

A Conversation

Bettina Funcke, Ken Gobel, Wade Guyton, Seth Price, Josh Smith, and Kelley Walker; with notes by Mai-Thu Perret at Holiday Cocktail Lounge, New York, May 1, 2005

The artists in the show “New York Twice” use scanners, printers, and Xerox machines, all technologies widely available on the consumer market. In following their work over the last few years, it’s become clear how the limitations of available equipment shapes this art: they play with the equipment and with ideas of what reproduction can be, they work within the technology’s limits and with its mistakes; this process yields the work. On the occasion of this exhibition, in which Wade Guyton, Mai-Thu Perret, Seth Price, Josh Smith, and Kelley Walker show all at once for the first time (though they have all worked with one another in smaller constellations), I thought it would be interesting to bring them together with a printing industry professional for an informal conversation. In opposing radically different approaches to the same sorts of tools, I hoped to provoke a discussion that is both technical and indicative of formal potentials and larger ideas about cultural change.
Bettina Funcke

KEN GOBEL: I work in the industry but haven’t really been a technician for about 20 years, but nonetheless I’ll give you a brief history. We’re going to talk about color separation? How much do you want to know? Do you understand color? CMYK? RGB?

SETH PRICE: I don’t think I do...

JOSH SMITH: Do you have to separate things yourself? Or does the computer do it?

KG: Well, a computer doesn’t do it. It’s all optical, it’s still optical. A computer records data in a digitized form so that you can manipulate them. But it is still an optical problem. It’s about light and physics. You have your basic colors and if you are a painter, you know how you mix your basic colors. You are using colors on surfaces and that is called subtractive color, we call it CMYK, opaque color on surfaces, unlike light colors, called RGB. But painters call it red, blue, and yellow. What happens is this: An object is a color. Light hits that object and it absorbs all the color except for that wavelength and it sends that wavelength right back to you. White in this case absorbs all the colors. There are three wavelengths of light, and in the spectrum you can add these up to get all of the visible colors.

BF: Is that the basis of scanning or of printing?

KG: Well, it’s the basis of color. When you print, you are printing these three colors, CMY: cyan, a sky blue, yellow, and magenta, a kind of a pinkish red. When you take red and mix it with yellow, you get an orange color, which we actually call red. You go from this pinkish magenta and yellow to a more fire-engine red. And when you add cyan and magenta, you get what we call a blue, but it’s more of a violet color. When you take sky blue and add red you get a royal blue, a king’s robe is really very red. And cyan and yellow is green.

SP: Does this mean that RGB as a system comes from CYM?

KG: One is projected light and one is reflected light.

JS: Are inks not opaque?

KG: Printing inks are transparent, the light passes through the ink, hits the white paper behind it, and reflects off the white, comes back through and is the color you see.

You actually make these colors then darker by adding the opposite color. In an ideal physics, that is, the color doesn’t shift. Really by adding up the color you just make it darker.

SP: Wait, what are the opposites? What are the color opposites?

KG: There is a real color wheel where green is here, and this is your red, and this is your blue, which is really violet. This wheel then is your spectrum of color. The opposite of yellow is blue, or violet, which is the combination of these two. You can see the combination then makes this darker. If you add the opposite, it’s a

darkening ingredient, not a hue changing ingredient.

WADE GUYTON: So this is similar or different from when you are doing photography, when you are in the dark room?

KG: Photography is a mixed bag. Some of photography is RGB, and some of it isn’t. If you are making prints, it is subtractive. The way you color-correct a slide would be the opposite from the way you correct a printed, a reflected material.

WG: Is the scan reflected? A slide ...? The light goes right through and then....

KG: See, a scan is a process of taking a RGB image, which is a chrome, or a painting, or a piece of fabric, or anything that has color in it, and separating out these three colors, such that when we print them on white paper, they reproduce the spectrum of color. Does that make sense?

BF: How does the scanner then relate to the Xerox machine? The scanning of the scanner is the same process as the Xerox machine only the Xerox machine does it quicker and rougher?

KG: Yeah, it’s all the same.

SP: That’s the same technology, the Xerox machine and the scanner?

KG: The original technology was all done with filters and film. If you had a color image—a printed photograph (not a chrome), or a painting, or drawing of some kind—you mounted it into a camera, then in the lens. If I wanted to subtract out the yellow color in that painting I would use a blue filter. Do you know how printing works?

WG: I’m not sure...

KG: In a printing press—and the Xerox machine works the same, although it is a more complex thing—you actually have a unit that prints yellow, a unit that prints magenta, and a unit that prints cyan. And then you have black, which is just to make it prettier. You would print magenta, the ink transfers through rollers and lands on the paper. And then you have cyan and it lays down a layer of cyan and recreates the whole spectrum that was in the original picture. The beauty of those three colors is you can print an entire spectrum. Before CMYK was perfected there were various techniques to use 8, 9, 10 different colors to put this whole spectrum on a piece of paper. With these three dyes we can create a big enough spectrum that you are fooled into thinking you get the whole spectrum. And that’s where it gets a little bit kooky, because you get used to it. There are about 20.000 or 30.000 colors out in the universe that your eye can distinguish and categorize. I don’t remember the real number but it’s huge. The number of colors you can find in a slide go way down to less than half of what is out there, it gets drastically reduced.

KW: So the printed images are simply more flat than we think they are?

KG: Right, they are amazingly flat. And the only reason we think that is acceptable is that we are used to it.

BF: When you see old printed materials, they always look like they are from a certain time, from a particular decade when the whole palette was different.

SP: Is that process going to continue indefinitely? Will printing technology keep advancing so that the colors we are looking at today will look aged in 20 years?

KG: Definitely. The problem is, once again the price, because it is a commercial operation. The amount of colors you get in a slide are much greater than you see on a printed page. Right now we have six-color-separation, a technique that adds green and orange to fill the gaps where CMYK doesn’t really cover the spectrum, But it is more expensive, so there are printers that do it, but it’s not really becoming commercially standardized.

WG: We have an Epson printer that has seven inks, we have light cyan, light magenta, and a couple blacks. How is that different from CMYK? Is it just trying to make more colors by adding those lighter colors and the blacks?

KG: These mass-market printers are trying to make the color really appealing by giving you colors that aren’t

realistic but bright and dramatic. You'll have a really fluorescent blue and a lighter blue. They use those two blues to increase the blue spectrum so when you get a piece, it's really appealing, it's really dramatic. Printing is trying to be accurate to reality. Your laser image is really bright and dramatic, a kind of printed separation from that would be dull and flat. They are using a set of dyes on their appeal value versus their accuracy value. Printers also can make colors more appealing, but the biggest part of the business is trying to reproduce the color-accuracy.

BF: You once proposed for a book we did to use neon colors because it would brighten it.

KG: Yes, that's the same thing. If you're trying to or have the opportunity to be dramatic you can add dyes. You are saying: ok, CMYK, and the dyes leave a big hole in reds, and there is a big gap in the blue because the cyan is a very sky-blue color. There are dyes in the world that are really complex. There are incredible colors out there and we can't reproduce all of those because that richness just isn't available in this spectrum.

SP: You mean that there are some paints that can't be reproduced?

KG: That can't be reproduced CMYK. Rich blues and rich reds.

KELLEY WALKER: You can also think in terms of warmer and cooler variations. So if the red is cool already, you will have a hard time making warm colors with that red. What would be needed then is another type of red to emerge. If you want to make a warm purple, for instance, you would have a hard time if the reds were cool. For instance, if you are using oil paints you have the choice of warm red and cool red. If you mix the warm red with the warm yellow you have the primal orange. However, if you have a cool yellow and a warm red, suddenly it starts turning greenish, murky. These three colors that printers use are primarily cool in the spectrum. And they mix together but they are the cool versions. So then there is a whole line, tons of colors that can't be printed accurately. A super-hot red, for instance, since we're starting with a pink; pinks are already cooler than a red-red.

KG: There are red dyes out there, brilliant red dyes, and you can't reproduce that. Yellow actually is what warms up the red, but the magenta is such a weak, pissy color that it really can't...

KW: But it has blue in it already—blue, cool color—so it would mix better with blue. You can make a nice purple. If you want to make a purple, for instance, you would have a cool red and a cool blue and you mix those two colors together to make a purple. It is amazing that it can be reduced down to three colors and still produce such amazing amount of colors. It would be amazing if those colors would be really precise to begin with.

KG: There are dyes, there are magentas out there that are closer to the precise wavelength that give you the whole spectrum. But they are much more expensive. We use what is available.

BF: When you go to Japan to print something you have different dyes to begin with and you get an entirely different palette, right?

KG: To get a really nice magenta costs a lot of money, so we tend to fake it in lots of different ways. Yellow is really cheap dye; it's just available in the universe and you can get it. Cyans are similar. You're creating a whole rainbow of colors—but dyes are imperfect and it becomes stylistic. Today, you don't notice it quite as much but 20 years ago, printing Japanese was dramatically different. Do you remember how pinky it all was? It was always pink and bright.

WG: Hmm, right.

KG: It had nothing to do with the dyes necessarily, it had to do with style, what was appealing to them. Americans like really warm colors. They are printing really fleshy, warm, sweet; that's what we like. All scanning was kind of bias to that. Europeans were in general cooler and the Japanese were often that freaky cartoon-color thing, which is still part of their culture and has nothing to do with dyes or even scanning. It has to do with how they scan and what they like.

BF: What do you mean by how they scan? What are the options of scanning there? Do you scan with a brighter filter?

KG: We are separating out the colors. That's what the separation is. So to get the yellow—it's an old-fashioned problem—you add a blue filter that the yellow goes through and it knocks out the other colors, and to get the

magenta you use a green filter and the magenta passes through.

WG: To get the kind of yellow that you see is dependent on the kind of blue filter you use?

KG: It could depend on the filter, and then there are all kinds of photographic techniques that you can use to make things bluer or less blue, blue in certain spectrums. The first thing to do is to separate the colors. Then there are kinds of manipulations in exposure and filter originally. Now you do them in Photoshop: you increase the amount of blue and now you can even increase the blue selectively in a curve, it either hits the high-lines or mid-tones. If you do a straight curve, which would divide it up evenly, or you can curve it so that the highlights get more change. You know what a curve is, right?

WG: I've used it, yeah.

KW: We all use this stuff.

KG: You're selectively adding blue to different portions of the picture and that's how you create contrast. You create color contrast and you create black and white contrast.

The different kinds of fashion are all layered here. You have fashions where certain colors are hip, like pastels or what you find in clothing—fashion colors. And I guess you have them in the art world as well. But what we are talking about is a slightly different thing. You also have a fashion in the commercial reproduction world, color that we accept as real. When we reproduce a picture of the Empire State Building and a Japanese printer does the same, they will be biased to lighter and brighter colors, cleaner colors. And we like dark and warmer colors. We are not that far away from the Europeans. We do have a color fashion, the colors that people like. And then there's a fashion of color that we perceive as representing reality the most appropriate ways.

SP: It's not perceived as a fashion.

KG: You're right, it's not perceived as a fashion, it's perceived like the right thing to be. And now what's happening is really funny, with the computer you can manipulate things much greater. People hate depth-of-field in a photograph. If you go through old pictures you can see the depth-of-field because you see where the focus is and where it's drifting. If you are going through a magazine now, there is no depth-of-field.

BF: It's just all sharp.

KG: The thing is totally focused because we can manipulate it. That's what people want. They want to see things totally in focus. Now we can do it, we sharpen it. There is this fashion now to have things totally in focus.

KW: But is it really fashion or is it just that it is evolving like that so? Bettina and I were talking about schizophrenia and it seems like this idea that everything is in focus at once plays into it. It sort of flattens everything, all space becomes flat and equal. Whereas in the beginning, where the model was in focus and everything else was out of focus, you knew what you were seeing.

KG: Actually, in the beginning everything was totally in focus because it was done with film and very large amounts of time, like pinhole-cameras. All the civil war pictures of that time were totally in focus. The depth-of-field happened with cheaper lenses and smaller film. You also see depth-of-field in your vision. If I'm looking over there at the TV, I kind of look at Bettina peripherally. She is completely out of focus. So depth-of-field is not a product of photography, it's a real thing.

KW: ...that can be affected as well.

KG: Right. It can be affected, sort of how much you will allow... I mean, look at the picture at the wall with Bettina's hair in your peripheral vision. Her hair is out of focus.

SP: But that's a totally different kind of experience than looking at a blurred image or a photograph. Something in your peripheral vision is a different kind of vision than perceptual experience.

BF: A different blur, it's not static...

SP: You can never look at it directly and have it be blurry in actual vision the way that you can in a photograph.

WG: I think it's like what you were saying earlier about photography: that the lenses actually worked closer to the way our eyes work.

KG: Your eye has a huge depth-of-field, you can see things in focus 20 yards from you. If I look that way, everything from this table up to the sign in the window is in fact in focus. If I take a 35mm camera, I either focus it on the window or the table and everything else is incredibly blurry. So the 35mm has a very small depth-of-field.

SP: When I'm looking at you right now, the spot that I'm looking at, that I'm fixating on, is in focus and theoretically I have a depth-of-field that could include whatever is behind you. But it's purely theoretical because everything around... I can sense that there are people here, there are two people in the background, but it's neither blurry nor in focus, it's just not, it's a different kind of perceptual experience than looking at something directly and I can only look at something directly, one thing at a time, basically like one small circle.

JS: It's enough, Seth...

WG: Maybe, if you were to...

KG: Well, when you are looking at something, you are using your mind. It's not just the blank image, so your mind is concentrating on what's in focus. It's hard for you to look at something and then use your mind to see what isn't in focus.

BF: Oh, I can do that...

KG: So your mind is forcing you to see what's in focus. Whereas when you get at a photograph your mind is looking at the whole thing, so you don't have a choice of focusing on something in particular. In many ways the current sharpening of everything and the elimination of the depth-of-field is getting closer to the way your mind and eye work. It's not something that's radically untrue.

SP: But that's the way the scanner works, right? Because you cannot scan a landscape.

KW: If you took this room, you took a photo, and you scanned it and brought everything totally in focus, that's not how you would see a thing. You do focus on a bottle when you're drinking. Here, I focus on the bottle and I'm ignoring everything that's not the bottle. It seems to me that photographing does the reverse: If everything in the room is totally on the same plane and in focus, and is the subject, then it's not like picking up the bottle and...

BF: Your differentiation is gone...

KW: Yeah, it's gone, so then, I sort of disappear in a way, actually. When I look at the bottle and everything around me sort of blurs out or is not in focus, that's when I become also the subject, but not quite.

KG: That's a good way to put it: Photography is forcing you to look at a whole area whereas your mind would normally look at something and focus. And that's not really scanning. Scanning used to be the focus of color printing. Scanning machines used to be giant machines with all kind of dials, so all the curves, all the manipulation of color was done in the scan. Those machines were incredibly expensive and you would scan an image three or four times to get it right. Now you do a rudimentary scan. You try to capture everything that's in the picture. You don't have to capture it correctly. You just have to capture a digital image, an image area, and then you take it on your desktop in Photoshop and you fix it.

WG: How does the scanner work? What are the mechanics of the scanner compared to the way a camera works?

KG: It's exactly the same. Instead of doing a large image that goes through a lens and onto a big piece of film, it does tiny little areas and adds them all up into one image. It's faster and more accurate and it's much sharper. Scanning came up in the mid-70s, if you go back to printing before the mid-70s everything was kind of soft, it was kind of pretty. I remember when I came into the industry in the early 70s, there was this big shift from photographic color reproduction to scanning and running these machines and there was a whole group of people that couldn't handle the shift. It took the art out of it, they couldn't think in dials and numbers and curves. Their art was in lenses and exposures and developing the film. When the computer came in, I felt it was so stupid and it robs you of all the craft and it robbed people of all the intuition that you used to make something, and all the kind of crafty-arty stuff, the stuff that couldn't be calibrated, calculated. But now you can do so much more. Now the crazy thing is not what you can't do but how do you make what you can do into a reasonable thing.

SP: You said that the scanner works exactly like the camera, but that's only insofar as you're talking about capturing an image.

KG: The basic physics of it.

SP: Because the capturing of the image is optical in both cases. It's electronic in the case of the scanner. But wouldn't you draw the line there, because photography then enters the chemical area, and scanning becomes totally digital?

KW: But you also could even get to that point to begin with, actually... Let's say in Japan at a certain point, the color preference moved a bit more towards a pink. A certain preference, cultural preference, came into play, a sort of code of what we're seeing as closest to representation. So when Epson comes along, designing us a scanner in some sort of post-lineage after the camera, and the Xerox machine, they are already shifting that language into what they perceive as most marketable. So already it shifted from the beginning. It continues through and into another state, but it shifted from the beginning. The color preference is effected by the scanner and then it is effected again because it is like recording images into a computer and not a dark room, which is another space, so it then enters Photoshop, which is again already sort of dictated by parameters to guarantee a certain code.

WG: There must be some physical or structural, mechanical difference in the way that a camera records something. It records a hole, whereas a scanner reads left to right and top to bottom, the movement is different.

KG: The scanner is more accurate. Going through a camera and a filter and onto a piece of film made everything soft. The big problem there was creating contrast and creating detail and sharpness. The really good scanner has added a level of sharpness and detail that was never before possible.

SP: But only for surface, right? The scanner can't handle anything beyond surface. You can't scan your ceiling from 10 feet away.

JS: You take a digital photograph of it.

WG: That would be soft.

JS: A raw, digital photograph is a scan, right? It has taken all the information it can.

WG: How does the digital camera work?

BF: Is it the same as a scanner in that it has many little areas it takes a picture of and it makes it into a larger image?

JS: It's like a raw photo. The camera opens up and takes all the information it can, just sucks it in and then it's up to you to sort it out and make it look like what you want.

KG: There were always two processes and now, because of the digitization of the information, you can manipulate the information more. You used to make an image, which was photography. You used the light to create an image. Then you took the image and you scanned it. So you took the light and you put it all together to create an image and then you took that image and you took the light and you separated it out again. With a digital camera you can do that all in one: All the information in such a form that, by using a button, a very simple computer program, it can separate out, it can add the colors into an image, and then it can separate them into CMYK. That used to be two steps, now it is embedded in one image.

SP: Does that mean a loss of control?

KG: No, it's more control. It's easier, you don't have to separate any more. It's all done for you. The minute you take a picture it is essentially separated.

SP: But if it is done for you, it *is* kind of a loss of control.

BF: But then you have all the material and you can do with it whatever you want.

JS: You can always control.

KG: No, really, it's much more control. People get very sentimental about the scans that were done in the camera: they are soft and they are pretty. You can think of painting genres that were like that, impressionistic. People, craftsmen took that style to its limit and they were very beautiful, but that was all you could do. With the scanner you could still make it soft, but you could also make it sharp. Now with digital you can make it soft, you make it sharp, you can put a check pattern in it, you have an infinite variety of things that you can add to the image. You're not really restricted.

SP: You lose a certain regime of errors.

KG: You lose a regime, period, because there is no regime.

BF: It's a digital regime.

KW: Twenty years from now, what you're talking about will not be a regime because new technology will have created new ways of producing...suddenly you can add an object into a program.

SP: What do you think is the future of scanning, from your perspective? Where is it going? You can look back to the seventies

KG: There are two things going on: One is the future of scanning, scanning is almost inconsequential. Now it's all manipulation of Photoshop because the scan can be done quickly with rudimentary equipment. The way you produce a picture that in our business sells is in Photoshop. And then you have to be tuned into what people want, either from Art Directors or from the public, or whatever it is. Now the world is no longer dictated by the material that you are using. You now have a new method where the spectrum of what you can do is incredible. When handwriting was the only thing you could do, people had really beautiful handwriting.

BF: *There* is a loss.

KG: And then handwriting became kind of stupid, right? A more simple way is type. You used to be limited by the machinery that could reproduce type so your design was corralled into a certain area. A lot of beautiful stuff could be done in that area and those kinds of techniques could be pushed to their limits. But now you're not really restricted. Now you have to find something beautiful in a totally open field, which is almost more difficult. Also the industry is less focused. Back when everybody used letter press, which had a rather small range from good to bad, everything looked the same: It either looked good or it looked bad. Now, we have a huge range, so we have various places in the spectrum of looking cool. How do you even decide if something looks good or not. It's a problem. Does that make any sense?

KW: Yeah, it does.

JS: I feel though that people are running around like chickens without heads. Everyone, even children now know how to do everything in the computer, to take photos, they have cameras, they send photos around. I don't think people look at stuff the same way they used to. People used to look at a photograph and it was a precious thing, it was expensive, now everything is very cursory and everyone knows exactly how everything is done. Except us, probably! Every time I learn something, it makes me think so hard about other stuff you could do. But I guess the thing is to do stuff, you know you have this huge range of stuff, but then, once you have your product you have to think what else you could do. The finished product is just a little piece of what you're doing. You have to deliver the goods, I guess. I don't know what I'm saying, necessarily. But you have to, you can only make something... everything looks the same. Everybody knows exactly how to do stuff because the computer does it all.

BF: So is it about deciding what you don't do?

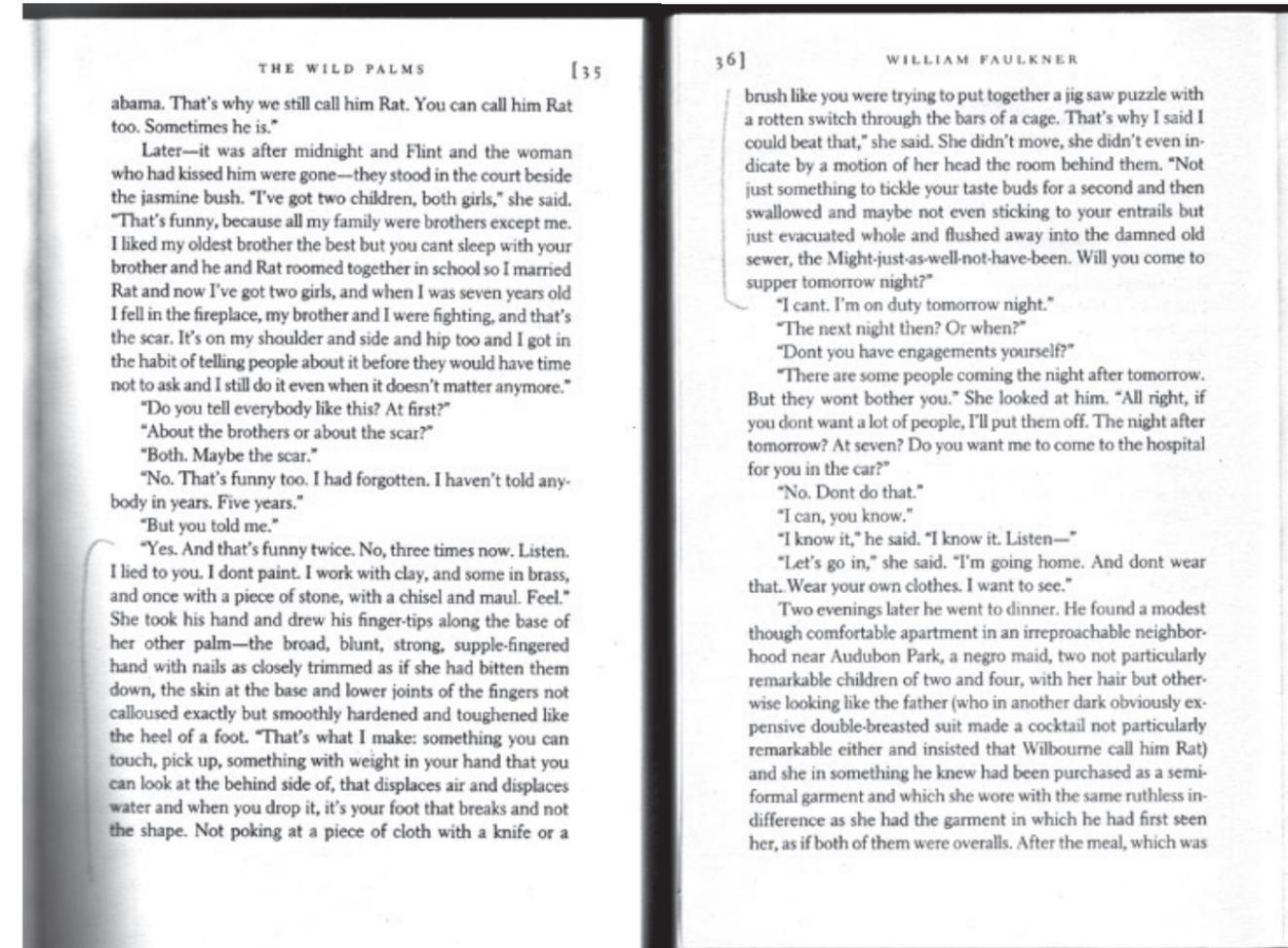
JS: That's how I would think.

KW: You have a set of tools, and there tends to be constantly something new and the nostalgia for something old. If it wasn't handwriting, then it was a certain use of old types of fonts. There is always a sense of something that we've lost. Now we look at Photoshop but in 20 years, they are just tools. And tools are very similar to make things. They don't dictate us. There are limitations, but there are always limitations.

JS: They have become like an industry standard.

KW: So are all things. You don't have all the colors represented in the world. They are already dictated for you. It's just this nostalgia. And then you look at what has been produced and you romanticize this or you romanticize some artists', like Kippenberger's production. It somehow was so much freer, but, I mean, it's just, it wasn't. He painted it and he had certain limitations of what he could paint with and he made them work well enough to be Kippenbergers. But I think, it is just that holding on to the past or romanticizing it. Let's say it's a digital print in comparison to a painting from the 1950s, say Morris Louis, well, the Morris Louis is better because it was hand-painted, for instance. This digital print can never be as good as the Louis, it seems watered down. It's just different, you know, the digital print, too, will become the past. The thing is that it needs to be different and then there is this whole fear about it becoming outdated or past, so why do anything at all? Because obviously the scanner is going to be outdated, it is just a tool of the present. And it's interesting because it's cheap, you can take it home, you can replace it easily, you can experiment with it, pick it up—in contrast, a Xerox machine is huge, it's heavy—so it is fun to play with. But it should in a way be that. Sometimes things you produce are really nice using these tools and sometimes there is a lot of shit, too. That's the way it's always been. So when the stuff will be good a hundred years from now, it is just as good as anything before and a lot won't be.

MAI-THU PERRET :



JS: What about color halftone? What's color halftone?

KG: In printing you can use CMYK, or you can print colors. You have a PMS spectrum of colors. And those are colors that are done from dyes, so your orange is really beautiful. Those are like your oil paints versus your water color.

JS: How is it like oil?

KG: If you're doing a colored halftone you can do a halftone where you are mixing an orange color plate with, let's say, a blue plate, a violet plate, so you're creating orange and violet, and the combination of the two, which is some kind of a weirdo red deep blue. A lot of the Andy Warhol stuff is color halftones.

KW: It is a little like a rainbow. You remember rainbow-rolls, Josh? They were like that. You lay out your two colors of paints and then roll it and it slightly blends in the middle and it goes from a pure to a blend and back to another pure.

KG: You can use individual colors to produce images in different, bizarre ways. Or you can use CMYK. The whole reason for CMYK is to try with some kind of degree of accuracy to reproduce what you actually see. That's how we use it, and then that's layered with what is physically practical and what is sort of a current style or fashion by the designers who are using it and then what's currently considered accurate.

SP: You know, what's interesting is that a lot of what you have been talking about has to do with accuracy because it makes sense, as you said, to print something you are reproducing, an image, and there has to be an agreement about what it looks like here and what it looks like here. And that's a question which doesn't usually occur to me, the idea of accuracy and representation. And maybe not anybody else at this table, I don't know...

KG: It's a commercial thing because we're hired to be accurate.

SP: But once you take that out of the equation that changes things a little bit because it's a pretty important part of the equation, in terms of how the color theory is expressed in production, and how the machines work, and which way the technology works. When you said how magenta and yellow mix and why, they are not actually pure representations. And that's something that people are probably working on, trying to solve?

KG: That's correct and the problem is that there is no dye that anybody knows of that is really perfect magenta. So you can use cooler magentas or warmer magentas, or you can do various fanciful techniques to create other reds. I can't remember, what was the guts of your question?

SP: Well, just that if we were to try to have a discussion without talking about accuracy, what that discussion would become. You mentioned something earlier about that theory of scanning.

KG: Once you remove accuracy, you kind of remove... then you're in the art world and not in a commercial world. See, I'm in the commercial one. I'm doing a job for someone who says: this is what I want.

KW: Accuracy is also contingent, so that seems to always be remembered. There is no real accuracy.

KG: That's the fun part. Accuracy is only what is in style, we have already been through it. You have styles that are acceptable and then you have styles that are dictated by the technology that become acceptable or that become obsolete when the technology becomes better, like the depth-of-field thing. You guys have a more difficult... See, I have a much easier life, because I have to do what somebody wants me to do within the limits of what technology will do and within the standards that are reigning as for what's real.

KW: It's interesting that how much you can pay also affects accuracy.

KG: There are six-color-separations, but they are not really taking over because they are more expensive. People are willing to compromise the accuracy instead of paying more.

SP: But the funny thing is that sometimes, maybe, the client and the printer can agree that we are going to compromise and make this less accurate. But then the question is whether anybody who looks at that book is going to necessarily think of accuracy. They might think, well, I'm not sure that people think much about the way things are printed on that kind of conscious level.

JS: I do.

SP: Yeah, but you're an artist.

JS: If I buy a 70\$ book and you look through it and you can tell that... you know, you can tell where things aren't right.

KG: You either know what the colors ought to be or you can see it's crappy, the colors are soft or weak, too little contrast. You have two things: One is to have accuracy to the product and two is you have all the stylistic things that make you feel like it's good, like weight and contrast.

SP: That's talking about a book of fine art reproductions, and if you're talking about a culture where people mostly read magazines...

KG: Yeah, but it's the same thing as with magazines, it's just on a slightly different level. I mean, car companies want their pictures to look stunning, because they want you to fall in love with their product.

SP: But doesn't that drop the accuracy discussion? Then it is simply about looking stunning. It's a whole different question, obviously it's just as stylized but...

BF: But then you might have an Art Director who has an idea that you should meet ...

KG: There are complicated things. We are not allowed to do an Epson print. If you take a red Chevy and you do an Epson print, it looks like the thing is on fire. Well, a car doesn't look like that. The car may be an incredibly luminous red but it's not this kind of neon-type color that is popular in basic laser printers. We have to find some kind of middle ground between being accurate to the car itself and still being really exciting.

What the digital world has done is sort of—it's universal for all forms—that the information that you manipulate is no longer related to the solid object. Does that make any sense?

You get all these digital images you could do anything to. You are not restricted by, before you were restricted by filters, filters determined the colors you could get. You used film and you created contrast with film techniques to create contrast. Then the initial scanners were much more dramatic, they could create much better color, they could create much more focused images, much more contrast. But the scanning was then limited by what film could handle. You could only do so much with the film itself. Now, like you were saying, in Photoshop you can do curves that don't exist in the real world.

JS: The filters have a whole different meaning than Photoshop. In Photoshop you have a filter, you can take your image and make it chrome. Now it's like chrome or charcoal.

KG: We have something now that is both more real but it's also more fantastic.

KW: Which in a way is interesting because you think of the idea of fantasizing and how to sort of play the same lines. There was always a result outside of the logic. That's actually the very thing, it's the very commercial apparatus that shapes things. So it's really interesting to switch. The seduction of the computer is this space that at one point would have been seen as insane, hysterical or... now it shapes everything. The way we perceive so much around us.

KG: I think you're right. The possibilities of the computer are now shaping everything.

BF: If you speak about accuracy you are fooling yourself, because accuracy relates to something real, but really it's an accuracy that relates to something fantastic or imaginary, much more than a representation of something that relates to what our eyes see directly.

SP: I think that's been true for a long time, before the computer. It has to do with modernity and what happens in the nineteenth century with film, photography, the gramophone. It all comes in and all of a sudden you have things like the wide circulation cartoons...

BF: But then it was about consumption. Now you have the tools with which everyone can make these things. You used to have the devices that everyone could consume but now the tools have advanced and have become producing tools.

KG: But that is not an accuracy problem, that's the availability of things.

KW: It was also distinguished, Seth. Let's say if this sort of stuff was happening in film and advertisement, what you got was portrayal of the real that didn't happen.

SP: When are you talking about?

KW: The 1930s and 1940s. You had a representation, let's say of America, as real, ideal-real. Now, America would be like the glowing flag of impossible colors and warped space with an eagle emerging somehow, that's totally impossible. Then that would be the hyper-sort of real. But those would have been like a Hitchcock film as opposed