

Introduction

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ربع الكتابة من سواد مدادها والربع حسن صناعة الكتاب
والربع من قلم تسوي بربه وعلى الكواغد رابع الاسباب

One-fourth of writing derives from its ink's blackness,
from a beautifully made book another fourth,
One-fourth from a well sharpened pen,
while on the leaves of paper rests the fourth cause.

AL-QALQAŠANDĪ, *Subḥ al-aʿšā* II, 502

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An Arabic couplet, which circulated in Mediaeval erudite and scribal circles, says that the art of penmanship results from the sum of four different elements: the blackness of the ink, the making of a beautiful written artefact, a sharp pen, and a good sheet of paper. This aphoristic hemistich singles out the pivotal components common to almost all acts of writing: the presence of a medium, a suitable support, along with the use of ergonomic writing implements in order to obtain a final result that has aesthetic value. This synthetic perspective allows one to approach many different cultures and historical periods together, without losing sight of the differences between their particular interpretations of the shared pattern in writing practices. Indeed, premodern cultures reflected on writing supports and implements, as well as the composition of written artefacts, and on the tools and substances which were meant to leave a clear impression of written signs. They left behind a variety of material and textual witnesses, all of which were influenced and shaped by the language they spoke, the writing system they adopted, and the cultural lore related to the act of writing and its social meaning.

Recently, scholarship has developed a keen interest in following the 'traces of ink' left by many different premodern cultures. To mention but a few of these titles here would not do justice to the scholarly fields and specializations involved in the exploration of this research field. I leave it to the chapters in this volume to offer a rich and up-to-date bibliography on their different subjects.

Scholarly interest in inks tends to branch out in two opposite directions: one branch directed towards the study of the material aspects of writing; the other towards the textual sources dealing with the act and art of writing itself. There are several disciplines engaged in the study of the material aspects (codicology, conservation, archaeology, chemistry), while philology usually considers the texts. This distinction, however, is rather artificial and definitely influenced by the boundaries of modern academic disciplines. The material and the textual aspect, in fact, do not exist in monadic isolation: there are large areas of intersection between the two, spaces in which these two components are indissolubly intertwined, though one may occasionally appear predominant over the other. This scenario calls for an interdisciplinary approach that involves both concrete cooperation between scholars of different disciplines and a new mindset and research perspective that individual researchers may adopt.

To start with the 'textual' component, philology has sometimes looked to the text as an ideal and metaphysical entity, one which exists detached and disjoined from any kind of materiality. Moreover, the editorial work on technical texts — and collections of ink recipes and handbook on penmanship represent one possible example — should take into account that technical literature has its peculiar traits. Recipes are textual units characterized by a great syntactic coherence and, at the same time, an inclination to attract textual variants of a different nature, which altogether poses specific philological challenges. Recipes are, in fact, textual blocks that can circulate quite freely and fluidly, finding ways to fit into new textual structures and collections. Copying recipes is not only a mechanical process and a fatal occasion to introduce mistakes, more often it represents a chance to update, refine and personalise the text. In their wandering transmission, these textual units show no inclination to remain confined within a single genre, which calls for a very inclusive perusal of the sources. The attempt to give a philological account of recipes cannot focus on the obsessive research into an alleged 'archetype' or original written version recording the genuine form of a certain procedure. This archetype is very likely to be out of reach. The aim, rather, is to understand the genesis of meaningful variants, at the same time trying to reconstruct the movements of these textual blocks not only from one collection to the other, but also between different linguistic and cultural contexts. Neo-Lachmannian philology — as developed in the second half of the twentieth century by Giorgio Pasquali, Michele Barbi and Gianfranco Contini, to name just a few of the 'giants' in the field — has always paid attention to the material and cultural dimension of the manuscript witness and to the fluidity of the transmission. Recent publications, such as the COMSt Handbook (*Comparative Oriental Manuscript Studies: An Introduction*, 2015) and Paolo Trovato's *Everything you Always Wanted to*

Know about Lachmann's Method. A non-standard handbook of genealogical textual criticism in the age of post-structuralism, cladistics (2017), have allowed these ideas to expand their circulation beyond the relatively small circles of those who read Italian.

As for the material aspects, when approaching the study of premodern technical and scientific practices, contemporary scientists are bound to consider that premodern technical knowledge was conceptualized and expressed in its own peculiar way, and that some of its components are deeply influenced by the different literary traditions and by the transmission of the text itself. While carrying out scientific analysis of inks, it is inadvisable to lose sight of the fact that a trace of ink is not a spot occasionally produced on a random surface long ago, but originates from a purposeful act of writing with the intention of conveying meaning.

When the experts from the two sides — the textual and the technical — inform each other, they can create a virtuous circle that promotes the conditions for a larger and deeper understating of premodern literary and technical traditions.

Replication, in particular, represents a privileged experience in this field of research, opened up by Lawrence Principe's pioneering work. In concrete terms, replication can be defined as the attempt to reproduce the material and chemical reality behind a text, to better understand the relation between its contents and the written form in which these were recorded. In this way, replication becomes much more than an empirical way to assess the success rate of a certain procedure, or the lack thereof. Replication is rather meant to shed light on the identification of the ingredients, to provide a concrete referent corresponding to some flowery and cryptic description of the processes involved, to sift the technical contents from the elements defined by literary tradition and manuscript transmission that is, in other words, to grasp the genesis and the character of variants. The well-balanced integration between the textual and the material dimension opens up a new interdisciplinary research space, in which each expert is invited to share the best of his knowledge in a way that may be intelligible outside the restricted circle of fellow specialists. An interdisciplinary approach combined with replication, as they have just been described, also represents a methodological safety-net, which protects us from falling into circular arguments in which a unilateral hypothesis and the results of a procedure turn into their own proof.

Every chapter in this volume deals with a specific case study set in the area of intersection between the material and textual aspects of inks in different premodern written traditions. Apart from Chapters 3 and 5 — included to enrich the historical overview of the volume — the chapters of this book derive

from papers originally presented and discussed during the workshop *Traces of Inks* (12th July 2018, Bologna, organized in the frame of the ERC Project *AlchemEast*) that gathered scholars from different academic fields working on inks and written artefacts.

The chapters of this volume are arranged in chronological order and propose a long *durée* perspective, that starts from Babylonia and the Ancient Near East (Chapter 1), has the 13th-century Arabo-Islamic tradition as its farthest chronological point (Chapters 6–8), with a number of relevant cases from antiquity and late antiquity in between (Chapters 2–5). There are, however, thematic threads that connect the different chapters beyond their position on the time line of history. Such threads are not loosely juxtaposed: they represent the warp and weft of the interdisciplinary space of research explored in this volume.

In Chapter 4 (*Material Studies of Historic Inks: Transition from Carbon to Iron-Gall Inks*), the exploration of the material aspects finds a large historical overview of black inks from antiquity to the Middle Ages, along with the modern methods of analysis employed for their detection and identification. A similar line is traced by other chapters that focus on specific writing traditions. Chapter 3 (*Ink in Herculaneum: A Survey of Recent Perspectives*) is a close-up on the case of the Herculaneum papyri, in which the story of these unique specimens intertwines with the technological developments in their study. Chapter 7 (*"I tried it and it is really good" Replicating Recipes of Arabic Black Inks*) scrutinizes the technical contribution to philology, the feasibility of the procedures, and what these reveal about the technical skills of compilers from the point of view of a book conservator working on Arabic ink recipes and their replication, discussing the possible role of replicated inks as reference for scientific analysis. Chapter 1 (*WoW! Writing on Wax in Ancient Mesopotamia and Today: Questions and Results from an Interdisciplinary Project*) is the result of the collaboration between a philologist and a chemist, working together on ancient wax boards, and exploring current paedagogical application of their research.

The philological and textual thread emerges in connection with the literary nature of sources dealing with inks and the original context and intent of their composition, exploring interpretative and editorial possibilities in a number of different cultural and linguistic traditions. Chapter 3 (*Written in Blood? Decoding Some Red Inks of the Greek Magical Papyri*), for instance, examines the occurrences of blood as ingredient for inks in the Greek magical papyri in order to unveil its status as code name and the effects of this phenomenon on the textual transmission. The Syriac ink recipes, transmitted in alchemical sources as discussed in Chapter 5 (*'Alchemical' Inks in the Syriac Tradition*) offer

an example of the circulation of ink-related materials across the boundaries of different languages and textual genres, with special attention to the alchemical tradition. Inks in the Arabo-Islamic culture also provide the focus of other two chapters. Chapter 6 (*The Literary Dimension and Life of Arabic Treatises on Ink Making*) and Chapter 8 (*Ordinary Inks and Incredible Tricks in al-ʿIrāqī's ʿUyūn al-ḥaqāʾiq*) both explore the literary dimension of ink writings; the former focusing on the structure of technical treatises relating to ink-making and how this affected their transmission, while the latter concentrates on a 13th-century technical handbook on natural magic, leger-de-main and a variety of craft, proposing an editorial approach devised for interdisciplinary research on technical texts.

Apart from the value of collecting original and thought-provoking case studies, this volume aims to stress the importance of interdisciplinary research, showing the advantages of such a scholarly perspective and the interesting results that this attitude may bring to achieve. Inks and their traces are a productive field, a meaningful example and a fruitful opportunity to reflect upon the study of premodern science and technology and draw fresh methodological inspiration for future research.