Issue #15- JQ9703

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Time or money... that's often the trade-off in my photography. I can be cheap (or work for a cheap client) and process it myself with what supplies I have, or I can shell out the bucks for the equipment, the assistance, whatever it takes to get a particular job done faster.

After I bought my JOBO CPE-2 Plus a few years ago however, I found a way to beat the time verses money trade-off. Now the choice I face often goes like this: I can spend $8 per roll and 35 minutes driving on two separate trips - plus risk a parking ticket - to get my E-6 film developed. Or I can step into my own "in-house lab" and spend less than $2 a roll and maybe an hour in the darkroom, with substantial breaks for making calls or other chores. Most of the time this is not a difficult choice.

It was the time and money advantages of doing my own E-6 that convinced me to buy my processor. When I'm shooting breaking news here in Washington, ***time*** is often critical, and I found that by doing my own processing I could shoot an event at 4 in the afternoon and still deliver to the last 'FedEx' pick up (usually my ultimate deadline) with processed and captioned film in the evening. The ***cost*** is often important too. Many of the stories I do, and sometimes it seems all the really interesting ones, are self-assigned. While they usually sell eventually, there is no client there to cover that initial hefty bill from my local lab.

What I didn't realize when I worked this out and bought the JOBO processor, was its adaptability would be important in other areas of my more general work, shooting for everyone from textbooks to custom furniture makers. It would even change the way I shoot most news.

In the last ten years photojournalists have seen some major shifts in the type of films they shoot. Originally working largely in black & white, they've moved almost entirely to color. Within color, those who can, have switched from slides to color negatives. That last shift has been limited by the editing advantages of slides. Wire service or newspaper photographers, even newsmagazine staffers, can shoot color negative film because they do their own editing and scanning in-house. Agency photographers like myself though (I'm a member of the Impact Visuals photo cooperative) usually have to stick with slides because slides are far easier to duplicate and distribute.

In my case having the ability to process my own film left me a way out. I found that C-41 film is simple to process and color printing is far easier than people who haven't tried it realize. It's even easier when you work with a limited number of films and know the lighting each roll was exposed under.

I have switched to color negative for most assignments. My agency is happy with it, because they only see the end result: nice color 8 x 10" prints, which more and more editorial clients can now accept. Duplicating is no issue, since I am able to quickly print multiples of each good image.

Furthermore, using color negatives is the only way you're able to send out multiple "originals" and yet never let go of the actual original film. This is especially helpful for me and my textbook sales, since what is breaking news today is useful textbook stock next year.

So at this point I'm running almost every kind of film and paper through my JOBO (I even use it for small black and white printing runs, since it isn't necessary to mix full trays of chemistry), and I've picked up a few pointers along the way. Among them:

I either use a pre-rinse or run the temperature warm, or both. Perhaps I just don't have the patience to dry pre-warm my drums long enough, but I find that the temperature of the first solution to go in usually drops several degrees (in my case about 3 degrees) when it's poured through my JOBO lift into the drum with film or paper.

So I use a big beaker full of heated water as pre-rinse whenever possible, even for black and white paper (my darkroom gets cold in winter). The one case where this is definitely a bad idea is C-41 processing, as Paul Rowe mentions in issue JQ9404, I heat the developer to 103 degrees F rather than the recommended 100 degrees F. I usually keep my temperatures on the high end of the acceptable range for any process, as a matter of fact. My reasoning is this: during processing the temperature of a solution may fall unexpectedly, due to cold air, a cold graduate, a cold drum or other causes, but it is never going to go up unexpectedly.

Whenever possible I try a film/developer/temperature combination out before using it on a paid job. For instance, I use a heated pre-rinse on E-6 films even though this isn't part of the E-6 process and might adversely affect some films. I can't guarantee that doing so is safe for all films. I can guarantee my clients, though, that it is safe for the films I shoot for them, because I've tried them all out before.

When I experimented with Lumiere after it first came out a couple years ago the results sometimes looked really bad. I didn't know if it was my shooting or my processing or just the film, but I skipped using it entirely. (Now I see Kodak has discontinued Lumiere. I guess the problems weren't entirely mine.)

I've found I have tremendous flexibility and versatility with my own lab. I'll try anything. Last fall a panicked architectural client needed a bunch of 4 x 5" transparencies from 120 color negative images of an architectural model I'd shot. They had just over the Thanksgiving weekend to get the material ready to send to Jakarta. In a conversation with a local lab I learned three things: Kodak makes a 4 x 5" C-41 film specifically for creating transparencies from color negatives; the lab charges $35 a pop for each image; and there was no way the lab could get it done over the holiday. I had boxes of the film, JOBO's 4 x 5" tank, reel and loader shipped to me overnight express. Kodak supplied some very helpful information and I was on my way, exposing the film under my color enlarger and quickly processing it, six sheets at a time. When Monday arrived the work was completed. The results looked incredibly good (as if I'd shot 4 x 5" chrome originals) and my grateful client happily paid the substantial bill (I charged them the lab's $35 per image, even though the process was easy and inexpensive).

Now, as I continue to shoot more and more color negatives, I have a wonderful way to turn those images into 4 x 5" transparencies for portfolio and other uses. And it sure doesn't cost me $35 each to make them. It's awfully nice (and sometimes profitable) to have your own lab in house!

The New Darkroom Tools

by Darryl C. Nicholas

I started developing pictures on my Mom's kitchen table - after dark. Things have changed - a lot.

I remember the excitement when the first B&W Polaroid pictures came out. They were little things, not much bigger that what we would call wallet size today. But, they were great! Then a few years later, Polaroid produced color! It was super! We couldn't get enough of it!

Finally, it became practical to make color prints in your own darkroom. Now, that was real modern stuff. Over the years the films, chemicals and printing papers got better and better. Just recently though, we've had another leap in the technology of making beautiful prints - computers!

I've always wanted the latest gadgets, the newest tools. And, nothing has changed. I love these new "computer" tools! Making beautiful prints just gets better and better!

Oh, yes, I still have my wet-darkroom. I still use my JOBO CPP-2 Processor. And, I still make lots of conventional color prints. But, with the new tools, I can do so many new things that were just not possible with the older tools.

Today, my wife has a thriving little digital retouching business and I spend my time helping other photographers understand working with these new, exciting, tools. Our little company, ColorBAT (color by additive techniques) mixes the best of both conventional and digital technology. We custom-build computers and then teach our customers how to use them in the field of digital imaging.

We had a customer who recently hired us to photograph their 50th wedding anniversary. It was a grand occasion, marred only by the absence of one granddaughter who had to work and could not be in the large, family picture. We told the disappointed grandparents that it was no problem and that their family picture would, indeed, contain their granddaughter. When we shot the group picture, we simply left a space for the granddaughter as though she were really there. We later had her come into the studio and shot her portrait. On the computer, we combined the two images and, presto... the granddaughter was in the family picture! It is a perfect example of utilizing both the conventional tools and the new tools.

The new tools are constantly getting better and the prices are constantly coming down. I tell folks that... today you can perform a pretty mean game of digital imaging for less than the cost of a late model used car. That's not bad! In fact, the total cost of the computer, the monitor, the scanner and a printer probably isn't much different that what it would cost to set up a conventional darkroom.

Of course you can spend more! And there's nothing wrong with wanting the very best tools possible. Better, more expensive tools frequently make doing the job a lot easier and, sometimes, the end-quality even improves a little. However, most of the end-quality is in the skill of the craftsman, not the manufacturer of the hammer.

The computer workstations that we build for folks are frequently the least expensive and the most basic we can possibly put together. That's not to say that some of our customers don't order more sophisticated systems. Some do. I like to think of us as selling "Chevrolet" systems.

We call our computer workstation The Incredible BAT Machine! It's just incredible what can be done with one! And, the learning curve is so short. We include a two-day workshop with every system to be sure that the customer has a basic understanding of the equipment. After that we offer free tech support for one full year while the customer gets familiar with the new tools.

Yes, you can buy computers everywhere - maybe even the local grocery store! But, very few companies that sell computers know very much about photography or what is needed to make photo-quality images. That's where I have something very powerful to offer to my customers. I'm a professional photographer and a color darkroom technician. After you take that shiny new computer home, you may need to have someone you can call occasionally and discuss the problems you're having.

All photographers who have ever made color prints in a conventional darkroom understand how you can adjust the color balance and the density of a color print to create the best possible image. But, now with these new tools, it is possible to also adjust the contrast of a color print as well! That alone is a fantastic tool for creating images that simply couldn't exist otherwise.

With these new tools, the old days of struggling to get a decent print from a slide are gone forever. I love printing slides on my Incredible BAT Machine! Each print is a perfect image! I get all the shadow detail and all the highlight detail, plus I can get any amount of color saturation that I want. It isn't like the old days when you had to make an internegative and give up some of the color saturation. Or, when you had to spend hours doing contrast control masking only to discover that you still had one little black dust speck in the middle of the sky! There's no dust specks with the new tools! There's no out-of-registration masks with the new tools. There's no shadow areas that shifted color when you tried to dodge them. There's no delicate highlights that washed out. I love these new tools!

And, when it comes to printing color negatives with my Incredible BAT Machine, well, "nothing could be finer"! I still have to individually color balance each negative just as I would in a conventional darkroom, but, now I can do it on a monitor screen, instead of making all of those test prints. Computers are pretty good, but the characteristics of the orange mask in color negatives are such that it is almost impossible to correct for it "automatically." It still requires a little human intervention! But, I can do the color balancing in a fraction of the time it used to take. Plus, I can easily tweak the image while I'm working with it. For example, if the negative was a bit under exposed, I can easily pump a little life back into it. Or, if there's a twisted branch spoiling an otherwise perfect scenic, I can prune that branch right out of there! Did somebody close their eyes or open their mouth? No problem! I can fix those things also.

Today, many of our customers are using ink jet printers with their Incredible BAT Machines. But, there's another option. The new PrimeraPro Elite dye sublimation printer, from Fargo, can produce an 8x10 print with a UV overcoat layer that protects the print. To get this same kind of protection for an ink jet print I have to laminate the print in 3-ml plastic, which is a second processing step. But, with the Elite printer, the print receives its protective overcoat automatically inside the printer as the image is being created. The Elite produces an image that is truly superior to any ink jet image. Of course, the Elite costs more than an ink jet printer. A Cadillac costs more than a Chevrolet.

If you're really into creating images with the more basic tools, then you can't beat a hammer and a chisel when it comes to carving on a stone. But, if you lean towards the more modern tools, try an Incredible BAT Machine!

A Potpourri

FUJI Slide Films, Astia & Others

Tetenal E-6, Personal Testing, Etc...

By Paul Rowe

ASTIA ! ! ! Have any of you missed the numerous articles in the trade magazines over the past several months? Everyone seems to have tried and analyzed Fuji's new E-6 film, and all that I have read has been laudatory. I don't like doing a "me-too" article, but then none of the other writers covered the use of a JOBO for processing the Astia.

The first step was to expose a number of rolls of Astia, Provia, and Velvia to a test target. One of the exposed rolls of Astia was taken to a local lab for processing in their E-6 Dip and Dunk processor. It was used as the reference exposures for these tests.

Tetenal E-6 chemicals, both 6 bath and 3 bath, were mixed and set in an ATL-3000. Upon running control strips both processes were in control at a 6:30 First Developer time.

Astia, Provia, and Velvia were then run at 6:30 , 7:00 , and 7:30 First Developer times. The 18% gray card in the test exposures was read on the densitometer and compared to the reference strip run at the local lab. Bear in mind that Tetenal always suggests that Fuji films be run with a First Developer time that is 16% more than the normal Kodak time. Since the process was in control at 6:30, an 8% increase would be approximately 7:00, and a 16% increase approximately 7:30 First Developer time.

The Astia in Tetenal, both 3 bath and 6 bath, when developed at 7:00 First Developer, compared beautifully with the reference run in the 'pro lab'. It would appear that an 8% increase over a normal Kodak First Developer time (in this case 6:30) will give normal development for Astia.

On the other hand, both Provia and Velvia appeared to perform best at the 16% increase, or in this case a 7:30 First Developer time. To sum up the results, in Tetenal E-6 chemicals, process Kodak or Agfa Film by itself, Fuji Astia by itself, and Fuji Provia and Velvia by themselves at a longer process time.

To get away from the nuts and bolts for a minute, Astia was beautifully neutral. Colors were pure and bright without being over-saturated. I would recommend reading the article in the July/August issue of "Photo Techniques" magazine, which covers Astia both concisely and well.

TEST?... What!, Who?, Me?
The variations in times for the Fuji films in E-6 are a good reason to consider running your own tests. To pick up an E-6 kit, mix it, and process a roll of film is best likened to shooting craps. Optimum results are not necessarily guaranteed. You need to know what the processing time should be for your film, developer, and processing setup, and then process accordingly. The same is true with any of the processes, and Black and White film is probably the worst culprit.

A typical scenario is the customer who calls us for a processing time. The exchange will go something like this:

JOBO: What film are you using?

Customer: I just came back from Africa, and I have 17 rolls of T-Max and 10 rolls of *"Woopie-Pan,"* all 35mm. I bought the Woopie-Pan in S. Africa.

JOBO: What developer are you planning to use? Which T-Max film, 100 or 400?

Also, what is the ISO of
"Woopie-Pan?"

Customer: Well, the T-Max is all 100. I don't know what the *"Woopie-Pan"* is. I couldn't tell from what is printed on the cassette. I shot it all at 100. For a developer, I thought I would use T-Max, or maybe X-TOL. I read someplace that Rodinol works good with T-Max.

JOBO: We can tell you Kodak's suggestion as a starting time for the T-Max and the XTOL with T-Max 100, but we can't be of any help with *"Woopie-Pan*." With film as important as what you have brought back from this trip of a lifetime I would think you would want to make a test to be sure how the film/developer combination is going to work with your enlarger, and the way you like to print.

Customer: I can't take the time to test. Just give me the times for the Kodak developers.

Four days later the same customer calls back and vilifies us for 1) his negatives were too thin, or 2) his negatives were too dense, or 3) *"Woopie-Pan"* did not work with T-Max developer. He developed using the same time as T-Max 100 and the negatives were (see #'s 1 and 2 above). The essence of this conversation is that it is JOBO's fault because he has ruined the film from his trip. How about that!

Many other details that should have been communicated in this interchange have been omitted for the sake of brevity. There are questions regarding the processor being used, temperature control, enlarger type, etc.

What should be obvious from this presentation is the vast discrepancy between the approach of this hypothetical customer and the facts which need to be known by him in order to process his black & white film with ***predictable*** results. When you call JOBO, Kodak, Ilford, or Agfa, you get our results or estimates of how the film should be handled. The difference between your equipment/setup and the manufacturer's can be enormous, with the result being likewise.

A relatively small amount of time and equipment devoted to establishing the procedure you will use to process film will allow you to arrive at a negative that has shadow detail and highlights, and this negative will be fairly easy to print. You do not have to start using the Zone System to make this happen, but understanding the basics of it will help your photography. Ansel Adams book, "The Negative" is helpful. Also "Mastering Black and White Photography" by Bernhard J. Suess (Allworth Press, New York). In addition there are week-long and weekend seminars given by several famous photographers and teachers.

To give your processing the lack of attention that the customer in my example above has done is almost sure to give you unsatisfactory results, less than your equipment is capable of delivering. Many customers comment in candid moments that they really desire to be able to process their film and know beforehand the type of results they will obtain. This end doesn't have to be just hoped for, it can be obtained. Testing is the sure road to confidence in your final image.

So, You Need A Clean Machine

by Ken Owen

Remember the day you first put your new JOBO processor to work? It was bright and shiny and you were proud of it! At the end of the first day of use, you cleaned it up and it still looked good. But now after years of use, it's gotten rather grungy, especially down in the water bath. In fact, now that you look closely, it appears that unidentified life forms have taken up residence down there. It's *definitely time to use Processor Clean II to get your processor cleaned up!*

In this article you will find methods and materials for cleaning **JOBO**, **Fujimoto**, and **Nova** processors, as well as bottles, tanks, drums and much of the rest of your darkroom. It's that time of the year to return to your darkroom, and you might as well start with it clean!

JOBO ROTARY PROCESSORS

Before I tell you how to clean them correctly, let me warn you about the one major incorrect method . DO NOT USE CHLORINE!!! Chlorine laundry bleach WILL ruin the heater and probably cause the plastic itself to become brittle. DON'T DO IT!

Now the correct way. Start by draining out the processor completely. Aim a hose or spray nozzle into the water bath of Jobo Manual or AutoLab processors to clean out as much of the gunk and schmutz as possible. (These are technical terms you'll need to get used to when it comes to cleaning your processor.) Next fill up the water bath about half way.

Mix the Processor Clean II powder, according to the instructions on the label. If your machine is a Fujimoto, Nova, or a JOBO rotary processor, use the chart for these machines in the instructions. If your machine is other than these you will find instructions like *1.5 oz. per gallon of tank capacity.* Let's take this one step at a time. The1.5 oz. per gallon means take a graduate (graduated cylinder) off the shelf and measure 1.5 ounces in VOLUME to add to water to make 1 gallon of "working solution." We recognize that most of you don't have chemical weight scales, so we made the instructions fit the equipment you do have. Then add the powder to water. You don't have to use a full gallon of water to mix the cleaner. Add it to a liter or two (or a quart or two) and then when you have dissolved the powder in the water pour the "concentrate" into the processor and add the rest of the water needed for the job. Also, don't worry about being real precise with this product! You are cleaning a processor, not processing film. You can relax a little when it comes to measuring cleaners. When we tested the product, we used it much stronger than recommended, to make sure it wouldn't hurt any parts of the processor and it passed with flying colors. The instructions on the package show you how much powder you will need to use in order to clean your machine. Remember that the packets hold just 4 ounces of powder while the bottle holds 4.7 pounds of powder.

Now that you have the Processor Clean II in the water bath, finish filling the bath up to its normal working level. Remember that a CPE-2 holds about 2½ gallons of water, a CPA-2 or CPP-2, or any of the ATL-2, 2 Plus, or 2000 series all hold about 4½ gallons of water. Again, this doesn't have to be real precise so don't worry too much about the exact volumes. If your processor is real dirty, go ahead and make the solution a little stronger than normal.

With the processor full of Processor Clean II and up to normal circulation level, switch the power on and bring it up to a temperature of 35 to 38^{o} C and let it circulate for as long as possible. (With a CPE-2 or CPE-2 Plus you would do well to put your largest drum on it to create some circulation.) Ideally, it would remain switched on for 6 to 8 hours or more, but often you just can't stick around for that long. If that's the case for you, switch it off and let it stand overnight Switch it

on once again and let it circulate for another hour. Now drain the contents of the processor and rinse it out twice. It would be best to allow the "fresh water" to circulate for about 20 minutes or so to try to rinse out as much of the Processor Clean II as possible. It presents no particular hazard to you or your processor, but with any chemical you really want to flush it out as best you can.

FUJIMOTO CP-31 & CP-51

One of the challenges to finding a good cleaner for Fujimoto processors was a warning from the factory in regard to the care of the rollers. Their recommendation was household dishwashing detergent, but it is inadequate for getting the rollers clean. Processor rollers are rather expensive to replace, averaging $135 each, and we wanted to find a safe cleaner for them. We searched for quite a while before finding a product that was already in use in the graphic arts industry and found to be safe with all known roller materials. That product is Processor Clean II.

If you have a Fujimoto processor the technique is pretty similar to cleaning a JOBO processor and it works with the racks in place, cleaning the rollers at the same time as the pumps and hoses. Drain the processor, remove any filters, and remove the replenisher lines from their source bottles. (You can save all the chemicals, but you may not want to save the working solutions if they have become full of schmutz.) Fill the baths with water and let them circulate for several minutes to eliminate as much residual chemistry as possible. Repeat the rinse step if there is still any color to the rinse water. Then prepare the Processor Clean II solution according to the chart on the package. Let it circulate through the machine for 6 to 8 hours. After 45 minutes or so, your Fujimoto CP-51 or CP-31 will go into standby mode, switching on for a few seconds and off for 15 seconds. That's normal and will still clean the machine well.

Now after 6 hours or more, remove the developer rack and use a paper towel to wipe off any loosened residue on the rollers, changing to a clean section of the towel often. Put the rack back in for another 15 minutes to an hour and repeat the procedure. You can also check the bleach/fix rack, but usually the developer bath is the main culprit. When there is no more schmutz (there's that technical term again) coming off the rollers, the main part of the cleaning is done. Now drain out the Processor Clean II, rinse off the racks and put them back in the processor and fill the baths with water. Flush out the replenisher pumps using the manual pump switch, with the draw tubes placed in containers of water. You want to make sure no Processor Clean II remains in the lines when you are ready for developer or bleach/fix. After 20 minutes or so, drain the water from the baths and refill them with water again. Run it for another 20 minutes and drain out the water. Now the processor is ready for chemicals and regular use again.

NOVA SLOT PROCESSORS

What about Nova processors? They get cleaned differently from Jobo rotary processors and Fujimoto roller transport processors. In the instructions, Nova recommends a teaspoon of chlorine (such as Clorox) in each water bath to prevent the growth of schmutz and gunk. It's safe to do this in the Nova because the heaters are encased in glass, and the plastic is of a different type. All you need to do is flush them out with water every 6 months or so.

Still, how about cleaning out the chemical slots? Here you need a more active cleaner than Processor Clean II. Tetenal makes a product called Color Lab Cleaner, item #109550. Available separately is a sprayer, item #109560, which you purchase "once" and transfer from one bottle of cleaner to the next. With the Nova, you need only spray a little Color Lab Cleaner into each slot, and watch the schmutz just dissolve and slide down. Generally it will look clean like new after a quick spraying. Just rinse the slots with water a few times and you're ready for use again.

When it comes to cleaning out chemical bottles, trays, tanks graduates, plastic sinks speedily and general housekeeping around the darkroom, Tetenal Color Lab Cleaner is the item of choice. Just

spray some onto or into the container, give it a few seconds to work on its own, then brush or sponge the item clean. Chances are, if Color Lab Cleaner won't remove a stain, then it just won't come clean! Avoid spraying onto painted surfaces, since it can damage many of them. Processor Clean II will also work on tanks, drums, bottles and reels. Just use the developer dilution and let it soak overnight or longer.

One last comment about cleaning reels, tanks and drums. DO NOT use the dishwasher - you will melt them!

As with most chemical cleaners, it is advisable to wear gloves while using either of our cleaning products. Some people have sensitive skin and can react to the chemicals quite easily. Others may not have a reaction at all. It's best to take proper precautions and not find out if you are more sensitive than you thought you were. I've worked in the darkroom for about 35 years, mostly without the protection provided by gloves. I didn't immerse my hands in many liquid chemicals, usually using tongs to handle black and white prints. But often enough that now I find my skin reacts quite easily to many of the chemicals, both for cleaning and for processing. Rubber gloves are now close by for times when I am mixing or pouring chemicals.

Well, Summer is over now, and you have probably spent the warm weather shooting lots of new images. It's time to clean up your darkroom equipment so you can have a fresh start for your processing this Fall. Now you know the right way to do it, and that Jobo has the materials to make it easier.

Brighter Paths Brings Us *'PHOTOGRAPHER'*

By Ken Owen

JOBO has just become the distributor for a new product and product line. Brighter Paths is a company from our home state of Michigan which has developed a new computer software for teaching photography. Surprisingly, they gave it the name of *PHOTOGRAPHER*! It's a CD-ROM disk which teaches photography using a computerized camera on-screen.

This is NOT photo manipulation software, like PhotoShop, or the others. It is an educational tool to give aspiring photographers a chance to work with an SLR, a variety of lenses and a variety of films. When you load it into your computer, it takes you to the races! The first scenario is a race scene with formula race cars zooming past you. By using the viewfinder on a small screen, you can aim for shots of the cars going by, or some individuals standing along the roadside. There is a variety of lenses to choose from, including both zooms and fixed focal lengths. You can even change film speeds or select from slides, color negative film, or black and white negative film. And just to provide atmosphere, there is a sound track accompanying the images. In this scenario you hear the cars as they go by.

There are about 20 different scenarios from which to choose. They include harbor scenes, a wedding reception portrait, wildlife photography, and many more. There is also a choice between two cameras. Sorry, they are not brand-name and model-specific. One is a top-of-the-line auto-everything SLR camera, and the other is a basic manual SLR with manual exposure etc.

After you take pictures, you look at the results, and a basic critique will pop up with suggestions on how to improve your photos. A typical example will be, "The subject was blurred. Action of this type requires a shutter speed of 1/250th second or faster to freeze the action." Or, "With a lens of this focal length you need a shutter speed of 1/90th second or faster to avoid hand-held blurring."

So far I've only scratched the surface of this program. There is an enormous amount of information included in this software. *PHOTOGRAPHER* even holds workshops! When you select a new scene, you can click on workshop and a message screen will pop up to explain certain characteristics of the scene you have selected. It even gives out assignments you can try to build your skills on the subject matter at hand. There is also a photographic encyclopedia included.

I have been taking photos for 35 years now, so a lot of this photo information is not new to me. When I first began using *PHOTOGRAPHER* I found it fun, but I quickly tired of it, until I found the workshops. That made all the difference! Now I could set some goals, try some techniques and see how well I could do with the "newfangled" auto everything SLR. (I still use a manual SLR in the real world!) Each time I tried, it took me a few minutes to try a technique, make a few mistakes and try again. But I was able to see the results right away, without spending any money on film or processing.

If you'd like to sample *PHOTOGRAPHER*, you can download a demo version from the internet site of Brighter Paths, just go to **www.brighterpaths.com**. The demo has only one scene, and you have a 6 exposure "roll of film" to experiment with instead of 36 exposures, but you are able to get a good feel for how the program works. Think of it as a photo school that never closes, has a locker full of equipment to try, and provides you with an unlimited supply of film to shoot.

PHOTOGRAPHER should be arriving at your favorite camera store about the time you are reading this article. It has a suggested list price of $39.95 and requires a 386 PC or better, CD-ROM drive, 8MB of RAM, and SVGA monitor. It is compatible with Windows 3.1 or Windows 95. A sound card and printer are optional, but the sound card enhances the experience while taking pictures.

If you just bought a new SLR, or you think you've been getting a little out of practice, or if you have a friend who is starting to become interested in 35mm photography, *PHOTOGRAPHER* from Brighter Paths and JOBO, may be just the tool to get you going.