The 1993 TAGA Annual Technical Conference will be held at the Minneapolis City Center Hotel located in the heart of downtown Minneapolis, Minnesota. Mark the dates of April 25-28, 1993, on your calendars NOW.

Plan to attend this premier conference of the graphic arts technical community in order to keep up-to-date on ever emerging technology through the presentations of forty excellent papers organized by Vice President of Technical Papers Dick Fisch. Increase your technical knowledge through timely tutorials.

Bring your family and enjoy the numerous restaurants and stores. The conference hotel sits atop four tiers of an extensive shopping mall, and downtown Minneapolis is truly a shopping adventure. Not only can you shop until the sun sets, you have a choice of strolling outdoors or through the nearly four miles of the extensive skyway system. These second-story, climate controlled walkways connect a number of downtown buildings including Saks Fifth Avenue, Burberry's, and Dayton's. Also, a brand new mall slated to cover several acres which will include a theme park, an aquarium ceiling, as well as hundreds of stores is under construction and scheduled to open in the Fall of 1992. The world renowned travel expert, Arthur Frommer, recently named the Twin Cities one of the top ten travel destinations in the world.

Local arrangements and a wonderful social program are being planned by our Local Committee and our Local Host Ed Kelly of 3M Company, and TAGA Managing Director, Karen Lawrence.

Mark the dates on your calendar now and let's look forward to another great conference!
At the recent TAGA conference, between presenting a paper on ink recycling; attending a Board of Directors meeting; and chairing the focus group on "Ink, Paper and Press", Les Watkins gave us time for this interview.

At Graphic Fine Color in Maryland, Les, as Vice President of Technical and Marketing, is responsible for the technical direction of the company. "The only way to give this direction is to use marketing research as a driving force: assessment of the market needs, product development, value added. In regard to value added, I recently had a great deal of fun making a video on ink recycling. As a matter of fact, the TAGA conference registration brochure was all done with recycled inks."

Les also spends 15 to 20 days a month on the road going to customers giving training and seminars to add value. Les worked both in the UK and in Canada before moving to the US. While in Canada, he taught a course at George Brown College, so he is no stranger to teaching.

He also works with educational institutions. "One of the problems in the printing inks industry is that it is small — ten thousand in the US of which 1,000 are technicians. We have a tough time finding people to hire. There are no formal training programs other than a one week course at Lehigh University. We are working with a local university to establish a lab course. I teach ink making for press people at the Graphic Arts School of Greater Washington. Every Saturday for six weeks we have an in-house course. And we run Saturday seminars for customers to bring them up-to-date on such things as soy-based inks. On our first seminar we expected 30 people and got 150!"

About TAGA, Les says "When I joined TAGA in 1972 it was literally because I was looking for a technical organization outside of my own company. TAGA appealed because it is not aligned with people selling or peddling at you. It addresses the need for non-biased, cross-sectional information. And there is a strong ink representation in TAGA and a lot of shared information . . . obviously not secrets."

When asked his vision for the future of TAGA, Les said "TAGA does a lot of things very well but we need to change our educational funding which is all spent in the U.S. We also have become non-controversial and safe, and we need to change this. We need to bring in the new, fresh people. The same people give papers year after year."

As to any spare time Les has, he spends it on the golf course or on his boat, a cruiser.

Thanks, Les!

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**1992 TAGA HONORS AWARDS PRESENTED**

At the Annual Awards Banquet on April 7, 1992, at the Westin Bayshore Hotel in Vancouver, B.C., the 1992 TAGA Honors Awards were presented to two outstanding individuals in the graphic arts industry.

Carol Seibold, Technical Service Manager of 3M Company's Printing and Publishing Systems Division, presented one award to Richard S. Fisch, TAGA Vice President of Technical Papers and Division Scientist and Coordinator of Combined Printing and Publishing Systems and Image Reproduction Divisions' Color Image Analysis Center. Dick received the prestigious TAGA Honors Award for his over 40 years of dedicated service to graphic arts research, as a teacher, as a Division Scientist in 3M's Printing and Publishing Systems Division, as a holder of 29 patents on color reproduction materials and processes, as the author of over 50 papers, 11 for TAGA, as the co-founder of the CGATS standards group and as a member of TAGA's Board of Directors and Vice President Technical Papers and Journal.

The other TAGA Honors Award was presented to Milton (Milt) Pearson, Principal Imaging Scientist of the RIT Research Corporation. Presenting the award to Milt was RIT School of Printing Management and Sciences Professor Robert Chung.

Milt received this distinguished award for his almost 30 years of dedicated service to graphic arts research, as a distinguished color reproduction scientist at RIT, for his contributions to graphic arts standards as secretary of the CIE Committee on Radiometry and Photometry of Material and as a member of the ANSI subcommittee on Optical Density, as a TAGA member since 1964, author of 10 TAGA papers, and chairman of the ISCC/TAGA 1992 Williamsburg Conference.

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TAGA Newsletter • Spring 1992
Enclosed with this newsletter I am happy to send to you a copy of a student journal which was prepared by the TAGA Student Chapter at the Rochester Institute of Technology. This past year we saw at the Annual Technical Conference student journals from Cal-Poly, Clemson, RIT, and Western Michigan. When you look at it, keep in mind that the students have produced this journal with only the help of their advisors. This year we had approximately 22 students at TAGA'92 Vancouver who distributed copies of their journal, prepared a poster session, helped out in many ways during the Annual Technical Conference, such as controlling the timing lights, projectors, and lighting for the function rooms. I think it is important that we recognize what our students have been doing for TAGA and likewise the commitment of TAGA to education. This year the Education Committee allocated $4,000 to help students travel to Vancouver, British Columbia and also contributed slightly in excess of $10,000 to the Michael H. Bruno/TAGA Scholarship Endowment. In addition, the student chapters will be receiving free audio tapes of the highly successful focus group sessions as well as a video tape of one of the tutorials, when it is produced, at no charge. Keep in mind when looking for people interested in research opportunities in the Graphic Arts that class of '92 students belonging to TAGA student chapters may be an excellent source. Please read the student journal enclosed, and if you have any comments please direct them to me. Thank You.

PRESIDENT'S MESSAGE

TAGA President Ray Prince

ELECTION RESULTS

At the TAGA Annual Technical Conference held April 5-8, 1992, in Vancouver, B.C., President Ray Prince of GATF announced election results for the coming year:

Vice President of Membership—Jeanette Truncellito, Sun Chemical Corp.

Vice President of Technical Papers—Richard Fisch, 3M Co.

Secretary-Treasurer—Thomas Masseth, Eastman Kodak Company

They join existing officers, President Ray Prince of GATF, and Executive Vice President Patrice Mangin of PAPRICAN.

Directors: Ed Porth, Hallmark Cards Inc.; John Long, DuPont; Tony Johnson, Crosfield; David Gerson, Printer's Service

Henry Fournier of Elysees Colotype in Paris, France was elected to serve a one year term remaining in the Board position, vacated by Jeanette Truncellito's election to Vice President of Membership.

TAGA Officers 1992-93

(Seated left to right) Ray Prince, Patrice Mangin; (Standing left to right) Tom Masseth, Jeanette Truncellito, Dick Fisch.

New TAGA Board Members

Ed Porth; John Long; Tony Johnson; David Gerson; Henry Fournier

These newly elected Board members join existing directors Robert Chung, RIT; Les Watkins, Graphic Fine Color; John Sweeney, X-Rite; Sam Ingram, Clemson University; Eric Tobias, Tobias Associates; Bruce Blom, James River Corp.; Bryan Sunderland, SDL; and Immediate Past President, David Q. McDowell, Eastman Kodak Company.

TAGA bids a fond farewell to outgoing Board members: Donald Fredrickson, Editor's Press; John Favat, American Printer; Nancy Lowther, Lowther Training & Development; and Robert Mason, Hunter Lab (retired). We express our sincere thanks to these board members for their efforts on behalf of TAGA.

TAGA Newsletter • Spring 1992
On past conference appraisal forms, one suggested way to improve our conference was by adding tutorials. And so tutorials came into existence three years ago using your suggestions/needs as the topics. Although all TAGA members are in the graphics industry, we are in many different disciplines. These tutorials give down-to-earth training so members can learn or be refreshed about these related disciplines.

At the recent conference, one of the tutorials was on "Calibration and Linearization." The video of this tutorial will be available later this year. Following are responses to some of the questions from the appraisal forms of this session.

Several questions were asked and one of them will be addressed in this article. Others may be addressed in future articles.

**QUESTION:**

**Why don't text and line art require linearization?**

**BACKGROUND INFORMATION:**

This question refers to the output of an imagesetter. Imagesetters use laser technology to image photo sensitized graphic arts materials. The materials may be either films, high quality paper or direct imaged laser plates.

The images produced may include text, lines or line art and single color halftones or process color separations. It is important to control the precision of all of these graphic elements. The amount of precision needed depends on the quality requirements of the work. Assuming a stable imagesetting system in all other ways, there are two basic controls for these page elements. The first is the imagesetter exposure setting. The second is linearization software settings. The imagesetter exposure setting controls the precision of text and line elements. Linearization software controls the precision of the tints in halftones and process color separations. The ability of these two controls to be predictably precise and to be consistent depends on the stability of the entire imagesetting system. For instance, if chemical processing is failing, image quality will not be consistent regardless of how well exposure settings and linearization was done.

Linearization software packages modify the dot size output. Given a stable imagesetting environment, they can do this very well. Briefly, the software sends to the imagesetter a test page containing a variety of tint percents. The imagesetter prints it. The material is processed and measured. Test page tints may typically be made up of dots from 10% to 100% in ten percent intervals. Each percent is labeled with the dot size number it is intended to reproduce. The imaged tints are measured using a densitometer. Very often the dots as measured do not equal the dot label number. For instance, it is not unusual for a 50% tint patch to measure 65% on the densitometer. The actual densitometer measurement is keyed back into the linearization software. The software takes all of the actual measured numbers and calculates the difference between them and the number the dot was intended to be.

It creates a mathematical formula called a transfer curve. The curve is downloaded to the imagesetter RIP. After that, when a job contains tints, the RIP compares the number the tint is supposed to be to the numbers in the transfer curve. It automatically adds or subtracts from that number. This is the linearization process.

Linearized tints are brought into line with their nominal values. When the linearized tints are imaged on the imagesetter, they measure what they are supposed to measure.

This example is a simplification of the linearization process. A dot percent that should measure 50% actually measures 63%. That is 13% too much. After linearization, the transfer curve in the RIP knows this. When it is sent a 50% dot it simply subtracts 13%. This compensates for the dot gain inherent in the imagesetting process. The resulting dot does measure 50% plus or minus 1%.

**ANSWER TO THE QUESTION:**

The POSTSCRIPT® commands that generate text are very different from the commands that generate tints or halftone dots. Linearization software addresses ONLY the commands that generate halftone dots. There is no software that can open up paged filled fine serifs. Properly setting exposure on the imagesetter, and of course, optimizing the chemistry that processes the material are the only controls for assuring the quality of text. This same is true of lines and line art.

ORDER YOUR NEW TAGA LAPEL PIN!

The new TAGA lapel pin will soon be available to TAGA members. As you can see from the illustration, the pin is fashioned after the TAGA logo. Its colors will be green and gold. The TAGA Office is now accepting orders for these beautiful and unique pins at a price of $5.00 U.S. each. Every TAGA member will want this attractive symbol of their professional affiliation with the premier graphic arts association in existence in the world today, so place your order right away!
On Tuesday, April 7th at the Annual TAGA Conference, it was announced that Keshav Sharma of Western Michigan University, had won the 1992 Dr. Harvey R. Levenson/TAGA Student Paper Award.

Keshav studied Offset Printing in India and gained two and a half years experience working in a sheet-fed heatset web plant. Upon obtaining a scholarship, he moved to the US and is working on his Masters Degree in Printing and Marketing.

Outside of class, he has worked at a General Foods Packaging Plant, and at Mead Central Research in Ohio working on the development and evaluation of coated boards.

His TAGA winning paper was on the "Deinking Potential of Dye Based Lithographic Inks."

After giving an overview of the landfill situation and the need to recycle paper, he went on to compare dyes and pigments.

In his research he printed one set of uncoated paper with dye produced ink and one set with pigment produced ink; then recycled and reprint- ed each set. The printed stock was tested for density, dot gain and given subjective evaluations.

Keshav started his research on his paper at last year's TAGA conference and continued conversations with his contacts over the year. As he said, "The TAGA conference is a place to meet with people and gain information on what is happening now and what is going to happen in the future. After this conference I am better prepared to continue this project."

When asked about retaining students after graduation as TAGA members, Keshav said, "In the beginning there are four years in a new job, you feel insecure. It's tough to get started and in a low position, a company won't pay to send you to a TAGA conference. If TAGA has a permanent address for them, approach them after that."

As to Keshav's future, he wants to do technical investigation in customer service.

**Thanks to Student Chapter Members**

**ELECTRONIC NETWORK ESTABLISHED FOR ALL TAGA MEMBERS**

Each year at the TAGA Annual Technical Conference, the attending student chapter members gather for their annual meeting. For many students this is the first time they ever meet their TAGA counterparts from other graphic arts institutions. Unfortunately, it is also sometimes the last time they have an opportunity to interact with these peers.

Therefore, among suggestions offered this year, to enhance communications among student members, was the idea to establish an electronic network by which to interact with fellow members following the conference.

Since all colleges as well as most corporations are linked to a electronic network (also CompuServe), the idea will benefit not only student TAGA members but all TAGA members.

The network has been established through the efforts of RIT/TAGA Student Chapter member Eric L. Neumann. Initially, the network will consist solely of communication through Electronic Mail, but soon an open forum will be established through the Rochester Institute of Technology (RIT) that will be accessible by all TAGA members through Bitnet and Internet.

If you would like to electronically network with other TAGA members, please send your request via E-Mail to Eric L. Neumann at user name ELN4204@ritvax.rit.isc.edu.

**A BIG THANK YOU**

to all of you who contributed an extra $30 at the conference to sponsor a student at the TAGA Annual Awards Banquet. Your donations made it possible for all 22 students present to attend this gala event. You made many students very happy!
TAGA MEMBER SERVICES UPDATE
by Dick Fisch

The job of Technical Papers Vice President has grown considerably. It not only includes the papers to be given at an annual meeting but is beginning to expand into new publication areas. In an endeavor to provide more member services, TAGA is planning to offer more vehicles for technical communication:

TAGA '93 MINNEAPOLIS
First, thank you for your attendance and contribution toward making the 1992 TAGA Annual Technical Conference a great success. It is now time to concentrate on TAGA '93 which will be held at the Marriott City Center Hotel in Minneapolis, Minnesota, from April 25-28, 1993. The quality of this year's program will be hard to surpass, but we will certainly do our best to produce another excellent program for 1993.

There were over 20 papers submitted for 1992 that we could not accommodate and many people who failed to submit their papers before the deadline. Those of you who are thinking of submitting papers for TAGA '93 are invited to send me abstracts as soon as possible. Those who submitted papers that could not be used for TAGA '92 are invited to resubmit them for TAGA '93 if they are still timely.

INDEX TO TAGA PROCEEDINGS 1949-1992 (Abstract Book)
Although a keyword and author index supplement concerning papers previously published in earlier proceedings is included in every bound proceedings, no information is available on the papers themselves. The proposed updated index will include papers' abstracts which will be beneficial as not all back issues of The TAGA Proceedings are currently available. We are in the process of editing this new edition which will complete the series of "abstract books" as we know them. The new edition will use the present keyword list as well as a new computer accessible keyword listing for every abstract going back to 1949. This new benefit to our members will allow interactive searching. We have developed a new keyword thesaurus which will be distributed to every new author so our keywords will be linked to the author's outlook on the paper's content rather than an independent review. For a period of time, both sets of words will be used. We anticipated that future indices will be available in both CD and hard copy. We hope the 1949-1992 index will be available before the next conference.

TAGA/ISCC COLOR IN THE GRAPHIC ARTS SYMPOSIUM PROCEEDINGS
We are producing the proceedings of the TAGA/Inter Society Color Council Symposium which took place in February of this year in Williamsburg, Virginia. This meeting focused on the reproduction of color for graphic arts imaging and the transfer of that information from one medium to another. All TAGA members in good standing will receive a copy of this publication as part of their membership package. The publication will be dubbed as Volume II of The 1992 TAGA Proceedings.

TAGA TECHNICAL JOURNAL
A particularly exciting project is The TAGA Journal, which will be the only English language publication devoted to publishing new research papers on graphic arts subjects. This journal will be a technical one which will be refereed by industry experts for completeness and content. The TAGA Journal as initially envisaged will appear once annually. Its publication dates will allow it to reach you almost six months after the TAGA Annual Technical Conference and serve to keep you up to date between meetings. Of course, since it is a TAGA service, its cost will be included in your TAGA membership dues. A Practices and Procedures Manual for this publication has been produced and an editorial team assembled. If you are interested in joining, please contact me. We are actively soliciting papers for this journal. Please call or fax me if you would like to submit a paper for the first edition.

TAGA STUDENT PAPERS PROGRAM
The TAGA Student Papers Program and the annual Dr. Harvey R. Levenson / TAGA Student Papers Award of $1,000 for the best paper submitted have been very successful. Our scholarship and student papers programs allow matriculating students pursuing a graphic arts degree program to gain valuable experience in the preparation of an original technical paper, the preparation of a student chapter publication, and the chance to present their winning paper to an interested audience as well as have the winning paper published in The TAGA Proceedings. Papers submitted are judged on scholastic content as relevant to the Graphic Arts.

TECHNICAL FOCUS GROUPS
As you know, we currently have three focus groups: Desktop Publishing, Ink/Paper/Press, and Environmental Issues. All three met in Vancouver and had fantastic attendance. I am pleased to announce that one more has been recently added for TAGA '93 Minneapolis: Color Concerns, which will be facilitated by Tony Johnson of Crosfield.

CONCEPTS (International Conference on Computers and Electronic Publishing and Printing Technologies)
You will soon be hearing about a new trade association prepress conference called CONCEPTS. TAGA has been asked to join other graphic arts oriented associations to present a series of two-hour tutorials at the CONCEPTS meeting which will take place in Orlando, Florida, February 24-27, 1993. If any of you are interested in sharing your knowledge, please contact me.

ANNUAL CONFERENCE TUTORIALS
This year we presented two great tutorials: one on the calibration and linearization of image setters and the other on press operation for non-presmen. We are now entertaining tutorial topics for TAGA '93 Minneapolis. Please contact me if you have a suggestion or would like to present.

I will be using the TAGA Newsletter to inform you regarding progress of the above topics. Remember: the TAGA Board including myself are here to serve you. Please communicate with us on any of these topics and participate in all the exciting TAGA activities. You the members make TAGA the premier association of the graphic arts that it is. For more information or response to any portion of this report, contact: Richard Fisch, TAGA Vice President Technical Papers. 3M Company, 3M Center-235-1C-35, St. Paul, MN 55144-1000, Phone (612) 733-2607, Fax (612) 733-4153.

TAGA Newsletter • Spring 1992
MEMBERS IN THE NEWS

TAGA PRESIDENT RAY PRINCE HONORED BY NAPL

TEANECK, NJ — March 25, 1992 — The National Association of Printers and Lithographers (NAPL) presented its distinguished Craftsman Award this month at NAPL’s annual Top Management Conference in Naples, Florida. TAGA President Raymond J. Prince, technical consultant of the Graphic Arts Technical Foundation (GATF), was the honored Craftsman Award winner.

The 47th annual NAPL Craftsman Award is presented to individuals who have demonstrated technical leadership to the printing industry, a high level of commitment to graphic arts education, or industry improvement through inventions, practical achievements or a unique application of printing skills.

In presenting the Craftsman Award to Ray, NAPL chairman Louis J. Brand, president of The John Henry Company, Lansing, MI, said, “When you think of the word education, especially technical education, you think of Ray Prince. He is someone who really knows the tools of the trade. For the past 30 years, there hasn’t been one segment of the industry that hasn’t had Ray’s involvement—he’s worked inside a printing plant, he’s been a teacher of printing, and he continues as an outstanding consultant, author, and analyst performing technical audits on behalf of GATF, he is truly a ‘craftsman’ who cares about the work he’s performing,” added Brand.

In accepting the award, Prince said, “Most of the Craftsman Award’s past recipients have been my teachers, and I thank them for taking the time with a young man in the industry. I love what I do; I love to teach and I love this industry. This award is deeply appreciated.”

ISCC/TAGA WILLIAMSBURG CONFERENCE
A CLASSIC FORUM

In late February, the efforts of many TAGA members together with those of the Inter-Society Color Council culminated in the latest in a series of nearly a dozen ISCC conferences held in Williamsburg over the past 25 years on special subjects involving color and appearance. As a special tribute to his lifelong dedication to the analysis and control of appearance, the conference was dedicated to the memory of Richard S. Hunter. This year’s topic, Comparison of Color Images Presented in Different Media, struck vibrant tones, resonating throughout the widely diverse interests of the participants, from desktop publishing and electronic prepress to color proofing and criteria for acceptability.

To assure the program would adequately cover this broad technical field, conference chairman Milt Pearson planned the program with a combination of invited papers to provide tutorial background mixed with contributed papers reporting on related current work. Topics ranged from scanner technology and color appearance modelling to geometry of viewing and characterization of printing media, with a rich tapestry of color scale transformation and mapping, digital data manipulation and exchange methods and standards, and color gamut adjustment criteria all supporting or questioning the concept of Device Independent Color Reproduction.

Pearson’s program allowed time for much spontaneous discussion, and it succeeded. After each paper a number of comments were offered, frequently expanding on a point related to the speaker’s topic, but just as often raising questions which stimulated more debate. It was truly a forum, with nearly everyone who wished to express a view having an opportunity to do so and to get a response.

The conference proceedings will be published in its entirety, and it will be available from TAGA in the same form as the regular TAGA Proceedings. In addition to the papers, it will include a transcription of the panel discussion on the theme of Device Independent Color. This panel was comprised of an impressive array of representatives across the industry. They revealed a perplexing variety of interpretations of the theme.

The conference was a clear success in that it served to bring out many of the problems, some of the coming techniques and the undeniable reality that there is much to be done in establishing device independent color comparison criteria among the various media.
At the Honors Awards Banquet on April 7, 1992, at the 44th TAGA Annual Technical Conference in Vancouver, British Columbia, three TAGA Corporate Sponsors were presented with a beautiful walnut and gold plaque displaying a certificate commemorating their status as TAGA Technology Patrons. This year’s recipients were Eastman Kodak Company, Hallmark Cards Canada, and Raymond J. Prince.

The criteria for Technology Patron status is a donation to TAGA of $5,000 or more in cash, goods, and/or services in the previous calendar year. Receiving the award on behalf of Eastman Kodak Company was David Q. McDowell; for Hallmark Cards Canada, was Ed Porth; and for Raymond J. Prince, himself.

TAGA deeply appreciates the support of these Technology Patrons and its Corporate Sponsor members. Their support enables TAGA to continue to disseminate technical research for the benefit of the graphic arts industry worldwide and to provide educational funding to students pursuing careers in the graphic arts.

If your company is interested in becoming a Technology Patron or Corporate Sponsor member of TAGA, please contact Karen Lawrence, TAGA Managing Director at (716) 272-0557 or fax (716) 475-2250.

Future TAGA Events

- TAGA ’93 Minneapolis
  April 25-28, 1993
- TAGA Tutorials at CONCEPTS
  Orlando, Florida
  February 24-27, 1993
- TAGA ’94 Baltimore
  May 1-4, 1994