CHAPTER IV.3

METHODS, TOOLS, AND PERSPECTIVES OF HIERATIC PALAEOGRAPHY

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HIERATIC is the name given to one of the cursive scripts of ancient Egypt. It is the tachygraphy related to the Egyptian hieroglyphic script (see chapter by Vernus), both of which are realizations of a single original writing system that arose independently in Egypt around 3200 BCE. On a continuum of figurativity that ranges from greater iconicity to greater abstraction, hieroglyphs are characterized by their high degree of iconicity, while hieratic graphemes are more abstract. On the correlated axis of visual appearance, the hieroglyphic script is intrinsically spatial, with depictive graphemes displaying pictorial qualities, while hieratic signs are characterized by the linearity of their shape resulting from their cursive realization. Figure IV.3.1 encapsulates how the five main native Egyptian scripts—namely, the hieroglyphic (see chapter by Servajean), cursive hieroglyphic (see chapters by Ali, Lucarelli), hieratic (see chapters by Gülden et al., Fischer-Elfert), abnormal hieratic (see chapter by Donker van Heel), and Demotic scripts (see chapters by Moje, Quack)—are distributed along these two correlated dimensions.

From a diachronic point of view, hieratic is best not seen as a descendant of the hieroglyphic script (Goedicke 1988, vii–viii). During the formative period of the writing system, the degree of figurativity of the pictorial signs could vary significantly according to the writing surfaces and modes of inscription, but remained high overall. As such, a distinction between different scripts does not make much sense for the earliest times. The extension of writing to different functional settings, however, quickly led to specific scribal practices and conventions (Regulski 2010, 2016).

The monumental hieroglyphic script is characterized by highly iconic graphemes, while cursive forms are usually executed with rush brush and ink. The first documents that display the simplifications and abbreviations characteristic of later hieratic inscriptions

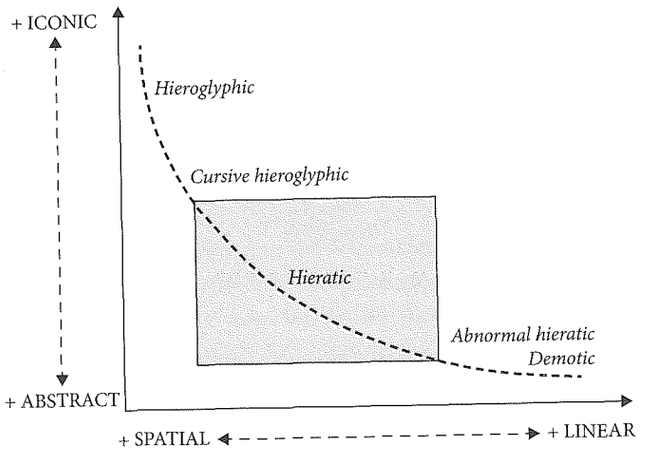

FIGURE IV.3.1. The five main native Egyptian scripts.

date to the Second Dynasty (Regulski 2009) and can be labeled "proto-hieratic." Among the longhands, there is no clear-cut distinction between the so-called cursive hieroglyphic (see chapter by Ali) and hieratic scripts before the end of the Old Kingdom. The cursiveness of signs is variable, but two different scribal traditions can only be witnessed from the First Intermediate Period (c. 2100 BCE). From then on, cursive hieroglyphs maintained a strong link with the figurative realm throughout ancient Egyptian history—and correspondingly have been used mostly in sacralized contexts (Vernus 1990)—while the hieratic signary evolved progressively toward more abstract and linear shapes. Hieratic, however, never lost its link with the iconic domain. Whereas the degree of cursiveness typical of abnormal hieratic and Demotic scripts led to a gradual loss of connection with the figurative sphere, the hieratic signs—even though frequently characterized by ligatures, abbreviations, and diacritics—kept an actual link with their representational origin (see "Systemic Variation" section, later). (Note that diacritics may appear to distinguish between specific values of polyfunctional signs. A famous example is the Eighteenth Dynasty addition of a stroke to the bovine ear (Gardiner F21) so as to visually hint at the roots *sḏm* "hear" (with one stroke) and *jdn* "ear" (with two strokes).)

Figure IV.3.2 visualizes the diachronic developments of ancient Egyptian scripts (for a detailed discussion, see Verhoeven 2015, 39–48); because each script has a separate and distinct tradition (Fischer 1976, 43), Egyptian written culture can be characterized as intrinsically "multiscriptic." Specifically, it shows that the hieratic longhand—originally used mostly as a notation script on jars and vessels before becoming the regular cursive for most of ancient Egyptian history—was progressively limited to its book-hand style after the Ramesside period. Hence, a correlation develops during the late periods between this script and priestly writing, which accounts for the name γράμματα ἱερατικά (*grámmata hieraticá*) that Clement of Alexandria (second century CE) coined to refer to this script (*Stromata*, V, 4,20–21) and from which modern labels such as "hieratic," "hiératique," and "hieratisch" derive (see chapter by Winand).

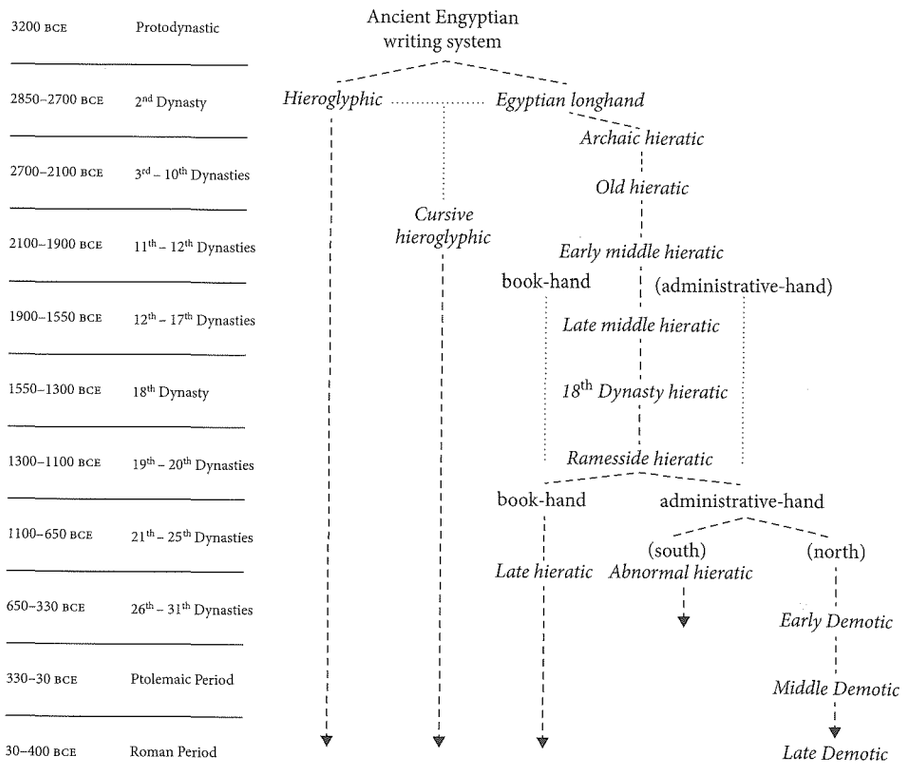

FIGURE IV.3.2. Historical development of the ancient Egyptian scripts.

Excellent introductions to the history of hieratic, and to material and methodological questions pertaining to the study of this cursive script, are readily available (Gasse 2016; Verhoeven 2015; Wente 2001). This chapter focuses on complementary aspects and addresses two main questions. First, what tools are available for studying hieratic texts, and what directions will future research on this script take? Second, what are the fields of application of hieratic palaeography? Hieratic palaeography is indeed at the crossroads of many areas of research that are outlined in the second section of this chapter.

Hieratic Palaeographies: Studying Written Variation

The first hieratic palaeography is the work of Champollion himself (1821, pls. III–VI) in an early attempt to demonstrate the systematic equivalences between hieroglyphic and hieratic signs and groups. This investigation led him to the famous statement that "les principes généraux de l'écriture hiératique sont absolument les mêmes que ceux qui

régissent l'écriture hiéroglyphique pure et linéaire" (1824, 353, §114, with pls. A–K), thereby acknowledging the fact that the hieroglyphic and hieratic scripts are two realizations of one single writing system, with graphemes that can fulfill both semographic and phonographic functions (Polis and Rosmorduc 2015). As a result, Champollion's grammar not only abounds in hieratic examples and spellings but also provides synoptic tables with the correspondences between hieroglyphic and hieratic signs (1836, 35–46, 535–548).

While Champollion's approach can be characterized as panchronic, a proper diachronic investigation of the hieratic script started with Erman (1890, II:32–56), who compared seventy signs coming from seventeen different manuscripts (Twelfth–Twenty-second Dynasties), and identified a regular opposition between the "*Unciale*," or book hand, and the "*Cursive*," or administrative hand (compare Figure IV.3.2). He further described patterns of evolution between older and newer forms of the same signs, opening up the possibility of dating manuscripts, thanks to palaeography.

This diachronic approach culminated in the admirable (and still unsurpassed) work of Möller ([1909–1912] 1927–1936). The three volumes of his *Hieratische Paläographie* (with the *Hieratische Lesestücke* I–II of 1927) indeed remain an indispensable tool for both learning hieratic and studying hieratic texts. Besides the insightful introductory remarks, palaeographic tables covering thirty-two sources (mostly book hands), ranging from the Fifth Dynasty to the Roman Period, provide the hieratic shapes corresponding to more than seven hundred individual hieroglyphic signs (including numbers and measurement units) and seventy groups and ligatures.

Specific palaeographies have most often accompanied the edition of new hieratic documents—overviews are provided by Posener (1973) and Wimmer (1995, 3–5)—but only a handful of comparative studies have been published since Möller's pioneering work: Goedicke (1988) for old hieratic, Wimmer (1995) for administrative Ramesside hieratic, and Verhoeven (2001) for the late hieratic book hands. They focus on more restricted periods, but include a diachronic dimension (which is even central to the latter two studies that are successful in suggesting more accurate dating based on the hieratic script).

The steady publication of new hieratic sources, without making these studies obsolete, constantly brings in new hieratic signs, shapes, and ligatures that are likely to refine or modify our understanding of the ancient Egyptian hieratic cursive. The sources recently made (or about to be) available for old hieratic, for instance, include the Fourth Dynasty papyri of Wadi el-Jarf (Tallet 2017), the Gebelein papyri (Posener-Kriéger 2004), the Abusir papyrus archive (Posener-Kriéger, Verner, and Vymazalová 2006), and the hieratic inscriptions on the clay tablets from Balat (e.g., Soukiassian, Wuttmann, and Pantalacci 2002, 331–384) to name a few. The same trend is observed for later periods and is certainly not about to decrease. As an illustration, many papyri (Töpfer 2018) and thousands of Ramesside hieratic ostraca from Deir el-Medina (see chapter by Fischer-Elfert) still await proper publication. Consequently, it seems reasonable to assert that a "New Möller" (Posener 1973, 29) can nowadays only be conceived as digital palaeography, which would have the advantages of being both expandable and searchable according

to several criteria, and which is the avenue chosen by the long-term (Mainz-based) project *AKU—Altägyptische Kursivschriften* (see chapter by Gülden et al.).

In the next sections, future perspectives for hieratic studies are outlined, adopting a variationist approach that envisions the written continuum as a structured heterogeneity. Following this line of thought, both diachronic and synchronic variations can appear at three different levels. First, variation may be systemic, namely, it can result from the potentialities of the ancient Egyptian writing system as a whole, which is flexible as regards the repertoire of signs and their syntax. Second, variation can be contextually driven, that is, linked to particular norms that govern the use of a script in a given context and lead to specific handwriting styles and formats. Third, variation can result from the actual written performance, which is connected to the capabilities of individual scribes and to the medium and writing tools that he uses (see chapter by Meeks).

Systemic Variation: The Hieratic Signary and Its Syntax

Belonging to a single writing system, hieroglyphic and hieratic scripts share features that have not yet been thoroughly explored. I first discuss essential characteristics of the hieratic graphemic stock, and then turn to the syntax of these minimal units.

Just like the hieroglyphic signary (Vernus 1982, 101–105), the repertoire of hieratic signs is characterized by its *extendability*: hieratic never lost its figurative potential—even within the most abstract and linear administrative hand styles—which implies that scribes could relatively freely enrich the repertoire with new semograms (pictograms, logograms, and classifiers alike) that do not necessarily have hieroglyphic equivalents (e.g., Pantalacci 2005, 276–278). As an illustration, one can consider some classifiers used in the Ramesside "letter to the king relating to the foundation of a statue" of P. Turin Cat. 1879, v° (Hovestreydt 1997). While describing the statue (*KRI* VI, 335:5–15), the scribe used four hieratic signs that are not completely exceptional, but failed so far to be recorded in the palaeographic tools: the *shendyt*-kilt, the *khepresh*-crown, the *mekes*-scepter, and the curved horns.

Although the basic hieratic signary is certainly more limited than the hieroglyphic one (Collombert 2007), with approximately five hundred different signs shared across periods (Verhoeven 2015, 34), the complete inventory of hieratic signs is still to be established (and regularly updated based on the publication of new material). Correspondingly, the abstract hieratic shapes directly interact with the figurative hieroglyphs. This phenomenon, which is attested for all periods, has long been noted, but has not yet been systematically studied. It includes (1) the influence of hieratic shapes on hieroglyphic ones, (2) the creation of hieroglyphic signs (or variants thereof) that are modeled on hieratic ones, (3) the hieroglyphic signs that inherit functions from others because of their similar hieratic shapes, and (4) the confusion between hieroglyphic signs due to the similarity between the equivalent hieratic signs (Lenzo 2015, 279–285). Linked to this last point is the question of hieratic drafts for (and copies of) hieroglyphic texts. Although the use of cursive hieroglyphs as an intermediate script for executing

monumental inscriptions is well attested (Lüscher 2013), the existence of direct hieratic *Vorlage* of hieroglyphic texts is still disputed (Haring 2015).

In terms of (topo)syntax, the hieroglyphic and hieratic scripts originally shared the same plasticity as regards the general layout, with two possible organizations: texts could be written in vertical columns or in horizontal lines. However, the hieratic script quickly developed specific norms, which underwent a long-term diachronic evolution. Throughout the Old Kingdom and during the first part of the Twelfth Dynasty, the unmarked layout was vertical, while the horizontal lines were meaningfully exploited as formatting devices, for example, for headings or for signaling a shift of genre, such as the copy of the decree brought to Sinuhe that is marked by a change from columns to lines. (For a detailed analysis, including the fact that the scribe did not go back to the column layout afterward, see Parkinson (2009, 93–96).) In the course of the Twelfth Dynasty, however, the horizontal layout becomes increasingly frequent and is regular during the reign of Amenemhat III. The marked-unmarked opposition is then reversed, as can be observed for instance in the Lahun papyri (Collier and Quirke 2002), and the vertical layout, which is subsequently abandoned for hieratic texts, became associated with religious and sacralized texts written in cursive hieroglyphs. (Exceptions to this principle, such as the vertical protasis in the *Dream Book* of P. Chester Beatty III (Gardiner 1935, II, 5–8a), are certainly to be envisioned as isolated creative practices.) The arguments that have been proposed to account for this change are mostly practical and common-sense ones (Wente 2001, 206–207): preventing the scribe's hand from smudging lines previously penned; forming pages on the papyrus scroll that are easier to consult and process; increasing the speed of writing; adopting a layout that necessitates less space. However, the process as a whole has not yet been described thoroughly and requires detailed studies.

As regards text orientation, hieratic is a right-to-left script only—with signs facing right—which is the preferred reading order for hieroglyphs. It is also important to stress that hieratic developed an independent tradition as regards the organization of the graphemes within a line. While the syntax of the hieroglyphic graphemes is essentially spatial and flexible (Polis 2018), the hieratic script leans toward a more linear and rigid organization of the signs. Quadrat arrangement is not mandatory, graphemes can combine in (complex) ligatures (within which the signs are not neatly individualized), and interlines are exploited by some signs. Consequently, the calligraphic principles of the hieratic script differ significantly from those of the hieroglyphic script, and orthographic variation is much less pervasive in hieratic texts, which favor fixed spellings for groups of hieratic signs. The availability of electronic corpora that integrate the graphemic level, such as *Ramses Online* (ramses.ulg.ac.be), should facilitate future research in this promising field.

Normative Variation: About Styles and Visual Formats

In parallel with the extension of hieratic scripts to various functional spheres (Gasse 2016, 63–68)—from labels and administrative texts, to literary, scientific, and

religious compositions—specific norms developed regarding the handwriting styles and formats linked to particular scribal practices.

Regarding handwriting styles, clear differences in abstraction and linearity appear already during the Old Kingdom. The execration texts of the end of this period (e.g., Abu Bakr and Osing 1973; Osing 1976) and of the First Intermediate Period (e.g., Posener and Osing 2013), for instance, already display the kind of cursiveness that will become characteristic of the administrative-hand style that is juxtaposed with the uncial (also called literary or book-hand) style from the Twelfth Dynasty. Studies about the administrative-hand style of particular (post-)Ramesside documents are available (e.g., Gasse 1988, 237–244, pls. I–XIX; von Bomhard 1998) and allow one to conceive of how the more cursive styles developed into abnormal hieratic (Upper Egypt) and (to a lesser extent) Demotic (Lower Egypt; compare Figure IV.3.1). Complementarily, Verhoeven's (2001) detailed study of the late hieratic book-hand style significantly advanced our understanding of late developments of the uncial and its relationships to the styles of earlier times. However, much remains to be done both in order to fulfill Möller's projects of investigating the history of individual styles and to describe the uses of different styles in individual texts. In this respect, it is rather self-evident that a simple dichotomy between book- and administrative-hand styles is not adequate for describing the variety of graphic registers encountered in the documents and that the history of these styles is not linear: in the extant material, some periods (e.g., the Ramesside period) display much more stylistic variation than others (e.g., the Second Intermediate Period).

Furthermore, specific norms developed locally. A canonical example, already studied by Erman and Möller, is the clustering of the four hands of P. Harris I in two groups. The hands of so-called Theban scribes "A" and "B" and the ones of the Heliopolitan and Memphite scribes "C" and "D" display regularities that suggest the existence of two different schools, respectively southern and northern, at the end of the New Kingdom (Grandet 1994, I, 23–26, despite the pessimistic view of Megally [1971, 21–22]). Research about regional norms, which would include the (cursive) hieratic Coffin Texts, is still a desideratum in the field (Posener 1973, 30).

Visual formatting of hieratic texts is also subject to regular variations depending on a variety of factors, which are primarily related to the text function and context of use. Eyre (2013, 41–54) provided an overview of the main formatting devices on papyrus, and his approach can be fruitfully extended to other media (see "Performative Variation"). Besides the (vertical versus horizontal) text organization discussed earlier (see "Systemic Variation"), the following strategies can be investigated in relation to the basic *scriptio continua*: (1) the ruling lines used to create full tables (a common Old Kingdom practice), to separate different sections of a text (as in the Rhind mathematical papyrus), to divide a text in columns or lines (a late development, see Quack 2015, 445–450), or to demarcate the text from images (Rößler-Köhler 1990); (2) the text layout, with specific arrangements, such as the use of line breaks (e.g., in lists or literary compositions), paragraphs, indentations, and *vacat* (or blank spaces, see Rößler-Köhler 1984); and (3) the structuration devices, such as punctuation marks (Tacke 2001), rubrics (or more broadly the alternation between black and red ink;

compare Posener 1951), or sections markers (like *ḥw.t* or *grḥ*). Finally, paratextual elements—such as numbering of lines and pages, marginal annotations, or emendations and corrections of the text—although not strictly genre dependent, are often indicative of the function of texts and linked to specific practices that still await detailed treatment. Practically, a diplomatic approach to ancient Egyptian hieratic documents would certainly unveil regularities regarding the correlation between the aforementioned strategies, as well as their diachronic evolutions.

Performative Variation: Scribal Hands and Materiality of Writing

If the specific purpose of hieratic texts called for particular handwriting styles and visual formatting devices, variation of the cursive is not only a matter of norms perpetuated through teaching and tradition—with occasional reforms of the system, for instance, with a return toward more iconic hieratic shapes during the early Eighteenth Dynasty (Megally 1971, 1–11; Parkinson and Quirke 1995, 27–28). Indeed, the long-term diachronic changes studied by most hieratic palaeographies are rooted in synchronic variation, which can be observed in individual scribal performances. Megally (1971) has been an early advocate of the synchronic approach to variation. He showed that different forms of the same hieratic signs regularly occur in a single text and observed that there is a general tendency toward greater linearity and abstraction as the text unfolds (e.g., Janssen 2000, 52; Dorn and Polis 2016, 67–69). As such, various degrees of iconicity of the same hieratic sign (see already Champollion 1836, 15–17) coexist in a single hieratic text.

In order to study this aspect, Allen (2002, 76–78, 193–226) showed that it is important not to limit the investigation to the general shape of hieratic signs, but to explore the *ductus* and to determine the number and the order of the strokes in the drawing of individual signs. In his palaeographic sign-list (Figure IV.3.3), he reproduced the signs in outline so that the arrangement of overlapping strokes can be seen.

This method has been fruitfully used for identifying scribe-specific habits within and across documents (Ragazzoli 2012, 229–230), and paves the way for a detailed analysis of the "stratigraphy of writing" (Parkinson 2009, 90–112), which implies tracking the scribe's hand from the closest possible vantage point. What are his habits in terms of ductus? When is he changing, sharpening, and refilling his pen, reinking signs made at the end of a previous dip, smudging, erasing, and correcting signs, or adapting the layout of the text to physical features of the medium? All of these "operations" that affect the shapes and organization of hieratic signs are traces of the scribes' agency and habitus and give us access to the cognitive processes at work when writing a hieratic text.

The physicality of writing is of primary significance here. The study of hieratic cannot do without envisioning writing as a material practice (Piquette and Whitehouse 2013, Piquette 2018). The media (Eyre 2013, 22–41) are not simply given, but created or chosen by human agents, with purposefully prepared and delimited surfaces. Together with the

writing tools, they profoundly impact the forms of hieratic signs. However, the variety of hieratic shapes and ductuses that results from the use of different writing media and tools has not yet been studied in a comparative perspective.

Two modes of inscription are attested for the hieratic script: writing by addition, which implies the use of ink, and writing by subtraction, which entails some sort of carving. The combination of subtraction and addition, which is common for hieroglyphic inscriptions that are often both carved and painted (see chapter by Laboury), is exceptional for hieratic documents. (See, for instance, McDowell (1995) for an ostracon, which was probably erected as a stela in the hut of its owner, with the hieratic text deeply incised and filled with blue frit.)

Writing by addition is by far the most common. The scribe is then drawing signs with pen and ink, which originally gave the hieratic script its cursive aspect. During the pharaonic era, scribes used a thin pen made of rush (about 0.15 cm in diameter), held about 3–6 cm away from its writing end. It is only around 100 BCE that the Greek-origin sharpened reed pen (*Phragmites communis*) was progressively adopted for hieratic texts (Quack 2015, 444–445), which led to significant palaeographic changes. There is virtually no limitation to the kinds of media that could be inscribed with inked hieratic texts. Although papyrus is the writing surface par excellence, vessels and wooden tags, ostraca flakes of (lime)stone or potsherds, wooden boards and tablets (regularly covered in stucco), leather rolls, linen and coffins, as well as walls (*dipinti*) are common media.

Writing hieratic by subtraction, on the other hand, corresponds to specific practices—like the expedition inscriptions or graffiti in the mountains (e.g., see chapter by Ali) or some magical bricks (e.g., Silverman 1996)—to particular locations—for instance, the clay tablets of the Dakhla Oasis written with a pen in bone (e.g., Soukiassian, Wuttmann, and Pantalacci 2002, 331–384)—and to given periods—one can think of the post-Ramesside (particularly of the Libyan period) incised hieratic inscriptions on walls and stelae (Lenzo 2015; for a good illustration of hieroglyphic and hieratic scripts intertwined on such monuments, see Popko 2016). The ductus of the lapidary and incised hieratic inscription can only approximate the smooth ductus of free-flowing ink from a rush pen.

Applying Hieratic Palaeography

As we have just seen, the study of hieratic cursive provides heaps of information about the scribal norms and practices of different places and periods, but the use of palaeographic tools is most often motivated by a specific practical need. When studying hieratic originals, scholars have to check their readings against a repertoire of written forms that have been duly identified in order to ascertain the validity of their transcription into standardized hieroglyphs. The next section describes the main steps of this process, from the decipherment of the text to its normalized hieroglyphic transcription and dating based on the shapes observed in the reference tools. In the last section, a developing

field of hieratic palaeography is introduced, namely, the identification and clustering of particular hands both within and across documents. Recent studies and promising avenues for future applications in this domain are discussed.

Reading, Publishing, and Dating Hieratic Texts

Although museums around the world are still filled with unpublished hieratic material, it is fair to say that the better-preserved documents have naturally been favored by previous generations of hieraticists. The help of a magnifying glass is accordingly not always sufficient in order to make sense of the faint traces of ink on the writing surface. Digital microscopes are nowadays both affordable and user-friendly (e.g., the Dino-Lite solutions), and they conveniently replace the old-school lenses. In this domain, digital imaging also helps significantly in two respects (Grandet 2017). First, photographs can be taken in wavelengths that range beyond visible light (Reggiani 2017, 141–145) so as to reveal texts that cannot be seen with the naked eye. Infrared imaging, in particular, has proven to be efficient (Bülow-Jacobsen 2008), especially in case of lack of contrast between the background and the carbon-based ink. Experiments with multispectral imaging have also been conducted, with promising preliminary results for hieratic texts, such as the ones found on execration figurines (van der Perre 2017). Second, even with regular digital photographs, the use of raster graphic software, such as Gimp or Adobe Photoshop, is very often helpful. Especially impressive are the results produced by the DStrech plugin for ImageJ by Harman (www.dstretch.com) (see chapter by Wendrich). Initially developed for digital enhancement of rock pictographs, its performances on hieratic inscriptions are admirable.

Having deciphered what one can, the next step is normally to prepare a facsimile that will document what the editor's eye could perceive, which is not necessarily visible on the photograph. Ostracon BTdK 640 illustrates this point (Dorn 2011, III, 514–516). The accuracy of the hieroglyphic transcription of the beginning of the first three lines could indeed not be assessed without the facsimile. In practice, facsimiles are mostly used for the media whose surface is not flat since it allows the flattening of the shape of signs that the photograph of a three-dimensional object necessarily

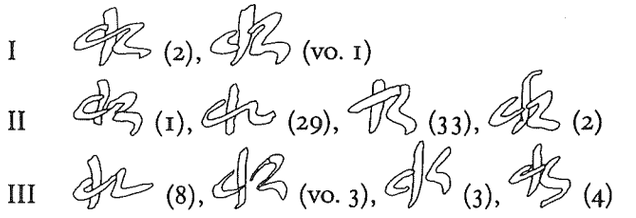

FIGURE IV.3.3. The ductus of Gardiner A1 in the Heqanakhte papers, between two and four strokes (Allen 2002, 193).

distorts. Facsimiles are consequently not included in the publications of hieratic papyri (since photographs became affordable). Traditionally, facsimiles are realized with a pencil and drafting paper ("*kodatrace*") put directly on the surface of writing. When done carefully, the facsimile process may stop there, and a scan of the drafting paper shall produce an acceptable result. However, a second step is often taken. The tracing is inked manually, or scanned and retraced, using vector-drawing software, such as Inkscape or Adobe Illustrator. An advantage of the second method is that it allows the visualization of the order of brush strokes (e.g., Navrátilová 2015). Nowadays, some scholars skip the first step involving the drafting paper altogether and produce facsimiles directly on computer, while checking their drawing against the original. This method is recommended in the case of fragile documents, but produces inaccurate results if the writing surface is curved (as with ceramic ostraca), since the starting point is a photograph that flattens the three dimensions and distorts the writing surface. It should be stressed that facsimiles are interpretations and, as such, supplement the picture, but cannot substitute for it (Burkard, Goecke-Bauer, and Wimmer 2002).

Unlike facsimiles, hieroglyphic transcriptions are necessarily included in the publication of hieratic texts. Scholars considered creating a standardized hieratic font for transcribing hieratic texts. This idea goes back as far as Pleyte (1865) and regularly resurfaces. However, given the significant evolution of this script through time, as well as the great variety of hieratic styles on the one hand, and because of the transposability between the hieratic and hieroglyphic scripts on the other hand, such a project does not make much sense from a scholarly point of view. As argued by Gardiner (1929), a hieroglyphic transcription of the original should be provided, as it constitutes an interpretation of the cursive accessible to any trained Egyptologist, and—provided that it respects certain (arbitrary) principles—enables the reader to form a fairly good idea of what the manuscript looks like. (Note that the publication of hieratic texts includes more and more frequently a transliteration and a translation, which appreciably helps the reader, but is demanding for the editor. The evolution of the publishing practices for the ostraca of the IFAO, between Černý and Posener's minimalist editions and the full publications by Grandet and Gasse, is illustrative of this trend.)

Finally, the editors of hieratic documents have to suggest a date for the material being published. Among other criteria—such as prosopographical and grammatical features or information about provenance—palaeographic arguments are often resorted to (and are sometimes the only ones on which one can rely). Several diachronic approaches to hieratic palaeography prove to be especially useful in this respect—from Erman (1890, II:32–56) and Möller ([1909–1912] 1927–1936, 1920) to Wimmer (1995, 1998, 2001) and Verhoeven (2001)—and comparisons with other documents of a specific period help to significantly narrow down the period of composition (and sometimes to redate certain manuscripts). Because of the high degree of synchronic variation for individual signs, Janssen (1984, 305; 1987, 161; 1997) has been skeptical about the possibility of using palaeography for dating purposes. Although his argument applies to a certain extent to the Deir el-Medina hieratic material of the Ramesside period (where one tries to specify the precise date of composition within the Ramesside period), an approximation with a margin of less than one hundred years can be attained in the vast majority of the cases.

Identifying, Clustering, and Individualizing Hands

One thing is to identify several hands within a single document (e.g., von Bomhard 1998; Verhoeven 2001, 29–60), yet another is to track a single hand across several texts. In the first case, one is generally dealing with one handwriting style in synchrony (or short-term diachrony), and significant differences between hands are usually sufficient to hypothesize that several scribes were at work. In order to track a single handwriting from one text to another, one has to evaluate how great the degree of variation can be within one person's handwriting according to the circumstances of production (Sweeney 1998) and how this handwriting evolved through time (Dorn 2015).

Janssen (1987, 2000) was the first to suggest a proper methodology for tackling this issue. He stressed the importance of considering groups—rather than isolated signs—and distinguished between "principal variations" (i.e., completely different ways of shaping a sign) and "incidental variations" that are characterized by their irregular occurrences in a manuscript. One step further, van den Berg and Donker van Heel (2000) demonstrated that larger units, such as proper names or entire words, are more likely to reveal individual scribal habits than smaller ones. Within a set of documents that share the same provenance, they showed that hands can be clustered with a fair degree of certainty based on such a palaeographic approach.

The general appearance of handwriting is also crucial (Gasse 1992). As it turns out, it can indeed be more regular and telling than the shape of isolated signs or even groups (Dorn and Polis 2016, 67–73). This field is still in its infancy, and four main domains have to be investigated simultaneously: (1) the habits that relate to the size of the brush, to the density of ink, and to the number of dips; (2) the regularities in terms of ductus, with the types of pen pressure (ranging from full to loose), the spacing of signs, and the movement, rhythm, and speed of the hand; (3) the general features of signs, including their size and width-height ratio, their slant (rightward, upright, or leftward), as well as their curved versus angular aspect; (4) and the format of the text, especially regarding the baseline (rigid, bouncy, or wavy) and its orientation (straight, ascending, descending, or curved), as well as leading (i.e., the distance between baselines).

Finally, individualizing the hands, namely, attaching the name of a scribe to a particular handwriting is only possible in favorable conditions, such as the presence of colophons at the end of manuscripts (e.g., Ragazzoli 2012), as well as with "signed" scribal exercises (McDowell 1996) and texts (Dorn 2017; Polis 2017). The specific sociocultural setting of Deir el-Medina during the Ramesside period, where a vast quantity of information about the scribes is available, constitutes an especially promising area of research in this domain. However, the words of Černý (1973, 222–223) are to a large extent still accurate more than forty years later: "whether, and how far it will be possible to classify the

variety of hands appearing in the documents of the Tomb, and to link the handwritings to individual scribes, are questions which must (...) be left to future research."

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