Watermark research is an important component of bibliographical investigation for all those working with paper formats, including book historians, librarians, conservators, booksellers, and scholars. The recording of paper evidence can help to unravel the mysteries of "unassigned" printed works – those secretly printed books, prints, maps, or sheets of music bearing false imprints, or replete with other mysteries concerning textual authority and book production. With the proper methodology, watermark study can determine, with some degree of authority, the chronology of a work and its authenticity.

Puzzles in Paper includes fifteen essays which were originally delivered as papers at the International Conference on the History, Function and Study of Watermarks, in Roanoke, Virginia on 10-13 October 1996. It is important to note that this assembly of scholars was the first of its kind, in which watermark studies were the "organizing principle of the program," as opposed to a subject matter which is typically "shunted to the periphery" at most other forums. The multi-disciplinary conference involved speakers from a wide range of professional backgrounds: university professors, curators, art conservators, musicologists, rare book librarians, and representatives from the chemical and digital technology industries. With such a diversity of participants, this volume is at first difficult to appreciate. However, one learns that watermark research is still in its formative years and that this series of essays represents a major initiative for the exchange of methodologies in analyzing, reproducing, describing, and making accessible these elusive wiremarks. A few samples from the essays are reviewed here in order to reveal the nature of contemporary watermark research and its rewards.

One of the keynote speakers, Paul Needham, opens the volume with a captivating essay involving the press shops of Nicolas Jenson and Jacques Le Rouge, both operating in Venice in the late-fifteenth century. Focusing on three printing commissions, which are interesting cases for the paper historian due to their great consumption of paper and the availability of multiple copies of each edition for comparative study, Needham meticulously reconstructs the contents of the paper reams intended for these incunables as they went to press. Paper changes, such as accidents to wiremarks and moulds,
which in turn leave their imprint in the paper, are also considered important points of reference for the bibliographer and paper historian. In addition, Needham stresses that these types of observations work fruitfully with “the other investigative arsenal,” such as typographic states, and the habits of the compositor which, combined together, can be key elements for drawing new conclusions with respect to early printed productions.

Nancy Ash and Shelley Fletcher pose a series of questions relating to Rembrandt’s prints, such as: why is the same etching often seen on different papers, and why are etchings of widely varied dates seen on the same paper? Beta-radiology and recently developed technologies allow one to gather accurate evidence on watermarks, while established criteria for examining alterations in watermarks (including chain patterns, slants, counterparts, sewing details, and distortions), provide useful information by which paper can be dated. The combination of the two approaches enabled these researchers to explain Rembrandt’s production, his probable paper supply, and how he used his paper stocks, determining with more authority than in the past that Rembrandt produced reprints of his own work during his early and middle periods and that a certain number of his impressions were printed posthumously.

With the aid of watermark research, Ted-Larry Pebworth’s objective is to re-establish the chronology of John Donne’s poems (generated during and shortly after his lifetime), and to come as close as possible to the original versions of his works “in terms of his actual spelling, punctuation and other orthographic details.” Confronted with the problem of the lack of official standards in describing and classifying watermarks, Pebworth devised a unique method, using a graphical grid pattern, which allows for the recording of each part of the watermark and describes the relationships of the whole to its parts. This approach was conceived so that each part would be a valid search element in a computerized database, permitting useful comparisons between similar watermarks and ultimately creating the conditions for more accurate conclusions with respect to dating an unassigned work and establishing authorship.

Ulrich Konrad, the second keynote speaker, gives an impressive historical overview of the successful application of paper evidence investigations in the field of musicology. Stephen Shearon follows with a discussion of the watermarks and rastra (the five-line staffs drawn across the page for musical composition) found in a collection
of eighteenth-century Neapolitan music manuscripts. By examining a group of musical compositions spanning a term of approximately one hundred years, Shearon was able to assign general dates to these pieces and to draw conclusions about the paper supply in Naples based on the consideration of such factors as watermarks, rubrics, inks, script, and the unique rastra layer on the page.

Other papers deal mostly with problems associated with watermark image reproduction and their integration as individual searchable files in databases. Carol Ann Small discusses phosphorescence watermark imaging as an interesting alternative to the traditional method of tracing and especially to the modern standard of beta-radiology for precision reproduction. Phosphorescence imaging, it is argued, is an inexpensive low-tech, safe, and quick method of obtaining images in sufficient detail, although media interference is a limitation to the final result.

The Fotoscientifica company of Parma, Italy, participated in the conference in order to release a digital solution to watermark imaging, a process which can create ultra-high definition images with the capacity “to recover and make legible features which have become obscured, faded or otherwise hidden.” Furthermore, these digital images can undergo a process of enhancement or enlargement in order to bring out the intrinsic features of original watermark. This system was promoted as the definitive research tool for storing, searching, and manipulating watermark images.

Thomas L. Gravell, to whom the volume is dedicated, promotes the use of Dylux photosensitive paper as a means of reproducing watermarks, and Daniel W. Mosser and Ernest W. Sullivan, II, demonstrate the use of Dylux reproductions converted into slides as a successful medium for the creation of computerized image files. The pilot project resulted in the creation of the “Thomas L. Gravell Watermark Archive,” now available on the World Wide Web, and one of the first digital projects to incorporate watermark images into a searchable database. A more comprehensive and well-documented web site, featuring watermark images drawn from an impressive archive of ancient Greek manuscripts, is presented by Robert W. Allison, one of the principal project leaders for the “Archive of Papers and Watermarks in Greek Manuscripts.” Allison argues convincingly why and how this model could be adapted for the next generation of web-based watermark archives operating within a massive network of similar, decentralized databases.

This volume of essays is by no means an introduction to the world of watermarks. On the contrary, it consists of a series of
specific models for the analysis, description, and reproduction of watermarks, and a gamut of tools with which researchers can access, compare, and exchange them on universal platforms. Many of the articles are accompanied by staggering tables of information with respect to paper stocks and types, along with pages of reproductions of the minute transformations of the wiremarks found in paper sources, all of which are hard to comprehend without a previous understanding of the history and research potential of watermarks. One also comes to realize that the reproduction of watermarks is a thorny problem, made evident by some of the rather low-definition illustrations in the volume. It is hoped that once the pertinent decisions are made with respect to the proposed standards, many more researchers will be encouraged to pursue watermark study as a critical activity in any bibliographical enquiry involving paper formats.

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A constant criticism of professional literature in all fields is that it is dull and boring, fails to refer to the external world, and is largely unreadable by specialists and non-specialists alike. These complaints are frequently true, and no doubt account for the havoc and dismay occurring whenever outsiders bother to read the literature, take it seriously, relate it to outside realities, and present it in a readable form to a general audience.

Which brings us to Nicholas Baker, who has made a career of studying books, bibliography, and libraries from an external perspective. His 1996 article, on the destruction of card catalogues, “The Author vs. the Library” (*New Yorker* 14 October 1996) attracted much public attention as did his collection of essays, *The Size of Thoughts* (Vintage, 1997). *Double Fold* is by far his most ambitious effort and constitutes a remarkable tour de force. With 63 pages of endnotes, a 400-item bibliography, and broadly-based external perspectives, Baker has undertaken a detailed analysis of post-World War II book preservation/conservation theory and practice as