

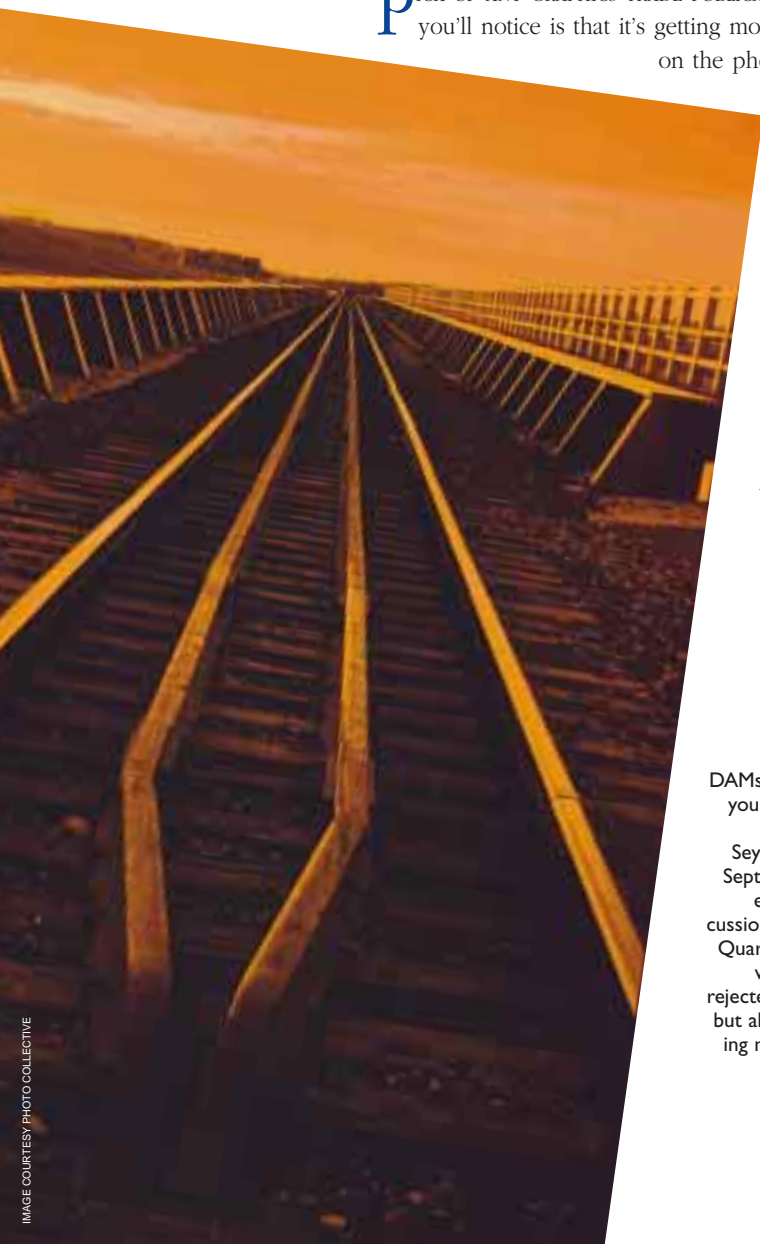
Verging on Convergence

BY DAN BRILL

PICK UP ANY GRAPHICS TRADE PUBLICATION. ATTEND A SEMINAR AT ANY GRAPHICS TRADE SHOW. ONE THING you'll notice is that it's getting more and more difficult to avoid themes and discussions that centre on the phenomenon of blurred responsibilities within the workflow, merging technologies, and that ubiquitous term "convergence" — the state of moving together gradually toward one point.

But as a buzzword to describe a direction in the graphics universe, "convergence" is somewhat of a misnomer; like the Hydra of ancient Greek lore, it is a many-headed beast, driven forward by rapid and constant innovations in software and hardware development.

The many faces of this creature range from the functional convergence now found within suites of creative software applications (whether it be from Adobe, or Macromedia, or MetaCreations, or any other major software vendor), to the convergence of user operability at the operating system level (as demonstrated by the new user paradigms of Windows 98 or Mac System X), to



DAMs, PDF, IRT, K2 — pick your acronym, they were all out in full force at Seybold San Francisco in September. But the most explosive topic of discussion was unquestionably Quark's assault on Adobe, which was thoroughly rejected not only by Adobe but also by an overwhelming majority of attendees.





an explosion of software systems offering tools for managing comprehensive digital workflows and digital assets.

When we examine the shifting responsibilities of those in the content production food chain — the creator (publisher, designer, photographer, graphic artist, corporate communicator), or facilitator (ad agency, educator, prepress house, Internet service

provider), or producer (printer, systems integrator, web designer) — we find a convergence of roles being forced into virtually every job description and every type of business.

And when we witness the re-

cent wave of convergence in corporate ownership, product development and marketing, it becomes apparent that more of our future is becoming concentrated in fewer hands.

How do we sort out the benefits and drawbacks of all this “convergence”? Which technologies should we gamble on to expedite the assembly of a digital content workflow that works for each of our requirements? Who wins and who loses in this enormous merger of skill sets and creative talents? And at what point, if ever, will we see the end of “merging technologies” and the beginning of consistent evolution?

Few shows provide the unique opportunity to weigh the effects of convergence in the graphics industry as well as the Seybold show and conference, held twice a year.

Seybold is a show which was built on convergence; throughout the 80s and early 90s, it was a harbinger of trends and technologies to come for the publishing and printing industry, exposing both the fantastic and the flawed within the emerging digital prepress industry. As the Internet rose to prominence, Seybold moved to integrate web cre-

ation into its agenda, with mixed success.

The egress of founder, lead mentor and figurehead Jonathan Seybold, the culture shock of being swallowed by a large international media conglomerate (with a wholesale turnover in key personnel), and an initially overexuberant approach to hyping the web, which alienated large segments of its base of exhibitors and attendees from the print-based markets, all contributed towards a decline in both Seybold’s prestige and attendance. Seybold’s low point came with this spring’s disappointing New York experiment (causing management to flee back to Boston for 1999).

After three years of trying to merge the interests of its traditional support with those of the webhead generation, Seybold’s organizers finally hit a balance in San Francisco (due perhaps to Canadian influence — Chair of Seybold West’s Publishing Systems Conference was the Great White North’s Thad McIlroy).

Although San Fran ran its standard gamut from web design to print production, this Seybold exhibited a restraint which was lacking over at least the past two years. Instead of trumpeting the web as an inevitable replacement for print (or worse yet, the medium to end all media), there seemed to be a more diligent attempt to place

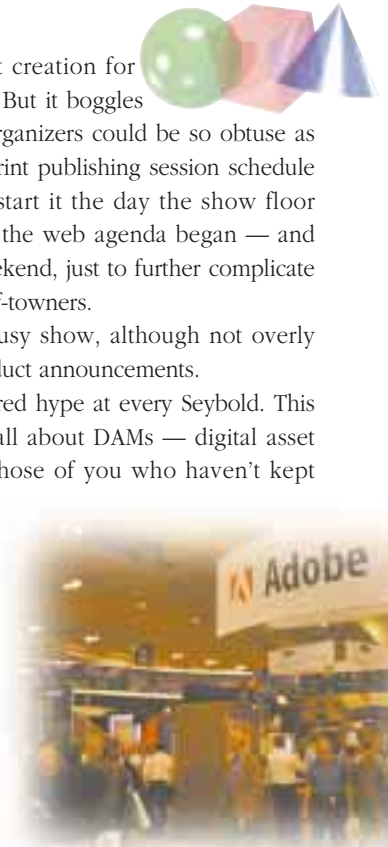
equal emphasis on content creation for both print and the Internet. But it boggles the mind to imagine how organizers could be so obtuse as to not only segregate the print publishing session schedule from web publishing, but start it the day the show floor closed and three days after the web agenda began — and right before Labour Day weekend, just to further complicate the travel plans of any out-of-towners.

Nevertheless, it was a busy show, although not overly populated with exciting product announcements.

There’s always one featured hype at every Seybold. This time around the buzz was all about DAMs — digital asset management systems, for those of you who haven’t kept pace with the latest acronyms.

Where two years ago, there were no more than half a dozen viable offerings in this department, September’s west

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CONVERGENCE IN THE GRAPHIC ARTS

Searching for equilibrium in the print universe

BY LERRICK STARR

YOUR MORNING MAIL ARRIVES. AMONG THE FLYERS AND BILLS YOU find an invoice from your favourite printer — you know, the one you almost pay on time — and on new letterhead you read that “Putz & Son Printing Ltd. is changing its name to Putz & Son Communications & All Associated & Related Possible Communications Services Ltd.”

You call up. “That you, Fred?”

A pause. “Fred, Senior.”

“Just got the news of the name change...congrats!”

“Yes, we’re quite proud. Fred Junior just graduated community college last month and already he’s set up shop in the back. We bought a Mac and we’re making digital plates off a desktop platesetter! Bring your floppies to me and I’ll take care of the rest! Listen, I was going to give you a call to discuss your other marketing/advertising/speech writing needs. See? We’re in the communications business now!”

LORD HELP US!

This frightening scenario is brought to you by *divergence*. Take \$10-20,000 and use it to put affordable technology into a room with an operator, put that room into a corner of a printing company or a basement, attach a modem to the phone line and voilà — a communications entity is born.

Over time it will certainly earn back its costs and probably make a few bucks for Fred Jr.

But — if Fred Putz has an eye for design, an ear for

words or music and the technical skills required to pull it together — from these humble beginnings a whole new communications empire may spring forth.

It has become A-B-C easy to get into the communications business. Even I.C.S. matchbook covers offer a diploma course. I see big agencies collapsing under the weight of their overhead while mini-design studios spring up in businesses, homes and basements all over the country. We owe it all to chain smokers.

A NEW UNIVERSE

Some liken the turmoil of this industry’s last decade to the rebirth of a universe — a PostScript Big Bang event that parallels the birth of our own universe in the time before time.

Cosmologists who study the Big Bang figure the universe exists in one of two states. Inflationists believe that the Big Bang initiated a state of perpetual expansion, with a universe that spreads itself thinner and thinner until the laws of entropy snuff out all life. Contractionists believe the universe will eventually stop expanding and ultimately collapse into a state that’s completely unidentifiable to us, but sets the stage for a repeat of the cycle.

The big bang for printers occurred around 1989 when the Mac and desktop publishing exploded on the scene.

We all recognize that a new workflow has sprung into existence. The only question is: will it be open or closed?



IMAGE COURTESY PHOTO COLLECTIVE

EVERYONE ELSE RETALIATES

So who lost out in the new digital universe? Here’s my short list:

- manufacturers of proprietary workflows
- press manufacturers who invested a fortune in digital presses
- advertising agencies
- resellers of consumables
- trade unions

It’s not a good idea to upset any of these people. They start making plans, and then they start spending money. Big money.

Now the big guys are back and there’s a new wave of production systems and workflows available from the name manufacturers.

Agfa offers Apogee, a workflow using PDF as the entry point which is maintained through to the RIP. The complete workflow consists of the Apogee on one NT box, a RIP on another, and a third running PrintDrive which acts as a virtual output device for large format imposition proofers, image/platesetters and digital proofing devices.

Fuji (aka Crosfield) has Valiano, an all-purpose digital workflow that has something for everyone: print, multimedia, web design — ink on paper, animation and sound, interactive digital delivery, all wrapped around an open architecture digital asset management system married to a customized data base.

Scitex weaves its way through every conceivable form of printing, from its traditional high end base, now centred on powerful Brisque workstations, down to one-on-one marketing tools, led by its recent

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Equilibrium in the print universe

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remarketed *Darwin Desktop* personalization software.

So today we have manufacturers engaged in an effort to repackage various digital workflows in their corporate colors. Take multimedia and digital asset management and PDF workflow, wrap 'em up tight and tie 'em with a pink bow.

Is this a bad thing? It depends on where you stand. Manufacturers can afford the R&D expense required to develop new hardware, software and workflows. They can afford the marketing it takes to bring them to you. They offer support and service not unlike the days of old.

But you *do* have to buy their vision of the future. If they're right, your investment may bring big rewards. If they're wrong, you've bought a dog you will live with until your accountant has assigned it a book value of zero.

Press manufacturers have a large stake in the PostScript universe. Let's face it — marketing personnel at the big press manufacturers have an impossible task. Thank the Lord for CTP, they finally have something to base a campaign on.

Watch how strategic alliances

with platesetter manufacturers narrow the mix-and-match lifestyle of the PostScript era.

And oh, yes, the advertising agencies — the most threatened of all. Creative used to cost. Copywriting used to cost. French translation cost double.

Now they have to work twice as hard for half the money — or the job goes to Putz & Son, who conceivably could even do a passable job of it. The ad agency's cover has been blown. They used to job out creative to freelance artists hidden in the wings. Treble their fees. And make a hell of a presentation. Then the content creator woke up and went directly to the market, undercutting the agency — perhaps fatally.

Consumables suppliers are re-engineering themselves as workflow consultants. It is in their interests to stake out certain territories where they have specialists in applied knowledge. But their associations with specific manufacturers obligate them to represent — preferentially — certain software and hardware configurations. The potential for new markets in inkjet and laser media, polyester and digital plates, and storage media is a natural for those who have survived on their pressroom strengths.

As users continue to educate themselves, more products will join the realm of consumables: Macs and PCs, soft-

ware (consumed by users until the next upgrade, then you buy again), operating systems — even expertise will be purchased, consumed and then reordered.

Trade unions have a problem. Artists don't create on an assembly line. They sit alone, sometimes in small groups, but never in the kind of numbers approached by cashiers.

How do you organize them? How do you collect their fees? Will they be happy going back to union school to study the mechanics of color theory? What is a group of people without traditional credentials worth on a per hour basis?

With all these directed forces working to recreate a universe centred on their special interests, one is left to wonder what will counterbalance such an irresistible force.

MILLIONS OF MINDS, MILLIONS OF MACHINES

In contrast to artboards of the past, the physical manifestation of creative minds is now only limited by microprocessing power.

When you mix millions of minds with cheap machines, you have created a digital manufacturing process. It's fast, efficient — and it works. Digital manufacturing has made it possible for smart printers to compete by rejigging their businesses at a negligible cost. Output devices cost money, but basic digital manufacturing can be covered for \$10K or less. The most expensive output device is a press; the least expensive, the Web. The range in be-

tween allows for a lot of options, whether from laser printers or desktop color photo printers or big inkjet devices that handle 48" x infinity.

EQUILIBRIUM

So is the new print universe diverging or converging?

Neither — and both. The forces acting on the graphic arts industry are in equilibrium. In step with the establishment they represent, the plans of contractionists are well developed. These days they're selling the workflow — not just the hardware — and they're each trying to establish an industry-leading position (read "good return on investment").

Contrast that with a large collection of creative individuals who need nothing more than a workstation, a printer and a decent brain to replace what would have cost hundreds of thousands of dollars a decade ago.

Who wins? No one — and everyone. Expansionists will slowly organize, develop inertia and lose their creative edge. Contractionists will try to find the tiny cracks in the joy of maintaining an open architecture and leverage them.

MY PREDICTION

Over the long term the PostScript universe will ultimately collapse. Its demise will set the stage for a new big bang that will turn everything topsy-turvy.

My prediction: Keep watching Fred Putz Jr., inventor of PutzScript Level 1. *

CONVERGENCE IN GRAPHIC COMMUNICATIONS

The BERP heard 'round the world

BY JOSÉ CHUNG

"I'M GOING TO MISS PRINT," SAID JACK TO NO ONE IN PARTICULAR as he thumbed his way thoughtfully through the final edition of *THE NEW YORKER*. He had purchased five copies. Four of them, wrapped in plastic, were buried at the bottom of his underwear drawer to be forgotten until his next infrequent change of Jockeys. Not that he was a filthy sod, but the investment had set him back five grand and he reasoned that showering with his shorts on could save him laundry money that could now be better spent on food.

"Just because some elitist rag decides that it's going strictly digital, doesn't mean that print is dead." The remark came from the next table in the crowded little diner. Unaware that anyone had picked up on his quiet comment, Jack turned to observe a small silver-haired man of indeterminate complexion. He sported gray flannel pyjamas, slate colored shoes and an expectant grin.

"What? You never seen pyjamas before?" asked the little dust bunny of a man. "At least I got a fresh pair of Mr. Briefs under the hood!"

Jack's body convulsed with the impact of the direct hit. Had anyone overheard? He glanced around quickly to see if anything had registered on the other patrons and was

amazed to find that, although he had merely rotated his head a quarter turn to the side, his brain just kept right on spinning. As the black and white checkered floor slammed itself against his face, he couldn't help but notice how much it looked like a Euclidian screen at precisely fifty percent.

"It's about time you woke up," chided the charcoal-clad whimsical wisp.

"Gawd no," simpered Jack. "Please, tell me this isn't one of those Christmas Carol remakes with a printing slant."

"Oh dear, no," the ashen figure reassured him. "No, if that were the case, given your predilection for premature print prognostication, I'd have to play the Ghosts of Printing Past, Paster and Pastest."

"And you're not the Mad Hatter?"

"Definitely not!" protested the man in the monotone garb. "The name's Munsell, and I've been sent here to show you the real future of print."

"Who sent you?"

"That, I'm afraid, is the one question that I cannot answer."



"Now, let's see...ah, yes. I pulled you out of the time continuum in 2006, which means that you have already experienced the introduction of PostScript, the demise of the proprietary imaging systems, the rise of the Internet as a communications medium, the shift from offset film production to direct plate imaging, and the battle between TIFF-IT and PDF to provide the most efficient means of converting digital data to printed material. As I recall, PDF-Xtreme workflow won that war...or was it the other way around?"

"At any rate, having squeezed as much productivity as possible from the ink-on-paper metaphor, publishers were faced with the undeniable fact that transportation costs for their products were astronomical compared with complete digital delivery. The printing process could never be efficient enough to overcome this barrier, and so, many esteemed long-standing publications simply folded up their print operations and began to concentrate on "webifying" their businesses. That, my friend, brings us up to when we met at the diner."

Jack, reluctant to invite another head spinning incident, stopped shaking his head in disbelief. Had events actually oc-

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Suite philosophy streamlines web design

BY PETER DUDAR

I RECALL A RECENT TRADE SHOW IN WHICH Macromedia offered *Dreamweaver*, *Fireworks* and *Flash* as a comprehensive Web suite: *Dreamweaver* for authoring Web pages, *Fireworks* for making and producing Web graphics, and *Flash* for creating high-end animation and interactivity.

Until now, constructing and updating a website has required going in and out of disparate applications, including text editors, vector-based graphics programs, image editors, animation tools

and *Debabelizer*-type processing and optimization utilities. Macromedia is in the vanguard of software developers streamlining that process.

Proviso: recommended RAM allocations for these applications range anywhere from 16 to 40 MB each, depending on the system used (Windows, Windows NT, Mac PowerPC).

DREAMWEAVER 1.2

Dreamweaver premiered as the first WYSIWYG Web authoring tool with support for dynamic HTML, including

layers, style sheets, timelines and behaviours. (See the February 1988 issue for a review of Version 1.0.)

Dreamweaver's award-winning fea-



USING ALL THREE

As you become familiar with the applications and clue in to their unique strengths and capabilities, you can more fully exploit them interchangeably. Macromedia's website (www.macromedia.com/support/flash/ts/nav) provides a case study that uses the three applications: an image is sliced in *Fireworks*, it's turned into a relatively sophisticated animation in *Flash*, and then it's embedded into a *Dreamweaver* page.

OFFLINE AND ONLINE HELP

The manuals for all three applications are similarly designed and concise, ranging from 134 to 200 pages. And each provides well-indexed online help. *Dreamweaver* and *Flash* employ Web browsers, which include animated tutorials, and enable you to access current information directly from Macromedia. *Flash* also provides fully interactive lessons.

ture is roundtrip HTML, which lets you move instantaneously between the visual window and a text editor with little or no impact on source code; plus integration with external text editors such as *BEdit* or *HomeSite*. *Dreamweaver's* roundtrip capability has not been duplicated.

Dreamweaver enables you to set up pages with more established means like tables and frames, using fast click-and-drag procedures. When you split a page, *Dreamweaver* creates a frameset file and documents for the new frames; and you can work directly in the frameset display.

Dreamweaver's Site window transfers files between your local and remote sites, maintaining identical directory structures to ensure that links and references are not accidentally broken. In version 1.2, users working behind a firewall can access site FTP features by providing the address of the proxy server and the port which connects to the FTP server.

Making up for the application's major shortcoming, the new Link Checker dialog generates reports of broken links, external links, and orphaned files. You can fix broken links and image references directly in the dialog by inputting the correct path, or just browsing to the required file. *Dreamweaver* informs you if there are other broken references to this same file, and a simple click updates all the documents that reference this file.

Dreamweaver's new 'Convert to 3.0 Browser'



(top) The 'Convert to 3.0 Browser' command enables you to convert DHTML pages into pages compatible with 3.0 browsers. (bottom) The 'Check Browser' dialogue. This behavior automatically sends viewers to the page optimized for their particular browser.

command enables you to generate alternate pages compatible with 3.0 browsers, after designing pages using layers and cascading style sheets. The catch is, all your page content has to be on layers, or the converter will not work. The command converts layers into tables, but tends to output superfluous cells and occasional idiosyncrasies while doing so. It's faster than creating alternative pages from scratch, but anticipate doing some minor fixes.

Dreamweaver 1.2 also includes a 'Check Browser' behavior to automatically send viewers to the page optimized for their particular browser. With the new 'Pre-load Images' behaviour, you can require that dependent files be downloaded before loading the page or executing Java-Script. Interactive properties, like a 'Drag Layer' feature and a Graphical Resize feature, enable end users to manipulate elements directly on the browser page.

Dreamweaver, which comes with either *BEdit* or *HomeSite*, lets you configure any text editor from the preferences dialog box. With *BEdit*, changes are dynamically mirrored in the layout and text windows.

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AT HOME WITH THE HOMEGURRL

Lynda Weinman opens Ojai Digital Arts Center

FOR THOSE FRUSTRATED BY THE LEARNING CURVES ASSOCIATED with mastering new web design applications, take note that best-selling author, lecturer, journalist and instructor Lynda Weinman (familiar to GRAPHIC EXCHANGE readers as the *Homegurrl*) has just signed a contract with Macromedia to produce a series of training videos to accompany the company's suite of applications.

The first video will be on Macromedia's new *Fireworks* software (reviewed in this issue).

But for serious web design folks, a more significant announcement was the September 14th opening of the Ojai Digital Arts Center in Ojai, California, a small tourist town located close to Santa Barbara and Los Angeles. ODAC is a brand new training facility operated by Lynda and husband/partner Bruce Heavin (check www.digitalartscenter.com for course registration details). The new school offers in-depth hands-on instruction by Lynda and Bruce on the full range of design applications, including Macromedia *Fireworks*, *Flash*, *Dreamweaver*, *Freehand* and *Director*, Adobe *After Effects*, *ImageReady*, *Photoshop*, *Premiere* and *Illustrator*, Equilibrium *Debabelizer*, and *GoLive CyberStudio*.

Despite the fact that the school's official pre-publicity was only carried in a single low key press release in late July, Lynda received a wave of response, not just from all over North America but also from interested parties in Europe and the Middle East. Even before the doors opened,

close to forty students had registered for Lynda's week-long immersion tutorials — a testament to her lofty standing in the web design community.

Although Lynda has achieved international status in the world of web design through her six books on the subject (at last count, her first book, <DESIGNING WEB GRAPHICS> had sold better than 70,000 copies in six languages), it was her first love — teaching — that inspired her to open the Ojai Digital Arts Center.

Her initiation into instruction in new media came in 1989 when she began teaching Macromedia *Director* at Art Center College of Design in Pasadena, California. Since then, her open-minded dedication to dispersing knowledge has propelled her to the forefront of the web design industry. She is in demand as a speaker at major trade shows, as well as being a columnist for several major industry publications.

But when Lynda talks about the art of teaching in a classroom environment, her enthusiasm is

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The announcement of the opening of the Ojai Digital Arts Center in Ojai, California was met with a wave of enquiries from all over the world. Web design author and instructor Lynda Weinman (left) and Bruce Heavin opened the doors to their new training facility on September 14th. (inset) A classroom of 20 seats equipped with fully loaded IMacs which are networked and connected to the Internet through a T1 line.



Verging on convergence

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coast event was inundated with at least twenty solutions, ranging in price from a few hundred dollars right up to six-figure packages.

Second to the flock of DAM sells was the broadside of PDF workflow add-ons, led by Agfa with its Apogee system and demonstrating an implementation of Adobe's in-RIP trapping technology using a Quark XTension that allows setting sophisticated trapping settings which are read at the RIP (download it from Agfa's website if you're curious).

Among the handful of products which caught my attention, two stand out. First was the premiere of Ultimatte's *Knockout 1.0* masking software, which blows away any desktop masking package I've seen to date (www.ultimatte.com). Second was Markzware's soon-to-be-released prepress automation technology, *MarkzScout*, a cross-platform multi-purpose file and workflow manager that may plug a vital hole in the desktop workflow.

In the end, the most significant product showing at Seybold had to be what was obviously a last minute addition to Steve Jobs' keynote. Jobs provided a spellbinding demonstration of Adobe's "Quark-killer" page layout software (known only as K2 — pressroom scuttlebutt had it that Adobe folks were slightly miffed because he wasn't actually supposed to call it by name).

Although K2 is still in early development and not expected to be seen before the second half of next year, from this sneak preview it appears that all the rumours of it being a *QuarkXPress-cum-Photoshop* are true. We saw an impressive display of object-oriented programming that allows free manipulation of both graphics and editable text (including shearing and skewing) incorporates layers, supports a PDF workflow seamlessly, and promises creative imaging and vector-based tools far beyond anything Quark has ever shown. No wonder Tim Gill is scared.

It's a good bet that if it hadn't been for the pressure John Warnock and Chuck Geschke were getting from shareholders and customers over the Quark attack, Adobe would have had no compelling reason to preview K2 at Seybold. But there's no question it had its desired effect. The crowd was wowed, the trade press was rapturous, and the Quark offensive was for all intents and purposes stopped dead in its tracks right there and then.

Adobe is also driving a major initiative to publicize its Extreme architecture, the "son of Supra" PDF workflow and RIP system which has been repackaged with a heavier emphasis on Adobe's Portable Job Ticket capabilities. By about this time next year, we should see more evidence of how well Extreme is being adopted by OEMs.

Ojai Digital Arts Center

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boundless. She has definite ideas about what works and what doesn't.

"Part of the skill of teaching is in balancing the needs of a wide spectrum of students," she says. "One of the added difficulties with web design is that there are so few qualified instructors."

The Ojai Digital Arts Center truly boasts state-of-the-art technology. Aside from the twenty brand new 233 MHz iMacs (each loaded to the gills with RAM, equipped with Virtual PC to emulate the Wintel environment, and connected by a 100BaseT Ethernet network), it happened that by a stroke of good fortune, the space that Lynda and Bruce chose was situated below the only T1 line in Ojai — a blessing neither of them had anticipated. So not only do students at Ojai benefit from the tutelage of a leading figure in web design, using the latest in hardware and software, they also enjoy very fast connectivity to the web.

Tutoring doesn't end with scheduled classes; the facility remains open in the evening so that students can spend time on their own, practicing what they learn and exploring individual needs.

The structure of Lynda's classes is an equal mix of lectures and hands-on discovery. She and Bruce split lecturing chores, though Lynda handles the lion's share. The maximum class size at ODAC is twenty students.

The Ojai Digital Arts Center's five day course in web design costs \$1295 (US); a three-day course is also available at a cost of \$895 (US). Check out the complete details at www.digitalarts.com. *

With random thoughts of technological convergence drifting through my head, I tottered down the stairs of The Stinking Rose restaurant, the beneficiary of an excellent garlic-strewn dinner courtesy of color king Michael Kieran. Spotting a cab and two people getting into it, I soon found myself riding back to my hotel with Hewlett Packard color guru Michael Stokes and Roger Siminoff, Apple's worldwide ColorSync developer liaison.

Being in a curious frame of mind, and with fresh memories of struggling with *Photoshop 5's* new color management setup, I asked these proponents of sRGB, *Photoshop's* default color space in which a vast chunk of the CMYK gamut is missing, what place this color space had in a world still very much dependent on printed matter.

Our brief but lively exchange concluded with Siminoff's declaration, "It's not meant for a print-centric workflow!"

It got me wondering about how useful the "Digital Master" would ever be if in the quest for a universal color standard, print is relegated to non-essential status. Maybe full convergence in the workflow is farther off than I thought. *

The BERP heard round the world

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curred as Munsell described them? He was certain of nothing since entering this dreamlike state. It all seemed reasonable enough. If only he could think. If only this ringing in his head would stop.

"That's the ring of truth, my boy," offered the older man confidently.

"What? How could you...I didn't even say any..." Jack stammered. "You are way too scary. I'm not sure that I want to hear any more."

"But, of course you do, Jack. You want to know what comes next, why print will live on for years to come, why you won't be able to buy a regular television anymore. You *do* want to know — don't you, Jack?"

"No more television? What's that got to do with printing magazines?"

"I *thought* that would get you." Munsell paused, striding around the room. For the first time since he awoke, Jack realized that he was in a building of some type. There were furnishings and appliances, though few of these looked familiar. It was obviously an apartment unit. Jack took some small comfort in the apparent fact that architecture had not changed much since he'd been 'taken out of context'.

"Jack, have you ever heard of the term 'convergence' as it is applied to the development of technology? Good. Well, it seems that a lot of people in the graphic arts thought that this was all about them. Oh, they went on about how the press had become a digital device, how computer operating systems were becoming one through Java interfaces, how everything was getting networked to everything else. Most of them were too self-absorbed to notice that, on September 10, 1998, NCR (formerly National Cash Register) announced the development of the Microwave Bank, the first combination web browser-television-microwave oven (*Editor's note: check www3.ncr.com/press_release/pr091098b.html*). The long-promised advent of true TV Dinners had finally become a reality and the world barely blinked!

"Well, not everyone was caught napping. Within months, SONY announced the creation of the world's first AM-FM/CD/VHS/computer/microwave/television/refrigerator. Ingeniously marketed as the TeleCombobulator, they presold millions of units before it was ever built. Less ambitious products succeeded equally well.

"However, one product would change the future of digital

print communications like no other. The REP-B (Remote Electronic Print-Bindery unit — lovingly referred to as The BERP by its creators) was a platform-independent computer peripheral which combined high quality full color or B&W printing, fast engine speed, full duplex printing, built-in trimming, stitching and six booklet bindery options. In addition, it accommodated sizes up to 11 x 17" with full bleed on all sides, as well as stock weights up to 12 point card.

"Now, let me point out that it also did more than that. You could use it to send and receive color or B&W faxes, take digital audio or video dictation through its AV port, and it had its own built-in Web/Real Audio/Real Video Server.

At this point, notwithstanding the bizarre array of appliances littering the room and lending credence to the story being spun, Jack just had to protest.

"That's ridiculous!" he cried. "No one could possibly afford that! A goofy device like that would have to cost hundreds of thousands of dollars."

"Well, I hate to break your heart, Jack. But, as soon as you get back home, they're going to be giving 'em away — almost. You will have to pay a "click charge" for the number of copies that you produce. If you should fall below a certain monthly usage figure for three consecutive months, you will have to pay a reasonable rental fee of \$122 per month until your usage rate rises. Maintenance of the units is included. If

your machine should suddenly stop working at maximum capacity or quality, it will be replaced within 24 hours.

"It's all possible because of three major factors: 1) you will be taking responsibility for all your own printing for which you are indirectly paid by discounts on your click charges; 2) you will buy your own paper and pigments; 3) you will be paid every time someone prints something on their machine that is published on your internal Webservice, and you will similarly pay for printing out as many copies as you need of anything that you download off the Net. Because of the democratization of the technology

and the widespread right to consume and to produce, all costs will be manageable — even for the poorest households.

"So, Jackie boy? Whaddaya think? You're speechless. I can see why, it's a lot for a mind to ingest all in one sitting."

"It's not that, Munsell. I was wondering... when you send me back..."

"Anything, Kiddo. You name it."

"...Can you push the dial back an extra thirty years?" *



"Most of them were too self-absorbed to notice that on September 10, 1998 NCR announced the development of the Microwave Bank, the first combination web browser-television-microwave oven..."