

World Archaeology

ISSN 0043-8243

Volume 17 No. 3
February 1986



081
OI 4
n 89

writing systems

J.P. OLIVIER
30, rue Lefebvre
B-1180 BRUXELLES
Belgique

Membre du Réseau des
Fonds Nationaux de la
Recherche Scientifique

'Attractively produced and profusely illustrated with excellent photographs of manuscripts and inscriptions'.

British Book News

'We are given admirably clear and concise descriptions of all known forms of writing, of idea transmission through tallies, property marks, symbols and pictures, and of syllabic, phonetic and alphabetic writing; also of the effects of using systems evolved for different linguistic structures . . .'

Times Literary Supplement

A HISTORY OF WRITING

Albertine Gaur

'*A History of Writing* is exactly what it professes to be, an encyclopaedic reference book which traces chronologically and geographically all the major scripts which have contributed towards the development of writing . . .'

Times Educational Supplement

224 pages 4 pages colour/125 black & white illustrations
ISBN 0 7123 0028 7 258 x 201 mm Casebound £15.00 (UK)

Published in the USA by Charles Scribner's Sons, New York.



The British Library

Reference Division Publications, Great Russell Street, London WC1B 3DG.

Cretan writing in the second millennium B.C.

J.-P. Olivier

Maître de Recherches du
Fonds National Belge de
la Recherche Scientifique

The three Cretan protohistoric writing systems are known conventionally as 'Cretan Hieroglyphic', 'Linear A' and 'Linear B'. So far the first has been found only in Crete; the second is also attested in certain Aegean islands (Kea, Kythera, Melos and Thera) and on the Greek mainland, in southern Laconia, in the form of a two sign 'inscription'; the third has been found almost exclusively in the Mycenaean palaces of Knossos on Crete, and Pylos, Mycenae, Thebes and Tiryns on the mainland (Fig. 1). Cretan Hieroglyphic (in the strict sense of writing) appeared for the last time around 1500, and Linear A about 1450, while Linear B continued in use on the Greek mainland until around 1200. (Unless otherwise stated the chronology followed is that of Cadogan 1975: 17-20.)

/5

I Origins

Whereas the end of the use of these three writing systems poses few problems, their origins are much less well established, whether one considers the circumstances surrounding their creation or, more especially, the date.

The first traces of Cretan Hieroglyphic are probably to be found on seals dating to the end of the third millennium B.C., in what has been dubbed 'the writing of Arkhanes' (Yule 1980: 170), perhaps prematurely, since in no case has it been proven that this is a form of *writing* conveying a precise and unequivocal meaning. Nor can we be certain that the 'hieroglyphic writing' found on seals and clay sealings until the mid-fifteenth century is not, in fact, a more or less arbitrary grouping of signs (of which a number undoubtedly belong to the Cretan Hieroglyphic system) used for decorative or ornamental purposes, and not as writing *stricto sensu* (Olivier 1981). In fact the oldest *true* inscriptions which have appeared are not in Cretan Hieroglyphic (for which, at present, the earliest attestation in archival documents can scarcely date before 1625), but in an 'archaic' Linear A. These inscriptions, the earliest of which date to the eighteenth century, were uncovered in the remains of the first palace at Phaistos (Vandenabeele 1985: 12-15). They were inscribed with a stylus on small clay tablets which in shape are in no way reminiscent of contemporary Mesopotamian documents. Linear B, whose origin must

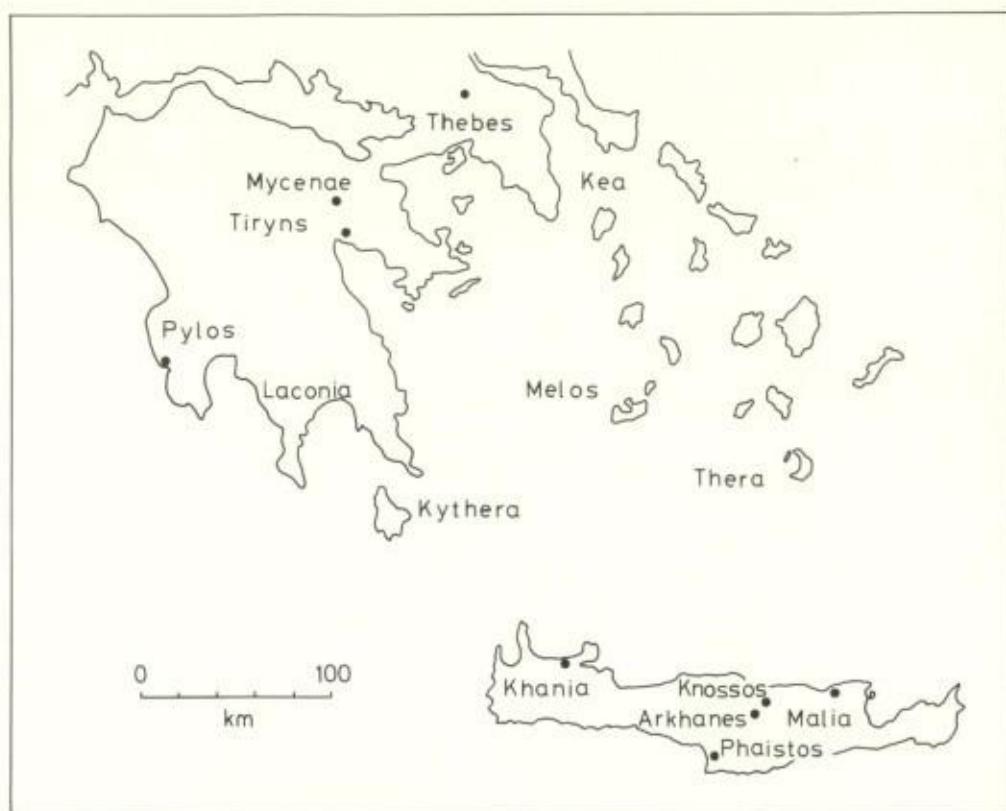


Figure 1 The Aegean region, showing the sites mentioned.

date back to the sixteenth century in Crete according to some scholars (Olivier 1979: 45–8), and in Greece according to others (Godart 1979: 34–36), is not in fact attested before 1375, at Knossos. It is certain, however, that this is a form of Linear A adapted by the Mycenaeans for the purpose of writing their own language, Greek.

II Nature

Without doubt, the Minoans at the beginning of the second millennium did not 're-invent' writing independently, even if they were well able to take their first steps in this direction without knowledge of the Mesopotamian or Egyptian systems. However, starting with ideas from elsewhere, they created an original and astonishingly uncomplicated system for recording the sounds of their language by means of signs. This system consisted of a simple syllabary of the open type, each sign representing a single vowel, or a consonant followed by a vowel. Between 50 and 100 signs sufficed for rendering all the syllables of the language. Although we do not yet know the exact number of syllabograms in the Cretan Hieroglyphic system, it is thought to be in the region of 90. The Linear A syllabary consisted of 75 signs which appear more than five

times in the texts, while the Linear B syllabary comprised a total of 87 signs, some of which were extremely rare (Fig. 2). The classical Cypriot syllabary of the first millennium B.C., the last descendant of Cretan writing, used only 55 signs in the representation of Greek.

It seems more than likely that the Minoans developed their system of writing in response to economic needs. At least its development coincides with that of the first Cretan palaces (1900–1625). The script represented not only the *syllables* of the language(s). The Minoans established also a remarkably simple method for the representation of *numbers*, based on a decimal system. In general this is common to all three scripts (Fig. 3), whereas the signs used for denoting fractions and/or units of weights and measures are largely different. But these are as yet far too little known (with the exception of Linear B) for us to be able to do other than mention them here (Bennett 1950, 1980). In addition, the Minoans succeeded in representing the *objects*, animate or inanimate, with which they dealt in their archives, by the use of small pictures which were more or less realistic, at least in the early stages. These pictures – of which some are the same in all three writing systems – have been incorrectly labelled ‘ideograms’ in specialised literature. In fact they should be called ‘logograms’, since they represent words rather than ideas. Thus for Linear B, where the system is better known, one has the logograms for man, woman, sheep, pig, wheat, oil, wine, cloth, armour, ingot, spear, arrow, sword, chariot and for a variety of containers, to mention but a few of the more pictorial ones (Fig. 4). The systematic study of the more naturalistic logograms is of no negligible interest to archaeologists, especially in comparison with objects found on excavations or with other painted or engraved representations (Vandenabeele and Olivier 1979).

The use of logograms followed by numerals renders the ‘basic economic document’ fairly easily understood, at least in part, whether it is written in Cretan Hieroglyphic, Linear A or Linear B. This would have been as true for the semi-literate or illiterate protohistoric Cretans as for the modern epigraphist, who is often in much the same situation. The model is:

‘Personal Name,	Geographical Name,	OVIS 100’
-----------------	--------------------	-----------

which, in Linear B (which we can read) could give

‘E-ko-to,	pa-i-to,	OVIS 100’
-----------	----------	-----------

to be translated:

‘Hector, at Phaistos, (has a flock of) 100 sheep.’

The texts and translations of 325 Linear B documents, with their commentaries, can be found in Ventris and Chadwick (1973). From this volume one can see that in reality the documents are much more complicated than the example cited above, since summary or fiscal documents or even those of doubtful or unknown purpose are far from rare, and there is still a relatively large number of logograms which remain unintelligible. For Cretan Hieroglyphic and Linear A, unfortunately, we cannot turn to any comparable study, since these scripts have not been deciphered.





















































































 01 DA 1,38	 16 QA 0,64	 31 SA 1,10	 46 JE 0,44	 61 O 2,69	 76 RA ₂ 0,25
 02 RO 3,54	 17 ZA 0,25	 32 QO 0,90	 47 0,04	 62 PTE 0,09	 77 KA 2,33
 03 PA 1,61	 18 0,01	 33 RA ₃ 0,07	 48 NWA 0,08	 63 0,01	 78 QE 1,15
 04 TE 3,06	 19 0,01	 34 0,04	 49 0,02	 64 0,03	 79 0,02
 05 TO 3,08	 20 ZO 0,41	 35 0,07	 50 PU 0,50	 65 0,09	 80 MA 1,38
 06 NA 1,56	 21 QI 0,34	 36 JO 4,34	 51 DU 0,41	 66 TA ₂ 0,06	 81 KU 1,01
 07 DI 0,76	 22 0,04	 37 TI 1,73	 52 NO 2,11	 67 KI 1,34	 82 0,06
 08 A 3,84	 23 MU 0,17	 38 E 3,25	 53 RI 2,47	 68 RO ₂ 0,14	 83 0,06
 09 SE 0,66	 24 NE 1,31	 39 PI 1,88	 54 WA 1,85	 69 TU 0,72	(84)
 10 U 2,64	 25 A ₂ 0,49	 40 WI 1,33	 55 NU 0,48	 70 KO 2,68	 85 AU 0,12
 11 PO 1,59	 26 RU 0,97	 41 SI 1,67	 56 0,19	 71 DWE 0,02	 86 0,02
 12 SO 1,11	 27 RE 2,70	 42 WO 2,52	 57 JA 3,96	 72 PE 1,40	 87 0,01
 13 ME 1,54	 28 I 1,79	 43 A ₃ 0,35	 58 SU 0,34	 73 MI 0,79	(88)
 14 DO 0,81	 29 PU ₂ 0,25	 44 KE 2,57	 59 TA 3,58	 74 ZE 0,23	(89)
 15 MO 0,78	 30 NI 1,04	 45 DE 1,17	 60 RA 3,30	 75 WE 2,30	 90 DWO 0,02

Figure 2 The syllabary of the Linear B script, with the conventional numbering, transcription (when known) and frequency of each sign.

	1	10	100	1000	10000
H		•	 ○	◇	
A		• —	○	⊙	
B		—	○	⊙	⊙ —

Figure 3 Number notation in the three Cretan scripts.

100 VIR 	130 OLE 	230 HAS 	201 VAS
102 MUL 	131 VIN 	231 SAG 	202 VAS
106 OVIS 	159 TELA 	233 PUG 	204 VAS
108 SUS 	162 TUN 	240 CUR 	218 VAS
120 GRA 	166 	200 VAS 	221 VAS

Figure 4 Some of the Linear B logograms with the conventional numbering and Latin transcription (when known).

III Decipherment

The Linear B of the tablets from Knossos and Pylos was deciphered in 1952 by M. Ventris (Ventris and Chadwick 1953; Chadwick 1967), who first *read* the script and then *recognised* in it a Greek dialect which was subsequently called Mycenaean. We are still a long way from being able to read Linear A adequately, and probably we shall never succeed with Cretan Hieroglyphic.

Why?

First, because when Linear B was deciphered there was sufficient material – more than 30,000 signs on over 2,000 documents – for it to be studied in a serious fashion with some chance of success. For Linear A there exist at present only 7,500 signs on less than 1,500 documents, while Cretan Hieroglyphic offers only some 1,500 on less than 300 documents.

Second, because once Linear B was *read* it could gradually be better understood, since it represented a *known language* (even if the first attestation of that language does not come until 500 years later) belonging to a well documented and well studied family of languages – Indo-European.

If we assume that one day we may have a corpus of some 20,000 signs for Linear A (that being three times as many as at present, a not implausible supposition since Linear A was used throughout Crete, was written on several different materials, and new documents continue to be discovered almost every year), it should be possible eventually to read most of it (80 per cent?). This appears the more likely since it is already possible to read both Linear B, which derives from Linear A, and the classical Cypriot syllabary which also descends from it (Chadwick 1979). But reading is not understanding. If the language (or languages) recorded in Linear A is not adequately known already, we will not be able to understand it any more than we understand Etruscan which has been read for more than a century (it is written in a slightly modified Greek alphabet) but in which we understand only the meaning of the epitaphs, which are generally short, of stereotype content and exist in their thousands. We cannot understand any of the lengthier texts, which are of a different nature, whether they are religious, administrative or of any other type. That is to say that all ‘decipherments’ of Linear A (not to mention Cretan Hieroglyphic) published so far are failures, and were destined to be so.

Generally speaking the phonetic values of homomorphic signs in Linear B have been attributed to the signs in Linear A. This method in itself is not necessarily unsound, since Linear B derives from Linear A. However, it is necessary that we agree on the homomorphisms (which is not yet entirely the case), and we should then undertake to demonstrate the validity of the equivalence of the phonetic values *sign by sign*, not on a purely graphic basis – what relationship is there between the Greek ‘rho’ and the Latin ‘P’, or between the Greek ‘eta’ and the Latin ‘H’? – but from an internal analysis of the documents, something which no decipherer has yet risked doing and which seems impossible, at least for the moment, for more than about ten signs (Olivier 1975).

Assuming that the phonetic values proposed for the signs in a decipherment are correct, where will this lead us? Since the material is not yet sufficient for a serious internal analysis, it is necessary to approach the problem from the outside. In other words, a solution can only come through a language which is more or less well known to

the 'decipherer'. Among those which have been proposed we can mention, at random, Greek, a number of languages from Asia Minor, Etruscan, various Semitic languages or dialects, Sanskrit. . . *A priori*, no language attested in the third or second millennium from the eastern Mediterranean or its surrounding areas can be excluded: who would seriously have considered Greek for Linear B before this conclusion literally forced itself on Ventris? But, if what we think we know about the population of Crete between the neolithic (end of the seventh millennium) and the beginning of the early bronze age (about 3000 B.C.) is correct and does not render any hypothesis totally incredible (Cadogan 1976: 16–17), the languages spoken by people from the coasts of Asia Minor or Syro-Palestine must be favoured. However, over a period of 4,000 years, even in 1,000 years or less, a language can evolve in such a way that it only vaguely resembles its original form. Between 3000/2600 and 1450, the period of the birth and development of Cretan Hieroglyphic and Linear A, virtually no archaeologist assumes any significant change of population in Crete. Thus the introduction of a language known to us from elsewhere is unlikely. In any case, to 'read', as is done by most 'decipherers', four names of vase types and then to 'find' them in Akkadian, two names of divinities and 'recognise' them in Lycian, or even two names of cereals and 'come across them' in Luwian, could not prove, even in the best examples, anything other than *linguistic borrowing*. It does not demonstrate that the language recorded by Linear A was Akkadian, Lycian or Luwian.

Without a bilingual text – and such a discovery is highly improbable given the type of documentation that has survived – progress can come only from internal analysis of the available documents, and such progress can come about only through complete and satisfactory editions, furnishing – in addition to the texts themselves, obviously – those working tools which are indispensable to all research: indexes, plates, tables, concordances, etc. This is something which has now been accomplished for Linear A (Godart and Olivier 1976–85), and it is hoped will soon be completed for Cretan Hieroglyphic. Without it, no progress can be expected from attempts at 'decipherment' whose bases are tentative, or even non-existent.

IV Functions and materials

Of those documents which have survived (obviously because they were written on durable materials such as stone or metal, or a material which has become more durable, for example the unbaked clay of the archival documents which was accidentally baked in the destruction fires), how many are there, what are they, and what can we understand of their purpose?

Reference to the tables on the next page will demonstrate clearly that the three Cretan writing systems present remarkable similarities and differences both in the materials on which they occur and the functions which they probably fulfilled, at least in so far as can be judged from the sample which has been preserved, admittedly only a small proportion of the millions of inscriptions which must have been written during the second millennium B.C.

Cretan Hieroglyphic (Knossos: Evans 1909; Malia: Chapouthier 1930, Poursat, Godart and Olivier 1978)

economic archives on clay:	bars (Plate 1a) and tablets	43
	sealings	26
	labels	36
	'cones'	2
inscriptions incised on pottery		11
inscriptions painted on pottery		1
inscriptions on stone		1
seals and seal impressions		c. 150
		270

Linear A (Godart and Olivier 1976–1985)

economic archives on clay:	tablets (Plate 1b) and bars	318
	sealings	882
	labels	7
	'roundels'	131
inscriptions on stone vases		34
inscriptions incised on pottery vases		34
inscriptions painted on pottery vases		3
inscriptions on architectural features of stucco		3
inscriptions on architectural features of stone		2
inscriptions on metal		8
inscriptions on other materials		5
		1,427

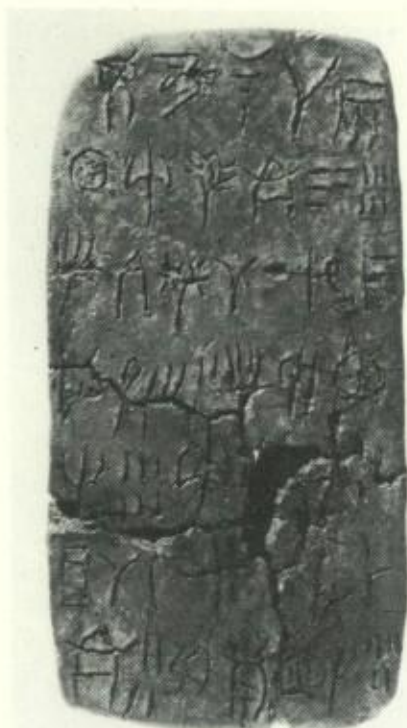
Linear B (Knossos: Chadwick, Killen and Olivier 1971; Pylos: Bennett and Olivier 1973–1976; Mycenae: Sacconi 1974a; Thebes: Godart and Sacconi 1978; Tiryns: Gamoto n.d.; vases with painted inscriptions: Sacconi 1974b)

economic archives on clay:	tablets (Plate 1c)	4,515
	sealings	52
	labels	54
inscriptions painted on pottery vessels		144
		4,765

Plate 1a Cretan Hieroglyphic Script: clay bar from Knossos (P 103a; Iraklion Museum);
1b Linear A Script; clay tablet from Zakros (ZA 15a; Iraklion Museum);
1c Linear B Script: clay tablet from Pylos (PY An 1282; National Museum, Athens).



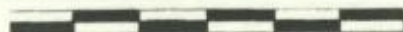
a



b



c



Functions

All three systems served to record economic archives.

Cretan Hieroglyphic alone seems to have featured in the role of ornamental writing, on seals. Although the random nature of archaeological discovery means that we have more of this type of document than of all the others put together, it should be noted that the number of signs represented on the seals is less than 40 per cent of the total number of those which have survived in this script.

Only Linear A seems to appear on votive inscriptions (i.e. inscribed on stone vases, see below), but although this observation is statistically valid in relation to Linear B, it is certainly not valid in relation to Cretan Hieroglyphic.

Linear B seems to have been used solely for economic purposes. This is true not only of the inscriptions on unbaked clay but also of those painted on vases which almost certainly indicate the name of the manufacturer (probably of the contents rather than of the vase itself), possibly with the mention of his place of origin and his status.

There are, in this, a few puzzling features, since, to cite only two of the more extreme cases, it is hard to see why Linear A was not used for purposes of sealing except, perhaps, that Cretan Hieroglyphic, with which it was contemporary, already filled that role, although this was not its sole purpose. Nor is it easy to understand what prevented Linear B from being incised on metal or stone, other than to suppose that its knowledge was restricted to an administrative class who were concerned solely with their archives.

Materials

Unbaked clay was used for all three writing systems.

Only Cretan Hieroglyphic was incised on seals (of ivory, soft stone or metal).

Only Linear A appears to have been inscribed on stone vases. [The contexts of the famous libation tables, nearly all of which were found in cult places, lead one to suppose that the inscriptions on them were dedicatory; one Cretan Hieroglyphic inscription on stone does exist, the 'limestone block of Malia' (Chapouthier 1938), the exact provenance of which is unknown.]

Only Linear B has not yet been found on any medium other than unbaked clay, if one discounts some 150 inscriptions which are painted on vases and the majority of which, although most of them were discovered on the Greek mainland, originate in Western Crete, in the region of Khania (Catling, Cherry, Jones and Killen 1980).

On the subject of materials, there is another question which demands an answer: were there other writing mediums, apart from those which have been discovered? If we consider only the archives, the best known group for the simple reason that they represent 94 per cent of all documents so far recovered, it is almost certain that in all three writing systems the clay documents which have survived are only draft copies, provisional documents destined for a relatively brief existence. At most they are concerned with the current fiscal year, which explains why, at least on the Linear B tablets, we never find any mention of the date when the document was written. Permanent archives, grand totals, censuses, etc., must have been recorded on some

perishable material (of animal or vegetable origin), which disappeared in the course of time, whether in a fire or through simple decay. Some clay sealings provide possible, if indirect, proof of this. As in the Near East such objects generally served to secure the integrity of the contents of various types of container. But there occur also simple balls of clay with one or more seal impressions on them – occasionally they also bear a written sign as a counter mark and very exceptionally a short inscription – displaying also the surviving imprint of a burnt string or the impressions of a number of such fastenings or even the rectangular impression of what could have been a 'folded sheet'. These sealings, which have been found in their tens or even hundreds, both with and without tablets or other inscriptions on clay, may have served to secure documents made of perishable material (Pini 1983; Weingarten 1983: 38–42). If the existence of other, less durable materials for writing purposes can be proven, there is nothing to stop one speculating about what might have been written on such documents – legal or medical texts, religious or literary compositions, records of international trade, personal and diplomatic correspondence – all of which are now lost to us forever.

The question of writing and language

It is beyond doubt that Linear B served to record the Mycenaean Greek dialect. Although they have not yet been deciphered and there are opinions to the contrary (*inter alia*, Godart 1980: 598), it is also nearly certain that Cretan Hieroglyphic and Linear A were used to record at least two languages, since they were in simultaneous use for several centuries in a relatively restricted territory and even co-existed in the same archives (Malia: Chapouthier 1930: 3–7). However, it is by no means certain that the Linear A of the archival documents and that which was used for votive inscriptions recorded one and the same language.

Certain groups of signs, or certain parts of sign groups, of varying lengths – although these can be counted on the fingers of one hand – appear in both series of inscriptions. This is not proof, however, that they are written in the same language, especially since these identical groups of signs can transcribe anthroponyms or toponyms, for which the orthography can perfectly well be the same in a number of different languages using the same writing system. On the other hand there is no evidence to the contrary (Pope and Raison 1978: 33–37). And even if the differences between the Linear A of the archives and that of the votive inscriptions were as little, at the level of vocabulary, as that which exists, for example, between French and English, we would be unable to demonstrate it given the present state of our knowledge.

Conclusions

We have been able to introduce only a few of the numerous questions which arise in the fields of epigraphy, archaeology and history in considering the Cretan writing systems of the second millennium B.C. The paucity of the documentary evidence renders any conclusions problematical, indeed sometimes impossible. We must hope for an

appreciable increase in the quantity of evidence available; in the meantime the only realistic approach is to exploit to the full all that we have, a task which will require considerable effort and ingenuity.

4.iv.85

*Fonds National Belge de la
Recherche Scientifique,
Brussels*

Acknowledgements

I would like to express my gratitude to Mrs J. Finkel for her English translation of the French text, and to Dr John Killen and the editor for their very helpful comments on the final version.

References

- Bennett, E. L. 1950. Fractional quantities in Minoan bookkeeping. *American Journal of Archaeology*, 54: 204–22.
- Bennett, E. L. 1980. Linear A fractional retraction *Kadmos*, 19: 12–23.
- Bennett, E. L. and Olivier, J.-P. 1973–6. *The Pylos Tablets Transcribed*. 2 vols. Roma: Edizioni dell'Ateneo.
- Cadogan, G. 1976. *Palaces of Minoan Crete*. London: Barrie & Jenkins.
- Catling, H. W., Cherry, J. F., Jones, R. E. and Killen, J. T. 1980. The Linear B inscribed stirrup jars and West Crete. *Annual of the British School of Archaeology at Athens*, 75: 49–113.
- Chadwick, J. 1967. *The Decipherment of Linear B*. Second edition. Cambridge: University Press.
- Chadwick, J. 1979. The Minoan origin of the classical Cypriot script. In *The Relations between Cyprus and Crete, ca. 2000–500 B.C.*, pp. 139–43 (ed.) V. Karageorghis. Nicosia: The Department of Antiquities, Cyprus.
- Chadwick, J., Killen, J. T. and Olivier, J.-P. 1971. *The Knossos Tablets. A Transliteration*. Fourth edition. Cambridge: University Press.
- Chapouthier, F. 1930. *Les écritures minoennes au palais de Mallia*. Paris: Geuthner.
- Chapouthier, F. 1938. Inscription hiéroglyphique minoenne gravée sur un block de calcaire. *Bulletin de Correspondance Hellénique*, 62: 104–9.
- Evans, A. J. 1909. *Scripta Minoa. The Written Documents of Minoan Crete*. Vol. I: *The Hieroglyphic and Primitive Linear Classes*. Oxford: Clarendon Press.
- Gamoto, K. n.d. *Sōma tōn enepigraphōn pinakidōn tēs Tirynthos*. Iraklio Kritis: Alexiou Bros (in press).
- Godart, L. 1979. Le linéaire A et son environnement. *Studi Micenei ed Egeo-Anatolici*, 20: 27–42.
- Godart, L. 1980. Ecritures et comptabilités. In H. van Effenterre, *Le palais de Mallia et la cité minoenne*. Vol. II, pp. 579–84, 597–8. Roma: Edizioni dell'Ateneo.
- Godart, L. and Olivier, J.-P. 1976–85. *Recueil des inscriptions en linéaire A*. 5 vols. Paris: Geuthner.

- Godart, L. and Sacconi, A. 1978. *Les tablettes en linéaire B de Thèbes*. Roma: Edizioni dell'Ateneo.
- Olivier, J.-P. 1975. 'Lire' le linéaire A? In *Le monde grec. Hommages à Claire Préaux*, pp. 441–9 (eds) J. Bingen, G. Cambier and G. Nachtergaele. Bruxelles: Editions de l'Université.
- Olivier, J.-P. 1979. L'origine de l'écriture linéaire B. *Studi Micenei ed Egeo-Anatolici*. 20: 43–52.
- Olivier, J.-P. 1981. Les sceaux avec des signes hiéroglyphiques. Que lire? Une question de définition. In *Studien zur minoischen und helladischen Glyptik*, pp. 105–15 (ed.) W.-D. Niemeier. Berlin: Gebr. Mann Verlag.
- Pini, I. 1983. Neue Beobachtungen zu den tönernen Siegelabdrücken von Zakros. *Archäologischer Anzeiger*. 559–72.
- Pope, M. and Raison, J. 1978. Linear A: changing perspectives. *Etudes Minoennes*. 1: 5–64.
- Poursat, J.-Cl., Godart, L. and Olivier, J.-P. 1978. *Fouilles exécutées à Mallia. Le Quartier Mu*. Vol. I: *Introduction générale. Écriture hiéroglyphique crétoise*. Paris: Geuthner.
- Sacconi, A. 1974a. *Corpus delle iscrizioni in lineare B di Micene*. Roma: Edizioni dell'Ateneo.
- Sacconi, A. 1974b. *Corpus delle iscrizioni vascolari in lineare B*. Roma: Edizioni dell'Ateneo.
- Vandenabeele F. 1985. La chronologie des documents en linéaire A. *Bulletin de Correspondence Hellénique*. 109.
- Vandenabeele, F. and Olivier, J.-P. 1979. *Les idéogrammes archéologiques du linéaire B*. Paris: Geuthner.
- Ventris, M. and Chadwick, J. 1953. Evidence for Greek dialect in the Mycenaean archives. *Journal of Hellenic Studies*. 73: 84–103.
- Ventris, M. and Chadwick, J. 1973. *Documents in Mycenaean Greek*. Second edition by J. Chadwick. Cambridge: University Press.
- Weingarten, J. 1983. *The Zakro Master and his Place in Prehistory*. Göteborg: Paul Åströms förlag.
- Yule, P. 1980. *Early Cretan Seals: A Study of Chronology*. Mainz: Philipp von Zabern Verlag.

Abstract

Olivier, J.-P.

Cretan writing in the second millennium B.C.

Between the end of the third millennium and the beginning of the second, the Minoans invented and developed two original writing systems, conventionally known as 'Cretan Hieroglyphic' and 'Linear A'. These related systems are syllabaries, each consisting of less than 100 signs; the languages which they record remain unidentified. Most of the documents which survive are clay tablets with economic texts on them. The latest texts we have date to around 1450. Linear B was developed from Linear A, probably sometime after the sixteenth century. It served to record the Greek dialect of the Mycenaeans who occupied Crete from 1450 to 1375 at least, and who remained on the Greek mainland until around 1200. It was first deciphered in 1952.

The infancy of the alphabet

A. R. Millard

Excavating at Byblos on the coast of Lebanon in 1923, the French scholar Pierre Montet cleared a tomb-chamber containing a large stone sarcophagus. An inscription engraved on the edge of the lid announces that this is the coffin of Ahiiram, king of Byblos. The text was not difficult to read because the letters were recognizably an early form of the Phoenician alphabet, and the language a Phoenician dialect (Dussaud 1924). At first both the coffin and the inscription were given a date in the thirteenth century B.C., but now there is almost universal agreement that both were made about 1000 B.C. (Dunand 1945: Post-scriptum; Gibson 1982: 12 f; Röllig 1982; Porada 1973). Ahiiram's inscription is the earliest intelligible text of more than two or three words written with the Phoenician alphabet known today. By its time the letters were in a more or less conventional form and showed some cursive traits. The handful of dedications incised on stone at Byblos later in the tenth century makes these points clear (Gibson 1982: 17–24). From then the history of the alphabet can be traced to the present day; a few major questions remain open – the exact time and manner of the Greek borrowing, the rise of the various Indian systems – and new discoveries can bring surprises, as the ninth century B.C. statue from Tell Fekherye in Syria has done for Aramaic (Abou Assaf, Bordreuil, Millard 1982) or the graffiti from Gordion in Phrygia have done for early Greek (Young 1969). The earlier stages of the alphabet's history are less certainly defined, and it is the purpose of this essay to explore them in the context of the scripts of the ancient Near East.

Writing in the Near East in the third and second millennia B.C.

By the end of the fourth millennium B.C. the distinctive scripts of Babylonia and Egypt, the cuneiform and the hieroglyphic, appear to have become well-established. The evidence indicates that they continued for a thousand years without any serious rival. From Babylonia the cuneiform spread in several directions, notably up the Euphrates westwards and on along the trade routes to the Mediterranean. Since 1975, the Italian excavations at Tell Mardikh, ancient Ebla, south of Aleppo, have revealed far more extensive Babylonian influences in northern Syria during the Early Bronze Age than had



Water, Weather and Prehistory by Robert Raikes

A hydrologist's view of the effects of water on man in the past, and of the archaeologist's ability to interpret them. When first published in 1967, this book had a profound effect on archaeological thought. This second edition contains a new concluding chapter and references to recent literature.

"A minor classic of the archaeological literature" — *CBA Newsletter*

249pp, 19 plates. ISBN 0 946897 03 4 Hardback £12.50. 0 946897 04 2 Paperback £7.95.

Nuragic Sardinia in its Mediterranean Setting: Some Recent Advances by Fulvia La Schiavo

The 1982 Munro Lectures at Edinburgh published with bibliography and 14 text figures as Occasional Paper 12 of the Edinburgh Department of Archaeology.

A4, 44pp with figs. ISSN 0144-3313(12) £3.50.

Beazley and Oxford edited by Donna Kurtz

Lectures celebrating the centenaries of the birth of Sir John Beazley and of the establishment of the Lincoln Professorship of Classical Art and Archaeology in Oxford: 'Beazley the Teacher' by Dietrich von Bothmer, 'Beazley and Attic Vase-painting' by Martin Robertson, 'Beazley and South Italian Vase-painting' by Dale Trendall, and '100 Years of Classical Archaeology in Oxford' by John Boardman, and Bernard Ashmole's memoir 'Sir John Beazley (1887-1970)' reprinted from the Proceedings of the British Academy.

Oxford University Committee for Archaeology Monograph 10.

76pp, Paperbound, ISBN 0 947816 10 0 £5.00.

Orbits: The Ancient Mediterranean Tradition of Urban Networks

The 12th J. L. Myres Memorial Lecture delivered by J. Gottmann in 1983.

15pp, 2 plates. ISBN 0 904920 10 0 £3.00.

Coventina's Well: A Shrine on Hadrian's Wall by Lindsay Allason-Jones and Bruce McKay

The discovery and excavation of Coventina's Well at Carrawburgh in 1876 are described in full in this new volume. There is a detailed catalogue of the finds: reliefs and inscriptions dedicated to Coventina, and other items of gold, silver, bronze, lead, jet, bone, glass, leather and pottery, and some 16,000 coins which evidently include a hoard. The dating evidence and the nature of Coventina and her cult are fully discussed.

Published by the Trustees of the Clayton Collection (Chesters Museum).

Large 4to, 144pp, 18 figs, 22 plates. ISBN 0 946897 05 0 £15.00.

The Temple of Sulis Minerva at Bath: Vol I, The Site by Barry Cunliffe and Peter Davenport

The latest work at Bath, the excavation of the Temple precinct and the Sacred Spring between 1978 and 1984, will be published in two volumes. This first volume describes the total excavation of a substantial part of the precinct, with reconstructions of the temple and its surviving buildings, and the emptying and exploration of the Sacred Spring. It includes a fully illustrated gazetteer of all the sculptured and inscribed stones from the site, and finds from the excavation area, and an account of the subsequent history up to the present day.

The second volume, on the coins and finds, will be published in 1986.

Published by Oxford University Committee for Archaeology, Monograph 7.

A4, 210pp text, 108 text figs, 24 large plans, 72pp of plates, 6 microfiche. ISBN 0 947816 07 0 £48.00.

Medieval Villages edited by Della Hooke

Sixteen papers, based on a 1982 Oxford conference, providing a major review of current work into the origins and development of the medieval village in England, Wales and Scotland.

Oxford Committee for Archaeology, Monograph 5. A4, 229pp, numerous figs. ISBN 0 947816 05 4 £19.50.

All these books are distributed by Oxbow Books, and they are all described in detail in *Oxbow Book News*. The latest issue includes notes on over a hundred new books covering all aspects of archaeology, and related topics in ancient and medieval history and art; there are details of pre-publication offers for new books, and sale bargains as well. Oxbow Books specializes in archaeology. If you would like to receive *Oxbow Book News*, write and get your name put on the mailing list.

Oxbow Books, 10 St Cross Road, Oxford OX1 3TU

Ancient Peoples and Places

Babylon

JOAN OATES

Revised edition now available in paperback

'The best introduction to what is known about the city in its greatest days ... reliable, judicious, and fascinating' – *Professor G. W. Bowersock, Harvard University*

'A model of how archaeology should be presented ... an admirable summary of available knowledge' – *The Daily Telegraph*

In a highly acclaimed account, brought up to date for this revised edition, Joan Oates describes the rise of Babylon from Sargon of Agade to Hammurapi, the great law-giver under whom in the 18th century BC the city first attained pre-eminence. She charts its progress under his successors, its greatest period of empire during the reigns of Nebuchadnezzar and Nabonidus in the 6th century BC, and its decay and final abandonment as Persians and Greeks turned Mesopotamia into a battleground.

With 137 illustrations Paperback £5.95 April

World of Art

The Art of Mesoamerica

From Olmec to Aztec

MARY ELLEN MILLER

This new survey of the art and architecture of ancient Mesoamerica succinctly and evocatively summarizes the artistic achievements of the high Precolumbian civilizations – Olmec, Maya, Teotihuacan, Toltec, Aztec – and their contemporaries. The pyramids and palaces, jades and brightly coloured paintings emerge from these pages as vividly as when they first astonished Cortés' men in 1519.

Mary Miller, Associate Professor in the Department of the History of Art at Yale University, draws on the latest archaeological discoveries to present a complete and up-to-the-minute account. Her recent study of the murals of Bonampak was hailed by Professor Michael Coe as 'a classic in the literature on Mesoamerica'.

With 186 illustrations Paperback £4.50 April

The Riddle of the Pyramids

KURT MENDELSSOHN

Now available in paperback

'Marvellously lucid introduction to the period as a whole ... a book to buy, to read, to ponder and to enjoy' – *Current Archaeology*

'A superbly illustrated book ... puts forward the most convincing theory yet of why the pyramids were built' – *The Sunday Telegraph*

The pyramids, immensely large and very ancient, appear to us to be extremely useless; yet they must have been considered in a different light by the ancient Egyptians, since they expended an almost unbelievable amount of labour in constructing them, with no immediately obvious beneficial return.

Dr Mendelssohn, in a classic study about a scientific discovery, puts forward the final solution to a problem that has intrigued man through the centuries: what mattered was not the pyramid – it was the *building* of it. The pyramid does not represent an aim in itself, but the means to achieve an aim: the creation of a new form of society, the state.

With 127 illustrations, 15 in colour Paperback £7.95 March



Thames and Hudson

For our complete catalogue, and details of new and forthcoming titles, please write to
30 Bloomsbury Street, London WC1B 3QP (mentioning *World Archaeology*)