A comparative approach to methods of inscribing clay tablets: interaction and innovation in Cyprus and Ugarit

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1. Cypriot writing traditions

Bronze Age Cyprus was home to distinctive writing traditions, with a script ultimately derived from the syllabic scripts of the Aegean and is most probably a direct development from Linear A (see Valério 2017). The corpus of written material in Cypro-Minoan is very diverse, although only a relatively small number of inscriptions have survived: c.250, depending on what is counted in or discounted from the corpus. They appear on a wide range of media (clay, stone, metals, ivory, glass, etc) and written with a wide range of techniques (incised, impressed, scratched, painted, etc), thus forming a corpus marked by such a considerable degree of palaeographic diversity that their study has been fraught with some serious difficulties (Steele 2012). Even the earliest inscriptions show influences from multiple directions and an awareness of both Aegean and Near Eastern writing (Steele 2018, Chapter 1), although the writing traditions developed on the island were often distinctive and innovative.

This paper is concerned with Cypro-Minoan writing on clay, and specifically the ways in which a scribe interacted with the clay when making an inscription. There are several clay document types known in Cypro-Minoan, some familiar outside Cyprus (e.g. tablets, labels)

while others are more distinctively Cypriot or peculiar to Cyprus (e.g. clay balls and small cylinders with horizontal text). Of these, two particular groups are of interests owing to a longstanding debate in scholarship as to their epigraphic and palaeographic features, which present some significant differences from the rest of the corpus. One group consists of four tablet fragments from Enkomi in Cyprus, the longest surviving texts in Cypro-Minoan. It was suggested by Émilia Masson that the script found in these tablets was a modified version with a different repertoire, which she labelled 'CM2', in contrast to the main body of inscriptions categorised by her as 'CM1' (Masson 1972, 104-107; see also Steele 2014). The other group again consists mainly of clay tablets (plus two labels) written in Cypro-Minoan but discovered at the Syrian site of Ugarit (modern Ras Shamra) in the midst of that city's considerable cuneiform archives. These inscriptions were also singled out by Masson (1974, 18-46) as being written in a different version of Cypro-Minoan script, labelled 'CM3'. It is worth pointing out that the question of script repertoire with which Masson was so concerned, as has been emphasised by recent scholars working on Cypro-Minoan (e.g. Valério 2016), is closely linked to palaeographical factors, especially the medium and method of inscription.

Another dimension to this problem is the simple fact that Cypriots were not writing in a vacuum. The distinctive writing system and document types that mark Late Bronze Age Cypriot literacy have considerable interactions with traditions in other nearby areas: the Aegean to the west was the origin of the basic script system developed in Cyprus, and the island was also on the fringes of the cuneiform-using region centred to the east and had longstanding contact with the Levant in particular throughout the relevant period. It is especially the latter that will feature in this paper, where we investigate the writing methods used to execute the two small corpora of 'CM2' tablets from Enkomi and 'CM3' tablets from Ugarit.

2. The alleged 'cuneiformization' of Cypro-Minoan

According to Émilia Masson (1978, 54; see also 1973, 98), the signs of the 'CM2' tablets from Enkomi were 'gravées à la manière des documents cunéiformes' ('inscribed in the manner of cuneiform documents'). Such a remark on the ductus of the signs bears a close relationship with her deliberate creation of a separate CM2 script category, founded on a combination of other aspects of these tablet fragments, and seeking to single them out as a separate tradition with a different repertoire of signs denoting a separate language found

exclusively at Enkomi (see also É. Masson 1972, 100). This is a position that has been criticized, for example in Thomas Palaima's attempt to disassemble Masson's sub-groupings of Cypro-Minoan tablets and pay greater attention to variations in palaeographic factors that influence the appearance of signs (Palaima 1989, esp. 155-58). Returning to palaeography as a means to establish script repertoire in fact built on the much earlier preliminary work of John Daniel (1941) who sought to understand the development of variation in Cypro-Minoan writing as a response to and consequence of writing on different media using different implements.

It is interesting that, in Palaima's refutation, the concept of 'cuneiformization' is often treated as an all-or-nothing scenario, not to mention implicitly assuming that 'cuneiform' is a single, coherent and homogeneous set of practices, which is not really the case, as we will see. He uses a supposed 'immunity' of the Ugaritian 'CM3' Cypro-Minoan tablets to cuneiformization, despite their being most ideally placed for Near Eastern influence, in support of his view of the CM2 tablets (Palaima 1989, 156);[1] and he makes his conclusion about the non-cuneiformization of 'CM2' signs foundational to the further conclusion that the tablets are not written in a script with a different repertoire or a different underlying language.[2] Overall he plays down Near Eastern influence in order to emphasise the Aegean origins of Cypro-Minoan writing and counter 'efforts to cuneiformize it or to rend it from its obvious Aegean roots' (Palaima 1989, 161).

The influence of Palaima's article is still felt today as many scholars of Cypro-Minoan have made the study of palaeographic variation central to their approach to the entire writing system (e.g. Ferrara 2012/13, 2013; Valério 2016, 2017), finally following up the challenge set by Daniel in his Prolegomena. According to Silvia Ferrara (2012/13 vol. 1, 17), 'it is necessary to broaden the picture, following the path set out by Palaima more than two decades ago'. With this new emphasis has come a general rejection of the supposed cuneiformization of some Cypro-Minoan texts. Ferrara (2012/13 vol. 1, 197) states that cuneiformization is 'but a mere epigraphic contingency, due to the style of inscription or ductus-orientation, defined as dependent on the inscribed material and the writing instruments adopted. As such, it is but an effect, and a rather superficial one. Thus its definition should not be an epigraphic qualifier, nor be evocative of a specific cultural legacy'. On the one hand, this effectively separates the

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[1] As we will see below, the Cypro-Minoan tablets from Ugarit are far from being immune to influences from and interaction with cuneiform traditions of writing.
[2] 'I believe that the signs on the texts now classed as CM2 likewise are not "cuneiformized". I therefore consider it a very dangerous procedure to study [them]… as if they were a separate script and language' (Palaima 1989, 156).

question of cuneiformization from the analysis of the repertoire of Cypro-Minoan signs and their palaeographic variation. On the other, however, it has gone hand-in-hand with a certain disinterest in Cypriot interactions with Near Eastern writing traditions, as if any cuneiform-looking features of Cypro-Minoan writing have to be written off as chance resemblances to further palaeographic studies.

Another long-term feature of palaeographic research into Cypro-Minoan has been a general disinterest in writing implements. This is surely surprising, given that palaeography seeks to understand the shapes of signs and the factors that influenced their shapes. Instead, it has usually been considered enough to follow the vague sorts of stylus definitions outlined in a preliminary way by Daniel (1941, 253): clay inscriptions were usually made with a 'dull tool' (considerably less sharp than the implement used for Minoan tablets in Crete) while writing on harder materials was made with something sharper like a knife. For a long time, a class of bone tools with broad rounded end, coming to a brief shallow point in the middle, was considered to be a type stylus (see e.g. the illustration in Karageorghis 1979, 239, fig. 8), and to this day such implements will often be found labelled as such in museums. Smith's (2001) decisive refutation of this identification, showing that the bone tools in question are much more plausibly understood as weaving tools, has sadly done very little to renew interest in what Bronze Age Cypriot styli might have looked like. Pointed tools identified by Giorgos Papasavvas (2003) as styli may indeed have been used to write on perishable wooden tablets but are of the wrong shape and thickness to be responsible for most surviving Cypro-Minoan inscriptions. Ferrara's (2012/13 vol. 1, 197-203) overview of evidence for writing implements concludes that a number of different types of stylus may have been used for different objects.

While Cypriot styli themselves may be missing in action, the tangible effect of their existence is not: we have only to look closely at the impressions they made on inscribed objects to begin to reconstruct some of their properties. Joanna Smith's (2003) attempt to reconstruct relationships between methods of writing, sign shapes and scribal training gives a much more joined-up sense of interactions between Cypriot literacy and the broader writing traditions of the eastern Mediterranean and Near East. Rather than seeing the CM2 tablets from Enkomi as radically different – the sticking point for Palaima and others – Smith (2003, esp. 281-86) observes that punching (i.e. impressing), or a combination of punching and drawing, is prevalent among a variety of Cypro-Minoan inscriptions on clay, and that this is a marked difference from the largely drawn signs of Minoan writing traditions while being much closer to those of the Near East. The reluctance of many scholars to see any significant interaction

with cuneiform (e.g. Ferrara 2012/13 vol. 1, 202: 'a faint inspiration rather than an expressly borrowed set of habits') does not help us to engage with the real questions of scribal habits and writing contexts whose importance is highlighted by Smith (2003, 285-86).

The present paper concentrates on a small set of Cypro-Minoan documents, namely the 'CM2' and 'CM3' tablets from Enkomi and Ugarit as outlined above, with an aim to analyse the methods used to form sign shapes (partly by practical experimentation) and to reconsider possible interactions between these writing methods and those employed in the cuneiform writing culture of the Near East. Before turning to the tablets themselves, however, it is important to consider what we know from other sources about Cyprus' exposure to the use of cuneiform.

3. Cyprus, diplomacy and cuneiform culture

The question of cuneiform culture on Cyprus is inextricably bound up with its participation in the networks of diplomacy and high-level elite exchange that characterize international relations in the Late Bronze Age East Mediterranean and Near East. This of course ties into the long-running debate on whether the ancient polity of Alašiya mentioned in textual sources should be identified with Cyprus (or at least some major kingdom on it). While there remains discussion on this score, it would be fair to say that in recent years the matter has been treated by many as essentially settled, at least in its fundamentals. Alašiya's evident maritime character, proximity to Ugarit and Anatolia and association with copper all make Cyprus by far the likeliest candidate. More conclusively, petrographic analysis of the Amarna letters sent from Alašiya and comparison with tablets from Enkomi has shown that the clay very probably originated on Cyprus, most likely in the region of the Troodos (Goren et al. 2003).

It looks increasingly certain that ancient Alašiya was Cyprus or a part of it, but the exact political situation remains extremely opaque. As presented in the Amarna letters and other Late Bronze Age diplomatic correspondence, Alašiya seems to be a fairly standard Near Eastern political entity, ruled by an absolute monarch from a palace, equipped with scribes versed in Akkadian and familiar with the cultural norms and expectations of international diplomacy. Not only that, the ruler of Alašiya is a Great King, a 'brother' equal to the rulers of Egypt, Babylon and the Hittite Empire. The problem is that this corresponds very poorly to an archaeological situation for Late Bronze Age Cyprus which appears extremely decentralized,

both politically and economically. Although Enkomi was a large and important city, there is no evidence that it or any other settlement served as a 'capital' for the whole island (for an overview of the problem see Knapp 2013, 432-38), no sign of Near Eastern- or Aegean-style palaces, and what we can reconstruct of the island's economy tends to emphasize private commercial enterprise over palace-controlled, state-level ventures. It is hard to escape the conclusion that the presentation of Alašiya as a traditional kingdom in the correspondence was a matter of diplomatic convenience for everyone involved, its status as the equal to the great empires of the day a calculated attempt to stroke the ego of a potentate who controlled a much-needed resource – copper – but was remote enough and sufficiently hard to assail for the largely land-based militaries of the great powers that it was not worth the effort of annexing directly. The modern translations 'king' and 'palace' conjure an air of grandeur and legitimacy that is perhaps misleading in even the most long-established ancient states, arbitrary and often petty as they could be; but especially for peripheral and politically ambiguous states such as Alašiya they almost certainly give a false impression. We should probably be thinking more in terms of gangsters, mafia bosses or pirate kings, ruling self-made domains built on wealth derived from 'legitimate business' and control of sought-after resources.

A letter found at Ugarit (RS 94.2177+) is telling in this regard. After the diplomatic message from Alašiya's 'king', there is a personal message from the scribe in which it becomes clear that he is not a Cypriot at all, but a servant of the king of Ugarit on a long-term 'diplomatic assignment' to Cyprus (Ferrara 2016). He asks for good quality furniture to be sent over – a table and five chairs. Is this, then, how we should imagine the Alašiyan 'chancellery': staffed by Akkadian-writing scribes borrowed from neighbours, who even have to supply their own tables?

This brings us back to the question of the status of cuneiform culture in Cyprus during the Late Bronze Age. If we are right in seeing the Alašiyan 'court' as a rather more ad hoc arrangement, far from the traditional image of a Near Eastern palace, and the niceties of diplomatic convention as just that – superficial and skin-deep – then what are the implications for the island's engagement with the Babylonian cuneiform culture that underpinned those conventions? Was it entirely outsourced to imported foreign scribes like GI-wa the Ugaritian,

or were locals also interested in these traditions? Were there Mesopotamian scribal schools on Cyprus? Did anyone on the island copy out an *harra = hubullu* lexical list, or read Gilgamesh?[3]

These are questions we cannot presently answer, of course. Very little cuneiform has been found on the island, and none of that points conclusively to local Cypriot cuneiform practices. If we compare Cyprus with thirteenth-century Ugarit, which likewise used Akkadian for certain purposes alongside a flourishing local writing system, the differences are thrown into sharp relief. At Ugarit we have scribal schools and clear evidence for the local use of an adapted form of the traditional Babylonian curriculum; we have Akkadian being used not just for international letters but for legal texts, economic transactions and other purposes. None of these have been found on Cyprus, although it could be argued that if Near Eastern-style palaces lie undiscovered somewhere, this is where such material might be most likely to be found.

Comparison of the Akkadian letters written in Alašiya with those from its neighbours in the Levant presents both commonalities and idiosyncrasies. In preparing this chapter, Philip Boyes was able to examine closely EA 34 in the British Museum, alongside Amarna letters from Byblos (EA 132), Amurru (EA 161), Qaṭna (EA 55) and Tyre (EA 149, 151). Two other Alašiya letters, EA 35 and EA 37, remained on display in the Museum galleries and could only be examined there. Similarities and differences in fabric, tablet-form and wedge-form were apparent between all these examples, and there was no sense that the Alašiyan letters were more different than the mainland examples were among themselves. They were perhaps closest to the ones from Tyre, exhibiting similar tablet size and shape, clay colour, wedge size and shape; although the correspondence was by no means absolute.

Within the diplomatic letters from the Levant, two quite distinct linguistic traditions exist. In the north – at sites like Ugarit – a relatively standard peripheral Akkadian is used, while in Phoenicia and further south letters are written in a much-debated linguistic form heavily influenced by the local Canaanite vernacular. This has been variously described as a hybrid language, contact language, interlanguage or even as straightforwardly Canaanite but written in an 'Akkadiographic' code – that is, retaining the West Semitic grammar and syntax but substituting Akkadian vocabulary (Rainey 1996, Cochavi-Rainey 2003, von Dassow 2004, Vita 2015). In the Levant, the use of one linguistic tradition or the other is typical, but

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[3] Bilingual (or less often multilingual) Akkadian-Sumerian Lexical lists and classic literature such as Gilgamesh, Atrahasis or other religious and mythological narratives formed the cornerstone of Babylonian literate education and were used, with varying degrees of accuracy, completeness and adaptation, widely across the cuneiform world. On the role of Babylon in Near Eastern education see van Soldt 2011, and on the knotty question of the accessibility and completeness of such material, and the knowledge networks that supplied it, see Robson 2014.

interestingly, different letters from Alašiya use both: the Amarna letters are written in the 'Canaano-Akkadian' of the southern Levant, while the letters found at Ugarit are in the peripheral Akkadian used there (Cochavi-Rainey 2003).

This could be interpreted in a couple of possible ways. On the one hand, we might see this as evidence for the lack of a distinct local Cypriot cuneiform tradition and possibly related to the use of foreign scribes – it would stand to reason that scribes from the south would write 'Akkadian' according to their own rules, while Ugaritian ones would naturally follow the norms of their own city. On the other hand, we could perhaps argue that this is an example of the flexibility and accommodating nature of Cyprus's approach to diplomacy, ever-eager to present itself in the way that best fits its correspondents' expectations: when writing south, it uses 'Canaano-Akkadian'; when writing north, peripheral Akkadian. Though, it has to be said, it is hard to imagine why they might have thought the Egyptian pharaoh would have preferred the peculiar Canaanite form over the more standard and prestigious Akkadian.

We are left, then, with many questions when dealing with Cyprus's involvement with international networks and its engagement with the cuneiform culture that came along with them. It seems very likely that a gulf existed between presentation and reality, a sense that behind the ostensibly familiar forms and formulae of Near Eastern globalization, the reality of politics and culture in Alašiya might have seemed rather alien to the long-established dynasties of Babylon or Egypt. Certainly, scribes were imported; there is a good chance that they were responsible for a significant amount of Alašiya's Akkadian (or Canaano-Akkadian) output. But we cannot rule out the existence of a Cypriot engagement with cuneiform culture. On the contrary, it seems hard to believe that scribes from neighbouring lands might be gathered to write in the language(s) and script of international globalization on behalf of Alašiya without any of the locals taking an interest, especially given their own literacy and scriptal experimentation. Perhaps this Cypriot cuneiform was small, limited and shallow-rooted compared to its neighbours across the sea – a curiosity rather than an intellectual tradition – but we probably should at least envisage awareness of and access to cuneiform as a background milieu against which local Cypro-Minoan scribal practices must be understood.

4. The 'CM2' tablets from Enkomi

The 'CM2' tablets from Enkomi are far from a consistent corpus. Traditionally classed as three tablets, we would be better to speak in terms of four fragments, since the join between

two of them has rightly been called into question and should probably be dismissed (Ferrara 2012/13 vol. 1, 192-95). None of the fragments preserves the full height or width of the original tablet from which it was broken, but even so, we can tell from what survives that the originals had different shapes and proportions.[4]

Of the two fragments joined as inscription ##207, the smaller one (1193) is very poorly preserved while the larger one (20.01) gives us enough to reconstruct an original size of perhaps as much as 20cm wide and a height of probably considerably more than the surviving 9.5cm, with an average depth of around 2.5cm. The latter bears clear vertical ruling marks to the right of both faces; the original width is in part reconstructed on the assumption that these rulings were made down the centre of the tablet. In order to read from face A to face B, the tablet is turned on its horizontal axis. Despite the valid doubts over the join of fragments 1193 and 20.01, it can be remarked that the size and ductus of the signs is quite similar, with signs varying a little between 2 and 4mm in height. The larger fragment has a largely smooth, flat face, while the smaller fragment is slightly more convex.

Fig. 1. Fragments 20.01 (larger) and 1193 (smaller), joined as 'tablet' ##207. Left: face A. Right: face B. Photos courtesy of Silvia Ferrara.

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[4] On the physical properties of the tablets, see most recently Ferrara 2012/2013 vol. 1 188-95 and vol. 2 under the entry for each item.

The tablet ##208 (1687) preserves parts of two edges, although it is difficult to extrapolate from its surviving dimensions (9.5cm height, 11cm width, 1-2cm depth) what the original dimensions would have been. The fact that the ends of some lines are clear on face A, with blank space to their right (also indicative of dextroverse direction of writing and similar to what is seen in 20.02), may be taken to suggest that the surviving width is not very much shorter than the original. There is no evidence of rulings or columns in this tablet, and it has to be turned approximately on its vertical axis to move from face A to face B. Most striking is the fact that the alignment of the lines of text is different on each side of the tablet, a feature related to the fact that the surviving top corner of the tablet has an angle considerably greater than 90 degrees. On face A, the text lines up with the horizontal top edge, but this means that the left edge flares out and the position of the beginnings of the lines of text correspondingly change as you read down the tablet. On face B, the text is lined up against the right edge (and presumably the missing left edge), causing the top line of text to spill over the top edge of the tablet. The height of its signs (regularly c.3mm) is quite similar to those in fragments 1193 and 20.01 but there are some differences in the ductus and method of incision. The tablet is slightly convex.

Fig. 2. Tablet ##208 (1687). Left: face A, aligned so that the text is horizontal. Right: face B. Photos courtesy of Silvia Ferrara.

Fig. 3. Tablet ##208 (1687). Left: face A, aligned so that the left edge is vertical (if turned along this edge, the text on face B would be horizontal). Right: the top edge of the tablet, seen from face A, with the 'spillover' from face B visible. Photos courtesy of Silvia Ferrara.

The tablet ##209 (53.5) again preserves parts of two edges but bears several similarities with the larger fragment classed as ##207 (20.01). While the original height is difficult to extrapolate from the surviving 12cm, the width may again be inferred from the presence of column rulings on face B, making it probably considerably wider than the surviving 6cm: if the vertical ruling 5cm from the left edge is the centre of the tablet then the original width may have been 10cm, but ruling into three columns is also possible, making it presumably closer to 15cm. The depth varies between c.2 and 4cm, owing to the convex nature of both sides of the tablet. It is not only a vertical ruling that can be discerned on face B but also several horizontal lines, making 'boxes' of text; face A is unruled. Between the top of face A and the top edge of the tablet is a series of small lines; the text of face B also encroaches slightly onto the top edge. Like the fragments classed as ##207, and unlike tablet ##208, this tablet has to be turned on its horizontal axis to read from face A to face B. The signs are c.3-4cm in height, though on face B they are so badly effaced that the majority are impossible or almost impossible to read even though the ruling lines are in places quite clear.

Fig. 4. Tablet ##209 (53.5). Left: face A. Right: face B. Photos courtesy of Silvia Ferrara.

In terms of tablet size, shape and format, there are considerable degrees of variation even among these four fragments, perhaps pointing towards a Cypriot tradition of writing on clay tablets that was not strongly standardized or that permitted variation and experimentation in achieving the 'right' shape for a given subject or context. It has long been admitted, albeit sometimes grudgingly, that the formatting lines found on fragment 20.01 and face B of ##209/53.5 could have been inspired by cuneiform practice, or, in Palaima's words (1989, 156), that 'Cypriote scribes were clever enough to borrow and develop formatting procedures suitable to their texts'. As this already hints, taking inspiration from one aspect of another society's writing practices need not imply that you must adopt their writing traditions wholesale, and there is no reason why other aspects should be borrowed at the same time. Indeed, it is both useful and important to think of different aspects of writing (e.g. script repertoire, sign shapes, document types, writing implements, methods of inscription) as separable, even though they cannot be connected. The shapes of the signs, then, have to be studied as a separate concern from other physical properties of the documents.

Of the four tablet fragments, the one whose signs are best preserved (and so give the best scope for analysis of writing method) is ##208 (1687). The signs are composed largely of quite deep impressions, where the stylus has sunk into the clay, making a point at one end of the impression and a wider round shape at the other; the characteristic Cypro-Minoan 'teardrop'. Drawings of the teardrop shape as found in many publications rob it of its three-

dimensional properties by making it appear flat. In fact, the pointed end is considerably deeper than the rounded end, because the shape is produced by sinking the stylus tip into the clay at an angle, with the point of the tip sinking further into the clay. Practical experimentation proved very elucidating in attempting to reconstruct the method of inscription. The shape of the stylus tip is patently clear from the shape of the impressions: it is rounded in its cross-section and comes to a central point at the tip, and crucially the length of the section that tapers from the full width to the point must be very short (i.e. a shallow pointed tip, very different from the long and thin pointed implements used for Linear A). Most 'strokes' are made by angling the stylus in order to achieve the characteristics of the teardrop-shaped impression, sinking in the point but angling so that the other end of the stroke is rounder and wider. There is no reason to see the process of creating these shapes in the clay as inattentive or rushed,[5] and it should instead be seen as a product of the shape of the stylus and the way in which it was positioned by the scribe. Although the impression made in this way accounts for all or most of the majority of 'strokes', some variation is necessary in order to reproduce all signs of the script. Some signs necessitate a curve to the thinner end of the teardrop, which involves briefly drawing the tip of the stylus round before pressing down to make the wider, rounded end of the impression. A few signs also necessitate a thin line between other impressions, which must have been drawn with the very tip of the stylus.

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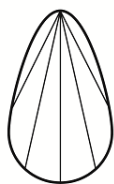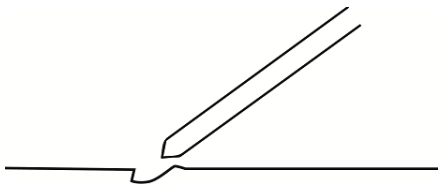
[5] Ferrara 2012/13, 191: 'formed by quickly jabbing the stylus in the clay, as opposed to the attentively drawn signs on the cylinder'.

Fig. 5. The teardrop impression, seen from the side (with possible angle of incidence of the stylus) and from above (with the impression of the stylus point marked by converging lines). Drawn by Philip Boyes.

Far from a 'blunt tool' as often suggested,[6] the sharpness of the tip of the stylus is vital in order to achieve the full range of shapes needed when working at such a small size (signs consistently c.3mm in height). The length of the section tapering to the point is short, but the point is sharp enough to form a point at the head of the teardrop impression, and to draw thin lines where necessary. The 'punkt' mark at the end of face A of ##208 has a considerably wider diameter than the wider ends of the teardrop impressions; the fact that its impression does not come to a point but instead is flat inside suggests that it was made using something different, potentially the other end of the stylus if it had a flat round end with a wider diameter.

Fig. 6. Selection of sign shapes and 'punkt' mark from ##208.

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[6] e.g. Valério 2016, 75: 'drawn with jabbed strokes, probably with a blunter stylus'.

Fig. 7. Possible shapes of stylus tip, as used in practical experiments. The bottom shape comes closest to that used to form the wedges in ##208, although it was difficult to replicate its sharpness in the wood used.

The two fragments often classed together as ##207 and the fragment ##209 contain sign shapes that are similar in their composition to those of ##208 (formed from teardrop-shaped impressions), but tend to be shallower. This may be in part due to variables in the inscribing medium, e.g. to the clay being slightly drier when it was inscribed, though it may also be related to more wear on the surface of the tablets. There is a less marked difference in the width of the impression between the tip and the rounded part of the teardrop, which could indicate the use of styli with a slightly different shape to that used for ##208 and/or could be a product of shallower impressions (i.e. not sinking as far into the clay) and a shallower angle of incidence between the position of the stylus and the surface of the tablets. However, the method of making each 'stroke' of the signs remains essentially the same.

Fig. 8. Section of tablet ##209 showing shallower teardrop-shaped impressions. Photo courtesy of Silvia Ferrara.

It must be pointed out that the use of a rounded tool ending in a shallow point was not confined to these tablets. Inscriptions usually classed as 'CM1' can display similar properties and teardrop-shaped impressions, although often with a greater degree of drawing involved in making the signs. The Enkomi cylinder is a good example, with partially drawn lines but with each stroke ending in the wider round impression of a thicker part of the stylus (fig. 8). The

clay balls, although in other ways quite homogeneous as an object type, display some variation in the ratio of drawn to impressed aspects of the signs, with some bearing signs that look very similar to the signs of the 'CM2' tablets while others bear signs that have longer and/or thinner drawn elements. We can take from this that, whatever may be different and distinctive about the 'CM2' tablets, they were nevertheless written using tools that were the same as or very similar to ones used for writing on other types of document, despite the fact that the way in which the stylus interacted with the tablet (e.g. depth and angle of impression, presence or absence of drawn lines) could vary. This is not to say that the stylus used was always the same shape for all inscriptions classed as 'CM1' and the ones on materials other than clay especially tend to bear the impression of different stylus shapes.

For the clay documents, the idea of impressing the tip of the stylus into the clay at an angle was one shared with Near Eastern cuneiform writing, and this is unlikely to be a coincidence given that Cypriots certainly had sufficient exposure to cuneiform to know that this was the case. Clay tablets were common in the area around Cyprus as they travelled around the Near East and eastern Mediterranean, and we can see at least some traits of cuneiform documents in the Enkomi tablet fragments not only in methods of inscription but also in formatting techniques. The combination of the two suggests meaningful and innovative interactions, perhaps of a longstanding nature, with cuneiform writing traditions. To say so is not radical but it does need to be forcefully stated given the trend in scholarship to back away from Near Eastern influences. Indeed, to think of these interactions as 'influences' casts them in an unnecessarily unidirectional light, and we would be much better to think of the situation as a dynamic one involving contact and agency on the part of Cypriots and their documentary traditions. This is an entirely separate concern from the Aegean origins of the Cypro-Minoan script and the question of whether the version of the script used in the tablets has a different repertoire or represents a different underlying language – both issues that we do not intend to address in this paper.

Fig. 9. The Enkomi cylinder. Photo courtesy of Silvia Ferrara.

Fig. 10. Selection of clay balls showing different degrees of teardrop impressions and drawn lines. Photos courtesy of Silvia Ferrara.

We turn now from Cyprus itself to Cypro-Minoan writing at Ugarit, the most obvious known point of contact between Cypriot and cuneiform writing traditions. Before looking at the clay Cypro-Minoan inscriptions found there, it is important to reflect on the kind of

cuneiform culture present at Ugarit, among which the authors of those Cypro-Minoan texts (whoever they were, Cypriot or Ugaritian) found themselves.

5. Cuneiform culture at Ugarit

The corpus of cuneiform-inscribed material from Ugarit is both large and diverse, comprising several thousand items split approximately evenly between Babylonian logosyllabic and the local alphabetic cuneiform script. The syllabic cuneiform is almost exclusively written in Akkadian; the alphabetic in Ugaritic; although a small amount of Hurrian-language material also exists in both scripts. Bilingual and multilingual texts occur – mostly lexical lists used in scribal training, some of which include up to four languages, but there are also ritual texts which transition from Ugaritic to Hurrian and back again for certain parts of the rite. There are a very small number of biscriptal texts, usually where a short summary or label in Akkadian has been added to a text primarily in Ugaritic.

The overwhelming majority of this material – in both scripts – is on clay tablets, which vary greatly in dimensions and proportions, but not noticeably between scripts or languages. That is to say, while there is a fair amount of internal variation, the Ugaritic/alphabetic cuneiform tablets are not noticeably different in form, amount of variation or general trends from the Akkadian/logosyllabic ones. There is a broad, but not absolute, separation by genre: international texts such as treaties, diplomatic letters and so on tend to be written in Akkadian in accordance with Near Eastern norms, while internal letters, religious, ritual and literary texts, and much administrative documentation tends to be written in the local script and language.

As well as the corpus of tablets, there is a non-negligible minority of other inscribed objects, mainly bearing alphabetic inscriptions. These include stelae, bronze tools, ivory replica livers probably used in divination, cylinder seals, ceramic vessels and small clay labels. It is also not unlikely that cuneiform in one or both scripts was written on perishable materials, most notably wax-covered writing-boards of the kind well-known from Assyria and of which an example was recovered from the Ulu Burun shipwreck off the Anatolian coast (Payton 1991, Symington 1991, Wiseman 1955). No such boards have been found at Ugarit itself, although Postgate (2013, 401-02) thinks they are depicted in a stelae found on the city's acropolis, and a letter (RS 19.53) sent to Ugarit, probably from the Middle Euphrates region, also mentions one (Symington 1991, 121 and n.74). Perhaps connected to this are the bronze styli Schaeffer

(1951, 14) reported finding one of the city's archives. These remain unpublished, although Ellison (2015, 167-68) has inspected them and reports that replicas could exactly reproduce wedge impressions of the kind found in alphabetic cuneiform inscriptions. My own experimentation with writing cuneiform in wax has shown that hard stylus materials such as metal present a considerable advantage over softer ones like wood ones for writing in wax, although of course this only shows that these styli would have been suitable for such a use, not that they necessarily *were* used in this way.

Fig. 11. Replica writing-board of similar dimensions to the Ulu Burun diptych. The less defined first four rows were produced with a wooden stylus, the bottom three rows were made with larger styli in metal and hard plastic.

Related to the use of perishable materials is the strong but enigmatic influence of linear alphabetic writing practices at Ugarit. There is no doubt that alphabetic cuneiform was developed based on the model of the linear alphabet used further south. This was not just a single point of connection at the development of the alphabetic cuneiform script, but seems to

have been an on-going process of interaction and borrowing: for example, three additional signs seem to have been added to the cuneiform alphabet some time after its original creation, based on their position tacked on to the end of the abecedary. One of these, ś, is clearly derived from the linear samekh. A number of variant sign-forms in the alphabetic cuneiform repertoire depart from the strict expectations of what constitutes a cuneiform sign to incorporate more linear-looking features such as curved lines, rings (Ellison 2002, 340-357.; figs. 1404-1422) or circles (e.g. KTU 1.77, 4.31 and 4.710). The latter may indicate that the stylus could have had a round tail-end (Pardee quoted in Ellison 2002, n.81, and see also n.376), a possible point of similarity with Cypriot tools. These circles also somewhat resemble the 'firing holes' of first-millennium Assyrian tablets, although as letter-signs the Ugaritian ones are evidently a quite different phenomenon.

Given the close contacts between Ugarit and the coastal cities of Phoenicia and Palestine, it is inconceivable that there did not continue to be a certain awareness of the linear alphabet among the city's writers, and it seems very probable that elements borrowed from linear alphabetic writing practices contributed to some of the more unusual aspects of the local script. Harder to determine is whether linear writing practices at Ugarit amounted to anything more – perhaps a local Ugaritian branch of the linear script now lost to us. Over the years a number of scholars have suggested that the cuneiform signs of the Ugaritian alphabet might be schematised, 'cuneiformized' versions of linear prototypes (Stieglitz 1971, Dietrich and Loretz 1988). Some of these suggestions look rather plausible, and would explain a number of variant sign-forms which look rather unexpected as versions of the 'standard' cuneiform but would make sense if all were derived from a linear original. Ultimately, however, these suggestions remain highly speculative and are probably impossible to prove from the available data.

We are on safer ground when considering how this picture of an idiosyncratic local adaptation of general cuneiform writing practices applies to methods of inscription. There has been a good deal of debate about the nature of the stylus used in Mesopotamia for logosyllabic cuneiform, and although it is likely that there were differences across the considerable geographic and chronological spread involved, in general it seems that styli for writing in clay tended to be roughly triangular in cross-section and made from relatively soft materials such as reed or wood (Cammarosano 2014). In contrast, the stylus used at Ugarit for both alphabetic and logosyllabic cuneiform was larger and square in cross-section, as Ellison (2002, 2015) has thoroughly demonstrated. Most had bevelled heads, although not all, and there is the possibility that some styli may have had round 'tails' used for producing circular impressions, as

mentioned above. By holding the stylus at varying angles relative to the clay and using different parts of the square head to impress the surface, Ellison found that he could reproduce all the signs of alphabetic cuneiform with minimal repositioning of the tablet or the hand. The choice of a different implement to write alphabetic cuneiform from the general Near Eastern norm gives it a noticeably different visual character and represents an important departure from the older traditions.

It is challenging to reduce to complexity of writing practices at Ugarit to such a brief summary, but it will be clear, I hope, that this was a site of considerable experimentation, innovation and diversity of practice where typical cuneiform writing practices were adapted and reinvented to create something new, distinctive and characteristically Ugaritian. However, this does not mean it stood alone as some sort of scriptal Galápagos where writing practices pursued their own weird culs-de-sac of evolution without consideration of external developments. Quite the reverse: Ugarit's idiosyncrasies emerge from a complex blending of multiple regional traditions alongside local developments born out of specific Ugaritian needs and wishes – a strongly articulated local agency within the constraining (and enabling) framework of regional norms and traditions.[7]

6. The 'CM3' tablets from Ugarit

Within the cuneiform-dominated but highly diverse scriptal and linguistic environment of Ugarit, the remains of four Cypro-Minoan tablets have been found, three of which are fragmentary and one complete; there are also two clay labels and an inscribed pithos rim, as well as a silver bowl. This very small corpus (traditionally all classed under the largely geographical grouping of 'CM3') represents a tiny minority among the main scripts and languages attested in the Ugaritian epigraphic record. The tablets are the primary focus here although the labels are worth considering alongside them as documents inscribed in moist clay, especially given the quite different palaeographical appearance of one of them (see further below). They were discovered in the residences of Ugaritian administrative officials, making

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[7] For discussion of some of the cultural and ideological factors which may have fed into these scriptal innovations, see Boyes 2018.

their potential for interaction with cuneiform writing traditions all the more likely contextually.[8]

Tablet ##212 (RS 17.06) is a small 'cushion'-shaped document (according to Nougayrol's classification: Nougayrol and Schaeffer 1956, 3-6), broken at the bottom, with curved sides and convex faces. The full width and depth are preserved at 4.3cm and 1.5cm respectively, while 4cm of its height survives, perhaps not much less than the original height judging by the quite even curvature of the sides. Ruled lines along the sides of the tablet separate face A from face B, and the text on each face is written along horizontal ruled lines with relatively large (4-5mm) and evenly spaced signs. The tablet is turned along its horizontal axis to read from face A to face B.

Fig. 12. Tablet ##212. Left: face A. Right: face B. Photo courtesy of Silvia Ferrara.

Tablet fragment ##213 (RS 19.01) is very small and broken on all sides, with just 2.7cm height and 2.2cm width remaining, and a depth of 1.2cm. A horizontal ruled line appears across the middle of face A, but the line above it does not seem to have a ruling, suggesting it may not have featured regular ruling as found in ##212. Face B does not bear any traces of inscription.

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[8] On the physical properties of the tablets, see Ferrara 2012/2013 vol. 2, under the entry for each item.

Fig. 13. Tablet ##213. Photo courtesy of Silvia Ferrara.

Tablet ##214 (RS 19.02) is composed of two plausibly joined fragments, preserving just the top edge and corners, with a preserved width of c.6-7cm and depth of 2-3.5cm; the original height would be a matter of speculation. It does not feature signs of ruling and face B is uninscribed.

Fig. 14. Tablet ##214. Photo courtesy of Silvia Ferrara.

Tablet ##215 (RS 20.25) is the only complete specimen and measures 6.8cm height, 5.8cm width and 1.7cm depth. It has rounded sides and convex faces, and its proportions place it in Nougayrol's 'oblong' category (Nougayrol and Schaeffer 1956, 3-6). It does not feature ruling. The tablet is turned along its vertical axis to read from face A to face B.

Fig. 15. Tablet ##215. Left: face A. Right: face B. Photo courtesy of Silvia Ferrara.

What is immediately striking about these four tablets is that, despite their more coherent grouping as a set of documents belonging to various official Ugaritian archives, demonstrating contextual similarities that cannot be proved for the 'CM2' Enkomi tablets, the ways in which they have been inscribed show a high degree of variation. Tablet ##215 comes closest to what we saw in the Enkomi tablets, with an almost identical method of inscription involving a tool of very similar shape (rounded cross-section with a short tapering section ending in a shallow but sharp point). It is even more evident in this tablet that the angle of incidence between the stylus and the tablet surface is critical to producing the full range of signs (fig. 16), as some strokes require a shallower impression made at a lower angle (producing a longer teardrop) while others require a higher angle to produce a shorter impression where the tip sinks in slightly deeper (fig. 17). It is also clear that the stylus did not have to be rotated very far to produce the full range of strokes, and when for example small horizontal strokes are made on either side of the central part of a sign, both of them are angled as if made from the right side (fig. 18). This is strongly reminiscent of the range of movements and positions employed by scribes writing Ugaritic cuneiform, as illustrated in Ellison's study of wedge shapes in Ugaritic cuneiform documents.[9] Drawn lines are kept to an absolute minimum, and confined to parts of signs that require a slight curve; some of these longer lines are in fact composed of multiple
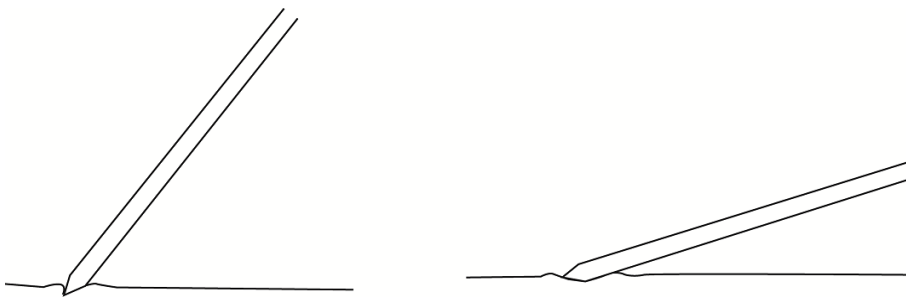
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[9] See previous section and Ellison 2002, 2015.

impressions rather than drawn (fig. 19). Such strategies can also be compared with the methods utilised for producing curves in alphabetic cuneiform.[10]

Fig. 16. Selection of sign shapes from tablet ##215, showing composition using angled teardrops. Photos courtesy of Silvia Ferrara.

Fig. 17. Reconstruction of angles of incidence between the stylus and tablet surface when producing shorter/deeper (left) and longer/shallower (right) teardrop shapes. Drawn by Philip Boyes.

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[10] See section 5 above and Ellison 2002, 340-357.

Fig. 18. Selection of sign shapes from tablet ##215 where both small horizontal 'strokes' are made with teardrops that 'point' to the left (i.e. the stylus was positioned from the right at a 90 degree angle). Photos courtesy of Silvia Ferrara.

Fig. 19. Selection of sign shapes from tablet ##215 where longer curved lines where required, made either by drawing the pointed end of the stylus round (left) or by making multiple impressions (right). Photos courtesy of Silvia Ferrara.

Far from showing an 'immunity' to cuneiformization (Palaima 1989, 156), tablet ##215 shows quite the opposite: the tablet's author held, positioned and impressed the stylus in a manner almost identical to what is found in Ugaritic cuneiform documents. It seems like they worked in the vicinity of cuneiform scribes, and it is hardly far-fetched to say that they

were probably biscriptal in Cypro-Minoan and cuneiform, whatever their origin (a Cypriot writing at Ugarit, or an Ugaritian writing Cypriot-related documents?).[11]

Oddly the other tablet fragments rather look as though they were written using a stylus of a slightly different shape, still pointed and rounded but thinner in its cross-section. In ##212 it is especially evident that while some impressions are made by angling the stylus (resulting in a teardrop shape), others are made by drawing the tip through the clay (fig. 20). Sometimes in this tablet a drawn line can terminate in a deliberate circular rounded shape, and rounded shapes form parts of other signs as well (fig. 21). Some of these round shapes could even have been made with a blunter instrument, or hypothetically with the blunter end of the stylus. The combination of drawn lines and deliberate circular rounded shapes is all the more evident in tablet ##214, which contains very thin shallow lines and deeper point impressions (fig. 22). The small fragment ##213 has only a few surviving signs, whose strokes seem to be either impressed or drawn with quite a thin pointed tool (presumably the tip of a similar stylus).

Fig. 20. Signs in tablet ##212 showing teardrop-shaped impressions (left) and drawn lines (right). Photos courtesy of Silvia Ferrara.

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[11] On this question see variously Ferrara 2012/13, 171; 2016, 235; Steele 2018, 203-204.

Fig. 21. Signs in tablet ##212 containing circular rounded shapes alongside teardrop shapes and drawn lines. Photos courtesy of Silvia Ferrara.

Fig. 22. Signs in tablet ##214 demonstrating a combination of thin drawn lines and round shaped impressed with the point of the stylus.

The two Cypro-Minoan labels from Ugarit are a helpful supplement to the evidence of the tablets because one of them shows us something quite different. While the more fragmentary label ##211 bears signs quite similar in appearance to those of the tablet fragment ##213, the other label ##210 (fig. 23) bears signs that have been drawn in long, bold lines. The combination of the depth of the lines and minimal 'throw-up' of clay at the edges suggest that they were drawn while the clay was still very moist and the stylus could slide easily through it. However, the two smaller strokes of the first sign are made by impressing the stylus at an angle, and these ones betray that the stylus used was similar in shape to what was used for the other tablets: rounded in cross-section and coming to a shallow but sharp point. The sharpness of the point is evident also from the pointed ends of the drawn lines, and the shape of the indents of

those lines (making a V-shape in cross-section in the clay) suggests that the stylus was held at a very high angle in respect to the surface of the clay, perhaps close to ninety degrees.

Fig. 23. Clay label ##210. Photo courtesy of Silvia Ferrara.

Despite the very high degree of variation in the methods used to write the Cypro-Minoan clay inscriptions found at Ugarit, we have strong evidence here for interaction between Cypro-Minoan and cuneiform. The case of tablet ##215 offers the strongest evidence, featuring methods of holding, angling and impressing the stylus that are almost identical to ones used for Ugaritic cuneiform. The other tablets may not feature such a strong resemblance with cuneiform, but they do continue similar methods in combination with the drawing of signs to different degrees. The situation in which the texts were produced is also relevant here. Making Cypro-Minoan look more like cuneiform is not the only possible reaction to the close contact between the two scripts at such a cuneiform-dominant site as Ugarit. Indeed, the elaboration of drawn elements of the signs in some tablets/labels could point to another reaction, namely an instinct to make clear that this is a distinct writing system (with whatever associations of language or identity that may also have entailed). But what they manifestly do *not* show is a lack of interaction with or interest in cuneiform written culture. Quite the opposite: these are documents that are manufactured and inscribed in ways that interact meaningfully with Near Eastern and specifically Ugaritian traditions.

7. Conclusions

Joanna Smith concluded in her survey of writing techniques in Cyprus (2003, 184) that 'Cypriote writing derives from multiple sources' and that 'without formal training, without a single tradition common to those who worked together, it suggests that people learned elsewhere and came together on Cyprus to create the documents that we have available for study'. While it is certainly apt to try to detect traditions of training that must have played a key role in the dissemination of literacy and methods of writing, we would contend that it is not necessary to reconstruct a situation in which the authors of Cypro-Minoan documents are themselves non-Cypriots, or where forces affecting writing are necessarily purely external. This is not to deny that scribes moved around the Near Eastern and east Mediterranean sphere. However, in the one example of an itinerant scribe known to have been sent to Cyprus from Ugarit, we have no evidence whatsoever that he engaged with Cypro-Minoan writing – only that he wrote diplomatic correspondence in Akkadian cuneiform (Ferrara 2016 and see section 3 above). The motivation for developing widespread and varied traditions of writing in Cypro-Minoan script is better understood as an impetus by Cypriots to create an idiosyncratic sort of literacy, which may have interacted other traditions to east and west but was crucially also distinctively different from them (Steele 2018, 39-44). To do this they must certainly have had access to those other traditions, but the direct ways in which they interacted and learned from them is more difficult to reconstruct.

At the heart of all this was one crucial problem for the Cypriot scribe, namely that, while common methods of writing clearly involved using a stylus with a shallow rounded point that easily sank into clay (especially the wetter it was), it was inescapable that in order to render Cypro-Minoan script s/he would have to draw some lines. The signs of this script were originally adapted from signs of the Aegean linear tradition that were drawn elaborately with long, thin lines, some curved and some straight. Even the earliest surviving tablet (the 'CM0' tablet from Enkomi, ##001) shows evidence of this tension, with signs constructed with long, thin lines but showing a reluctance to draw the stylus point through the clay (most clearly in the sign resembling a round wheel-shaped *ka* of the Aegean scripts, where the circle is made with multiple incisions rather than a smooth rounded stroke; see fig. 24 below).[12] While Cypro-Minoan signs sometimes could be drawn, the norm in clay documents of all kinds was to use impression or a combination of impression and drawing.

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[12] Practical experimentation with recreating the methods of inscription for this tablet, and some other inscribed objects, suggested strongly the use of a different kind of tool. This is beyond the scope of this paper and will be treated elsewhere.

Fig. 24. Detail of a reproduction of the early Enkomi tablet ##001, showing the 'ka' sign middle-left.

Wherever the idea to use impression (or 'punching') as such a vital component of writing grew from, we can at least be reasonably certain that it was not inspired by Aegean writing. Meanwhile, the prevalence of using impressions and the angling of the stylus to create different wedge-shapes in cuneiform writing – traditions of which Cypriots must have been aware – hardly looks like a coincidence. The exposure of Cyprus to cuneiform writing traditions is evident even in the earliest period of Cypriot literacy, when cylinder seals become a common item from the end of the Middle Bronze Age onwards. Some Cypro-Minoan document types themselves show parallels with ones from the Near East, as we have mentioned in some of the cases discussed here. It is also significant that Cyprus played a role in international Bronze Age diplomacy, necessitating some familiarity with Akkadian cuneiform even if some scribes writing it may have been itinerant ones from the Near East.

Contrary to Palaima's assertion than Cypro-Minoan writing at Ugarit was immune to cuneiformization, it is at Ugarit that we see the clearest evidence of Cypriots adopting cuneiform writing techniques: the signs of tablet ##215 are made almost exclusively by angling and rotating the stylus, with drawn lines at an absolute minimum (to the extent possible to make the signs distinct). It can be no coincidence that this is extremely close to the methods employed by Ugaritian scribes writing in Ugaritic cuneiform, as demonstrated so conclusively by Ellison (2002, 2015). The only difference was the shape of the implement used, a round tool coming

to a shallow point rather than a flat-ended implement with a square-shaped cross-section for making wedges. Cypro-Minoan writing on Cyprus strikingly shows that similar techniques were widely used in clay documents, and most evidently in the 'CM2' tablets from Enkomi.

The very idea of cuneiformization in Cypro-Minoan is a phantom. The evidence for interactions between Cypriot and cuneiform writing traditions is compelling and undeniable, but this does not mean that features of cuneiform writing were somehow imposed on Cyprus, as the verb 'cuneiformize' suggests. The surviving Cypro-Minoan clay tablets examined in this paper are the product of multiple complex and dynamic interactions with cuneiform culture, ones that involve experience and understanding of a range of features including documents types, formatting, writing implements and methods of forming signs; but they also involve creative reimagination of those very practices, combining some aspects of cuneiform writing, such as ways of shaping/arranging clay tablets and positioning the stylus in respect to the tablet surface, with altogether un-cuneiform aspects, such as the rounded/pointed shape of the stylus and the maintenance of script sign shapes that necessitate drawing lines or curves. What is more, this adaptation and 'remixing' of cuneiform writing practices is not something unique to Cyprus, but is very much the sort of thing going on within the 'cuneiform world' proper at sites like Ugarit, where experimentation with stylus shapes, use of curves and circles and other 'un-cuneiform' features are also seen. Far from seeing cuneiform culture or practices as a single package, it is important to recognize that they were subject to the agency of local writers to suit their socio-cultural context and specific requirements. While Cypro-Minoan writing practices and the specifics of its writers' engagement with elements of cuneiform are particular to this case, the way in which elements were picked and chosen, adapted and combined with elements of other traditions, is very much in line with what we see on the continent, and it would be misleading to assume that the boundaries of the 'cuneiform world' should be drawn at the shores of the Mediterranean.

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