

What remains behind – On the Virtual Reconstruction of Dismembered Manuscripts.

Matthias H.O. Schulz, University of Vienna/ University of Münster¹

Keywords: Coptic manuscripts/ Koptische Handschriften, palaeography/ Paläographie, Coptic liturgy/ Koptische Liturgie, Coptic hymns/ Koptische Hymnen, Coptic music/ Koptische Musik

Cover sheet

Good morning Ladies and Gentlemen

My name is Matthias Schulz. I'm working at the University of Vienna in a project on the Sahidic Coptic Gospel of John² and I'm writing my Ph.D. on text and music of the Coptic Orthodox Church in Music sciences at the Westfälische Wilhelms Universität Münster.

As you know, Coptic is the latest stage of the Egyptian language written in the Greek alphabet with additional Demotic characters. Due to climatic conditions many manuscripts have survived from Egypt but the bulk of them, especially of the 1st millenium A. D., in fragmentary condition and scattered – often as single leaves or small groups of leaves – over collections on three continents. Of course, Coptic consist of different dialects and most of the manuscripts are Christian.

As one part of my Ph.D. I catalogued liturgical codices of the Coptic Orthodox Church. That means on the one hand manuscripts that contain biblical texts to be read in church services on the other hand manuscripts that contain hymns. My aim was to see how far we can trace back today's tradition in the past. The dialects I dealt with are – mainly – Sahidic for older manuscripts and Bohairic for the present time.

Since I've used written sources and since I've worked in the Institute for New Testament Research of the WWU for seven years reconstructing literary, that is to say liturgical manuscripts was one of my major objectives. In fact, you can't trace back music directly because the first scientific transcriptions and recording don't predate the 1920ies.

Slide 1 – Identifying the *Classical Way*

The major steps in reconstructing codices are indentifying the contents and assigning fragments or leaves to known manuscripts. Only some years ago assigning folios to one another was a rather time consuming activity.

After collecting and checking catalogues for their accuracy, the second step was to catalogue photographic material and microfilms, to identify texts with concordances, and to assign fragments to codices according to palaeographic decisions. On the slide you see a page of an inventory book from the INTF for a microfilm with fragments from Vienna.

A third step was to number the codices, the fragments were assigned to, and to collect photographs of them in folders. For every numbered manuscript an index card was made that includes samples of the shape of letters and a general description of the script as “breit,

¹ The text given is identical to the text of the lecture. Only blank spaces and headings are added to visualise the structure of the text in accordance to the ppt-slides.

² FWF project P 25082 “Die sahidische Version des Johannesevangeliums als Teil der Editio Critica Major” lead by Hans Förster.

halbbreit, schmal bis halbbreit” or “schmal” to make it easier to assign further parts to a known manuscript.

Slide 2 – Sahidic Bible

Of course, identifying the contents of Coptic literary manuscripts has become easier through the introduction of the World Wide Web. On the one hand it provides with copies of older editions, on the other it enables to use search engines to find a specific passage of text. To be true, Sahidic Coptic hasn't been a main interest up till now. Three years ago I guess Troy Griffiths and Christian Askeland developed an *cross wire* add-on for the web browser Firefox, that provides a quite comfortable way to search even for small or insignificant looking combinations of letters or defective passages.³ I contributed the Old Testament books of *Psalms*, *Ruth*, *Canticum canticorum*, and *Kohelet*. However, the resulting tool Sahidic bible will be become obsolete in the near future because all data has been transferred to Coptic Septuagint project in Göttingen where it will be expanded and corrected (hopefully not in too many cases).

Slide 3 – Palaeography Database of the INTF

Identifying texts is the one side in reconstructing codices, identifying a codex itself these fragments belonged to is the other. Since the main tools of palaeographical comparison haven't changed in Coptology within the last two hundred years, a palaeography database might be the greatest achievement and a basis for further research. The interface of this filemaker database was developed by Siegfried Richter, who had chosen a number of characters that occur very often in Coptic manuscripts and can easily be assigned to a scribal hand. Right now the palaeography database includes nearly 900 entries, more than 700 with images. Nearly all 424 codices are included that contain parts of the New Testament and are listed in the online database of the INTF.⁴ It's a work in progress and expanding constantly. The database can also be used to date manuscripts palaeographical if we take as a framework those codices with dated colophons.⁵

On the slide you see a screenshot of the database in the form of a list. In fact for a comparison the view as form is used which you'll see on the next slide.

For a pre-selection it's possible to exclude or include fragments according to material, language or dialect, number of columns, lines per page, letters per line, the size of a leaf, or the measurement of the written area. The factors can freely be combined.

Not yet included in the palaeography database are Old Testament manuscripts, but that will change in the near future as a result of cooperation between the INTF in Münster and the Coptic Septuagint project in Göttingen.

Slide 4 – A Concrete Example – sa 340^L

As an example for data entries showing a comparable script, you see forms for sa 340^L, a Greek-Sahidic lectionary from the White Monastery – that is to say a manuscript that contains only selected passages from the bible to be used in church services. Formerly parts of sa 340^L

³ URL: <https://addons.mozilla.org/de/firefox/addon/sahidic-bible/?src=search;http://www.crosswire.org/study/powersearch.jsp?mod=SahidicBible>.

⁴ URL: <http://intf.uni-muenster.de/smr/index.php>.

⁵ The database isn't an automatic system depending on search routines of a computer but on the ability of human beings. Any decision is made by the person working with the database.

were listed separately as sa 341^L.⁶

So, if we have identified fragments that show comparable script we have to go back to the roots and compare images to decide if they really belong to the same codex.

Slide 5 – A Concrete Example – sa 340^L

In the case of sa 340 this is quite easy. Not only the script is comparable but also ornamentations and headlines share common features. In order to establish the right sequence of the unpaginated folios, I was able to use other lectionaries as well as fragments of liturgical directories containing references to biblical readings.

Through the palaeography database it is possible to compare a new fragment within a very limited time. In most cases there isn't needed more than an hour for all manuscripts included right now in the SMR-online database – that is to say 424 manuscripts within 1h.

The database is open to every kind of written material and can be expanded as far as there is computer capacity.⁷

Slide 6 – sa 667^L

Of course, we have to deal with tiny scraps as well that can't be assigned to a known manuscript for the time being. As you can imagine it is rather useless to try to estimate the original position in the manuscript the fragment belonged to if it is not foliated or paginated and no other manuscripts for comparison of its contents are known. That is the case with sa 667^L, also a lectionary, this time with text from the Psalms and the Apocalypse of John on the recto and the continuation of the Apocalypse text on the verso.

Frank Feder has already presented the VMR which was developed for Greek New Testament manuscripts at the INTF in Münster⁸ and is now adopted and further evolved for Coptic manuscripts at Göttingen. So, to keep it short – in a case as sa 667^L shows it we have to define a random folio number as makeshift for transcript and scan till further fragments appear.

Nonetheless we are in the position to estimate the fragment's place on the page.

Slide 7 – sa 667^L: Reconstruction of Its Place on the Page

In the case of known texts which have been recorded in a manuscript as full texts a mathematical approach can be used to estimate the position of a fragment. In fact that's the normal way of dealing with literary manuscripts commonly used in Papyrology, Egyptology, Coptology, and so on.

First we have to count the number of letters of our text, secondly we have to estimate the number of letters per page. Taking as an example a page of two columns with 32 lines each and an average number of 10 letters per line the estimated number of letters per page is 640. 320 are one half or the estimated letters for one column, 160 letters are one quarter of the page or the middle of one column and so on.

If we state, that we have a lacuna of 3000 letters between preserved fragments of a manuscript, we can estimate for this example page that 4.6 pages or 2.3 folios or 9.2 columns are missing. Of course this isn't an exact science since there are some variables – for example

⁶ Cf. for literature on the manuscripts mentioned in the lecture the bibliography to the SMR-online database, URL: <http://intf.uni-muenster.de/smr/bibliographie.html>

⁷ Only a short time before the lecture I had to learn that filemaker isn't able to handle files that reach 1GB or more. Furthermore the transfer of data from filemaker to .xml does not function properly in every case.

⁸ URL: <http://ntvmr.uni-muenster.de/>.

textual variants, a varying number of lines or number of letters which have to be taken into account. However, for the VMR such estimations are fairly precise enough to upload transcripts and scans.

Now returning to our tiny snippet: To be true, we can't estimate it's position in the codex but we can place it on the page. Between the preserved letters on recto and verso 203 letters are missing. The average number of letters per line is nine so 22.5 lines are missing. Since parts of 8 lines are preserved the original number of lines was ca. 30. We can estimate that the fragment formed l. 14–21 of the outer column because there isn't much text missing.

Slide 8 – sa 347^L

If more fragments are known we can go even further and try to reconstruct the whole page. On the slide you see a reconstruction of the recto of sa 347^L drawn by F.-J. Schmitz.

Of course for the time being we can't imitate such a drawing by terms of using scanned images and putting them side by side with a transcript, but I guess it's only a matter of time until scanned images turned into computer fonts or another format will enable us to individualise transcripts that they really resemble the script of the manuscript.

Slide 9 – Catalogue Entry

However, that's something for the future to come. Right now I would rather give a short overview on some aspects of my Ph.D. that I've invented independently from the INTF or the VMR.

As mentioned I've made a catalogue containing liturgical manuscripts with biblical content. On the slide you see the catalogue entry for the manuscript just shown. The catalogue is a complement to existing lists and catalogues with special focus on the usage of the texts.⁹ Therefore I've only included the necessary information on inventory numbers, sigla, material, size, and number of lines and columns. Furthermore I tried to give information on the contexts, that is to say the preceding and following texts. The catalogue is followed by a commentary on each manuscript.

Slide 10 – Coptic Liturgy Database

As a by-product of my Ph.D. in paper form I included all data and additional information not needed for my thesis in a filemaker database. First of all it was a quite comfortable way to order the material for me and to easily regain information I had already worked on without turning reams of paper again and again. Secondly it turned out to be useful for cataloguing quite different material as well. I will come back on this topic at the very end of my lecture.

On the slide you see the data sheet for the catalogue entry of the preceding slide. In the database I've given the sequence of the texts besides the contents alone.

Slide 11 – Index for Sahidic Lections

For the time being we haven't enough data to establish the correct order for all of the fragmentary codices, therefore one of the most important things was to collect and to index the known material and to arrange it according to liturgical usage. For my Ph.D. in paper form I've arranged the information as indices each giving in short form as much information as possible, e.g. the date (if preserved) is given in abbreviated form.

⁹ For lists and catalogues cf. the SMR-Bibliography, URL: <http://intf.uni-muenster.de/smr/bibliographie.html>.

In order to compare past and present usage of texts, I included an appendix of the liturgical tradition of today according to modern printed editions with minor additions from manuscript sources as well. This material has also been processed as an index and is included in my database.

Slide 12 – Cairo, IFAO, Inv.-No. 410–412 with Appendix-Screenshot

To give you an impression what the data looks like in context I've made a screenshot of one of my appendices for the liturgy of today side by side with an image of a Bohairic manuscript of which three fragments are kept at the IFAO, inventory numbers 410–412.¹⁰ Actually I've excluded the fragments from my catalogue because they don't provide any additional information.

So, if you've searched the index, found an entry that seems to fit and looked up its context you can see that the fragments contained readings meant for the 4th Sunday of Chojak and the 1st and 2nd Sunday of Tobe (December-January). Using the database I can get the same information with two clicks.

For manuscripts in Bohairic Coptic the system is reliable, for the older codices in Sahidic our knowledge is still quite limited.

Slide 13 – Hymn Incipits

Since I am writing in music sciences I have also made a incipit list of hymns in Greek and Coptic of the Coptic Orthodox church. It is quite useful for identifying texts but also for comparison between today's hymns and the past. To be true you can't give as much information in printed form as you can give in a database. Therefore I've included the incipits in my database as well.

Slide 14 – Database Entry: Horologion

Here you see an example where I've added the full text of the hymns and some further information for example on the progression of different texts for one occasion. The information on incipits comprises only the left green field in the middle of the slide. The example is the data sheet for the liturgy of the hours, mainly celebrated in monasteries – the third hour of the day to be precise.

I think you can imagine that such an amount of information won't be handsome in a printed book.

Slide 15 – Sahidic-Bohairic-Arabic Horologion

Most liturgical codices do not have one continuous text but a combination of texts from the scriptures, hymns, prayers, or lives of saints. For any comparison we need data on their progression.

The manuscript on the slide is a Sahidic-Bohairic-Arabic Horologion, that is a codex for the liturgy of the hours. Beside parts of the book of Psalms arranged in an order differing from the one in the bible such manuscripts contain prayers as well as hymns. Of this specific paper codex 54 folios are kept in the Coptic Museum.¹¹ The whereabouts of 22 additional

¹⁰ C. Louis, *Catalogue raisonné des manuscrits littéraires coptes conservés à l'IFAO du Caire. Contribution à la reconstitution de la bibliothèque du Monastère Blanc* (unpublished Ph.D. thesis), Paris 2005: 571-572 no. 147 with pl. 160.

¹¹ W. Macomber, *Final Inventory of the Microfilmed Manuscripts of the Old Cairo, Egypt, Rolls B7–11*, Provo (UT) 1995: 11-13 [Roll: B-1, Item: 6A], URL: <https://archive.org/details/MacomberCopticMuseum.III.BYURollsB711>

folios are uncertain. Oswald Burmester edited them in 1966, but he does not name the collection where they are.¹² Luckily he has included at least a picture of one page so I was able to assign them to one another according to palaeographical investigation and, using the collected data on the progression of texts, also according to their contents. In fact in many places texts proceed continuously from one page to the other.

Only referring to these few examples it is quite clear that further studies are needed to expand our knowledge on the arrangement of manuscripts. First of all electronic transcripts of texts beside the bible are needed to enable correct identifications. The work on Coptic palaeography needs to be expanded beyond the present scope as well. Databases and online tools seem to be one of the most effective ways to achieve such objectives.

Slide 16 – Prospect

At the end of my lecture, I would like to give an prospect on a project that is planned after my Ph.D., hopefully in the near future. This time it is focused entirely on music.

Actually, my database was only a by-product of my Ph.D. but my supervisor R. M. Jäger thought it worth for publication at its own right in the internet as a joint venture project of the WWU and the Bavarian State library because there is residing the special collection for music of the Deutsche Forschungsgemeinschaft as well as the virtual library for music sciences which my supervisor presides.

Since the collection of Hymns of the Higher Institute for Coptic Studies at Cairo was digitised in 2009¹³ my database will be used for cataloguing the digital recordings that are to be incorporated in the collection of the Phonogrammarchiv of the ethno-musicological branch of the Ethnological Museum at Berlin.

I thank you for your attention.

¹² O. Burmester, “I. – Fragments of a Sa’îdic-Bohairic Horologion from Scetis”, *BSAC 18 (1966)*: 23–45 with pl.

¹³ URL: <http://www.uni-hildesheim.de/copticmusic/english/home.html>.