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Hieratic Ostraca and Jar Dockets in the Royal Museums of Art and History (Brussels)

An Interdisciplinary Edition and Study

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ABSTRACT

This paper presents an ongoing project concerned with the study and edition of the hieratic ostraca and jar dockets in the Royal Museums of Art and History in Brussels and details its preliminary results. This project is characterised by an interdisciplinary approach that combines philological study with analysis of the materiality of these artefacts and their morphology. These fragments of stone and pottery exhibit characteristics that enhanced their apparent suitability as writing supports, and this paper argues that these characteristics (and the act of selecting them) should be studied as an important part of the writing process.

After an introduction to the project, the Brussels collection of hieratic ostraca and jar dockets is presented and the objectives as well as the methodologies of the study of the limestone and ceramic ostraca explained. This is followed by the publication of five ostraca as case studies and a synthetic treatment that outlines some of the project's preliminary results.

Our morphological study shows that the limestone ostraca in the collection reflect three different types of manufacture, and that flatness was not necessarily an important quality when it came to selecting a fragment of stone. As to our ceramological analyses, we see that sherds selected as writing supports often possess a clear colour and seem to have derived from large pottery items. Regarding the fabrics of these sherds, the most commonly identified fabrics are Nile clay and Marl clay. Our study also underlines the similarities between both categories of ostraca with respect to the characteristics of the artefacts.

1. INTRODUCTION [B. L.]

For understandable reasons, the edition of hieratic ostraca focuses primarily on their texts. Indeed, their scope of genres is almost unlimited, ranging as they do from commodity lists to literature, through to administrative pieces, letters and

religious compositions, making them an unavoidable source for almost every type of topic that needs to be considered. Over the last few years, however, under the influence of 'Material Philology'—also called 'New Philology'—this philological focus on ancient Egyptian texts has increasingly been supplemented with investigations of their social

context and social significance.¹ On the other hand, the archaeological context of the material supports of the texts, whether papyri, tablets, or ostraca, also starts receiving serious attention.² Given the obvious benefits of such multi-faceted approaches to Egyptology, the ongoing interdisciplinary edition and study of the hieratic ostraca and jar dockets of the Royal Museums of Art and History (RMAH) in Brussels has sought to combine the study of the texts with analyses of the morphology and materiality of these artefacts.

The reason for the focus on these aspects lies in the very nature of this group of artefacts, namely as part of a museum collection, and in the main objective of the project. Indeed, as museum objects, even though the provenience of most of these ostraca is known or can be determined with a fair degree of certainty, their (precise) archaeological context cannot be specified, which excludes any archaeological research.³ However, being part of a museum collection has also some advantages, such as the possibility to develop and implement specific imaging technologies, as well as to sample and chemically analyse the material of the ostraca.

Lastly, although hieratic ostraca are basically fragments of stone⁴ and sherds, they have been selected by a scribe who was seeking a suitable surface on which to write at some point of the writing process. This eventual use of the ostraca shows thereby that these artefacts have characteristics from natural and/or anthropic origin that were considered appropriate to their function as supports of texts, so that these characteristics should be studied as part of the writing process.⁵ Combining this study with the edition of the texts to better understand this writing process is precisely the main objective of the present project.

Concerning the morphology of the limestone ostraca, Jacques Pelegrin and his co-authors recently published the results of a preliminary study devoted to the production of a selection of pictorial and hieratic ostraca from Deir el-Medina that are held in the Louvre Museum.⁶ As to the ceramic ostraca, Clementina Caputo's study on the ostraca from Soknopaiou Nesos illustrates the potential of such thoroughly ceramological analyses applied to these artefacts, especially with respect to the reasons these sherds were chosen

1 For this approach, which can be applied to literary as well as non-literary texts, see e.g., Hagen (2013); Ragazzoli (2019: 57–73).

2 In this regard, see the exemplary contribution by Davoli (2020). For the dating of literary compositions, the archaeological context of the material supports on which these texts are written is obviously critical. See Hagen (2019: 179; 206) on *Khakheperreseneb* and *The Instruction of a Man for His Son*; we are grateful to the author for providing us with a copy of his paper prior to its publication. For examples of how the archaeological context of ostraca can be combined with the edition of the text written on them, see Dorn (2011: 33–73); Hagen (2021: 11–16).

3 See Davoli (2020) for a study that incorporates such data.

4 Ostraca may have been called 'small stones,' though this particular designation occurs on a strip of flint; see Grandet (2006: 93). Note, however, the discussion by Hagen (2019: 84, with fn. 47), who also refers to Grandet (2006), on *inr šri* (and *s' inr*), as ostraca can occasionally be made of flint; see, for example, Černý (1935: 53–54) for O. Cairo 25665 and 25666; Černý (1935: 53–54, pl. XCI) for O. Cairo 25749.

5 As Davoli (2020: 11) also states, 'While these objects [the ostraca] are important because of the texts written on them, they also have material properties, which should not be ignored since they are an integral part of the object and of its production process. An ostrakon consists of a pottery support, a fragment of a vessel, on which someone wrote a text: in modern archaeological perspective, every object is part of production and consumption processes that are strictly linked with manufacturing technology and with personal, social, and cultural uses. This kind of cultural contextualization of objects allows us to study them as an integral part of life of the society that produced and used them, and not only as single items, pieces of art or texts.'

6 See Pelegrin et al. (2015). A synopsis of the results of this study can also be found in Andreu-Lanoë & Pelegrin (2018), but in the present paper, it will be referred to the extended version from 2015.

as writing surfaces.⁷ Material approaches to these artefacts remain rare,⁸ however, such that the remark by Pelegrin and his co-authors concerning the limestone ostraca, that '*la question de ces supports, et plus précisément la caractérisation précise de ces plaquettes de calcaire n'avait guère été abordée, car elle paraissait sans raison d'être*'⁹ is still relevant.

Investigating the characteristics of ostraca as writing supports calls for a focus on the surface colours of ceramic ostraca; the part of the jar that the sherd derives from; and possible modifications to the ostrakon subsequent to its separation from the jar; as well as a focus on the morphology of the limestone ostraca. In this project, the ceramological study of the ostraca also includes an in-depth examination of their fabric, and the geological study of the limestone ostraca their petrographic investigation.¹⁰ This project is thus conceived in part as an opportunity to develop research axes proper to both the ceramology of the clay ostraca and the geology of the Theban limestones.

With respect to the geological and ceramological analyses of the ostraca, we have made no distinction between the literary and non-literary nature of the texts that they bear, as such a distinction presumes that there were different modes of producing ostraca depending on the kind of

text that was eventually written on them.¹¹ The only distinction made in the present project is between ostraca and jar dockets, which obviously belong to two different categories of artefacts.¹² The collection in the Brussels Museum consists of 30 jar dockets for wine and oil, as well as 74 hieratic ostraca, either of ceramic or limestone,¹³ which divide into 27 literary, religious, and magical texts, as well as 47 non-literary texts. This inventory is not definitive, however, as the texts on a few ostraca are still to be identified. Most of the Brussels ostraca are known only from transcriptions of their text in Louis Speleers' *Recueil des inscriptions égyptiennes des Musées Royaux du Cinquantenaire à Bruxelles* published in 1923; other ostraca entered the collection of the RMAH after 1923 and are thus not found in Speleers' *Recueil*. The five ostraca published in this paper as case studies are among the least known ostraca in the RMAH.

Finally, a further aspect of our project remains to be discussed: the planned use of the Multispectral Portable Light Dome (MS PLD), which enables the creation of multispectral 2D+ and 3D images. This technology was originally developed for the study of execration statuettes; it allowed scholars to see erased hieratic texts that were previously invisible to the naked eye, as well

⁷ See Lougovaya (2018); Caputo (2020).

⁸ See, for example, the references to Dorn (2011) in Andreu-Lanoë & Pelegrin (2018: 20, fn. 6).

⁹ Pelegrin et al. (2015: 326).

¹⁰ This latter aspect represents the main difference between the investigation of the limestone ostraca in this project and the study by J. Pelegrin and his co-authors; see Pelegrin et al. (2015).

¹¹ Pelegrin et al. (2015: 344–352), whose study examined hieratic and pictorial ostraca, do not mention any difference of manufacture that could be linked to this difference. However, it was already noted by W.E. Crum in 1901 that the ostraca on which Coptic Theban tax receipts have been written derive from specific ceramics, different from those used for other the Coptic Theban documents. Recently, this ceramic has been identified as New Kingdom amphorae; see Bavay & Delattre (2013).

¹² As Haring (2020: 92) indeed points out, 'What all the [...] ostraca do seem to have in common, then, is the secondary use of the support. Including secondary use of a medium in the definition of ostraca, we can exclude dockets (which are related to the initial use of a pottery vessel), but can include inscribed vessels when the texts are not connected with the vessels themselves or their contents.'

¹³ Among which is the Abydos limestone tablet T. MRAH E.00580; see Van de Walle (1963).

as a study of the manufacturing process of these statuettes.¹⁴ Imaging methods such as IR photography, or the use of ImageJ® in combination with DStretch®, are increasingly familiar.¹⁵ Although direct examination of the ostraca with the naked eye remains essential and the use of a binocular microscope are also useful, such imaging methods can indeed greatly improve the legibility of faded texts.¹⁶ Yet, the MS PLD also allows the production, in one single shot, of 3D images of artefacts, which will be used to investigate the morphology and the manufacture of the ostraca.¹⁷ Two further applications of the MS PLD will also be tested with respect to the reconstruction of palimpsests and the creation of facsimiles.¹⁸ Unfortunately, our operation to photograph the ostraca had just begun when lockdowns due to the 2020 Covid-19 pandemic were implemented; photography was only able to resume in February 2022, meaning that no results of the implementation of that technology can be presented in this paper.

In what follows, the Brussels collection of hieratic ostraca and jar docket is presented and the objectives as well as the methodology behind the petrographic and ceramological analyses outlined. This is followed by the publication of five ostraca as case studies, which are examined from these different points of view. A synthesis concludes the paper.

2. THE BRUSSELS COLLECTION OF HIERATIC OSTRACA AND JAR DOCKETS [L. D.]

The Royal Museums of Art and History in Brussels hold an important collection of New Kingdom ostraca, consisting of 63 illustrated ostraca¹⁹ and 74 hieratic ostraca bearing administrative, literary, and religious texts, as well as 30 jar docket. The collection was built primarily between 1899 and 1939 through acquisitions made in particular by Jean Capart (1877–1947), curator of the Egyptian collection from 1900 to 1942. The majority of the artefacts in question come from the Theban area, particularly the Ramesseum and Deir el-Medina (or the Valley of the Kings).

2.1. Jar docket and ostraca from the Ramesseum

The first jar docket acquired by the Museum appears to be O.MRAH E.00321, which was offered to the Museum in 1899 by the Egyptian Research Account; the caption 'Ramesseum' is written on its reverse in pencil. A number of important jar docket entered the collection in the following years, including five docket offered to Capart by Alfred Wiedemann (University of Bonn) and registered on 22nd November 1900 (E.00327 to E.00331), and twenty-three docket

14 See <http://www.kmkg-mrah.be/conservation-ir-uv-and-3d-imaging-egyptian-execration-statuettes-ees-project>, accessed 01.01.2023.

15 See Bearman & Christens-Barry (2009) on the application of spectral imaging to the Dead Sea Scrolls, as well as papyri and ostraca of different provenience. See Piquette (2018) and Bülow-Jacobsen (2020) for a detailed presentation of different imaging methods, including spectral and multi-spectral imaging. See Morel & Olette-Pelletier (2021: 18) for DStretch® and ImageJ®.

16 For examples, see Navrátilová (2015: 254–256); Grandet (2018: 229–231); Hagen (2019: 191); Morel & Olette-Pelletier (2021: 19–37); as well as the references in the previous footnote.

17 Pelegrin et al. (2015: 333) also underline the value of 3D images for investigating the production and manufacture of ostraca.

18 Generating facsimiles using this technology may help to limit the potential 'subjective nature of the facsimiles,' particularly where the editor is confronted with faint traces. See Hagen (2019: 191) on this issue, as well as Moezel (2022: 22, fn. 32), for a temperate opinion on such subjectivity. Moreover, for 'the technical process of extracting facsimiles' conceived in the frame of the project *Altägyptische Kursivschriften* (AKU), see the forthcoming publications quoted by Moezel (2022: 8, fn. 10, 19, fn. 31).

19 Delvaux & Pierlot (2013). On the general history of the Egyptian collection in Brussels, see Van de Walle et al. (1980); Delvaux & Van Caelenberge (2023).

donated to the Museum by Wilhelm Spiegelberg and registered in February 1902 (E.00324 to E.00326, E.00332 to E.00350). A twenty-fourth ostrakon offered to the Museum by Spiegelberg (E.00322), also from the Ramesseum, is not a jar docket; it is inscribed with a fragmentary list of numbers and personal names.

The jar dockets donated by Spiegelberg originated from the excavations carried out in the crude bricks storerooms of the Ramesseum by James E. Quibell during the winter of 1895–1896 while W.M. Flinders Petrie excavated other areas of the temple.²⁰ At the beginning of the campaign, Spiegelberg had joined Quibell's team and immediately began to study the many jar dockets that came to light.²¹ Most of these appear to have escaped inclusion in the official *Distribution Lists* of discovered objects and seem to have been sent directly by Petrie to the Institute of Egyptology of Strasbourg in order to be studied and published by Spiegelberg. It is on an uncertain date (prior, in any case, to 2nd February 1902, the day of their inventory) that twenty-three of these jar dockets were offered by Spiegelberg to Capart for the collection of the RMAH.²²

The exact provenience of these jar dockets within the Ramesseum complex can be identified, as Quibell's excavations focused on the north-western group of storerooms.²³ The jar dockets of the RMAH often bear letters (U, V, W, X, Y and Z) or numbers (2, 3, 5 and 15) in pencil on their reverse which allow us to attribute them to particular storerooms.²⁴

The five jar dockets offered to the Museum by Wiedemann also come from the Ramesseum.²⁵ They were acquired by Wiedemann in Luxor during the winters of 1881–1882 and 1882–1883, and were found, according to his local suppliers, in the temple's brick storerooms;²⁶ it is not possible to determine their provenience more precisely.

In 1939, a new jar docket mentioning the Ramesseum was acquired from the Staring collection (E.07425). A final jar docket was recently rediscovered in the Museum's storerooms and registered on 27 March 2002 (E.09362). It is possible that it also comes from the Ramesseum, though it bears the date of Year 43 of Ramesses II, which is otherwise unattested among the jar dockets from the temple.

2.2. The ostraca from Deir el-Medina (or the Valley of the Kings)

Many ostraca were acquired in Luxor by Capart during his stays in Egypt, mainly during the winters of 1900–1901, 1905–1906, and 1906–1907, and again in May 1930 and 1934. Their texts often mention tomb workers, lists of supplies, or oracular procedures related to the cult of Amenhotep I, and it is likely that these various lots come from Deir el-Medina, though it is possible that they derive from the Valley of the Kings or the temporary dwellings of the tomb workers.²⁷

The ostraca purchased in 1900–1901 (E.00301 to E.00320, E.00490, E.05181) were discovered sometime after attention was drawn to Deir el-Medina following the discovery of Sennedjem's intact burial (TT 1) there in 1886,

²⁰ Bouvier (2003: 7–11).

²¹ Quibell (1898: 2); Bouvier (2003: 9–10).

²² Bouvier (2000).

²³ Bouvier (2003: 11–14).

²⁴ On these excavation marks, see Bouvier (2003: 235–241). On the capital letters, see Spiegelberg (1898: Introduction). On the numbers, see the numbering of the storerooms on the map published by Quibell (1898: pl. I).

²⁵ Bouvier (2000: 16; 2003: 22–23).

²⁶ Wiedemann (1883: 33) indicates '*in mitten der Ziegelruinen hinter dem Ramesseum*.'

²⁷ On these temporary dwellings, see Dorn (2011).

and before the resumption of work in the village in 1905 by Ernesto Schiaparelli and the Turin Museum.²⁸ According to its inventory card, one of the ostraca (E.00318) was found on 3rd January 1901, in the ‘*grande excavation près du temple de Deir el Médineh*,’ probably on the surface of the Great Pit that was systematically excavated by Bernard Bruyère from 1949 to 1951.²⁹ The ostraca purchased in 1905–1906 (E.02420 to E.02423) were acquired by Capart in Cairo from Ralph H. Blanchard.³⁰ One of these ostraca (E.02420) bears the name and titles of Amenhotep I, which makes it possible to attribute it (like the other ostraca in this lot) to Deir el-Medina. As for the seven ostraca purchased in 1906–1907 (E.03208 to E.03214), they were acquired in Luxor by Capart’s drogman Hannah Girgis Morgan.³¹ Some of these ostraca bear lists of food supplies and occasionally the names of workers from Deir el-Medina (E.03212).

Following Capart’s donation of three ostraca (probably from Deir el-Medina), registered in 1928 and 1929 (E.06310, E.06311, and E.06339), 1930 marks the beginning of a new wave of acquisitions by the RMAH; these ostraca were often purchased as part of lots that included many items, inscribed or illustrated, and which certainly come from the village of Deir el-Medina (E.06369 to E.06383, E.06428 to E.06464, E.06727).³² Two further ostraca were acquired the same year at Deir el-Bahari (E.06465 and E.06466). New ostraca of Theban provenience were acquired in 1934, mainly in Luxor (E.06763 to E.06770, E.06772 to E.06782,

E.06797), but also in Cairo (E.06771). Finally, four Theban ostraca entered the Museum in 1939; these came from the Staring collection (E.07426, E.07430 to E.07432). One of them (E.07426) mentions draughtsmen from Deir el-Medina.

2.3. The ostraca from Abydos

Only three ostraca in the RMAH come from Abydos. These derive from the excavations conducted by Émile Amélineau in 1895–1896 (the tablet T.MRAH E.00580³³) and by Petrie in 1902–1903 (O. MRAH E.02537). According to its inventory card, the third ostrakon (E.04814) was discovered ‘*dans les environs des tombes royales d’Abydos*,’ though it is not known during which campaign it was excavated.

2.4. Ostraca of unknown provenience

Finally, two ostraca without provenience were recorded in 1943 (E.07626 and E.07627), while two other ostraca were recently rediscovered in the storerooms of the Egyptian collection and registered in 2001 (E.09152 and E.09153).

3. MORPHOLOGICAL AND PETROGRAPHIC STUDY OF THE LIMESTONE OSTRACA [C. D.]

3.1. Objectives and methodology

In publications of ostraca, details of the rock itself often remain very basic, while some ostraca are simply described as ‘limestone.’ Studying the

²⁸ On the chronology of these excavation campaigns, see Andreu-Lanoë (2002: 36–41).

²⁹ Bruyère (1950).

³⁰ On the American dealer Ralph Huntington Blanchard (1875–1936), see Hagen & Ryholt (2016: 205–206); Delvaux & Van Caelenberge (2023: 135–139).

³¹ Delvaux & Van Caelenberge (2023: 143).

³² J. Capart (1931: 67–68) recounts that ‘*pendant l’hiver 1929–1930, ils [the archaeologists in Deir el-Medina] ont ramassé sur leur chantier de fouille des centaines d’ostraca pleins d’intérêt pour la compréhension plus nette de la vie d’artiste à l’époque du Nouvel Empire. Malheureusement, les archéologues n’ont pu exploiter une veine aussi riche sans que des fuites nombreuses se soient produites. Et c’est ainsi que, l’hiver dernier, on pouvait acquérir chez les marchands de Thèbes et du Caire de bons spécimens des ostraca de Deir el-Médineh.*’ See also Delvaux & Pierlot (2013: 18–20).

³³ On this tablet, see Van de Walle (1963).

characteristics of the stones that were collected and eventually used as ostraca—which sometimes exhibit clear signs of selection and even ‘manufacture’—allows us to improve our understanding of these objects and their use, especially with respect to the writing process.

The corpus of limestone hieratic ostraca in Brussels consists of 48 items (including the Abydos tablet T. MRAH E.00580), of which 35 are examined here. From a methodological point of view, the two main characteristics of these artefacts to be considered are the nature of the rock and the shape of the fragment. The nature of the rock—its petrographic composition—can help to locate its geographic source (in our case, with reference to the geology of the Theban area). The shape of the limestone fragment—its morphology—can help to determine by what means the fragment came to be separated from the rock outcrop, whether naturally or by extraction, and whether it underwent some kind of manufacturing process.

This preliminary investigation of the petrography and morphology of the limestone ostraca was conducted using simple observational tools. Invasive methods were avoided, and the investigation consisted of multi-scale observation by the naked eye, supplemented by observation using low magnification field lenses and occasionally lab lenses, a method that proved sufficient for a first analysis. This method enabled both a detailed description of the morphology of the ostraca (allowing us to evaluate the intentionality behind the shape/shaping of the ostraca) and an identification of the mineral and paleontological components of the rock (allowing us to identify the source of the ostraca). However, in order to fully ascertain and produce a full classification of the rock that forms the basis of the ostraca, samplings will be conducted at a future stage of the project.

This will also enable micro-paleontological studies (nano-fossil identification, for instance) and geochemical discrimination analyses, such as those successfully applied to building stones from the same area.³⁴ The non-invasive Laser-Induced Breakdown Spectroscopy (LIBS) method developed by Jean-Marc Baele at the University of Mons will also be tested. Furthermore, morphological analyses and the classification of the shape of the ostraca will benefit from the use of the Multispectral Portable Light Dome (MS PLD).

The general shape, thickness, and completeness of the artefacts, as well as their possible special design (evidence of a resting edge, design of a specific outline for the ostrakon, etc.) are the features that we detail first. This requires a description of the two main faces of the ostraca, as well as their edges, in order to distinguish between natural and artificial scars, deliberate fragmentation, knapping, as well as excavation and ‘partage’ breakings. With respect to natural fractures, the reference work by Jean-Pierre Colbeaux,³⁵ which provides geological and morphological illustrations of natural fractures, was of great help, as were works by Henri de Leiris, Dov Bahat, and Are Tsirk³⁶ among an abundant literature dealing with the natural fracturing of rocks. Pelegrin and his co-authors also produced an essential contribution to the nomenclature of artificial knapping in their recent contribution, as well as providing examples of intentionally produced ostraca.³⁷ However, accurately distinguishing a limestone fragment that was deliberately produced by knapping from a fragment that was extracted during tomb cutting, for example, can sometimes prove difficult, and the criteria for making such a distinction need to be specified. In this case, we evaluated the intentional shaping of ostraca by examining whether or not successive knappings

³⁴ De Putter et al. (2013).

³⁵ Colbeaux (1972).

³⁶ De Leiris (1974²); Bahat (1991); Tsirk (2014).

³⁷ See Pelegrin et al. (2015: 344–352).

were organised, and if so, how they were organised. This permits a distinction between ostraca that resulted from one percussive blow (such as fragments produced by quarrying or from tomb digging) and ostraca that resulted from successive deliberate flakings. The surface condition of the fractures is also investigated in our study for evidence of weathering, polishing, scratching out, other signs of erasure, as well as other alterations that may help to differentiate between natural and anthropic fractures. This type of examination may also reveal dissolution features, deposition of mineral crystallites, or deliberate retouching and preparation of the surfaces.

Our second primary objective is to document the petrographic nature of the artefacts. All of the Brussels ostraca are made of limestone, and our goal therefore is to distinguish between the different kinds of limestone that comprise the ostraca. In addition to the observation of basic features, such as colour, this process determines the mineralogical and paleontological nature of the visible grains and components of the stone. Evaluating the size of the grains and the fossil evidence in the stone, as well as their proportions relative to micritic cement, allows for a more fine-grained description of the texture of the stone, from fine to granulose. Pluri-millimeter-sized fossils, such as Bryozoa or Pelecypods, may help to identify the stratification of the limestone, which generally coincides with the preferential fissility of the stone and with the planar development of the ostraca. Other significant features of the stone contribute to our classification of limestone types. Structural features linked to the post-sedimentary tectonic (mechanical) history of the rock—such as joints, small faults, and tiny calcite veinlets—are important complementary features. The weakness structures that derive from these small-scale tectonic

features, together with the stratification fissility of the stone, are among the major factors that contribute to the way in which the rock breaks; consequently, they influence the shape of the artefacts.

The lithologic features of the limestone can also be used in attempts to identify the provenience of an ostrakon. Such attempts to address the geological nature and source of artefacts requires sufficient knowledge of the regional geology, mostly that of the Theban Mountain. The stratigraphic and geomorphological information used as the basis for our geo-archaeological approach was drawn from the detailed geological map recently published by Christian Dupuis and his co-authors (see fig. 1).³⁸

Figure 1a shows the view—from the Asasif area—towards El Qurn, the pyramidal summit that dominates the necropolises of the West Bank. Behind the Khokha hill (left foreground) stands the main cliff, approximately 100m high, which corresponds to Unit A of the Thebes Limestone Formation; it stands above the Esna Shale, which slopes gently downwards (fig. 1b). This cliff cuts across the Theban Mountain until the Valley of the Queens, forming a prominent wall behind the Temple of Hatshepsut; the lower part of the cliff hosts the royal tombs of the Valley of the Kings. Besides the main cliff, up to the peak of El Qurn, are several other outcrops that together form the five cliffs of the Thebes Limestone and the Minia Formations that frame the landscape. Together, they constitute useful landmarks that help to decrypt the mineral landscape and to correlate the geomorphology and the rock succession shown in figure 1b, where the large varieties of limestone are shown using different colours in the lithologic legend; note in particular the fine-grained varieties of limestone in green, of which several ostraca are made (red arrow).

³⁸ See Dupuis et al. (2011); King et al. (2017); Kaufmann et al. (2019).

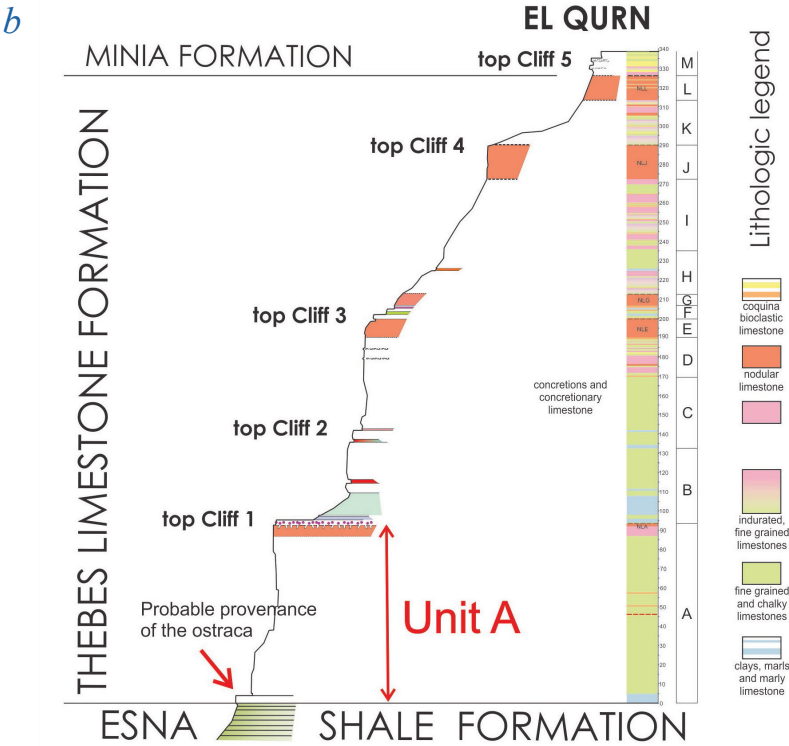
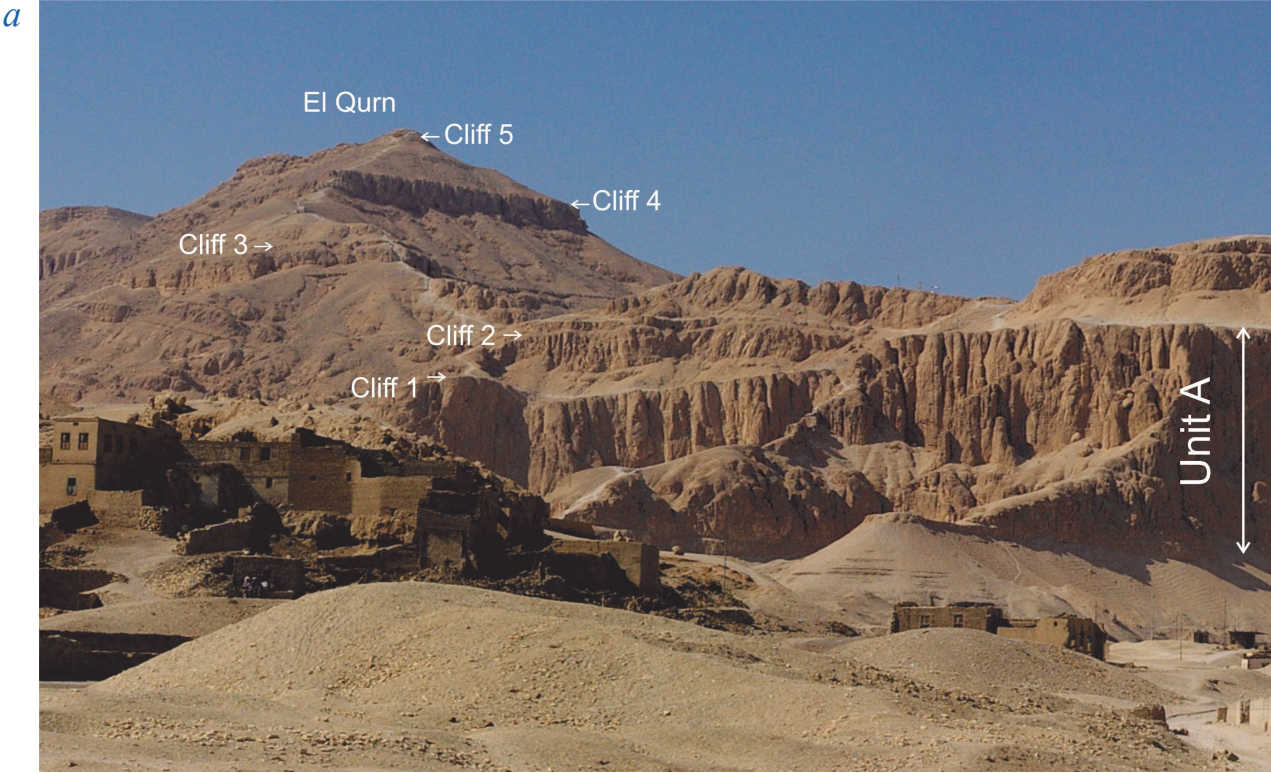


Fig. 1a and b. Landscape and stratigraphy of the West Bank opposite Luxor

a) Westwards view of El Qurn ("La Cime"), from Asasif. Khokha hill in the left foreground

b) Geomorphological and stratigraphic sections of the Paleocene-Eocene succession of the Theban Mountain, showing the position of Unit A, the probable origin of some of the limestone ostraca studied here (modified after Dupuis, Aubry, King, Knox, Berggren, Youssef, Galal & Roche 2011)

3.2. The RMAH limestone ostraca: a preliminary morphological and petrographic classification

Our investigation of the 35 Brussels limestone ostraca, using the methodology just described, leads to a twofold classification of the ostraca based on their petrography—discriminating

Theban *versus* non-Theban limestone, in turn—and on their morphology, where we employ a three-tiered scale for ranking the intentionality of the ostraca's shaping. To illustrate this, O. MRAH E.00303, E.00304, E.00320, E.02537, and E.06452, are taken as representative of the corpus.³⁹ The table below presents the resulting repartition of these five control ostraca (table 1).

Ostrakon	Petrography		Morphology		
	Limestone support		1-Natural fragment	2-Knapped artefact	3-Intentionally shaped artefact
	Theban	Non-Theban			
E.00303	×			×	
E.00304	×				×
E.00320		×	×		
E.02537		×		×	
E.06452	×(?)		×		

Table 1. Petrographic and morphological classification of the five control ostraca

The morphological examination suggests three types of use and improvement of the ostraca: (1) natural fragments collected and used without any further transformation. Such artefacts exhibit only fractures and scars resulting from the natural mechanical movements of rock masses on hillslopes and/or resulting from the past activity of faults (for example, plumose structures on joints and tectoglyphs on fault mirrors). The surfaces of these artefacts often bear traces of weathering (karstic-like micro-corrosion) or of burial in an environment subject to mineralised water percolation (mineral crystallite deposition predating the writing); (2) knapped artefacts result from at least one knapping, but without any evidence suggesting that this was intended to produce an ostrakon. They might, for example, reflect debris from stone quarrying or tomb digging;

(3) intentionally shaped artefact are intentionally made or improved fragments that exhibit signs of a process designed to shape the ostrakon. Such artefacts may exhibit a specific shape—symmetrical, for example—or exhibit a planar facet that functioned as a resting base, obtained through regular retouching of the edges. The flaking on such objects must show clear signs of an organisational design that sought to predetermine the final morphology of the ostrakon.

Petrographic analysis of these control ostraca reveals the use of four varieties of limestone: fine-grained pale beige limestone (E.00303, E.00304), finely granulose pale beige limestone (E.06452), medium-grained grey limestone (E.00320), and granulose pale grey greenish limestone (E.02537).

The fine-grained pale beige limestone of O. MRAH E.00303 and E.00304 can be attributed

³⁹ These five ostraca selected after 35 limestone ostraca were examined as representative samples of the limestones encountered. The kind of text they bear has not been considered when choosing them. The morphological and petrographical characteristics of O. MRAH E.00303 and E.06452 are described in detail below, in the section devoted to the case studies.

to Unit A of the Thebes Limestone Formation, and most probably to its base (fig. 1). As such, O. MRAH E.00303 and E.00304 would be of Theban origin; this is confirmed by the fact that they both come from Deir el-Medina, as mentioned by Luc Delvaux above. The finely granu-lose pale beige limestone of O. MRAH E.06452, bought in Luxor in 1930, is probably also of Theban origin, though this is expressed with a degree of reservation; it also most likely comes from Deir el-Medina. The limestone varieties that form O. MRAH E.00320 and E.02537 are strikingly different from the others (E.00303, E.00304, E.06452). Such coarse varieties of limestone are not, to our knowledge, recorded in the Theban region. O. MRAH E.02537 was found in Abydos; O. MRAH E.00320 was bought in Luxor, a situation which requires further examination.

4. STUDY OF THE CERAMIC OSTRACA [S. B.]

4.1. Objectives and methodology

One of the main objectives of our interdisciplinary project is to examine the technical and ceramological particularities of hieratic ostraca in order to ascertain how and why these pottery sherds were selected for use as writing supports.

The corpus of ceramic ostraca in Brussels consists of 30 jar docketts and 26 hieratic ostraca, of which 20 ostraca were examined. All of these are well-preserved though fragmentary. For this preliminary study, in addition to basic morphological descriptions of the sherds, we used a lens at 20 magnifications in order to specify their fabric. The primary objective of this process was to define the pottery types and their place of manufacture; we employed the Vienna fabric classification

system for Egyptian ware.⁴⁰ Foreign fabrics are defined as ‘imported fabrics’ and their approximate geographic origin is given. The inscriptions on the sherds were also examined and the prospect of potential as well as specific marks (such as cuttings) was also taken into account.

The chief difficulty was the precise identification of the fabric of the sherds. Unlike in field studies, it was not possible to make fresh breaks to the artefacts in the museum collection in order to identify and describe the sherd composition; such interventions naturally require special permission, and this could not unfortunately be obtained, in part due to the long lockdowns as a result of the Covid-19 pandemic and, in the case of inscribed ostraca, because of the damage this would do to the text. As such, despite the cleaning of the artefacts, some uncertainties persist.⁴¹ That said, an acceptable sampling protocol will be established in the forthcoming months in close cooperation with the museum conservation department. Following this, mineral and chemical analyses will be conducted at the University of Mons in collaboration with Jean-Marc Baele in order to study the fabric of the ostraca in more detail. These analyses will comprise optical microscopy and cathodoluminescence (CL) on thin sections, as well as Laser-Induced Breakdown Spectroscopy (LIBS).⁴² These analyses will permit much greater precision with respect to the composition of Egyptian ceramics.⁴³ Comparative analyses of sherds from different periods, along with other ceramological observations, may also provide information about the evolution of fabrics. Indeed, analyses of ostraca may be used to pursue research objectives proper to the wider field of ceramology. The extension of our study of the ceramic ostraca in the RMAH to other museum collections would allow further

⁴⁰ On the Vienna classification system, see Nordström & Bourriau (1993: 168–182).

⁴¹ For example, even using a lens, it remains difficult to clearly identify the fabric of Nile clay.

⁴² LIBS has already been used on Egyptian pottery dating to the Mamluk and Ottoman Periods; see Madkour et al. (2015).

⁴³ Physico-chemical analyses have already been made of Canaanite jars dating to the Middle Bronze Age and Late Bronze Age, shedding valuable light on the composition and origin of these artefacts; see Ownby & Bourriau (2009).

verification of the hypotheses presented in this contribution, as well as permitting definitions of pottery types used as writing surfaces in the same areas.

4.2. Preliminary results

This section sets aside the jar docketts and discusses only the ostraca, while four artefacts are used to illustrate our results: O. MRAH E.00308, E.00312, E.00318, and E.00322.⁴⁴ The texts on these objects did not play a role in their selection.

With respect to the choice of particular sherds as writing surfaces, our preliminary study shows that hard and dense fabrics were preferred for inscriptions. The surfaces of the ostraca often exhibit a clear colouration, resulting either from the firing or from the treatment of the surface with a white or creamy slip.⁴⁵ Texts appear on the outer surfaces of the sherds, as well as the inner surfaces, as with O. MRAH E.00318, while the inner surface of items made using Theban Marl clay possesses the same light red colouration as the outer surface.⁴⁶ The orientation of the inscriptions on the sherds is interesting; lines of text usually follow the orientation of the turning traces or the brush marks left by slipping or smoothing processes.⁴⁷

At this stage of our analysis, no evidence of the preparation of sherds, such as subsequent shaping, has been observed, though the text on O. MRAH E.06439, which is not discussed in this preliminary study, does appear to follow the fracture.

A relevant factor in the choice of ostraca may have been the thickness of their walls: most

of the sherds studied here are between 0.5 and 1 cm thick. The orientation of the turning marks on the inner surfaces of the ostraca suggests that the sherds came from the lower sections of large closed objects, such as amphorae or storage jars. In addition, another technical particularity of New Kingdom and Third Intermediate Period pottery can be observed on some of the ostraca in our corpus (such as E.00308). This is visible moulding on the inner surface of the lower part of large storage jars.⁴⁸ It is thus possible to suggest that fragments of large storage jars were preferred as written supports—probably because of the relatively flat surface and the hardness of the sherds.

With respect to the fabric of the ostraca, Nile clay is the fabric most frequently identified. O. MRAH E.00308, for example, consists of a hard, coarse, and reddish ware possibly corresponding to *Nile D*.⁴⁹ This fabric is usually described as a coarse ware composed of vegetal fibres, some quartz, and micas. Many white (and sometimes yellow) inclusions in this fabric seem to correspond to the limestone particles used as temper. The outer surface of O. MRAH E.00308 is covered by a creamy white slip, applied with a brush. This surface treatment is characteristic of New Kingdom and Third Intermediate Period pottery. It is not possible to specify the shape of the complete vessel from which O. MRAH E.00308 derives, but certain types of storage jar in *Nile D* are often associated during the New Kingdom with a creamy white slip on the outer surface.⁵⁰

⁴⁴ Except for O. MRAH E.00322, a detailed description of each ostrakon is given below in the case studies.

⁴⁵ At this stage of the study, there is no evidence of ostraca with a red slip.

⁴⁶ This can also be observed on the ostraca made from Marl A4: O. MRAH E.00313 and E.00314.

⁴⁷ An exception is O. MRAH E.00314 made from Marl A4, where the lines of text are oriented vertically to the turning traces.

⁴⁸ Aston (1999: 39–40, pl. 8, no. 176); Boulet (2018: 338–339, fig. 3.g).

⁴⁹ For a complete description of *Nile D*, see Aston (1996: 5, 7; 1999: 3–4; 2009: 320); Jacquet-Gordon (2012: 5); Nordström & Bourriau (1993: 174–175).

⁵⁰ Aston (1996: 63–64, 298, fig. 196.c–j [Group 31]; 64, 301, fig. 199 [Groups 37–38]).

These types are large jar with bulging neck,⁵¹ storage jar with thick rim,⁵² or bottle.⁵³

Egyptian Marl clay has also been observed amongst the ostraca. An example is O. MRAH E.00318, the fabric of which is *Marl A4 Variant 1*.⁵⁴ This Marl fabric, typical of the Theban area,⁵⁵ is characterised by a light red to green ware and is composed of fine limestone particles, quartz, and micas. Iron-red particles are also sometimes visible. The outer surface of this fabric is usually white to green, a result either of the firing process or of the slip. Items from the repertoire of New Kingdom pottery made in this fabric⁵⁶ include large jars with bulging necks⁵⁷ and neckless ovoid storage jars with thick rims.⁵⁸

Finally, O. MRAH E.00312 and E.00322 consist of two different imported fabrics of Canaanite origin. O. MRAH E.00322, a coarse brown clear ware, exhibits shell inclusions, as well as silex, stone, iron-red particles, and limestone. As to O. MRAH E.00312, it is probably of Canaanite origin, but further analysis is needed in order to confirm its origin. These ostraca almost certainly derive from large jars, intended to transport oil and wine. Such products are found all over Egyptian territory during the New Kingdom.⁵⁹

5. CASE STUDIES

5.1. Ostrakon MRAH. E.00303 (fig. 2)

PROVENIENCE: Bought at Luxor on 10th January 1901.

BIBLIOGRAPHY: Speleers (1923: 49–50, no. 184); Gutgesell (1983: 107); KRI VII, 290, no. A 368; Helck (2002: 248); Černý NB 22.7 and 34.10 (note R. J. D.).

[L. D.]

DESCRIPTION: This limestone ostrakon consists of a thin triangular fragment. H: 11.25 cm; W: 10.25 cm; Th: 1.95 cm.

MORPHOLOGY: The rectilinear edge coincides with a natural tectonic joint perpendicular to the planar shape of the ostrakon, consistent with the stratification of the object. The two main faces of the ostrakon are relatively simple. Along the rectilinear edge, the obverse face exhibits a set of complex scars that reveal the impact that led to the creation of the piece. The left edge of the ostrakon is sharp, as a result of the intersection of the two main faces. The right edge of the ostrakon is thicker; it is bordered by an elongated facet with a corroded surface that throws a number of defects into relief, in particular some minute calcite veinlets that are approximately 0.1 mm thick. This edge suggests a late break,

⁵¹ Jacquet-Gordon (2012: 78,197, fig. 78.l [P. 1467]).

⁵² Jacquet-Gordon (2012: 82, 203, fig. 82.a [P. 554], 82.b [P.2043]).

⁵³ Aston (1999: 30–32, pl. 5, no. 103).

⁵⁴ Aston (1999: 4; 2009: 320–321); Jacquet-Gordon (2012: 6), which corresponds to the II.A.04 variant from Qantir; see Aston (1998: 64–65).

⁵⁵ Recent studies have proposed that Medamud may have been an important site for the production of this fabric; see Barahona-Mendieta (2014); Relats Montserrat et al. (2016).

⁵⁶ About a typology of Marl A4 jars from the New Kingdom, see Aston (2004: 198–199).

⁵⁷ For some examples of jars with bulging necks, see Aston (1996: 66, 305–307, fig. 203–205 [Group 49]; 1999: 41–43, pl. 9, no. 184–185, 99–100, pl. 27, no. 797–803, 102–103, pl. 28, no. 839; 114–115, pl. 32, no. 990); Jacquet-Gordon (2012: 73, 187, fig. 73.bb [P.31]). On New Kingdom Egyptian amphorae, see Aston (2004).

⁵⁸ Aston (1999: 20–21, pl. 2, no. 33, 39–40, pl. 8, no. 175–176, 101, 103, pl. 28, no. 821, 113–115, pl. 32, no. 979 and 997); Jacquet-Gordon (2012: 72, 183, fig. 72.e [P.526]).

⁵⁹ On Canaanite jars, see Aston (1999: 23, 25, pl. 3, no. 44; 2004: 176–184); Bavay (2015); Nordström & Bourriau (1993: 185–186).

possibly resulting from an excavation accident. The face itself is bumpy with low amplitude undulations and scalings related to the knapping. The reverse does not exhibit evidence of strong adaptations, though it does display a discreet oblique erasure striation under the fourth line of writing. This artefact is interpreted as a splinter detached from an outcrop or a block; it is classified as a knapped artefact.

PETROGRAPHY: The ostrakon consists of a fine-grained limestone, pale beige in colour, with a relatively smooth surface fracture. It probably stems from Unit A of the Thebes Limestone Formation (see above, fig. 1). A few tiny, slightly raised rounded dots of less than 1 mm are dispersed across the surfaces of the ostrakon; these are foraminifera. Nearly invisible are a number of narrow calcite veinlets perpendicular to the planar design of the ostrakon; these emerge in almost parallel streaks, notably on the left facet.

The fissility of the rock, conforming to the stratification, displays in small parallel surfaces of rupture and scales near the original point of impact. This suggests that the workmen may have known about the fragility of the limestone and took advantage of this in knapping the planar rectilinear edge.

[C. D.]

TEXT: The ostrakon is inscribed in black ink on both sides, with 7 lines on the obverse and 6 lines on the reverse. It is incomplete and breaks off on the left side of the obverse. The ends of all the lines on the obverse, as well as lines 1–5 on the reverse, are missing. The top of the obverse corresponds to the bottom of the reverse.

The text comprises a list of commodities; it can be dated to Year 23 of Ramesses III.

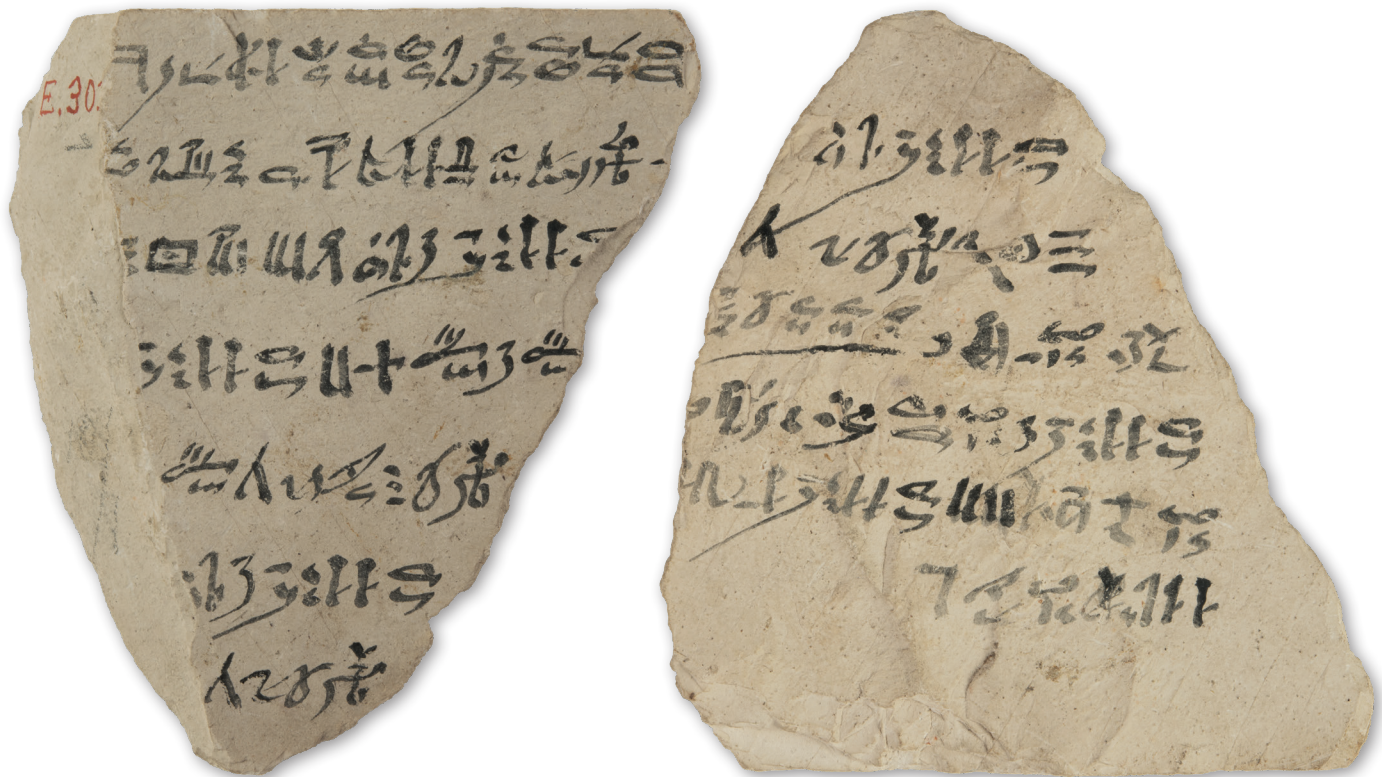
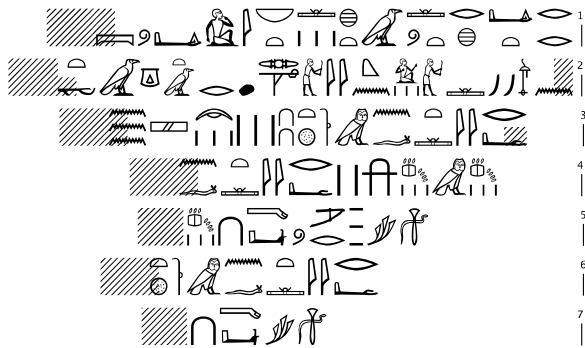


Fig. 2. Ostrakon MRAH. E.00303

TRANSCRIPTION:

Obverse



Reverse



TRANSLITERATION:

Obverse

- (1) *r rdi.t rh=tw 3h.t nb.t i.diw hry* [...]
- (2) *n hmww Kny-Mnw r t3 g3.t* [...]
- (3) *rdy.t n=f m rnp.t-sp 23 3bd III smw* [...]
- (4) *it-m-it h3r 2 rdy.t n=f* [...]
- (5) *w3d-smw mrw 10 it-[m-it...]*
- (6) *rdy.t n=f m rnp.t-sp* [...]
- (7) *w3d-smw mrw 10* [...]

Reverse

- (1) *rdy.t n=f m rnp.t-sp* [...]
- (2) *[S]mw sw 9 w3d-smw mrw 10* [...]
- (3) *whm ht n sm 100 hrr(.t) htp?* [...]
- (4) *rdy.t n=f m ht <r> iri p3 twt n* [...]
- (5) *ht 3 nht 4 rdy.t n=f in ss I* [...]
- (6) *isy ht sd 5*

TRANSLATION:

Obverse

- (1) List of all things which the chief [of police ...] gave
- (2) to the carpenter Qenymin for the box [...]
- (3) Given to him in year 23, Shemu 3 [...]
- (4) 2 khar of barley. Given to him [...]
- (5) 10 bundles of vegetables, [... of bar]ley [...]
- (6) Given to him in year [...]
- (7) 10 bundles of vegetables [...]

Reverse

- (1) Given to him in year [...]
- (2) [She]mu, day 9, 10 bundles of vegetables [...]
- (3) Again: 100 (units of) firewood, flowers [...]
- (4) Given to him in wood (to) make the statuette of [...]
- (5) 4 big pieces of sycamore-wood. Given to him by the scribe A[mun? ...]
- (6) 5 sawn logs of isy-wood.

NOTES:

Obverse

- (1) For the formula *r rdi.t rh=tw*, lit. 'to inform about' or 'list of,' see Haring (2003: 147–150).
- (2) The workman Qenymin, who also worked as a carpenter and sculptor, is known from Year 15 of Ramesses III (O. DeM 253, v° 3) until Year 2 of Ramesses IV (O. IFAO 574); see Davies (1999: 186 and charts 3, 15, 18).
- (3) The year is regnal year 23 of Ramesses III.

Reverse

- (3) The incomplete signs at the end of this line probably reflect *htp*, 'basket.'
- (5) The name of the scribe at the end of this line is most probably composed using the element 'Amun.'
- (6) The scribe corrected the determinative of *isy* from M2 to M1.

[R. J. D.]

5.2. Ostrakon MRAH E.00308 (fig. 3)

PROVENIENCE: Bought between the Ramesseum and Dra' Abu el-Naga on 6th January 1901.

BIBLIOGRAPHY: Speleers (1923: 50–51, no. 189).

[L. D.]

DESCRIPTION: This pottery sherd derives from the lower part of a large storage jar. H: 11.5 cm; W: 11 cm; Th: 0.8 cm. The text is written horizontally on the outer surface.

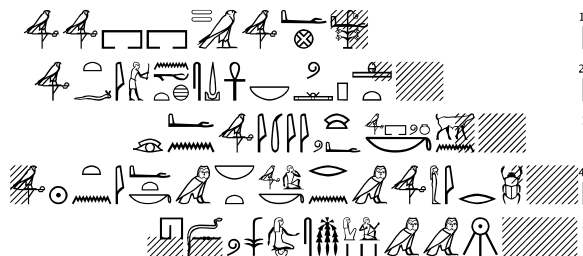
FABRIC: Possibly *Nile D.* The reddish-brown fabric is hard, dense, and sandy. It includes many limestone particles (from 0.1 to 3 mm in size), some being visible on the surfaces, as well as vegetal temper, quartz in average quantities, and golden mica. A creamy slip was applied with a brush to the outer surface. Traces of moulding can be observed on the inner surface.

[S. B.]

TEXT: The ostrakon is inscribed on one side (convex) with 5 lines in black ink. It is broken off on all sides. The beginning of each of the lines, as well as the end of line 5 and possibly also the end of line 4, are missing.

The text most probably represents a fragment of a solar hymn or a hymn to Amun-Re as a solar deity. Because the name of the deity appears in the first line of text, it is most likely that this line also represents the first line of the hymn. It can be dated palaeographically to the 20th Dynasty.

TRANSCRIPTION:



TRANSLITERATION:

- (1) [... 'Twnw-]šm' Hr-ḥty
- (2) [...] ḥtp nb 'nh (w)ḏ s(nb) nḥt it
- (3) [...] ḥnw=k ḥ'y.ti 'n
- (4) [...] Ḥpri m rn=k nb{.t} {}<n>tk 'Itn
- (5) [...] illegible signs ḥnmm<.t> ms sw ḏs[=f] h[...]

TRANSLATION:

- (1) [...] the Southern [Heliopolis], Horakhty
- (2) [...] peace, lord of life, prosperity and health, the strong one, father
- (3) [...] your interior, you having appeared, beautiful
- (4) [...] Khepri, in each of your names. You are the sun disk
- (5) [...] illegible signs humanity, the one who begot [him]self h[...]

NOTES:

- (1) The signs at the beginning of the line read . Speleers (1923: 50) transcribes but instead of reading , it is possible to read as a ligature involving the *niw.t*-sign (O49), such as or ; compare with Posener (1978: pl. 54 a, 2 [] and 9 [], as well as pl. 55 a, 7 [] = O. DeM 1610, r° and v° respectively, and pl. 67 a, O. DeM 1642¹, 3 []), and with Hagen (2011: pl. 13, O. E.GA.6116.1943, x+1 []), in which case the lost word would be a toponym. Taking into account both the nature of the text and the damaged sign that precedes the ligature, the remains of which fit with I cautiously suggest reconstructing 'Twnw-šm' here, though the orthography of šm' in 'Twnw-šm' is different in, e.g., P. Leiden I 350, IV, 16 and in O. DeM 1722 + O. E.GA.6130.143, 3; cf. Zandee (1948: pl. IV, l. 16) = Leemans (1853–1862: pl. CLXII); Gasse (1990) and Hagen (2011: pl. 32–34). For following toponyms, see, e.g., Fischer-Elfert (1997: 140, 2 = oGardiner 310); Gülden (2001: 67, col. XV, 1 and pl. XIII).



Fig. 3. Ostracon MRAH E.00308

- (2) For *nht* ‘the strong one,’ compare with Assmann (1983: 251, l. 28, 252, l. 47 = TT 192), but see also (Knigge 2006: 189 = Cairo CG 42208), who translates ‘*der Helfer*.’
- (3–4) Compare with the passage from a hymn to Nun on O. Turin CGT 57428, v^o 1–2: *ntk it mw.t [n] Itn pr R^c m hnw=k*; see López (1982: pl. 136a–136) = Fischer-Elfert (1997: 98–102, no. 19).
- (4) Compare with the passage of a hymn to the sun-god (?) on O. Berlin P 14263, v^o 4: *ntk Itn n ‘h’y*; see Burkard (2021: 61–62).
- (5) The signs preceding *hnm̄m.t* are barely legible. Speleers (1923: 51) does not propose a transcription either. Further to this, epithets including *hnm̄m.t* are so numerous that any proposed solution would represent nothing more than a guess. See, e.g., P. Leiden I 344, v^o 2, 3 and v^o 9, 2 for *ir ‘nh*

m hnm̄m.t and *hntš ib n hnm̄m.t* = Zandee (1992: pl. 2, l. 3 and 9, l. 2, respectively); P. Cairo CG 58038, 6, 4 and 11, 4 for *ht n ‘nh n hnm̄m.t* and *thh n=f hnm̄m.t* = Luiselli (2004: 74, verse 31 and 98, verse 43, respectively); Assmann (1983: 389) for *hnm̄m.t* (in the index). A photograph of this ostracon using the Multispectral Portable Light Dome (MS PLD) may eventually permit a reconstruction of these signs.

For the epithet *ms sw ds=f* in solar hymns, see, e.g., Assmann (1983: 384, in the index); Gülden (2001: 9, col. II, 3 and pl. II). See also Leitz (2002: 412).

The *h* at the end of the line might represent the first sign of *hmhm* ‘to extol’ or *hnw* ‘to rejoice.’

[B. L.]

5.3. Ostrakon MRAH E.00312 (fig. 4)

PROVENIENCE: Bought between the Ramesseum and Dra' Abu el-Naga on 6th January 1901.

BIBLIOGRAPHY: Speleers (1923: 51, no. 193); Černý NB 22.11 and 34.17 (note R. J. D.).

[L. D.]

DESCRIPTION: This pottery sherd comes from the lower part of a jar. H: 13.5 cm; W: 11.5 cm; Th.: 0.9 cm. The text is written horizontally on the outer surface.

FABRIC: Possibly of Canaanite origin. The fabric is coarse, hard, and dense. It includes many limestone particles (0.1 to 0.5 mm in size); a number of elongated red particles, both large and small; mica; some small black particles, which possibly represent the rare occurrence of visible shells; and some cavities. The fracture has a flaky appearance. The outer surface is smooth.

[S. B.]

TEXT: The ostrakon is inscribed on one side (convex) with 7 lines in black ink. The text is incomplete: it is broken off on all sides. The beginning and the end of each of the lines is missing. The text is a fragment of a so-called gift-giving list; see Janssen (1997: 55–86). This piece is almost certainly a fragment of O. DeM 10333, col. VII; cf. P. Grandet (2017: 314–315). Like other similar texts, it probably dates to the mid-20th Dynasty.

TRANSCRIPTION:

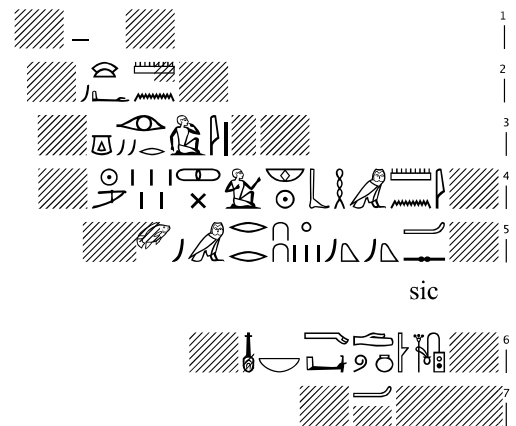


Fig. 4. Ostrakon MRAH E.00312

TRANSLITERATION:

- (1) [...] *trace* [...]
- (2) [...] *mn-h'w* [...]
- (3) [...] *1 irg[s...]*
- (4) [...] *Imn-m-hb 'kw šbn 5 R'-mr[y...]*
- (5) [...] *h{s}kḳ 20 rmw [...]*
- (6) [...] *ss-ḳdw.t Nb-nfr [...]*
- (7) [...] [*hk[k...]*]

TRANSLATION:

- (1) [...] *trace* [...]
- (2) [...] *Amenkhew* [...]
- (3) [...] *1, [...] basket* [...]
- (4) [...] *Amenemhab, 5 assorted loaves.*
Ramer[y ...]
- (5) [...] *20 heqeq-fruits, [...] fish* [...]
- (6) [...] *sculptor Nebnefer* [...]
- (7) [...] *he[qq]-fruit* [...]

NOTES:

- (2) Amenkhew is probably the son of Amemone II; see Davies (1999: 214 and chart 4).
- (3) For *irgs* 'basket,' see Janssen (1975: 149–150).
- (4) For the workman Amenemhab, see Davies (1999: 25, 41, and charts 3 and 5). He was probably the son-in-law of the chief workman Anherkhew II; he was active during the mid-20th Dynasty, like the workman Ramery and the sculptor Nebnefer.
- (5) While writing *hkḳ*, the scribe made a mistake: the sign below the sign *hw* (F18) should not be *s* (O34) but the bookroll (Y1). For *hkḳ*, a kind of fruit from Nubia, see Janssen (1975: 356–357).
- (7) The sign *hw* (F18) is most certainly the first sign of *hkḳ*.

[R. J. D.]

5.4. Ostrakon MRAH E.00318 (fig. 5)

PROVENIENCE: Found on 3rd January 1901 in the 'grande excavation près du temple de Deir el Medineh.' On the reverse in pencil (partly illegible): '3 Janvier ... Deir el Medineh;' and in ink: 'O.H. 18' (Spiegelberg number?), as well as smudges of blue paint.

BIBLIOGRAPHY: Speleers (1923: 51, no. 199); Černý NB 22.12 and 34.26 (Notes R. J. D).

[L. D.]

DESCRIPTION: This pottery sherd possibly comes from the middle part of a large jar. H: 8 cm; W: 7.5 cm; Th: 0.8 cm. The text is written horizontally on the outer and inner surfaces and follows the turning traces. Traces of blue are visible on the inner part of the sherd.

FABRIC: The colour of the fabric is red-orange to grey. It is hard, dense and sandy, and corresponds to the Theban *Marl A4 Variant 1*. It is composed of many fine limestone particles (0.1 to 0.5 mm in size), quartz in average quantities, and mica. A white slip covers the outer surface.

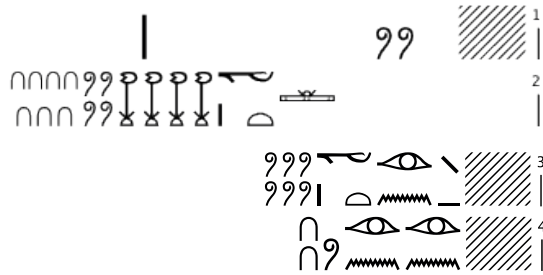
[S. B.]

TEXT: The ostrakon is inscribed in black ink on both sides, with 4 lines on the obverse (convex) and 1 line on the reverse (concave). The top obverse corresponds to the bottom reverse. The text is incomplete: it is broken off on all sides. The beginnings of lines 1, 3, and 4 on the obverse and of line 1 on the reverse are missing. The obverse is palimpsest: previous faint traces of horizontal and vertical lines are visible.

The text comprises a fragmentary account of firewood deliveries. For such accounts, see Janssen et al. (2003: 1–28). It can be dated to the mid-20th Dynasty.

TRANSCRIPTION:

Obverse



Reverse



TRANSLITERATION:

Obverse

- (1) [...] 200
- (2) *dmḏ ḥt* 4470
- (3) [...] *ir n ḥt* 600
- (4) [...] {*ir n*} *ir n* 120

Reverse

- (1) [... *m-*] *dr.t=f ḥt* 500

TRANSLATION:

Obverse

- (1) [...] 200
- (2) Total: 4470 (units of fire)wood
- (3) [...]?, makes 600 (units of fire)wood
- (4) [...] makes 120

Reverse

- (1) [...] from him 500 (units of fire)wood

NOTES:

Obverse

- (4) The scribe wrote *ir n*, 'makes' twice by mistake.

[R. J. D.]



Fig. 5. Ostracon MRAH E.00318

5.5. Ostrakon MRAH E.06452 (fig. 6)

PROVENIENCE: Bought at Luxor in 1930.

BIBLIOGRAPHY: Unpublished.

[L. D.]

DESCRIPTION: Limestone ostrakon consisting of a thick, roughly triangular fragment. H: 10.5 cm; W: 9.5 cm; Th: 3.2 cm.

MORPHOLOGY: The two main faces of the ostrakon bear the scars of natural shattering. The written face has an almost planar surface without any evidence of intentional flaking. It is truncated by the scar of a large chip that left a heaped surface with a hackle fringe—typical of spontaneous fracturing post-dating the inscription of the ostrakon. The reverse exhibits at least four natural scars. None of these scars exhibit impact traces or signs of a deliberate knapping. On the contrary, specific features related to plumose fractures, including the fringes of hackles ('en-echelon-fractures'), as well as plumose and feather structures with ribs, are present. The surfaces of these fractures are covered with minuscule crystals (calcite?). On both faces, the writing post-dates the deposition of the crystals. This

means that, before it was inscribed, the fragment was collected from a rocky environment with vadose percolation of mineralising solutions in the fractures of an outcrop, a hillside scree, or in the rubble of a quarry. The piece was used without any preparation; it is thus classified as a natural fragment.

PETROGRAPHY: Finely granulose limestone, pale beige in colour. The rock shares a resemblance with the limestone of O. MRAH E.00303, though it looks more compact, and possibly recrystallised. No joints or veinlets are observable. Taken together with its resemblance to the limestone of O. MRAH E.00303, these characteristics suggest that this ostrakon may have originated from another part of the Thebes Limestone Formation.

[C. D.]

TEXT: This ostrakon is inscribed on one side with four lines in black ink, interspersed with verse-points in black ink. The beginning and the end of each line is missing. The reverse features a long, thick, hooked line in black ink, which might have belonged to a drawing or may reflect a pen trail.



Fig. 6. Ostrakon MRAH E.06452

The text is a duplicate of the *Satire of the Trades*, Chapter 27. This ostrakon is not included in Helck (1970: 135–137) or Jäger (2004: 116–117, 152–153, 185–186, LXXXIII–V). Minor variations aside, this version of Chapter 27 is the same as that on O. Turin CGT 57082, r° and very close to the version on P. Turin CGT 54019, for which see López (1978: 42, pl. 37a–37) and Jurjens (2021: 110–111, fig. 1–3, 117), respectively.

TRANSCRIPTION:



TRANSLITERATION:

- (1) [... sr] m wpw.t* i.dd=k sw mi ddf n=k* [...]
- (2) [...] di[=f n=k] hnw* wnn [...]
- (3) [...m wstn]-ib* ib=f [...]
- (4) [...] tn [...]

TRANSLATION:

- (1) [... When a dignitary sends you] with a message, you shall repeat it as he told (it) to you. [...]
- (2) [...] causes jubilation [for you]. wnn [...]
- (3) [... unhin]dered. His heart [...]
- (4) [...] tn [...]

NOTES:

- (1) Based on Jäger (2004: LXXXIII–IV, 27,1/1–2) and Jurjens (2021: 117) for P. Turin CGT 54019, r° 2, 8, no other entirely preserved version of the sentence reads *n=k* at the end. For a grammatical analysis of the sentence, including the absence of the dependent pronoun *sw*, see Jurjens (2021: 119, no. 27,1), although the author quotes the sentence in O. MRAH E.06452 incompletely, omitting *n=k*.⁶⁰

- (2) The orthography of *hnw* ‘jubilation,’ expanded with the determinatives of *hnw* ‘relatives,’ also appears on O. Turin CGT 57082, r° 5. The reconstruction of *n=k* is based on the Turin ostrakon and on O. DeM 1569, x+5; see Posener (1978: pl. 42 = [... di[=f n=k] hnw [...]).

- (2–3) *wstn-ib* also appears on O. Turin CGT 57082, r° 6 and on P. Turin CGT 54019, r° 2, 9. As such, *wstn* on O. Turin CGT 57082 is not an individual mistake, as Jäger (2004: 117) suggested (see also Jurjens 2021: 120, no. 27,2). The proposal that *wstn-ib* ended the same sentence as on P. Turin CGT 54019, r° 2, 9, namely {t}<i>w h³b.tw=f m ws[tn], advanced by Jurjens (2021: 120, no. 27,2), should be considered with greater caution, as the version of Chapter 27 on O. MRAH E.06452 and on O. Turin CGT 54082 differs from the version on P. Turin CGT 54019. The sentence following *hnw* starts with *wnn* [...] on the Brussels ostrakon and with *wnn ts* [...] on the Turin ostrakon, whereas the aforementioned sentence follows directly on P. Turin CGT 54019, r° 2, 8–9.

- (3) With the exception of this ostrakon and P. Turin CGT 54019, r° 2, 9, the surviving versions of the beginning of Chapter 27.3/1–2 show *iw=f*; see Jurjens (2021: 120, no. 27,3 and 118 for the translation put forward). Note that the beginning is lost on O. Turin CGT 57082, r°.

- (4) For *tn* < *tni* ‘jmd. des Amtes suspendieren; daraus entfernen,’ see Fischer-Elfert (1999: 120–122, especially 121–122, where this passage is examined, 373–374, and 471 for the index). See also Jäger (2004: 117, 186). Unfortunately, the Brussels ostrakon is broken in a way that makes it impossible to reconstruct the ending of *tn* and to propose an accurate translation. On the two possibilities for the ending, attested in the other sources, see Jäger (2004: 117, n. 27,3)

⁶⁰ Neither the RMAH nor the present author were informed of the inclusion of O. MRAH E.06452 in this study.

and Jurjens (2021: 120, no. 27,3), who refer to Fischer-Elfert for the meaning of the sentence.

[B. L.]

6. SYNTHESIS

The preliminary petrographic study of the Brussels limestone ostraca enables us to distinguish between Theban and non-Theban stone. This investigation was certainly not aimed at defining the characteristics of Theban limestone, as this knowledge already exists, but can be exploited to define the characteristics of non-Theban limestones. In this respect, T. MRAH E.00580 and O. MRAH E.02537, both found at Abydos, prove extremely valuable. Because ostraca were used as writing surfaces in the same areas that the fragments were found or shaped, such knowledge becomes essential to the identification of the provenience of such ostraca as O. MRAH E.07626, E.07627, E.09152, and E.09153, for which no provenience is recorded in the museum archives. In this regard, it is also worth noting that the limestone of O. MRAH E.00320 is most probably non-Theban, although it was bought in Thebes in 1901. As such, it is therefore not necessarily the case that the places where ostraca were acquired reflect the places that they come from; not all ostraca bought in Luxor may come from Deir el-Medina or even from the West Bank of Thebes. Finally, the text written on an ostrakon can also be used to identify the origin of an artefact that exhibits unusual petrographic characteristics. In the case of O. MRAH E.06452, for example, the *Satire of the Trades* supports a

Theban provenience: the text was popular in Deir el-Medina and was a fixture of the literary production of the West Bank temples.⁶¹

The morphological study of the limestone ostraca highlighted three types or degrees of manufacture, from natural fragments to intentionally shaped ones. These degrees of manufacture do not correlate either with the (literary or non-literary) genres of the texts on the ostraca or with the quality of the handwriting. O. MRAH E.06452, for example, is a natural fragment that carries a chapter of the *Satire of the Trades* written in an elegant hand,⁶² while O. MRAH E.00304 is an intentionally shaped ostrakon that bears palimpsests consisting of lists of commodities.⁶³ That said, while the genre of a text cannot be correlated with the degree of manufacture of the ostrakon on which it was written,⁶⁴ palimpsests might possibly indicate that shaped ostraca were seen to possess greater value than natural fragments. This, however, remains to be investigated, as such a conclusion would be plausible if a majority of palimpsests were found on shaped ostraca. It is also worth pointing out that, on O. MRAH E.00303, the scribe began to write his list of commodities on the surface of the ostrakon that was ‘in’ the block or the outcrop before it was detached, which explains the ‘bumpy’ and irregular obverse, in contrast to the flat reverse. It can be inferred from this that flatness was not necessarily a quality that scribes sought when selecting a fragment of stone. Similar observations have been made by Pelegrin and his co-authors, who explain the choice of this

⁶¹ See Koenig (1993: 53); Mathieu (2003: 121–122, 134, table 1); Müller (2014); Barbotin (2014: 77); Hagen (2021: 5–8); compare Jurjens (2021: 112). For a broader perspective on the New Kingdom literary canon, see Hagen (2019: 205–207, with an abundant bibliography).

⁶² The relationship between the degree of manufacture of limestone ostraca and the quality of the handwriting or drawings on the ostraca is not addressed by Pelegrin et al. (2015), whose focus is on the morphology of the ostraca only.

⁶³ See Speleers (1923: 50, no. 185).

⁶⁴ For what this comparison is worth, Moezel (2022: 60–61), notices that ‘there is no systematic relation between categories of text [belonging to the group of the “necropolis administration”, to use the terminology put forward by the author] and types of layout’ either, confirming thereby previous conclusions on this issue by Christopher Eyre, but also adds that ‘it seems that, instead of working with fixed formats, scribes were more concerned with the *Textträger* and adapted their texts to them.’ See also Moezel (2022: 167–168).

‘inner’ surface by a preference for fresh breaks and their porosity, grain, and light colour.⁶⁵

The preliminary results of the ceramological study also emphasise that the ceramic ostraca often possess a clear colour; like the white limestone, this ensured readability. Likewise, hard and dense fabrics as well as thick sherds were favoured: this certainly answered the need for solidity and stability of support, qualities also offered by stone. Lastly, sherds derived from large shapes seem to have been preferred as they offered a writing surface that was as flat as possible, whilst the lines of text were usually written in the same direction as the turning traces. As to the fabrics, the most commonly identified fabrics are Nile clay and Marl clay. O. MRAH E.00318, for example, is made from the latter, which is typical of the Theban area. The mention of Deir el-Medina both on the inventory card of this ostrakon and on its reverse thus aligns with this identification. In short, just as the characteristics of the limestone of an ostrakon can contribute to a determination of its provenience, the fabric of a ceramic ostrakon can also work to help establish provenience, with the proviso that jars travel, such that sherds most probably become ostraca in their area of use, not in their area of production, even if these two locations are not necessarily far removed from one another. In sum, despite their obvious differences, the material study of limestone and ceramic ostraca can help to clarify their provenience.

It is also worth noting that certain characteristics of the MRAH ceramic ostraca have been observed by Caputo for Greek and Coptic ceramic ostraca too: ‘light-colored surfaces,’ although this criterion does not seem to be decisive, and ‘the systematic use of fragments from a specific category

of vessels.’⁶⁶ Furthermore, many palimpsests have been identified by Caputo and James M.S. Cowey among the demotic ostraca from Philadelphia, ‘suggest[ing] that the sherds were appreciated precisely for their shape and because they were easy to write on,’⁶⁷ a description that might be applied to O. MRAH E.00311, of which list of commodities is a palimpsest too,⁶⁸ as well as to the shaped limestone O. MRAH E.00304. In both cases, it may have been the quality of the support that motivated the scribe to reuse it.

The results of the interdisciplinary research presented in this paper are preliminary. The study and edition of the Brussels ostraca and jar docket is an ongoing project and further analyses remain to be conducted. Nevertheless, certain avenues already appear very fruitful: the similarities between both categories of ostraca with respect to the choice of the material are highly suggestive, even though hypotheses remain numerous. This is easily explained by the complexity of the issues related to ostraca, however, in particular when their textual and material data are combined. In sum, this paper essentially reveals the potential of a holistic approach to these artefacts, combining philological, geological, and ceramological analyses of ostraca as text supports with the wider goal of investigating the writing process.

[B. L.]

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⁶⁵ See Pelegrin et al. (2015: 344, 350–351).

⁶⁶ Caputo (2020: 44–45, for the quotations, and 44–51 for the complete results). See Dorn (2011: 74) for the practice, also pointed out by Caputo (2020: 49–51), of using sherds from the same jar, which was most probably set aside for that purpose; Lougovaya (2018). See also Bavay & Delattre (2013: 383–384) about the Coptic Theban tax receipts.

⁶⁷ Caputo & Cowey (2018: 74).

⁶⁸ See Speleers (1923: 51, no. 192), as well as Janssen (1975: 30).

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