

## Impact case study (REF3)

<b>Institution:</b> University of Cambridge		
<b>Unit of Assessment:</b> UoA 29		
<b>Title of case study:</b> Decoding the Bronze Age Aegean and Cyprus		
<b>Period when the underpinning research was undertaken:</b> 2012 - 2020		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Dr Yannis Galanakis	University Senior Lecturer	01.09.2013-present
Dr Philippa Steele	Senior Research Associate	01.10.2012-present
Dr Anastasia Christophilopoulou	Assistant Keeper and Cyprus Curator, Fitzwilliam Museum	25.05.2010-present
Dr Anna Judson	Research Fellow, Gonville and Caius College	01.10.2016-09.2020
Dr Torsten Meissner	University Senior Lecturer	01.10.1997-present
Dr Ester Salgarella	Research Fellow, St John's College	01.10.2018-present
<b>Period when the claimed impact occurred:</b> 2016 - 2020		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<b>1. Summary of the impact</b> (indicative maximum 100 words)		
<p>Working across the fields of Bronze Age Archaeology and Classical Philology, two groups of Cambridge researchers have inspired an international public, teachers, and students, with a new vision of the functions of early writing. Reaching a large audience of museum-goers, through an exhibition and accompanying events, and using social media to introduce an even wider international audience to the process of decipherment and ancient writing practices, the research has stimulated new teaching topics and methods in UK and international secondary and tertiary education, along with greater public awareness of and engagement with ancient Mediterranean languages, writing systems and cultures.</p>		
<b>2. Underpinning research</b> (indicative maximum 500 words)		
<p>The Faculty of Classics in Cambridge has the largest number of specialists working on Aegean scripts and archaeology anywhere in the world, and important Aegean and particularly strong Cypriot collections in the Fitzwilliam Museum. Cambridge scholars have long played key roles in researching the Bronze Age Aegean, supported by unparalleled archival resources related to the decipherment of Linear B and its study. Working together, the Cambridge Mycenaean Epigraphy Group (<b>MycEp</b>) and ERC-funded <i>Contexts of and Relations between Early Writing Systems</i> (<b>CREWS</b>) project combine their different specialisms to build upon the legacy of Wace, Ventris and Chadwick and to put the origins of writing in the Aegean into their full cultural context.</p> <p>The crucial questions behind this combined epigraphic, linguistic and archaeological research by MycEp and CREWS concern how and why writing systems were developed and transmitted in the ancient world. These questions and possible approaches to answering them have been explored in seminars and other discussions among the group over a long time period. The</p>		

results of these discussions ploughed into the design of both the CREWS project and the *Codebreakers* exhibition. The Cambridge researchers have demonstrated the importance of Cypriots in developing new writing practices in the Late Bronze Age and that their writing must be understood as a socially embedded phenomenon interacting with the construction of local identities [R1]. The study of administrative and non-administrative writing has explained variation in visual and structural features of Linear A [R2], and through contextualised analysis of sign frequencies supported a new reconstruction of the phonetic inventory of the Linear A writing system [R3], boosting the chances of eventual decipherment. For Linear B, too, work on the signs that remain undeciphered [R4] has shown that decipherment is not a single achievement but a continuous long-term process requiring input from new archaeological and epigraphic advances. A study of the earliest Linear B documents in comparison with Linear A has also shed new light on the process of script adaptation [R5].

One particularly important aspect of the emphasis on the wider socio-cultural and material context of writing for detailed analysis of written documents, their properties and content has been the demonstration that the group identities (ethnic or otherwise) which mattered to most of the Aegean's inhabitants most of the time did not operate at such broad geographical scales as the conventional terms 'Minoan' and 'Mycenaean' suggest [R6, R7]. The major *Codebreakers and Groundbreakers* exhibition drew the attention of the wider public to writing and language as culturally dynamic and embedded phenomena, not abstract linguistic codes alone serving 'Minoans' and 'Mycenaean'.

All of this has been put into a broader context still by the CREWS project's work exploring developments in alphabetic writing around the Mediterranean at a regional level in the late second and early first millennia BCE, including work that shows how alphabetic cuneiform at Ugarit grew out of a local response to Hittite imperialism and the international political landscape more generally; and work that seeks to understand the structure of writing systems with particular attention to vowel writing (especially in Punic) and to shed light on the peculiar development of the Greek alphabet (cf. [R8]).

### 3. References to the research (indicative maximum of six references)

[R1] Steele, P. M. (2018). *Writing and society in ancient Cyprus*. Cambridge University Press. ISBN: 9781316729977 [\[DOI\]](#)

[R2] Steele, P. M. (2017). Writing "systems": Literacy and the transmission of writing in non-administrative contexts. In E. M. Jasink, J. Weingarten and S. Ferrara, S. (Eds.), *Non-scribal communication media in the Bronze Age Aegean and surrounding areas: The semantics of a-literate and proto-literate media* (pp. 153-172). Firenze University Press. [\[DOI\]](#)

[R3] Meissner, T. and Steele, P. M. (2017). Linear A and Linear B: Structural and contextual concerns. In M.-L. Nosch and H. Landenius Enegren (Eds.), *Aegean scripts: Proceedings of the 14th International Colloquium on Mycenaean Studies, Copenhagen, 2 - 5 September 2015*. (Vol. I, pp. 99-114). Edizioni Consiglio Nazionale delle Ricerche. ISBN: 9788880802754. [\[Link\]](#)

[R4] Judson, A. P. (2020). *The undeciphered signs of Linear B: Interpretation and scribal practices*, Cambridge University Press. ISBN: 9781108859745 [\[DOI\]](#)

[R5] Salgarella, E. (2020). *Aegean linear script(s): Rethinking the relationship between Linear A and Linear B*. Cambridge University Press. ISBN: 9781108783477 [\[DOI\]](#)

[R6] Galanakis, Y., Tsitsa, E. and Günkel-Maschek, U. (2017). The power of images: Re-examining the wall paintings from the Throne Room at Knossos, *Annual of the British School at Athens*, 112, 47-98. [\[DOI\]](#)

[R7] Galanakis, Y. (2015). "Islanders v. mainlanders", "The Mycenae wars", & other short stories. In N. Vogeikoff-Brogan, V. Florou and J. Davis (Eds.), *Carl W. Blegen: Personal and archaeological narratives* (pp. 99-120). Lockwood Press. ISBN: 9781937040222.

[R8] Boyes, P. and Steele, P. M. (Eds.) (2020). *Understanding relations between scripts II: Early alphabets*. Oxbow Books. ISBN 9781789250954. [\[Link\]](#)

**All items above have been published following peer review.**

**Peer-reviewed funding:**

1) Philippa Steele. - Contexts of and relations between early writing systems - CREWS. - ERC (Horizon2020, Grant no. 677758). - 01.04.2016-30.09.2021. - GBP1,098,894.78.  
The CREWS project and the costs of the CREWS-themed display were funded out of this grant.

2) Philippa Steele - University of Cambridge Arts and Humanities Impact Fund. - £6,248.  
Grant awarded for CREWS outreach activities conducted from March 2020 onwards.

**4. Details of the impact** (indicative maximum 750 words)

The inter-connected activities of MycEp and CREWS have raised awareness of and engagement with languages, writing systems and cultures of the ancient Mediterranean, leading to new teaching topics and materials in UK and international secondary and tertiary educational programmes based directly on Cambridge research.

The scholars working in MycEp and CREWS have drawn the public's attention to their research and transformed understanding of the use of early writing systems in the Aegean and eastern Mediterranean through a major exhibition at the Fitzwilliam Museum in 2017-2018 and wide-ranging use of social media. The resources created have had a significant impact on both secondary and tertiary education and on an international public.

*Codebreakers and groundbreakers* (24/10/17 to 4/02/18, co-curated by Yannis Galanakis with Anastasia Christophilopoulou and James Grime) attracted 44,568 visitors to interactive display areas at the Fitzwilliam Museum and the Museum of Classical Archaeology, Cambridge. The exhibition catalogue, with in-depth discussions of writing and culture in the Aegean Bronze Age by members of MycEp and CREWS, sold out (500 copies) [E1 – Appendices 1-2]. In addition to catalogue sales (GBP2,160), the exhibition attracted interest and funding from the corporate world: the Mellon Fund (GBP54,444), Microsoft (GBP10,000), the Marlay Fund (GBP10,000), and the Art Fund Ruffer Grant (GBP2,000) [E2].

By linking the most famous 'decipherments' of the 20th century – the breaking of the Enigma code by Alan Turing and the team at Bletchley Park, and the decipherment of Linear B by Michael Ventris in collaboration with other scholars – the exhibition enabled visitors to understand the importance of the social and material contexts of writing practices for decipherment. It also showcased how decipherment is intertwined with the cultural background behind the invention and development of the writing systems in question. This achievement was recognised in widespread press coverage [E1 – Appendix 3, E3] and by individual visitors [E4 p.3].

A digital game that ran parallel with the *Codebreakers* exhibition attracted 661 players in total. The game developed a playful and immersive experience for younger adults (an under-represented audience in museums), and resulted in more in-depth understanding and broader knowledge, as confirmed in the feedback received (as many as 85% of the 94 respondents reported learning something new from the game) [E1 – Appendix 5].

Family events for 8-11 year olds in the Museum of Classical Archaeology on 26/10/17 inspired children to become 'Script detectives' and to learn the rudiments of new languages and writing

systems so as to encode and decode messages for themselves, and to make 'Codes in Clay' – making tablets and writing in Linear B [E4 – esp. on learning and engagement].

Working on *Codebreakers and groundbreakers* enabled James Grime – a mathematician and popular YouTuber (with 211k subscribers) – to learn how to organise an exhibition; he now draws on the comparison between linguists and mathematicians as Touring Exhibition Manager for MathsWorldUK [E5].

Alongside *Codebreakers*, a second Fitzwilliam museum display, 'Writing in Cyprus and the Eastern Mediterranean' (16/01/18–10/06/18), raised awareness of the multicultural history of writing by using fourteen objects to tell an interconnected story of writing practices being passed between different societies and used for different purposes. Attracting an estimated 7,000 museum visitors, the display has a continuing life online (with links to all display pages, 7,690 views in total), where visitors are offered a tiered experience to engage more deeply with objects that catch their interest. Five hundred free interactive leaflets were picked up by visitors.

CREWS's wider social media campaign reaches large and diverse audiences around the world, raising awareness and providing educational resources via a blog website visited by more than 173,000 people from over 200 countries, a YouTube channel (7,025 views) and Twitter account (with 4,501 regular followers and 4,881,346 tweet impressions to date). The 'Write with CREWS' initiative brought over 9,000 downloads (since July 2019) of worksheets teaching readers how to write their name in a system designed for another language and society, employing unfamiliar writing methods and a script that may not have signs for all the sounds needed [E6, E7].

CREWS blog posts have been used by teachers at internationally diverse universities (e.g. in the UK, USA and Finland) to expand the course material shared with their students. For example, Dr Katerina Volioti at Roehampton University [E8] has been inspired by CREWS to widen the geographical focus of her module on 'Art and Life in the Ancient World' and directs her students to engage with CREWS blog posts. An Ancient Near East class at the University of Nebraska included a project based on material from the CREWS blog. An ancient writing 'roadshow' in Helsinki 'used @crewsproject great sheets to introduce some scripts not-so-familiar to us', while teachers across the world (including UK, USA, Spain, Denmark, Greece, Germany, India, Malaysia, Canada) have downloaded CREWS 'Writing in the Ancient World' teaching packs for use in education [E9].

CREWS free teaching resources have been deployed in the University of Cambridge Classics PGCE programme (14 trainee teachers, 20/1/20): 'The PGCE students left with lots of new ideas about how they might incorporate topics related to ancient writing into their teaching, for instance ... using the history of writing as a springboard for talking about contact between the Greeks/Romans and other cultures – an aspect that is often ignored in the secondary Classics classroom.' [E10]

#### 5. Sources to corroborate the impact (indicative maximum of 10 references)

[E1] Exhibition data gathered by the Fitzwilliam Museum (esp. the Education department); Exhibition catalogue: Galanakis, Y., Christophilopoulou, A. Grime, J. (2017). *Codebreakers and groundbreakers*. [The Fitzwilliam Museum](#). ISBN 9781910731093. [\[Link\]](#)

[E2] Fitzwilliam Museum. (2018). *Codebreakers and groundbreakers*. Exhibition report.

[E3] Newspaper articles on *Codebreakers and groundbreakers* exhibition.

[E4] Testimonial: Microsoft Sponsor Report.

[E5] Testimonial: Touring Exhibition Manager, MathsWorldUK (concerning *Codebreakers* and bringing Mathematics and Classics together).

**[E6]** Learning resources: 'Write your name' sheets provided through the CREWS website. [\[Link\]](#)

**[E7]** Social media statistics from CREWS blog [\[Link\]](#) and Twitter [\[Link\]](#)

**[E8]** Testimonial: Associate Lecturer, Department of Classics, University of Roehampton.  
Concerns using the CREWS blog for teaching.

**[E9]** Selected items from CREWS blog/Twitter/social media; emails sent by followers.

**[E10]** Testimonial: Senior Teaching Associate in Classics Education, University of Cambridge.