The Words that Archaeologists Choose: A Maltese Case Study in Artifact Terminology, Corpus Linguistics and Discourse Analysis

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Abstract

Writing is the means by which archaeological knowledge is produced, shared and negotiated, which is why, as part of a wider reflexive archaeology, writing within the discipline has come under scrutiny. When writing, archaeologists make choices about what words to use to express their ideas about the past (even if these choices are sometimes subconscious). This study examines such choices via the application of methods from two linguistic subdisciplines, corpus linguistics and discourse analysis, to a case study of Maltese archaeological texts and terms for a specific yet problematic type of Maltese artifact (axe-amulets/pendants). Using these methods, we connect political and theoretical shifts to changes in English-language use and terminology across three periods of Maltese archaeological history, demonstrating how authors choose words that reflect the broader assumptions and understandings that inform their work. In sum, this paper contributes to an increasingly critically aware understanding of the history of colonial and postcolonial archaeology in Malta and other Mediterranean islands and encourages writers to have a heightened awareness of the taken-for-granted but fundamental part that language plays in their poetics and politics.

Keywords: archaeology, artifacts, corpus linguistics, discourse analysis, language, prehistoric Malta, text, words

Introduction

Archaeologists give voice to the past through their writing, creating a series of dialogues between themselves and the peoples, landscapes and artifacts of the past and also between current ideas about those pasts and how they connect or conflict with previous scholarship (Joyce 2002). Writing is the means by which archaeological knowledge is produced, shared and negotiated, which is why, as part of a wider reflexive archaeology, writing within the discipline has come under scrutiny. The practice of writing represents participation in the creation and shaping of knowledge within the field (Gomes 2020)—but how, exactly, does that happen?

One means by which writing shapes archaeological knowledge is connected to an author's choice in mode of writing, which is why much of the discussion of archaeological writing has been about genres (or text types)—e.g., exposition, narrative, description, argument (Lucas 2019: 80-81)—and how these can be employed to

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express experiences and ideas within a scholarly tradition. In their expressions, archaeologists normally use writing conventions and styles that match 'professional coding and expectations' of the discipline (Gomes 2020). Professional codes, though, can and do change over time, on a macro-level in terms of the preferred genre (Hodder 1989; Lesure 2015), but also on a micro-level with factors such as word choice.

All writers and speakers make choices as they employ different linguistic elements to communicate. As the linguist Stubbs (1996: 107) writes: 'No terms are neutral. Choice of words expresses an ideological position'. This means that when writing, archaeologists make choices about what words to use to express their ideas about the past (even if these choices are sometimes subconscious). Words do not merely denote a 'signified' (to use Saussure's term); they are also imbued with a nebula of ideas and associations, if not entire theoretical backgrounds. For example, Thomas (1999: 362) discusses the term 'Neolithic', explaining that, over time, the word 'has changed its meaning repeatedly, often without prehistorians being fully aware that these shifts of sense were taking place'. Shifts in the theoretical understandings and assumptions made by writers (and readers) are reflected in the words of a text; even if a word does not appear to change, the meaning(s) associated with it may have.

Chippendale (1996: 54) also addresses the issue of choice and word meaning as it relates to terminology, calling for 'well-chosen language' and using the example of 'determination' versus 'date' in reporting the results of radiocarbon dating for uncalibrated and calibrated results, respectively. Careful use of these two terms, he argues, makes archeologists' methods (and therefore results) less ambiguous. Taking a different tack, Joyce (2002: 48) explains her team's use of loan words from non-English languages local to a site as a way to 'engage' with narratives relevant to a specific culture and location. Although Joyce is discussing a literal kind of polyvocalism, all of the above examples involve the acknowledgment that a single word or phrase can call out many voices and ideas, making an analysis of words and choices all the more critical.

Extending such archaeological interest in reflexivity, this paper employs the methods of corpus linguistics and discourse analysis to examine closely a set of archaeological writings, in order to discuss how the terms used for a specific set of artifacts connect to broader trends in archaeological method and theory over time. Linguistics offers a means by which the vocabulary and grammar of a text or set of texts can be examined with an eye toward unpacking how specific words or phrases reflect authors' ideologies. Here we apply those methods to a physically distinct but terminologically problematic category of prehistoric artifact: Maltese axe-pendants or axe-amulets, which we have chosen to refer to here as *axe-amulets/pendants*, a term we intend as a reminder that there is no single word that covers the breadth of these objects' interpretations. Additionally, when a word is being discussed as a word, it will appear in italics (as per linguistic convention), which means that an axe is a thing and *axe* is the term used to denote one of those things.

Our paper presents an examination of terms for axe-amulets/pendants as they are used against a changing backdrop of social, political and historical contexts, as a way to address questions about how archaeologists use language in relation to artifacts and how that connection reflects and informs archaeological method and interpretation. In doing so, we present an interdisciplinary dialogue aimed at providing a new set of linguistic methods for reflexive archaeology. In examining how archaeologists use words (and the ideas connected to them) to talk about axe-amulets/pendants, we formed a collection of relevant texts to represent each of three key periods in Maltese archaeological history, and then performed two kinds of linguistic analysis on those collections.

It is important to observe that these analytical choices constrain the scope and impact of what

we have to say about language use in Maltese archaeology. Our intended starting point was to choose one of the most problematic categories of archaeological artifact we could think of and about which we had expert knowledge (i.e. axe-amulets/pendants). Thereafter, our analysis depended on the choice of texts. This choice was constrained by a series of criteria that we required key texts to meet: first, for analytical reasons, they had to be written in English; second, they had to deal in some detail with axe-amulets/pendants; third, they had to situate those artifacts within wider archaeological thought on Maltese prehistory; fourth, they had to span, collectively, the history of Maltese archaeology between 1900 and 2010; and fifth, they had to be representative of a variety of publication genres and archaeologists. In the process, the work of Maltese archaeologists—who, with the exception of Zammit, have not published detailed accounts of axe-amulets/pendants—became underrepresented in our study. We do, however, acknowledge their contributions to prehistoric archaeology in Malta, not only in the English language but also, importantly, across a range of other European languages. Our focus on axe-amulets/pendants similarly affected our coverage of the history of Maltese archaeology; we begin with the broad range of 1850–1900, which is the context for the earliest published Maltese example of these artifacts, but then narrow down into three later comparative time slices (with gaps between) that reflect the three most intense periods of study and publication of axe-amulets/pendants.

Linguistics can be defined broadly as the study of language as it is used in real life, in both spoken and written forms. While there are many different kinds of linguistic analyses, two modes are particularly relevant to the study of texts: the methods of corpus linguistics and those of discourse analysis. Corpus linguistics is a subfield that evaluates large bodies of spoken and/or written language (referred to as 'corpora') that have been encoded into an electronic format.

A corpus analysis entails a detailed examination of word frequency and occurrence, undertaken to answer questions about the nature of language, either as it is used generally or in specific contexts (Baker 2006). Discourse analysis, in contrast, is a methodology that looks for connections between specific words or phrases and ideologies (i.e., interconnected systems of beliefs and theories) in order to discover how 'big-D' Discourses—larger, societal conversations about specific topics—are reflected, reinforced and recreated by the 'little-d' discourses in which we engage daily (Gee 1999). An example of how this would work in archaeology can be seen in Thomas's (1999: 362) discussion of the word *Neolithic*: not only as regards how the discourses surrounding the word have changed, but also in that it would be misleading to suggest 'that a single [D]iscourse around "the Neolithic" has ever existed'. Thomas (1999: 381) outlines two distinct ways to interpret the term *Neolithic*, one which references a 'historically and geographically specific Neolithic of the culture historians' and one which is 'something akin to a "system state"' in which a particular 'combination of ecological and technological relations might be equally likely to exist at different times in different parts of the global system'; these are interpretations that reflect the Discourses of different phases in archaeological theory. To talk about the connections between a specific text and the Discourse(s) that it points to, discourse analysis often undertakes a close reading of that text to look for specific words and phrases that reference larger historical and socio-political contexts that likely influence an author's word choice.

These two methodologies approach texts from complementary angles; corpus studies look at large bodies of text in order to highlight frequently occurring or particularly salient words, while discourse analysis evaluates phrases and passages against a wider cultural or theoretical background. Together, the results of these methods offer a new perspective on archaeological writing.

The outcome of this paper's undertaking is a truly interdisciplinary dialogue, the written sections below being reflective of real conversations between two academics from different branches of the social sciences. Bringing linguistic methods and analyses to bear on a set of archaeological terms provides a means of examining an artifact category reflexively, looking not only at what has been said about these objects, but also at how that content is relayed. This, in turn, should encourage us all to choose and use our words to even greater effect when writing about the past.

Historical Background to Maltese Prehistoric Archaeology

As a background to the linguistic analysis that follows, this section provides a selective overview of the history of Maltese archaeology, with particular emphasis on political and scholarly discourses relating to Maltese prehistory, including the discovery of axe-amulets/pendants.

Prologue: 1850–1900

During the second half of the nineteenth century, Britain's colonial control of Malta became more authoritarian due to the island's strategic importance as a fortress in the center of the Mediterranean (Frendo 1979). A British imperial policy to anglicize Malta, however, met with resistance from Maltese elites, particularly around 'the Language Question', which centered on British efforts to replace Italian with English as the dominant language of Malta. This led to a polarization of Maltese politics between an anglophile Reform Party and a National Party, which advocated representative government, Italian culture and Catholic religion. These tensions colored Maltese, British and Italian understandings of Malta's earliest antiquities.

The megalithic monuments of the Maltese Islands continued to attract the interest of a variety of Maltese and foreign gentlemen-scholars at this time. They explored the ruins at prominent sites such as Ħaġar Qim (Figure 1), Mnajdra, Kordin and Ġgantija, sometimes undertaking

Figure 1.   Ħaġar Qim temple, Malta. Photo: R. Skeates.

excavations at them to reveal architectural plans and acquire portable artworks. One scholarly question concerned their cultural origins. Maltese historians and nationalist politicians in particular proudly emphasized Phoenician origins and ancestry, including the civilized status of these ancient colonists and their (later) early conversion to Christianity (Grima 2014: 107). A key proponent of this emphasis was Antonio Annetto Caruana (1830–1905) (e.g., Caruana 1882), a theology graduate and librarian and keeper of antiquities at the Malta Public Library, who was given increasing responsibility by the governor for the archaeological exploration and preservation of Maltese antiquities (Vella and Gilkes 2001: 354).

The 'bone caves' of the Maltese islands likewise attracted the attention of geologists searching for animal fossils and associated evidence of 'antediluvian man', materials that challenged the Judaeo-Christian creation myth. For example, in 1865 the Italian geologist Arturo Issel (1842–1922) excavated in the cave known as Għar Dalam, where he discovered some culturally modified animal bones and fragments of pottery. In a note published in French, the scholarly *lingua franca*, he assigned these and other Maltese objects, including an axe-shaped 'amulette', to the Bronze Age of the 'antéhistorique' era, comparing them to material found previously in northern Italy, and dismissing their attribution to the Phoenicians (Issel 1866: 244).

Period 1: 1900–1920
During the first two decades of the twentieth century, Maltese nationalism and the significance of the Language Question grew in the context of the geopolitical competition between the Great Powers that culminated with World War I (1914–1918) (Frendo 2012). These tensions again colored Maltese, British and now German archaeological debate and practice.

Scholarly questions remained centered on the chronological, cultural and racial origins of the makers of Malta's megalithic buildings and associated portable materials. The old-established view of Phoenician Maltese origins was decisively challenged in 1901 by visiting British and German scholars (Evans 1901; Myres 1901; Mayr 1901). Having inspected the Maltese antiquities at first hand, they used the approach of comparative archaeology to argue for an earlier, 'prehistoric' stage of culture in Malta, analogous to that already established for northern Italy, Sicily, Crete and Cyprus. In particular, Arthur Evans (1851–1941), the well-travelled British archaeologist, drew attention to parallels between features of the Maltese megalithic sanctuaries and those of Mycenaean pillar shrines in the Aegean, and between pottery found in Malta and Sicily (Evans 1901).

The British colonial government continued to leave the protection of these antiquities in the hands of leading members of the Society of Archaeology, History and Natural Sciences of Malta. Significant responsibility was now given to Themistocles Zammit (1864–1935), a charismatic government health analyst and professor of chemistry at the University of Malta, who was appointed as curator of a new government-funded Museum in Valletta. He soon concluded ongoing archaeological work initiated by Emmanuel Magri (1851–1907) at the newly discovered prehistoric 'hypogeum' at Ħal Saflieni. Zammit's reports described the form of the rock-cut cave chambers and details of the objects found in them, including numerous axe-shaped stone pendants (e.g., Zammit 1910; Zammit *et al.* 1912) (Figure 2). Although some Maltese politicians and antiquarians, including Zammit (Vella and Gilkes 2001: 364; Grima 2014: 108; Pessina and Vella 2021), were slow to relinquish the view that they were descended from the Phoenicians, these important discoveries lent weight to the Italian, British and German scholars' arguments that Malta possessed a prehistory.

In fulfilling his part-time responsibility for managing Malta's burgeoning archaeological heritage, Zammit depended on a wide network of Maltese and foreign collaborators, who intro-

Figure 2. Axe-amulets/pendants from Ħal Saflieni hypogeum, displayed in the National Museum of Archaeology, Malta
(length ranging from 2.6 to 5.6 cm) (photograph by R. Skeates).

duced novel archaeological methods and theories. He developed a long-standing friendship with Thomas Ashby (1874−1931), director of the British School at Rome. Unable for political reasons to undertake excavations in Italy (Vella and Gilkes 2001: 361), and aware of growing German scholarly interest in Maltese prehistory, Ashby was anxious to channel the energies of the British School to this 'nearest of the few British possessions in the Mediterranean' (Ashby *et al*. 1913: 2). Ashby was often assisted in Malta by Eric Peet (1882−1934), a Pelham student at the British School at Rome and an expert on the Stone and Bronze Age periods in Italy and Sicily. Zammit also shared his work with Napoleon Tagliaferro (1857−1939), a fellow member of the museum committee and professor of mathematics at the university. Both Maltese professors worked in close partnership with the British colonial authorities and scholars, but also balanced this with occasional

papers written in Italian that compared aspects of Maltese and Italian prehistory (e.g., Zammit 1911; Tagliaferro 1912). The Anglo-Maltese team conducted government-funded excavations at numerous prehistoric sites in Malta and Gozo, including Kordin, Ħaġar Qim, Mnajdra and Santa Verna. In the process, they developed a new kind of archaeological practice and writing on the islands (Vella and Gilkes 2001: 362). This practice was based on close supervision of workmen, meticulous note-taking, thorough analysis and measured description of the form and material of the megalithic buildings and objects found (including axe-pendants) and timely publication in prominent British journals (e.g., Ashby *et al*. 1913). Zammit then applied this approach to his own excavations at the well-preserved Ħal Tarxien temple complex and Bronze Age cemetery.

Another collaborator, Robert Bradley (1879−1949), who served as a surgeon for the

British navy in Malta, studied and published the human skulls recovered from Ħal Saflieni. Influenced by contemporary 'hyper-diffusionist' British scholars (e.g., Smith 1911), Bradley (1912) published a book that theorized a megalith-building Mediterranean race originating in sub-Saharan Africa and crossing into Europe via Malta, to which he traced the ancestry of the modern Maltese population. Despite critical reviews (e.g., Myres 1913), Zammit accepted Bradley's thinking, using it to emphasize the racial, ethnic and even linguistic continuity and purity of the native Maltese people (Grima 2014: 109). Further excavations were also undertaken in the 'bone cave' of Għar Dalam, particularly by Giuseppe Despott (1878−1933), curator of the Natural History Museum of the University of Malta. It led to the discovery not only of a polished stone axe but also of human remains (Despott 1918: 220).

Period 2: 1945–1975

During the 1920s and 1930s, Maltese politics again centered on the Language Question and related debates over cultural identity and religion. Luigi Ugolini (1895−1936), an Italian archaeologist, drew Maltese archaeology back into this culture war in 1924, when Benito Mussolini and the Fascist Party commissioned him to undertake a large-scale survey of the archipelago's prehistoric monuments and materials (Vella and Gilkes 2001; Pessina and Vella 2005). This work led to Ugolini's (1934) book, in Italian, which boldly proposed that the 'Origins of the Mediterranean Civilization' were to be found in Neolithic Malta. Despite Ugolini's premature death in 1936, his work had a galvanizing impact on British scholars and colonial administrators, who called for 'a bigger scale', 'proper study' of Malta's prehistoric past (Vella and Gilkes 2001: 372; Ward-Perkins 1942: 35).

These plans were disrupted by World War II, but eventually, in 1952, an influential British network of university administrators and archaeologists secured a grant from the Colonial Office to the Royal University of Malta. It was to finance a survey of Maltese prehistoric monuments and the collections in the Valletta Museum, with a view to their publication in the form of a complete corpus. John D. Evans (1925−2011) was appointed to work on this, arguably due to his combined social and technical credentials as a Cambridge doctoral student in Mediterranean prehistory and as a wartime code-breaker. He had several key tasks: collating previous archaeologists' detailed architectural descriptions of the megalithic monuments; producing an accurate set of plans, drawings and photographs of the monuments; classifying the huge quantity of material found during earlier excavations, with an emphasis on typological study of the pottery to establish a relative chronology and eight-phase culture sequence for the prehistoric period (Evans 1953); and undertaking small-scale stratigraphic excavations at some of the Maltese temples, to test his pottery sequence and relate this to building phases and to collect a few samples for radiocarbon dating. His conclusion was that the Maltese temples first evolved locally from rock-cut tombs at a time of cultural isolation, and that it was only later, during the Tarxien period, that 'the masterpieces of Maltese art and architecture were produced under the stimulus of contact with the brilliant Minoan and Mycenaean civilizations of Crete and Greece' (Evans 1959: 30).

Maltese politics began to change direction in 1958, when the Labour government resigned after finding it was unable to implement a referendum favoring Malta's integration into the United Kingdom, after which the successive Nationalist government demanded independence for the State of Malta within the Commonwealth. This was achieved by a referendum in 1964; in the process, Maltese gained greater prominence as an official language, while the responsibilities of civil servants were gradually transferred from British to Maltese nationals. This was the case at the new National Museum, where David Trump (1931−2016), having recently completed his doctorate at Cambridge

and the British School at Rome, was appointed Curator of Archaeology in 1958, until Francis Mallia, a draughtsman for the Civil Government, was trained to take over in 1963. Trump tested and refined Evans's relative chronology and culture sequence through methodical stratigraphic excavations at prehistoric sites, complemented by post-excavation pottery typology and the early application of scientific radiocarbon dating and obsidian characterization. Trump's publications of this work are primarily descriptive (e.g., Trump 1966). Nevertheless, based on his convincing new chronology for the multiphase archaeological site of Skorba, he was able to add to enduring doubts (e.g., Childe 1957: 255-56) over traditional diffusionist understandings of the eastern Mediterranean origins and subsequent development of megalithic architecture in Malta and Europe. Trump's departure from Malta in 1963 coincided with the arrival of the Italian Archaeological Mission to Malta, authorized by the Nationalist government to the impotent outrage of British archaeologists (Vella and Gilkes: 2001: 373; Rossi 2012–13: 55).

During the early 1970s, Malta's Labour Party, which had been led by Dom Mintoff since 1949, emphasized Maltese self-interest, further distanced itself from the United Kingdom and pursued an internationalist agenda, leading to renewed debate over Maltese ethnic identity, and to the proclamation in 1974 of Malta as a fully independent republic. Contemporaneously, Old World archaeology was starting to question its outmoded culture-historical methods, theories and canonical texts, with growing confidence provided by American scientific techniques and the concepts and jargon of New Archaeology (Daniel 1975). It was in this dynamic context that Evans's (1971: vi) *Survey* made its 'very tardy appearance'. True to the original aims of the survey, it consisted of detailed descriptions of all known Maltese prehistoric sites and monuments together with catalogues of the objects found in them, including all known axe-amulets/pendants. Despite

serving as an invaluable reference book, it was forcefully dismissed by Daniel Evett (1973: 73), an American New Archaeologist, as outdated, subjective and lacking in theoretical direction. Such direction was now beginning to be provided by Colin Renfrew, who called for a radical change in archaeological method and theory. Following scientists' recognition in the late 1960s that conventional radiocarbon dates were systematically younger than tree-ring dates, Renfrew (1970) used a new radiocarbon calibration curve to revise the absolute chronology for the Neolithic and Early Bronze Age of Europe, including Malta's megalithic temples, which were shown to predate Mycenae by two millennia. He also went on to present a new research agenda for Maltese prehistoric archaeology: to quantify and explain changes in population density and social organization (Renfrew 1973). Maltese archaeologists were constrained from contributing to this, not least due to the Mintoff government's suppression of the humanities faculty at the University of Malta (Vella *et al.* 2018: 6).

1985–2010 (Period 3)

The Labour Party was ousted from power in 1987. International relations were subsequently reoriented, with Malta eventually joining the European Union in 2004. Maltese archaeological scholarship also began to flourish again, in part through international collaborations. During the mid-1980s, stimulated by discussions between Renfrew, Tancred Gouder of the Museum Department and Anthony Bonanno of the University of Malta, the Gozo Project was initiated, centered on the less archaeologically investigated of the two main Maltese islands. The project was designed to investigate the development and demise of the Maltese temple-building populations—not through further study of the temples themselves, but through settlement archaeology, mortuary studies and environmental reconstruction. From 1987, it involved major new archaeological

fieldwork undertaken by Cambridge University-connected scholars working in collaboration with the National Museum and University of Malta, as well as scientific specialists. Caroline Malone, who had just completed her doctorate (supervised by Renfrew) on prehistoric exchange systems in the central Mediterranean region, directed the team, together with Simon Stoddart, who had similarly just completed his doctorate on later prehistoric central Italy.

They began by excavating the remains of a rare Temple Period house discovered along the Ghajnsielem Road. Consecutively, they worked on the known yet surprisingly rich 'Brochtorff Circle' mortuary complex on the Xagħra plateau. The project led to the publication of numerous preliminary results and interpretations informed by social anthropological theory, particularly on ritual performance. Key themes emphasized the disparity in investment between domestic structures and ritual monuments; a divergence between mortuary and temple ritual (or 'cult' practices) dedicated respectively to life and death; increasingly overt social rivalry between communities and elites associated with clusters of monuments in an unstable insular context of environmental over-exploitation, cultural isolation and religious fervor; and a subsequent ideological change in ritual expression leading to the demise of the temples (e.g., Malone *et al*. 1988; 1993; 1995; Bonanno *et al*. 1990). The project culminated in a monograph presenting the results of the excavations at the Brochtorff Circle and an adjacent rock-cut tomb, including the substantial assemblage of human remains, animal bone, figurative sculpture, symbolic objects (including axe-amulet/pendants) and architectural remains found there, supplemented by scientific data on chronology, raw materials, human diet and past environment (Malone *et al*. 2009). In the meantime, Maltese scholars, heritage managers and enthusiasts continued to undertake their own work on Maltese prehistory, with an emphasis on art, religion and cosmology, and to express their own interpretations in publications written not only in English but also in French, Italian, Maltese and German (e.g., Bonanno 1986; 1989).

Developments in interdisciplinary social theory also stimulated an international array of scholars to reinterpret diverse aspects of Maltese prehistory, combining old and new archaeological data. Robin Skeates (1995; 2002), for example, while undertaking postdoctoral research on central Mediterranean prehistory at Oxford University, wrote about the potency, social display and ritual sacrifice of greenstone axes transformed into amuletic pendants. Reuben Grima (2003), in doctoral research at University College London, emphasized the landscape context of Maltese megalithic architecture and iconography. Malone (2008) also reconsidered the implications of figurative art for reconstructing social and cosmological orders. These and other scholars also considered the prehistoric islanders' embodied experiences and sensory perceptions of their monuments and landscape (e.g., Tilley 2004; Skeates 2010).

Throughout these key periods of Maltese prehistoric archaeology, the language of material culture had been actively selected and mobilized in scholarly debate and in related political discourses around the cultural origins, identities and allegiances of the Maltese islanders. It is to the detailed analysis of this language that we now turn.

Corpus Linguistics

Linguistic corpora can be compiled into a large body of language; examples include the British National Corpus, which contains over one million words of spoken and written British English, or the Corpus of Contemporary American English (Davies 2008–), which contains over a billion words of American English, also from a variety of spoken and written genres. Numerous quantitative analyses using these corpora have been able to uncover subtle differences between the two major varieties of world English in

terms of specific grammar and vocabulary preferences (e.g., Nakamura 1993; Algeo 2006).

Smaller, specialized corpora can be constructed to address more specific or targeted inquires. Stubbs (1996), for example, analyzed two letters written by the same person; Culpeper (2002; 2009) looked at the speech of the characters of Shakespeare's *Romeo and Juliet*. Specialized corpora can also be used diachronically to look at the way language use, in a specific context, changes over time. The idea behind a diachronic study is to compare large chunks of texts from different periods in time, looking for changes in word type, use and frequency so as to be able to make statements about related changes in larger societal discourses and ideologies.

Burkette (2018) used corpus methodology to provide the backdrop for an ethnographic study of the archaeological classification of ceramics, but what follows is the first application of diachronic corpus methods to archaeological texts as a way to conduct a detailed investigation of the language surrounding a specific set of artifacts.

Following the basic guidelines for corpus creation outlined in Sinclair (1991), our investigation entailed the creation of three corpora, each representing a period of Maltese archaeology. In order to do this, we chose five texts from each period, each being a seminal text representative of the work being done on Malta in a given period

(outlined above) that also included some explicit mention of axe-amulets/pendants. The texts that we chose were all written in English, not only for ease of comparison using digital corpus methods but also because English was the dominant language of archaeological writing about Malta in all three periods. The works chosen to populate the corpora for each period are listed in Table 1; these works represent a variety of authors, archaeological sites, publication types (e.g., monograph, museum report, journal article), and publication dates that span roughly a century.

The three period corpora were created by scanning the documents that did not already exist digitally so that all the texts were in PDF format. We then used an optical character recognition (OCR) program to convert the PDFs into Microsoft Word documents, which we proofread and saved as plain text (.txt) files. AntConc, a freeware text analysis package created by Laurence Anthony, was used to create wordlists for each period corpus. This process included the application of the Buckley-Salton Stopword List—a list of high-frequency words, mostly function words such as *the*, *a*, *to*, etc.—that the program will count but then omit from the results. Function words do not carry 'meaning' *per se*, but instead perform a grammatical function in an utterance, for example prepositions that indicate a spatial relationship or a conjunction that hooks two

Table 1.   Texts used to create the corpus for each of the three analyzed periods of Maltese archaeology.

First period (1900–1920)	Second period (1945–1975)	Third period (1985–2010)
Zammit 1909–10 (49 pages, museum report)	Evans 1953 (53 pages, conference proceedings)	Malone *et al.* 1995 (42 pages, conference proceedings)
Zammit *et al.* 1912 (5 pages, museum report)	Evans 1959 (123 pages, book chapters)	Skeates 1995 (22 pages, conference proceedings)
Ashby *et al.* 1913 (125 pages, journal article)	Trump 1961 (9 pages, conference proceedings)	Skeates 2002 (9 pages, journal article)
Despott 1918 (7 pages, journal article)	Evans 1971: 29-185, 207-28 (176 pages, book chapters)	Barrowclough and Malone 2007: 1-96 (96 pages, conference chapters)
Zammit 1920 (21 pages, museum report)	Trump 1971 (170 pages, book chapters)	Malone *et al.* 2009: 253-66, 361-84 (37 pages, book chapters)
approx. 207 pages	approx. 531 pages	approx. 206 pages

Table 2. Descriptive summary of the three period corpora.

	First period (1900–1920)	Second period (1945–1975)	Third period (1985–2010)
Word types	4979	7085	9331
Total tokens (approx.)	35,000	60,700	55,000
Error rate	1.7%	1%	1%

phrases or clauses together. Content words, on the other hand, do carry semantic meaning, which is why they are more likely to be under consideration in a corpus investigation. Table 2 contains descriptive information about each corpus, including the number of distinct words (word types) and the approximated total number of words (tokens) in each corpus. Table 2 also contains the estimated error rate for each corpus (i.e., the estimated percent of words that were misread or mis-parsed by the OCR program). Although page length is not necessarily an accurate predictor of word total, the three corpora do range in size, from 35,000 to 60,700 words, accounted for by the length and format (article/report versus book) of the seminal texts chosen.

The first indication that something 'different' is happening within the three periods' discussions of Maltese archaeology is the type-to-token ratio. This ratio can be of interest since it looks not only at how many words are used but also at how—in comparison—many individual words are used. A lower type/token ratio 'is likely to indicate that a relatively narrow range of subjects are being discussed' (Baker 2006: 52). Table 2 provides the information needed to calculate the type/token ratios, which were 14.2 for the first period, 11.7 for the second and 17.0 for the third. These ratios suggest that the range of topics covered by the texts from each period varied by period, with the third-period texts covering the widest variety of subjects and the second period covering the narrowest range of topics.

Corpus Linguistics Results
The first means of evaluating and/or comparing corpora is to look at word frequency, with the understanding that the most frequent content

words indicate concepts or ideas most commonly referenced within a text. A look at word frequencies also provides a means by which quantitative counts can be combined with qualitative evaluations in order to characterize the overall gestalt of a text or corpus. Figure 3 contains the AntConc output for the third-period texts. For the purposes of gaining an overarching view of a text or set of texts, the initial output will need to be 'cleaned up' so that the resulting wordlist is actually composed of lemmas (Stubbs 2001). Lemmas are what we commonly see as dictionary headwords, which represent a set of words that occur in different morphological forms; for example, *ring*, *rang* and *rung* as different tenses of the same verb, or *actual* and *actuality* as different versions of the same word as adjective and noun. Table 3 contains the 20 most-frequent lemmas from each of the three periods' texts, which means that most of these words represent a greater set of words (e.g., *slab* representing both singular and plural and *prehistory* as a lemma also representing words like *prehistoric* and *prehistorical*).

AntConc can also calculate the keyness of terms within a specific text or small corpus, which is an indicator of the statistical significance ($p < .05$) of how frequently a word occurs in a small corpus in relation to how frequently it occurs within a larger, reference corpus (Anthony 2012: 7). Programs such as AntConc run a statistical comparison that evaluates relative frequencies, thus indicating which words are 'key' to the smaller corpus relative to the reference corpus. Keyness is a useful measure for comparing different texts or corpora (Baker 2006: 147) because it shows what terms are salient for a particular corpus, which in this case reflects a term's salience for a particu-
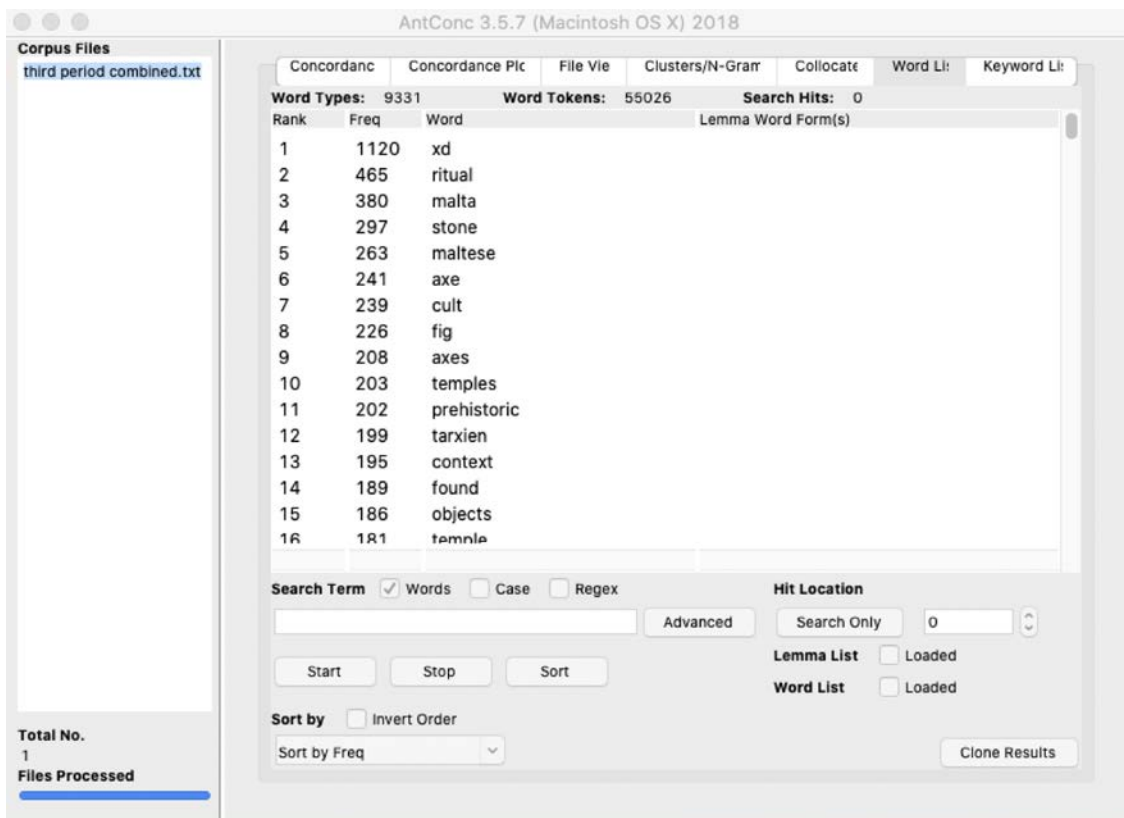
Figure 3. AntConc output for initial third-period texts' wordlist, before different forms of the same lemma were combined (i.e., singulars and plurals, noun and adjectival forms of 'Malta', etc.) (image by A. Burkette).

lar period in Maltese archaeology. Table 3 also indicates in bold which terms were determined to be key terms for that period's set of texts, i.e., what terms are statistically more frequent in one period's combined texts. Overlap between frequent terms and key terms is to be expected; the concept of keyness, though, helps pull out less frequent terms as being important ones within a set of texts. The most frequent words and ideas of our first analyzed period of Maltese archaeology (1900–1920) evince the enormity of not just the megalithic structures on the island, but also of the task of excavating and mapping out the spatial arrangements of what excavators were finding (e.g., *wall, floor, side, building, room, cave, block*). In fact, the two terms that appear within the top 20 for all three periods' wordlists are *found* and *stone*, which offer a fairly accurate (albeit terse)

description of the entire enterprise. Along with the frequent use of *stone*, the makeup of the megaliths is reflected with frequent use during the first period of *block* and *rock*, as well as *slab*, which is also common in the second period. The preoccupation of this first period with the physicality of excavation is further evidenced by the (less frequent but still important) keywords from this period: *front, under, loose* and *earth*. The first and second periods also share the frequent use of measurement terms (e.g., *small, thick, large, wide, high, long* and an additional keyword, *diameter*), which illustrates that the importance of describing and cataloging persisted from one period to the next.

The wordlists, however, also show that as we move from the first period into the second the specific focus of describing and cataloging shifts

Table 3.   The top twenty most-frequently occurring lemmas in each period corpus. The total number of occurrences within each set of texts is given in parentheses. Words in **bold** were also determined to be keywords for that period (additional keywords are discussed below).

RANK	FIRST PERIOD (1900–1920)	SECOND PERIOD (1945–1975)	THIRD PERIOD (1985–2010)
1	**stone** (583)	**phase** (561)	Malta (539)
2	**found** (465)	found (514)	**axe** (449)
3	**wall** (357)	**high** (490)	**ritual** (399)
4	small (307)	**ware** (447)	temple (393)
5	floor (287)	**slab** (455)	stone (347)
6	**thick** (282)	small (364)	site (267)
7	large (235)	**decoration** (350)	**context** (266)
8	**side** (222)	pottery (331)	**archaeology** (253)
9	**wide** (215)	temple (309)	**tomb** (248)
10	**building** (210)	stone (268)	**prehistory** (213)
11	room (205)	line (261)	found (180)
12	slab (202)	wall (261)	**cult** (177)
13	**cave** (195)	period (256)	object (175)
14	**vase** (193)	type (245)	**pendant** (175)
15	pottery (189)	room (243)	material (155)
16	part (188)	surface (240)	**life** (147)
17	block (183)	part (236)	small (136)
18	high (180)	large (223)	**social** (129)
19	**rock** (174)	made (199)	central (124)
20	long (170)	left (190)	Neolithic (124)

from megaliths to pottery. Although the first-period list shows frequent use of *vase* and *pottery*, the second period wordlist contains more terms used in descriptions of pottery: *surface, decoration, ware, line* and *type*. Expanding our view to include the additional keywords indicated by AntConc, we find more pottery- and pottery decoration-related terms that are particular to this period: *handle, pierced, bowl, rim, fired, scratched, lug, patterns* and *mouth*. Some of these terms do occur in the first-period texts, but on the whole the pottery-related vocabulary is much more common in the second. This more frequent use of *type* and other terms used in the description and categorization of pottery within the second-period texts is directly tied to the use of pottery typology as the backbone of relative chronologies, evidenced also by the frequent use

of *period* and *phase* within this era of Maltese archaeology.

The commonalities across the first two periods makes it all the more striking that the third period represents, in terms of the specific words used most frequently, quite a departure. Although the second-period texts do use *temple* and *tomb* often, these religion-related terms are accompanied by the frequent use of *ritual* and *cult* in the third-period texts. The second-period use of *temple* and *tomb* centered on the naming and locating of temples (e.g., *middle temple, temple sites, east temple,* etc.) and the basic description of tombs (e.g., *rock tomb, Tomb 4 at Zebbug, tomb at Xemxija,* etc.). In the third period there is a lot more variation in how the term *temple* is used, including as indication of an era on the island (i.e., *Temple Period*) or a particular

site (e.g., *temple sites*, *Tarxien temple*) but it also serves as a descriptive term for enclosures and complexes, as well as part of the phrase *Temple Culture*. *Tomb* is also used in a more varied manner within the third-period texts, often in descriptive phrases such as *chambered tomb*, *shaft and chamber tomb*, *rock-cut tomb*, *collective tomb*, etc. The terms *ritual* and *cult* occur only rarely in the first- and second-period texts: *ritual* appears three times in the first- and 12 times in the second-period texts, while *cult* appears once in the first-period texts—in reference to the 'cult of the double-axe in Crete' (Zammit *et al.* 1912: 15)—and 12 times in the second-period texts. Three other terms found frequently in this final period of Maltese archaeological texts that also rarely occur in the prior two periods' writings are *context*, *life* and *social*; none of these occurs within the first-period texts and they then appear only sparingly in the second-period texts. *Context*, of course, can refer to physical, archaeological surroundings as well as to social ones, but considered together, these terms reflect the changing gestalt within archaeology around the 1980s, when contextual (or interpretive) archaeology began to come to the fore. Additional keywords, particularly salient to this period, underscore both the variation in topics discussed (e.g., *landscape*) and the new, interpretive direction the discipline was taking. The keywords *religion*, *burial* and *cycle*, which are almost nonexistent in the other periods, are all terms that refer to human activity—*burial*, for instance, refers to the human act of interment, a topic that reaches further into the past than descriptions of the sites where remains were found.

These examples illustrate how the frequencies of specific words and concepts (as lemmas) reflect the larger ideologies—both academic and political—undulating within the discipline of archaeology over time. While the focus of our discussion thus far has fallen on relationships between frequently used words and keywords of the three eras of Maltese archaeology to the larger ideologies and trends in which they par-

ticipate, we now step back and look at the ways that the discourse(s) surrounding axe-amulets/pendants have changed over time.

Discourse Analysis

In linguistics, the term *discourse* refers to the means by which cultural/societal ideas and identities are reflected within individual interactions between people. Linguistics treats discourse as a social practice, as a bundle of repeated actions and beliefs that, through repetition, become a socially recognized way of doing something (Coupland 2007; Pennycook 2010). Discourse is always connected to specific environments, which can be physical, social, historical or political, as well as to the topics being discussed and the interactants themselves. In many ways, linguists approach the analysis of a specific discourse (or text) in much the same way that literary critics approach prose or poetry; that is, as the subject of a close reading, in which specific elements of language used are evaluated against the backdrop of contexts and environments in which that text can be found (Johnstone 2018). Discourse analysis has been applied by archaeologists to writing within the discipline in the form of narrative analysis (Terrell 1990; Olsen and Pétursdóttir 2020), as well as in the analysis of the use of tropes in archaeological writing and in critiques of sexist language (Pluciennik 1999).

To conduct an analysis of how terms for Maltese axe-amulets/pendants were used against changing contexts, we created a database that contains (to our knowledge) every mention of this artifact between 1910 and 2020 (see Supplementary Online Materials). What follows is a discussion of how these different terms reflect the series of changing political and theoretical contexts outlined above.

Discourse Analysis Results
During the first period of modern Maltese archaeology (1900–1920), tension between the continued British colonial reach and a newly

heightened sense of Maltese nationalism played out on political and ideological levels, as was reflected overtly by discussions (Discourses) of the 'Language Question' and also treated subtly in Maltese archaeological texts. The larger tension between colonialism and nationalism was paired with competing archaeological Discourses that had to do with the origins of Maltese monuments; there was the Maltese belief that these monuments were Phoenician, still holding on as a vestige of the waning diffusionist and creationist approaches, while other European archaeologists were suggesting that Maltese sites were prehistoric, citing similarities to other sites in the Mediterranean. One can see these competing Discourses reflected in the word choice of archaeologists writing about Maltese sites and finds.

One work by Zammit (1910: 40) contains the following description of a cache of axes found at Ħal Saflieni: 'very numerous are the pendants or votive axes made of fine, green, black, or gray stones, triangular in shape, highly polished and of different size'. The same text (Zammit 1910: 4, 40) twice equates the terms *pendants* and *votive axes*, a word choice that reflects a larger Discourse of religion and perhaps Roman Catholicism specifically—*votive* being used in a manner that suggests an object that is consecrated or sacred, as the earliest written appearances of the term come from Christian religious texts or commentary. The term *votive axes* also appears years later in a text by Zammit describing the 'great variety of personal ornaments' found in Malta (Zammit 1929, 65). As mentioned above, Zammit remained a proponent of the Phoenician origins of Maltese megaliths longer than his British and German colleagues and his use of *votive*—whether intentional or not—subtly reflects his position on the origin issue. (These preliminary observations also indicate the potential for more detailed and contextualized research into Zammit's acquisition and use of archaeological language, starting with his unpublished excavation notebooks where he recorded all the books he had read over a 20-year period—N. Vella, pers. comm. 2021.)

Zammit (1910: 4; 1920: 194) does not use the term *amulet* in his archaeological reports; instead, in addition to *votive,* he uses longer descriptive phrases: 'axe-shaped stone pendants', 'polished stone pendants' and 'axe-shaped pendants'. The use of *pendant* and *axe* as adjectives is also attested in other texts, such as a co-authored report (Zammit *et al.* 1912) in which Peet wrote the description of 'axe-shaped pendants' and noted that they 'present the form of the polished stone celts of the Neolithic and Bronze ages' (Peet in Zammit *et al.* 1912: 14-15). Peet's use of the phrase 'Neolithic and Bronze ages' reflects his role as a pioneer in applying these terms to the archaeological finds of the central Mediterranean. His use of *Neolithic* within this particular work, then, underscores one of the competing Discourses concerning the period in which Maltese monuments were erected and demonstrates that, even within one collaborative text, evidence of competing Discourses can be found in the authors' word choice.

Despott (1918: 220) compared an unperforated axe example—a 'very highly polished green stone axe'—with the 'specimens at the Valletta Museum, which have been termed amulets, as they had been probably used as such when they were no longer used as tools'. Despott's use of the term *specimen* (a term commonly used during scientific investigation) and the passive construction used in the phrase 'which have been termed' are subtly complemented by his text's comparative structure; Despott is highlighting one aspect of amulet-ness (perforated so as to be worn as an ornament) without explicitly commenting on another aspect (the supposed religious nature of an object named as such). In doing this, he is also enacting a Discourse of science and scientific writing: dispassionate, impersonal and only cautiously interpretive (Hodder 1989).

The use of the term *amulet* for these axes is less cautious in other texts. Ashby *et al.* (1913: 109-10, 114) use the phrase 'rough stone amulets'

in comparing their findings in Gozo with those found earlier by Zammit at Ħal Saflieni, and repeat the phrase *rough amulets* throughout their description. At the end of their description, the authors explain: 'The spiral and conical images and the amulets suggest religion and beliefs similar to those evidenced by the various sanctuaries of the islands, and also by Ħal Saflieni and Corradino' (Ashby *et al.* 1913: 116). They thus assert that the presence of an amulet suggests religious practices. Their statement, while rather vague, connects the 'religion and beliefs' of the Gozo finds to the presumed 'religion and beliefs' of other sites, using the term *amulet* as support for doing so. Writing in Italian, Ugolini (1934: 114, 125) later describes *amuleti* and a 'piccolo ascie con foro' (small axe with a hole), which he notes were generally considered to be amulets worn to ward off the evil eye; in this case, a function is ascribed to the objects termed *amulet*. Baldacchino (1937–38: xi), who was Maltese but wrote in English, describes a 'polished stone [that is] possibly an amulet' and a 'triangular axe-shaped piece of nephrite', both of which he compared to 'pendants' found at other sites. While Zammit avoids the term *amulet*, preferring instead to use *votive* or longer descriptive phrases, British and Italian archaeologists write about these objects as amulets with varying degrees of religious associations. The term *amulet* thus carries through these texts with a sense of religious purpose, if not a specific religious function.

Two figures dominate the second period of Maltese archaeology (1945–1975): Trump and Evans. Both men were British and to some extent shared goals of culture-historical archaeology of the time. The larger Discourse of this period centered on the classification of Maltese pottery and the creation of typologies that could be used to date and order the cultural sequence of prehistoric Malta. As illustrated by the above wordlists, this focus did not include lithics, but the typology-centered background of the period created a niche for more specific terms for the axes as well.

This specification is evidenced by a shift in terminology, as blends of the previously used *axe-shaped*, *pendant* and *amulet* appear. Evans (1953: 64, 68) used *axe-pendant* as a label for objects of imported greenstone and objects described as triangular pieces that appeared to be a product of reuse, using the term again a few years later (Evans 1959). Around the same time, Trump (1961: 258) used the descriptive phrase 'polished stone axe amulet', which is the first use of *axe amulet* within these writings.

Ten years later, Evans (1971) used *axe-amulet* five times and *axe-pendant* fifteen times, each of these terms appearing in both hyphenated and non-hyphenated forms (Figure 4). The variability in hyphenation for both terms across texts (and even within a single text) evidences the emergence of 'axe-amulet' and 'axe-pendant' as unified concepts, as opposed to compound phrases within which a noun is being modified as 'axe-shaped'. This transition may seem purely aesthetic, and is perhaps the result of editorial preferences, but as hyphenated *axe-amulet* and *axe-pendant* emerge as the pre-eminent 'technical' terms for these items, the name becomes inextricably linked to their presumed function as personal ornaments or offerings (Trump 1971: 73). It is interesting here that 'religion' has been downplayed as part of the connotation of *amulet*, which is used throughout the second period more as a synonym of *pendant* than as an indication of the object's purpose or function. In other words, in negotiating their ways between Old World culture-historical archaeology and post-war political tensions in Malta, both Evans and Trump arguably chose a narrow linguistic route intended to avoid adverse reactions.

Bridging the second and third periods is the work of Renfrew, who used radiocarbon dating to demonstrate that the Maltese monuments were much older than previously thought. The third period (1985–2010) was influenced not only by the adoption of new scientific techniques, but also by the growth of interpretive archaeological theory that shifted the focus from typology and
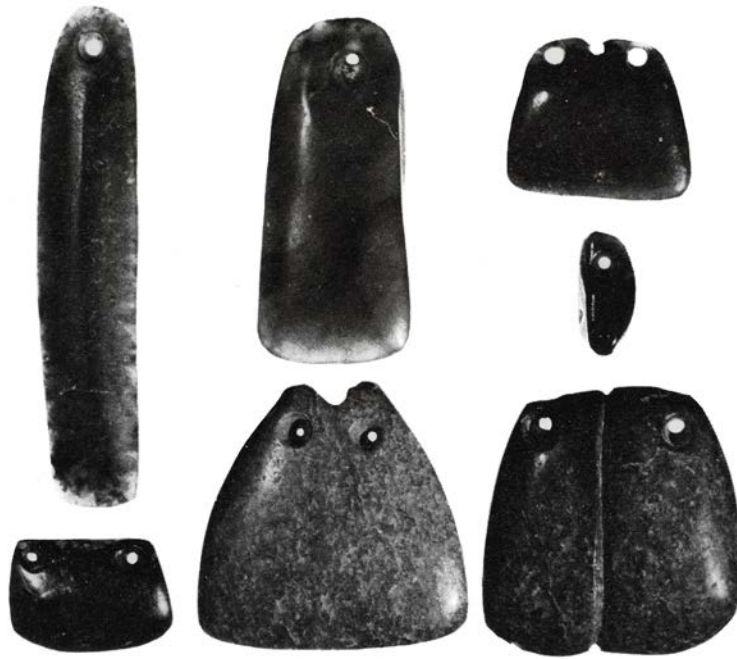
2. Axe pendants (S/S.28, S/S.29), p. 64; hard stone pendant (S/S.31), p. 65.

Figure 4. Photograph of Maltese 'axe pendants' (of various forms and lengths ranging from 1.9 to 8.2 cm) and a small 'hard stone pendant' (middle right) published by Evans (1971: plate 38.2), including the original caption in which non-hyphenated terminology was used (reproduced with permission of Continuum Books).

classification to topics that had to do more with human behavior, such as exchange systems, social structures and ritual practices. With this shift in focus, the religious/spiritual connotations of the term *amulet* are once again brought to the fore.

Terms for small perforated axes became a little more complicated as interpretation and terminology collided. Skeates (1995) offered a view of that complexity from an historical perspective, discussing late nineteenth- and early twentieth-century interpretations of these objects, for example as 'amulets', 'axe-amulets', 'phylactery' (i.e. amulets or charms) and 'magic pendants', going on to state that these 'interpretations reflected the broader contemporary intellectual interest in "primitive" religion, magic, and animism' that had since fallen out of favor (Skeates 1995: 283). Though Skeates's concern in that study was the physical journey of the axe object through utilitarian, decorative and ritual func-

tions, these background statements underscore the connection between the name given to an object, its interpretation and the relationship of that interpretation to the ideas and interests of a given period. Even though the article under consideration here does not discuss the connection between the name given to an object and its interpretation explicitly, it demonstrates that connection in its conclusion, which explains the process by which axe-pendants and axe-amulets were made (Skeates 1995: 297, see also 290):

> Physically, they were again modified and purified, this time into relatively miniature perforated axe-pendants with even smoother surfaces and even less damage on their cutting edges, through drilling and further polishing, and sometimes also sawing. They may also have been transformed conceptually into animate axe-amulets, particularly through ritual processes of sacralisation in which

supernatural potency and efficacy were fixed in them by a religious specialist.

The physical transformation creates an object termed an *axe-pendant*, but a conceptual transformation turns that object into one that can be called an *axe-amulet*. The linguistic distinction between these two phases in the life of a perforated axe reveals Skeates's specific interests and thus is itself reflective of 'broader intellectual currents' (Skeates 1995: 283). In other words, authors of this period chose different terms to reflect other interests that intersected with their own work, including wider developments in social theory and scholars' perceptions of postcolonial Malta, where debates over religion, language, ethnicity and international relations have continued to fuel identity politics.

Many descriptive phrases used for small perforated axes reference the material from which they were made. In doing so, they invoke the larger discussions of trade and exchange systems that took place at that time. For example, one work by Stoddart, Malone and co-authors mentions 'greenstone axes' three times (Stoddart *et al.* 1993: 7), while another discusses exotic (i.e., imported) 'greenstone axes/axe amulets' (Malone *et al.* (1995: 258) and a third contains the diagram label 'greenstone axe-amulets' (Malone and Stoddart 1996: 4). Stoddart (1999: 141) also refers to the same objects as *pendants*, a term denoting small perforated axes made from 'exotic materials, such as greenstones, [that] appear to have been less readily available from outside the islands, and consequently treated as more precious than locally available products'. In these cases, the authors use adjectives to highlight what for them is the most important characteristic of these objects: that they are imported.

While several articles cite Skeates (1995) with regard to the life cycle of the axe-amulet/pendant (e.g., Stoddart 1999; Barrowclough 2007), few adhere to the semantic distinction set up between *amulet* and *pendant* in the original source. While this period's texts all reflect a Discourse of 'interpretation', viewing artifacts as meaningful and (potentially) agentive, there are differences between authors whose focus is exchange and trade (for whom the adjectives *imported*, *greenstone*, *jade*, *precious* and *exotic* are critical to the argument they are making) and those who, like Skeates, were looking at the biography of an object, the name for which then becomes representative of a life stage. In many cases, however, the terms *axe-amulet* and *axe-pendant* are directly equated (e.g., Skeates 2002; Barrowclough 2007), though they do in fact point to different Discourses within the field: a religious, technical, interpretive or life-cycle description, or a combination of these. Word choice in archaeological writing is a critical component of the 'pre-understandings' that comprise the (re-)creation of archaeological knowledge in that the non-introspective use (and reuse) of terminology exemplifies the kind of 'bootstrap-construction' of 'evidential foundations' about which reflexive archaeological writings such as that of Wylie (2017: 224) are critical.

Conclusion

Because archaeological knowledge is mediated by writing, the issue of word choice should come under scrutiny as a part of reflexivity within the discipline. This analysis, however, is not intended as a critique of Maltese archaeological nomenclature; instead, it should serve as a reminder that words (like objects) have biographies and thus carry many lives, uses and purposes along with them, even as they are used against ever-changing backdrops.

We were able to apply the methods from two linguistic subdisciplines—corpus linguistics and discourse analysis—to demonstrate how language use (both in terms of frequently used vocabulary and in terms of names for axe-amulets/pendants) can be connected to broader theories and ideas within archaeology.

The words that authors choose are a reflection of the Discourses, assumptions and understandings that inform their work, and any kind of self-reflexivity should include heightened self-awareness in choosing those words. This awareness applies equally to present-day evaluations of texts written in the past as well as to texts being produced now. Even if word choices are not problematic *per se*, words that are repeated frequently and names chosen to refer to a specific type (or set) of objects matter because, simply put, a word's ability to communicate extends far beyond denotation.

All this contributes to an increasingly critically aware understanding of the history of colonial and postcolonial archaeology in Malta and other Mediterranean islands, and especially to the taken-for-granted but fundamental part played by language in their poetics and politics. It also serves to remind us that, in future, we should pay closer attention to the words spoken and written in multiple languages by local archaeologists, heritage managers and communities— including Maltese, with its much-debated Sicilian Arabic roots and Latin script.

Supplementary Online Material

Further data is available online here: https://journal.equinoxpub.com/JMA/article/view/23770

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Supplementary Online Material for The Words that Archaeologists Choose: A Maltese Case Study in Artifact Terminology, Corpus Linguistics and Discourse Analysis

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Table S1 contains (to our knowledge) every mention of Maltese axe-amulets/pendants between 1910 and 2020.

Table S1. Terms used for Maltese axe-amulets/pendants.

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
1910	pendants	'very numerous are the pendants or votive axes made of fine, green, black, or gray stones, triangular in shape, highly polished and of different size'	Ħal Saflieni Hypogeum	Zammit 1910: 40	35.869583	14.506806
	votive axes	'very numerous are the pendants or votive axes made of fine, green, black, or gray stones, triangular in shape, highly polished and of different size'	Ħal Saflieni Hypogeum	Zammit 1910: 40	35.869583	14.506806
	pendants	'potsherds, pendants or votive axes, made of dark hard stones and beads made of shells were found mixed with the bones in the red soil'	Ħal Saflieni Hypogeum	Zammit 1909–10: 4	35.869583	14.506806
	axe-shaped stone pendant	'An axe-shaped stone pendant was also obtained from the material similar to that found at Hal-Saflieni, but it is of soft stone. It is 38mm long, 25mm wide at the base and 4mm thick; at the pointed end it is pierced with a narrow hole.'	Ħaġar Qim Temples	Zammit 1909–10: 4	35.827778	14.442222

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
1912	axe-shaped pendants	[Peet did descriptions of small objects:] 'Of these there are numerous examples, and they must have been a very favourite ornament. The largest is 93mm in length and the smallest 10mm. The relation of breadth to length varies considerably but with a few exceptions—and those indeed the result of accident or flaw—these objects do present the form of the polished stone celts of the neolithic and bronze ages. All, however, are of the flat and thin type, and have a hold pierced through near the vertex. They are all made of fine hard stones, some of the most beautiful specimens being of jadeite, two only, and those of almost circular form, are of white stone, possibly marble. A few are bored with two holes, and some have been broken in two and the halves re-pierced. Most of them are beautifully polished.'	Ħal Saflieni Hypogeum	Zammit *et al.* 1912: 14-15, plate xi	35.869583	14.506806
1913	axe-shaped pendant	'Objects of jade—axe-shaped pendant. It is strange that of these pendants, so numerous at Ħal Saflieni (upwards of 200), only one was found at Hagiar Kim. It is flat, think, and polished, of a light grey colour and pierced through near the vertex. It measures 4×3 cm.'	Ħaġar Qim Temples	Ashby *et al.* 1913: 90, plate vxiii, fig. 13	35.827778	14.442222
1916	pendants	'Objects obtained from the ashes of cinerary urns […]. The stone almond-shaped pendants are mostly coarse in texture as well as shape and finish. Most of them are of a dark grey stone resembling slate, others of a grey whetstone. They imitate Stone Age pendants in shape, but are rough and clumsy.'	Tarxien Temples	Zammit 1916: 137	35.869167	14.511944
	pendants	'Several triangular jade-like pendants were obtained […].'	Tarxien Temples	Zammit, T. 1916: 143, plate xvi, fig. 3	35.869167	14.511944
1918	stone axe	'very highly polished green stone axe […]. This axe is not bored like the specimens at the Valletta Museum, which have been termed amulets, as they had been probably used as such when they were no longer used as tools.'	Għar Dalam	Despott 1918: 220, plate xviii (b)	35.836417	14.528028

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Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
1920	polished stone pendants		Tarxien Temples	Zammit 1920: 194, fig. 17	35.869167	14.511944
	axe-shaped pendant	'fine axe-shaped pendant, found at floor level, is greenish in colour, of a mottled appearance, with shiny micaceous specks in its structure'	Tarxien Temples	Zammit 1920: 194, fig. 18	35.869167	14.511944
1929	votive axes	'great variety of personal ornaments, such as shell-beads and votive axes of hard stones'	Ħal Saflieni Hypogeum	Zammit 1929: 65	35.869583	14.506806
1934	ascie-pendaglio	'Le abbastanza numerose ascie-pen-daglio—trovate anche nell'ipogeo—vengono generalmente considerate dagli studiosi quali amuleti. In un ambeinte sacrale sono quindi a posto.'	Ħal Saflieni Hypogeum	Ugolini 1934: 114	35.869583	14.506806
	piccole ascie	'Aggiungansi le piccole ascie con foro per la sospensione che come ho detto generalmente vengono considerati quali amuleti dotati di potere contro il malocchio. Forse anche i segni che si notano su qual-che oggetto tra i quali una sorta di E maiuscolo retrogrado possono aver voluto significare specie de formule magiche.'	Malta	Ugolini 1934: 125		
1938	amulet	'polished stone possibly an amulet' [also compared to 'pendants' found at other sites]	Għar Dalam	Baldacchino 1937–38: xii	35.836417	14.528028
	axe-shaped	'triangular axe-shaped piece of neph-rite' [also compared to 'pendants' found at other sites]	Għar Dalam	Baldacchino 1937–38: xii	35.836417	14.528028
1953	axe pendants	'Axe-pendants, however, made in sev-eral varieties of hard greenish stone were imported in quantity.'	Ħal Saflieni Hypogeum	Evans 1953: 64	35.869583	14.506806
	axe-pendant	'The occasional axe-pendant can be explained in the same way' [as reused Period I object].	Tarxien Temples	Evans 1953: 68	35.869167	14.511944
1959	amulets	'relief-carving and smaller amulets and trinkets that can be assigned to it make much the same impression' [of being 'remarkably sophisticated']	Ħal Saflieni Hypogeum	Evans 1959: 75	35.869583	14.506806
	axes	'lack many of the resources necessary to a people even in a Neolithic stage of development, such as flint, hard igneous rocks for axes, and red ochre for colouring-matter'	Malta	Evans 1959: 159		

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
	greenstone axe-pendants	'the greenstone axe-pendants (miniature axes, perforated at the butt for suspension) which were found in large numbers at the Hypogeum and have turned up sporadically on other sites'	Tarxien Temples	Evans 1959: 160	35.869167	14.511944
	axe-pendants	'Axe-pendants made from green igneous rocks. From the Hal-Saflieni Hypogeum.'	Ħal Saflieni Hypogeum	Evans 1959: 251, referring to plate 82	35.869583	14.506806
1961	polished stone axe amulet	'This contained plentiful worn sherds of Period II wares, a few even earlier pieces such as a polished stone axe amulet and an obsidian blade, and also a few later, coming down to a green-glazed Arab ware, giving a terminus post quem for the beginning of the terracing.'	Bahrija Settlement	Trump 1961: 258	35.894722	14.348333
1971	pendant or amulet	'polished triangular pendant or amulet of hard bluish [...] stone with a hole at each end'	Bur Mghez	Evans 1971: 40	35.849144	14.500471
	axe-amulet	'small complete axe-amulet of the same material'	Bur Mghez	Evans 1971: 40	35.849144	14.500471
	axe pendants	'group of twelve axe-pendants, representing a wide range of types and materials'	Ħal Saflieni Hypogeum	Evans 1971: 64	35.869583	14.506806
	axe pendants	'One hundred and seventeen axe pendants of various materials but all of squat triangular or rhomboid forms with a single hole for suspension.'	Ħal Saflieni Hypogeum	Evans 1971: 64	35.869583	14.506806
	axe pendants	'Twenty-nine axe pendants of various stones, more elongated in form than [others].'	Ħal Saflieni Hypogeum	Evans 1971: 64	35.869583	14.506806
	axe pendants	'Fifteen axe pendants, mostly very broad, almost squarish, with two or three holes at the base for suspension. Two are divided down the middle by grooves (possibly an unfinished attempt to halve them and make two pendants?).'	Ħal Saflieni Hypogeum	Evans 1971: 64	35.869583	14.506806
	axe pendant	'Axe pendant of rather soft light-grey stone, roughly hewn out and with scarcely any attempt at polishing.'	Ħal Saflieni Hypogeum	Evans 1971: 64	35.869583	14.506806
	axe pendants	'Axe pendants (broken). Twenty-seven fragments of broken axe pendants of various types and in various stones.'	Ħal Saflieni Hypogeum	Evans 1971: 64	35.869583	14.506806

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
	axe pendant	'Axe pendant with broad blade and fairly narrow butt. The material is a hard, micaceous stone, greyish in colour with a slight tinge of green.'	Kordin Temples	Evans 1971: 78	35.869583	14.506806
	axe pendant	'axe pendant of soft stone'	Ħaġar Qim Temples	Evans 1971: 85	35.827778	14.442222
	axe amulet	'Megaliths visible at two points may indicate earlier occupation of the site, and this is also attested by Trump's finds of an axe amulet and an obsidian blade in the plough soil of the field in which he excavated.'	Bahrija Settlement	Evans 1971: 105	35.894722	14.348333
	axe amulet	'these may have belonged to the earlier occupation attested by the axe amulet and single piece of obsidian found by Trump'	Bahrija Settlement	Evans 1971: 106	35.894722	14.348333
	axe pendants	'Two tiny axe pendants of hard green stone, both perforated at the top for suspension. The larger is triangular, the smaller shield-shaped.'	Xemxija Tombs	Evans 1971: 115	35.95035	14.381892
	axe pendants	'Four small axe pendants, perforated at the butt for suspension. Two are green, one black and of half-green half-black.'	Tarxien Temples	Evans 1971: 146	36.047222	14.269167
	axe pendants	'Two axe pendants, rather large and heavy, one being unpierced. Both are unpolished and seem to be made of a kind of conglomerate which includes mica, instead of the usual hard green stone.'	Tarxien Temples	Evans 1971: 146	36.047222	14.269167
	axe pendant	'Small axe pendant of a grey stone, unlike either of the previous two materials, compact and homogenous but not capable of so high a polish as the chrysolite.'	Tarxien Temples	Evans 1971: 146	36.047222	14.269167
	axe pendants	'Five small axe pendants, of stone ranging in colour from light apple-green to blackish, each perforated with a biconical hole for suspension. One has a pointed butt which is perforated parallel to the cutting edge.'	Tarxien Temples	Evans 1971: 146	36.047222	14.269167
	axe pendants	'Four pendants in hard stones, well made and polished. Three are distinctly axe-shaped with a hole for suspension pierced in the butt. The fourth is rectangular and pierced with two holes' [refers to Tarxien Cremation Cemetery].	Tarxien Temples	Evans 1971: 162	36.047222	14.269167

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
	axe-pendants	[Objects now not traceable] 'in the 1936 excavations themselves two polished axe-pendants were found, one of dark-green stone […] the other of "black jade" […]. Both were pierced at the apex […].'	Ġgantija Temples	Evans 1971: 185	36.047222	14.269167
	axe-amulet	[In Cultures and Chronology chapter:] 'Rather surprisingly a portion of an axe-amulet occurred in a context of this phase, and there is also a chip of green igneous stone which could have been part of another.'	Skorba	Evans 1971: 210	35.92079	14.377661
	axe-amulet	[In Cultures and Chronology chapter:] 'Ground stone was represented by a perforated fragment of green-stone, possibly a broken axe-amulet which had been re-used […]'	Skorba	Evans 1971: 146	35.92079	14.377661
	amulets	'wealth of personal ornaments, amulets, and pottery offerings had been buried down here'	Ħal Saflieni Hypogeum	Trump 1971: 73	35.869583	14.506806
1993	greenstone axes	'ochre from Sicily and greenstone axes from Calabria were also present in some abundance'	Xaghra Circle	Stoddart *et al* 1993: 7	36.050278	14.2675
	greenstone axe	'In two significant cases, the shape of a greenstone axe was effectively modelled in local limestone.'	Xaghra Circle	Stoddart *et al* 1993: 7	36.050278	14.2675
	greenstone axes	'Temples such as Skorba and Tarxien may have continued to be depositories of some imported items such as Iblei flint and greenstone axes but there was an apparent decline in obsidian at Skorba […].'	Xaghra Circle	Stoddart *et al* 1993: 7	36.050278	14.2675
1995	axes/axe amulets	'The first phase (Zebbug) consists of a well-preserved rock-cut tomb with skeletal remains (minimum number of individuals = 65), early art and exotic imports of greenstone axes/axe amulets and obsidian.'	Xaghra Circle	Malone and Stoddart 1995: 258	36.050278	14.2675
	axe amulet	'At the very back and base of the tomb a cache was found of one axe […], two miniature axes […], and four pendants […] and two complete miniature Zebbug pots […]. These axes appeared to represent the deliberate placement of precious objects, perhaps at the beginning of the tomb's life.'	Xaghra Circle	Malone *et al.* 1995: 310	36.050278	14.2675

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
	axe-pendants	'The vast majority of objects which have been described by archaeologists as "axe-amulets" or "axe-pendants" can be defined, in terms of their appearance, as small axe-shaped objects of polished hard stone that are perforated at the butt.'	Malta	Skeates 1995: 279		
1996	greenstone axe-amulets	[as diagram label]	Xaghra Circle	Malone and Stoddart 1996a: 4	36.050278	14.2675
	axe-amulets	'Small axe-amulets of imported greenstone were especially frequent with these burials, as were miniature ceramic vessels.'	Xaghra Circle	Malone 1996: 44	36.050278	14.2675
	stone axes	'The polished stone axes, mostly made from prized imported igneous rock from Sicily, Calabria and the Italian Alps, required even more specialist skills. The material was so prized, perhaps because of restricted supplies, that the axes were repolished until they became too small to be used and were then made into decorative pendants.'	Xaghra Circle	Malone and Stoddart 1996b: 48	36.050278	14.2675
	greenstone axe pendant	[labels for figures G5-G8, and G10-G11]	Ħal Saflieni Hypogeum	Pace 1996: 73	35.869583	14.506806
	stone pendant	[label for figure G9]	Ħal Saflieni Hypogeum	Pace 1996: 73	35.869583	14.506806
1997	amulet	[in Diagram 1:] '"portable" scaled-down version of a static Temple'	Malta	Townsend 1997: 93		
1999	small jade pendants	'The upper levels of the shrine contained the collapse of a number of monumental blocks and the remains of ritual paraphernalia: […] small jade pendants […].'	Xaghra Circle	Stoddart *et al.* 1999: 101	36.050278	14.2675
	pendants	'Exotic materials, such as greenstones, appear to have been less readily available from outside the islands, and consequently treated as more precious than locally available products. Greenstones in particular were sacralised by perforation and transformation into pendants which were sometimes cached in temples (and perhaps the burial hypogeum of Ħal Saflieni, although the context is lost) […].'	Ġgantija Temples	Stoddart 1999: 141	36.047222	14.269167

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
2001	axes	'the climate is hot and dry and the islands lack useful resources such as good quality chert, obsidian, ochre, metals and hard stones for axes'	Malta	Robb 2001: 177		
	stone axes	'stone axes and obsidian'	Malta	Robb 2001: 181		
	polished stone axes	'Finds within temples include chert and obsidian tools, polished stone axes and amulets, pottery, and small figurines of females, individuals without clearly defined sexual attributes, and animals.'	Malta	Robb 2001: 182		
	polished stone axes	'Polished stone axes were used for clearing land and for shaping timber for houses and boats, as well as for display and exchange. "Axe-amulets" pierced for suspension were probably made from axes nearing the end of their use-life […].'	Malta	Robb 2001: 188		
	axe-amulets	'Polished stone axes were used for clearing land and for shaping timber for houses and boats, as well as for display and exchange. "Axe-amulets" pierced for suspension were probably made from axes nearing the end of their use-life […].'	Malta	Robb 2001: 188		
	axe-amulets	'Almost 200 axe-amulets were found at the Ħal Saflieni hypogeum […] and others have been found in temple sites.'	Ħal Saflieni Hypogeum	Robb 2001: 188.	35.869583	14.506806
	polished stone axes	'Traded items were central to practices of social reproduction. Imports involved in rites included the polished stone axes, exotic flint and obsidian found in temples and perhaps even the roof beams of the temples themselves.'	Malta	Robb 2001: 188		
	axe-amulets	'Imported axe-amulets may have had social biographies and heirloom histories.'	Malta	Robb 2001: 188		
	axe-amulets	'While axes are rare on Malta, small axe-amulets are common, suggesting perhaps that Malta was the terminal point in a chain of axe circulation and re-working […].'	Malta	Robb 2001: 188		
	axe-amulets	'If Malta was a trade cul de sac, ceremonial deposition of axe-amulets may have helped to reduce the number in circulation and thus perpetuate the need to carry on trade.'	Malta	Robb 2001: 188		

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
	symbolic axes	'One critical "mutation" not pursued in related cultures may have been the linkage of two symbolic axes, a vertical one contrasting the above-ground and below-ground worlds and a horizontal, concentric one contrasting the original centre with foreign lands.'	Malta	Robb 2001: 1		
2002	axe amulets	'personal ornaments—axe amulets, perforated shells, or slips of bone, and fascinating tiny carved or mod-elled birds, animals, and even snails'	Tarxien Temples	Trump 2002: 233	35.869167	14.511944
	axe-amulets	'"axe-pendant" or "axe-amulet" (all examples of which are perforated by between one and three holes)'	Malta	Skeates 2002: 14, 21		
	axe-pendant	'"axe-pendant" or "axe-amulet" (all examples of which are perforated by between one and three holes)'	Malta	Skeates 2002: 14		
2004	Zebbug period greenstone	[as Figure title:] 'Hard stones (especially greenstones […]) thus remain the main category of exotic material more amenable to chronological, albeit still coarse, analysis from our sample sites.'	Xaghra Circle	Malone and Stoddart 2004: 98, fig. 8.2	36.050278	14.2675
	Tarxien period greenstone	[as Figure title:] 'Hard stones (especially greenstones […]) thus remain the main category of exotic material more amenable to chronological, albeit still coarse, analysis from our sample sites.'	Xaghra Circle	Malone and Stoddart 2004: 98, fig. 8.3	36.050278	14.2675
	'axe'	'Conversely, the Tarxien "axe" deposits can be generalized as small (sometimes minute) […] pieces of greenstone, which we consider a priestly subversion to maximize the quantity of the exotic.'	Xaghra Circle	Malone and Stoddart 2004: 99	36.050278	14.2675
	axelets	'These were highly ritualized and prominent caches of small fragments, axelets and pierced amulets placed on public display in the temples.'	Xaghra Circle	Malone and Stoddart 2004: 99	36.050278	14.2675
	pierced amulets	'These were highly ritualized and prominent caches of small fragments, axelets and pierced amulets placed on public display in the temples.'	Xaghra Circle	Malone and Stoddart 2004: 99	36.050278	14.2675
	axe amulets	'None of these axe amulets from Ħal Saflieni is of stone found in Malta. Identifying the provenance of each reveals cultural links, probably through trade, with various regions of northeast Sicily and Calabria.'	Ħal Saflieni Hypogeum	Trump 2004: 239	35.869583	14.506806

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
	amulets	'amulets and pendants made out of imported green stone'	Kordin Temples	Vella 2004: 27	35.88125	14.504944
2006	greenstone pendants	[image description]	Malta	Sultana 2006: 33		
	greenstone pendants	'stone and greenstone pendants were also used to complement' [the 'personal ornaments' on display]	Malta	Sultana 2006: 32		
2007	amulet-type objects	'variety of natural and man-made amulet-type objects that appear to have value and meaning'	Malta	Malone 2007: 21		
	stone axe pendant	'stone axe pendant (max. ht. 2.8cm)'	Tas-Silg Temple	Cazzella 2007: 62	35.845917	14.552083
	greenstone axe pendant	'Pendants, pierced stones, often but not exclusively fashioned from greenstone (Figure 8.1) have been considered elsewhere [...]. They indicate contact with the world beyond the archipelago.' [Discussion of how if] 'greenstone axe pendants were amulets, worn by adherents of a cult, we may begin to understand their distribution.'	Malta	Barrowclough 2007: 50		
2009	axe-pendants	'polished ground axes and axe-pendants' and 'imported axe-pendants, with over 200 found at the Ħal Saflieni Hypogeum'	Ħal Saflieni Hypogeum	Malone *et al.* 2009: 253	35.869583	14.506806
	axe-pendant	'small oblong axe-pendant with single perforation at top centre; well-polished surface'	Malta	Malone *et al.* 2009: 421		
2016	greenstone axes	'Greenstone axes are another example used in this debate [...]. These axes, largely hailing from Late Neolithic funerary contexts, have been interpreted as an example of the increasingly limited importation of raw materials that underwent an extensive reduction sequence and curation [...]. The curation of greenstone is posited by some as perhaps 'a priestly subversion to maximize the quantity of the exotic' in the Maltese archipelago [...]. The maximization of the exotic object makes sense when applied to greenstone axes. They were clearly limited in quantity, exhibited as personal ornaments for some, prized, and used as part of a Maltese Late Neolithic symbolic language [...] that hinged upon rituals in an increasingly internalized world.'	Malta	Vella 2016: 351		

Publication date	Term	Text context	Site name	Citation	Latitude (°)	Longitude (°)
2020	axe pendant	'**Object:** Axe pendant. **Provenance:** Excavation 1909. **Dimensions:** Width 3.3, length 4.6, thick 1.1 cm. **Material:** hard greenish black stone. **Color:** black, **Description:** Miniature axe-pendant of black steatite stone. Trapezoidal in shape and flat section, slightly convex. tight at the top, with an incomplete drilled circular hole; lower part with double-sided cut with flattened profile. Polished surface. **Conditions:** chipping on the top.'	Bahrija Settlement	Veca *et al.* 2020: 92	35.894722	14.348333
	axe pendant	[from Table 1:] '1 axe pendant'; 'hard green-black stone'	Bahrija Settlement	Veca *et al.* 2020: 92	35.894722	14.348333
1990s	pendants	'Hard-stone pendants especially black or greenish in colour. These have been found in large numbers and have also been termed axe-amulets.'	Ħal Saflieni Hypogeum	Morana [1990s]: 33		

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