarized as follows:

K 10/6			
		Lead 4	
K 10/7			
K 10/9		Lead 3/4	
	J 9/5		560
	J 9/6	Lead 3	
			600/590

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Menelaion, Sparta. Lead 3 moulds: 38.1, 40.6, 7, 41.2, 3, 5, 6; 41.7, 42.1, 2, 4, 43.1, 47.3, 4; 47.5, 9, 11, 48.2, 4, 5, 6; 49.3, 50.1, 2, 3, 53.1, 54.1, 55.1; 56.1, 57.3, 66.1, 72.1, 2, 73.1

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Menelaion, Sparta. Lead 3/4 A moulds: 38.3, 7, 5, 16, 39.1, 41.8; 41.10, 15, 45.1, 2, 3; 45.4, 5, 6, 7, 8, 9; 47.27, 28, 32, 48.8, 50.4, 5

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Menelaion, Sparta. Lead 3/4 A moulds. 50.6, 64.1, 2, 3, 4; 64.5, 6, 7, 73.5, 6; 73.7, 8, 9, 10, 74.3; 74.4,5, 6, 7, 10; 74.11, 12, 75.1, 76.1, 77.1

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Menelaion, Sparta. Lead 3/4 B moulds: 39.2, 3, 4, 5, 40.29; 40.31, 36, 37, 41.21, 23; 41.25, 27, 30, 44.2,3; 45.10, 11, 47.37, 39, 46

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Menelaion, Sparta. Lead 3/4 B moulds: 47.53, 55, 48.14, 19, 22, 49.12; 49.19, 50.7, 10, 52.3, 6, 9; 64.9, 10, 73.14, 15, 18; 73.19, 74.13, 14, 15

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