Since its publication, the 'Western String' model has become widely accepted (Davis 1979; Cherry & Davis 1982). However, new pieces of evidence have come to light since and new approaches to trade and acculturation have entered archaeological inquiry. I therefore wish to evaluate whether the 'Western String' can still be perceived as a helpful model for explaining interaction between Crete and the Cyclades. In this paper, I will not advocate the replacement of one general model with another; instead I wish to stress the importance of approaches which investigate spheres of interaction or relationships between individual communities.

The 'Western String' model

In 1979 Jack Davis published his seminal article on 'Minos and Dexithea: Crete and the Cyclades in the Later Bronze Age'. In the paper he addressed the phenomenon of great numbers of Minoan imports and Minoanizing items at the sites of Ayia Irini on Kea, Phylakopi on Melos, and Akrotiri on Thera, and the comparatively scant evidence for contact with Crete from other Cycladic islands. Davis suggested that this observed pattern is representative of the actual distribution and contact, and not a result of an excavation bias. The 'Western String' is what he calls the presumed route along the principal ports of call (Akrotiri, Phylakopi and Ayia Irini - each one a convenient day-trip from the next) for Minoan traders travelling northwards towards the Lavrion metal mines. As evidence for frequent contact between these islands, Davis points to Thera finds on Melos and Kea, Melian finds on Thera and Kea and Keian finds on Melos. Silver, lead, saffron and unguents, wool, and stone are the items most likely to have been traded along this network, and directional exchange is the most likely model of exchange as no distance related fall-off curve from Crete has been observed. The three islands might have served as redistributive centres of Minoan goods to other Cycladic islands (Davis 1979).

Initial responses to the 'Western String' led Davis to further clarify and expand his model. Although little evidence for contact has come from any other island, the 'Western String' was by no means the only route through the Cyclades that could be envisaged. Interaction could have occurred along alternative routes. “It is conceivable, for instance, that some mainland pottery reached Thera (and perhaps also Paros) along a W-E route from the Argolid via Melos, rather than by a N-S route along the ‘Western String’” (Cherry & Davis 1982: 339: footnote 21). The mode of travel was being envisaged as tramping – akin to a travelling bazaar (Cherry & Davis 1982: 339: footnote 21).

The 'Western String' soon became widely accepted, and, as an estimation of its perceived reality, has lost the quotation marks in the process (see Rehak & Younger 1998: 136; Graziadio 1998: 37; Mountjoy & Ponting 2000). Not long after, other preferential or directional routes, such as an East-West connection (via Crete and the Cyclades) and the ‘Eastern String’ (reaching from Crete via Karpathos to the Dodecanese and Carian coast) were proposed (Davis et al. 1983; Niemeier 1984).

In the following I wish to evaluate the 'Western String' model under a number of headings:
1. The meaning of ‘route’.
2. The nature and frequency of interaction between Thera, Melos and Kea.
3. The limitations of sea-faring.

*I wish to thank the participants of the Congress for their questions and comments. I would like to acknowledge the helpful comments and feedback from John Cherry and Bernhard Knapp.*
5. Active Minoans versus passive islanders.

1. The meaning of ‘route’.
There is plentiful evidence that the Minoans and Cycladic islanders interacted and traded goods with one another during the Middle and Late Bronze Age. What, however, remains doubtful is whether trading occurred along specific routes, such as the ‘Western String’, or if trading was actually a more flexible activity.

The ‘Western String’ model itself, by likening the route to modern-day ferry ports implies a much more regulated, linear route than the proposed mode of tramping would actually suggest. Also by implication, by assuming that the three islands stood in a special relationship with Crete the model suggests that it was these principal ports which were regularly approached by traders; this image of a regular route is more explicitly stated in 1982 where it is argued that “…the central and eastern Cyclades lay outside the regular routes of traders” (Davis et al. 1983: 335, emphasis added). And later in the same article “…it is also possible, of course, that the route [‘Western String’] followed this path in order to take advantage of the facilities and trading opportunities afforded by pre-existing centers” (1983: 340). Over the years, scholars have taken to interpreting the original model in terms of set routes. Mountjoy and Ponting think it possible that “there may well have been set trade routes through the Cyclades used by large cargo boats…” (emphasis added) and suggest a more specific route plan for traders between Crete and Lavrion along a northern route (Thera, Ios, Naxos, Paros, Syros, and Kea or via Thera, Ios, Sykinos, Folegandros) and the ‘Western String’, now redefined to include Melos, Siphnos, Seriphos, Kythnos and Kea (2000: 179).

From a purely theoretical standpoint, a model proposing a linear, regular travel route appears to be distinctly anachronistic – capturing more likely the ideal of modern-day travel than acknowledging ancient practice. Without the availability of modern technology, sailors were dependent on the current, weather and the winds. Flexibility must have been key. This is not to suggest that the patterns we see in the archaeological record are the result of random encounters. Undoubtedly, sailors waited for particular winds and utilized currents to travel to specific places, but I propose that there was no particular set route. Instead, each trading venture had its own motifs and specific destinations. Not all boats would have stopped at Thera, Melos and Kea. Some may have skipped one or more ports, others may have stopped more frequently.

2. The nature and frequency of interaction between Thera, Melos and Kea.
Davis asserted that the three Cycladic islands were in frequent contact with each other (1979: 146). Material evidence of such regular contacts would support the assumption that there was indeed a regular, defined route along the Western String and that tramping was an important mode by which goods were distributed. However, it appears that contacts between the three settlements were not as regular as commonly assumed. A study of the currently known material that moved between Thera, Melos and Kea reveals the generally small amounts that did travel. While Melos and Kea seemed to have been in regular contact with each other, Thera was primarily directed towards the south and east.

*Melian material at Ayia Irini:*
Imported were both Cycladic White and the coarser Melian fabric. Plenty of Cycladic White, generally attributed the Melos rather than Thera, was found in Period IV (early MC), and V (late MC). Overbeck estimated that Melian imports add up to 6% in Period IV, including beaked jugs, jars and bowls (Overbeck 1982: 40, 1984: 111, 1989a: 13). For Period V we unfortunately do not have such estimates, but it seems that Melian imports were at their most popular during this period and 15% of the published pottery has been classified as Melian. Imported shapes were the panelled cup, the Cycladic bowl, beaked jugs and hole-mouthed jars (Davis 1986: 83-84). Although this percentage is probably too high and is representative of a selection bias, it nevertheless indicates
that not infrequent contact existed. Melian vases continued to be imported on a smaller scale in LC I-II and included panelled cups, jugs and rhyta (Caskey 1972: 393; Schofield 1982: 12; Cummer & Schofield 1984).

Above and beyond ceramics, we have evidence of Melian obsidian reaching Ayia Irini: 119 obsidian fragments come from the early MC period (Overbeck 1989). 1005 obsidian fragments have been published from the late MC period (Davis 1986), 230 from LC I (Cummer & Schofield 1984), and 586 from LC II (Cummer & Schofield 1984).

Keian material at Phylakopi:
Evidence of Keian exports to Melos is harder to come by as there is a general lack of Keian pottery finds outside Kea (Overbeck 1982: 38-42). Assuming the best-case scenario, namely that all coarse red micaceous pottery found on Melos is of Keian origin, we get the following percentages which are based on my re-examination of Renfrew’s excavated pottery (Berg 2000: 138): 0.02% in late MC, 0.4% in early LC I, 0.08% in middle LC I, and 0.3% in late LC I/LC II - small amounts indeed.

Melian material at Akrotiri:
Four Melian breasted ewers have been imported into Akrotiri and can be dated to the MC III and later periods (Kilikoglou et al. 1990: 447); further MC and LC I Melian imports into Akrotiri existed but evidence is sparse (Kilikoglou et al. 1990: 447). In addition to ceramic finds, thirteen fragments of Melian obsidian have come to light at Akrotiri (Aspinall & Feather 1978; Doumas 1983: 43).

Theran material at Phylakopi:
One polychrome Middle Minoan IIIB Theran bird jug has been found at Phylakopi (Atkinson 1904: fig 92; Scholes 1956: 18.20; Marthari 1993: 250). Some Theran pottery is said to be present in MC and LC I (Kilikoglou et al. 1990: 447).

Keian material at Akrotiri:
No pottery of the coarse red micaceous fabric has yet been published from the excavations at Akrotiri.

Theran material at Ayia Irini:
Evidence for Theran pottery is sparcce. Marthari considers the Late Minoan IA griffin jar to be of Theran origin (1998), and LM IA nipped jugs have been mentioned (Barber 1978: 379; Davis 1977: 144-149; 1978: 259, footnote 2; Thorp-Scholes 1978: 438). One polychrome jug is certain to come from Thera (Cummer & Schofield 1984: 85, no 835), but as the authors themselves emphasise, “there are no obvious contacts with Thera in Period VI” (Cummer & Schofield 1984: 145).

To summarize, contact between the three settlements appears not to have been as straight-forward or as common as frequently assumed. Had goods been distributed at the principal ports through regular tramping ventures along the ‘Western String’ we would expect to see much greater quantities of local items occurring on the other islands. Thera’s interests lay south and the islanders were possibly only in infrequent contact with the central Cyclades in MC and LC I, as the small quantities of Cycladic pottery and Melian obsidian on Thera demonstrate. Likewise, only a few examples of Theran pottery have been found elsewhere, and Syro-Palestine gypsum vases, which were so popular on Thera, were not passed on to any of its neighbouring islands (Cline 1994). Melos appears to have had direct trade links with other Cycladic islands in all periods although the volume of recognizable imports and exports diminished over time. Kea had strong links with Melos as pottery and obsidian finds show. Such regular and close contact between islands is to be expected. Like Broodbank, I envisage the Cyclades as a place where exchange and mobility were essential to life. “…we need to envisage a virtually ceaseless movement between individuals, communities and islands, simply in order to keep life going and information flowing in the Cyclades. This
movement must have been made up of many different rhythms, including those of the female and male life-cycles, the agricultural calendar, fluctuations in climate over several different time-scales, migrations of fish, seasons for ceremonies, and consumption rates of non-local materials” (Broodbank 2000: 89). Kea and Melos appear to have been closely linked and formed part of the ceaselessly moving Cycladic network. Thera was less well integrated and was primarily directed towards the South and the East.

3. The limitations of sea-faring.
Several of the main foundations of the ‘Western String’ rest on modern assumptions about ancient sea-faring capability. The crucial points to consider are island-hopping and one-day travel distances. Davis argues that tramping would have been the preferred mode of progress, as Thera, Melos and Kea lie about one-day travel apart, they form a natural route between Crete and metal sources at Lavrion. The validity of the model in part relies on the notion that cost-hugging traffic was the most common way of travel and that most traders would need to stop at all three ports. However, Runnels asserts that ship technology improved visibly from the early Middle Bronze Age onwards (1981: 182; 1985: 43; Nordquist 1987: 67; Wachsmann 1998). Based on her own experience as a sailor, Georgiou emphasises that it is a common misconception that sailors preferred island-hopping to long-distance travel. In fact, long-distance travel may have been common in the Late Bronze Age Aegean as it was much more dangerous to be close to land than in the open sea in the event of a storm (1993: 360-361; cf. McGrail 1991: 87-89). Her self-reflexive ethnographic study is supported by Mantzourani’s and Theodorou’s reconstruction of possible sea-routes between Crete and Cyprus which allows for long-distance travel without the possibility of finding shelter at a nearby island (1991: 51 fig. 9; also Sherratt & Sherratt 1991: 357-358). Furthermore, as scholars have happily reconstructed a trading route by-passing Thera after its destruction by the volcano towards the end of LM IA (Mountjoy 1993: 168) there is no reason to assume that this was impossible in the early LM IA or even the late MBA. Likewise, if sailors could cross such large stretches of open water, they surely could travel directly from, for example, Thera to Attica. Georgiou’s argument for night-sailing also undermines the validity of the Western String model; if Bronze Age sailors were able to navigate at night, the need to have ports of call at a day’s travel distance becomes obsolete (Georgiou 1993 361).

The foundation of the 'Western String' model rests on the identification of participating settlements as being in a special relationship with Crete (cf. Schofield 1982). Akrotiri, Phylakopi and Ayia Irini, with large numbers of Minoan imports, were said to be the likely candidates as Davis felt that most Cycladic islands had been explored without uncovering such great numbers of Minoan imports. He believed that the high percentages of Minoan pottery were not the result of an excavation bias but indicated very strong contacts with Crete (Davis 1979). However, a surface survey at Mikre Vigla undertaken by Robin Barber and Olga Hadjianastasiou changed our understanding dramatically (1989). The analysis of the finds has shown that the island of Naxos, too, had a number of Minoan imports, indicating that Mikre Vigla might have been included in the 'Western String' route. Once we admit that other sites could have been as 'special' as Akrotiri, Phylakopi and Ayia Irini we then have to admit that the 'Western String' might indeed have been a 'Cycladic String', or rather a 'Cycladic Route' as 'string' implies linearity. Traders would not have followed a particular route but may have criss-crossed the Cyclades according to wind, sea, trade opportunities and cultural conditions. Although some islands might have been more important for the procurement of metals and other materials, traders might have reached them by a variety of routes (see also Georgiou 1993: 362). This view of trade has the advantage that it is infinitely flexible and is able to accommodate new finds and possible re-assessments of relationships between individual islands and Crete.

To assess the extent of Minoan involvement on Cycladic islands it is worthwhile recalling the actual quantities of Minoan imports to those islands. Percentages of
Minoan pottery imports from the three islands suggest that they received very different amounts of Minoan material. While it is certainly not expected that the three islands received the same quantities, these differences cannot be explained as the result tramping ventures which would result in a simple fall-off curve. Instead we will need to recognize our current ignorance of the many variables that may have influenced the interaction pattern with Crete. The following percentages have been established for the late MC/early LC I pottery (table 1).

<table>
<thead>
<tr>
<th>Site</th>
<th>Late MC</th>
<th>LC I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akrotiri</td>
<td>n/a</td>
<td>8%</td>
</tr>
<tr>
<td>Phylakopi</td>
<td>2.2%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Ayia Irini</td>
<td>8% (Minoan and Minoanising)</td>
<td>Outnumber all but local fabric</td>
</tr>
</tbody>
</table>

Table 1: Percentages of Minoan pottery imports around late MC/early LC I

The percentages fall into two groups: on one hand we have Akrotiri with a very high number of imports. On the other hand, there are Phylakopi and Ayia Irini with much lower figures. In fact, out of all the sites, Phylakopi has the lowest percentage of Minoan pottery imports. Even taking into account varying responses to Minoan cultural and economic influence as well as personal preferences, the differences are surprising. This enormous difference in quantities is unexpected if all these islands had frequent and regular contact along the 'Western String'. Is it really so unthinkable that Phylakopi was not one of the primary ports of call for Minoan trade? It is possible that Phylakopi was directed more towards trade within the Cyclades rather than inter-regional trade, resulting in strong, archaeologically observable, links with Kea and Naxos. Indeed, contact between Cycladic islands and Crete appears to have decreased further in LM IB. Chemical analyses indicate that almost all Minoan-like pottery of LM IB style in the Cyclades was produced in Attica, not Crete (Mountjoy & Ponting 2000).

5. Active Minoans versus passive islanders?

In his article 'Trade beyond the material' Renfrew argued that trade was not merely an economic but also a social and symbolic activity (1993). Being a product of its time, the 'Western String' model focused on the economic angle rather than the social dimension of trading activities (for traders, their families, and the receiving societies). Since then, a number of scholars have concerned themselves with the social and symbolic context in which trade occurs. Beyond the unpredictable physical limitations inherent in the trader’s reliance on wind and sea Broodbank asks us to consider the equally important social dimensions, such as labour requirements during harvest time, or prolonged absences from home (2000). Renfrew stresses that trade and communication are inextricably linked together. He points to social gatherings, marriage ceremonies with all their social, political and ritual connotations (1993). Other scholars have drawn our attention specifically to the cosmological dimension of travel. Helms (1988) has argued that seafaring, and by extension sailors and traders, was imbued with an exotic knowledge and a different kind of prestige. While adding essential additional dimensions to trade and seafaring, these approaches tend to focus on the sailor/trader to the neglect of the islander. Traders are being portrayed as active. The islanders are cast in a passive role - unable to influence the flow, quantity or quality of trade. The

---

1 Although the percentages come from slightly different phases and some of the imports cannot be accurately quantified, they establish a similar trend: Minoan imports into Ayia Irini still outnumber all but local wares in the late MC and LC I (although Caskey (1972: 392) warns that LB I mainland imports may by equally numerous). Minoan imports are much lower at Phylakopi during the same period (2.2% in late MC, 0.7% in LC I). The percentage for Akrotiri constitutes an estimate based on Marthari (1993: 249) where she states that all imports add up to 10-15% of the total assemblage, and that Minoan imports make up the biggest group, followed by Cycladic and Mainland imports.
‘Western String’ model too is built on this assumption: Cretan traders actively seek out metal sources at Lavrion. On their way north they stop at the Western String islands to exchange goods. The role of the islanders in structuring and negotiating their trade contacts is not being alluded to. As much as countries, regions and towns can gain a competitive advantage in our modern world by improving their infrastructure, tax advantages or changes in legislation, so could ancient people. The reverse is possible too. Countries can shut themselves off from part of their trading network or establish contacts with new trading partners. While it is difficult to analyse ancient societies in the depth required, there are some hints that Ayia Irini, for example, followed a particular strategy to market itself as more desirable to those trading also with Crete. The settlement had readily accepted Minoan features in the pottery production, architecture, religious symbolism, and stone vases. This openness towards Minoan features, together with much evidence for production (metal, wool) and trade (lead weights), has previously been regarded as a by-product of high levels of preferential trade contact with Crete. However, exposure to objects or cultures alone will not necessarily result in changes in one’s own culture – internal motivation of some kind must exist for new items to be taken over (Jones 1997: 115). I therefore suggest that the responsiveness towards Minoan features could equally well be interpreted as an attempt by the islanders to facilitate and profit from interregional trade. Ayia Irini appeared to have been “one big ‘workshop’” (Schofield 1990: 209). Thus, a partial reason for such an openness towards Minoan cultural features may have been the result of tactical considerations to enhance Ayia Irini’s attractiveness for traders (Berg 2000).

Conclusion
Once we discard our prejudices about the supposed limitations of prehistoric travel, we can accept trade routes which were not limited to day-time and strict island-hopping (Georgiou 1993: 361). Abandoning the assumption that Ayia Irini, Phylakopi and Akrotiri all were part of a regular or even set route opens our eyes to variations in the data. Although it seems likely that all mentioned sites were in direct contact with Crete, the intensity of contacts differs substantially. Ayia Irini and Akrotiri stand out as they have more Minoan pottery imports as well as other Minoanising items and show a greater diversity of materials imported. Phylakopi lies at the lower end of the scale with fewer Minoan pottery imports and fewer Minoanising objects. Instead of a linear ‘string’ we have evidence for a number of links between two or more settlements. Ayia Irini and Phylakopi seem to have been in regular contact, as well as Phylakopi and Mikre Vigla. Akrotiri has close links with Crete and the east but little Theran material found its way to the central Cyclades. While there certainly was traffic and trade between Crete, the Cyclades and the mainland I would envisage not a route but networks of relationships between individuals and communities - each with their own motif for trade and interaction. As Broodbank so poignantly remarked: “for as ever, the Cyclades were operating not as a cultural unit, but as a tangle of island communities pursuing converging and diverging pathways through history” (2000: 361). Some traders may have tramped and gone wherever the wind and currents led them; others may have had specific destinations in mind and may have reached those without stopping on the way. The time has come to move on from generalising models which treat all three settlements as a unit. Instead, I would advocate alternative approaches that focus their analysis on relationships between communities and on spheres of interaction. Preliminary investigations into spheres of exchange of different islands indicate the potential of such approaches (Berg 1999).
References
Aspinall, A. and Feather, S.W.
Barber, R.L.N.
Barber, R.L.N. and Hadjianastasiou, O.
Berg, I.
Broodbank, C.
Caskey, J.L.
Cherry, J.F. and Davis, J.L.
Cline, E.H.
Cummer, W.W. and Schofield, E.
Davis, E.N.
Davis, J.L.
Davis, J.L., Schofield, E. Torrence, R. and Willimas, D.F.
Doumas, C.G.
Georgiou, H.S.
1998 The Role of Maritime Contacts in the Urban Development of the Prehistoric Cyclades. In L.G. Mendoni and A.M. Ainian (eds.), Kea-Kythnos: History and

Graziadio, G.

Helms, M.W.

Jones, S.

Kilikoglou, V., Doumas, C., Papagiannopoulou, A., Sayre, E.V., Maniatis, Y., and Grimanis, A.P.

Mantzourani, E.K. and Theodorou, A.J.

Marthari, M.


McGrail, S.

Mountjoy, P.A.

Mountjoy, P.A. and Ponting, M.J.

Niemeier, W.-D.

Nordquist, G.C.

Overbeck, J.C.


Renfrew, A.C.


Renfrew, A.C. and Wagstaff, J.M. (eds.).


Runnels, C.N.


Sherratt, A. and Sherratt, S.


Schofield, E.


Scholes, K.


Thorpe-Scholes, K.


Wachsmann, S.