THE SOTIRA CULTURE: REGIONAL DIVERSITY AND CULTURAL UNITY IN LATE NEOLITHIC CYPRUS

by E. J. Peltenburg

The absence of *tells* in Cyprus, the concentration of excavations on cemeteries and the detailed typologies of pottery often designed to elucidate chronological progression have consistently led to difficulties in establishing contemporaneous prehistoric sites. Specialized types of pottery were set aside as funerary gifts at least as early as the Chalcolithic Period and so there are major problems in using these types to date settlement sites, and *vice versa.*[1] Adequate stratigraphical connections between the Philia "Culture" and Vounous type cemeteries, so crucial for an understanding of the position of Cyprus in the collapse of the adjacent EB (Early Bronze) world (EB II in Anatolia), are lacking and so the whole question of the origin of the Cypriot Bronze Age requires more relevant information, especially from settlements. It has also become apparent that in addition to functional differences in pottery there are regional variations and, as in the case of the Karpass area where retardation in the M–LBA (Middle to Late Bronze Age) plays an important role, these often invalidate the use of a style of pottery as a tool to prove that sites are strictly contemporary.[2] Thus, in order to obtain reliable sequences in prehistoric Cyprus in which nuances of localized development, exchange networks and foreign contacts can be assessed in perspective, a much broader range of material needs to be considered than floating pottery typologies. Area rather than single site fieldwork in particular will be helpful in tying sites and culture stages to a chronological framework. It is possible to begin to do this for the late neolithic period and this approach indicates a dramatic population increase *c.* 3500 B.C. in which many subsequent insular traditions have their roots.

In order to construct a relative chronology of prehistoric sites in Cyprus, Dikaios relied primarily on the evidence of stratigraphy, pottery typologies, C14 dating and an assumption of continuous occupations at sites.[3] Different pottery styles rapidly became synonymous with a rigid period scheme, Neolithic IB, II and Chalcolithic I, II. At his first major excavations, at Erimi, the most distinctive pottery recovered was painted with red designs on a chalky white slip which he termed Red on White ware (RW). Subsequently he found more RW with noticeably different shapes and designs on buff white in levels immediately following aceramic ones at Troulli. Since Erimi had produced metal, the Troulli boldly painted RW, as apparently confirmed by the stratigraphy at that site, must be earlier. At Khirokitia however, the aceramic period was followed by deposits with combed pottery, a type which had occurred in the lowest Erimi levels. When at Sotira and other sites he found that this combed pottery was associated with a radically different cultural horizon than that of aceramic Khirokitia, he could with justification divorce this material evidence on a chronological scale and so eventually he proposed a cultural sequence in which the stages had certain diagnostic features. Thus *IA was aceramic, IB had boldly painted RW, II combed decoration,* and *Chalcolithic I more restrained RW.*

Despite the fact that as early as 1947 Dikaios found boldly painted RW in the same Sotira levels as combed pottery, their division into chronological periods was maintained when the latter failed to occur with the RW.[4] C14 dates later disclosed an enormous gap between periods IA and II and so

[1] The Souskiou cemeteries in the Paphos District have produced bizarre shapes executed in the Erimi Culture Red-on-White technique, e.g. V. Karageorghis, *BCH* 98 (1974), 846, Fig. 40.

[2] For the Karpass cf. E. Herscher, *RDAC* (1973), 62 ff. and R. S. Merrillees, *Australian St. in Archaeology* 1 (1973), 44 ff.

[3] See P. Dikaios, "The Stone Age", *SCE* IV, IA, 177 ff. for a summary of his conclusions (hereafter, *The Stone Age*).

[4] Cf. P. Dikaios, *Bull. of the U.M.* (Philadelphia) xiii. 3 (1948), 23 fig.

the earlier position of this RW, confined to a IB slot, was a convenient, though partial, filler. Since then another type of pottery has been found to precede this RW and so the IA–B link had to be forced asunder; recent C14 dates of material associated with the more exuberant RW pottery have drastically lowered its chronological position and made redundant the period labels.[5] These strains on the conventional terminology for the prehistoric Cypriot sequence are being felt in the introduction of such terms as "protoceramic" and "transitional IB–II" for the boldly painted RW.[6] There is therefore still a tendency to treat the latter and combed pottery diachronically.[7] Since both styles have again recurred in the same levels at more recently excavated sites, a different explanation seems called for.[8]

A comparison of two widely separated sites in which there is a mixture of these styles provides evidence for intimate links in an overwhelming number of the known aspects of material culture. These are briefly documented in the following sections.

SOTIRA AND AYIOS EPIKTITOS VRYSI

Architectural Evidence

The two sites are Sotira, which consists of a shallow occupation of mainly free-standing houses on a hilltop in the south of Cyprus (Fig. 1), and Ayios Epiktitos *Vrysi* (henceforth *Vrysi*) with its deep occupation of contiguous houses on a coastal promontory in the north (Fig. 2).[9] Their physical configurations and general plans are thus quite dissimilar, yet in spite of this the overall house sizes and details are strikingly alike. The compressed nature of the building clusters at *Vrysi* (Pl. VII A) is due to the constriction imposed by artificial hollows, whereas no such topographical limitation existed at Sotira. Since the southern boundary of the *Vrysi* settlement is not known, we can only fix its minimum size, which is 0·5 ha.; some forty-seven houses were found at Sotira, compactly arranged on the 0·25 ha. plateau and perhaps dispersed on its *c.* 1·25 ha. south-eastern flanks.[10] Most buildings are hearth-centred and so functionally comparable house units. The smaller average floor area at *Vrysi*, almost 15 m.^{2}, may be due to the size of the hollows; it is *c.* 16 m.^{2} at Sotira. Densities of these uniform structures vary too much and too irregularly in the exposed areas of both sites to warrant feasible extrapolations for total house numbers.

Houses at both settlements tend towards the square with rounded corners as can be seen from the most free-standing of structures, but plans are variable, the planning distinctly empirical. Their stone foundations (high at *Vrysi*) are irregular or with facing stones and rubble infill, only 0·40–0·50 m. wide, and support single storey mud brick or pisé superstructures with reed and mud roofs.

[5] E. J. Peltenburg, *PPS* 41 (1975), 35 f., 41, 43 (hereafter, *Vrysi preliminary results*).

[6] E.g. V. Karageorghis, *The Civilisation of Prehistoric Cyprus*, 42.13; "Zypern" in *Propyläen Kunstgeschichte* xviii, 206.140.

[7] See *The Stone Age*, 195 f.; *CAH*^{3} I.1, 547 ff.; T. Watkins, *RDAC* (1973), 39 ff. Watkins now believes that his painted pottery neolithic and combed ware neolithic stages are at least in part contemporary (pers. comm. 28.xi.76); M. Yon, *Manuel de céramique chypriote* I, 7 ff.

[8] T. F. Watkins, *RDAC* (1970), 1 ff.; E. J. Peltenburg, *RDAC* (1972), 11 Fig. 5, 13, Pl. III:1.

[9] Figure 1 is adapted from P. Dikaios, *Sotira* (hereafter, *Sotira*), Pls. 8, 10 and individual house plans. Dikaios distinguished four phases, the most expansive being III which was destroyed by an earthquake. The plan of Fig. 1 represents Phase III, including those houses which persisted from the earlier Phase II but are not indicated as occupied in *Sotira*, Pl. 10. The latter is in fact a *building* rather than an *occupation* plan; our additions are Floor II of Houses 1, 3, 5, 7 and 9 but not 13A since H13 was the one standing at the time of the earthquake (*Sotira*, 86 f.). The *Vrysi* plan of Fig. 2 is the Middle of the three major phases discerned at that site: cf. *Vrysi preliminary results*, 21 Fig. 2, Pl. III upper. In both cases therefore we are comparing the villages at their known maximum extents.

[10] Its hillsides are subject to erosion and were in any case only sounded; Area IV however indicates dense occupation on parts of the slopes: *Sotira*, Pl. VIb.

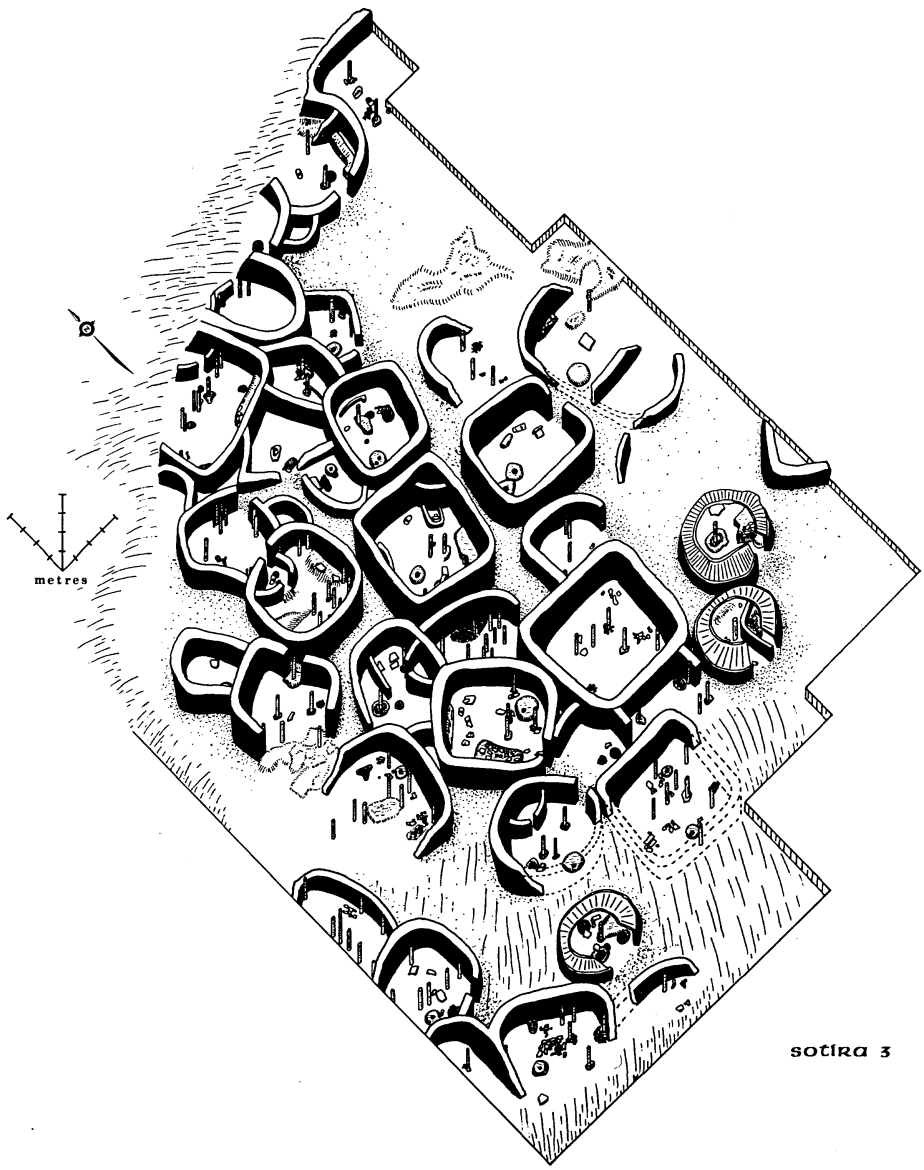


Fig. 1. Isometric reconstruction of the plateau area of Sotira III.

Timber posts were used extensively in conjunction with roof beams and in addition at *Vrysi* for bracing walls.[11] In relation to amounts recovered at *Vrysi*, the pisé fallen on the Sotira floors is scanty and so, if not eroded or intentionally removed, the latter may have had houses of lower elevation, perhaps because of their more exposed position. Most houses are provided with 0·50–0·60 m. wide doorways, some with steps, which lead to winding passage-ways without regard for a strict orientation.

Internal arrangements are standardized on the packed mud or clay floors; prominent off-centre platform hearths, pisé or stone benches against the walls, earth-fast utensils in clusters and often a

[11] For rafters, reeds and mud, see *Vrysi preliminary results*, 26. Dikaios regarded fixed cupped stones as post bases (*Sotira*, 149), but this is not certain at that site, much less so at *Vrysi*.

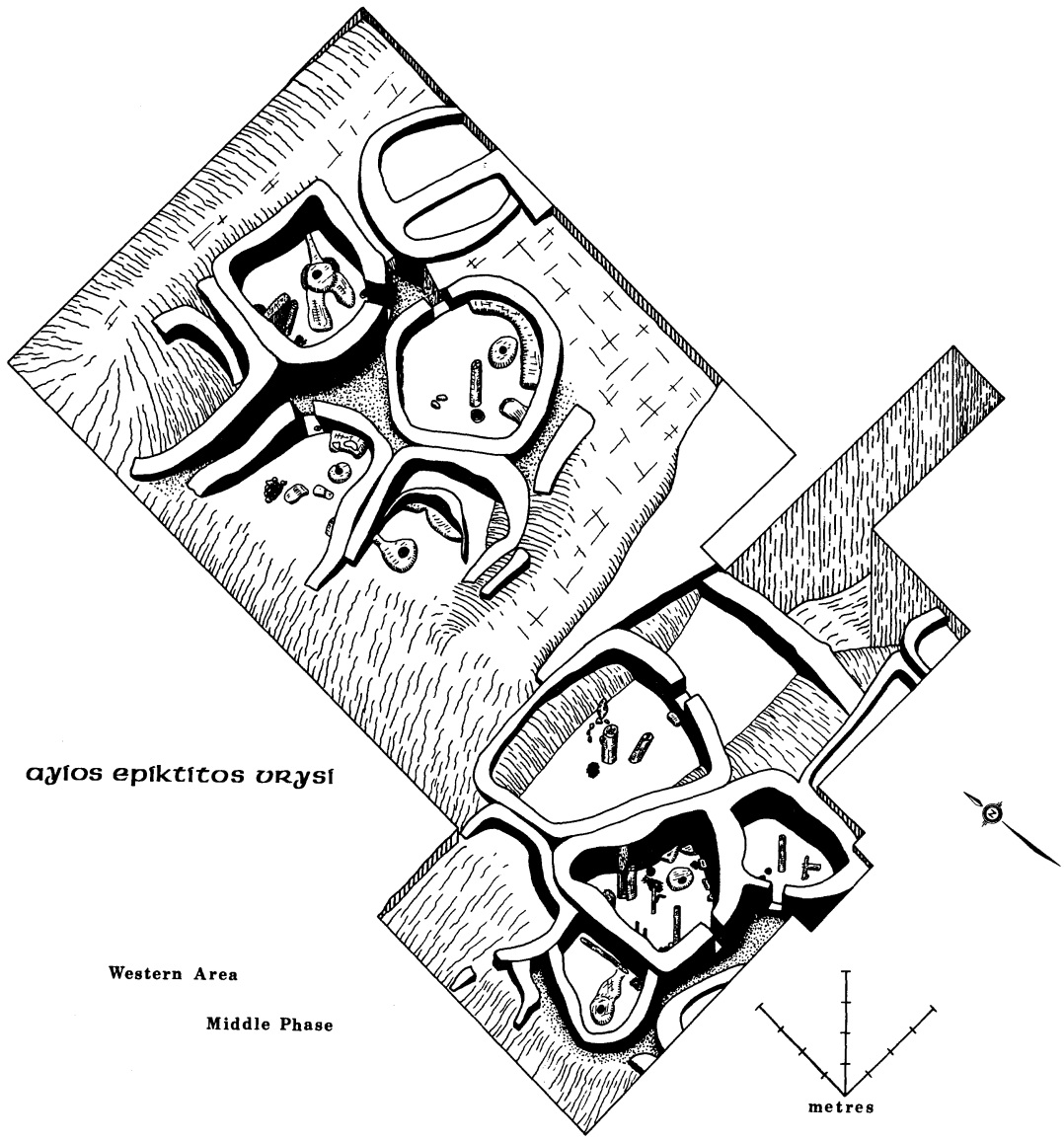


Fig. 2. Isometric reconstruction of the Western Area of Ayios Epiktitos Vrysi Middle Phase.

semi-circular partition wall demarcating a small corner area. Thus, monocellular house size, shape, building materials, internal fixtures and their disposition and possibly settlement area are essentially the same at both villages.

Artefact Evidence

This overriding impression of identity extends to the movable utensils and tools from the houses. The same range of equipment—stone bowls, cupped stones, cutting, chopping and gouging tools, grinders, hammerstones, pestles, mortars, rubbers, querns, pottery containers, pierced discs

and bone implements (Fig. 3)—and most of the sub-types of each class of object, are present.[12] Even rare items such as multiple pierced serpentenite beads, clay studs, cylindrical bone beads, toggles and hooks (Fig. 3Y–AD), "flaked celts" and bone "chisels" are common to both sites.[13] Such differences as exist are mainly quantitative and concern the various materials employed for the objects. The geology of the sites' environs is similar and, as the "sandstone" objects and building stone extracted from the *Vrysi* headland indicate, there was exploitation of local resources but a common cultural tradition.

Most of the quantitative differences are discussed below (p. 64), where it is argued that they reflect adaptive economies. The remainder include more serpentenite beads (27:5; closer to sources?) and perhaps polishers at Sotira, more studs (36:2; paint mixers?) and multiply cupped stones at *Vrysi*.[14] A large grooved figure is unique at *Vrysi*, but conforms to the schematization of the Sotira figure (Fig. 3X) rather than anything else, and the axe sharpeners from the northern site are also unusual; but axe making was in any case carried out in the Sotira settlement.[15] So few are these disparities that they serve to emphasize the profound and varied range of artefact parallels (Fig. 3). Expected but missing goods, such as obsidian and metals current in the mainland Levant, also support these close connections.[16] Lamps at *Vrysi* become more common in houses which are built in the deeper parts of the scoops and this suggests that we are dealing with local adaptations by a practical peoples rather than any fundamental difference in culture.[17]

Crafts Evidence

The "home industry" nature of crafts is a feature of both communities. Evidence for flint, pottery, and axe and chisel making (above, here), is found inside houses together with ordinary domestic equipment. In addition, the incompleteness of stone ornaments at Sotira, stone bowls at *Vrysi* and bone beads (pl. VII B) at both sites attest to other localized but typical craft activities.[18]

Stekelis briefly described the Sotira flint industry in which forty-two cores from the settlement were recorded. *Vrysi* yielded fewer cores and perhaps the cherts in the adjacent pebble beach, where knapping floors are exposed, were exploited more extensively.[19] The presence of cores inside ordinary dwellings and the similarities of tool types again demonstrates the existence of identical craft practices.

Fragile trays and deep bowls of coarse ware at both sites could not sustain much travel and the impression of circular mats, such as those preserved in silicate form at *Vrysi*, on their bases indicates native, village manufacture.[20] Dikaios inferred Sotiran potting in general from chalcedony polishers and red and brown pigments; the parallel *Vrysi* evidence consists of possible polishers, a waster and pigments including haematite, which on burning would clearly give a strong red colour and clays rich in haematite or goethite: analysis of the paints on the pottery showed that the pigment was iron

[12] For the typologies of objects see *Sotira*, 172 ff.

[13] For the last two, see *Sotira*, 193 f., 203, Pls. 89, 105. Their function is not known.

[14] For an example of the last see E. J. Peltenburg, op. cit., Pl. II:2.

[15] Ibid., Pl. III:5 and *Vrysi preliminary results*, 29 for sharpeners; *Sotira*, 30.42, 35, 79, 101, 190 for unfinished specimens and hoards of likely river pebbles.

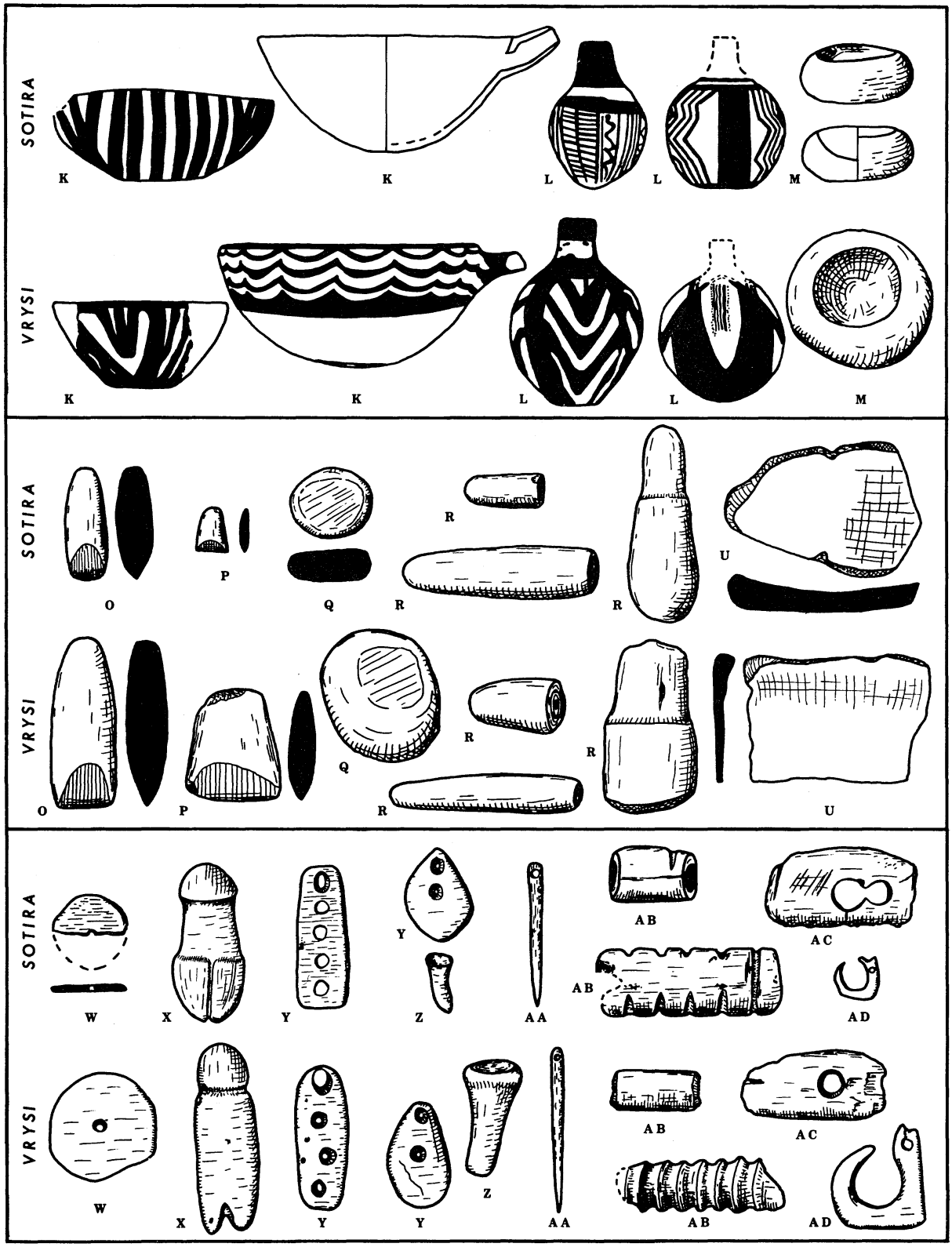
[16] An obsidian nodule from *Vrysi* (E. J. Peltenburg op. cit., 12) may be regarded as intrusive or collected as a curio from such a site as nearby aceramic Troulli.

[17] *Vrysi preliminary results*, 22.

[18] *Sotira*, 38.90, 49.257, 56.260, 102.177, 168.3, all of "picrolite"; our Fig. 3, Sotira AB upper may be an unfinished bead; E. J. Peltenburg, op. cit., 11 f. and in V. Karageorghis, *BCH* 98 (1974), 857.

[19] *Sotira*, 230 ff. His analysis does not distinguish between fine grained flint and the much coarser cherts. Our impression at *Vrysi* was that the former was rare and specialized, the latter ubiquitous and crude, but this assemblage remains to be studied.

[20] *Sotira*, 187 f., Pls. 84, 85; E. J. Peltenburg in V. Karageorghis, "Chronique des fouilles . . .", *BCH* 94 (1970), 246 Fig. 97.


SOTIRA
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oxide or haematite.[21] A possible waster embedded in a burnt, closely fitting hollow in one floor and the congruence of bowl and fire pit diameters at both settlements strongly suggest that most of the pottery was somehow fired in the raised hearths which are such prominent features of most house floors (Figs. 1, 2).[22]

Evidence of Religion and Burial Customs

The sites lack overtly religious establishments and the find spots of the two figurines inside ordinary habitations suggest the existence of household cults; there is no evidence for village shrines or a specialized, priestly caste. The rarity of figurines, however, may be misleading since we know that at *Vrysi* perishable materials and, probably, unworked stones were imbued with non-functional significance.[23] While the purpose of the stone figurines may well be debatable, their scarcity and their stylistic affinity (Fig. 3X) at least argue for a mutual intention and kinship.

Extra-mural pit burials were discovered at Sotira and may, with some confidence in view of all the other cultural analogies, be assumed at *Vrysi*.[24]

The similarities between the settlements therefore are multifaceted and constitute an archaeological culture, an assemblage of artefacts that recurs repeatedly, associated together in dwellings of the same kind and with burials of the same rite.[25] Sotira still gives us the fullest picture of this culture and so it is proposed here to call it the Sotira culture. It should not be confused with other terms or concepts such as Neolithic II or Combed Ware people/culture, which are frequently used as synonyms but which in effect distort our appreciation of this culture.[26]

With the growth of statistical approaches and new retrieval and analytical techniques, it is possible to go beyond Childe's useful definition and consider some basic behaviour patterns, economic subsistence and chronology. This does not mean that the first infers social structure or that the last requires contemporaneity. Cultures have persisted with little change for millennia and prehistoric human caprice can scarcely be quantified by modern statistical methods.

Some Behavioural Aspects

Apart from the economic evidence, to be considered below, two lines of enquiry, on the architecture and the finds locations, seem particularly worthwhile here.

[21] *Sotira*, 52, 167 f., 199 f.; analyses extracted from information kindly supplied by Dr. R. C. Mackenzie, Macaulay Institute for Soil Research.

[22] At both sites hearth fire pit diameters are 0·20–0·30 m., more regularly 0·20–0·25 m. at *Vrysi*, their shapes mainly hemispherical as RW or combed bowls or "funnel" as jugs. Several bowls have larger diameters than the fire pits, but the majority conforms.

[23] *Vrysi preliminary results*, 30.

[24] *Sotira*, 142 ff.

[25] V. G. Childe, *The Danube in Prehistory*, v f.

[26] *The Stone Age*, 184, 197; T. Watkins (1973), op. cit. 41 ff.; *CAH*[3] I.1, 547.

*Fig. 3. Sotira–*Vrysi *material culture comparison diagram. Sotira objects from* Sotira: pottery, *K left (Pl. 75:100), right (Pl. 86:96a); L left (Pl. 87:660), right (Pl. 87:305);* limestone bowl, *M (Pl. 92:677);* axe, *O (Pl. 93:128);* small axe, *P (Pl. 94:289);* stone grinder,, *Q (Pl. 99:400);* stone pestles, *R upper (Pl. 98:172), left (Pl. 97:250), right (Pl. 97:133);* quern, *U (Pl. 100 from House 1);* stone perforated disc, *W (Pl. 103:378);* stone figure, *X (Pl. 102:106);* stone ornaments, *Y left (Pl. 102:672), right (Pl. 102:86);* clay stud, *Z (Pl. 103:153);* bone needle *AA (Pl. 104:740);* bone "handles", *AB upper (Pl. 105:218), lower (Pl. 105:118);* bone "rectangular blade", *AC (Pl. 105:234);* bone hook, *AD (Pl. 105:233).* Vrysi *Objects mainly from* Vrysi preliminary results *and with* △ *from excavation records:* pottery, *K left (Fig. 6:4), right (Fig. 4:2); L left (Fig. 4:6), (E. J. Peltenburg, op. cit., 1972, p. 11, Fig. 5:7);* limestone bowl *M,* (△332); axe, *O* (△77); small axe, *P* (△146); stone grinder, *Q* (△208); stone pestles, *R upper* (△182), *left* (△362) *right* (△935); quern, *U* (△126); clay pierced disc, *W* (△129); stone figure, *X (Pl. VI right);* stone pendants, *Y left* (△485); *right* (△655); clay stud, *Z* (△286); bone needle, *AA (Pl. VI, lower);* bone beads, *AB upper* (△253), *lower* (△414); bone toggle, *AC* (△573); bone hook, *AD (Pl. VI, upper right). Not to scale; letters refer to location chart, Fig. 4.*

Architecture and planning in communities symbolize aspects of social order and with a relatively large part of the plan of Sotira, an extreme rarity for Near Eastern prehistoric sites, conditions are favourable for interpretation. Yet constraints on available planning space and evident flexibility on the part of inhabitants considerably modify the possibility of insights. Nonetheless, the main characteristic of both settlements is the extreme uniformity of the buildings, especially their shapes, sizes and contents. It is difficult to perceive any significant gradations and this conventionality is reinforced by the random, mixed locations of internal pursuits, including crafts and cult. This apparent lack of specialization, full-time specialists and hierarchical organization extends to the few burials at the base of Sotira which were internments in simple pits with poor grave goods.[27] Whatever the social organization involved here, it seems clear that both communities subscribed to similar social customs. The sector plan of *Vrysi* in which house clusters were divided by a natural barrier was retained and indeed accentuated when one sector expanded *away* from the other (Pl. VII A). Preliminary examination of the finds from the two segments however has not yielded discrete groups to substantiate a social motivation for this persistent division of the population.

We have seen that the types of objects disclose a common tradition in material culture; their relative frequency and distribution inside the villages moreover indicate similar behavioural patterns. Material wastage is high in both communities. So dense are items on restricted floor spaces (Fig. 4) that sleeping accommodation was probably at times in lofts, on roofs, or outside. There is evidence at *Vrysi* to suggest that what little unencumbered floor area existed was often assigned to pottery containers.[28] These considerations undermine straightforward floor space population equations. Almost all units are small and single hearth dominated; in an explicit arrangement in *Vrysi* House 1, individual seats were designed for two adults and two or three children.[29] The most likely socioeconomic division therefore is one family per house and the accretive planning system where annexes contain their own hearths suggests the extension of nuclear families as the basis for settlement growth. Subsidiary fireplaces occur frequently enough however for us not to discount the possibility of extended families. Since *Vrysi* House 1 should be considered marginally larger than normal, min. four per unit may be near the average, giving, at structure densities mentioned above, populations of 144 for the Sotira plateau only, and a minimum of sixty for the *Vrysi* Western Area only.

The floors themselves were primarily used for cooking, craft, heating, storage and sitting or crouching purposes. Hearths and nearby benches converge in the northern floor quadrants at Sotira, more persistently in the eastern one at *Vrysi* (Fig. 4). The differences in actual numbers of some objects per house may be more apparent than real since Sotira was destroyed, *Vrysi* cleaned and rebuilt. Thus only one pot was found *in situ* in the relevant phase of the latter (Fig. 2), but where a house had collapsed earlier, there were seven.[30] Bearing in mind that statistics of Fig. 4 have not been weighted to account for these circumstances, the frequencies of objects in the houses of both sites are broadly similar. Their distribution shows preferences for the concentration of domestic and craft activities, the eastern quadrant at Sotira, the southern at *Vrysi*. Houses were thus multipurpose units in which specific functions were closely integrated.

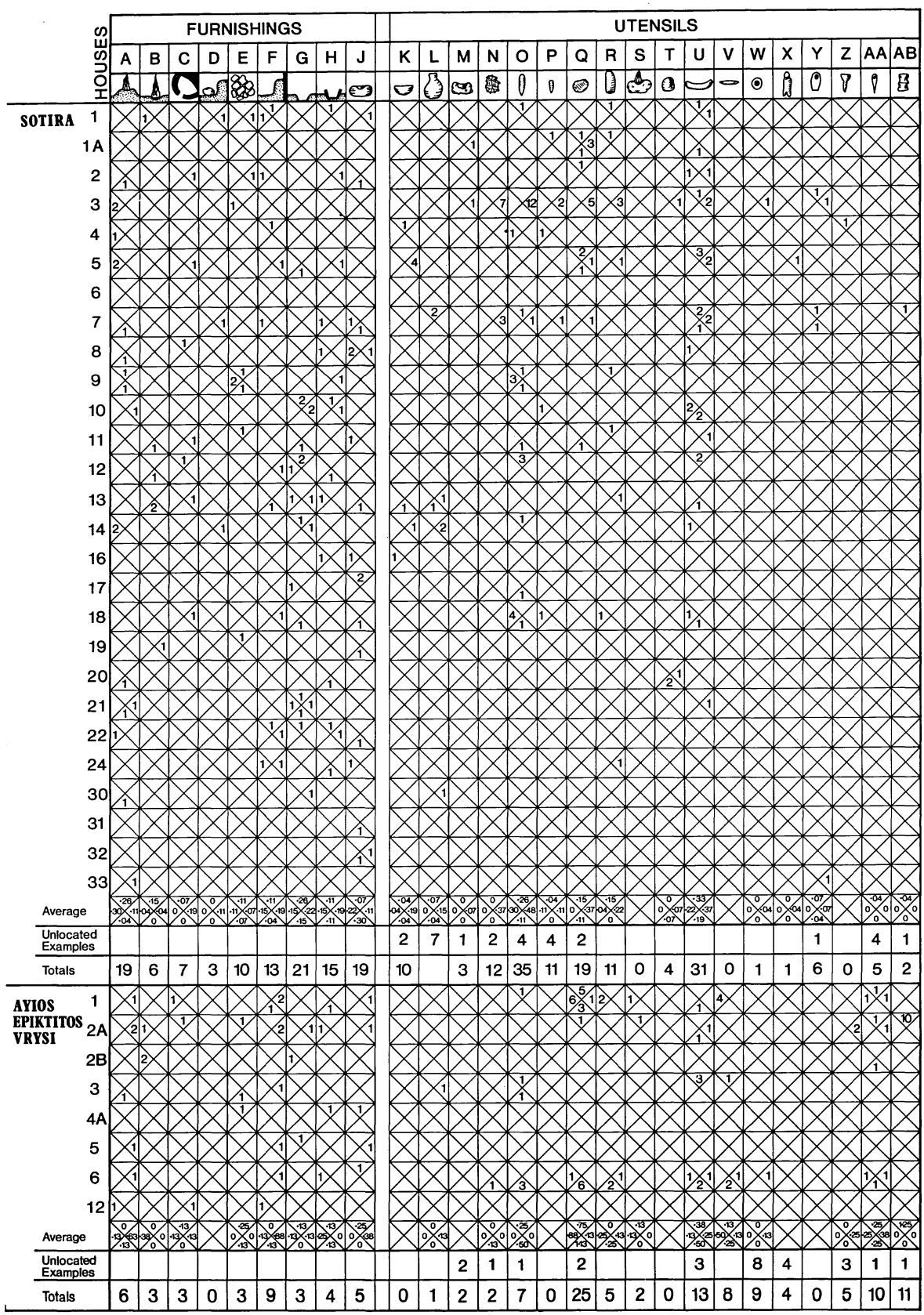
[27] The sherds and flints from the grave fills are more likely accidental inclusions from occupation debris than deliberate grave goods. The latter consist mainly of stones placed under or beside or on top of the bodies: *Sotira*, 142 ff.

[28] *Vrysi preliminary results*, 28.

[29] Ibid., Pl. IV lower.

[30] Ibid., 27 f., Fig. 4.

Fig. 4. Location chart of furnishings and utensils inside the Sotira and Vrysi *houses. Features are assigned to quadrants of house floors, each quadrant aligned to a cardinal point of the compass. For the type of utensils see Fig. 3. Furnishings: circular platform hearth (A); pit hearth (B); internal enclosure (C); workbench (D); paved areas (E); bench (F); pit (G); trough or basin of stones (H); cupped stone (J). Rubbers (V) were distinguished from querns (U) at* Vrysi, *but since this was not determined at Sotira, they are amalgamated for comparative purposes. Only houses with substantially intact floors are included. For utensils K–AB, see Fig. 3.*


FURNISHINGS
UTENSILS
HOUSES
A B C D E F G H J K L M N O P Q R S T U V W X Y Z AA AB
SOTIRA
AYIOS EPIKTITOS VRYSI
Average
Unlocated Examples
Totals

Economic Evidence

Data from the two sites are uneven. There are two conflicting reports on the Sotira fauna and a checklist of identifications of the *Vrysi* flora and fauna.[31] The original Sotira fauna list is short and includes large proportions of pig, deer and domestic goat; Ducos' later list includes such an overwhelming percentage of deer, 76%, that he postulated some form of semi-domestication. We do not know to what extent either analysis is exhaustive or even representative or random, nor the recovery procedure during the excavations. Domestic caprids (58%) are pre-eminent in the *Vrysi* assemblage; deer (28%), and pig (12%) are well represented.

Indirect corroboration for a greater emphasis on deer at Sotira may be forthcoming from a quantitative disparity between the sites of types of objects typically associated with caprids, namely pierced discs used as spindle whorls and fine needles. The *Vrysi*–Sotira ratio is 20:1 for the former, 10:1 for the latter and one should perhaps add that there is a greater variety of bone implements, frequently derived from caprids, at *Vrysi*. The ratios in fact are much higher if we take into account the smaller exposure at *Vrysi* (627 m.^{2}:2572 m.^{2}) and hence we may clearly infer an activity contrast. Their relative scarcity at Sotira and the larger antler picks and some antler handles there diverges sharply from the caprid dominated assemblage of *Vrysi* and so subsistence patterns at Sotira may well have been geared more closely to deer.[32]

Such limited heterogeneity in the animal focus is probably a result of local adaptations. Sotira, at 300 m., is situated in the rolling foothills of the Troodos Mts. where there is ample scope for *dama*, coastal *Vrysi* has a more limited hinterland, with but a narrow fringe of terrain suitable for *dama* below the precipitous slopes of the Kyrenia range. Intensive exploitation in the northern zone may have been impossible, and would, one suspects, soon deplete stocks if carried out. There is therefore no fundamental discrepancy between the communities, only diversified adjustments to local environments. It is perhaps more important to stress the many other economic acitivities held in common: pasturing of caprids, collecting sea shells, preying(?) on birds, possession of dogs and, very likely, reaping olives and grapes. The flint blades with sickle gloss and the prolific use of rubbers, querns, pounders and mortars at Sotira probably indicate the harvesting of cereal crops which are attested at *Vrysi*.[33] So, the villages show mixed economies in which there is a noticeable concentration on certain non-exclusive species, but essentially ones in which a nutritional, wide spectrum of food sources was actively exploited.

Chronological Evidence

Both settlements are characterized by a dearth of imported imperishables, especially any foreign products that could help to tie them to other, fixed chronological schemes. Exports from these or similar Cypriot sites are equally unknown.[33a] The earliest definite Cypriot correlation with external

[31] *Sotira*, 235 f.; P. Ducos, *RDAC* (1965), 1 ff.; E. J. Peltenburg in V. Karageorghis, "Chronique des fouilles . . .", *BCH* 97 (1973), 634, identifications by A. Legge.

[32] *Sotira*, Pl. 106.

[33] Ibid., 230 and n. 31

[33a] C14 dates provide an independent guide to relations between Cyprus and Ugarit during this period and the uniformly low Sotira culture dates must now cast serious doubt on the Cypriot origin of certain painted pottery from Ras Shamra IVC (*Vrysi preliminary results*, 17, 36, 39). Pottery similarities in the west, at the slightly earlier Saliagos site and at the Athens Agora are confined to generalized decorative motifs and do not constitute satisfactory evidence for connections: cf. J. D. Evans and C. Renfrew, *Excavations at Saliagos near Antiparos*, Figs. 39–41, 48–56; S. A. Immerwahr, *The Athenian Agora* XIII (1971), 11, 33.85, frontispiece and Pl. 7.

schemes is pottery, usually attributed to the Erimi painted tradition, in EB II Tarsus.[34] It is derived from the Erimi culture which has many features in common with our compared sites, but also many that are distinctive such as house forms and burial practices. This culture can be linked, albeit tenuously, without room for the Sotira culture, to the start of the Cypriot EBA and it possesses pottery that develops away from Sotira traditions. The Sotira culture, therefore, is earlier, at least as early as the first fortification wall of EB II Tarsus, but for closer relative dating we have to rely on a series of radiocarbon dates.

These assays from the settlements, whether in radiocarbon years or tree-ring corrected, overlap and so render the Sotira culture credible in time.[35] For the sake of strict comparison, the *Vrysi* Middle Phase dates (Fig. 5.4–11) should be considered with Fig. 5.14 which comes from the appropriate Sotira level. Except for two atypically high *Vrysi* results (Fig. 5.4–5), the ranges also indicate a short period of *c.* 500 years for the settlements, though they may have had even shorter existences. Taken with the consistent similarities in other aspects of archaeological culture outlined

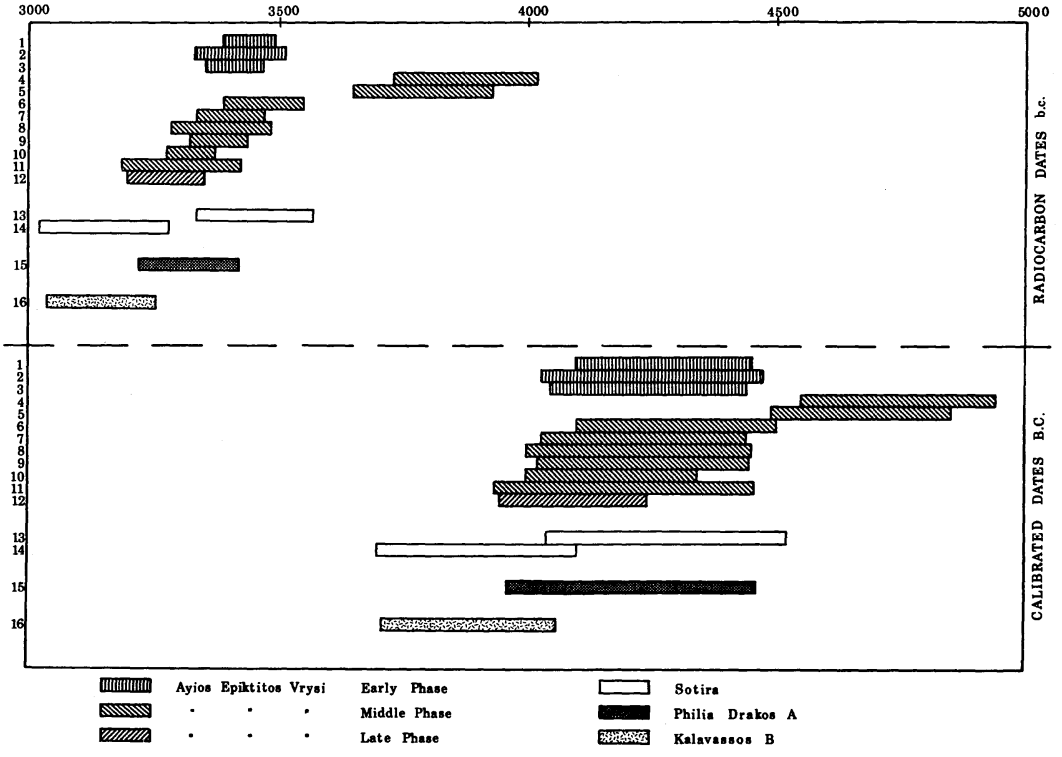


Fig. 5. Sotira culture chronological chart. Radiocarbon dates with half-life of 5,568 years, calibrated dates from McKerrell's scale in T. Watkins (ed.), Radiocarbon: Calibration and Prehistory, *117 ff. Laboratory references: 1 (BM-847); 2 (BM-846); 3 (BM-845); 4 (Birm-182); 5 (Birm-337); 6 (GU-522); 7 (BM-843); 8 (GU-523); 9 (BM-848); 10 (BM-844); 11 (GU-524); 12 (BM-849); 13 (St-337); 14 (St-350); 15 (Birm-73); 16 (St-419).*

[34] See H. Goldman, *Excavations at Gözlü Kule, Tarsus II*, Pls. 263, 347·379, 380. This jar shape is known at Souskiou: V. Karageorghis, *The Civilization of Prehistoric Cyprus*, 47.19. It is either from Room 119 or Room 120 in confused levels preceding fortification wall II but not from the earliest levels of EB II.

[35] For somewhat lower calibrated dates see now E. K. Ralph, H. N. Michael and M. C. Han, "Tree rings and Carbon 14 Scale", in *Union Internationale des Sciences préhistoriques et protohistoriques IX^e Congrès, Colloque I*, 101 ff.

above, this cumulative evidence demonstrates that these contemporary settlements belong to a single, Sotira culture which spans the island from north to south over mountain and wooded plain barriers in the second half of the fourth millennium bc.

Pottery Divergences

The two major styles of pottery, boldly painted and combed, hitherto regarded as signposts of different chronological periods, should, in the light of the above outline description of the Sotira culture, preferably be appreciated as coexistent styles. The interplay of these styles is of considerable interest for regional connections, but from the outset it is important to emphasize the similarities in the pottery. Indeed, we are only speaking of decoration since the variety of shapes and sizes (e.g. Fig. 3L) in the north and south are identical and at *Vrysi* the fabrics of the combed and painted styles are visually the same.[36] At Sotira the majority of pottery is monochrome, up to 45% is combed and up to 6% has painted designs. At *Vrysi* almost all the pottery belongs to the last class and the combed variety remains well below 5%.[37] The latter appears at *Vrysi* for the first time in its Middle Phase at the same time as the development of a multiple brush patterning known as rippling. This produces in positive a similar effect as combing does in negative (Pl. VIII A): both techniques involve the adoption for the first time in the pottery of Cyprus of composite tools. The two therefore are quite akin and although ripple patterning did not penetrate the south of the island, it became the most popular decorative technique in the north, in some cases equalling the high proportions achieved by combing at Sotira. Thus, the stylistic *trends* in the north and the south are alike, the former showing a preference for positive brushwork in a lively painting tradition, the latter for reserved decoration in a monochrome tradition. At the moment it seems that the combing device is more firmly rooted in the south and that hence its limited occurrence in the north represents southern influence. Prehistoric evidence of this kind cannot bear the political or social interpretations that have been applied to kindred stylistic divergences during the M.C. period for example, but it does show the existence of interchange which may have facilitated the growth of copper exchange networks in succeeding periods.[38]

The Northern and Southern Groups of the Sotira Culture

Six other partly excavated sites may be assigned to the Sotira culture on the basis of the occurrence of the above-mentioned diagnostic features held in common.

One is TROULLI, a coastal settlement like *Vrysi*, 6 km. to its west.[39] There are two periods represented here and only the later, ceramic one, concerns us. Its pottery is identical with Early-Middle Phase styles of *Vrysi* and there is no combed decoration present in this limited assemblage. The architecture and published artefacts are indistinguishable from *Vrysi* and examination of the unpublished material supports my conviction, derived from the publication, that the two sites had

[36] "Buff cores with pink edges, friable textures, irregular breaks, heavily concentrated coarse blue-grey mineral filler with some vegetable tempering, red paint on thick buff/cream slip, burnished" characterizes both combed and painted examples from *Vrysi* House 5B.1.

[37] Here the most frequent percentages from Phase III are used: *Sotira* 178, 183, 186; *Vrysi preliminary results*, 37 ff.

[38] Cf. D. Frankel, *Australian St. in Arch.* 1 (1973), 27, 43.

[39] *The Stone Age*, 63 ff., 180 f., 195 f.

mixed economies.[40] Dikaios' earlier date for Troulli rested on the assumption of unbroken occupation from the Khirokitia culture deposit, but the close *Vrysi* parallels and the development of Troulli pottery styles from earlier, intervening wares indicate that it is later and that it is another example of the Sotira culture.[41]

The second site is PHILIA-*Drakos A*, located upstream from Morphou Bay on the southern flanks of the Ovgos R. Four phases were distinguished here and the houses and equipment of the later ones largely belong to types found at *Vrysi* and Sotira.[42] Additions to the established variety of Sotira culture indices include underground chambers and decorated stone bowls.[43] Corresponding to its geographically intermediate position between our compared sites, there is a slightly greater variety of combed patterns than at *Vrysi*, but like the latter, the technique is not represented at the earliest stage and it is never numerically important within an essentially painted tradition.[44] Ripple patterns seem to be as prevalent as at *Vrysi* and so the pottery suggests that its later phases belong to the same northern variant of the late neolithic. Its contemporaneity is corroborated by a C14 date (Fig. 5:15).

Turning to the south of the island, there are a number of sites such as late KHIROKITIA, KALAVASSOS A and MARI *Paliambela*, which have the same ceramic range and similar stone tools as Sotira, but radically differing building habits.[45] We have already seen however, that flexibility in construction is typical of the culture, and that the free-standing buildings on the Sotira plateau represent the main or ideal strain in this tradition. At Khirokitia, and perhaps KALAVASSOS *Tenta*, occupants squatted among the ruins of *tholoi* and at KALAVASSOS A there are sunken dwellings or work hollows.

The total assemblages of artefacts, excluding pottery, is much poorer than at Sotira and hence there could be functional differentiations here rather than the chronological ones proposed by Dikaios. He preferred to envisage these sites as evidence for the intitial penetration of the island by peoples linked with the Beersheba culture, but the sites could quite conceivably be later than Sotira.[46] This would place them together with the similar Kalavassos B and early levels of Erimi in a post-Sotira, post-earthquake context.[47] In spite of the trend away from explanations by cataclysmic events, we cannot discount the possibility that the types of buildings on these sites represent an effort to ameliorate the consequences of earthquake damage caused to heavy, upstanding buildings of the *floruit* of the Sotira culture (Pl, VIII B) and to guard against possible future seismic outbursts. Viewed in this way, the disruption experienced at Sotira was symptomatic of a larger one with widespread effects including the roughly synchronous abandonment of the northern settlements just described, the precautionary moves by refugees into sunken, lightly roofed shelters and a general disruption which eventually led to the transition to the succeeding Erimi culture with a return to more substantial above ground houses again. Several earthquakes are attested during this period in the Jordan Valley at Teleilat Ghassul, though further definition is required.[48]

[40] Relevant economic material includes faunal remains; a number of spindle whorls reflects the importance of caprids in the economy: see above, p. 64 and E. J. Peltenburg (in preparation).

[41] Cf. *Vrysi preliminary results*, 35 f., 41; *CAH*[3] I.1, 548.

[42] See T. Watkins, *BCH* 93 (1960), 504 ff., Fig. 141c. Mellaart's dating of his "Philia Culture" is here considered too high and his consequent treatment of the site, divorced from others of its group, misleading: J. Mellaart, *The Neolithic of the Near East*, 132 ff.

[43] E.g. T. Watkins, *BCH* 95 (1971), 371 ff., Figs. 78, 82.

[44] T. Watkins (1970), op. cit., 7.

[45] See P. Dikaios, *Khirokitia*, 264 ff., 318 f.; *The Stone Age*, 106 ff. There are ambiguities in Dikaios' account of the *Tenta* and *Paliambela* sites. It is understood here that the latter has half-sunk dwellings with combed pottery and lies south of the Nicosia–Limassol road and that the former is a different site well north of the road with a sequence similar to Khirokitia. Dikaios' Mari *Tenta* site in fact lies in the Kalavassos village boundaries and is properly referred to as Kalavassos *Tenta* by its present excavator, Dr. I. A. Todd.

[46] Ibid., 182 ff., 197 ff.

[47] Ibid., 113 ff., 133 ff.

[48] J. B. Hennessy, *Levant* I (1969), 2 ff., but note the possibility that these are not earthquake but differential subsidence cracks, p. 22 f. Cf. also Possot's (d. 1532) description of Cypriot "houses low and almost level with the soil, because there are often earthquakes, and if they made great buildings they would generally sway and totter", C. D. Cobham, *Excerpta Cypria*, 64.

A difficulty is posed by the conflict between the Erimi style pottery and the Sotira culture period date (Fig. 5:16) from another Vasilikos R. valley site with sunken dwellings, KALAVASSOS B. On the face of it, this would suggest a third co-existing style of pottery in Cyprus, but the stratification at Erimi, its later C14 dates and the absence of Erimi style pottery on Sotira culture sites strongly militate against such an interpretation. The single Kalavassos B date which causes this awkwardness was in fact derived from a charcoal sample collected at the base of half-sunk dwelling VIII and the only pottery published from this habitation is distinctly at odds with that from the remaining pits.[49] It is in fact quite in keeping with pottery of the Sotira culture and hence the site which is on the same plateau as the acknowledged Sotira culture Kalavassos A, may consist of pits of different periods: indeed, A and B may be one site spanning the late Sotira–Erimi cultures.

Although there are two radically opposed architectural expressions evident in these excavated sites, the material culture forms a coherent entity. If the explanation of post-earthquake disruption for the half-sunk dwellings is accepted, the culture itself persisted albeit in a modified form and with diminished vigour and so all the sites can be considered together. More fieldwork may elucidate an early and late phase for the culture but in any case, the idea of dwellings in hollows is incipient from the earliest stages, at *Vrysi* and perhaps as temporary refuges at Philia though it is probable that the underground chambers there are late in that site's occupation. Clearly, problems for the future include the nature and perhaps further division of groups of communities, the identification of possible contemporaneous non-Sotira culture groups and the testing of the earthquake theory as an event attended by widespread regression effects.

The proportions of combed and painted designs at these sites correlates with the polarized statistics of the widely separated Sotira and *Vrysi* settlements and depends on their geographical position. On the basis of these coterminus styles, other sites can be ascribed to this period and since their pottery accords with these geographical distinctions, they confirm the existence of two regional groups or style zones ensconsed in a late neolithic cultural unity (Fig. 6). Distinguished by a painted tradition, sites of the Northern Group are found on the coastal plain and both slopes of the Kyrenia range and the Morphou Bay hinterland including the northern slopes of the Troodos Mts. The Southern Group with its monochrome pottery and high proportion of combed decoration occurs along most of the south coast, but fieldwork will probably amplify its distribution in Fig. 6, since only those sites with combed sherds are included; others with monochrome wares may well be late neolithic but the suspect survey material to hand lacks the diagnostic shapes which might inspire certainty.[50] The Troodos Mts. therefore acted as a greater hindrance to communications than the Kyrenia Mts., but such are the manifold links between the two groups that it would be wrong to draw rigid borders. As noted above, there may also be a slight variation in the economies of settlements but since the underlying cause appears to be adaptations to microenvironments, this shifting in emphasis may be local diversification rather than any adherance to broad regional generalizations. Thus some difference in subsistence between the Philia and *Vrysi* sites of the Northern Group, reflecting their riverine/plain and coastal/mountain environments, is to be expected.

[49] *The Stone Age*, 198, Fig. XLII.4. The circles, large areas of paint and wide bands contrast with the closely meshed lattice patterns and thin lines on pottery from other pits; a full publication and further survey by Dr. I. A. Todd might resolve this apparent anomaly.

[50] The Combed pottery in the earliest Erimi levels indicates continuity between the Sotira and Erimi cultures and a period of perhaps as much as about 500 years for the late Sotira manifestation. Early Erimi is not included as part of Fig. 5 because its monochrome shapes are typologically distinct and they, rather than combed pottery, are considered critical here.

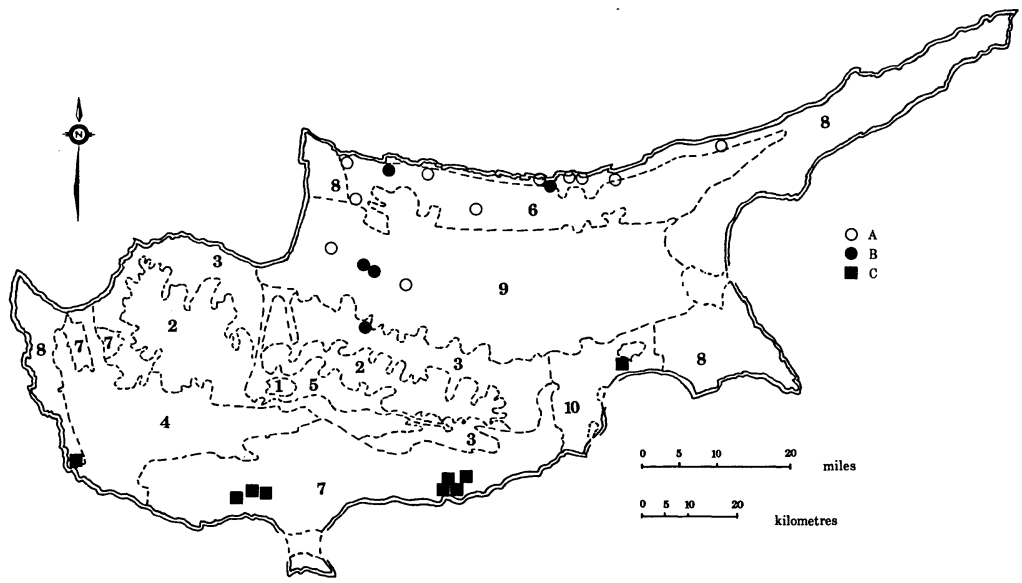


Fig. 6. Distribution map of Sotira culture sites of the Northern Group with a preponderance of painted pottery (A) and the addition of combed decoration (B) and the Southern Group with a preponderance of monochrome pottery and combed decoration (C). Climax vegetation zones adapted from D. Christodoulou, The Evolution of the Rural Land Use Pattern in Cyprus, *229, Fig. 117.* Pinus nigra *and* Juniperus foetidissima *forest (1).* Pinus brutia *and* Quercus alnifolia *forest (2).* Pinus brutia, Quercus calliprinus *and* Olea europea *forest (3).* Quercus infectoria *and* Q. calliprinus *forest on limestone and Mamonia (4).* Quercus infectoria *and* Q. alnifolia *probable forest on ultrabasic igneous rocks (5).* Cupressus impervirens *and* Pinus brutia *forest (6).* Cerotonia siliqua *and* Pistacia lentiscus *maquis or forest (7).* Juniperus phoenicia, Pistacia lentiscus *and* Ceratonia siliqua *coastal maquis or forest with or without* Pinus brutia *(8). Hypothetical forest of the Mesaoria (9) and Larnaca chalks and coastal plain (10).*

Hilly or coastal terrain, perennial supplies of water and a preference for the junctures of two or more environmental zones characterize the location of these late neolithic settlements. Climax vegetation Zones 1, 2, most of 4, 5 and most of 8 were largely eschewed because they are deficient in these properties (Fig. 6). The oak and lighter juniper with pistachio stands on the limestone of Zones 4 and 8 might produce some more sites, as might the well watered Zone 7 and parts of 3. Zone 9 should be divided into flat eastern and undulating western parts, the watershed at Nicosia. No sites have been found in the east, that is the Mesaoria proper. Since the earlier neolithic site of Dali-*Agridhi* lies but 0·50 m. below the alluvial plain on the banks of the Yalias R., it is unlikely that all late neolithic sites lie too deep to be detected and hence their absence in the Mesaoria is probably a real one.[51] However, we cannot exclude the possibility that slight occupation by forest dwellers in flimsy timber structures as at Ayios Epiktitos sites or reed shelters existed here.[52] In the Paphos District where there are several favourable conditions, the scarcity of Sotira culture material may imply lack of survey, avoidance because of as yet ill-defined coeval communities or abandonment after the demise of the Khirokitia culture.[53] Corollaries of the last case are that there was little

[51] Y. M. Lehavy, in L. E. Stager *et al., American Expedition to Idalion, Cyprus,* 100, Fig. 85.

[52] E.g. P. Dikaios, *RDAC* (1939), 74; *Vrysi preliminary results,* 22.

[53] For possible neolithic sites see J. M. Adovasio *et al., World Archaeology* 6 (1974–5), 339 ff., 356 ff. Since the criteria for the attributions of sites to a particular period are not defined not objects illustrated, it is difficult to assess the merits of the authors' case for the periods of their pastoralists' and horticulturalists' sites. Guided by A. and S. Kromholz, the Lemba Archaeological Project located a heavily eroded Khirokitia culture site on the Akamas coast, very probably Ayios Yerghios–*Argakitou Kannoudiou,* cf. K. Nicolaou, "The distribution of settlements in Stone Age Cyprus", *ΚΥΠΡΙΑΚΩΝ ΕΠΟΥΔΩΝ ΛΑ'* (1967), 48.35.

pressure for people of the Sotira culture to seek other suitable habitation space and that the west was first seriously colonized by an expansion of the Erimi culture westwards.

The Unity of the Sotira Culture

While therefore other types of communities may have existed at this time, the outstanding feature of the major sedentary population is its cultural standardization despite difficulties of communication. The Philia statistics for kinds of pottery, intermediate between *Vrysi* and Sotira though still wholly within the Northern Group sphere, point to overland rather than seaborne contacts. To judge from the abundance of axes, adzes, chisels and postholes from these sites, forests must have presented at least as many physical obstacles as recounted in the late nineteenth century for example by Hogarth.[54] There is no relevant pollen diagram for the period, but bores from nearby lands with comparable Mediterranean climate and vegetation such as N. Syria and Greece indicate woodlands rather than scrub or open plain.[55] Evidence that woods did in fact inhabit most elevations is forthcoming from charcoal identifications from *Vrysi* which include pine, oak and olive.[56] In addition to natural obstacles, the richness of available fauna and flora on the island has made isolation a common state of affairs especially in the absence of strong central authority, so much so that in ancient as well as modern times quite different anthropological types could prevail in close proximity.[57] The environment therefore enjoined self-sufficiency.

Because of these restraints, the causes and dynamics of this cultural cohesion must have been forceful and merit attention. Interchange clearly existed in view of the spread of the combing technique and presumably certain painted motifs and techniques, but as stated above, trade in pottery is not yet demonstrable.[58] Indeed, any form of trade is apparently rare and this reinforces the idea of self-sufficient communities gleaned from other evidence. Sources of serpentenite and good flint were probably much more extensive than is presently the case but they do remain potential exchange items. Short distance contacts, for example between inter-visible sites and bands collecting shed deer antlers in woodlands during spring, are likely to be more typical.

The uniformity of village sizes also suggests a lack of that type of trade which tends to increase the importance of sites in control of scarce commodities. The recorded sites are of village or hamlet size, *c.* 0·5–1·5 ha. or smaller, and there is as yet no known larger central places or special sanctuaries (and hence priesthood) as in Bronze Age Cyprus which might have served to bind the villages into a persevering cultural entity. Although there are no *tells* in Cyprus, *Vrysi* and Sotira were occupied for so long that we need not invoke rapid soil exhaustion and concomitant regular movements of people to account for the homogeneity. Intense conservatism no doubt played a part but this only preserves a *status quo*: the mechanism therefore may have been inherent in the culture's origins and development.

[54] D. G. Hogarth, *Devia Cypria, Notes of an Archaeological Journey in Cyprus in 1888*.

[55] Cf. J. Niklewski and W. Van Zeist, *Acta Bot. Neerl.* 19 (1970), 750 f. (Zone Z), not as satisfactory for this period as J. R. A. Greig and J. Turner, *J. Arch. Sc.* 1 (1974), 186 ff.

[56] Except for olive, sub-species were difficult to determine, though some oak is of the evergreen type. Identifications were kindly made by Dr. D. F. Cutler, Royal Botanic Gardens, to whom I am most grateful.

[57] Cf. L. H. D. Buxton, *JRAI* 50 (1920) 200.

[58] The localization of painted motifs and combing patterns are susceptible to cluster analysis: such analysis of M.C. material led Frankel to postulate marriage systems related to copper exploitation as the underlying cause of the distribution of specific styles (op. cit., 43). Neutron activation analysis of clays and pottery may also prove useful.

Origins, Growth and Legacies

A recurrent hypothesis for intrinsic bonds between groups, especially if they appear without forerunners, is to propose a single and often foreign progenitor. In seeking to explain the gap between the Khirokitia and Sotira cultures and the entirely new form of the Sotira culture, Dikaios, followed by others, looked to the Beersheban *facies* of the Ghassulian as its source.[59] His arguments include the similarity of underground structures, their development to free standing ones, ceramic parallels and chronology. We have however already seen that the architectural development implied by the Kalavassos A–Sotira succession could be reversed: indeed, the semi-subterranean Kalavassos B site which is certainly several centuries later than the supposed growth of upstanding architecture tends to support such a sequence. The closest parallels for the Tell Abu Matar troglodytic chambers and passages are in fact not the pits of either Kalavassos A or B, but the underground system at Philia: these too are later than most of the settlement's free-standing buildings.[60] While the architectural analogies therefore are far from persuasive, the ceramic affinities are even less so since they are vague, restricted to minor elements and involve pottery of the irrelevant later Erimi culture rather than that of the "intrusive" Sotira culture.[61] Moreover, several characteristic traits of the Beersheba *facies*—ovens, unpainted pottery, especially cornets and churns, elaborate stone vases, ivory-work, cattle, painted pebbles, metalwork and ossuaries—do not re-emerge in the presumed new homeland. As chronology from C14 dates cannot give priority to the Palestinian culture, the whole derivation arguments remains weak; earlier Cypriot developments in fact now supersede it as well as Mellaart's suggestion of an Anatolian origin for pottery of the Northern Group.[62]

The Philia pottery record apparently shows a gradual, native adoption of painted decoration onto the preceding Dark Faced Burnished Wares. The fabrics themselves then change in conjunction with a shift from dark to light slipped finish, to grit tempered wares of the Sotira culture.[63] It seems entirely an indigenous development, but unfortunately this site, and the so far ephemeral Dali-*Agridhi* occupation, do not provide enough antecedents for all the explicit features of the Sotira culture.[64] Clearly therefore we need more evidence from this period before we can satisfactorily discuss its origins, but the radiocarbon date range is at least consistent enough to show that it appeared *c.* 3500 bc. or somewhat before then and lasted, in its most vigorous form, several centuries to *c.* 3000 bc.

Both Sotira and *Vrysi* are new foundations and so too, by implication and lack of immediately earlier material at the sites, are most of the settlements described above. Only two sites of the preceding period are known, twenty-two of the second half of the fourth millennium bc., an increase in population, perhaps as well as sedentism, which is supported by the growth rates of the Sotira and *Vrysi* villages.[65] The former site witnessed a growth ratio of nearly 4 : 1, the latter involved

[59] *The Stone Age*, 197 ff.; V. Karageorghis, op. cit., 28.

[60] Cf. T. Watkins, *BCH* 92 (1968), 299.

[61] Dikaios himself was aware of the fragility of his ground since he said "such comparisons must not be stressed": *The Stone Age*, 199. Similar painted pottery trends in Palestine occur at such earlier sites as Ghrubba and Munhatta 2B1, the latter also possessing semi-subterranean habitats or work areas (J. Perrot, "La préhistoire palestinienne", *Supp. au dictionnaire de la Bible* VIII, col. 415.).

[62] See J. Mellaart, *Earliest Civilizations of the Near East*, 56 for an invasion model which was subsequently modified to "Anatolian ceramic elements" in *The Neolithic of the Near East*, 134. Mellaart's argument rests on Philia-Mersin XXIV–Ras Shamra IVc correlations which requires Cypriot dates not supported by the C14 record.

[63] T. F. Watkins (1970), op. cit., 1 ff.

[64] Y. M. Lehavy, op. cit., 95 ff.

[65] The two earlier sites have Dark Faced Burnished Ware and occupation deposits, but very few other accompanying features: cf. Ibid., and T. F. Watkins (1970), op. cit., 1 ff. More sites of this period will no doubt come to light but it remains elusive; its pottery, which was not recognized at initial surveys on the above sites, does not occur in the examined Survey Collection material in Nicosia, but one wonders if it might have been disregarded in preference for more obviously diagnostic combed, painted or other pottery.

an overspill beyond its original defences and betokens a noticeable assurance on the part of its inhabitants.[66] On a broader scale, new areas are apparently colonized and so we are dealing with a remarkable cultural efflorescence in Cyprus which prompted a crucial change in its demography.

Such population expansion inevitably put strains on village organization and the local carrying capacity of the land. For example, the narrow passages between houses at *Vrysi* were partly blocked at this time by extra fireplaces and grinding installations: communications must have been hindered by such squatting.[67] Community fission is likely to have resulted from these pressures and the fact that Sotira culture villages remained small indicates the ready availability of good land and the lack of stress on more productive sites. The proliferation of villages in this instance did not lead to the growth of surplus wealth, exchange and eventually towns, hence the mechanism to maintain unity was not dependent on economic efficiency. In the absence of evidence for more complex organization it might be suggested that expansion and fission took place rapidly in largely virgin country, that links between parent and offspring villages were based on kinship and that the nature of broader links (transhumance?) have yet to be detailed. The rapidity of some of the developments of this period can be gauged by the tempo of changes in painted pottery styles at *Vrysi*.[68] The new tendency to square or rectangular buildings also suggests a more outward-looking society and underscores the potential of this unprecedented population explosion, a potential which may well have been abruptly curtailed by earthquake(s). Thereafter the more inhibited circular house plans of the Khirokitia tradition re-asserts itself, at first as pits, then as timbered huts and finally as the free-standing round houses of the Erimi culture.[69]

The dramatic population growth about the middle of the fourth millennium B.C. which partly expressed itself in a novel architecture may have entailed change in which the Sotira culture is but the ultimate crystallization; some of its elements can be traced to the preceding period (see below, p. 73). The reasons for such an insular growth are not obvious from the cultural assemblage examined above. There is, however, evidence for grapes and olives at *Vrysi* and in the context of the Aegean, Renfrew has associated population increases there with the development of a typical Mediterranean polyculture based on the extensive exploitation of this flora.[70] The presence of olives is particularly well attested at *Vrysi* by olive stones[31] and indirectly by the recurrence of *Olea europaea* L.[56] and perhaps by a specific type of mat-impressed coarse ware tray. The latter is sometimes 0·60 m. wide with straight flaring walls, *c.* 0·10–0·20 m. high, lightly burnished on the interior and distinguished by a bung-hole immediately above the flanged base (Fig. 7). It is quite suitable as an olive oil separator in which the water below the floating oil is extracted by releasing the bung and the pure oil retained by pushing it back in again; similar examples existed in Crete.[71] These trays are numerous at *Vrysi* and Sotira as well as at other sites and may imply widespread olive exploitation.[72] Since Cyprus was quite isolated, this exploitation is an independent development, and one which probably began earlier, as at Dali-*Agridhi* which yielded olives and trays.[73] It is not so much the cause of the growth of the culture as a symptom of its success in taking advantage of suitable Mediterranean foodstuffs as staples.

[66] Cf. *Sotira*, 208; *Vrysi preliminary results*, 24 f.

[67] *Vrysi preliminary results*, 30.

[68] Ibid., 37 f., Fig. 8.

[69] For the social implications of circular and rectangular houses see K. V. Flannery, in P. J. Ucko *et al.*, *Man, Settlement and Urbanism*, 29 ff. The intermediate, half-sunk timbered huts were apparently succeeded by free-standing circular huts at Kalavassos B: *The Stone Age*, 133.

[70] C. Renfrew, in P. J. Ucko *et al.*, op. cit., 389.

[71] Cf. R. W. Hutchinson, *Prehistoric Crete*, 242, Fig. 45.

[72] The bung holes were seemingly not recovered at Sotira (Pl. 85) but they were numerous at *Vrysi* and consistently near the base.

[73] Cf. Y. M. Lehavy, op. cit., 85, Pl. I:3; and R. T. Stewart in the same volume. 124 ff.

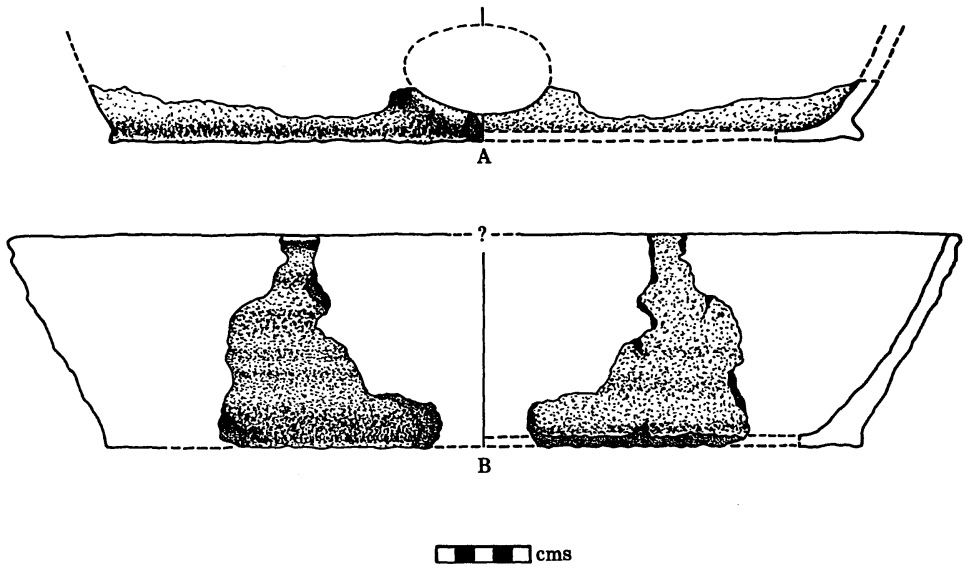


Fig. 7. Coarse Ware trays from Ayios Epiktitos Vrysi Middle Phase. A: House 1, Floor 3; B: House 2B, Floor 5.

The time and intensity of the Cypriot growth pattern nevertheless closely matches that of the Aegean. For example, at an equivalent period in Crete there is an increase from five to sixty-seven sites.[74] But such rates are not confined to a purely Mediterranean zone. It is about the middle of the fourth millennium bc. that the Ghassulian culture materializes in what had previously been a relatively impoverished Palestine and this Levantine upsurge extends into the semi-arid conditions of the wadi Ghazzeh and the Negev where the Beersheba *facies* becomes established. Settlement on a large scale also begins in arid regions, in Sinai and the Syrian desert.[75] Such an extension may have been rendered possible by a slight climatic amelioration during the moisture Atlantic phase, but it does at least indicate that the growth patterns are not solely related to areas of true Mediterranean climate.[76]

Other evidence can also be adduced to show that a heightened activity marks the peoples of the Near East in general at this time and that the mid-fourth millennium bc. sees a widespread horizon of galvanized societies. Proto-Elamite and Early Sumerian merchants then founded colonies along communication routes in far distant areas of Persia and Syria respectively.[77] Ghassulian Palestine in which there is a considerable enlargement of occupation area and number of sites over the preceding Wadi Rabbah phase has already been mentioned. An important spate of developments ensues now in Gerzean Egypt which distinguishes it as a watershed between the earlier prehistoric periods and dynastic Egypt. Characteristic of these advances is the opening of far-flung contacts, perhaps least contentiously signalled by the earliest appearance of lapis lazuli.[78] Closer to Cyprus, there is a notable expansion of the settled area of Byblos and the construction of a large, elaborate

[74] P. M. Warren, in R. A. Crossland and A. Birchell (eds.), *Bronze Age Migrations in the Aegean*, 41.

[75] See J. Perrot, op. cit., cols. 416 ff.; A. M. T. Moore, *Levant* V (1973), 64 ff.; B. Rothenberg, *PEQ* 102 (1970), 64 ff.; S. W. Helms, *Levant* VIII (1976), 7 ff.

[76] See I. Blake, *The Advancement of Science* 25 (1968–9), 409 ff. The Chalcolithic (his PN iii) in fact begins at least half a millennium earlier than Butzer's rainfall maximum of *c.* 3000 B.C. Growth in numbers of Chalcolithic sites over the preceding period is, according to Blake's distributions, 29 to 61, but the disparity is greater: see n. 75.

[77] H. Weiss and T. Cuyler Young Jr., *Iran* 13 (1975), 1 ff.; E. Strommenger *et al.*, *MDOG* 105 (1973), 11 ff.

[78] *CAH*[3] I.1, 481 ff.; J. C. Payne, *Iraq* xxx (1968), 58 ff.

sacred enclosure.[79] Imported precious objects also demonstrate the intensified pace of activity in the same manner perhaps as the Egyptian objects at the end of this period from Knossos.[80]. Thus, the expansive aspect of the Sotira culture is typical of a much more widespread phenomenon and hence may be due to causes that were general in their effects.

As far as Cyprus itself is concerned, the advent of the Sotira culture heralds the beginning of scattered, well-defined, mixed farming communities. The emergence of regional groups, most clearly illustrated by coexistent styles of pottery, set a pattern which, for changing reasons and with shifting geographical boundaries, became an abiding feature of subsequent periods on the island. The links with the Erimi culture are strong and indicate a cultural continuum on the isle which may well have persisted through the upheavals that ushered in the Bronze Age.

These salient criteria of the Sotira culture—regional groups of mixed farming communities with lively pottery-making customs—suggest that it stands apart from earlier cultures and at the head of several long-lived and distinctively Cypriot traditions, the durable agricultural backbone of the island in which most people have been engaged for most of its history.

[79] M. Dunand, *Fouilles de Byblos* V, 213, 235 ff.
[80] Ibid., 310 f., 315 f., 320 ff. (ivory, gold and silver); A. Evans, *Palace of Minos* II, 16 Fig. 6 (and perhaps others, later re-used).

Erratum

Page 63, Fig. 4 should be amended as follows:
SOTIRA House 4 Z: 1 in top, North, quadrant should be in AA, top quadrant;
10E: bottom, South, quadrant should have 1;
Unlocated Examples L: should be blank and the 7 registered under Total;
Total 0: should be 36
AYIOS EPIKTITOS VRYSI Total A: should be 7.