

Preface

Critics of the use of silver halide in photography would have us all believe that the whole world has now moved over to digital systems, and that the old days have gone forever. While it is certainly the case that the market for the use of silver halide is in decline and may continue to decline for some years yet I, for one, would suggest that the wet chemistry approach to photography will not cease completely – at least for many years to come.

Digital photography has indeed passed the stage where only the new adopters have embraced the technology, for it is now a practical reality in most homes, and indeed on most new mobile telephones. Yet, there are still enthusiasts who will continue to use the chemical means of creating images at least for the foreseeable future. Additionally, silver halide colour photographic papers can be used to print digital images. These images have exceptional image stability and may provide a vital part of the overall photographic experience for the next few years.

If we assume for a moment that we are in the transition between the technologies, and that silver halide/wet chemistry photography will indeed terminate at some point in the near future, perhaps the time is right to review the technology, which was developed and largely taken for granted by most of the photographic consumer market. For comparison purposes, the chemistry of one of the photographic papers used to print digital images and the chemistry of inkjet paper is also included.

It is a remarkable technology. Amateur films can contain up to 100 distinct chemicals, coated in very low or indeed no light levels. The silver halide system works at the molecular level and therefore works in the millions of pixels per inch. Silver halide prints are carried and viewed by millions of people and adorn millions of walls as display items, all without the need for any power whatsoever except for viewing, which can take place using the natural energy of the sun. At its peak, the industry turnover for silver halide products was calculated in the late tens of billions of dollars and affected all of the inhabited continents around the world.

This overview is but a fraction of the total knowledge that has been generated by the large photographic manufacturers over the last 100 years. It is intended for students to reflect and discover the complexity of the chemistry that many have taken for granted. Perhaps the photographic system, more than any other in the technological world, has combined the use of organic, inorganic and physical chemistry with elements of engineering and physics. Many texts exist that have covered many aspects of the overall system with the possible exception of the chemistry. This volume seeks to address this oversight.

A volume such as this requires input from many sources. The author was privileged to work for the world's largest photographic company for over 20 years splitting his time between the research and development communities and the manufacturing division. During that time, he met many people who gave of their time in explaining the inner workings of this complex technology. Of particular note were his conversations for organic chemistry with Joe Bailey, Dave Clarke, Trevor Wear, Alan Pitt, Judith Bogie; film design with Gary Einhaus, Drake Michno, Paul Magee, John Higgins, Mike Simons, Alan Eeles; processing chemicals John Fyson and Peter Twist; emulsion techniques Roger Piggin, Adrian Codling and Gary Hiller; discussions concerning graphic arts film technology Bill Fardell and Tim Peachey. This august body of scientists was not the only source of knowledge, but these people were fundamental in the author's training and development with the exception of one individual. That individual, John Sawyer, once gave the author a 'bearded eagle' award for attending all of his lectures concerning film design. John Sawyer was perhaps unique in his ability and willingness to pass on his knowledge and experience. The author is forever grateful for the time John willingly provided, and for the bearded eagle award.

The more practical aspects of assembling this text also involved a number of people, including Ziaad Khan of the British Library, the staff at the library and information centre of the Royal Society of Chemistry, the library staff of the Royal Society and the University of Westminster.

My thanks also to Kate Price at Country Ways and to Peter Whitfield who provided some timely help with some software.

Finally my family, Carolyn, Adam and James, provided the space and time for me to lock myself away to produce this text. Thank you one and all.