ORIENTAL MANUSCRIPTS AND NEW INFORMATION TECHNOLOGIES

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IMAGE AND LETTER: "PACE" IN ARABIC SCRIPT (A THUMB-NAIL INDEX AS A TOOL FOR A CATALOGUE OF ARABIC MANUSCRIPTS. PRINCIPLES AND CRITERIA FOR ITS CONSTRUCTION)*

"I know it, I have seen this handwriting!" How often a specialist in medieval manuscripts receives such a reaction from a colleague while showing him handwriting of unknown provenance. However, the matter is given little further attention, since it is usually difficult to recall where the manuscript was seen, especially if it was seen years before. Yet finding evidence of a similar hand, perhaps several years later, does occur. When this happens, it allows two or more manuscripts to be compared, and this comparison can lead to the establishment of the provenance of the manuscript under investigation, the approximate date of its compilation and sometimes its authorship.

To facilitate the difficult task of identifying a particular hand one requires a reliable tool rather than the sometimes unreliable and often fugitive memories of scholars. Specialists in palaeography have already made a number of attempts at producing such a tool. Regardless of the narrow specialization of these scholars (medieval European, Byzantine, Slavonic studies, etc.), the principles of such a tool were generally intended to provide a set of tables which represent dated specimens of medieval handwriting appropriate to these different scripts. Since comparison has been and remains the only method for identifying a particular hand, these tables usually include appendices which consist of lists of selected elements such as letters, ligatures, etc. For example, the specialists in Classical and Byzantine studies, among many other instruments, use reference tools by G. F. Tsereteli [1] and V. Gardthausen [2]. The most recent work in this field is represented by a voluminous and very detailed Repertorium der griechischen Kopisten, an up-dated version of Gardthausen's work published by the Austrian and German Byzantinologists H. Hunger, E. Gamillscheg, D. Haringer and P. Eleuteri [3].

Arabic and Islamic studies, although a much younger discipline, have followed the same course. Many albums of dated manuscripts have been published. The number of published specimens of handwriting in these albums is, however, insufficient if one regards the scale of manuscript production in Islamic culture [4]. One has also to add that most of what has been published is calligraphic specimens, which leave aside less formal hands. These published works are all of significant help in identifying unknown hands, although very difficult to use. It is not easy to compare a particular example of handwriting with several hundreds of specimens listed in the relevant manuals. Attempts to create a computerized tool for identification of scripts were made by the Russians E. Rezvan and N. Kondybaev, who independently repeated the approach of the Austrian team of Byzantinologists [5], taking individual letters as recognition units. The potential of this letter-based approach suggested by Austrian and Russian scholars is, however, limited. A reduction of a script to letter forms with similar or specific characteristics can be very misleading, since one and the same letter is not absolutely identical in one and the same person's hand-writing. Even slight inconsistencies may vitiate a human or machine search and recognition [6]. Further, the letter-based approach does not immediately give the idea of the whole lay out of a page. Thus two apparently similar letters may belong to two different hands.

A Thumb-Nail Index

In my view, in order to facilitate the identification of hands one has to create a tool consisting of reduced specimens of manuscript pages in tabular form, which may be attached to an album of manuscripts or to a manuscript catalogue. This listing should be arranged according to strict search criteria and be in the form of a **thumb-nail index** — a technical term originating from computing science [7]. A thumb-nail index with a series of small illus-

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