Message from Bill Ray (Group InfoTech), Vice President Technical Papers

You will be busy at the next TAGA Annual Technical Conference in San Diego. The bridge session with TAPPI offers an intense look at paper and traditional substrates as well as a peek at the new and exciting (unsettling?) world of digital substrates. E-paper or e-ink may well be the biggest change in the way printed material is delivered since Gutenberg, and TAGA thinks that the print research community needs to be on top of this subject.

Of course, we are a long way from being finished with the paper/press/ink interaction, and the joint session offers a unique opportunity for those of us not directly associated with the paper industry to see where research is going in this field. This session and ATC attendees’ ability to cross into the TAPPI sessions allows for some in-depth exploration into paper and papermaking.

We have as solid a set of papers for the regular ATC sessions as your papers VP has seen in his tenure in office. Our press sessions range from a new and interesting analysis on gravure to an innovative input toolset for electro-optical presses. The color sessions bring some new faces into our ongoing debate on this subject, and, along with the usual stalwarts, these sessions should prove to be grist for the color shootout mill.

The ink and paper session abstracts cover wide topic areas this year with some interesting new research in flexographic and screen inks. This year’s crop of ink papers is one of the largest and most internationally diverse in recent times.

Perhaps due to last year’s focus on metrics, we have several abstracts dealing with print standards in the digital domain. Along with these presentations, Jim Harvey has arranged for the CIP4 organization to put together a session on Job Description Format (JDF). This digital data transfer standard is promoted by the CIP4 organization and is being incorporated into the Industry Architecture Project—a TAGA/GCA/R&E project. This industry standard format will have a major impact on us as it will be the data highway that connects our devices together.

CIP4 TO ENDORSE TAGA ATC SESSION

The CIP4 Advisory Committee agreed to endorse a CIP4/JDF session series during the upcoming TAGA Annual Technical conference.

Continued on page 11
ATTENTION: TAGA MEMBERS ONLY
Your window of opportunity has just opened! If you are missing any of the TAGA Proceedings volumes from the 1980 to 1999 (1988 sold out), you may now purchase them at the special price of $30 each (prepaid; shipping is included) for a limited time only. The regular price of these books is $105 each plus shipping! So, take an inventory of your TAGA bookshelf now, and send your order with your check to the TAGA Office, 68 Lomb Memorial Drive, Rochester, NY 14623-5064; or if purchasing with credit card (Visa, Mastercard, or American Express) phone (716) 475-7470 or fax (716) 475-2250 or e-mail to TAGAOFC@aol.com. We look forward to hearing from you in response to the special limited time offer. Offer expires December 31, 2000, so don’t delay!

ATTENTION STUDENT CHAPTER MEMBERS
TAGA will be donating a full set of 1980 to 1999 (excluding 1988) TAGA Proceedings to each of TAGA’s active Student Chapters. By the Holiday Season, each set will be shipped to the attention of the Chapter Advisor of record. Happy Holidays, Student Chapters!

A New TAGA Service on the Way!
The Graphic Communications Association (GCA) sponsored the development of a student resume and job posting system that was developed by Arizona State University, an effort lead by ASU professor Penny Ann Dolan. The system was originally intended to be a one-time effort for use at GCA’s annual Spectrum conference, but attendees loved it and asked that it be permanently established. GCA has asked TAGA to take over responsibility for the system. Penny Ann Dolan will continue to develop the system, and Joe Noga (RIT), TAGA Director and Chair of the TAGA Student Chapter Committees, will work on developing TAGA Student Chapter participation. The system allows students to enter their resumes over the Internet. It also allows prospective employers to search resumes by keyword, geography, etc., as well as post job opportunities suitable for graduating undergraduate and graduate students. The student resume system will become part of TAGA’s web site in the next few weeks and will be open to the Printplanet.com community. Stay tuned for more on this new TAGA service in the next TAGA Newsletter!

Corporate Sponsor Membership
Sign up for TAGA Corporate Sponsor Membership today! For only $1,000 a year, in addition to the basic TAGA member benefits, your company can send up to 3 non-member employees to the TAGA Annual Technical Conference at the TAGA Member Rate, AND we will create a link to your Company Web Site from the TAGA Web Site!

Check out the “new” TAGA web site hosted by DAX: http://www.taga.org

2001 Election of TAGA Officers and Directors

TAGA Bylaws, Article III, Section I states, “Nominations for each regular elective office shall be made by a Nominating committee consisting of five voting members appointed annually by the President and chaired by the Immediate Past President or by petitions each signed by twenty voting members.” Section 2 states, “On or before November 1st of each year, the Nominating Committee shall have made its nominations and secured the written consent of each nominee. The proposed nominees shall then be reported to the membership in a regular newsletter publication to permit the addition of nominees by member petition prior to the preparation of a final ballot.”

The TAGA Nominating Committee chaired by TAGA Immediate Past President John W. Long of Mitsubishi Imaging (MC), Inc., has submitted nominations for the open positions on the TAGA Board for terms beginning June 1, 2001. The candidates are:

FOR EXECUTIVE VICE PRESIDENT
Bill Ray, Group InfoTech
Walt Zawacki, Flint Ink Corporation

FOR 4 DIRECTORS’ POSITIONS
Don Carli, Industry Consultant
John Dreyer, Pitman Company (retired, Dec. 2000)
Arved Huebler, Chemnitz University (Germany)
Bjorn Kruse, Linkoping University (Sweden)
Leigh Kimmelman, Creo/Scitex
Bernard Pineaux, E.F.P.G. (France)
Frank Scott, GATF
Erwin Widmer, VS/H (Switzerland)

In February 2001, all members eligible to vote will receive a packet containing the biographies and personal candidate statements for each of the above nominees.
TAGA’s Board of Directors has voted to create a new, paid, position, that of Director of Program Development. For a number of years, TAGA has been operating in deficit. Although our savings account has grown due to the long Bull market and the wise stewardship of Treasurer Miles Southworth, TAGA has had to draw on that growth in savings to meet operating expenses. This is due to several factors: declining membership, increasing operational expenses and an increasingly competitive conference environment at a time when TAGA’s corporate constituency is undergoing fundamental change and re-alignment.

There has been a growing consensus of the Board of Directors that our operating mode is not sustainable in the long term. TAGA’s integrity, and its ability to fund scholarship and educational initiatives at accustomed and desired levels might be threatened by a prolonged Bear market or similar eventualty. (At this time, the growth of the investment account exceeds our deficit, but we cannot assume that this will always be true.) While the entire Board agrees that there is a problem and that it is potentially a serious one, there is not unanimous agreement on how to deal with it. We have to decide whether to cut our expenses, and, possibly, our services, or to increase our revenues. Everyone would prefer to pursue the latter course. The most likely way to increase revenues, consistent with our charter, is to grow TAGA by increasing attendance at our Annual Technical Conference and adding additional, money-making conferences and seminars.

Hiring a Director of Program Development is risky, because it will increase TAGA’s operational deficit in the short term. The intention is that the new Director will improve TAGA’s revenue quickly and dramatically enough that the new position more than pays for itself. There is risk because failure could hasten TAGA’s demise rather than reversing it. However, the goal is for TAGA to remain vibrant and independent and to continue to be the multidisciplinary voice of Graphic Arts and related industries.

As Vice President of Technical Papers from ’95 through ’97, I developed a good understanding of the problem. In ’95 alone, I was responsible for the technical program of the Orlando ATC (just prior to DRUPA) and of the Paris conference later that year. I was also responsible for TAGA’s contributions to the 1995 edition of Concepts. Organizing the latter was a different kind of responsibility than assembling conference technical programs, but it was equally demanding in many ways. I mention this to indicate that I know all too well that it is unrealistic to expect a single, voluntary Papers Chair to be able to grow TAGA in the desired ways. It is worth remembering that the heart of what TAGA does and the bulk of its revenue is Conference-related.

Proposals were advanced to change TAGA’s Officer structure and electoral process as part of experimental reforms intended to solve the problem, but these were largely put aside in favor of creating a new position. A substantial majority of the Board feels that decisive action is warranted and that creating a new position is preferable to tinkering with TAGA’s voluntary offices. It is also easier to do, under the Constitution. Therefore, a description of the new position and of the application requirements is outlined below. Thank you for your support and consideration.

**JOB DESCRIPTION, QUALIFICATIONS, AND APPLICATION PROCEDURE**

TAGA (The Technical Association of the Graphic Arts) based in Rochester, NY, seeks a Technical and Program Development Director. The successful candidate will be someone well-known and respected in publishing, printing and related industries, who has extensive technical knowledge, proven marketing skills and a solid track record of conference development. The position will report directly to the President of TAGA, answerable to the Board of Directors. Primary responsibilities of the position will be to lead in the development and implementation of a business plan that will guide

1) Expansion of our Annual Technical Conference so as to attract new participants and retain old ones,
2) Addition of one or more innovative, non-commercial programs on new areas of research and development that may impact the Graphic Arts, broadly defined and
3) Growth in both individual and corporate memberships in TAGA.

The successful candidate will network extensively, representing TAGA throughout the industry, worldwide; an important goal is to make TAGA a more international organization. Interested parties are urged to submit an application in confidence to The Technical Association of the Graphic Arts, 69 Lomb Memorial Drive, Rochester, NY 14623 or to TAGA@ofc@aol.com. Questions should be directed to Dr. Richard Holub, President of TAGA, at 716 244 3486 or raholub@servtech.com.

An application should consist of a full Curriculum Vitae accompanied by a document outlining the applicant’s plans for accomplishing the goals of the position within a balanced budget or with surplus. In a cover letter, the applicant should indicate when (s)he is available to begin service and outline salary requirements. In the letter or the plan, the applicant should also indicate what resources will be needed; these may include travel expenses, staff support, seed funding for new conference activities, incidental expenses, etc. TAGA’s Board of Directors has developed estimates of the foregoing expenses, but is interested in applicants’ input. The Board has also established the following guidelines:

a) Relocation to Rochester, NY, where TAGA is headquartered, is not a requirement,
b) The position may be full-time, but should be at least 60%,
c) If an applicant proposes full-time employment, she/he should indicate whether contractor or regular employee status is desired.
The press is the most important of the three P’s of every printing operation, namely Prepress, Press and Postpress, as it reproduces quantities of images prepared in Prepress and finished in Postpress. While Prepress and Postpress don’t change much for each printed product, presses differ not only by printing process but also by printing market and often by printed product. The newspaper press is much different than the web presses used for printing magazines and the sheet-fed presses for printing much direct mail and the broad variety of other commercial printing products.

Plates, or more correctly the image carriers, are also different for each printing process. They are more related to the press they will be printed on than the prepress system that produced them. With digital imaging and the introduction of Postscript®, PDF’s, lasers, RIP’s, image- and plate-setters, it is the printing press, process and product that determine what combination of these programs and devices is used to produce the printing plates. So plates are the bridges between prepress and presses.

Digital imaging and printing have penetrated all branches of printing. In conventional printing by lithography, the plates can be made using digital imaging in one of two ways: (1) they can be made from films that are made from digital files and lasers in a film- or imagesetter. After processing the films are used to produce the coated plate in a vacuum frame or step-and-repeat machine, and mounted and made ready on the press in the normal way; or (2) the plate can be produced by a computer-to-plate system in which the coated plate is produced from the digital files in a platesetter, processed and mounted on the press for makeready and printing. To speed makeready there are programs for presetting the ink fountains from the digital files used to produce the plates. Also many presses have automatic loading of the plates on the press.

The main differences between presses are due to the differences between printing processes. These are divided into two major types: (1) Plate, pressure or impact processes like lithography, letterpress, flexography, gravure and screen printing; and (2) Plateless or pressureless processes like the electrostatic copying process, ink-jet and other processes described later. Printing by plate processes is done on a press with ink on a fixed image on a plate using impression or printing pressures up to 50 pounds per square inch, so that every print off the press looks reasonably the same. In the plateless processes the image must be produced for every print and printing is done with special toners on digital presses which use very little or no pressure, and are limited to runs in the low thousands. Thus the printing can be done much faster by plate processes. The plateless processes, however, have the advantage that they can print variable images on successive prints and they can print the same images on demand in different locations. These processes print from digital files using digital presses.

**COMPUTER-TO-PLATE SYSTEMS**

The plate processes use a gamut of presses from single color duplicators for short runs to multicolor web presses with runs into the millions. Many of the longer color runs are now using computer-to-plate (CTP) systems. These systems eliminate the need to make films and their processing. They are divided according to plate types which determine the lasers used in the RIPs in the platesetters. Infra-red (IR) plates have been preferred because they have: (1) room light handling, (2) sharp no-fringe or dot gain imaging, and (3) minimal or no processing. Examples are Presstek laser ablation plates, Polaroid laser ablation transfer plates, and Kodak thermal crosslinking plates. All these plates are expensive (25% to 75% higher than conventional plates). So there is a trend toward the use of High Speed UV Photopolymer plates, in particular, plates like the family of light and heat polymerized Citiplate Aqua LHP plates. These plates can be used in conventional platemaking and for computer-to-plates made in platesetters using Violet laser diodes used in DVD players. Other types of plates used in CTP systems are Dye Sensitized Photopolymer plates and Silver Halide plates which can be exposed in platesetters with visible light lasers. They are more expensive than conventional plates, and the silver halide plates have the disadvantage of processing the images in toxic developers that require special handling.

**COMPUTER-TO-PLATE-ON-PRESS SYSTEMS**

This is a third category of press systems that is a combination of digital imaging and conventional printing. It uses computer-to-plate-on-press digital imaging on special processless printing plates or coatings that print quantities of the same image with ink on conventional or special presses. These systems are known as DI (Digitally, or Direct Imaged) presses. Presstek and Heidelberg have been the pioneers in this field. The first of these systems was the Heidelberg 4-color GTO-DI press in 1991. It used a Presstek spark discharge system that was replaced in 1993 by the Presstek PEARL Laser Ablation system. The Heidelberg GTO-DI was an in-line press on which the dampening systems were replaced by the Presstek laser diode imaging systems. At DRUPA 95 Heidelberg introduced the Quickmaster DI 46-4 which is a compact 4-color, 2-page sheetfed offset press, with 4-plate/blanket units around a common impression cylinder. It uses a portrait format with the long dimension around the plate cylinder. Each plate unit has, externally, a Presstek PEARL laser diode imaging system in place of the dampening system, and, internally, a spool of Presstek waterless plates on polyester base film that unwinds to feed a plate onto the cylinder when needed, and a second spool that maintains tension on the plates during printing and winds used plates after printing. Press speed is 10,000 impressions per hour (IPH). The QMDI has replaced the GTO-DI.

Seven other DI press systems in use, or in development use Presstek DI technology. Adast, Akiyama, Didde Web Press, Ryobi, and Sakurai...
use the new Presstek ProFire on-press imaging technology. The Scitex/KBA joint venture Karat DI press uses Presstek PEARL dry aluminum plates, and at drupa 2000, Presstek, Adast and Xerox introduced the new five+ unit PAX DI waterless press, using Presstek’s internal plate cylinder design and waterless plates, and an Adast 500 series press body.

A number of new DI presses are in development or beta sites. CreoScitex has developed a new technology which involves spraying, drying and imaging an Agfa switchable polymer coating on the plate cylinder, erasing it after completion of printing and repeating the operations. This technology is used on the MAN Roland DICO Web press and Komori’s Project D, a 40-inch press under development. Screen showed two DI presses at drupa 2000—Tru Press 544 and Tru Press 744. Another new press in the DI field is the Heidelberg Speedmaster 74DI which uses a new processless plate from Agfa.

**DIGITAL PRESS SYSTEMS**

Digital presses are the printing engines of the plateless printing systems which use the computer-to-print processes. The plateless printing processes use the following technologies: electrophotography (EP), ion or electron deposition, magnetography, thermal transfer, thermal dye sublimation, electro-coagulation, and ink-jet. In all these systems the imaging is repeated for each impression, and all except ink-jet and electro-coagulation use special toners.

Even though a Mead Dijit Ink-jet system was demonstrated at the ANPA (newspaper) conference in 1975 on a press imprinting variable information on pre-printed newspapers, and Xerox announced its 9700 electrophotography intelligent printer in 1978, it took almost two decades for digital imaging to develop the enabling technologies for making these types of systems commercially acceptable.

It was on June 20, 1993 when Indigo announced the E-Print 1000 electrophotographic liquid toner sheet fed digital offset 6-color press, and on June 23, 1993 when Xeikon announced the DCP-1 8 unit electrophotographic 4-color web (4 colors on each side) press using special dry toners. Indigo with a resolution of 800 x 800 dpi and Xeikon with 600 x 600 dpi resolution succeeded in establishing markets for digital presses.

**Indigo**

Indigo and Xeikon presses were well received and lost no time to make improvements. By drupa 2000 and Graph Expo 2000 Indigo had expanded its broad array of new models and improved presses to include eight machines for commercial printing and five for industrial printing. In addition, Indigo has a line of OEM products including a version of the E-Print Pro+ for A.B. Dick; Data Card’s Card Press; a label press for Gallus-Heidelberg; and a CD press for Kammann, a printer of CD’s.

Indigo also showed its new Series 2 hardware that featured a new modified exposure method, and a new inking system. The new Series 2 printing engines can be linked in twin engine arrangement for sheet fed models called UltraStream; or as twin and four engine designs for web presses called Publisher. The Publisher 8000, configured with four engines will output 8000 two sided color pages per hour which will start to match the speed of present small format sheet-fed presses.

**Xeikon**

The Xeikon company was originally established by Agfa in 1988 and was 25% owned by Agfa which produced the special dry toner for the Xeikon process. Agfa used the original Xeikon DCP-1 engine to produce the Chromapress which Xeikon bought this year (2000) along with the toner manufacture. At drupa 2000 Xeikon was in its third generation of faster web-fed digital presses. Two new models are in production: DCP 320 D at 12.6 inches wide and DCP 500 D at 20 inches wide. Both have speeds up to 130 ppm (7800 pph). Xeikon also showed its new sheet-fed press, SCP 320 D, which can handle sheet papers up to 12.6 x 18.5 inches. It is capable of printing up to 16 two-sided forms per minute. Xeikon has reduced toner costs (15%) and developed an improved toner/development system that is claimed to print better solids with improved light fastness, better stability and longer life. It also has a number of OEM users including Barco and IBM.

**COLOR COPIER DIGITAL PRINTING SYSTEMS**

Other electrophotographic digital printing systems are Color Copier systems and Laser printers. When color copiers are controlled by color servers like the EFI Fiery controller, they can be used as color printers. The first color copier used for color printing was the Canon CLC 500 shown at DRUPA 90. The most popular color copier systems are the T/R Micro Press which uses a cluster of two- four- or six-units of Canon 360 PS color laser print engines; and Xerox DocuColor which was based on the Fuji-Xerox print engine.

**LASER PRINTER SYSTEMS**

The first laser digital printing system was the Xerox 9700 intelligent printer introduced in 1978, soon followed by the IBM 6670 and 3800 laser printers, and the Kodak 100, 150, and 250 high speed electronic printers which were all single color printers. In 1989 Xerox introduced the Docutech which has been the main survivor and most used single color laser printer. 4-color process laser printers have been developed and/or marketed by Canon, Hewlett-Packard, IBM, Lexmark, NEC, QMS and Tektronics.

Continued on page 10
COLOR CONCEPTS with Gary G. Field

Principles of Color Reproduction—A Classic Revisited

LEARNING COLOR PRINCIPLES

This column is different from my usual because it marks an event rather than explores a concept. The event is the publication of an updated reprint edition of John Yule’s classic book Principles of Color Reproduction. My account of this event and all that led up to it is personal because that is the way the story unfolded.

Some time during mid 1967, I walked into McGills Newsagency, one of Melbourne’s venerable technical book stores. I saw a copy of Principles of Color Reproduction and immediately recognized that this was the book I had been seeking ever since I started my camera operating apprenticeship in 1960. I not only purchased the book from McGills, but I also purchased a second copy from the rival Technical Book Depot soon after. I had never before or since deliberately purchased two copies of the same book, but something told me that I might very well wear out just one copy through constant use.

I quickly skimmed the book and wrote a review for The Australian Lithographer magazine. This review, which may have been the first to be published anywhere, appeared in the August/September 1967 issue of the magazine. I stated, with the assurance of a 23-year-old, that this would be “the reference book for colour reproduction.” I also expressed my impatience with the Roman numerals used to identify the book’s 38 plates, and regretted the omission of continuous tone (screenless) printing from the text.

By September 1967 I had moved from Australia to England, where I was enrolled as a printing technology student at the Nottingham Regional College of Technology. One of my classmates was Terry Graves, who hailed from the East End of London. Terry had a sharp mind, a sound scientific discipline, and a growing interest in color reproduction. I soon sold him my extra copy of John Yule’s book.

The late 1960s were a time of student unrest: In London, mobs burned the U.S. flag in Grosvenor Square and the Australian flag on The Strand to protest the war in Vietnam, student riots rocked Paris during May of 1968, and in the U.S., there was great turmoil on campuses from Columbia in the East to Berkeley in the West. Meanwhile, what were our demands (polite requests, actually), in Nottingham? We wanted added coursework in matrix algebra so that we were better equipped to handle the color equations in Principles of Color Reproduction. This radical request was swiftly granted (“Students asking for more mathematics? We are dealing with a rum lot here: better placate them.”) A series of lunchtime lectures, which were also attended by bemused faculty from the printing department, was duly presented by the mathematics department of the college.

John Yule’s book became the catalyst for our enthusiastic discussions on color reproduction. We eagerly waited for the latest TAGA Proceedings or Printing Technology, the journal of the Institute of Printing, and thought nothing of driving 120 miles during winter to London to hear Felix Pollak present one of Frank Clapper’s color correction papers to an evening meeting of the Institute of Printing. We learned about color reproduction with an excitement that reflected the times, and that was made possible by one of those unique sets of circumstances that are only fully appreciated well after the fact.

After graduating from Nottingham, I moved to the U.S. to take a position in the Color and Photography Research Division of the Graphic Arts Technical Foundation. The first technical conference I attended for GATF was the ISCC’s Optimum Reproduction of Color conference that was held in Williamsburg, Virginia during February 1971. John Yule co-chaired (with Dusty Rhodes) this conference, whose participant list read like a Who’s Who of color. The pervasive influence of Principles of Color Reproduction was obvious; it was cited by speaker after speaker and was certainly accepted as the benchmark against which all other graphic arts color reproduction texts would be measured.

GATF’s copy of Principles of Color Reproduction seemed to spend more time checked out to the staff than it did in the library. George Jorgensen, Supervisor of the Physics and Quality Control Research Division, was one person who frequently consulted this text during his tone reproduction research studies. George said to me one day that we really should buy another copy because the publishers might not necessarily reprint it. In fact, the book was reprinted once, but by 1980 it was out of print and has become as scarce as the proverbial hen’s teeth ever since then.

THE REPRINT IDEA

Late in 1997 I was making the final revisions to the manuscript for the second edition of my book Color and Its Reproduction when I received a telephone call from Peter Oresick, the Director of GATF Press. After some discussion about the progress of my book, Peter said that GATF was negotiating with Dr. Yule about reprinting Principles of Color Reproduction. He asked if I would consider writing an introduction to a reprint edition. I readily accepted this invitation and also suggested to him that I visit John Yule to gather material first hand. In fact, I was already planning to attend the IS&T/SID Color Imaging Conference in Scottsdale, Arizona the next week, and I knew that it would take only a couple of hours to drive from there to John’s home in Prescott.

Some time later, I learned that the Genesis of the reprint idea developed when Peter Oresick was being first interviewed by GATF. Peter, in response to a question about how he could increase the number of titles published by GATF Press, suggested that one such method was to reprint classic texts in the field. John Sweeney, who was then Vice President of Marketing at GATF, insisted that Principles of Color Reproduction be given the highest reprint priority. John had been a student of mine when I taught at Carnegie Mellon...
University. He was well acquainted with Yule’s book because of the assigned readings I had set from this text.

VISITING THE YULES

I spent several very enjoyable hours talking with John and his wife June about his career, his book, mutual acquaintances, and his current interests. I learned much about the history of the book, including the unstated thought that the opportunity to reprint or revise might emerge at some future date. John still had many of the original color separations for the book, and Dick Maurer, a colleague from Kodak days, had compiled an errata sheet. I heard about Dusty Rhodes’ trips to Japan where he observed photocopied versions of Principles of Color Reproduction being passed among researchers and engineers. Eventually, a Japanese language version of the text was published.

During our conversation, I explained to John that I was using the reprint edition of Friedman’s History of Color Photography as a model for how GATF might go about structuring Principles of Color Reproduction. Friedman’s reprint included an update appendix and, at some point during the conversation, John suggested that I might consider writing an update chapter for the reprint edition of his book. I agreed to this challenging (and somewhat daunting) task, which was later endorsed by GATF.

The Yule’s home is situated in an area of rustic beauty and, after we had finished most of the business at hand, they suggested that we take a brisk walk through a local nature reserve. June also offered me the opportunity to do some rock climbing at the rear of their property, but I declined. I learned that the Yules had hosted fellow international folk dancing enthusiasts the night before my visit; I had encountered a colleague from Kodak days, had compiled an errata sheet. I heard about Dusty Rhodes’ trips to Japan where he observed photocopied versions of Principles of Color Reproduction being passed among researchers and engineers. Eventually, a Japanese language version of the text was published.

VISITING THE YULES

The update chapter touches upon these topics and more in a panoramic sweep that is not particularly deep, but that provides over 130 references chosen, partly, for their citations of earlier works. The early optimum tone reproduction studies of Bartleson and Breneman and of Jorgensen have now been supplanted by “gamut mapping” approaches. Some credible “good enough color” semi-automatic systems have been developed but I, among others, maintain that a significant segment of the graphic arts color market will always require the judgment of a skilled color critic. New color communication tools, coupled with systems engineering concepts, are the key technology requirements for the high quality color market.

The update chapter touches upon these topics and more in a panoramic sweep that is not particularly deep, but that provides over 130 references chosen, partly, for their citations of earlier works. The early optimum tone reproduction studies of Bartleson and Breneman and of Jorgensen have now been supplanted by “gamut mapping” approaches. Some credible “good enough color” semi-automatic systems have been developed but I, among others, maintain that a significant segment of the graphic arts color market will always require the judgment of a skilled color critic. New color communication tools, coupled with systems engineering concepts, are the key technology requirements for the high quality color market.

A HARDY REFERENCE

Suppose that instead of reprinting Principles of Color Reproduction with an update supplement, the text were to be completely rewritten by some brave soul? What could possibly be dropped from the current text? It is important to remember that principles are just that, and it would be unwise to discard material that appears dated relative to what may be a transitory technology.

Camera-based color separation, analog computer systems, and photosensitive recording materials could very well be reinvented in new forms to supersede today’s approaches. Knowledge of the past informs future developments, so it is difficult to envision a time when Principles of Color Reproduction will no longer be consulted by all manner of researchers, production personnel, students, and engineers.
**CAL POLY/TAGA STUDENT CHAPTER**

This year, we have many new and exciting activities planned, and we are continuing many successful events, as well. I have the opportunity to work with a wonderful executive staff consisting of 7 other officers. We had a very successful membership drive this year, doubling our chapter membership from last year. We hope to continue to get more students involved. We started the year off with a mentor program for the new students to attract them to TAGA and to get them involved, in addition to making their transition to Cal Poly a little easier. We paired the new student up with continuing students and had a bonfire at Avila Beach, so everyone could get acquainted. It was lots of fun for everyone!

Our members have been busy brainstorming ideas for our publication and events for the year. We are planning to have numerous guest speakers from the industry who will talk about new technologies. Recently, the founder of Kinko’s made a presentation to our chapter. It was a very rewarding experience. Some presentations will be accompanied by follow-up seminars, so the students can have the opportunity to experiment with the new technologies.

We also plan to continue to visit the industry and take tours of various companies to learn about the job opportunities available for our students. This quarter, we have a trip planned to Merced, California.

We are continuing with our quarterly business card fundraiser and 2nd Annual Silent Auction to help raise money for the conference. We are planning a few social events as well, so the students can get to know each other better.

Our goal is to provide the students in our department with a strong understanding of the technologies in our industry and provide them with the resources to learn more. On behalf of the Cal Poly TAGA Chapter, I wish all of you good luck, and I am looking forward to seeing you at the TAGA conference in San Diego. If you would like to contact me to obtain more information regarding the Cal Poly TAGA chapter, please e-mail me at cbloch@calpoly.edu.

Cheryl Bloch
President, Cal Poly/TAGA Chapter

**CLEMSON/TAGA STUDENT CHAPTER**

The 2000–01 year started off well with large turnouts to our meetings full of fresh faces and ideas. A new group of officers have been elected who are very excited about the coming year. Anne Marie Hathcock (President), Michael Heit (Vice President), Mark Davis (Treasurer), Christine Davis (Secretary) and Lee Weatherly (Publications) are this year’s slate of officers.

Most of the chapter’s fall activities have been raising money for the TAGA conference in May and generating ideas for the 2001 chapter publication. Our annual “TAGA BBQ” is being held again this fall, and we have already sold many tickets.

We have also been generating many ideas for the journal. With such a talented group with a wide variety of talents and interests, I am excited about what this conglomeration will produce. The annual Clemson Color Management Symposium is being held this fall, and the Clemson chapter will again host a question-answer session with attendees of the Symposium. Plans are also in the works for a daylong session on paper given by Mead for early next semester.

Dr. Sam Ingram
Clemson/TAGA Chapter Advisor

**RIT/TAGA STUDENT CHAPTER**

The RIT/TAGA Student Chapter kicked off the 2000–2001 academic year with intensive recruiting of new members. We now have a strong core group of approximately 25 students —up from just 12 members last year! Our membership comprises a diverse section of undergraduates and graduates whose major fields of study include design, photography, packaging science, as well as that of printing management and printing technology.

Chapter goals for this year include the establishment of solid relations with the two other RIT College of Printing student organizations, the Gamma Epsilon Tau Fraternity and the RIT Craftsmen Club. By partnering with these groups, we hope to extend additional perks to our members, such as visits to industry facilities and access to visiting lecturers. Plans are also underway for producing our entry for the 2001 TAGA Student Chapter Publication competition. We have passed the brainstorming phase and have begun to roll up our sleeves and get to work. After such a positive experience in Colorado Springs last year, we are all looking forward to presenting the 2001 journal at the San Diego conference. See you there!

Amelia Hugill-Fontanel
Vice President, RIT/TAGA Chapter

**UNIVERSITY OF WISCONSIN-STOUT/TAGA STUDENT CHAPTER**

The fall has certainly been a busy one for the UW-Stout TAGA chapter. We have had the opportunity to recruit seven new members, replacing those who have graduated or are on co-op, bringing our membership to a dedicated twelve members.

In the meetings we have already had, we have narrowed down our publication design choices, planned out some company tours, and set our sights on a couple of fundraisers. Currently, our tours are mapped out to be a day trip to the printers in the Minneapolis/St. Paul area and an overnight trip to the Milwaukee area. It is hoped that the Milwaukee tour will include a paper manufacturing facility.

Several fundraisers have been brought up and are being planned for the near future. We are most excited about the screen printing fundraiser we will be holding on campus. The opportunity has also been brought up to us to raise funds by working at the new Minnesota Wild hockey games. Hopefully these events will be able to lower our overall cost when we fly to San Diego in the spring.

Article ideas have been thoroughly researched by our trusted advisor, Howard Nelson, and should come into a clearer focus over the next month. Howie’s help in this area has been much appreciated by all the members of the group.

We look forward to meeting with everyone again in the spring!

Corey Klein
Member, UW-Stout/TAGA Chapter
Each year, TAGA sponsors a number of undergraduate and graduate scholarships and fellowships that are administered through the Print and Graphics Scholarship Fund (PGSF) in Sewickley, Pennsylvania. Congratulations to the following recipients for 2000–2001!

RAYMOND J. PRINCE/TAGA FELLOWSHIP—$5,000
Milos Krsmanovic
BS in Graphic Communications, Chowan College, NC
Graduate school: Virginia Tech
Program: Masters in Technology Education
Undergrad. GPA: 3.4

MICHAEL H. BRUNO/TAGA SCHOLARSHIPS—$1,000
Craig Stone
University of Wisconsin-Stout
Major: Graphic Communications Management
GPA: 3.75
Academic year: Senior

TAGA STUDENT CHAPTER SCHOLARSHIPS—$1,000
Joshua Hirschorn
Graduate Program, RIT
BS in Newspaper Management
Major/field of study: MBA Technology Management
GPA: 3.8

Gregory Polsom
Undergraduate program: California Polytechnic State University, San Luis Obispo
Major/field of study: Graphic Communications
GPA: 3.0
Academic year: Senior (has associate degree in Electronic Publishing)

Terri Wiesner
RIT
Major: Printing Technology
GPA: 3.4
Academic year: Junior

Carolyn Brewer
RIT National Technical Institute for the Deaf (NTID)
Major: Digital Imaging Technology
GPA: 3.8
Academic year: Sophomore

Antoinette Leathers
Undergraduate program: North Carolina A & T State University
Major/field of study: Graphic Communications
GPA: 3.1
Academic year: Senior

All TAGA Scholarships and Fellowships are open to students enrolled in four-year accredited technical graphic arts programs in the US and Canada and all overseas students enrolled in accredited technical graphic arts programs at universities, which have TAGA Student Chapters. For more information regarding the award criteria, information packet, and application form, please contact: PGSF, 200 Deer Run Road, Sewickley, PA 15143-2600 USA; Phone: 412/741-6860 or 1-800/910-GATF ext. 309; Fax: 412/741-2311; e-mail: pgsf@gatf.org; or download the package from http://www.gatf.org by clicking on Print and Graphics Scholarship Foundation.

Principles of Color Reproduction—A Classic Revisited

Continued from page 7

Perhaps I am overstating the case now, but I do believe that John Yule’s book also provides a cultural bond between like minded people. Every year I travel to Sydney to pay a visit to Bruce Tory, a friend and mentor of many years standing. Bruce, himself the author of two classic texts on photolithography and lithographic printing, asks of my progress on the update supplement and offers encouragement as we reminisce and discuss color reproduction, photomechanical processes and print quality. Bruce retired from active involvement with the industry some ten years ago, but when the time came to move with his wife Norma into the limited space of a retirement village, he kept his copy of Principles of Color Reproduction. I still have my original copy and Terry Graves still has the copy I sold to him over 30 years ago. It is this kind of fierce loyalty to a book that continues to provide enlightenment for a fascinating subject that keeps it out of the used book market. My wife Mary Ann and I have been habitually haunting used bookshops for the past 20 years or so. During this time, I found only two copies of John Yule’s book for sale.

Principles of Color Reproduction is essential reading for anyone interested in the mysteries of the graphic arts color reproduction process. I hope that another generation will be initiated by the new edition into the fraternity of color reproduction enthusiasts in the same way that I was by the original edition in 1967.

THE BOOK

Availability: Telephone (800) 662-3916, (412) 741-5733; Fax (412) 741-0609; Internet www.gain.net
Electrophotography has three serious limitations: (1) Decay of charge voltage on the photoconductor (plate) between the time of charging, exposing and toning can affect image contrast as the amount of toner transferred to the image depends on the exact voltage at the time of toner transfer; (2) Toner chemistry is very complex and can cause variations in batches of toners and high cost of special toners; and (3) Liquid toner systems are dispersed in isopar, a volatile organic compound (VOC), which is subject to environmental regulations.

Indigo gets around (1) by charging, exposing, and toning in fast sequence. Xeikon avoids (3) by using dry toners. Also Xeikon uses arrays of LED’s (light emitting diodes) which expose much faster than lasers so charge decay as in (1) is very consistent.

Look for Part 2 including Mike’s Outlook for Printing by Printing Process for 2000–2010 in the next issue of the TAGA Newsletter.
There are now over 40 companies who are members of CIP4 that are working on JDF developments.

CIP4’s Print Production Format (PPF) and Adobe’s Portable Job Ticket Format (PJTF) to be used by a system of administrative and implementation-oriented components, which together produce printed products. It provides the means to describe print jobs in terms of the products eventually to be created, as well as in terms of the processes needed to create those products. The format provides a mechanism to specify the controls needed by each process, which may be specific to the devices that will execute the processes. There are now over 40 companies who are members of CIP4 that are working on JDF developments.

CALL FOR PAPERS

Although the Stockholm conference will be largely comprised of Invited Papers, if you have an interesting topic involving new technology dealing with substrate that you would like to present in Stockholm, please submit an abstract of 150 words or less to: TAGA, 68 Lomb Memorial Dr., Rochester, NY 14623-5604; fax: (716) 475-2250; e-mail: TAGAOfc@aol.com.

TAGA 2001 San Diego  Continued from page 1

May 6–9, 2001 in San Diego, CA, USA. The CIP4/JDF sessions will focus on Computer Integrated Manufacturing, and specifically on developments of the Job Description Format (JDF) and related implementations. JDF is an XML-based format built upon the existing technologies of CIP3’s Print Production Format (PPF) and Adobe’s Portable Job Ticket Format (PJTF) to be used by a system of administrative and implementation-oriented components, which together produce printed products. It provides the means to describe print jobs in terms of the products eventually to be created, as well as in terms of the processes needed to create those products. The format provides a mechanism to specify the controls needed by each process, which may be specific to the devices that will execute the processes. There are now over 40 companies who are members of CIP4 that are working on JDF developments.

TECHNOLOGY DISCUSSION ROOM—A FIRST FOR TAGA

At the 2001 TAGA Annual Technical Conference in San Diego, we will have a room with round tables and chairs to be used for open discussions among participants. The Technology Talk—Ask the Experts room will be open during the technical sessions and breaks for anyone who wants to discuss any topic. Participants will be asked to list their questions or topics on a flip chart, so that other participants can express their desire to also discuss a topic or answer a question. Times will also be listed for those meetings. This will allow anyone else interested in the topic to participate. We may even designate certain tables for certain topics of interest to all members.

We realize that there are times during the Annual Technical Conference when participants are not interested in a scheduled presentation and would like a venue to be able to discuss topics of their interest during that time. Maybe you are more concerned about applying certain technologies in your printing company than you are with the scientific explanation or the research that lead to a new technology. Here is your chance to get those suggestions and answers that apply to your world. This room offers our members the opportunity to take those technical discussions to the next level.

Come to San Diego and take advantage of your chance to get answers from the experts. If you have any additional suggestions about making this new offering a success, please e-mail them to MFSouth@aol.com.

U.S. GRANT HOTEL SITE OF TAGA 2001 SAN DIEGO

The U.S. Grant Hotel, a member of the Historic Hotels of America, is the site for the TAGA 2001 Annual Technical Conference. A recent $80 million renovation has reclaimed and renewed the best of this fine hotel’s storied past while incorporating the latest technological innovations.

Located in the heart of downtown San Diego’s business district, the Grant is within walking distance to exclusive shopping at Horton Plaza (across the street), Theaters, Restaurants, the Historic Gaslamp District (one block away), Seaport Village and San Diego Harbor (5 blocks). Special TAGA guest room rates are $165 single/night and $185 double/night. If you would like to reserve early, please call 1 (800) 2237-5029 (US only) or 1 (619) 232-3121 and mention the TAGA conference.

San Diego has many wonderful attractions to fill your free time. An exciting Spouse/Guest Program is being planned for the guests of full paid conference attendees. The program will be announced in the conference brochure which you will receive shortly.

Plan now to join us in sunny San Diego!
2000 TAGA TECHNOLOGY PATRONS
Membership Level Criteria: Contributions with total value of $5,000 or more in goods/services/cash to TAGA.
- Group InfoTech
- DAX

2000 TAGA CORPORATE SPONSORS
Membership Level Criteria: Annual member dues of $1,000
- Agfa Corp.
- American Color Graphics
- Appleton Papers
- Baldwin Technology Co., Inc.
- Bureau of Engraving & Printing
- Flint Ink Corp.
- Fuji Photo Film USA
- Graphics Microsystems, Inc.
- Group InfoTech, Inc.
- Harlequin, Ltd.
- Hallmark Cards, Inc.
- Heidelberg Web Systems
- Imation
- INX, Inc.
- Kodak Polychrome Graphics
- Mitsubishi Imaging (MC), Inc.
- Polaroid Graphics Imaging
- Presstek, Inc.
- Scitex America
- Sun Chemical Corp.
- Toray America
- Western Lithotech
- Yamatoya & Co., Ltd.

TAGA 2001 SAN DIEGO CONFERENCE SPONSORS
- Agfa Corp.
- Anchor
- Flint Ink Corp.
- Group InfoTech, Inc.
- Heidelberg
- INX
- MAN-Roland
- Mead Corp.
- Mitsubishi Imaging (MC), Inc.
- Ontario Beach Systems
- PDI
- Presstek
- SAPP Fine Paper, N.A.
- Western Lithotech
- Wikoff Color Corp.
- Yamatoya & Co., Ltd.

Don’t see your company’s name listed here?
Call us today to become a TAGA 2001 San Diego Sponsor or Corporate Sponsor Member!

TAGA BOARD OF DIRECTORS
2000–2001
OFFICERS
- President
  Richard Holub, IMAGICOLOR
- Executive Vice President
  Bruce Blom, Mead Corp.
- Vice President Technical Papers
  William Ray, Group InfoTech, Inc.
- Vice President Membership/Publicity
  James Harvey, Graphic Communications Association
- Secretary-Treasurer
  Miles Southworth, Graphic Arts Publishing Co.

BOARD OF DIRECTORS
- Anders Bovin, Animus (Sweden)
- Richard Goodman, Kodak Polychrome Graphics
- Ed Granger, Ontario Beach Systems
- Helmut Kipphan, Heidelberg
- Joseph Noga, RIT SPMS
- Stig Nordqvist, Goteborgs-Posten
- Juanita Parris, Sun Chemical Corp.
- David Romano, Agfa Corp.
- Roger Siminoff, Apple Computer, Inc.
- Anthony Stanton, Carnegie Mellon University
- John Werner, Graphic Communications World
- Walter Zawacki, Flint Ink Corp.
- Immediate Past President
  John Long, Mitsubishi Imaging (MC), Inc.

STAFF
- Managing Director
  Karen E. Lawrence
- Assistant to the Director
  Kara L. Knopf
- Executive Director Emeritus
  Michael H. Bruno