

1 Article

2 Watery Entanglements in the Cypriot Hinterland

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7 **Abstract:** This paper examines how water shaped people's interaction with the landscape in Cyprus
8 during the Bronze Age. The theoretical approach is drawn from the new materialisms, effectively a
9 'turn to matter', which emphasises the very materiality of the world and challenges the privileged
10 position of human agents over the rest of the environment. The paper specifically moves away from
11 more traditional approaches to landscape archaeology, such as central place theory and more
12 recently network theory, which serve to separate and distance people from the physical world they
13 live in, and indeed are a part of; instead it focuses on an approach that embeds humans, and the
14 social/material worlds they create, as part of the environment, exploring human interactions within
15 the landscape as assemblages, or entanglements of matter. It specifically emphasises the materiality
16 and agency of water and how this shaped people's engagement with, and movement through, their
17 landscape. The aim is to encourage archaeologists to engage with the materiality of things, to better
18 understand how people and other matter co-create the material (including social) world.

19 **Keywords:** Cyprus; Bronze Age; water; materiality; new materialisms; entanglements; assemblages;
20 networks; central place theory

21

22 1. Introduction: A New Materialist Approach to Past Environments

23 This paper seeks to evaluate how the agency of water shaped the development of the Cypriot
24 landscape during the Bronze Age, focusing on how the natural world itself shaped peoples'
25 engagement with their environment. It draws upon the new materialisms [1-3], a theoretical
26 perspective that is gaining traction within the wider social sciences, including archaeology. This
27 approach, which is embedded in what Fox and Alldred (p. 3) describe as a 'turn to matter' [4], seeks
28 to move beyond anthropocentric discussions of human's responses to, and manipulation of, the
29 natural environment; instead, it considers the complex relations between people and place from a
30 perspective which acknowledges the agency of matter (in this case water). Embracing such an
31 approach is, I would argue, fundamental for our understanding of past environments and
32 landscapes; these were not simply shaped by people's actions, inscribing their will upon a passive
33 and inert natural world. Instead, it contends that humans are simply one of myriad things/matters
34 that emerge to coproduce the material world.

35 For archaeologists who are primarily engaged in trying to piece together human action from the
36 archaeological record, this approach is challenging, upturning as it does our understanding of the
37 human agent's relationship with matter, seemingly foregrounding the physicality of the
38 archaeological record, and in particular environmental data. In fact, the new materialisms attend not
39 only to nature and the environment, but also the place of embodied humans within the material
40 world. They provide us with new ways of thinking about the archaeological record, exploring the
41 transformative role played by matter in the creation of past material and social worlds. At the same
42 time, it acknowledges humans were entangled within, and indeed part of, these material worlds: they
43 co-produced it through their actions but were likewise constrained by the very physicality of the

44 matter and substances with which they interacted. This shift in perspective actively embeds humans
45 within the material environment, and draws attention to how human agency is constituted by the
46 matter with which it engages. This is a recursive relationship: matter equally responds to, acts with
47 and even directs human agency, both enabling and provoking certain responses from the human
48 actor. Therefore, although this approach questions the dominant, privileged position of human
49 agents, it does not advocate that we cease searching for people and their actions within the
50 archaeological record. Indeed, the new materialisms potentially provides a middle ground between
51 empirical, science-based archaeologies and social archaeology [5], bridging the intellectual gap that
52 has developed between studies of the environment and artefacts: the former traditionally as a
53 resource to be exploited and mastered, and the latter as objects created by, belonging to and imbued
54 with meaning by people.

55 2. Central Places, Networks or New Materialisms? People *in* the Landscape

56 In this paper I address the interactions of people with, and within, the Bronze Age landscape of
57 Cyprus. Previously, archaeological studies of settlement and landscape have drawn upon central
58 place theory and network theory. Central place theory [6] looks at political and economic
59 relationships of settlements within a wider rural territory, specifically identifying locales that serve
60 as the economic, socio-political and ideological hub. There is an understanding that these are urban
61 in character and have a centralised administrative role, such as the collection of taxes. Jimenez and
62 Garcia (p. 85) [7] provide us with several criteria for the archaeological identification of a central
63 place. This should be the largest site in the region, dominating it administratively, economically and
64 physically (presumably through ideological and/or military force); it is the seat of a ruling class/elite
65 and is thus associated with centralisation of specialised production; there should also be evidence for
66 increased economic and social diversification at this locale. It is worth noting that these criteria fit
67 within hierarchical models for settlement and social organisation and perhaps are not easily
68 applicable across all cultural settings. Alternative models of settlement organisation – such as
69 heterarchy [8,9], which allows for urbanisation without imposing a top-down power structure on the
70 archaeological record – might provide a better understanding of inter- and intra-site relations, as for
71 example, Priscilla Keswani's [10] analysis of LBA settlement on Cyprus and Ilse Schoep's [11]
72 discussion of MM II Malia. Another model, which takes account of increasing social stratification in
73 a non-urbanised society has been developed by Marcella Frangipane [12] to explain the architectural
74 and social complexities evident in fourth millennium Arslantepe in eastern Anatolia. These
75 approaches are helpful for understanding the apparent centralization of workshop activities and
76 storage at Erimi *Laonin tou Porakou* [13].

77 Meijers (p. 245) notes how “the central place model has had increasing difficulties explaining
78 spatial reality”, in part because of the inevitable hierarchical structure, but also because it does not
79 fully take account of the relationality of settlements within a landscape or territory [14]. He instead
80 proposes a network model of spatial organisation. Network theory focuses on the *interconnections*
81 between nodal points; these might, for example, be thought of as social entities (people), objects or as
82 places in a landscape inhabited or otherwise used by people. Network theory moves the perspective
83 away from the nodes (eg. central places and other sites) to the connections between them (eg.
84 movements or flows of people, material culture, knowledge etc.). As Collars et al. note (p. 5-6) it is
85 these *relationships* between peoples, things and/or places that constitute the structure of a network
86 and are thus important [15]. Most archaeological applications of network theory have tended to focus
87 on the interactions between people and things [16], largely drawing upon Bruno Latour's Actor
88 Network Theory [17], but there have been some studies on the connectivity and inter-visibility of
89 sites. For example, archaeologists have explored connections between localities using proximal point
90 analysis [18], which considers the physical relations between sites by marking these as points on a
91 map and linking each one to its three closest neighbours – a method employed to great effect by
92 Cyprian Broodbank to explore seafaring networks within the Cycladic archipelago during the Early
93 Bronze Age [19] and more recently by Anna Collar to the Jewish Diaspora of the first and second
94 centuries AD [20]. Proximal point analysis, however, does not take into consideration the physical

95 composition of the landscape (mountainous terrain, waterways etc.) and how people actually move
96 through it; instead, the assumed interconnections are simply plotted as straight lines as the crow flies
97 onto a two-dimensional map. In a more recent application of network theory, Brughmans et al. (p.
98 65) explore long-term changes in visibility patterns between settlements in Iron Age and Roman
99 southern Spain [21]. As with the proximal point analysis, the settlements are represented as nodal
100 points; however, here the focus is on the relationality (in this case the inter-visibility or lines of sight)
101 between these nodes, which is represented as arcs (directed edges) between two sites. This approach
102 takes into consideration the physical configurations of the landscape – high ground, waterways etc.
103 – and thus how people might have moved through and interacted within it.

104 In this paper, however, I argue that central place and network theory are both problematic
105 because they privilege the position of the human in their environment and as a corollary they *separate*
106 and *distance* people from the material world. These approaches at best obscure the environment;
107 rather than embedding people within (and as part of) it, these perspectives place people like an
108 overlay onto the landscape. It assumes that people move across and manipulate the *natural* world,
109 which is defined as passive, inert and waiting for human action to give it meaning. While
110 phenomenologically-informed landscape archaeologies contend that it is human action that creates
111 places [22], that people move through the land, inscribe it, but they are not part of it, a new materialist
112 approach situates people both *in* and *as part of* the landscape, acknowledging them as one of many
113 agencies of matter. It recognises peoples' innate materiality, that they are part and parcel of the flows
114 of agency in what Karen Barad (p. 817) describes as 'an ongoing open process of mattering' [23].

115 The new materialisms likewise emphasise relationality between entities/matter, for example
116 through the concept of assemblages (or *agencement*). An assemblage is the coming together and
117 interactions of a heterogenous and non-hierarchical group of entities described by Bennett (p. 23) as
118 "ad hoc groupings of diverse elements, of vibrant materials of all sorts...living, throbbing
119 confederations" [1], constantly in flux or, as Oliver Harris (p. 90) describes, "in a state of becoming"
120 [24]. The constituent parts of the assemblage are multiscalar [25], from the micro (such as microbes
121 and bacteria) to the macro – not simply the human agent or a body of water, but even to the scale of
122 human communities, overarching political systems, even the state, thus illustrating how tangible
123 material entities and the immaterial might cohere to co-produce assemblages [26]. Key to
124 understanding an assemblage is that it, as Manuel DeLanda observes (p. 2, my italics), 'actively links
125 these parts together by *establishing relations between them*' [27]. This relationship is moreover recursive;
126 as DeLanda (p. 83) comments, the "properties of a whole are produced by the ongoing interactions
127 between its parts, while the whole...reacts back on this part" [27], thus an assemblage is more than
128 the sum of its constituent parts. The other advantage of assemblage theory is that it automatically
129 allows us to analyse and integrate materials at different scales – from microscopic environmental
130 data, through the individual artefact (even drilling down to the component materials of this object),
131 to the broader geographical scale typically encompassed within landscape archaeologies – and
132 moreover to consider how these variously interacted with, and were shaped by, the intangible,
133 ephemeral and immaterial, including thoughts, ideas and social structures. The challenge of
134 assemblage theory, then is to think beyond the residual physical remains of the past, instead to focus
135 on the ebb and flow of (im)material interactions and through this to explore relationality in the past.

136 The relationality of assemblages alludes to entanglements of matter [28] – the "multiple
137 intersections and tangled nature of being" [3]. The approach taken here is distinct from Ian Hodder's
138 perspective on entanglement [29]; Hodder (p. 95) argues that people and things are "entwined,
139 involved with each other, tied together" and impact upon each other; this is framed within a flat
140 ontology, in which people and things (materials and or/objects) are equal and distinct from each
141 other, effectively separating people from the rest of the material world. For Tim Ingold (p. 4),
142 entanglements represent fluxes and flows of matter within "a meshwork of interwoven lines of
143 growth and movement" [30], with no defined point of origin or directionality. In this article, I follow
144 Barad's [28] understanding of entanglement, derived from quantum physics: the understanding that
145 there are no fixed entities and that things/phenomena come into being (or gain meaning) through
146 their intra-action; rather than focusing on individual entities (or, in quantum physics, individual

147 particles) separately it describes the system (social and material worlds) as a whole, taking into
 148 account how material agencies emerge and act together. Therefore, rather than trying to impose
 149 nodes and (artificial) networks of human activity onto a partially mapped Cypriot Bronze Age
 150 landscape, this paper explores human interactions within, and as part of, the matter of the material
 151 world through the lens of the new materialisms, emphasising flows and entanglements of matter and
 152 thinking about these as assemblages, an approach that is gaining traction in archaeology [31]. As
 153 Barad (p. 170) notes:

154 “Bodies do not simply take their places in the world. They are not simply situated in, or located
 155 in, particular environments. Rather, ‘environments’ and ‘bodies’ are intra-actively co-
 156 constituted. Bodies (‘human’, ‘environmental,’ or otherwise) are integral ‘parts’ of, or dynamic
 157 reconfigurings of, what is” [28].

158 3. The Cypriot Bronze Age Landscape: A Brief Overview

159 Discussion of settlement and landscape in Bronze Age Cyprus (Fig. 1) have largely been viewed
 160 through the lens of resource management, in particular focusing on increasing exploitation of the
 161 island’s metalliferous zone around the foothills of the Troodhos mountains throughout the third and
 162 more so during the second millennia BC. Nonetheless, the footprint of human activities in Cyprus
 163 changed greatly over the two millennia of Bronze Age occupation on the island (Table 1) and, as both
 164 I [32] (p. 11) and Bernard Knapp [33] (pp. 21, 24) have commented, have typically been presented
 165 within a cultural-historical framework. Before turning to the watery entanglements that shaped this
 166 landscape I will briefly outline these shifting patterns of settlement. A more detailed analysis of the
 167 trends in site distribution and topography in the EC-MC period is provided by Georgios Georgiou.

168 **Table 1.** Chronological Table for Bronze Age Cyprus (after Knapp 2013, Table 2).

| Cultural Phase | Approximate Date BC (Calibrated) |
|---|----------------------------------|
| Philia facies | 2400/2350 – 2250 |
| Early Cypriot I – II | 2250 – 2000 |
| Early Cypriot III – Middle Cypriot II | 2000 – 1750/1700 |
| Middle Cypriot III – Late Cypriot I | 1750/1700 – 1450 |
| Late Cypriot IIA – Late Cypriot IIC (early) | 1450– 1300 |
| Late Cypriot IIC (late) – Late Cypriot IIIA | 1300 – 1125/1100 |

169 The Philia facies, which marks the transition to the Early Bronze Age, is characterised by the
 170 establishment of new settlements in the central and western Mesaoria, around the edges of Troodhos
 171 mountains, and along the north coast. Some therefore, were in close proximity to the island’s copper
 172 deposits, near good agricultural land and/or with access to the sea [35]. There are small shifts in
 173 settlement pattern throughout the longue durée of the Early-Middle Cypriot (EC-MC) period. Some
 174 sites have evidence of successive layers of occupation: such as Marki *Alonia* from the Philia phase to
 175 MCII [36] and Politiko *Troullia* [37] from EC II-MC III (based on the pottery), while others, such as
 176 Sotira *Kaminoudhia* [38] were only occupied during the EC period. There is however, a rise in the
 177 number of settlements in the MC period, with the establishment of new sites such as Erimi *Laonin tou*
 178 *Porakou* [39], suggesting increasing population, probably due the use of traction animals and land
 179 clearance resulting in improved arable production. Until recently our knowledge of EC-MC
 180 settlement was largely derived from the associated cemeteries, but over the past twenty years or so
 181 there has been extensive excavation of a number of key sites. Settlements were frequently extensive,
 182 covering some 15 and 20 hectares, and many were located on a low plateau, close to good arable land
 183 and a water supply [40]. Clusters of settlements occur in particular geographic zones, such as along
 184 the northern coastal plain and around the north-western foothills of the Troodhos massif, especially
 185 at the interface of the arable land and the mineral rich lower reaches of the Troodhos. Moreover,
 186 recent excavations at Kissonerga *Skalia* [41] and Prasteio *Mesorotsos* [42] have filled an apparent gap
 187 in EC-MC occupation in the southwest of the island.
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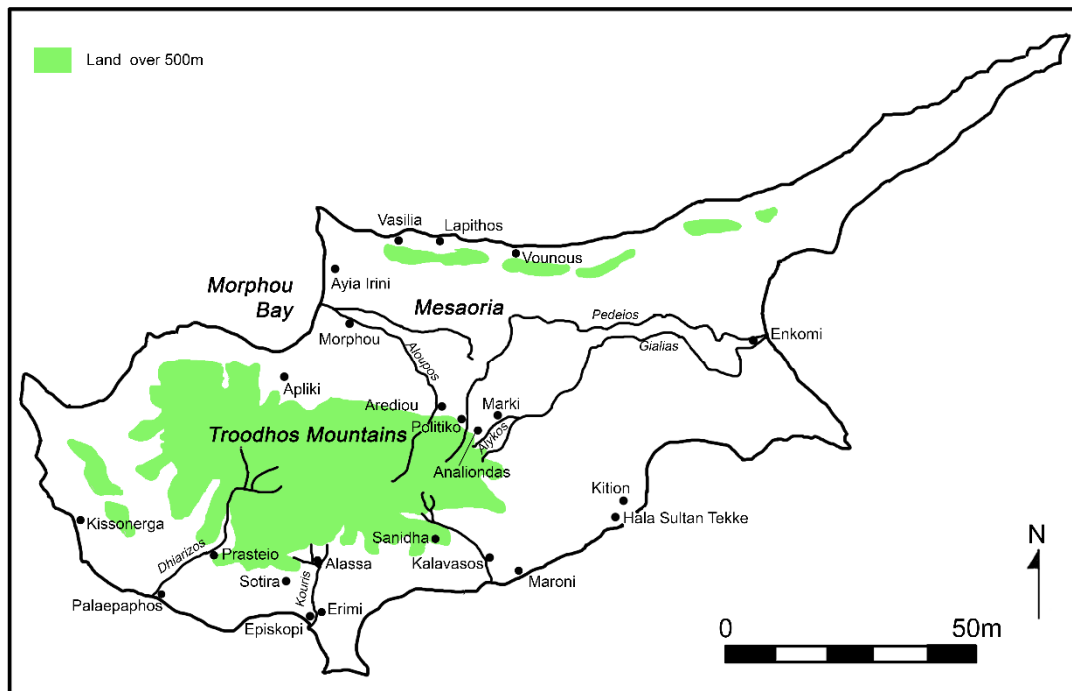


Fig. 1 Map of Bronze Age Cyprus, indicating sites and rivers mentioned in text.

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191 Although regionality has been explored [43,44], largely through variable patterns in the
192 geographic distribution of pottery, there has been less emphasis on relationships (networks or
193 assemblages) between the EC-MC communities within their wider landscape. Detailed survey and
194 excavation work at Politiko *Troullia* however, has looked at the relationship between the site and its
195 surrounding environment, revealing intensive agrarian exploitation of the landscape, but an
196 apparently otherwise isolated farming community [45]. In this issue, Webb examines the relationship
197 between site location, economic resources (especially copper) and their exploitation in the political
198 economy, in the island's narrow northern coastal strip: identifying Vasilia, Vounous and Lapithos as
199 significant nodes (or central places?) in networks linking inland copper producing sites with
200 international maritime networks [46].

201 The LC period (later second millennium BC) is characterised by increasing diversification of
202 landscape use, resulting in a progressively complex settlement hierarchy, and the establishment of
203 urban centres [32]. By the 14th-13th centuries an interrelated system of sites covered the coastal plains
204 and the inland river valleys up to the cupriferous hilly flank zones. There has been more
205 consideration of how LC settlement was situated within an economic landscape and to some extent
206 the relationality between urban sites and the hinterland, which Priscilla Keswani has explored within
207 a staple-wealth finance model [47]. Originally Hector Catling (pp. 142-3) [48] suggested a tripartite
208 settlement hierarchy comprising the coastal (trading) urban centres and inland farming and mining
209 sites. Knapp [49,50] and Keswani [47,51] have both refined Catling's model, suggesting a more
210 complex pattern of settlement use. This comprised substantial primary (urban) centres located in the
211 coastal plain such as Enkomi, Kalavassos and Morphou [32,33] – some dominated by imposing ashlar
212 buildings, which possibly functioned as administrative/taxation centres – and secondary and tertiary
213 centres in the hinterland. These "centres" were supported by numerous smaller specialist sites
214 primarily in the hinterland, only a handful of which have been excavated. Some, such as Arediou
215 *Vouppes* [52,53] and Analiondas *Palioklichia* [54], were associated with arable farming, others, such as
216 Apliki *Karamallos* [55] and Politiko *Phorades* [56], with primary copper production, or pottery
217 manufacture, as at Sanida *Moutti tou Ayiou Serkou* [57]. In many ways, although not articulated as
218 such, these settlement models conform to central place theory, as discussed above. Moreover,

219 although archaeologists have not applied network theory to examine the interrelationship between
220 these sites, both Keswani and Knapp [47,58] have considered the economic relationality between
221 sites, for example from a staple/wealth finance perspective.

222 This discussion of changing patterns of human occupation throughout the Cypriot Bronze Age
223 provides us with a base point for considering the peoples' interactions with the environment, as noted
224 above, these models layer human action onto a passive landscape, upon which they manipulated
225 resources and created meaningful place from "empty" space [59]. In these narratives, therefore,
226 people are detached from the environments they inhabit. The following discussion however – which
227 draws attention to the agency of water and suggests various watery-human assemblages – seeks to
228 embed humans in their landscape, to better understand how the archaeological record described
229 above might have been lived and experienced.

230 5. Watery Entanglements in the Cypriot Hinterland

231 I want now to consider how the agency of water shaped peoples' interactions with and within
232 the environment in Bronze Age Cyprus. First, we should consider the essential materiality of water.
233 We cannot exist without water [60]; some 55% to 60% of the matter of our bodies is made up of this
234 substance [61] and equally it sustains the plant and animal life on which we depend. This then is the
235 first of our assemblages: our bodies, the water we ingest and the foodstuffs sustained by this
236 substance that we consume. The process of consumption is an assemblage; we are made of and
237 interact with water on a daily basis to survive. Water therefore, is central to our relationship with the
238 environment [62]. However, water does not survive as a meaningful, measurable entity in the
239 archaeological record, but instead is transient and ephemeral, tending to trickle away or evaporate,
240 especially in the arid lands of the Near East. Instead, archaeologists have to focus on the residual
241 remains of human interactions with water, identifying hydraulic technologies [63] such as drains,
242 wells, cisterns and aqueducts. While these are regularly recorded within excavation reports, within
243 Cypriot archaeology there has been little consideration of how these were actually integrated within
244 daily practices within and beyond the household [64].

245 As Knitter et al. [65] (p. 4) note, proximity to fresh water sources is one of the key factors
246 determining the very location of human habitation, because it is a constant, daily requirement for
247 survival, necessary for daily household needs such as drinking, cooking and cleaning. Beyond the
248 immediate requirements of the household, water had an increasingly important economic value as
249 societies become sedentary throughout the Neolithic and Bronze Age, and as people increasingly
250 settle at fixed points in the landscape, supporting arable farming and livestock, as well as being used
251 in various forms of industrialised processing, including pottery production, working textiles and
252 metallurgy. Indeed, Veronica Strang has suggested that as communities become more hierarchically
253 organised water is increasingly contested as an economic asset; this is characterised by ever more
254 complex hydraulic technologies, such as cisterns, communal wells, drainage and sewerage systems,
255 which are centrally organised. While the building and maintenance of these waterworks tend to be a
256 male concern Strang notes that the physicality of water collection typically continues to be women's
257 work [66].

258 The presence of reliable water sources, such as perennial springs and rivers (Fig. 2), therefore,
259 provided desirable places for occupation for Cypriot communities throughout the Bronze Age, which
260 developed into the settlement nodes and/or central places picked up in archaeological survey. But as
261 Luci Attala (p. 80) reminds us, water is not simply "an inert material or resource serendipitously
262 available for human consumption" [67]; its specific properties and capacities constrain the ways in
263 which people can interact with it [68,69]. In its liquid state water resists our attempts to handle and
264 manipulate it, trickling through fingers and cupped hands, evaporating and "disappearing" into thin
265 air. Strategies developed to control and constrain this ephemeral substance include holding it in
266 pools, cisterns, wells and reservoirs; it can be moved around and distributed in portable containers
267 (jugs, buckets, bottles etc.) and its liquid capacity to flow allows it to be channelled around and
268 between sites, through pipes and drains and along viaducts.



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Fig. 2 Water flowing in the Koutis river, Tributary of the Aloupos, near Arediou. Photo L. Steel.

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The earliest wells identified on Cyprus, at Kissonerga *Mylouthkia*, date to the mid-late 9th millennium calibrated BC, in what has been termed the Cypro-PPNB, [69] and were dug by the earliest settled farming communities on the island. These wells demonstrate a sophisticated understanding of water, being dug into the *havara* bedrock deliberately to intersect underground streams [70]. Intriguingly, these skills and knowledges appear to have been lost by the later prehistoric inhabitants of the island, and there is little extant evidence for water management in the EC-MC villages excavated: no wells or cisterns have been identified nor any drains for channelling excess rainwater. An interesting series of basins and water channels carved into the limestone

279 bedrock has been identified at MC Erimi *Laonin tou Porakou* [71], part of a workshop complex,
280 indicative of increasing knowledges of handling, moving and storing water and perhaps an early
281 attempt to control this (economic) resource. I have suggested elsewhere that people's primary
282 engagement with water occurred outside the settlement, presumably on the banks of the nearby
283 water source and that this would have been brought into the settlement in portable containers
284 possibly to be stored in pithoi [64]. Containers used to carry water into the settlement might have
285 been pottery jugs, which are plentiful in EC-MC settlements, or otherwise made from perishable
286 materials such as leather or plaited basketry, as suggested by ethnographic analogy [72]. Daily
287 activities would include collection of water for drinking, cooking and cleaning. Unfortunately, while
288 the settlements have been well excavated and published in detail their associated water sources have
289 not been the focus of fieldwork; moreover, these were ephemeral activities, which would have left
290 little archaeological trace.

291 In the LC period, however, there is a very different level of engagement with water within the
292 settlement, reflecting increasing emphasis on it as an economic resource. Wells and cisterns have been
293 excavated at a number of sites, physically anchoring sites in the landscape. Rather than following
294 water where it flowed, this substance was tamed and contained within the settlement and peoples'
295 activities were fixed accordingly. The wells were usually located inside individual buildings,
296 households in the urban centres and at the agricultural settlement of Arediou (Fig. 3) in a small room
297 attached to a well-built barn. I have previously noted (p. 522, n.71) that communal water places,
298 namely wells in open spaces within the settlement, have only rarely been identified [53], which I
299 argue is indicative of the economic importance of water and consequently a will to control access to
300 this resource. Drainage systems were also developed, to allow run-off of heavy rainfall during the
301 winter months. These hydraulic technologies largely parallel those identified by Calvet in Late
302 Bronze Age Ugarit [73,74], pointing to the introduction of new practices from the northern Levant.
303 There is no evidence however, that water management was centrally controlled in the LC towns:
304 there was no systematised drainage system removing waste water from houses, nor any provision
305 for piping clean water around the settlement. Instead, water management remained at the level of
306 the household. Elaboration of water systems, possibly apparently associated with bathing, is evident
307 in a small number of monumental buildings in the major urban centres. The earliest, dating to the 14th
308 century BC, is the so-called Basin Building at Maroni *Vournes*, which comprises a large sunken basin
309 lined in stone, which the excavator (p. 16) has compared to a Minoan lustral basin [75]. Hitchcock (p.
310 12) also draws attention to the elaboration of a 12th bathroom in House A at Hala Sultan Tekke, with
311 a sunken basin paved and lined in ashlar masonry, the interstices of the paving lined with a lead
312 waterproof filling [76]. There are also elaborate drainage facilities attested in Building II at Alassa
313 *Paliotaverna*, compared by the excavator (pp. 434-5) to the water systems in the Palace of Knossos [77].
314 Although these examples clearly demonstrate considerable skills in working with water, this was not
315 made available to the wider community but remained inside (and controlled by) what might perhaps
316 be considered to be elite households. Nonetheless, we can see that human-water interactions were
317 transformed in the later second millennium. Water had become an urbanised resource, something
318 that could be owned, controlled, manipulated, spatially confined and, in a sense, dominated.



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Fig. 3. LC well in Building 2, Arediou *Vouppes*. Photo S. Thomas.

321 6. From Networks to Assemblages

322 Returning to shifting inter-site relations in the Cypriot landscape during the Bronze Age, we will
323 now look at the island's river systems. Traditional landscape studies might consider the relationality
324 facilitated by the waterways as interconnecting networks (see above). The following discussion,
325 however will focus on multiscalar assemblages, from a single object (a boat) to the settlements
326 identified through survey and excavation. As noted above, the location of Bronze Age settlements
327 was predicated by access to a secure water supply and good arable land, able to support the
328 populations of villages and towns. Drawing upon Devillers' detailed geomorphological study [78],
329 Michael Brown has made the case that the waterways of eastern Cyprus were at least partly navigable
330 during the Bronze Age [79]. The Alykos-Gialias-Pedieos river system was particularly important for
331 movement east-west traversing the Mesaoria plain and connecting sites on the east coast with the
332 cluster of settlements scattered around the northern edges of the Troodhos [80]. Other rivers radiating
333 from the Troodhos mountains plausibly connected the interior directly down to the coast at least
334 during the wetter part of the year, for example the Aloupos river in the northwest linking the Politiko-
335 Arediou cluster of sites with Morphou Bay [81] and the Kouris river linking Alassa and Episkopi;
336 moreover, if dry in the summer months the riverbeds would provide an easy route for travel on foot
337 or with pack animals. These rivers did not provide connectivity *across* the landscape, which would
338 have been negotiated on foot (or by wheeled transport?) over the flat coastal plains; however, the
339 extensive rugged terrain of the Troodhos mountains effectively cut the southwest coast from the rest
340 of the island, with a largely impassable limestone plateau plunging into the sea between Episkopi
341 and Palaepaphos (Fig. 4) and by necessity, the settlements in the southwest would communicated

342 with the rest of the island by seagoing vessels hugging the coastline. Although there is no evidence
343 for built harbours, Knapp (pp. 84-5) notes that several potential harbourages have been identified
344 along the south coast between Palaepaphos and Hala Sultan Tekke [82].
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Fig. 4. View from Kourion of limestone plateau and cliffs. Photo L. Steel.

348 Although the boats used to navigate these waterways and the shallows of the Cypriot coastline
349 have not survived, we might suggest their existence from occasional models crafted from clay, the
350 earliest which seem to represent rivercraft, although Knapp (p. 82) [82] expresses some reservation
351 whether these early models do in fact represent boats. Wachsmann (pp. 62-4) [83] has suggested that
352 the earliest of these, a Red Polished model, as well as a small number of MC White Painted boat
353 models probably represented coracle-like vessels or basket-boats, the incised and painted network
354 designs perhaps indicating the basketry framework. The example from the Louvre (Fig. 5) apparently
355 suggests a vessel of considerable size, which might represent a larger possibly seagoing craft [84],
356 although we should note that the traditional Iraqi *quffa* (or *kuphar*) could be large enough to hold
357 several individuals and transport goods, building materials and livestock [85]. There is more reliable
358 evidence for the LC period in the form of three Plain ware models of an apparently more complex
359 watercraft, which Wachsmann [83] identifies (p. 66) as a type of spacious seagoing vessel, or merchant

360 ship of indigenous design, and at the end of the LC period there are graffiti of seagoing vessels on
361 the walls of Temple 1, Kition [82]. Seafaring technologies enabling communication within the wider
362 Mediterranean undoubtedly had spread to the island by the LC period, evidenced by an ever-
363 increasing influx of traded commodities from the Aegean and the Levant illustrating Cypriot
364 participation in long-distance maritime trade. The importance of seafaring is indicated by the many
365 anchors found in LC coastal settlements and anchorages as well as in the sacred precinct at Kition
366 [83]. The waters of the Mediterranean also brought incomers, merchants visiting the island, settling
367 and bringing with them new objects and knowledge of novel ways of doing things – including
368 writing, seal stones, wheelmade pottery and monumental architecture [32] – these changes were
369 intrinsically associated with the development of the LC coastal centres and, as Knapp (p. 133) argues,
370 illustrate the emergence of an urbanised and socially stratified society [33], transforming the way of
371 life on the island. I would contend that it was through increased engagement with seafaring
372 technologies and the resulting watery interactions within and beyond the island that such changes
373 were enabled.



374
375

Fig. 5 White Painted ware model of boat with crew, AM972. Courtesy of the Louvre.

376 How then can we bring these diverse levels of archaeological data together to explore changing
377 patterns of settlement and inter-site relationality in the Cypriot landscape? First, we might consider
378 the boats as assemblages, the temporary coming together of material and immaterial entities during
379 the process of their crafting. These entities include the materials from which the boats were crafted
380 (including basketry and a waterproof (leather?) covering for the basket-boats, timbers, linen sails,
381 twine for ropes, bitumen etc. for seagoing vessels), the capacities of these materials informing the

382 haptic skills of the craftsmen who procured and worked with them, their intangible knowledge and
383 the tools that they used. Once complete these rivercraft and seagoing vessels were incorporated
384 within other assemblages: the waters through which they moved, the crews which manned them,
385 their knowledge of moving safely through water, navigational skills, communication skills as they
386 moved between communities (the archaeologists' nodal points in the landscape), and the cargoes
387 they transported. The relationality of these communities scattered throughout the Cypriot the
388 landscape, can also be considered as multiscalar nested assemblages, comprising myriad interwoven
389 connections within connections. The boats themselves comprise an assemblage with their own
390 emergent properties. These were then incorporated within larger assemblages: the waterways,
391 settlements and their communities comprise diverse material and immaterial elements coming
392 together, co-mingling and interacting and the processes by which the diverse entities came together
393 in turn created new (im)material connections. Water therefore facilitated the spread not just of goods
394 and materials between communities (copper, finished metal artefacts, pottery, textiles might all have
395 been traded) but likewise the movement of people inevitably entailed the sharing of ideas, news,
396 knowledges, and new ways of doing things. We should not, however, discount terrestrial movement
397 with pack animals, wheeled transport and on foot as other assemblages, perhaps moving along dry
398 riverbeds in the summer months, thereby again benefitting from the agency of water. Thus, the
399 village and urban communities of the Cypriot landscape, and the social structures within them,
400 emerged from the relationships within these multiscalar assemblages and, I would argue, the
401 material agent bringing together these entities was water. This substance both provoked and enabled
402 activities on the part of the human agents in the assemblage and ultimately shaped the Cypriot
403 landscape.

404 The very establishment and continued growth of the EC-MC large village communities in the
405 foothills of the Troodhos therefore was enabled by these sustaining and inter-connecting waterways,
406 as was the later development of the coastal LC towns, which traded Cypriot copper and other goods
407 and commodities produced in the hinterland beyond the island. These waterways connected
408 communities, bringing inland and coastal communities together, facilitating movement of people,
409 livestock, raw materials such as copper, finished goods and ideas over considerable distances in the
410 Cypriot interior north of the Troodhos foothills, in a wooded landscape (as illustrated by charcoal
411 analyses from Politiko *Troullia*) [86], which might thus have been impassable or at least difficult to
412 negotiate on foot. Furthermore, understanding the importance of waterways for communication also
413 allows us to envisage the riverside by the settlements as lively, bustling and exciting places, with
414 people (family, friends, strangers) coming and going, bringing with them goods, news and ideas.

415 7. Conclusions

416 This paper considers the changing shape of the Cypriot landscape throughout the Bronze Age,
417 transformations that have typically been presented within a cultural historical framework,
418 identifying urbanisation in the later second millennium BC with greater social complexity and above
419 all increased exploitation of the island's copper resources. Notwithstanding, I have sought to
420 demonstrate the value of the new materialisms for interpreting the complexities of the archaeological
421 record. Specifically, I have focused on how water and people were entangled in ever changing
422 assemblages and thus how the agency of water shaped peoples' interactions within the environment.

423 In contrast to traditional landscape archaeologies, which present space as passive and inert, or
424 as nodal points and central places marked on a two-dimensional map, and which are only ascribed
425 meaning (becoming place) through human action, the new materialisms encourage us to think about
426 humans as one of many matters shaping the material environment. Here I have explored how Bronze
427 Age settlement was not simply imposed upon the Cypriot landscape through human action but
428 instead was enabled by the presence of water, as were the associated agricultural, pastoral and
429 industrial practices sustaining these communities. Throughout the EC-MC periods water remained
430 untamed and peoples' primary interactions with this substance occurred outside the built area of the
431 settlement. By the LC period, however, changing water management systems accompanied the
432 development of larger coastal towns, which I suggest was influenced by increasing contacts with the

433 urban communities of the northern Levant. This article also considers relationality between
 434 settlements, but moves away from the static lines and arcs of network theory, to think about
 435 connectivity and relationships as assemblages, which, depending upon the emergent properties of
 436 their constituent parts, are always in flux. Assemblage theory allows us to incorporate different levels
 437 of archaeological data normally treated separately, from materials to object, to the built environment
 438 and up to the wider landscape. This approach allows us to reflect upon how connectivity and
 439 communication between the Cypriot Bronze Age settlements might have been facilitated by water,
 440 namely the riverine system. Engagement with waterways and the development of increasingly
 441 advanced boating technologies allowed the movement of people, goods and materials (such as
 442 copper) into and around the interior and by the LC period beyond the island. Although the aim of
 443 this paper has been to highlight the agency of water, we should of course remember that other agents,
 444 such as dry riverbeds, pathways, pack animals and wheeled transport, also played an important role
 445 in connecting communities. Ultimately my aim has been to demonstrate that archaeological sites
 446 themselves are not inert, passive points, simply situated or located in a two-dimensional
 447 archaeological landscape. Instead, they represent ancient communities, made up not just of people
 448 and their built environment, but of many different immanent materials, which variously emerged
 449 and acted with and upon each other to dynamically co-produce the material world.

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