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Polaroid Type 667 and an alternative Sabattier technique

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I am a frequent user of Polaroid materials, especially as the material of choice when doing scientific, technical, high speed and peripheral photography demonstrations. I am a particularly heavy user of Type 667 film because it's very high speed allows me to conduct these demonstrations using little additional light or to use small apertures when working with high speed, short exposure, but low total energy, electronic flashes.

One of the byproducts of this film is a paper negative that I have traditionally simply called "scrap" and thrown away. I had noticed in the past that on occasion the negative images left on these paper negatives had a very interesting visual quality to them and had often wondered if these negative "remains" could be used further to possibly generate additional copies of the scene depicted in the photograph.

As others have found out in the past, Polaroid materials, especially Type 665 or 55 (positive/negative material) exhibit significant amounts of the Sabattier effect and the application of this film for aesthetic purposes has been widespread. But what is not as widely known or practiced is the use of 667 or 57 (3200 speed) black and white film for similar purposes. It is, after all, designed to provide high quality black and white prints and not negatives that can be place in an enlarger and printed by traditional means.

It is obvious that there are two characteristics of the 667 paper negative that make it unsuitable for further use. The first is that the negative is opaque and the second is that it exhibits very low contrast. On close examination it also becomes apparent that the negatives sometimes show a reversal of tones in shadow areas. This is associated with the Sabattier or "solarization" effect and it is indeed the appearance of this artifact that makes the paper negatives so visually compelling. This effect is principally visible with the 57 or 667 film because this film does not have much anti-halation protection such as is built into just about every other Polaroid product. With this film speed is of paramount importance and anything that would hinder the effect of exposure on the emulsion is absent or minimized if present.

It should be noted that in order for the Sabattier effect to become visible it is important to underexpose the film a bit and also to underdevelop it somewhat. Subjects that have large areas of darkness or low exposure next to those that are white or which produce lots of contrast are to be recommended. This reversal can actually be seen taking place in the Type 667 material if one quickly separates the positive from the negative in room light.
and instead of looking at the positive print one immediately concentrates one's attention on the paper negative.

Solarization occurs because when the film is peeled apart those areas of the scene that did not receive much exposure are immersed in highly active developer and when exposed to bright light now become exposed and highly developable. In fact, the density formed in these areas could be higher than the density of areas that in the original scene were identified with highlights and thus one may see actually a total inversion of tones. Note that if the peel apart process takes place in the dark and the negative allowed to dry there will be no reversal of tones, no solarization. However the paper negative then can be used to simply generate reproductions that have a similar look to the original paper positive print that is delivered by the material normally.

In addition to the Sabattier effect the presence of edge effects that make their appearance as lines of density along edges between light and dark areas is also often apparent and adds visual impact to the final images. These lines, called Mackie lines, typically show up along the boundaries between areas of reversed and normally reproduced tonality.

It was seeing the Sabattier effect and Mackie lines materialize before my eyes that drove me to try to develop a way of saving and printing what I could see in my mind would be the byproduct of such a process. I wanted prints. To make prints I needed a negative. Ultimately I realized that while there are "analog" ways of transforming the paper negative into a transparent, film, positive a much simpler solution is made possible by the digital "revolution".

The shortcomings of the paper negative, opacity and low contrast, can be easily dealt with by transforming the original negative into digital data by scanning it in a flatbed scanner. This essentially converts the paper negative into an electronic, transparent (so to speak) copy negative. Then, once digitized, the levels of the image are adjusted to cover a full range of tones associated with a normal image and then the tonal relationships are inverted to arrive at a final positive image file that can be printed at any suitable size by standard digital reproduction systems.

Type 57 or 667 film emulsion is somewhat fragile and needs to be handled with care at least until after the delicate image has been transformed into a digital form. After exposure it can be allowed to dry or can be scanned wet. If scanned wet then it might adhere to the scanner's glass platen and possibly suffer irreparable damage as it is peeled off the glass later.

If Type 667 negatives are not copied immediately but left to dry they can still be copied quite successfully even if they look unsalvageable due to having developed a crystalline crust on their surface. Simply immerse the paper negatives in cold water and agitate gently. If you place a freshly exposed negative in water, or if you leave the negative in the water too long, the image may wash off the support completely. Immersing the dried negative in water will swell up the emulsion again and it will acquire a high gloss surface that will aid in enhancing the little density range that the negative has. The negative can
be scanned wet or it can again be left to dry. The wet negative emulsion is very susceptible to abrasion. During the drying process the print may acquire an irregular shape or curl making subsequent copying somewhat more difficult but not impossible. However, sometimes it is this very characteristic that gives a final image that special extra quality that makes it stand out from the rest.

Along with a potential for reversal of tone in the shadow areas, this process also introduces a significant amount of grain lending a pronounced textural quality to the images. The grain pattern is very tight and sharp. This often lends a pronounced tactile quality to the images quite reminiscent of high granularity images usually associated with fast, coarse grained, black and white emulsions from the past.

In addition, the inclusion of the border area surrounding the image in the final print often also adds to the visual quality of the final presentation. I have been asked many times what digital filter was used to add it to the image. The answer is that it is already there. It is not an electronic artifact. Each border is unique and carries its own "signature".

The advent of digital manipulation of image data now makes possible the exploitation of the Sabattier effect in a Polaroid material previously assumed to not being suitable for creative applications. It is hard to predict exactly what a final photograph will look like as you examine the original negative but I am confident that experimenting with this technique will create a renewed sense of discovery and enthusiasm related to the unusual visual statements made possible by this novel process.

If you have questions or would like to discuss any aspect of this creative enhancement process write to me at the Rochester Institute of Technology, 70 Lomb Memorial Dr., Rochester, NY 14623 or send me e-mail at: andpph@rit.edu