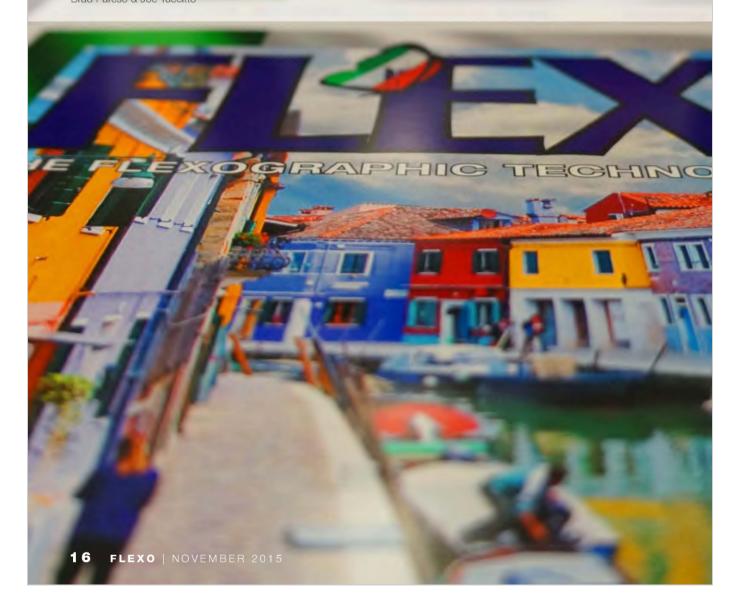
When a Fire Starts to Burn

The Day by Day Story Behind FLEXO's November Cover Supplement

Brad Pareso & Joe Tuccitto





he 1992 U.S. Men's Olympic basketball team is widely considered to be the greatest assembling of sports professionals in history. Commonly referred to as "The Dream Team"—with no specific mention of basketball, because there is only one team that could carry such a title—it didn't so much win as it did mercilessly score for 40 minutes, at which point the last buzzer rang and the opposing team could finally stop losing.

Its roster reads like a 1992 fantasy basketball team with 12 first round picks: Michael Jordan, Larry Bird, Patrick Ewing, Karl Malone, John Stockton, Magic Johnson and a half dozen other future NBA legends. Even its coaches are highly, highly revered: Assistant Coach Mike Krzyzewski, or Coach K, has won more than 1,000 games as a college basketball coach in his career; Head Coach Chuck Daly was inducted to the Basketball Hall of Fame as a league coach and then inducted a second time just for coaching The Dream Team. If ever there was a group to emulate, this was it.

Except when it came to work ethic. Despite winning each game by an average of more than 40 points, The Dream Team was not so outrageously successful because its members spent much time preparing—according to Jack McCallum's book *Dream Team*, they took two hours per day, for six days, to practice; hit casinos, played golf and visited nude beaches during downtime; and had no curfew, because, as Daly admitted, "I'd have to adhere to it, and (popular nightclub) Jimmy'z doesn't open until midnight." In this regard, The Dream Team was an anomaly—a group of supernaturally gifted athletes who absolutely annihilated their competition, with next to no preparation.



Flexografix's Ken Pavett examines the color profile from the press.

The real world may not be filled with Michael Jordans and Larry Birds, but it is still possible to achieve that same level of excellence. Matching to a proof in one pull, delivering a small Delta E, printing colors that really pop, winning your own gold medal (in the Excel-

lence in Flexography Awards)—these are all attainable by following the hallmarks of a successful printrun, those five methods that can turn the madness so commonly seen in a pressroom, into greatness. And much like The Dream Team did, there is no better way to show what's possible than by, well, showing it.

This was the idea behind the 2015 Fall Conference, scheduled for Nov. 2-4 in Columbus, OH.

FLEXO'S FINEST

In early August, FTA assembled its own dream team of flexographers, called to All Printing Resources' (APR) Chicago, IL facility. The stated purpose was to assist in printing the FLEXO Magazine November cover supplement, but that was only the end result. Along the way, those methods—optimization, fingerprinting, process control, characterization and continuous improvement—were heavily documented.

At the end, there were 20,000 or so examples of the cover supplement. But despite being finished, flawless pieces, they were possibly not the most valuable things to come out of that week. Of particular importance were the samples, measurements and copious amounts of data obtained over the course of the week. Not only did they inform decisions made during the print job, they will be vital as evidence to be studied and analyzed throughout this year's Fall Conference.

Using them, attendees will be able to follow the methods performed along the way, digesting and poring over everything in much the same way The FLEXO Cover Dream Team did in Chicago. Fall Conference will go step by step through the methods—and the madness—engaged in the printrun, led by the team that was present. Its members include:

- · Richard Black, director of digital solutions at APR
- · Katie Dubois, creative services manager at FTA
- · Ellen Farrell, territory manager at DuPont Packaging Graphics
- · Robb Frimming, director of print services at Schawk
- PJ Fronczkiewicz, North American product manager for printing plates at Flint Group
- · Larry Goldberg, technical director at Beta Industries
- Jim Kulhanek, senior technical service consult at DuPont Packaging Graphics
- Charles Marriner, senior equipment service technician at APR
- Mark Mazur, now retired, formerly with DuPont Packaging Graphics
- Ann Michaud, senior technical services specialist at 3M
- · Ken Pavett, CEO and CTO of Flexografix



A swath of FLEXO Cover Dream Team members—and a cameo from FTA Hall of Famer Paul Lancelle—learns from Larry Goldberg how to inspect plates.

- Lon Robinson, director of research and development at Tension Corp.
- Mark Samworth, product specialist color at Esko
- John Seymour, applied mathematician color scientist at QuadTech
- Fabrizio Stefanucci, printer engineer at Bobst Firenze S.r.L.
- · Ioe Tuccitto, education director at FTA

"The idea—to have some continuity throughout the entire set of presentations, rather than this bit, this bit, that bit, not knowing how they're connected—is a really cool one," Seymour observed.

Serving as the coaches for The FLEXO Cover Dream Team were Farrell and Robinson, who will also be co chairing Fall Conference. Noting the idea to have the speakers together, under the same roof, during the printrun they would be discussing at the conference had never been done before, Robinson explained he and Farrell's roles were that of facilitators.

"We were herding the cats, so to speak. We were keeping everybody pointed in the same direction and keeping everybody on a time schedule," he explained. "Sometimes, we had to remind them, 'We can't do that, or we'll run out of paper.' We couldn't always do everything we wanted to do, and we were the ones that said, 'No, we can't do that,' or, 'We're going to go this direction,' or 'We have to determine where we're going to go from here.""

The coaches' ultimate goal was to successfully print the cover to the November issue of FLEXO Magazine on the Bobst Firenze press at APR's facilities (see *Press Sidebar*). As team members arrived, the week began.

MONDAY: THE SWEET SPOT

As it should, the project began by optimizing the press for the magazine's cover run. In doing this, The FLEXO Cover Dream Team would identify the best combination of print variables—dot size, tape, plate material—to meet the design's requirements.

Michaud led the investigation of different mounting tapes to explore during optimization. That consisted of choosing the range of tapes considered and deciding what—if any—other varieties should be evaluated. Whittling down the options to the best performing tape yielded ideal performance on press.

The plate package optimization portion, which entailed the comparing mounting tape compressibility ranges and plate material, was spearheaded by friendly competitors Fronczkiewicz and Kulhanek. To evaluate the different combinations, the

team designed a 1-color test file consisting of several variables. Fronczkiewicz said with the aid of the press, deciding which materials to use was a "clear decision."

Kulhanek noted that, "Like any actual pressroom, there's always going to be challenges and opportunities. We had a few of those over the course of the week and we were able to work through each of them."



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A portion of The FLEXO Cover Dream Team discusses the status of the cover project on Wednesday.

On the optimization front, Fronczkiewicz and Kulhanek said they want their Fall Conference session to demonstrate that testing each variable against a set of constants is essential. Doing so enables a printer to have concrete information that can help make an informed decision, instead of "flying blindly" into selecting a variable like mounting tape.

At the conclusion of Monday, the team knew which optimized plate package was going to be used. Pavett was ready for the handoff of the data to have fingerprinting plates ready for the next morning.

TUESDAY: GETTING AHEAD OF THE CURVE

Tuesday kicked off with a bang and was spent fingerprinting the press, gathering data and generating curves that would be applied to the output files of the characterization plates and final production pieces. Pavett's team would later utilize the data in the preparation of the characterization plates to be made that night. The goal of the fingerprinting was to measure and record the print characteristics of the press, as it is operating with the specific settings and materials identified during optimization (see *Figure 1*).

Samworth, who was recruited to handle the fingerprinting, notes he has done more 7-color than 4-color press preparation in the past several years. Also discussing the topic at Fall Conference, he said he plans to go over the basic principles of press fingerprinting, the differences between it and press characterization—"getting curves vs. getting profiles"—and comparing 4-color to 7-color.

With press conditions recorded and target L*C*h° met, the analysis of the fingerprint was made by the team. With the curve adjustments applied to the RIP, Pavett's team output Wednesday's characterization plates.

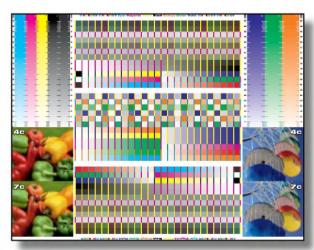


Figure 1

WEDNESDAY: FINDING THE COLOR SPACE

With press values mirroring the fingerprinted results, The FLEXO Cover Dream Team was ready to determine the size of the color space. The color gurus in attendance ran the characterization test forms in multiple overlay configurations to create a hybrid dataset that would be used in the expanded gamut conversion of the cover supplement.

With data rolling in, Michaud and Seymour began focusing on the elements to lead to consistent process control throughout the rest of testing and into the production run. Michaud said the central question was, "Could we improve?" At several points where it encountered a "real world situation," the group hit pause, analyzed the data, took a look at everything, collaborated and made a decision. "That's reality," she admitted. Meanwhile Seymour, the self described "math guy," said

BEHIND THE DESIGN

When it came time to design the cover for FLEXO Magazine's November issue, Dubois returned to a photo she knew well but hadn't had a use for, until now. "The image is one I've always liked. In my mind, that scene is what pops up when I think of a colorful setting that's not artificially enhanced," she recalled.



A photo of the canal in Burano that is featured on the cover, shot by Lon Robinson while on a vacation 10 years ago.

The scene, of a canal in Burano, an island in the Venetian Lagoon, offered ample opportunity to authentically depict a wide range of hues and shades. It also served as a tie in to the press' Italian roots, something further highlighted with the background flag and butterfly, both vector art images. To showcase the abilities of 7-color expanded gamut printing, spot colors were used in the FLEXO Magazine masthead, behind the Fall Conference logo and in the www.flexomag.com banner.

"One thing I had in mind when I was trying to develop this was, I felt it was important to not degrade the integrity of the shot," Dubois cautioned. "That was kind of a challenge because the image all by itself has a nice look to it. So the elements I introduced, I tried to keep out of the way of the scene."

Apart from choosing that colorful image, there was nothing unusual asked of Dubois, and Samworth said that can be a liberating experience for creative departments. "We wanted to let the designer be a designer," he explained. "Part of what we were trying to show is there is nothing special to do when designing for flexo or 7-color. And so a designer's sole focus can be creative and aesthetic, not technical."

Speaking to that technical aspect, Pavett said two tentpole features of a well printed 7-color job are small highlights and fades to zero. The cover supplement therefore needed to not only contain several examples, but do so effortlessly. "This particular design had lots of fades to zero and lots of dropouts," he said, "and it printed beautifully, because we had the right test and protocol program."

he was constantly asking for data to continuously measure process control.

The pair, heading the Fall Conference session covering process control, said they want to illustrate the balance between the theoretical—how process control is defined—and practical examples—what that means to a printer.

"If I could, I'd spend weeks in the ivory tower—and I'd go out of business. You need balance," Seymour admits. "Printers are living



Visual inspection of the optimization plate

day to day in that, 'Let's fix it and move on, or not fix it and move on,' mentality. That's reality, so they're going to approach problem solving in a less structured way. Part of our message has to be, that every once in a while it's good to step back, get out of that mindset of, 'This has to go out today,' and say, 'We have to look at the whole process and make sure we're looking at everything in the most efficient way."

When it comes to color, impressing Samworth—also an FTA Hall of Fame member—is not easy. Answer the question, "How great would a slam dunk need to be to make Michael Jordan take notice?" and it becomes clear how high the bar is set. But even he was taken aback by the results of Wednesday, proudly declaring to the pressroom the project's color space was quite a large bump compared to GRACoL.

"For this press, the 4-color ink space was 5 percent larger than GRACoL2006.Coated1. That's pretty amazing on a magazine stock that's not as bright at the grade 1 paper of the GRACoL2006 specification," he noted, adding while the 7-color ink space was 60 percent larger than the 4-color, there was room for an even greater increase.



Figure 2

THURSDAY: GAME ON

With much of the setup done, Thursday saw the actual running of the press and printing of the cover supplement. While it was the FLEXO Cover Dream Team's intent from the start of the project to show optimization of two different plate materials, because of a last minute error in plate processing, the cover was printed with only one of these materials.

Beyond that hiccup, the actual printing of the cover was a smooth endeavor. Samples were taken every several thousand feet, made all the more easier thanks to the press' start/stop capabilities. With each pull, those in the pressroom—including a guest appearance from 2015 FTA Hall of Fame inductee Paul Lancelle-gathered around the nearest light booth, loupes in hand, to examine the coloring, registration and various other details. The 7-color cover included a varnish, as well as vector and raster graphics (see Design Sidebar).

Any tweaks to settings on the press were handled by Stefanucci. Every flexographer who visited APR during the week was quick to sing his praise. Mazur summed it up best: "We had a press operator who knew what he was doing. You talk about all the other suppliers who were there-I know plates, Mark Samworth knows color, Ann knows tapes—but none of us are going to be able to run that press and make it do what we want it to do. He made it happen."



Black, who described himself as the "second hand on press," and Stefanucci handled these tweaks with what Pavett described as a "beautiful marriage" of hardware and software. He explained that, by using APR's SpotOn! Flexo software (a 2014 Technical Innovation Award



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Like any actual pressroom, there's always going to be challenges and opportunities. We had a few of those over the course of the week and we were able to work through each of them.

Jim Kulhanek, DuPont Packaging Graphics

winner), Black already had the values for all seven colors loaded. Thanks to the press' ability to affect ink density by altering each color's individual temperature, "We'd pull a sample, Richard would measure the colors and tell Fabrizio to make changes to the temperatures and bam!" Pavett exclaimed. "We were up and running."

The Bobst Firenze press ran into the evening hours, churning out roll after roll of the cover supplement. Taking a trained eye to some samples, Flexografix's Technical Sales Professional Bill Phillips said something that should make flexographers smile and practitioners of a certain rival process take notice: "It's really the closest to—if not as good as—offset printing that flexo has ever been."



FRIDAY: POST GAME

"What do you do when you get done early?" asked Robinson, over Twitter, early Friday morning. The accompanying photo included Farrell, Black, Stefanucci and FLEXO Editor Brad Pareso lounging in APR's break room and watching—what else?—basketball on ESPN. While many of the benefits afforded by the preparations, testing and planning in the days prior were tangible—the matching to a proof, the measurements hitting what was expected, the higher quality results—those that were intangible—the materials not wasted, the curse words not yelled, the staff with nothing to do—were just as noteworthy.



"Hey everyone, I think it's the letter 'o'": Mark Samworth gets up close with a sample of the cover supplement.



FLEXO Cover Dream Team members, much like Fall Conference attendees will do themselves, take a loupe to print samples from the cover supplement.

(For any concerned printing executives, take comfort in knowing Stefanucci, who had just finished a week working tirelessly and running from one end of the press to the other, used his downtime to study a copy of Flexographic Image Reproduction Specifications & Tolerances (FIRST) 5.0 given to him as a token of appreciation.)

In total, approximately 22,000 copies of the cover supplement were printed. APR staff assisted in loading the rolls onto a pallet and

shipping them to a sheeter, who sized the samples correctly before delivering them to the magazine's printer.

It was here the project diverted from a real world comparison; whereas there was no intention to print the cover of FLEXO Magazine's November 2015 issue ever again, ideally, printers will be reprinting a given job multiple times. It is in this light the final method of continuous improvement will be discussed at Fall Conference.



Fall Conference co chairs Lon Robinson and Ellen Farrell oversaw the week long project and will deliver the opening presentation at the event.

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What does it take to make you do the things that you already know you should do? As a printer, what is it going to take to do the things you know you should do?

FTA Hall of Fame member Mark Mazur, retired, formerly with DuPont Packaging Graphics

Frimming, who will cover the topic at the close of the conference's Tuesday sessions with Berry Plastics Corp.'s Joe Riccardella, explained that his time in the pressroom during the week focused on monitoring each piece of the setup and using that as a base datapoint. While running process control, he said those base datapoints are referred back to. Using differences between them, a printer can figure out how to continuously improve. He and Riccardella intend to hammer that idea home while approaching the print job from the consumer's point of view.

"I want to focus on what the customers are looking for—how we continuously improve print quality," Frimming said. "How do we use data? It's not just color data, it's not just dot data, it's not just density. We need to understand what the customers are looking for from a design intent, as well as what we can do with print feasibility and operational latitude, then tie that all together and meet the customer's needs, while still being productive."

Goldberg, who will discussing the measuring of samples in Wednesday's final session—also with Frimming—stressed that data is easy to collect and, if it's of a high quality, it will then quickly point in one of two directions.

"It's not expensive or complicated to collect good data on a job. If the job runs smoothly, it simply backs up your theory that your plant and process are under good control. If you find an inordinate number of jobs require a lot of selling or a lot of 'three martini lunches' to get the customer to sign off on, then it's likely that applying the basics of process control will point to the source of the trouble."

PIECES OF A PUZZLE

All the work The FLEXO Cover Dream Team put into the project sounds important and useful, and even logical, but more importantly: How does it look? As Robinson detailed, attendees to Fall Conference will be presented with ample evidence of how each method was followed, the decisions made along the way, the outcome of those decisions and the data to go along with it all.

"We have printed samples that are going to match the data on the screen and everyone sitting in the audience is going to have a sample in their hands," he explaind. "So when Mark Mazur is saying, 'When we were optimizing the cyan, and we looked at this, and we chose this plate, because we saw this," they're going to be able to put a loupe on that sample and see what he's talking about. They're not going to have





The flexographers Mark, pleased with the results of the color tests.

to depend on what they're seeing on the screen. They get to form their opinion with their own eyes and hands. And that continuity throughout the conference, that's the common thread—this pressrun."

Each flexographer in Columbus will receive samples of the optimization runs, fingerprint run and characterization runs. It's the chairs' hope—and that of every team member who was present in Chicago back in early August—this mountain of data, pertaining to the same job being discussed all conference, by the people who were at the printrun and made the decisions reinforced by that very data, will show as unambiguously as possible the benefits of the methods.

"I'd like to see attendees walk away and, for some of them," Robinson said with a pause, "for the light bulb to go on and for them to say, "That finally makes sense."



Quality wins, indeed: Fabrizio Stefanucci takes a look at the inspection system equipped on the Bobst Firenze press.

DIGITAL FLEXO EXCELLENCE

At the center of the FLEXO Magazine November cover supplement was FTA member Bobst Firenze's—formerly known as Nuova GIDUE S.r.L. before 65 percent of the company was acquired by Bobst earlier this year—Digital Flexo Excellence. The suite of technologies aims to automate many of the manual tasks typically associated with a press' setup, workflow and running. It impressed judges enough to win the 2015 Technical Innovation Award from FTA, and turned heads at Labelexpo of the Americas last year.

Involved in the project alongside Bobst Firenze were several other companies, contributing specialized parts or services, including Adare, Apex International, AVT, DuPont, Esko, Flint Group Narrow Web and UPM Raflatac.

Present at APR's Chicago facility for the entirety of the pressrun, Robinson noted that, "At some point during the week, everyone who has been here at one time or another has gone, "Wow."

Farrell was careful to point out that, while there was plenty of unique technology on the press, it did not change any of the steps being done through each method—fingerprinting stayed fingerprinting, characterization evaluation was consistent, and so on. But team members still had plenty to say about the benefits and capabilities of Bobst Firenze's press:

- "Changing viscosity with heat has been a major revelation—that was big." Frimming
- "The thing I was most encouraged by was the ability to set impression that was consistent across eight decks and then the ability to repeat it, which basically gave you a nice and consistent look that didn't involve human thinking." - Kulhanek
- "On the fly, the press can swap cylinders to change jobs.
 It was pretty awesome to see that." Phillips



- "One of the things that struck me: The morning I walked in, that Monday morning, what did Fabrizio do? He didn't pull out buckets of ink, he didn't start loading up the press. He just took the covers off the press and it was ready to run. This is basically come in and it's almost like an inkjet printer, you just turn it on." Mazur
- "I recall asking if the plates were in the press—about 10 minutes after they were mounted—and someone handing me the finished, printed sheet to measure." - Samworth
- As Fronczkiewicz aptły summed it up: "It's pretty obvious why Bobst Firenze won the Technical Innovation Award."

Federico d'Annunzio, head of the Bobst narrow and mid web product lines, will speak at Fall Conference 2015, closing Monday's lineup of sessions by discussing how Digital Flexo Excellence enables a press to combine the automation afforded by digital technologies with the print quality and economies of flexography.

The FLEXO Cover Dream Team: (From left) Richard Black, Fabrizio Stefanucci, Mark Mazur, Ellen Farrell, PJ Fronczkiewicz, Joe Tuccitto, Ann Michaud, Jim Kulhanek, Robb Frimming, Lon Robinson, John Seymour and Mark Samworth. Not pictured: Larry Goldberg, Charles Marriner, Kev Pavett

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SPREADING THE MADNESS

More than a month after the printing of the FLEXO Magazine November cover supplement, in a conversation at the inaugural I-95

Flexo Seminar in Philadelphia, PA, Mazur philosophized about what sparks people to change. The thought applies to any walk of life, but in this instance, package printing.

"One of the things I always ask myself is, 'What does it take to make you do the things that you already know you should do?' As a printer, what is it going to take to do the things you know you should do? So much of that gets lost in the day to day activities of needing to get that job out the door—It's hard to remember that you have to drain the swamp when you're up to your ass in alligators. I don't know if Fall Conference is going to do that, but that's what this is all about: Trying to take that next step to go from 'Oh yeah, I should do that,' to 'I'm going to do this."

If history has taught us anything, Mazur and the other experts involved in the printing of the cover supplement and the planning of the Fall Conference presentations should be optimistic—much like those responsible for drafting the 1992 U.S. Men's Olympic basketball team.

That year's Olympics is cited as the catalyst for a worldwide surge in basketball's popularity. In a *New York Times* article from 2012 that chronicled the lasting impact of The Dream Team 20 years later, it noted the number of international players in the NBA had more than tripled, while the number of nations and territories a game could be watched in had grown from 88 to 217.

Indeed, as the NBA writes in its own historical encyclopedia, viewers being exposed to the 1992 Olympics was enough to kickstart a wave of interest in the sport. And why wouldn't it? The chance to witness the best in any field—basketball, flexography, or otherwise—and see what is possible can inspire leagues of onlookers to lace up or put on their safety goggles, go onto the court or into the pressroom, and try to replicate that success.

"What was important was that The Dream Team, the first U.S. Olympic team to include NBA stars, gave fans a glimpse of basketball at its finest," it reads. "And an entire world responded."



Richard Black, during a lighthearted discussion in APR's pressroom.



Management's dream, or worst nightmare? Finished early, the remaining FLEXO Cover Dream Team members kick back and take a breath.