

Paper and Water

ABSTRACT

We present an overview of our work to date on a book manuscript to be published under the title *Paper and Water: A Guide for Conservators*. Drawing on paper industry and science research, the book (fifteen chapters, ca. 260 pages) will examine the relationship between water and paper, focusing on its main constituent, cellulose. Basic principles determining the interaction between paper and water will be explained in relation to paper preservation and conservation concerns. The book will be extensively supported by illustrations that will facilitate access to the information presented and make reading a pleasurable experience. An accompanying DVD will feature animations, video clips, and still images illustrating the response of paper to water and demonstrating the major conservation procedures. A CD-ROM will provide access to downloadable literature serving as further reading. Selected chapters will be written by contributing authors D. Steven Keller (Empire State Paper Research Institute, College of Environmental Science and Forestry, State University of New York at Syracuse), Anthony W. Smith (The Institute of Paper Conservation, United Kingdom), and Paul Whitmore (Research Center on the Materials of the Artist and Conservator, Carnegie Mellon University, Pittsburgh). Animations and videos are produced under the direction of Alfred Vendl (Institut für Konservierungswissenschaften und Restaurierung-Technologie, Universität für Angewandte Kunst Wien). Individual chapters are grouped by topics:

Paper and Water: Principle Interaction

1. Dry Paper: Structure and Properties
2. Water: Structure and Properties
3. Wet Paper: Structure and Properties

Influence of Papermaking Parameters on Paper-Water Interaction

4. Effect of Fiber Processing on Paper-Water Interaction
5. Effect of Paper Sizing on Paper-Water Interaction

The Role of Water in Paper Deterioration

6. Relative Humidity
7. Influence of Water on the Aging of Paper (Whitmore)

Aqueous Solutions in Paper Conservation

8. Water Purification
9. Determination of Hydrogen Ion Concentration (pH)
10. Aqueous Washing Solutions and Deacidification (Smith)

Paper Wetting and Aqueous Treatment

11. Wetting and Absorption of Water in Paper: Mechanisms
12. Wetting and Absorption of Water in Paper: Practical Significance
13. Aqueous Treatment Methods

Drying of Paper

14. Paper Drying during Papermaking (Keller)
15. Paper Drying in Conservation

Concluding Comments

16. Aqueous Treatment in the Context of Paper Conservation

IRENE BRÜCKLE
Art Conservation Department
Buffalo State College
Buffalo, New York
bruecki@buffalostate.edu

GERHARD BANIK

Presented at the Book & Paper Group Session, AIC 32nd Annual Meeting, June 9–14, 2004, Portland, Oregon. Received for publication Fall 2004.

Studiengang Restaurierung und Konservierung von
Graphik, Archiv- und Bibliotheksgut
Staatliche Akademie der Bildenden Künste
Stuttgart, Germany