Journal of the Institute of Conservation
Vol. 34, No. 2, September 2011, 215–217

Routledge
Taylor & Francis Group

BOOK REVIEWS

Cathleen A. Baker reviews

Paper and Water: A Guide for Conservators, Gerhard Banik and Irene Brückle, Butterworth-Heinemann, 2011, 576 pp., £100 (hardback). ISBN 978 0 7506 6831 6

As a practical paper and book conservator and an educator of long standing, I am very grateful for this remarkable book because it provides fundamental information about paper, water and the critical relationship between them as no previous book has done. Even though its publication comes close to the end of my career, the information presented still did much to enlighten me about phenomena I have observed for which I had no, vague or incorrect explanations; it also confirmed correct conclusions. I wish I had had this textbook available to me when I was teaching paper conservation. Textbooks accepted by the profession are deemed authoritative and, because of their format, the information therein can be read and reread, allowing understanding to build at the reader's pace. Conservation educators, students and experienced practitioners will be happy, finally, to have access to this invaluable, comprehensive information in one reference; heretofore, this information has been accessible only across diverse disciplines and through industries not directly related to conservation, for example paper manufacturing. The authors comprise an impressive spectrum of specialists and include conservators, technical experts and scientists.

The information presented in this book is especially relevant because paper and book conservators often use aqueous solutions to test paper/media sensitivity to water, to stabilize through washing paper that is acidic and/or is unacceptably discoloured or stained. Additionally, to protect paper against future acidic degradation, aqueous solutions are often employed to deposit an alkaline reserve. Until this book, it has been difficult to find conservation-relevant information about how water functions within the cellulosic fibres from its manufacture through to normal or abnormal storage conditions, and how that situation changes when 'plain' water or an aqueous solution is introduced into the paper's structure during washing and, ultimately, when the water leaves the sheet upon drying. While treatment steps involving water appear to be simple, the authors explain the complex microscopic and macroscopic effects of the numerous procedures/methods that can be chosen in order to introduce water to paper, for example humidification, spraying, full immersion, suction table, etc. Once water and other aqueous solutions are absorbed into the paper, their various chemical and physical effects are explained verbally, as well as with numerous in-text illustrations and with videos that can be accessed on the accompanying DVD. After aqueous treatment is complete, the chapter on drying wetted paper explains the problems associated with planar and dimensional changes and describes in practical terms how drying can best be achieved.

The principal authors and editors, Gerhard Banik and Irene Brückle, bring decades of experience and scholarship to both the practical and theoretical aspects of the relationship between paper and water and, for this book, they brought together technical experts and scientists who write from different perspectives so that a complete picture of the topic is presented. These contributors include Vincent Daniels, Stefan Fischer, D. Steven Keller, Joanna M. Kosek, Reinhard Lacher, Anthony W. Smith, Alfred Vendl, Günther Wegele and Paul M. Whitmore. Chapter titles and their authors are 'Relevant chemistry' (Banik), 'Properties of water' (Banik), 'Dissociation of water: acids and bases' (Banik), 'Structure and properties of dry and wet paper' (Brückle), 'Effect of pulp processing on paper–water interactions' (Brückle), 'Effect of sizing on paper–water interactions' (Banik, Brückle, Lacher, Wegele), 'Paper drying in the manufacturing process' (Keller), 'Paper ageing and the influence of water' (Whitmore), 'The introduction of water into paper' (Brückle and Banik), 'The rate of discolouration removal from paper by washing' (Daniels), 'Washing paper in conservation' (Kosek), 'Aqueous deacidification of paper' (Smith), 'Drying paper in conservation practice' (Brückle and Banik) and 'Aqueous treatment in context' (Brückle). Two forewords are presented by Kate Colleran (from the conservator's perspective) and by Jan Wouters (from the conservation scientist's). Numerous appendices include basic information about measurement standards, relative humidity (RH), water activity, biological growth, laboratory safety, pH and testing methods. The glossary and index round out the large-format, 576-page, full-colour book with a DVD at the back.

ISSN 1945-5224 print/ISSN 1945-5232 online
http://dx.doi.org/10.1080/19455224.2011.607045
http://www.tandfonline.com

Significantly, in addition to extensive scholarship and research, the final form of this work was informed by several workshops/seminars hosted by Brückle and Banik over several years. In these workshops, they presented drafts of the book's material to practising paper and book conservators, and the feedback from such interactions was important in making the book's content understandable and relevant to conservators so that they can utilize the information, pass it on to others, and carry out further research. In fact, workshops/seminars on the subject were considered so fundamental to the process of gathering and presenting information that they are described in detail in several appendices. These serve as models for workshops/seminars on other conservation-related topics. It is obvious that the authors understood that the manner in which information is presented, both textually and in images and animation, affects the ease of access by diverse readers. The colour-coded illustrations that appear throughout the book and on the DVD present a consistent, co-ordinated representation of complex theoretical information.

However, let us acknowledge the fact that, upon first perusal, this book will look incomprehensible and intimidating to some conservators. The conservators who will find this book the least intimidating are ones who have gone through a conservation programme with a strong scientific component or those non-programme-trained conservators with a science background. Others may decide that it is too intimidating and, yet, every conservator who deals with cellulosic materials, including textiles and wooden artefacts, will benefit greatly from the basic information presented. For some professionals, this will not be easy reading, but because of the way that the complex and 'unfamiliar' material is presented (helped by editorial guidance from Brückle and Banik to ensure that the information is consistent and comprehensible across all chapters), it should be possible (with perseverance) for all conservators to reach a level of understanding that will allow them to feel more secure in their decisions regarding the treatment (or non-treatment) of the artefacts under their care.

As Brückle carefully points out (p. 420), however, practising or supervisory conservators cannot assume that understanding the 'science' means that one holds a *carte blanche* to carry out treatments without considering other critical aspects of the artefact:

> 'Scientific principles are natural laws that do not allow individual interpretation, but they are only one platform for decision-making which focuses on the estimation of the material behaviour of an object considered for treatment. They are not an appropriate vehicle for evaluating the impact of treatment on the cultural significance, appreciation and use of paper objects, and their intrinsic value that might be aesthetic or historical. This is the subject of a separate discussion that concerns the curatorial interpretation of the object. Curators or custodians are likely to introduce specific ideas about the object that influence the direction of conservation decision-making. Thus it is important that the conservator, who represents the material requirements of the object in the interdisciplinary discussion with curatorial and other user-oriented parties, can rely on a scientific basis that supports conservation decisions and elucidates the options.'

It is the combination of clearly understood scientific principles about the materiality of artefacts, the technological processes used in their manufacture/creation, the mechanisms of change/deterioration, the treatment options available for their stabilization *and* the cultural value(s) of those artefacts that form the crux of sound, ethical conservation decision making, especially those decisions that may lead to invasive treatments involving aqueous solutions.

This and other conservation textbooks are essential if we are to level the intellectual 'playing field'—thereby bringing conservators with different educational and training backgrounds to what might be established, for example by certification, as an acceptable, minimal understanding of one's field. These better-informed conservators working alone or alongside conservation scientists and technical experts will increase our knowledge and thus benefit the conservation profession and the world's cultural artefacts.

Paper and Water serves not only to inform the conservator about science and technology but, as importantly, to inform the scientist and technologist about conservation, especially about the 'reality' of artefacts and collections. There were instances when some of the non-conservator authors alluded to the impending demise of artefacts on paper, as if all paper has an 'expiration date'. Nothing is further from the truth; paper is a remarkably stable material, in some instances despite destructive inherent elements or from exposure to severe environmental situations. A better appreciation of actual artefacts, both as unique objects and as one among the masses, and the practical problems faced by conservators to stabilize them would go a long way to make conservation science and technology even more relevant to the conservation profession. The dedication of this book to F. Christopher Tahk, a cherished colleague and friend, is extremely appropriate; he is one of the few conservation scientists who went through a conservation training programme and who is a practising conservator (clocks are his specialty). Chris remains the role model for the conservation scientist.

My only real complaint about the book is one that involves its design, especially, the sans-serif typeface

chosen for use throughout the text. While its use for captions is acceptable because there is not much text, its use for the main narrative is unfortunate—it is very tiring to read, and the peculiarities of some of the letterforms, for example the i with its elevated dot, are distracting. Having designed similar books, I appreciate how difficult it is to pay attention to every typographical 'rule' that should be applied consistently over the text, especially given the complexity of the layout and the different formats of information that are presented here. While the designer was largely successful, there are occasional typographical inconsistencies, for example variations in leading, tab settings, etc., which can subtly interfere with the reader's ability to stay focused on the concepts presented. As are found in nearly every book, there are a small number of 'typos' and inconsistent spellings, easily corrected if the book is reprinted. The information presented on the DVD could be more user-friendly. For example, when one plays the DVD, on the 'title page,' the videos are listed under each chapter only as 'Video 1,' etc., with no other information as to content. It would be helpful to give the title of the video without having to 'play' it; it is not easy to read the heavy book and have a computer close by to play the videos. Also on the DVD title page, the following notice is given, 'A textual description of the videos along with other book-related support materials can be found on the ROM-Part of this DVD [a PDF]'. I asked several people if they knew what this meant and how the PDF could be accessed; and they said, no (on the desktop, double-click on the DVD icon to open a list of contents on the disk, and the PDF can be viewed or downloaded from there). Perhaps a better way of describing how to access the PDF can be included in a re-issue. I also recommend that readers remove the entire plastic DVD sleeve and the adhesive from the inside back cover and store the DVD somewhere else.

The retail price of *Paper and Water* at £100 (€118; $US165) is a significant investment, but the information in this book is definitely worth it. The authors are to be highly commended for their determination in ensuring that this book was published. Any project of this complexity is a long and difficult undertaking and it can take a toll on its creators. It is clear that Brückle and Banik had a vision about what the paper and book conservation field needed, and they persevered in a grand and significant way to turn that vision into reality. *Paper and Water* is a remarkable book that seeks to integrate scientific theory and practical conservation considerations; it is an outstanding example of textbooks that should be published in other fields of conservation.

Cathleen A. Baker, PhD
Senior Conservator of Paper and Books
University of Michigan Library, USA

Journal of the Institute of Conservation

Volume 34 • Number 2 • 2011

Routledge
Taylor & Francis Group

THE INSTITUTE OF CONSERVATION