CHAPTER 9

THE FUTURE OF CRETAN HIEROGLYPHS: OUTLOOKS AND TRAJECTORIES

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9.1 Pioneers, Problems and Paths Forward

We owe the term 'Hieroglyphic', as applied to the Cretan Hieroglyphic script, as we owe so much in Minoan studies, to Arthur Evans. His studies, beginning with his announcement in 1893, in a lecture on the Aegina Treasure, that he had identified 'a native Greek system of hieroglyphics, distinct from the Egyptian on the one hand, and the so-called Hittite on the other',[1] continued with his two substantial publications on the 'prae-Phoenician' scripts[2] and culminated in *SM* I,[3] the first systematic overview of Cretan Hieroglyphic (and the other Aegean scripts). We might term this the first 'watershed' in the study of Cretan Hieroglyphic. In his exposition of the development of writing on Crete, Evans was influenced by contemporary scholarship in the then-emerging fields of anthropology and prehistory, in particular by his Oxford colleague Edward Burnett Tylor, appointed to the UK's first Readership in Anthropology in the same year (1884) as Evans became Keeper of the Ashmolean Museum.[4]

Evans' influence on the field remained strong, less so following the decipherment of Linear B in 1952. That decipherment acted as a spur to the systematic investigation of the other scripts: Linear A and Cretan Hieroglyphic. We owe to Louis Godart and the late Jean-Pierre Olivier the first systematic corpus of Linear A, completed in 1985,[5] and, towards the end of the following decade, their corpus of Cretan Hieroglyphic.[6] *CHIC* represents the second 'watershed' in the study of Cretan Hieroglyphic and its importance for the field is signalled by its omnipresence in this volume, running like a warp thread through its weft.[7] We would like to see the current volume, not necessarily itself as a third 'watershed' (only history will tell), but as capturing a 'watershed

[1] Reported in *Journal of Hellenic Studies* 14: 1894: lx. [2] Evans 1894a; 1894b; 1895; 1897.
[3] For an insightful perspective on this work, see Karnava (2021). [4] Bennet 2016; 2018: 63.
[5] *GORILA* I–V; a Supplement to this by Maurizio Del Freo and Julien Zurbach is in preparation.
[6] *CHIC*.
[7] A direct consequence of *CHIC*'s publication was the systematic analytical study embodied in a doctoral thesis supervised by Olivier: Karnava 2000.

moment' in the study of Cretan Hieroglyphic, reflecting in particular the important contributions of what one might call the 'third generation' of Aegean script studies (after those of Ventris and Chadwick, and of Killen, Olivier and Melena), represented (among others regularly cited herein) by the authors of the various contributions included here. A point worth emphasising is the contribution of teamwork, particularly that of the INSCRIBE project, led by Silvia Ferrara, but also that of Philippa M. Steele's CREWS (and now VIEWS) projects, all three awarded by the European Research Council, the latter now funded by the UKRI Frontier Research Grant scheme.[8]

In this chapter we reflect on the themes presented in this volume and suggest potential trajectories for future study of Cretan Hieroglyphic: a similar endeavour one of us called elsewhere a 'Rumsfeldian exercise', as far as it is based on an assessment of known knowns, known unknowns and unknown unknowns.[9] Our perspective might be termed 'quasi-extraneous', since it embodies a viewpoint based on our knowledge of the Linear B system, still Aegean but utilised within a political and socio-economic landscape that may have differed profoundly from that of Cretan Hieroglyphic. We have tried to avoid repetition, inevitable as we return to similar topics from different angles, and to develop themes, rather than strictly following the structure of the volume.

9.2 Accommodating (or Rehabilitating) the Study of Cretan Hieroglyphic (and Other Aegean Writing Systems) within Grammatology: Some General Issues

Study of writing systems, grammatology, has developed over the last seven decades, its origins often traced to Ignace Gelb's all-encompassing *A Study of Writing*,[10] coincidentally first published in the year of Linear B's decipherment. The study of writing systems has its past in early studies of cultural evolution,[11] as well as in linguistics, where Saussure's statement that, the systemic independence of writing from speech notwithstanding, '[writing] exists for the sole purpose of representing [language]'[12] has been influential. Grammatology has approached certain grand questions regarding the origins, definition and development of writing through macroscopic

[8] INSCRIBE: www.inscribercproject.com/; www.site.unibo.it/inscribe/en/about-1; CREWS: www.crewsproject.wordpress.com/; VIEWS: www.viewsproject.wordpress.com/
[9] Bennet 2014: 137. [10] Gelb 1952; 1963.
[11] E.g. Tylor 1865: 1–2; 1871 I: 63–144. For this approach, see also Trigger 2004.
[12] Saussure 1959: 23. For a comprehensive discussion and critique, see Coulmas 2003: 10–17.

overviews of writing practices and case studies devoted to specific writing systems.[13]

Since the editors have expressed a wish in their Introduction that this volume be of wider relevance than the field of Aegean scripts, it is worth noting that study of Aegean Bronze-Age scripts appears somewhat isolated from important debates in the field of grammatology, with relatively few exceptions.[14] While grammatology rather stagnated until revisions of the Gelbian orthodoxy began to emerge in the 1980s, the same period was intensely formative for the dynamic field of Mycenaean studies, where focus was necessarily inward: towards a better understanding of Mycenaean Greek, the identification of certain undeciphered Linear B signs (a task not yet completed),[15] its phonology and morphology, its relationship with later Greek dialects and the multifaceted challenges of textual interpretation.[16] This time was, however, considerably less productive for the study of Cretan writing systems other than Linear B, especially Cretan Hieroglyphic, whose 'watershed moment' really arrived in 1996 with *CHIC*. Although criticised on several points, it is the *existence* of *CHIC* that has made such criticism, as well as all systematic discussion about Cretan Hieroglyphic, even possible in the last four decades. It is on *CHIC*'s foundation that scholars have subsequently built.[17] The last decade has seen clear signs of renewed attempts to reach beyond the Aegean through major publications that were either focused on Aegean evidence,[18] or featured a notable participation of Aegeanists.[19] In recent years, the productivity of INSCRIBE project members and affiliates, some contributors to this volume, has boosted the status of Aegean epigraphy profoundly.

The idiosyncratic terminology employed even in the study of Linear B, the best-known and best-documented Aegean system, is a factor and a side-effect of isolation from the wider field of grammatology. The term 'ideogram' can be retained for lack of a more recognisable term among Aegean epigraphers, but this must be accompanied by a clarification of how the term is used in our specialist field.[20] It is discarded in the study of other writing systems, being associated with the 'ideographic fallacy' surrounding earlier attitudes towards writing systems

[13] E.g. Sampson 1985; DeFrancis 1989; Coulmas 2003; Sproat 2000; Powell 2009; Sproat 2010.
[14] Bennett 1963; Bennet 2008; Thompson 2012; Petrakis 2017b.
[15] Judson 2020.
[16] See e.g. Palaima 2003 and Bennet 2014 for overviews of the field's development.
[17] E.g. Younger 1996–1997; Olivier 2000; Poursat 2000; Karnava 2000; Jasink 2009.
[18] Jasink, Weingarten and Ferrara 2017 – a collection of studies of direct relevance to major grammatological questions, although focused on paraliterate or preliterate phenomena; similarly, Ferrara and Valério 2018; Steele 2017b.
[19] Piquette and Whitehouse 2013.
[20] Thompson 2012.

whose graphemes had a 'pictorial' or 'iconic' appearance.[21] Consistent use of such terminology is one area that will prove crucial in seeking to accommodate (or rehabilitate) the study of Cretan Hieroglyphic, and other Aegean systems, into broader grammatological debates.

The interchangeable use of 'logogram' and 'ideogram' is also potentially confusing. A 'logogram' is commonly understood by grammatologists as a sign *representing* an uttered lexeme, what we often call 'word', however elusive a universal definition of that term may be.[22] In deciphered Linear B we have relative certainty that 'words' (i.e. sign groups divided by the interpunctuation marks commonly called 'dividers') are conceived as *accentual units*, a point inferred from the patterns of sign-group division, where proclitic and enclitic elements are not graphically separated (e.g. *o-u-di-do-si* /ou dídonsi/ 'they do not give').[23]

'Logograms', *defined as word-/morpheme-signs*, do not seem to exist in Linear B. The signs often called 'logograms' are specialised commodity signs (the term occasionally extended to other non-phonograms, e.g. measurement units, numerals); and while commodity signs could *correspond* to lexical 'words' (but never grammatical ones) they are never used within phonographic sequences. One of us has proposed to term non-phonographic signs in Linear B 'sematograms' to indicate non-phonographic signs not bound to specific uttered forms: graphemes that stand for the *thing*, rather than the *word for the thing*.[24]

Identification of 'logograms' has led to the characterisation of Aegean systems as 'logo-syllabic'/'logosyllabaries', a term used, albeit qualified, in this volume.[25] Since most grammatologists would understand the term to mean the *concurrent* use of 'logograms' and 'syllabograms' in phonography – for which we possess negative evidence from Linear B and lack positive evidence from other Aegean scripts – its use might appear inconsistent to the wider field of grammatology.[26] We Aegeanists may certainly continue to use *logo-*/ *ideo-*/ *semato-*/ or *semasio- -graphy* / *-graphic* / *-gram*(*s*) or any other term we like, interchangeably or not, as long as collectively agreed definitions are presented. However, we suggest, communication with the broader grammatological community

[21] Petrakis 2017b: 159–62.

[22] Coulmas 2003: 38–40 on the difficulties. Although we can define the parameters of what we mean by the terms 'word' or 'lexeme', it is difficult to arrive at a universal, cross-linguistic definition (see Dixon and Aikhenvald 2002).

[23] Melena 2014: 15, 123–8, 171.

[24] Petrakis 2017b: 149–51.

[25] Civitillo, Ferrara and Meissner, Introduction, and chapters by Valério, Flouda, and Meissner and Salgarella.

[26] Unless, of course, some of the earliest attestations involve the combination of syllabograms with single signs that qualify or modify the message: most explicitly in Decorte 2017.

would be of benefit if the agreed use of such terms is *not* restricted to Aegean epigraphy and compromises are made to facilitate the accommodation of our discussions to larger agendas and the broader picture.

A broader issue in that field since Gelb has been an assessment of the difference between the so-called 'broad' and 'narrow' definitions of writing: whether to include or exclude non-glottographic (or 'semasiographic') marking systems from the category 'writing'. For Gelb, 'semasiography' is the 'forerunner' or 'precursor' of glottography,[27] but, as one of us has observed,[28] (specialised) semasiography often develops in literate contexts, employing glottographic elements (e.g. international road signs, music staff notation or mathematical signs). The *place* of non-glottographic visual signaries in the development of writing deserves full attention, however, and study of the possibility of such 'semasiographic' elements in Cretan Hieroglyphic is directly relevant to an important grammatological debate.

Broader questions regarding the genesis,[29] development (both within the same system, within the same regional 'tradition' or, in macro-scale, across all writing systems)[30] and, eventually, the disappearance of writing systems[31] may usefully frame pertinent discussions centred on Aegean writing, in which the Cretan Hieroglyphic material is of key importance.

The term '*change*' is also another deceptively broad category that may conceal an interesting range of diverse phenomena with different motivations and character. Richard Salomon has usefully distinguished between *external* (changes in graph[32] *form*) and *deeper* or *systemic* change (the strategy of mapping language onto graphs) in writing systems.[33] These two 'levels' of script change seem to operate at different paces or even in different contexts of script use. While systemic change can occur in cases of script adaptation across a linguistic frontier (e.g. that of Greek alphabetic writing from a West Semitic script), one cannot generalise this association. External script changes are far more frequent and linked to a complex array of factors: material (such as writing surface and writing implement in shaping the ductus or the physical scale of the inscriptions), located at the interface between writing and other forms of visual communication, as well as the social function of writing and the position of literacy (defined as the specialised skills

[27] Gelb 1963: 24–59. [28] Petrakis *forthcoming*.
[29] Cf. papers in Houston 2004a; Houston 2004d. [30] See papers in Houston 2012.
[31] Baines, Bennet and Houston 2008; Houston, Baines and Cooper 2003.
[32] On the useful distinction proposed between 'graphs' and 'graphemes', see Ferrara, this volume.
[33] Salomon 2012: 126.

involved in the production and consumption of writing) within any specific historical context.

Salomon's distinction is useful in the study of an *undeciphered* script, such as Cretan Hieroglyphic, where the only directly observable type of change is the *external*, although Brent Davis' syllabotactic analysis may provide us with an effective tool to assess the statistical likelihood of *systemic* change.[34] We therefore run the serious risk of *reading too much* (no pun intended) into our only accessible genre of evidence: in the case of Cretan Hieroglyphic, the diversity in the 'outward form' of the written signs, as this appears before us in a variety of types and materials, including seals, clay administrative documents and small vessels, such as the Chamaizi juglets.

The end of a writing system is another area where caution is needed to distinguish between potentially different phenomena that might yield similar outcomes in the material record: the seeming 'replacement' of one writing system by another (e.g. of the Cypriot Syllabic script by Greek alphabetic writing, or the Arabic script by an adaptation of the Latin alphabet in post-Ottoman Turkey) and the loss of literacy *altogether* (e.g. the Linear B script with the demise of the Mycenaean palatial system in the early twelfth century BC). It is important to abandon teleological thinking in favour of context-specific features of such 'disappearances'. Scripts do not become obsolete because of some 'objective' assessment of a supposed 'deficiency'. Such points, made repeatedly with regard to Linear B,[35] are often made from an 'alphabetic' viewpoint, reinforced by Gelb's evolutionary view, in which the alphabet (with which Linear B was never an historical competitor) reigns supreme.[36] Rather, the critical conditions affecting such episodic 'script deaths' must be sought in the socio-political milieu of script use.

In the case of pre-Linear B writing in the Aegean, 'script death' is a less straightforward issue, affected by the position one takes with regard to the relationship between Cretan Hieroglyphic and Linear A.[37] One of us has previously stressed the abrupt character of the disuse of Linear A,[38] observing the close correlation between the latest horizon of its *administrative* use and the destruction of Neopalatial administrative centres at the end of LM IB. The end of the Cretan Hieroglyphic script is potentially obscured by uncertainty over the dating and coherence

[34] Davis 2018, this volume.
[35] For critical response to such views on Linear B, see Schwink 1998–1999; Schwink 1999.
[36] The alphabetocentric viewpoint is widely criticised in post-Gelbian grammatology: see e.g. Perri 2016: 96–100.
[37] Meissner and Salgarella, this volume; cf. Petrakis 2017a for a different position.
[38] Bennet 2008: 22; contrast Salgarella's (2020) more nuanced position.

of certain important assemblages of clay administrative documents, as well as by the *possibility* of some continued Cretan Hieroglyphic literacy in the use of Cretan Hieroglyphic seals (see further 9.9).[39]

Before we move on to topics more specific to Cretan Hieroglyphic, we stress two important methodological points, also instrumental in recent advances in grammatology.

The first is the *prioritisation of archaeological and epigraphic evidence*. Chronological indications, spatial distribution and contextual information on the use of those artefacts that functioned as material carriers of writing might be conceived as forming a factual framework, on which model-building must be based. Here we must be wary of explanations that appear 'logical' or 'reasonable' to us, since these involve our own (therefore entirely *etic*) perception of 'common sense' and 'likelihood'. Such notions surround assertions about the origins of writing, its development and its demise, concealed under the veil of the 'apparent'. This does not imply that we need to proceed without working assumptions, but we should be aware of the limitations of our own 'common sense' by constantly revisiting the degree to which our ideas about writing, its nature, use, experience and significance are informed by the fact that we, as scholars and agents within an era of unprecedented global literacy, are totally enmeshed in the *current forms* of the very phenomenon we strive to study. A significant challenge in the prioritisation of archaeological information advocated here lies in the treatment of fragmentary data, negative evidence and those filters that may have removed classes of evidence (e.g. lack of burning required to preserve clay documents).

The second point concerns '*comparison*': in its broadest sense the juxtaposition of two objects, items or categories with the aim of assessing their similarities and differences and drawing meaningful conclusions from such assessment. One could argue that a specific form of comparison – *analogy* – is central to all scholarship about the past, an inescapable facet of all archaeological thinking.[40] Comparison has been with us since the inception of the study of Aegean writing in Evans' work. We wish to advocate *explicitness* and *comprehensive exposition of the entire framework of 'comparisons'* as crucial for the application of such methods. It is valuable – at least heuristically – to distinguish different types of comparative efforts: 'genetic', 'historical' or 'analogical'.[41] For such efforts to be constructive, however, we need to be explicit about their background (working hypotheses or assumptions made prior to 'comparison'), their properties (exact range – chronological, geographical

[39] Weingarten 2009. [40] Johnson 2020: 54–5. [41] Bennet 2017.

or the contextual diversity – of the objects compared) and their aims and projected outcome (what do we expect to test by the 'comparison' and what kind of inference might we expect to emerge). Through such explicitness, the fruits of comparison will be better understood, better used and can better be critiqued.

9.3 Grammatogeny on Crete: Its Context and Its Archaeological Correlates

A broad consensus holds that grammatogeny on Crete was not a primary or pristine phenomenon like that in Mesopotamia or Egypt, since it appears in a broad region (Egypt and the Eastern Mediterranean) where several writing systems already existed. Direct evidence, however, pertaining to the earliest appearance of writing on Crete (and, effectively, the Aegean as a whole) is restricted, since much of it depends on accidental preservation of unfired clay documents, or on objects deposited in funerary contexts, whose chronology is problematic, given the long periods of use of these tombs.

Nevertheless, we assume that the 'Archanes script' constitutes *a form of writing*[42] and that at least some of that small corpus dates as early as MM IA. Any understanding of Cretan grammatogeny must be based on material *prior to* that period and the most relevant phenomenon is the creation and *use* of seals that goes back at least to the EM IIA period.[43] The *sphragistic use* of seals – as opposed to use for display or as amulets, the two not being exclusive – is also attested on the EH II Greek mainland in Lerna III, Geraki and Petri. The practice may have originated in Anatolia[44] and 'creatively appropriated to fit local traditions of door construction' which they secured.[45] That such an innovation should have spread around the Aegean in EB II, the period of the 'international spirit' when links between both shores of the Aegean and with Crete to the south were intense, is unsurprising.[46]

Evidence of EM II–MM I sealings is admittedly limited.[47] Although we have fewer than thirty examples, the largest single group is classifiable as direct-object sealings, similar to those attested in larger numbers on the mainland.[48] Their presence even at small sites, such as Myrtos Fournou Koryphi and Trypiti Adami Korfali, suggests the

[42] Decorte 2018a. [43] E.g. Krzyszkowska 2005: 57–78.
[44] See the discussion in Bennet 2017: 466 with references; Maran and Kostoula 2014.
[45] Maran and Kostoula 2014: 151. [46] E.g. Broodbank 2000: 276–319.
[47] Schoep 1999; 2004; Relaki 2009; 2012.
[48] Relaki 2009: 366, table 1.

practice was widespread. Their rarity at Knossos and Malia, already large sites by this time, can be attributed to later construction or limited episodes of burning to fire the clay.[49] The distribution of *similar* motifs on Prepalatial seals and on sealings across the island[50] might be taken to imply a degree of systemic integration, although Relaki prefers to view the pattern as reflective of the amuletic function of the seals. These sealings are essentially similar to those attested in greater quantities at Phaistos and Monastiraki in the Protopalatial period, and there is some evidence of continuity in motifs between third-millennium and Protopalatial examples.[51]

It is in the context of seals that further innovations appear on Crete: the use of hippopotamus ivory for some examples deposited in late third-millennium BC burials and the occurrence of imported Egyptian scarabs in the MM IA period.[52] Georgia Flouda has cautiously argued for an emulative process whereby imported Egyptian scarabs prompted developments towards the use of certain seal motifs as *emblems* (Parading Lions/Spirals seal group)[53] and, eventually, influenced the *use* of writing on Aegean seals as a *secondary* development.[54] She observes how the processes of the development of such iconicity in Late Prepalatial seals 'coincides' with rather than leads to the development of Cretan writing. These innovations are part of a wider adoption of new objects and materials towards the end of the third millennium, accelerated by the appearance of sail-powered craft that collapsed the distance between Crete and the Eastern Mediterranean.[55] On the basis of shared preferences in the choice of Egyptian stone vessels, and bearing in mind the extreme difficulties of navigating *directly* from Egypt to Crete, Bevan has argued convincingly that such contacts were mediated through the heavily Egyptianised city of Byblos.[56]

These connections suggest a plausible *context* in which the *idea* of writing could have arrived on Crete, going beyond the rather bland formulation of 'stimulus diffusion' – the practice of copying or imitation at a very general level, impossible to prove or disprove and resting on arguments about dates and relative physical proximity, as Houston has noted.[57] It seems very unlikely that a particular system was adopted

[49] See Bennet 1992: 177–8 for a discussion. [50] Relaki 2009: 357–8, fig. 1.
[51] Ibid.: 360, fig. 2. Bevan (2007: 91–3) also notes inter-craft interaction between soft-stone vessels and seals.
[52] See, for example, Flouda 2013: 153–4. [53] Anderson 2016: 140–69.
[54] Flouda 2013: 152–5. [55] E.g. Broodbank 2000: 341–9; Bevan 2004: 109.
[56] Bevan 2004: 109; 2007: 86–93; Bennet 2017: 466–7, with references.
[57] Houston 2004b: 10–11.

on Crete,[58] but the existence of an apparently syllabographic writing system at Byblos by the early second millennium BC, although not related to Cretan Hieroglyphic, might be symptomatic of contemporary grammatogenic dynamics in an Egyptianising environment.[59] The Cretan system would thus be a local blending of indigenous motifs that came to be used conventionally under the influence of Egyptian scarabs and a structure suggested by encounters with a syllabographic script, 'stimuli for invention' as phrased by Silvia Ferrara, Barbara Montecchi and Miguel Valério.[60] While we should not underestimate our ignorance and the number of poorly documented writing systems and palaeographic traditions in the Eastern Mediterranean throughout the second millennium BC,[61] we may nevertheless note that it was in the Eastern Mediterranean, on the margins of the two great logo-syllabic traditions – cuneiform and Egyptian – that more 'economical' systems evolved, such as proto-Sinaitic and later alphabetic cuneiform.

That the first glottography appeared on the surfaces of seals should not surprise us, although we should be careful not to infer easily that Late Prepalatial seals, especially those bearing the so-called 'Archanes script', were originally non-administrative, as their deposition as grave-goods might suggest. Rather, we may be victims of a taphonomic situation where the dearth of burnt horizons has deprived us of those contexts where clay documents would have been preserved *just as early*.[62]

Many studies accept the decorated seal surface as the prime physical context where script formation occurred.[63] The identification of possible relationships between the imagery on EM III–MM II seals and Cretan Hieroglyphic graphemes has been the focus of much discussion, partly related to augmenting the *CHIC* signary,[64] but also centred around the potential iconographic background of pictorial Cretan Hieroglyphic graphemes.[65] Artemis Karnava has stressed the process of 'miniaturisation' of objects from the physical world as implicit in the production of clay votives found in Protopalatial Minoan cult contexts[66] and has even

[58] See Ferrara, Montecchi and Valério 2021a for a convincing deconstruction of the case for adoption of Egyptian signs, in agreement with scenarios that connections with Egypt were *indirect*.
[59] For a recent overview of the Byblos script, see Vita and Zamora 2018.
[60] Ferrara, Montecchi and Valério 2021a, esp. 18–19.
[61] As Sherratt (2013) has usefully reminded us from a different perspective.
[62] Macdonald 2012: 105; Bennet 2017: 467.
[63] Flouda 2013; this volume; Decorte 2018b; Valério, this volume; Steele, this volume.
[64] Cf. especially Jasink 2009; Ferrara, this volume.
[65] See also Flouda, this volume.
[66] Karnava 2015, esp. 147–8.

suggested that, in certain cases, Cretan Hieroglyphic signs might have been the *source* of the borrowing of seal motifs.[67]

Any discussion of grammatogeny in the Aegean must consider the problem of the relationship between the 'Archanes script' and other Aegean signaries, which tends to be informed by the typology of the material-carrier, where an affinity with Cretan Hieroglyphic is arguable. The early date of this material, *potentially* within the EM III–MM IA range, raises the possibility that the emergence of glottography is disassociated from the onset of the social processes attributed to the Protopalatial period (unless, of course, we consider such processes as already under way during the so-called Late Prepalatial period),[68] while the identification on a number of the seals of the so-called 'Archanes formula'[69] might link it also to the Linear A corpus.[70]

Roeland Decorte has cautiously arrived at a corpus of sixteen seals as assigned to the 'Archanes script' corpus.[71] The use of multiple criteria beyond the signary itself is certainly promising, not least because they appear to consolidate the coherence of the 'Archanes script', at least as defined in *CHIC*. When the argument for the 'Archanes script' being a 'self-contained category' is presented, however, the main evidence called in support is palaeography,[72] and a similar approach is followed in a recent reassessment, where a disassociation of the 'Archanes script' from the Linear A 'libation formula' is used to support its interpretation as an early manifestation of Cretan Hieroglyphic.[73]

The emphasis on long-term, local and potentially archaeologically observable processes suggests how such explanations help us move away from the evolutionist focus on identifying 'forerunners'/'antecedents' of writing and monogenetic explanations that insist on a single 'prime mover' in grammatogeny, while encouraging contextual studies of writing as cultural practice and exposing idiosyncratic features related to specific grammatogenic conditions.

A crucial point in any grammatogeny is the assignment of a conventional *phonetic* value to a sign, its *phoneticism*. This topic demands further examination that might move us beyond the often-made assumption that a sort of *rebus* principle or *acrophony* was at play.[74] In that, we have moved barely more than a few steps from speculative assessments

[67] Karnava 2021: 248–9. [68] E.g. papers in Schoep *et al.* 2012.
[69] Karnava 2021: 254, note 1; also Jasink and Weingarten, this volume, Table 4.1 where two more items, KN S (4/4) 01 – a recent find from Knossos Bougadha Metochi (Kanta *et al*. 2023; see now Civitillo 2021b: 97) – and a sealing from Mikro Vouni on Samothrace have been added.
[70] E.g. Godart 1999; Godart, this volume; but see Ferrara, Montecchi and Valério 2021b for a different view.
[71] Decorte 2018a, esp. Tables 1–3 for previous classifications. [72] Ibid., 367.
[73] Ferrara, Montecchi and Valério 2021b. [74] Valério and Ferrara 2019; also Salgarella 2021.

made already by Evans.[75] An important challenge will be to upgrade discussion of the possible mechanisms whereby phoneticism and, consequently, the potential of glottic reading and the passage from visual reception to true *reading* took place in the second millennium BC Aegean.

9.4 Development and Relationship to Other Aegean Writing Systems: an 'Aegean Family' of Scripts?

The relationship between different writing systems has been central to Aegean epigraphy since its inception. Questions, such as the potential 'autonomy' of the 'Archanes script', are circumscribed by paucity of evidence, while others, including the question of script inter-relationship, appear to be examined within a largely pre-determined opposition between 'Hieroglyphic' (even 'Pictographic') and 'Linear' scripts, as well as the completely *etic* differentiation between well-documented and 'readable' Linear B and less well-attested earlier Cretan scripts.

Houston has referred to what he terms the 'retroactive conceit', according to which 'later, better-understood inscriptions can be used to explain murky, earlier ones'.[76] Could our relatively superior accessibility to Linear B (to which Cretan Hieroglyphic *may* be related) have a negative effect on the ways in which we study the Cretan Hieroglyphic material? For example, can we use the parallel between 'crescent'-shaped nodules (inscribed in Cretan Hieroglyphic) and regular string-nodules (inscribed in Linear B)[77] to gain some general understanding of the role of the Cretan Hieroglyphic documents in their respective administrative system?

In their assessment of the relationship between Cretan Hieroglyphic and Linear A, Torsten Meissner and Ester Salgarella have outlined a distinction between 'script-internal' and 'script-external' features. Although their contribution here is explicitly focused on 'script-internal' features, specifically homograph correspondences, they underscore well the complexity of a seemingly simple problem of understanding a *relationship* and the multi-disciplinary approach required to tackle it effectively. They argue for a close relationship between Cretan Hieroglyphic and Linear A, whose signaries seem to share a significant amount of homomorph signs (or homographs), that *may* potentially be significant.[78] Set alongside Davis' study based on syllabotactics, a statistical assessment of the constraints on the combinatory possibilities of syllables,[79] where he argues that Cretan Hieroglyphic and Linear A

[75] E.g. *SM* I: 264. [76] Houston 2004c: 299. [77] Petrakis 2017a: 76; also Tomas 2012.
[78] Meissner and Salgarella, this volume. [79] Davis, this volume.

may represent the same or closely related languages, a close relationship is strongly suggested. However, a recent discussion of the same evidence[80] argued for severing the link between the 'Archanes formula' and seemingly parallel sequences in Linear A.[81] It will be a challenge to perform different analyses utilising *different views* on the identification of Cretan Hieroglyphic–Linear A homographic correspondences, especially those most recently presented.[82] We should keep in mind that shared sequences do not necessarily prove linguistic identity, as shared sequences between Linear A and Linear B show: their value lies in their potential to assess possible homophony behind the 'phenotype' of homography.[83]

Beyond homograph correspondences, features termed by Meissner and Salgarella as 'script-external' form a promising avenue of future research. These include elements *beyond the signary*, referring to features of how a system is used: document typology (including format and arrangement of text), chronology (necessitating assessment of the archaeological data), geographical distribution and context of script use.

Here the issue of a potential relationship between Cretan Hieroglyphic and Linear B must also be mentioned, suggested, among others, by Erik Hallager who addressed certain affinities between Cretan Hieroglyphic-related and Linear B-related *administrative practice*.[84] Further pursuit of these observations has been hampered by preconceptions of the 'distance' between Cretan Hieroglyphic and Linear B, and by an underestimation of the extent of use of Cretan Hieroglyphic into the Neopalatial period. Petrakis, for example, starting from the origins of the Linear B system, explored the intricate relationship between Cretan Hieroglyphic and Linear A *in specific assemblages*, the Knossos 'Hieroglyphic Deposit' and the Malia 'Dépôt Hiéroglyphique'.[85] He argued that the two deposits feature a remarkably similar 'co-existence' of features, including a number of documents that *could* be classified as Linear A at Knossos.[86] 'Script-external' features (document typology,

[80] Ferrara, Montecchi and Valério 2022; cf. Ferrara, Montecchi and Valério 2021c.
[81] Ferrara, Montecchi and Valério 2022: 92.
[82] Most recently Meissner and Salgarella, this volume; Ferrara, Montecchi and Valério 2022.
[83] Steele and Meissner (2017) used Linear A/Linear B shared sign sequences and other hints to suggest the validity of a projection of Linear B *conventional* values onto Linear A homomorphs.
[84] Hallager 2011; 2015; Tomas 2012. [85] Petrakis 2017a.
[86] *CHIC*: 18; Petrakis regrets terming these inscriptions as 'dubitanda' (2014; 2017a). He intended the term to imply that what is in doubt is their classification as Cretan Hieroglyphic, not that these inscriptions are of dubious authenticity (the common use of 'dubitandum' generally and in *CHIC*: 25).

administrative context of use and sealing practices) were a deliberate focus of this study.[87]

Further lines of enquiry might address 'script-internal' features beyond sign groups and homographs to other 'categories' of signs. Two questions immediately spring to mind. First, is it accidental that use of 'klasmatogrammes' on Cretan Hieroglyphic clay documents is only found in specific assemblages (the Knossos and Malia 'Deposits') or sites (such as Phaistos) where the use of Linear A is clearly documented? Second, what is the significance of the observation that, unlike 'simple signs', Linear A 'composite signs' do not share convincing Cretan Hieroglyphic homographs? A further challenge lies specifically in integrating the results of 'script-external' aspects, not as secondary to the analysis of 'script-internal' features, but as components of equal significance in assessing the validity and solidarity of the 'Aegean' as a meaningful category in script classification.

9.5 Pictorial Seduction – Reading and 'Reading' Cretan Hieroglyphic?

Study of Aegean writing in general, and Cretan Hieroglyphic in particular, was, in its first scholarly incarnation, the study of 'Cretan *pictographs*'. The pictorial quality of most of the signs appealed to Evans and a substantial proportion of his interpretative assaults in *SM* I consists of attempts to discern the potential meaning of such 'pictorial' representations.[88] Although such interpretative exercises are – rightly in our view – nowadays largely (although not conclusively) abandoned, the strong impression of the 'pictographic' character of Cretan Hieroglyphic remains subtly present in considerations of the possible parallelisms between Aegean and Egyptian grammatogenies[89] or in the interpretation of specific signs.[90]

However, since we know that Egyptian and Mayan scripts are phonographic, and we are fairly certain that the same is substantially true of Cretan Hieroglyphic, how useful is it to stress this specific 'pictorial' quality of Cretan Hieroglyphic? A remarkable number of signs have 'obvious' pictorial prototypes, elucidated by several thoughtful studies of the processes whereby such graphemes came into being.[91] But what is the significance of such 'pictoriality', since it is in fact a quality that *we* have defined? The prototypes of certain graphemes (e.g. CH 005

[87] Petrakis 2017a for a re-evaluation of the categories 'Hieroglyphic' and 'Linear'.
[88] Karnava 2021. [89] E.g. Valério, this volume; Flouda, this volume, with references.
[90] Ferrara and Cristiani 2016 on CH sign 044. Cf. also 9.6.
[91] E.g. Flouda 2013; Karnava 2015; Salgarella 2021.

'eye') are straightforward, but this is a completely *etic* affair: when we classify sign 005 'eye' among signs referring to 'parts of the human body' we do not advance our understanding of the sign's use or the structure of the system of which it was a part. We merely give this sign an *etically* disambiguating name. This is because – although we may be less explicit about it – this 'pictorial' quality reflects *our own outlook*, whereas such a sign might have a remarkable range of possible *emic* interpretations: check/control, guidance, admiration, vision/dream, or guard against malevolence, merely as indications from a range of cross-culturally attested significations of the 'eye'. The complications of penetrating the *emic* significance of a 'pictorial' motif are multiplied when identification of the prototype is contested, as in CH 044 'trowel'/'*Petschaft*-type seal'. As John Robertson has observed 'even where iconic representation is possible, the possibility of ambiguity is infinite'.[92] Considerable interpretative 'noise' would be generated following the pursuit (systematic or otherwise) of such 'possible' interpretations of 'pictorial' graphemes.

Pictoriality can indeed be recognised as a common feature of many early writing systems, such as Egyptian, Proto-cuneiform, Chinese or Mesoamerican,[93] but there are difficulties in trying to stretch the argument into a variant of the unidirectional development hypothesis whereby pictoriality would *suggest* the archaic 'nature' of any script, as if the 'course' of the development would be *from* pictoriality *towards* abstraction. The process described as the 'loss of iconicity'[94] can in fact conceal a variety of situations across different – genetically unrelated – writing systems.[95] A similar issue arises with Evans' distinction between 'pictorial' and 'linear', formed even before he had seen his first clay tablet in 1895 and still persistent in our script taxonomies.[96]

Specific mention may be made here to the case of Egyptian writing, whose association with iconography formed a remarkably intricate – yet highly *idiosyncratic* – nexus from quite early on. Baines has described the functional milieu of the earliest Egyptian writing as a communicative display system in which writing formed a vital part, but was nonetheless integrated with representational (pictorial) arts in a context where literacy was also fully embedded in elite display strategies.[97] This is not the case with the Aegean Bronze Age, where 'art' and 'writing' come

[92] Robertson 2004: 22. [93] E.g. ibid.: 27, 36; papers in Houston 2004a. [94] Cooper 2004: 93.
[95] Papers in Houston 2004a and Houston 2012.
[96] Evans 1894b: 94, cf. also tables II–III for 'linear' signs, occasionally compared to 'pictographs'. *SM* I: 17 on the so-called 'Zachyrakis tablet'.
[97] Baines 1989; 2004: 151.

only to appear occasionally in *seemingly* interchangeable positions on the same categories of physical surfaces (namely as the faces of a seal or signet ring), but were not integrated.[98] Even in the case of the Cretan Hieroglyphic seals, the medium where 'art' and 'writing' might have been more physically close, and allowing for the debated interpretation of a number of images as actual graphemes,[99] it is difficult for us to comprehend the principles whereby any possible integration of pictorial *non*-graphemes and Cretan Hieroglyphic graphemes could have functioned. This might turn out to be a completely *etic* difficulty; however, we must carefully consider the different contextual and conceptual settings between the role of Aegean and Egyptian writing in elite display strategies.

'Pictoriality' or 'pictography' as a quality can be retained to indicate a quality in the *appearance* of the graphemes, with *no necessary* implication as to how these graphemes were used within the writing *system*.[100] Such a distinction may help us understand modes of sign formation, not exclusively associated with grammatogeny, but with development within a system or a 'family' of scripts.[101] In the Aegean, the case of many innovative (i.e. unattested in earlier Aegean signaries) pictorial signs (especially 'ideograms') in Linear B[102] demonstrates that 'pictoriality' was not monopolised by 'early' writing systems in the Aegean.

9.6 The Sign Categories in Cretan Hieroglyphic

CHIC made certain decisions regarding the classification of Cretan Hieroglyphic signs into the categories of syllabograms (phonographic signs that may render syllabic units), logograms (commodity signs traditionally called 'ideograms' in Aegean epigraphy),[103] klasmatograms (signs for fractions), arithmograms (numerical notation) and stiktograms (signs of punctuation). *CHIC* categorised Cretan Hieroglyphic graphemes in a way clearly *compatible* with what we know about Linear B and what we can infer relatively safely about Linear A. A pressing problem, however, is the possible existence of categories of Cretan Hieroglyphic graphemes that may *not* be readily paralleled in other Aegean writing systems.

Valério[104] argues that Cretan Hieroglyphic is 'logo-syllabic' or 'logo-phonetic', in the sense of combining 'semantic' and phonetic

[98] Bennet 2018. [99] See chiefly Jasink 2009; Ferrara, this volume, with references.
[100] E.g. Cooper 2004: 97, endnote 25.
[101] Salgarella 2021 on possible real-world models for Linear A and Linear B signs.
[102] The term 'iconic' is preferred by Melena 2014; see Palaima 1992.
[103] See section 9.2 with references. [104] Valério, this volume, sections 2.3–2.4.

signs. We need to clarify whether 'logography' is really intended here as a sign for a *lexeme* or *morpheme* (hence glottographic) – as the term is normally used in grammatology[105] – or whether it implies a truly 'sematographic' use of certain signs. A more important issue, however, is the existence of 'mixed spellings' in an Aegean Bronze-Age writing system.

Such 'readings' – rather, interpretations – of Cretan Hieroglyphic texts, based on what Karnava has correctly identified as 'some sort of free-association play'[106] played a considerable part in *SM* I. A well-known example is Evans' 'reading' of face α of a 3-sided prism from the Ashmolean (AM 1910.235)[107] showing CH 038 *interpreted as* 'gate' as a title (appropriate on a seal): 'Keeper of the Swine'.[108] Such 'readings' have been paralleled with those in the obscure treatise *Hieroglyphika*, assigned to Horapollo (late fifth century AD),[109] which impeded the proper understanding of Egyptian writing until Champollion.[110] While non-phonographic interpretations must not be *a priori* excluded, we must approach their application to any part of the Cretan Hieroglyphic corpus with extreme caution.

Alongside Evans' speculative interpretation of certain items as indicating titles[111] (an idea recurrent with minor modifications in other works on Cretan Hieroglyphic seals)[112] we may be led to rethink even more *apparently* plausible interpretations. The interpretation by Evans of one of the most common CH signs, 044 (132x and part of the most frequent Cretan Hieroglyphic sign groups: 044-049 and 044-005) as 'trowel' has been reinterpreted as representing a 1-sided '*Petschaft*' seal.[113] Ferrara and Cristiani have suggested, with commendable caution, the 'deictic role' of this sign as suggestive of the semantic category of administrative action, in which the use of the sign's material prototype – the '*Petschaft*' seal – would be physically implicated. While the identification of this seal as the prototype appears sound, acceptance of the sign's 'deictic role' would require us to de-construct and re-think at least the (commonly accepted as phonographic) sequences 044-049 and 004-005. While compatible with John G. Younger's speculative

[105] See 9.2. [106] Karnava 2021: 242.
[107] CR S (3/3) 04. *SM* I: 153 (P.22a) = *CHIC* #256 = *CMS* VI, no.95b. [108] *SM* I: 153.
[109] Karnava 2021: 252–3. Cf. also Powell 2009: 85–99. [110] Engsheden 2013.
[111] *SM* I: 263–8.
[112] Titles or broader administrative institutional framework, which Olivier once exemplified as (rather than suggested to be) a 'temple' or 'palace' (Olivier 1990: 17–18; cf. Weingarten 1995: 303, n. 23; also Valério, this volume). The conjecture is reasonable, although the term could indicate any other common institution or render a specific segment of the Cretan Hieroglyphic technical vocabulary. Further pursuit of such speculative interpretations needs to be made with extreme caution in order not to produce interpretative 'noise'.
[113] Ferrara and Cristiani 2016: 25–34.

but interesting proposal that 044-049 would 'mean something like 'received',[114] a token of a specific transactional context, plausibly verifying/authenticating a transaction (as its high occurrence on *seals* would also suggest), this generates further questions. How can we reconcile this interpretation with the plausible homomorphy between CH 044 and (the clearly phonographic) LB **19*?[115] Might such 'deictic' signs exist elsewhere in the Cretan Hieroglyphic corpus? Can we accept the possibility that *some* Cretan Hieroglyphic graphemes were phonographic, while *others* were similarly 'deictic'?

'Mixed' spellings (as one might call a graphemic rendering making use of graphemes of *more than one* category) or sematographic/deictic interpretations of specific graphemes or sign groups do occur in Egyptian and cuneiform systems.[116] However, one reason for scepticism over their existence in Cretan Hieroglyphic is their certain *absence* from Linear B, the one Aegean writing system of which we have adequate knowledge. There, the extremely *rigorous* 'slot' division between phonograms and non-phonograms in fixed positions within the entry (or different facets on string-nodules)[117] suggests that the distinction between *phonograms* and *non-phonograms* appears to be *emic*, meaningful to Linear B-users themselves. A study of the structure of Cretan Hieroglyphic inscriptions on *clay administrative documents* suggests that a similar division may be discernible there too, with numerals and commodity signs regularly placed *after* what *appear* to be phonographic sign groups *in the suggested reading direction* of the document.

Still, could Cretan Hieroglyphic have employed a manner of spelling that was later abolished in the so-called 'Linear' scripts, or might such practice have been confined to inscriptions on seals? This is theoretically possible and we may again be reminded of Houston's 'retroactive conceit'. Questions about the 'different' nature of Cretan Hieroglyphic are intertwined with questions about the *relationship* between Cretan Hieroglyphic and Linear A or Linear B (see 9.4). The *a priori* assessment of other 'early' or 'archaic' features that Cretan Hieroglyphic might have possessed, including 'flexibility', 'fluidity' or 'multi-valence', should not necessarily be rejected, but we again stress the need to prioritise the positive inferences drawn from extant evidence, rather than generalising through projection of parallels from other contexts.

[114] Younger 1996–1997 [1998]: 391.
[115] See Meissner and Salgarella, this volume, see Table 7.2; also Judson 2020: 155–61.
[116] See generally Coulmas 2003: 168–78.
[117] Petrakis 2017b: 127–9, fig.1. The reverse order of 'slots' on PY Tn 316 *verso* .3 is an exception.

Finally, we comment on the decision, made in the most recent systematic revision of the Cretan Hieroglyphic signary, to suppress *all* classificatory divisions for Cretan Hieroglyphic graphemes included in *CHIC*, so that they can be re-investigated from scratch. This decision was made deliberately to revisit the function and definition of such categories as 'syllabogrammes' and 'logogrammes' (terms used in *CHIC*).[118] In the face of the emerging discussion of the possibility of 'sematographic' or mixed (sematographic/phonetic) spellings in Cretan Hieroglyphic, this seems to be a judicious way forward.

9.7 On Seals and on Clay: Skeuomorphism, Patchy Evidence and the Unity and Diversity of the Cretan Hieroglyphic Corpus

Cretan Hieroglyphic appears on a broad range of artefacts, if not as extensive as that of Linear A.[119] Within this diversity, inscriptions are normally grouped according to material (unintentionally fired clay, pottery, stone, metal, etc.) and form. The various document classes proposed in *CHIC*, expressed as single or two-letter prefixes reflect *our* currently accepted categorisation.[120]

Skeuomorphism expresses homomorphy across diverse materials. The resemblance of *dominant* shapes of Cretan Hieroglyphic seals – 3-sided and 4-sided prisms – to homomorphic clay documents – 3-sided and 4-sided bars – may be more than merely accidental; similarly, 2-face seals may be associated with two-faced documents, such as 2-sided bars, the so-called *lames à deux faces* or tablets; and multi-sided prisms, such as the *unique* 8-sided prism from Neapolis (*CHIC* #314), might have been prismatic adaptations of Near Eastern cylinder-seals. We can also understand the relationship between different types of documents in a 'modular' way: unique types, such as the Archanes 'baton' may be interpreted as three stacked 'cubes', as has already been ingeniously proposed.[121] The fact that both types carry 'Archanes script' signs supports this interpretation. But can we detect the *direction* of skeuomorphism? While it might appear 'obvious' to accept the chronological priority of seals (especially if the 'Archanes script' material is included)

[118] Ferrara, Montecchi and Valério 2021c: 8. [119] E.g. Bennet 2008: 10, table 1.2.
[120] H- for the various categories of clay administrative documents; S for seals; I for seal impressions; and Y- for miscellaneous supports (*CHIC*: 22).
[121] Weingarten 2007: 137; cf. also Valério, this volume; Civitillo, this volume.

and thus their role as 'prototypes', we should bear in mind that earlier clay documents may not have been accidentally burnt.

An alternative direction of skeuomorphism follows from Karnava's argument that the identification of such signs as commodity 'ideograms' or klasmatograms on seals, albeit rare (further below) suggests that seals could have been the *recipients*, rather than the source of such transfer of signs.[122] Minimally, however, her observation implies a more dynamic *interaction* between seals and clay documents.

Matilde Civitillo has suggested a correlation between status and the relative value of various kinds of stone in the production of Cretan Hieroglyphic seals.[123] In order to validate this suggestion, it would be helpful if we understood the *emic perception* of such materials and their properties (including availability, colour, affinity or likeness to other exotic or prestigious stones or other materials), as discussed in much later authors such as Theophrastus (fourth/early third century BC) or Pliny the Elder (first century BC).[124]

There has long been a debate about the potential divide between Cretan Hieroglyphic on seals and Cretan Hieroglyphic on clay, a debate related also to the question of phoneticism on seals.[125] It is important to consider the different praxeological frameworks in which inscribed seals and inscribed clay documents were situated. The seal is permanent and ever-productive, able to produce a theoretically infinite number of impressions; clay documents, however, were temporary except when accidentally fired (even if potentially retained for a period), certainly recyclable and arguably produced on the spot, in the context of an extremely well-defined (although not fully knowable *to us*) context of a finite administrative action, to which use of the document was inherently and exclusively linked.

Relevant here is Civitillo's observation that one of the prime functions for the choice of specific document formats would be disambiguation.[126] Indeed, this may have been an overarching principle throughout the extant Cretan Hieroglyphic (even Aegean?) epigraphic corpus. Such disambiguation would be *emic*, intended to dispel confusion among *script-users*, not modern scholars. This point is also relevant to the debate over the distinction of Cretan Hieroglyphic graphemes from iconographic themes or motifs on seals: such instances would have been *emically* known with no further need for specific disambiguating

[122] Karnava 2021: 249. [123] Civitillo, this volume, 5.1.
[124] See also Isaakidou 2017 for a similar approach to materials in the context of EM seal production.
[125] Pope 1968; Reich 1968; Olivier 1981; 1990; 1994–1995; 1995; 1996c; 2000 and carried over in post-*CHIC* discussions of Cretan Hieroglyphic seal motifs.
[126] Civitillo, this volume.

devices (including format).[127] This need not imply that such explicit 'aides' were not occasionally used. We note the recent proposal that the *duplication/triplication* of x-shaped marks (the type classified as 'stiktogrammes' in *CHIC*) marks a *specific function* of a sign as 'distinct' from other signs (graphemes or non-graphemes) within the same seal face, possibly in a non-phonographic function.[128]

A remarkable 'bridge' between Cretan Hieroglyphic *seals* and *clay documents* is the intriguing group of six seals that Anna Margherita Jasink has defined as 'matrix seals' (see Chapter 4, sections 4.3–4.5):[129] seals that bear signs identifiable as Cretan Hieroglyphic graphemes, but appearing *not* in sequences, but 'separated' either through the employment of dividing 'lines' or through the arrangement of the motifs on 'terraced' or 'stepped' seal surfaces that would allow for their separate impression. These seals include signs that elsewhere occur exclusively on clay administrative documents: fractional signs or klasmatograms, as well as commodity signs ('ideograms'/'logograms').[130] Although such signs may have a non-klasmatographic function, in these specific attestations we note that only *simple* and not complex forms appear on the 'matrix seals': the individual impressions could be combined as 'impressed modules' to *form complex* klasmatograms, exemplifying perhaps one way in which the 'matrix' could be utilised. Commodity signs (i.e. those classified as 'logogrammes' in *CHIC*) are also extremely scarce on seals, but do occur on 'matrix seals' or seals closely associated with them. More work (perhaps also *experimental*) is needed to understand exactly how such sphragistic devices functioned within the apparatus of clay documents on which impressions of Cretan Hieroglyphic seals appear. However, the patterns appear intriguing enough to ensure the *active* role of 'matrix seal'-users in Minoan administrations.

Further, the use of 'matrix seals' may link the milieu of Cretan Hieroglyphic with the production of texts by means of *successive seal impressions*, of which the most (in)famous is the Phaistos Disk, now

[127] For an overview of 'aides à la lecture' on Bronze-Age writing systems, see Duhoux 2017.

[128] Ferrara, Weingarten and Cadogan 2016: 88–91; see also Flouda, this volume, Chapter 3, section 3.3. Duplicate or triplicate x-marks/crosses were not indexed as separate variants or otherwise marked in *CHIC*: 444–5.

[129] Jasink 2011: 135–6 (cf. also Olivier 1995: 176–7; Jasink 2002: 202; Jasink 2009: 148–58 on the signs). The original group of four seals defined by Jasink (*CHIC* ## 205–6, 291–2 = *CMS* VII, no. 35, *CMS* III, no. 149, *CMS* II.2, no. 315 and *CMS* II.2, no. 217 respectively) has now been augmented by finds from Juktas and KN S (4/4) 01 from Knossos Bougada Metochi (see Jasink and Weingarten, this volume, Table 4.2). Jasink (2011: 135) tentatively includes a seventh, termed a 'wedge' (possibly a variant of the 'cushion' shape) from Chrysolakkos in Malia (*CMS* II.1, no. 420 = *CHIC* #207).

[130] Jasink 2005.

generally accepted as genuine.[131] The link is intriguing, given the argument that the linguistic structures underlying the Disk may have been closely related to those underlying the Linear A script,[132] suggestive of yet another bridge between the impression of seals bearing pictorial graphemes and the production of texts in a 'Linear' script.

Civitillo[133] has offered considerable insight into the occurrence of similar sign sequences on seals and on clay administrative documents.[134] Scarcity of examples might be due to taphonomy, and unsurprising, given the absence of overlap between *any* extant seal and its impression within the entire substantial Aegean corpus.[135] We may also consider the possibility that *extant* Cretan Hieroglyphic seals may differ chronologically and/or contextually from those that impressed clay documents.

Positive inferences may also be drawn from sequences shared between seals and clay documents.[136] Certain cases reveal complex patterns in which documents are linked. Civitillo calls our attention to two remarkable examples where identical (or probably identical) sequences link documents within the Knossos 'Hieroglyphic Deposit'.[137] The significance of such interlinks is enhanced by the fact that the material *comes from the same site* and mostly *from the same assemblage*. Moreover, one crescent *suspected as being inscribed in Linear A*[138] is also involved, thus potentially implicating the relationship (and possible 'fluidity') between Cretan Hieroglyphic and Linear A as categories.

Civitillo has set out fully the occurrence of identical sign groups on Cretan Hieroglyphic seal-impressions and on clay administrative documents, deserving close attention.[139] With no fewer than seven such sign groups identified, this practice is far from casual, especially if one observes that, in all cases, a document from Knossos is involved, while the sign groups that recur on seals appear so far exclusively on *Knossian* clay documents, and this includes also the sign groups on the Vrysinas 4-sided prism (VR S (4/4) 01).[140] This pattern appears too strong to disassociate it from the importance of Knossos as a centre throughout

[131] Anastasiadou 2016b. [132] Davis 2018; see also Meissner and Salgarella, this volume.
[133] Civitillo, this volume, with references, especially Civitillo 2016a: 100–8, Appendix IV. See also Index III, this volume.
[134] Cf. also Jasink 2002; Jasink and Weingarten, this volume, Chapter 4, section 4.6.
[135] Anastasiadou 2016b: 26–7 and pers.comm.; also Bennet 1992: 177–8.
[136] Civitillo, this volume, Table 5.5. Index III, this volume.
[137] Civitillo, this volume, Figure 5.1. Here we may add that these links involve two impressions, *CHIC* #140 and 158, where 'decorative' signs occur in medial position, between 044 and 005, and are omitted in *CHIC*. *If* we accept these medial signs as graphemes, we have two different sign groups rather than two instances of the same sign group (cf. Decorte 2017: 52).
[138] *CHIC*: 18 (*CHIC* #018); Petrakis 2017a; Godart, this volume.
[139] Civitillo, this volume, Table 5.5. [140] Hallager, Papadopoulou and Tzachili 2011.

MM–LM and especially in the MM IIIB–LM I period, to which the important assemblage of the 'Hieroglyphic Deposit' can be dated.[141] It also illustrates the potential to explore a hitherto relatively neglected perspective of the Cretan Hieroglyphic corpus: variation across sites and regions (see also section 9.8).[142]

The Vrysinas seal is remarkable, as the first such find in west-central Crete, as a rare (but not unique) instance of a Cretan Hieroglyphic seal from a cult context and because *all* sign groups on this 4-sided prism recur on clay documents (again from Knossos). These links to administration remind us of an actual *clay administrative document* (a 'lame à deux faces') found in the sanctuary of Kato Syme Viannou (SY Hf 01),[143] while the very recently published 4-sided seal (KN S (4/4) 01) from Knossos Bougadha Metochi, another cult context,[144] displays links to the production of clay documents, as it belongs to the group of 'matrix' seals.[145]

Such insights allow us to postulate a milieu of intense interaction between seal-users (for whom at least a certain degree of literacy must be assumed) and those agents responsible for the production and use of the clay documents, specifically at Knossos and especially at the time of the 'Hieroglyphic Deposit'.[146] Any assessment of the relationship between these two (potentially overlapping) groups should also take into account their *asymmetrical iconographic* advertisement: the representation of *seal*-bearers (e.g. the so-called 'priest' on the Vapheio red jasper lentoid *CMS* I, no. 223[147] or the 'Cupbearer' from the LM II–IIIA Knossos Procession composition) stands in stark contrast to the iconographic invisibility of 'scribes' or other categories of 'writers'.

Reflecting on the two distinct *interacting* and *overlapping modes* of writing-on-clay (through *impression* and through *incision*), we note that the two modes require different bodily movement and may differ in other ways. *Impressing* denotes the use (and perhaps ownership) of an inscribed seal, but occurs in two forms possibly reflecting

[141] This is the date proposed by Pini (*CMS* II.8, 6–8) that one of us has adopted (Petrakis 2017a: 87). Of course, we are aware that the issue is controversial with some colleagues accepting MM II or early MM III dates (e.g. *CHIC*; Schoep 2001; Karnava *forthcoming*).

[142] Petrakis 2017a took some steps in this direction exploring the distribution of Linear B non-phonograms; cf. Salgarella 2020 on Linear A phonograms.

[143] Lebessi, Muhly and Olivier 1995. [144] Kanta *et al*. 2023.

[145] KN S (4/4) 01 facet β bears klasmatograms 302/ Δ, 309/ ϡ and 308/ Q; facet δ bears 'ideograms' **181* and**164*/**165*. All signs are isolated by vertical lines, a typical feature of 'matrix seals' (for images and transcriptions, see Kanta *et al*. 2023).

[146] The picture becomes a bit more complex (or perhaps more blurred) if one takes into account sign groups (of 2+ signs) that differ in the sign in the initial or final position (Civitillo, this volume, Table 5.6).

[147] Rehak 1994.

different levels of literacy. Where *entire sign groups* are impressed, only a general comprehension of the meaning of the sign group, potentially by-passing any 'glottic' reading *sensu stricto*, would be sufficient for an effective use of such frequently attested 'formulae' as 044-049 or 044-005, especially if these represent transactional terms. Perhaps such formulae were interpreted *in toto* by agents who were non-literate but overtly familiar with their *appearance* as visual images.[148] On the other hand, both modes seem to overlap *institutionally* (i.e. to occur within the same established modes of administrative action), as they can both appear on the same document or in similar types of documents and within the same assemblage.

It has been suggested that the large quantities recorded on certain types of documents is evidence that these represent *totalling* records.[149] If we accept this as a working hypothesis, we can approach the important topic of the relationship *between* certain types of documents *within* given assemblages, such as the Knossos and Malia palace 'Deposits', the Petras 'Archive' and the contextually interlinked documents from *Bâtiment A* in *Quartier Mu*. Here, some insight from Linear B might prove instructive, always bearing in mind that the Cretan Hieroglyphic system *might* have operated differently and, once again, remaining wary of Houston's 'retroactive conceit'. The consistent lack of arithmograms is a feature of the so-called regular string-nodules, the only type of sealing in the Linear B-using administrative system that is frequently found inscribed. Within the Cretan Hieroglyphic corpus, the one class of documents that consistently lacks quantities are the so-called 'crescents' (classified as Ha and termed 'nodules' in *CHIC*). Cretan Hieroglyphic-inscribed 'crescents' and Linear B-inscribed 'string-nodules' also share features in their form and function.[150] Such similarities support the idea that crescents are *primary* documents, representing a stage of information-processing prior to that represented in documents recording large quantities, such as clay bars, or even medallions. However, we cannot infer the place of document types within the administrative chain solely from the *relative* scale of quantities recorded.

The occurrence of pierced 'suspension' holes might allow us to deduce a regular *labelling* function for certain clay documents, such as medallions (class He), and, occasionally, 4-sided bars (classes Hh (01), Hh (02) and Hh (04)) or 'lames à deux faces' (class Hf). It is possible that such holes – as well as other means of suspension, such as the

[148] This could potentially be compatible with a 'deictic' *reception* of 044 (cf. Ferrara and Cristiani 2016), without its function within sign groups being necessarily *truly* 'sematographic'.
[149] Karnava 2000: 153. [150] Petrakis 2017a: 76.

strings that originally went through the 'crescents' – did not indicate labelling of actual commodities, but rather were a simple way of gathering relevant information spread over physically distinct documents, which could be attached together like keys on a ring and *potentially* rearranged or reclassified as needed.

The occurrence of the same or similar sign groups among different types of clay administrative documents has potential for reconstructing the relationship between different document types and their possible role in the administrative 'chain'. If we start from the assumption that information was *copied* and *modified* from one type of document to another, then the occurrence of similar sign groups across different types of clay administrative documents might support the reconstruction of a multi-stage process. Civitillo[151] has suggested that impression of crescents, recording of information on crescents and medallions and production of bars and tablets may be associated with three (temporal?) stages of administrative information-processing. If confirmed, then the process appears to resemble the centripetal system employed in Linear B. Within such a scheme, we may draw a distinction between documents that regularly bear seal-impressions ('crescents') and other document types that seem to function as bearers of writing only. We may further pursue the employment of such a scheme with more attention focused on the possibility of *regional* or *chronological variation* between the *Quartier Mu*, Petras or the Knossos and Malia palatial 'deposits' that offer sizeable concentrations of documents susceptible to this kind of analysis.

9.8 Re-defining Signaries on MM I–LM I Crete: a Proposal for a Radical Re-orientation

Definition of the signary or 'sign list' is key to the study of any writing system. For Linear B, the substantial work was undertaken, with commendable caution before the decipherment, by Emmett Bennett.[152] Definition of the Cretan Hieroglyphic signary has been far less straightforward, stretching from Evans' original sign list in *SM* I, to the rigorous strategy of *CHIC*, to the revisions introduced by Jasink and the recent thorough treatment by Ferrara and collaborators on the INSCRIBE project.[153]

The distinction between 'decorative' motifs and 'graphemes' has been a recurrent topic of discussion in the post-*CHIC* era[154] and *CHIC*'s reasoning for the exclusion of certain signs as graphemes has been much

[151] Civitillo, this volume, Table 5.7. [152] Bennett 1947.
[153] *SM* I; *CHIC*; Jasink 2009; Ferrara, Montecchi and Valério 2021c.
[154] Karnava 1997; Palaima 1998; Jasink 2009.

discussed, often related either to a sign's isolated occurrence as well as its exclusive occurrence on seals,[155] or to the long-standing debate over whether single signs can be considered 'inscriptions' proper.[156] In admitting signs to the signary, *CHIC* also privileged the occurrence of a sign on a *clay* document, even over multiple occurrences only on seals.[157]

Ferrara has usefully distinguished between 'repertoire' and 'sign list' (we use 'signary' as a synonym to the latter), as well as between 'graph' (any conventional visual mark) and 'grapheme' (the visual module of a glottographic system). In doing so, she has inevitably ventured into the problem of distinguishing 'art' motifs from graphemes, admitting the existence of a considerable 'grey' area between the two.

The recent 'rationalisation' of the Cretan Hieroglyphic signary forms the last milestone in this 100+-year adventure: Ferrara, Montecchi and Valério have attempted to integrate aspects of certain or probable Cretan Hieroglyphic graphemes, such as their 'graphic behaviour' – a nexus of features involving palaeography and information on positional and absolute frequency, into this discussion in a more comprehensive way. Further important revisions are proposed in a follow-up publication.[158] We cannot offer the extensive discussion the suggestions require here, but they represent the current status in a potentially fruitful discussion that also includes the issue of the *relationship* of the Cretan Hieroglyphic corpus with Linear A, the other (chronologically overlapping) extensive epigraphic corpus from MM–LM Crete.[159]

Possible further progress in study of the Cretan Hieroglyphic signary may be achieved through a relatively underexplored investigation into regional and/or chronological variation or differentiation, an approach that Salgarella used effectively in her analysis of Linear A phonograms, including the concept of 'core' versus 'site-specific' signs.[160] Such an approach would potentially allow us to view signaries and palaeographic variants not exclusively as Cretan Hieroglyphic and/or Linear A, but rather according to their occurrence on documents from different assemblages within sites, at the same site or in the same region, and across certain chronological phases. Following that thread, we might reclassify our material into entities tentatively

[155] Jasink 2009: 46–8.
[156] For instance, Olivier has consistently excluded single-sign inscriptions from *CHIC* and his edition of Cypro-Minoan inscriptions (see Donnelly 2020 on the latter).
[157] Examples of 3+ occurrences on clay documents with no corresponding occurrence on seals in *CHIC* are signs 002, 003, 032, 055 or 072 among 'syllabogrammes'.
[158] Ferrara, Montecchi and Valério 2022. [159] Ferrara, Montecchi and Valério 2021c.
[160] Salgarella 2020.

termed the 'Petras signary', the 'Malia Quartier Mu signary', and so on, and study the patterns that emerge, such as the restricted occurrence of specific sign *categories* in specific assemblages, as in the case of 'klasmatograms' restricted to the Knossos and Malia palace 'deposits', the Phaistos Cretan Hieroglyphic tablet (PH Hi 01 = *CHIC* #122), as well as on 'matrix seals'.[161] Such an approach would be most promising if it were extended to include both 'script-internal' and 'script-external' features and interrelations,[162] permitting identification of idiosyncratic features in script or seal use across space and through time.[163]

The lack of any contextual information for many Cretan Hieroglyphic seals and the debated chronology (and coherence) of at least two major assemblages (Knossos 'Hieroglyphic Deposit'; Malia 'Dépôt Hiéroglyphique')[164] constitute formidable impediments, but may be balanced by the potential rewards of a systematic synchronic examination of, e.g. the Malia *Quartier Mu* and Petras systems 'in action', or diachronic comparison between the 'Knossos Hieroglyphic Deposit' and its 'successor' in the 'East Temple Repositories'.[165] The prospect of identifying either synchronic or chronological variation among Cretan Hieroglyphic administrations that might eventually lead to a reassessment of the significance of old categories is a thought-provoking challenge that might encourage (rather than discourage) exploration of the strategy proposed here.

9.9 Shut Down, Killed or Just Residual? Possibilities for the End of Cretan Hieroglyphic

A topic that receives little attention throughout the volume deserves brief mention: the end of the use of Cretan Hieroglyphic. Pinpointing its final use is controversial, as it depends on either quantitatively or qualitatively inadequate evidence.

The latest possible evidence for the use of Cretan Hieroglyphic is the seemingly 'odd' occurrence of a clay medallion associated with LM IB destruction debris in the area of the Northern Magazines at Petras, Sitia

[161] See Petrakis 2017a (for the Knossos and Malia palace deposits) and Salgarella 2020 (for the Linear A material).
[162] As defined by Meissner and Salgarella, this volume.
[163] See Jasink and Weingarten, this volume, Chapter 4, section 4.6.
[164] See Petrakis 2017a for arguments in favour of the coherence and chronological proximity of both deposits.
[165] Jasink and Weingarten, this volume, Chapter 4, sections 4.6–4.7.

(PE He 001).[166] The excavators express uncertainty over whether this 'isolated find' was produced in LM IB, leaving open the *possibility* that it originated from the nearby Cretan Hieroglyphic 'archive', although they note the different size of the pierced hole and the different form of the four signs attested from instances in the Cretan Hieroglyphic 'archive'.[167] If indeed an LM IB document, then it would be a further instance of the concurrent use of Cretan Hieroglyphic and Linear A, the latter represented by the two Linear A tablets PE 1-2 found nearby, but in a 'surface level'.

Use of Cretan Hieroglyphic in the Neopalatial period, alongside Linear A, may be confirmed by the Knossos and Malia palace 'deposits', both of which appear to post-date the MM IIB horizon of the Malia *Quartier Mu* and Petras assemblages. Whether or not the Petras medallion belongs in LM IB, the Knossos and Malia palace 'deposits' modify the simplistic postulation that Cretan Hieroglyphic is primarily a *Protopalatial* writing system: its extensive use, for the same purposes as the Linear A system, for at least part of the Neopalatial period appears worthy of consideration.

A different thread of evidence is provided by the use of Cretan Hieroglyphic seals in LM I and later contexts.[168] This is difficult to gauge, as the perpetuation of use would not necessarily imply that the inscriptions on those seals were understood and meaningfully deployed: were they simply distinctive designs or was their *content* significant? Although the numbers are not great (Weingarten lists two seals and seven sealings), given the intense interplay between the use of seals and the production of administrative documents in Cretan Hieroglyphic practice, it is noteworthy that the sealings come from sites administratively active in LM IB (Ayia Triada and Kato Zakros), as well as Knossos, the one site that displays the potential for considerable continuity throughout the MM IIIB–LM III range. Weingarten's observation that seal impressions *CMS* II.7, nos 99 and 215 (the latter *CHIC* #138) from Kato Zakros House A (LM IB), may be impressions of the different faces of the same cushion-shaped seal, which show a complex link with the same two other seal-faces (*CMS* II.7 nos 31 and 81), may be significant, but cannot demonstrate comprehension of the Cretan Hieroglyphic inscription.[169]

A potentially fruitful avenue might be to explore such 'late' uses of Cretan Hieroglyphic *without* the assumption that they are at best 'residual', entertaining the possibility of a 'parallel' use of Cretan

[166] Tsipopoulou and Hallager 1996a: 39–42, fig. 16; Petrakis 2017a: 90–1.
[167] Tsipopoulou and Hallager 1996a: 46; Cretan Hieroglyphic 'archive': Tsipopoulou and Hallager 2010.
[168] Weingarten 2009. [169] Ibid.: 212–13, 216.

Hieroglyphic and Linear A as late as LM IB or the possibility of a script-environment in which the Cretan Hieroglyphic/Linear A 'divide' was not as meaningful as 'traditionally' considered in Aegean epigraphy. It appears, however, that the end of Cretan Hieroglyphic does not feature the abrupt character of Linear A's 'disappearance' or, as one of us has termed it, its 'killing' at the end of LM IB.[170] Still, there may be taphonomic reasons for this, since those contexts where a Neopalatial use of Cretan Hieroglyphic can be argued (the Knossos and Malia palace complexes) do not feature LM IB fire destructions.

9.10 An 'Aegean' Future for a 'Cretan' Script? Revising, Rethinking and the Prospect of Decipherment

Cretan Hieroglyphic has been claimed as an expression of 'civilization['s] [...] earliest blossoms on *European* soil',[171] a claim that had political significance, particularly in Evans' day. As this viewpoint has come under detailed criticism, we do not intend here to reprise a discussion of the issues behind the term.[172] However, a point can be made about the benefits of emphasising (and utilising) more the 'Aegean' affinities of Cretan Hieroglyphic writing: thinking of it less as the 'first' and practically not at all as 'European', but more as 'one' of the 'Aegean' writing systems.

Throughout this chapter we have drawn attention to the benefits of embracing these 'Aegean' affinities, of viewing Cretan Hieroglyphic as *not so dissimilar* to its other Aegean 'cousins'. In doing so, we do not suggest that differences need not be emphasised.[173] As an investment in the future of Cretan Hieroglyphic and Aegean epigraphy, we suggest that *theoretical explicitness* and *reversibility* should be the primary concerns in making classificatory or editorial decisions. The former refers to lucid exposition of the principles and assumptions behind them and the latter to a formulation of decision in such a way as to be *potentially* reversible, enabling scholars in future to 'reshuffle' the evidence in a disciplined manner.

We feel that this must apply to all decisions, regardless of whether it is eventually deemed preferable to construct 'site/assemblage signaries' (section 9.8) or a single pan-Cretan signary, or whether the independent numeration of Cretan Hieroglyphic signs will be maintained

[170] Bennet 2008: 22, but see Salgarella 2020: 376.
[171] Evans 1894b: 271.
[172] Evans 1894b: 271, *italics* added. Decorte 2018b: 14–18 is the most vocal and detailed critique to date. See also Sherratt 2009, esp. 632 on the 'European' advertisement of Minoan writing, and other elements of the 'Minoan civilisation'.
[173] That said, we appreciate the concerns expressed by Decorte (2017: 54, n. 29).

or eventually *merged* with the AB numeration of the so-called 'Linear' scripts advocated in *GORILA* into a truly 'Aegean' HAB signary, as intimated by Meissner and Salgarella in this volume.[174]

Just as importantly, we feel that we should discourage a pseudo-messianic syndrome that often haunts the study of poorly documented or undeciphered (or both) writing systems: that we must patiently await the moment when there will be sufficient evidence for meaningful analyses, or for a miraculous find, such as a 'bilingual' or an unusually lucid inscription or assemblage.[175] Such expectations are nourished by often repeated *quantitative* assessments of the prospects of non-decipherment, for example, by Olivier.[176] We wish to stress that it is also the *quality* of the evidence available that forms a considerable impediment. Besides being the most extensively documented, the two 'deciphered' scripts of the broader Aegean-Cypriot 'family' also happen to record dialects of Greek, one of the most intensely studied languages in the world. Although sizeable corpora are important for statistical approaches, we risk underestimating the role played by the long academic tradition of Indo-European and Hellenic studies in aiding progress in Mycenaean studies (both linguistics and in textual interpretation), especially as the subdiscipline took shape in its first two decades.

Arguably, our ignorance of the linguistic structures underlying the use of phonograms in Cretan Hieroglyphic or Linear A systems forms the greatest obstacle and is unlikely to be overcome by merely reaching a 'critical mass'. Our ignorance explains why evidence of so-called 'inflected' variants of Cretan Hieroglyphic sign groups is so difficult to evaluate. Sign groups that differ only in the initial or the final grapheme have been documented,[177] but, although they are *potentially* meaningful, we are not in a position to infer even that all of these cases relate to similar linguistic phenomena. We observe the 'addition' of initial or final signs in a group of 'variants', but this is no guarantee at all that 'prefixes' or 'affixes' are concealed in such variation, or that the groupings are *morphologically* meaningful in the first place.[178] Alice Kober's famous 'inflected' triplets, presented with exemplary caution,[179] turned out to be derivative ethnic adjectives after the decipherment.

With that caveat in mind, we also note that the assessment of other features such as document typology, chronology and distribution across

[174] Cf. Olivier 1987: 242–3, justifying the *GORILA* AB numeration with regard to Linear A and Linear B.
[175] E.g. Olivier 1986: 387–8. [176] Most recently Olivier 2012: 16–18, fig. 2.
[177] Civitillo, this volume, Table 5.6. [178] Steele, this volume, Chapter 6, section 6.3.
[179] Kober 1946.

sites and assemblages may occasionally strengthen the significance of such variations (sign alternations marked in **bold**): sign groups 049-041-006-**025/057** occur on Chamaizi juglets from Malia *Quartier Mu* and the Palace (*CHIC* ##316, 327), and sign groups 008-056-**013/070** occur on different types of documents (clay medallion and a seal impression: *CHIC* ##076 and 132 respectively) from Malia *Quartier Mu*. Such cases are more likely to be meaningful, and our relative certainty is due to the good synergy between epigraphic and archaeological evidence. The prospect of decipherment should never be off the table and analyses like that offered by Davis here, if correct, constrain the challenge by suggesting that the same (or closely related) *language(s)* might lie behind the undeciphered texts of Cretan Hieroglyphic and Linear A: decipherment of either language would 'unlock' the other.

In this chapter, we hope to have followed the lead of the other contributors by demonstrating that a richer, more profitable understanding of Cretan Hieroglyphic's origin, use and ultimate demise is best realised through a totalising approach that combines all relevant disciplines. Given the current tendency in modern academia towards (hyper-)specialisation, the kind of teamwork embodied in the current volume might represent the best way forward, while leaving the door open perhaps for a twenty-first-century Michael Ventris to astound us all with a 'Minoan' decipherment.[180]

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[180] Cf. Bennet 2014: 137.