The researchers' goal is to find solutions to problems and to find ways of improving the processes, machines and materials used in our industry. With an all time high attendance of 220, thirty-nine presenters shared their latest research at TAGA'94 held in Baltimore, May 1st to 4th. Some of the highlights were:

A DURABLE WATERLESS LITHO PLATE
Continuous improvement is what printers and manufacturers are striving for; although the current waterless plates are good, there is still need for improvement in their durability, resistance to scratching, and slow deterioration caused by solvents. The current plate uses a process where the silicone is bonded to the light sensitive material which coats the aluminum plate. The inventor of this new waterless process sees this as "the weak link, since it is difficult to bond to light sensitive material. Bonding to light sensitive material requires a thick film of silicone, which in turn causes a frictional problem. Where there is more friction, there is more heat build-up.

Also, this added stress and force causes more abrasion. Although the process that was introduced at TAGA has long run resistance (low surface energy/friiction and solvent resistance), there is much processing involved. Still, it shows that it can be done and opens up a whole new market. The process takes an imaged plate then applies the silicone so that it bonds with the aluminum. Just like gumming a plate, the plate is then baked. The first coat acts as a primer for the second, after which the plate is baked again. It is developed, washed with water and then dried.

Right now, it is being sold to art printers and art schools who are using it for producing original line art prints. As to commercial use, currently it is recommended for only positive, smooth rather than grained plates. (Most litho plates are mechanically grained and lose some capacity for high resolution.) Pushing beyond these restraints is the next step. For more information, contact patent-holder Fred Dankert at (607) 843-5130.

REPRODUCTION CHARACTERISTICS OF STOCHASTICALLY SCREENED IMAGES
Presented by Tony Stanton of GATF, this paper concluded that a) stochastic screening and waterless printing are a very good combination, and that b) (Continued on page 6)
Stochastic or FM Screening is the hottest new technology in printing. A little more than a year has passed since the Agfa CrystalRaster and the Linotype-Hell Diamond Screens were first introduced at Seybold Boston '93 and already there are several dozen systems on the market. Six of the 59 technical papers and one of the three tutorial sessions at the recent 1994 TAGA Annual Technical Conference were on stochastic screening. I have described 12 stochastic screening systems and four high frequency (dpi) screens in my recent newsletters and more have been introduced since. There is little question that stochastic screening is finding considerable application in the industry with its two outstanding advantages of elimination of moiré and essentially continuous tone printing. Two other advantages added by Agfa at their presentation at the IARI Conference (September 1993) are elimination of color shifts and up to 20% higher ink densities.

Agfa's CrystalRaster and Linotype-Hell Diamond Screens are both based on studies of frequency modulated screening conducted at the Printing Research Institute in Darmstadt, Germany. These were started in 1975 by Prof. Karl Scheuter and continued by Dr. Gerhard Fischer in the 1980's. Agfa's system has dot sizes of 14 and 21 microns; Linotype-Hell uses larger spots (25 microns). Both are first order screens with equal size dots and variable spacing between them. Agfa claimed about 150 systems (half in the USA) are producing commercial jobs worldwide including ads for Buick and Ford cars and Nike apparel. Linotype-Hell claims worldwide sales of over 450 systems with about 175 in the USA.

Adobe introduced at Seybold Boston '94 Brilliant Screens as an FM (stochastic) tool for OEM customers of Level 2 RIP's to adapt to their specific needs. It is based on precalculated cells generated from look-up tables.

American Color (Phoenix, AZ) announced Megadot Screening at Seybold San Francisco '93. It is a non-restitute based PostScript screening system with round dots of unstated size that was claimed to have lower dot gain than other stochastic screening systems.

Barco Monet Screening is a second order stochastic screening system with variable size dots and variable spacing between them.

Crossfield announced a High Frequency Screening option at IPEX for all Magnasonic scanners to use 400, 450, and 500 lpi half tone screens. It was claimed that these very fine screens produce an invisible rosette so that results are sharp and smooth. A 14 micron dot, which is so close to the limit of most pressures for even printing, represents a 4% dot on a 400 lpi screen and almost an 8% dot on a 500 lpi screen. These correspond to serious losses in highlight detail. Crossfield said they were working on enhancements of screening systems including stochastic screening to overcome the deficiencies of fine screen printing.

DuPont/Crossfield Hyper Color system was developed to overcome the problems of stochastic screening of high dot gain and erratic results in contacting films to plates plus the problems of incompatibility with proofing systems and difficulties of color retouching. Hyper Color avoids these problems by printing tints of the same CMYK inks over solids of the inks where the single ink layers are insufficient to achieve the brilliance, contrast and/or other visual effects desired. Moirés are avoided as the tints print over solids and screen rulings over 300 lpi are used.

Dainippon Screen has introduced Multi-Screening, which allows the use of several different types of screening in the same image, such as FM screening in textiles to eliminate moirés and rational tangent screening in highlights to reduce graining.

Donnelly Accutone is a context-sensitive FM screening system in which each element of the image is computed rather than looked up in a table. It uses 50 micron spots and a two-pass dot position algorithm which redisperses the dots in the second pass to eliminate patterns. The two-pass operation slows the system, but the results are impressive.

EMPA/UGRA (Swiss Graphic Arts Research Institute - St. Gallen, Switzerland) Velvet Screen is an FM (stochastic) screening algorithm that is retained as Macintosh software so that screened images can be produced on any PostScript output device. The image consists of two types of elongated dots with variable spacing, to produce smooth, grainless gray tones. A distinguishing feature of the screen is its ability to produce smooth gray tones, especially highlights, with relatively large spot sizes. According to EMPA/UGRA, a 900-1200 dpi image can be recorded with spot sizes from 22-28 microns with negligible graininess and slightly limited plate exposure latitude. Spot sizes of 14-21 microns have very limited plate exposure latitude.

Harlequin has added three new screening systems to its conventional supercell Precision Screening (FPS) to broaden screening options to users of its RIP's. The new systems are: (1) Dispersed Screening (HDS) which is a form of random screening like FM based on precalculated tiles; (2) MicroScreening (MFS) which facilitates the printing of small highlight dots up to 5% are printed at half the screen ruling, dots from 5% to 20% are gradients from half to full screen ruling, and 20% to 100% at full screen ruling; and (3) Chain Screening (HCS) which uses elongated elliptical dots that are recommended for low screen rulings as used for newspapers.

Hyphen has added a new FM (stochastic) screening technology option to its AM (conventional) supercell screening in its RIP ware version 10 software PostScript RIP. The system can use either first or second order screening and is claimed to produce "excellent" results at output resolutions from 800-1400, with minimized dot gain overall and less graininess in the highlights.

(Continued on page 4)
President's Message

The Baltimore conference is over. According to the attendance, the highest in the last several years, it was a great success for which credit goes to all involved. All sessions saw overwhelming attendance with standing room only in tutorials on Waterless Printing and Stochastic Screening. Even the last session on Wednesday morning, the Focus Group on Hi-Fidelity Color, was difficult to disband, which may be a message as to where the future of our industry lies... emphasis on higher and higher quality standards.

Year 1995 will be a tough one for those involved in creating these forums, the focal point of our association. With TAGA's Orlando in April, TAGA/VDD meeting at Drupa in May, and TAGA/JARIGAI in Paris in September, it will be a busy year. TAGA will also contribute to Concepts in Orlando in Febmaw. Prepublishing and digital printing might take an increasing portion of the business, so let's keep a close watch. All in all, 1995 will be a pivotal year for TAGA in the shaping of its future.

Similarly to industry, high quality technical standards and timely reporting of new findings is key to TAGA's future. It is already time to send your abstracts to TAGA's new Technical Vice President Richard Holub (SuperMac Technology). (See Call for Papers' forms for Orlando and Paris enclosed.) Starting now is the best way to guarantee an active participation at the 1995 TAGA conferences... and perhaps a trip to Paris... everybody wins!

As far as the management of the association is concerned, I have noted that those who cannot attend the Annual Business Meeting at the Conference have no opportunity to see TAGA's budget. Therefore, with the help of our new Secretary-Treasurer Miles Southworth (RIT), I intend to present TAGA end of year budget figures in the next TAGA Newsletter (fiscal year ends May 31, 1994).

Speaking of budget, I would like to add my personal thanks to all TAGA Conference Sponsors, those sponsors who contribute to the printing and publishing of the Newsletter, TAGA Technology Patrons, and all TAGA Corporate Sponsor Members. These generous contributions make it possible for the TAGA Education Committee to designate more monies for deserving graphic arts students each year. Thank you.

Meet Your Board

Dave is Vice President of Research at Printers' Service in Newark, New Jersey. He is in charge of product development, which includes monitoring the state of the art of the lithographic process, formulating products, and keeping his company at the leading edge of technology. The research and technical staff report to him. He also interfaces with quality control and manufacturing. Printers' Service manufactures press room chemistry, prepress chemistry, converts blankets, packing paper, and has an equipment line, as well as consulting with companies to help them come into environmental compliance.

Dave originally worked at GATF for 10 years, and it was through his activities there that he became acquainted with the TAGA Proceedings in his quest to keep up-to-date. Dave stated, "I recognized them as the best source of primary technical information." At Printers' Service, "being a fountain solution manufacturer, we are affected by much that is outside our sphere of operations such as innovations ink, changes in the litho process, the need to lower VOC's. We have to re-engineer our products continually, so the next logical step was to join TAGA."

When we asked Dave how he got into Graphic Arts research, he said, "Since I was a child, I felt I wanted to be a scientist, specifically in marine biology. After earning a degree in Biology, I soon learned there weren't a lot of job opportunities, and I needed money to live on. I went to the placement service at school and discovered that GATF was looking for a technician. While at GATF I went for my chemistry degree by attending night classes."

When Dave is not at work, he's working. He raises orchids and plans to expand from the window sills to his own greenhouse some day. He has a collection of guitars and plays jazz, classical and folk music. He also brews his own beer and restores old cars. He sold his '59 Jaguar Mark 9 and now is working on a '66 Thunderbird Convertible. In between work and home, Dave is Chairperson of GATF Research Committee, whose job is to help guide research through the input of the industry representatives on his committee. He's also a member of the American Chemical Society (ACS).

When asked why people should join TAGA and become involved, Dave said, "There is no other organization that offers the high level of technological network

David Germon
TAGA Board Member

TAGA Newsletter • Spring 1994

3
Monotype has added Adobe Brilliant Screens to its RIP Express.

Optronics has added Harlequin Dispersed Screening (HDS) to its Desksetter 3000.

Parker BNM Screening System developed by Prof. Dr. Kevin Parker, University of Rochester, and patented by Research Corporation Technologies (Tucson, AZ), is a stochastic screening system using a Blue NoiseMark in conjunction with a continuous tone image to produce a halftone image with equal size pixels and random distribution of the pixels. The mask is computed mathematically and can be used as software in digital systems for use in imagesetters, or screen matrices can be tiled and printed out as a large optical random element that can be used as a contact screen for making halftones photographically. The availability of an FM photographic contact screen can be a big boon to smaller printers who cannot afford expensive imagesetters.

Scangraphic has a stochastic screening system called High Fidelity Screening that screens images in a server before sending the file to the RIP which makes it possible to use the system with different RIP’s and imagesetters. The system has four quality levels: (1) newspaper offset; (2) standard offset; (3) high-end offset; and (4) ultra high-fidelity. Resolutions for the different applications shown at Seybold Boston ’94 were 400, 609, 830, and 1219 dpi. Text is output at 1526 dpi. A 16 micron spot is used at 1626 dpi, 32 microns at 813 dpi, and 8 microns at 3252 dpi.

Scitex introduced Scitex Class Screening at IPEX which consisted of three new screening options plus conventional screening with improved dot shapes. The new screening options are Fulltone Screening, Geometric Dot Screening, and High Definition Screening.

Fulltone Screening is advanced FM screening which is actually second order stochastic screening as the dots vary in area as well as spacing. It separates the line work from the continuous tone images which produces better results by allowing the line work to be exposed at higher resolution. Also, all screening is done in hardware on-the-fly during output.

Geometric Screening uses line screens at different angles with dots in highlights and variable size bulges in the lines in the midtone and shadow areas without regular patterns like rosettes. Images are free of moiré and appear smooth and sharp.

High Density Screening requires images to be scanned at high resolution producing high frequency dots which minimize moiré. Rosette patterns and moirés are claimed to be eliminated because the dot frequencies are so high that the eye cannot see objectionable patterns. Highlights below 9% and shadows above 91% are reproduced by what are called Duplidots.

SeeColor Clear is a special type of stochastic screening based on a "minimum-distance Poisson distribution" which is claimed to prevent visible graininess in highlights but allows the use of fairly large 40 micron dots. SeeColor is a company in California that supplies vendors with hardware screening technology. SeeColor Clear is an FM screening system it has developed on its own.

Tegra-Varityper which marketed ESCOR and ESCOR-II AM screening systems introduced ESCOR-FM at Seybold Boston '94. It is a stochastic FM screening system claimed to have built-in adjustments for dot gain so AM and FM screening can be run on the same page. Incidentally, Tegra-Varityper has been sold to Trans Cal Hiliine Screening is not FM or stochastic screening. It is a means of approaching continuous tone appearance of images by varying the shapes and sizes of the dots. It breaks each conventional dot into four smaller dots, each of which can vary in size, increasing the number of gray levels available and making the combination of the four dots irregular in shape. These effects make a 150 lpi screen image equivalent in detail to a 300 lpi screen image and its appearance close to that of a contone image.

This is quite a smorgasbord of screening systems that should be enough to satisfy the appetites of all users. Unfortunately, storm clouds are gathering over the applications of these systems with the issuance of a patent in February 1994 to Richard Stein (SciTec Venture) which combines random screen images and waterless plates. How a patent could be granted on the obvious combination of these two well known technologies is beyond everyone’s comprehension. This patent could be as destructive to the progress of these two technologies as a patent on screenless printing in the 1970’s was to the process of producing high quality lithographic printing. The industry is in an uproar over the patent. I understand that a consortium is now being organized to contest it. With the great variety of new technologies emerging and merging, we can expect many more similar situations in the future unless something is done to avoid them.
The 1994 TAGA Honors Award
Presented at TAGA '94

For his 33 years of dedicated service to graphic arts and education at EMPA/UGRA in Switzerland, his research on photo sensitive coatings for platemaking leading to the development of the world famous UGRA control scales, colorimetry in graphic arts, theory of color reproduction including metamerism between color originals, proofs and press prints, development of frequency modulated (FM-stochastic) screening algorithms, as author of a book on colorimetry in the Graphic Arts, recipient of the Gold Medal of the Institute of Printing, his service as research associate and Head of the Printing Technology Department of UGRA and Deputy Managing Director of EMPA, as Visiting Professor in Bangkok, Honorary Professor at the University of St. Gall, past president of IAR/GAI, a member of TAGA for over 20 years and the author of five significant papers, TAGA honors Dr. Kurt Schläpfer.

Dr. Kurt Schläpfer is Division Manager and Deputy Managing Director of EMPA (the Swiss Federal Institute for Materials Testing and Research) situated in St. Gall, Switzerland, site of a famous medieval cathedral, and near the shores of beautiful Lake Constance. Kurt is a native of St. Gall and studied Chemical Engineering at the Swiss Federal Technical University of Zurich where he received a Bachelor of Science degree in 1961. After graduation he worked on a doctor's thesis program dealing with an investigation of light sensitive coatings for lithographic platemaking. He received his Doctor in General Science degree in 1964.

During his thesis work he joined the staff of EMPA as a research associate in Printing Technology. In 1973 he became Head of the Printing Technology Department and was responsible for all projects of the Swiss Association for Graphic Arts Research (UGRA). In this capacity he directed most of the work on the development of the highly regarded and widely used UGRA scales for measurement and control of reproduction in platemaking.

During this period Kurt traveled extensively throughout the Far East on consulting assignments for EMPA/UGRA and was a Visiting Professor for Printing Technology at the Chulalongkorn University in Bangkok, Thailand. For more than 20 years he has been a lecturer in communication technology and color reproduction at the University of Saint Gall which has distinguished him with the title of Honorary Professor. Throughout his illustrious career, Kurt has been very active in the International Association of Research Institutes for the Graphic Arts Industry (IAR/GAI). He has presented 13 papers on research conducted at EMPA/UGRA at IAR/GAI's biennial technical conferences. He has also been instrumental in coordinating the research programs of the individual institutes and encouraging cooperative research between them. He has served as a member of the IAR/GAI council for a number of years, as its Vice Chairman, and was its Chairman from 1985-1991. In 1993, he was awarded the Gold Medal of the Institute of Printing for his over 150 publications in Graphic Arts research, and published the second edition of his book “Colorimetry in the Graphic Arts Industry”.

Kurt joined TAGA in 1973 and has authored five very significant papers, of which three have been co-authored with Dr. Erwin Widmer. Three of the papers are on stochastic (FM) screening which has excited tremendous interest in the industry during the past year. One is on metamerism which has been a source of considerable concern in color reproduction. The other paper is on a comparison of the color gamuts of printing and TV which is related to the process of color calibration and conversion from RGB to CMYK in color reproduction. A very significant and enlightening report by Schläpfer and Widmer at the 1993 IAR/GAI conference in Munich was on the information content of common communication media in which the distinguishable gray levels by the human eye was compared with those in photographs, printing processes, and TV.

Dr. Kurt Schläpfer and his associates at UGRA are to be highly complimented on their very significant contributions to the advancements of the technologies driving printing and its allied industries forward.

Enclosed with this Newsletter is your new TAGA Membership Networking Directory. You will notice that this publication indexes all active TAGA members by many different criteria including the special Networking section at the end which lists each member with contact information, including E-Mail addresses if available, and interest and expertise.

If your listing does not appear exactly the way you would like, please fax a copy of the sheet which appears in the very front of the directory to the TAGA Office (716) 475-2250 or call us at (716) 475-7470 to update your record for the next publication.

We think you will find the new TAGA Membership Networking Directory to be a very valuable resource. We would like to have your feedback on information included, format, etc., so please feel free to make your opinion known. We will gladly accept any suggestions you may have on possible improvements. After all, TAGA exists to serve you the member. We value your input.
Researchers Attack Industry Problems

When printers switch to stochastic screening, they need to recalibrate their whole system to allow for the change in dot gain, curve shape, gray balance, and ink coverage needs. Stanton said that "if a printer wants to print at the same quality, he must recalibrate." Tests were run with a test form split down the middle, one half with stochastic screening and one with conventional 150-line screen. The form was run with and without water on a 26" Komori Lithrone press. The results were studied for dot gain, gray balance, color reproduction characteristics, and correction requirements.

Results shows that with water, stochastic screening gained at least 14% in the midtone, while without water the gain was 7%. With stochastic, there was also a different curve shape, that had a quarter tone hump. Since dot gain occurs at the perimeter, the increase in gain is explained by the fact that there are three more times perimeter in stochastic screening. This means dot gain can't be adjusted on press but that images have to be scanned differently or manipulated differently in Photoshop. (Stanton can be reached at 412-621-0941.)

PORTABLE SPECTROPHOTOMETER EVALUATION

The introduction of portable, battery powered spectrophotometers in the late 1980's has made precision color measurement available on a wide scale. Richard Colestock of 3M stated that, whereas the densitometer is for controlling the amount of ink, it is not that good for matching color. That's why printers are now turning to spectrophotometers. It is also useful for companies that have multiple plants and want to specify an ink. Colestock's evaluation was made from the viewpoint of a vendor of proofing materials to high quality, critical consumers. He took the position that his ability to measure and control color should be more precise than the needs of the most critical consumers in the industry. Spectro-photometers evaluated were the Gretag SPM60, Hunter Miniscan, Macbeth 514, X-Rite 986 and SF98. Initial testing showed that only two units with zero to 45 degree geometry and apertures small enough to fit on graphic arts control strip patches were the Gretag and X-Rite 986. All the instruments were larger and/or heavier than a reflectance densitometer and repeated littering and repositioning for extended periods produced arm fatigue.

As for calibration using the plaques, no colored material is uniform when seen by a spectrophotometer. It will measure significantly different values depending on its position on the plaque. This is an issue with stochastic because for non-uniformity in calibration and check plaques is a significant and unnecessary source of error in some portable spectrophotometers. The colored ceramic plaques are also affected by heat. It was found that although warm-up of the instrument was not supposed to be required there were changes in color values with a cold instrument.

However, these spectrophotometers are less expensive, feature-rich and easy to learn and use. They have high levels of repeatability within the same instrument. They provide for internal storage of multiple standards as well as sample data, which can be downloaded to computer applications for analysis and storage.

INK/PAPER/PRESS TECHNICAL FOCUS GROUP

Focus groups at TAGA are open discussions where attendees can share problems, solutions and argue the pro's and con's of a particular method or machine. The

The Roland Zevada Standards Award (The Rollie)
The Rollie is presented annually by the Committee for Graphic Arts Technologies Standards (CGATS) to recognize the significant contribution of an individual toward the development of U.S. graphic arts standards through active participation in accredited standards activities. The award is named in honor of Roland Zevada, in recognition of his long-standing commitment and effort on behalf of graphic arts standards development.

The recipient of this award is Dr. S. Thomas (Tom) Dunn. The award was presented to Tom on May 13th at the International Prepress Association Annual Technical Conference in Chicago. The award citation includes the following statement:

"For his leadership and unswerving commitment to the development of standards for the graphic arts industry and his large personal contribution of time and talent, CGATS honors Dr. S. Thomas Dunn as the first recipient of the Roland Zevada Standards Award."

Dr. Dunn is a past president of TAGA, a recipient of the TAPA Honors Award, and the recipient of many industry awards.

The SWOP™/CGATS Press Test

An important event is occurring in the printing industry, and most of us are completely unaware of its significance. More amazing is that most of us have heard about it and have not realized that in many ways it represents a turning point in graphic arts history. This event is the SWOP/CGATS press test and the SWOP Calibration Kit. But what does it really mean?

Today, SWOP clearly specifies the requirements for sheet-fed printing. However, this does not provide the information necessary for the myriad of other applications that range from off-press proofing to colorimetric standards for color management and separation software. As a result of the SWOP/CGATS test activity, a set of films and press checks certified to meet SWOP proofing aims will be available. In addition, data will be available that relates the color results on the printed sheet to the CMYK values that created the film. For the first time ever the industry will have a physical reference and numerical data to use in establishing aims.

Several years ago it became obvious that a number of different groups needed a real sample of SWOP printing that everyone could agree was a reference. Off-press proofing manufacturers needed a goal to which they could design their products. The digital proofing systems, which added the capability to match almost anything through their ability to manipulate data, needed common aims. The proliferation of color separation systems and the exchange of electronic data coupled with the emergence of color management systems meant that these systems often produced different results for the same aim. The standards committees and groups like the DOAP abstraction and the colorimetric definitions of SWOP to allow our publication aims to be compared to other international aims and introduced into the appropriate standards to be sure that US printing is adequately represented internationally.

Responding to these concerns the SWOP Committee agreed to undertake a practical press test that would provide reference printed samples that could be evaluated to meet the various needs. One of the early questions was, "what to print?" The ISO/TCI30 graphic arts standards committee is developing a set of test images called SCDI which stands for "Standard Color Image Data." These were to be available (continued on back cover)

HI-FIDELITY COLOR TECHNICAL FOCUS GROUP

Don Carl of Nina Hunter led this group opening with statements about high fidelity color as process options for making color printing more valuable, more competitive, faster to produce, and generally less costly. Carl went on to say that we have limited ourselves to four-color, halftone screening with which we have been very successful. However, now we have this range of options that will increase optical appeal of the printed piece and make it more vivid.

Discussions centered around what is still missing, i.e. the scanners and cameras. Scanners were based on four-or five-dye sets, so film manufacturers were focused to those. As to cameras, talk centered on looking at new ways to capture images, knowing that printing is no longer limited to four-color, halftone. This raised the additional problem with color proofing.

STANDARDS UPDATE by David Q. McDowell
Out of the twenty-two TAGA student chapters, thirty-five students attended the TAGA ’94 Conference. They come from the US, Canada, and France. TAGA believes strongly in supporting and encouraging students and giving them recognition for their achievements. TAGA believes that partnering with schools is as important in today’s world as partnering with customers and suppliers. Thus, they have made students a big part of the annual Conference.

Harvey R. Levenson/
TAGA Student Paper Award

Each year students from the TAGA Student Chapters submit their research papers for this special competition. They are reviewed by the TAGA Education Committee, and the best paper is chosen for presentation by the author at the TAGA Annual Technical Conference and is included in the TAGA Proceedings. The winner is then awarded $1,000 at the Annual TAGA Awards Banquet. This year’s winner was Todd Skidmore of Clemson University for his paper titled “The Effects of Plate Build-Up on Flexographic Tone Reproduction.” Skidmore looked at the common industry practice of building up areas of the plate behind solids to improve solid ink density and ink lay down. Skidmore looked to improve overall tonal range. He used a metalized tape to achieve a build-up on the back of the plate and ran his tests on a Carinett Gemini, 6-color, CI press. His conclusion: “that increases in impression do not affect dot gain in the highlight and mid-tone areas, but indeed does improve print quality in the shadow areas (greater detail and less pin-holing).” Skidmore’s paper, plus papers of many of the other students, are reproduced in TAGA Student Chapter Publications, that the students at each institution design and produce themselves.

Annual Student Poster Paper Award

The Student Poster Award went to Magda Knaflewska of Rochester Institute of Technology. These posters are judged on technical merit as well as clarity and appearance. Knaflewska’s research poster was on “Color Matching Across File Formats and Output Devices.”

Student Chapters Annual Meeting

Just as industry itself is looking to continually improve, so are the student chapters. At their meeting, held Monday evening at the TAGA’94 Conference, students brainstormed on how to improve. Their meeting resulted in the following strategies:

1. Investigate student exchanges on an international level. These would be during the school year and would be for credit. Students would be exposed to different approaches and teaching methodology. A side benefit would be more team spirit between schools versus rivalry.
2. Create a network newsletter between 22 TAGA chapters to open up communication and share ideas. In the newsletter, have a calendar of events such as deadlines for TAGA paper submission, industry events.
3. Hold a mini-Conference at the Annual TAGA Conference where all the students present their research papers.
4. Publish E-Mail addresses so they can network with the people they met at the Conference.
5. Make use of the TAGA Networking Directory to contact TAGA members (industry professionals) as speakers in each school’s vicinity.
6. Increase participation in TAGA Student Chapters in other schools.
7. Create a format for continuity of each chapter from year-to-year as students graduate out.
8. Have resumes available at the TAGA Conference for attendees to encourage recruitment by industry from Graphic Arts schools.

Student Brunch

A panel of industry professionals who are involved with hiring, addressed the students at a brunch held at the TAGA Conference in Baltimore. Students heard that it is a tough job getting hired but there are opportunities. The example was used by one panel member that for one job, he had 400 applicants and had to choose one. You must differentiate yourself from others somehow. In your cover letter/interview, you must show how well you manage your time, that you are committed, that your have ‘extra value’, that you are a potential leader, that you are a motivated and effective individual. Everyone takes the same courses in college. What makes you different? One example that was given was the difference between having a summer job slinging hamburgers versus working in the printing industry. You must be dedicated to preparing yourself, making yourself marketable. Students left the brunch enthusiastic and wanting more.

Scholarships and Fellowships

Just previous to the 1994 TAGA Conference, the TAGA Education Committee met and resolved to offer an award of $1,500 for the best graduate student paper for the 1995 Orlando Conference; to offer an award of $1,000 for the best undergraduate student paper at the 1995 TAGA/IARIGAI Paris Conference exclusively for overseas students; and to offer an award of $1,500 to the best graduate student paper at the 1995 TAGA/IARIGAI Paris Conference exclusively for overseas students.
able only in an electronic form so that the variations in input scanning were eliminated and everyone could start with a common set of data. The SCID images also contained a test target the US ITB standards committee had developed called ITB. 7/3-1993. This included a series of 928 CMYK patches that provided the solids and overprint colors needed by the developers of color separation and color matching software. The agreement was to use the SCID data as input to the printing test.

The content of the proposed press sheet seemed to please everyone. However, a number of groups, the off-press proofing system manufacturers for example, said that unless they had access to the same files as used to create the press sheet the sample sheet was of limited value. The challenge of multiple sets of final films, accurate enough for the testing requirements, was solved by calibrating the film recorder to a third generation duplicate film. The output film was duplicated to produce a hard dot master, this was then duplicated a second time to produce working films to be carried to plate. These films were calibrated to match the dot in the computer—particularly in the 928 plus test patches—so that accurate dot could be derived. The second generation films were used to produce multiple sets of final films that matched the plate films used for the press test. These films together with certified press sheets are being packaged by GATF for SWOP as a calibration test kit. These test kits will be used by manufacturers of off-press proofing systems to prepare the application data sheets introduced in the 1993 version of the SWOP document. This new provision of the SWOP specification allows (requires) suppliers to make available procedures that describe specifically the steps necessary to achieve the best visual match of SWOP proofing.

It is important to note that the committee chose to use the reference SWOP ink for the actual printing of the test. With the assistance of the General Printing Ink Division of Sun Chemical Corporation the same inks used to prepare the Hi-La patches and to provide wet samples to ink manufacturers were prepared at the theoretical properties necessary for a sheet-fed press. Similarly, the Champion International Corporation provided paper to be used for printing. The Champion Test Web paper, identified as the reference paper for SWOP proofing, was specifically selected to minimize sheet to sheet variability in the printing of the reference sheets.

The availability of the SCID data, the SWOP print test films, and certified press sheets means that, for the first time ever, individual users can compare their own work or proofing procedures to a SWOP reference. This is particularly important in the digital data arena where the immediate films are not involved in the proofing process. Yes, those comparisons will have to be done carefully and much work will be required to decide what are acceptable varia-

The following are the standards committee members.

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