TIME TESTED TECHNIQUES CAN GET THOSE IMPOSSIBLE PRINTS

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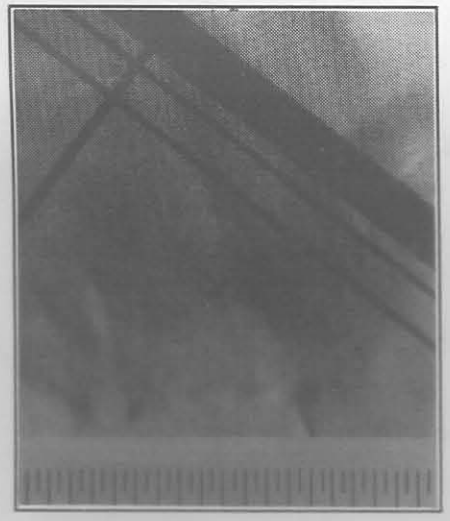
One photographic technique which can greatly improve developed fingerprint photographs, but is unfortunately rarely used, is contrast manipulation using colored filters.

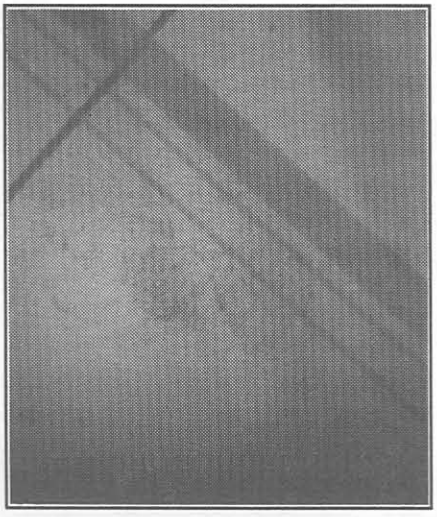
With the almost exclusive use of color film these days, this technique can sometimes be overlooked. But black and white films, used in conjunction with colored filters, can give a better image of your developed latents by increasing the contrast of the ridge detail with the background. The basic filters can be bought as either glass filters that screw onto the front of your camera lens, or as thin acetate



Blood print initially treated with TMB.

sheets (Kodak Wratten gels) that fit in a holder mounted to your lens. The glass filters are more durable, the gels are less expensive. The most versatile black and white films to use are the panchromatic type, such as Kodak Tri-x or T-max.

Selection of a color filter depends on the color of the item being photographed, the ultimate goal being to make it more visible by making the print or the background lighter or darker. Table 1 lists the most common color filters and which filter to use depending on the desired effect. Some cases I have used filtration on include:



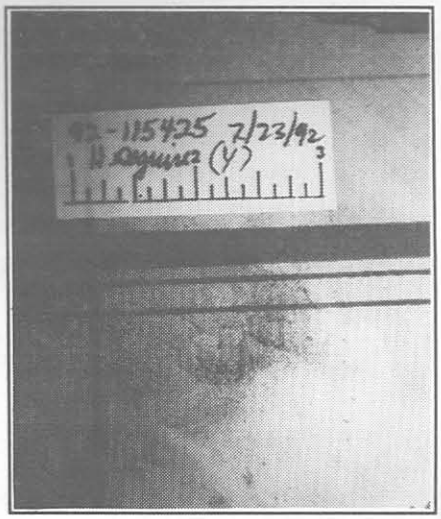
TMB treated print viewed under Luma-Lite.

1. A homicide involving a sexual battery,where the perpetrator left a palm print in blood on the victims buttock. The prints were too faint by themselves, but treatment with Tetramethylbenzidine enhanced the ridges somewhat. Using a #25 red filter and Tri-x film, I was able to darken the green TMB ridges, while lightening the red tones of the caucasian skin, which gave an identifiable print.

2. A homicide involving a victim who was beaten to death on his bed. The perpetrator transferred a hand print in blood onto one of the bed sheets. The print was developed with TMB, but the background color of the sheet, which was light blue, obscured the ridge detail. A blue filter was used to lighten the color of the sheet, which brought out the palm ridges. The suspect in the case was convicted on the weight of the fingerprint evidence.

3. When photographing a visible print in grease on a light blue air filter housing from a stolen car, I used a #47 blue filter to lighten the color of the housing, allowing the ridge detail to stand out more.

The mechanics of contrast filtration is simple: a barrier filter is used to either transmit the desired color of light, or absorb an unwanted color. When a filter transmits a particular color of light, it will appear lighter on the final black and white print. When the same filter absorbs a particular color of light, it will appear darker on the final black and white print. The basic rule to remember is that a colored filter will transmit its own color, and absorb its compliment. To understand this better, look at the color wheel in illustration 1. White light is composed of three primary colors: Red, Blue and Green. Three more colors are created when the first three are combined; Red and Green mixed make Yellow, Blue and Green mixed results in Cyan, and Magenta is the



Black and white photo of print using blue filter.

SELECTING CONTRAST FILTERS

COLOR OF FILTER	ABSORBS (DARKENS)	TRANSMITS (LIGHTENS)	FILTER TO USE
RED	CYAN	RED	#25, #29
BLUE	YELLOW	BLUE	#47, 47B
GREEN	MAGENTA	GREEN	#11, #58
YELLOW	BLUE	YELLOW	#8, 15
CYAN	RED	CYAN	CC50C
MAGENTA	GREEN	MAGENTA	CC50M

result of mixing Blue and Red. These six colors, when combined in various amounts, make up all the colors in the world that you and I see. As illustrated on the color wheel, each of these colors has it's compliment, which is directly across from it on the wheel. So, a Red filter will transmit red light, and absorb cyan light. And since cyan is made up of equal parts of blue and green, those two colors will also be absorbed, but to a lesser degree. The result is that anything reflecting Red light, will appear lighter on the finished photo, while anything reflecting cyan will appear darker.

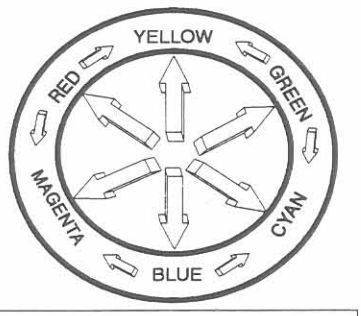
So, there you are with a developed print, and you want to try this technique to get a good photograph. Easy; just look at the color of the print, or background and decide what you need to change to accomplish this. A green filter will darken your magenta colored Ninhydrin latents on white paper. If those same prints are on a manila envelope, you may try a yellow filter to lighten the yellow tone of the envelope. Caucasian skin contains red, so a red filter with lighten the flesh tones. A blue filter with lighten that blue sofa, and allow the blood spots on it to stand out more.

I have used this technique both in the field and in the lab with equal success. The only two drawbacks with filtration are;

1. You cannot see the contrast changes in the view finder, only on the developed film.

2. The filters will cut down on the amount of light hitting the film, so exposure times will be longer. A built in light meter will not always reflect the change, so it is best to have a publication to tell you how much to alter your exposure. These are readily available from different authors.

Neither of these presents a real problem, and the improved quality latents is well worth the extra time involved in the technique.



THE COLOR WHEEL

THE CASE OF THE QUIVERING LATENT PRINT

Charles Parker & Ed McKinstry, Corpus Christi Police Department

In early 1992, upon responding to a burglary of a local school, the crime scene technician discovered that there was evidence that the suspect(s) had opened a refrigerator, possibly looking for a snack to eat during their foray. In the refrigerator was a recently made pan of orange Jell-O. The suspect(s) had touched the Jell-O to determine if it was hard enough to eat, and then scooped out sections to eat. The crime scene technician could see by side lighting the Jell-O, several latent prints on the surface. He collected the pan of Jell-O and secured it in the evidence vault refrigerator.

The next step was to determine a way to recover the latent prints on the surface of the Jell-O. First the latent prints were photographed but the orange Jell-O surface was difficult to photograph with our MP-4. It was then decided to buy and make some Jell-O to experiment with in finding the best way to left the latent prints from the surface.

After buying and making the Jell-O latent prints were placed on the test material and several experiments were made to determine the best way to photograph the latents. The Jell-O was sliced thin and photographed with poor results, then a contrasting background was placed under the sliced Jell-O, photographed, but again the results were very poor. Different lighting techniques were also used but each met with poor results.

The next experiment was to try different techniques for enhancing the latent print on the test material and to try for a lift. The test prints were then processed with the following techniques with the results listed with each technique.

Technique	Results
Magna-Powder	Poor
Super-Glue and then Magna Powder	Fair
Super-Glue and then photography	Poor
Chrome Lift and then Magna-Powder	Poor

Finally a sheet of 4x5 film was moistened until the gelatin surface was soft. It was then placed over the latent print for about five to ten seconds. The film was then allowed to dry, and then placed in a super-glue tank for forty-five minutes. The test print was successfully transferred to the film, stabilized with the super-glue and then finally processed with magna-powder. The results of this technique were very successful. The acid test was next and to try this technique with existing evidence. I believe the results were very good.

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