

Photographic print toning

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In photography, **toning** is a method of changing the color of black-and-white photographs. In analog photography, toning is a chemical process carried out on silver-based photographic prints. This darkroom process can not be done with a color photograph and although the black-and-white photograph is now toned, it is still considered a black and white photograph as it is monochromatic. The effects of these processes can be emulated with software in digital photography.

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History

Beginning in the 1880s, sepia was produced by adding a pigment, called sepia, made from the *Sepia officinalis* cuttlefish found in the English channel,^[1] to the positive print of a photograph.

Chemical toning



A sepia-toned photograph taken in England in 1895



A digitally sepia-toned image taken in 2007

Most toners work by replacing the metallic silver in the emulsion with a silver compound, such as silver sulfide (Ag_2S) in the case of sepia toning. The compound may be more stable than metallic silver and may also have a different color or tone. Different toning processes give different colors to the final print. In some cases, the printer may choose to tone some parts of a print more than others.^[2]

Toner also can increase the range of visible shades visible in a print without reducing the contrast. Selenium toning is especially effective in this regard. Some toning processes can improve the chemical stability of the print, increasing its potential longevity. Other toning processes, such as iron and copper toners, can make the print less stable. Many chemical toners are highly toxic. It is extremely important that the chemicals be used in a well ventilated area. Rubber gloves and face protection should be worn when handling them. Some toners contain chemicals that are carcinogenic.

Selenium toning

Selenium toning is a popular archival toning process, converting metallic silver to silver selenide. In a diluted toning solution, selenium toning gives a red-brown tone, while a strong solution gives a purple-brown tone. The change in color depends upon the chemical make-up of the photographic emulsion being toned. Chloro-bromide papers change dramatically, whilst pure bromide papers change little. Fibre-based papers are more responsive to selenium toning.^[3]

Selenium toning may not produce prints quite as stable as sepia or gold toning. Recently, doubts have surfaced as to the effectiveness of selenium toner in ensuring print longevity.^[4]

1. In most applications, selenium toning was not used for its sepia or red tone by fine art photographers. In fact it was used for the opposite of those effects
2. Agfa Portriga Rapid and Agfa Record Rapid (the highest silver content black and white photographic paper made for the mass market) had a brownish green tone. Depending on strength of selenium tone mixed to water, a three to four minutes tray bath, with continuous circulation, removed the brownish green tone and provided a deep rich black.
3. Higher concentrations of selenium toning and longer tray baths produced the red to desired effect. 99% of vintage prints in museums, sold at galleries and auction that are selenium toned, are toned, to remove the brownish green tone and provided a deep rich black,
4. Most reported tests over the years in tech photography publications had selenium toned prints at twice the longevity of untuned prints.

Sepia toning

See also: Sepia (color)



Aerial view of downtown Houston
circa 1970

Sepia toning is a specialized treatment to give a black-and-white photographic print a warmer tone and to enhance its archival qualities. Chemicals are used to convert the metallic silver in the print to a sulfide compound, which is much more resistant to the effects of environmental pollutants such as atmospheric sulfur compounds. Silver sulfide is at least 50% more stable than silver.^[5]

There are three types of sepia toner in modern use;

1. Sodium sulfide toners - the traditional 'rotten egg' toner;
2. Thiourea (or 'thiocarbamide') toners - these are odorless and the tone can be varied according to the chemical mixture;
3. Polysulfide or 'direct' toners - these do not require a bleaching stage.

Except for polysulfide toners, sepia toning is done in three stages. First the print is soaked in a potassium ferricyanide bleach to re-convert the metallic silver to silver halide. The print is washed to remove excess potassium ferricyanide then immersed into a bath of toner, which converts the silver halides to silver sulfide.

Incomplete bleaching creates a multi-toned image with sepia highlights and gray mid-tones and shadows. This is called *split toning*. The untuned silver in the print can be treated with a different toner, such as gold or selenium.^[6]

Fred Judge FRPS made extensive use of sepia toning for postcards produced by the British picture postcards manufacturer Judges Postcards.

Metal replacement toning

Metal replacement toners replace the metallic silver, through a series of chemical reactions, with a ferrocyanide salt of a transition metal. Some metals, such as platinum or gold can protect the image. Others, such as iron (*blue* toner) or copper (*red* toner) may reduce the lifetime of the image.^[citation needed]

Metal replacement toning with gold alone results in a blue-black tone. It is often combined with a sepia toner to produce a more attractive orange-red tone. The archival Gold Protective Solution (GP-1) formula uses a 1% gold chloride stock solution with sodium or potassium thiocyanate.^[7] It is sometimes used to split tone photographs previously toned in selenium for artistic purposes.^[8]

Dye toning

Dye toners replace the metallic silver with a dye. The image will have a reduced lifetime compared with an ordinary silver print.^[citation needed]

Digital toning

Toning can be simulated digitally, either in-camera or in post-processing. The in-camera effect, as well as beginner tutorials given for software like Photoshop or GIMP, use a simple tint. More sophisticated software tends to implement sepia tones using the duotone feature. Simpler photo-editing software usually has an option to sepia-tone an image in one step.

Examples

The examples below show a digital color photograph, a black-and-white version and a sepia-toned version.



Color image

Grayscale image

Sepia-toned image

The following are examples of the three types using film:



Color photograph

Black-and-white
photograph

Sepia toning

See also

- Color grading
- Cyanotype
- Film tinting
- Grisaille (painting)
- List of software palettes — Color gradient palettes section
- Monochrome
- Platinotype
- Selective color

References

- ↑ Sepia officinalis, the Common Cuttlefish, thecephalopodpage.org (<http://www.thecephalopodpage.org/Soffic.php>)
- ↑ Peres, Michael R. *Focal encyclopedia of photography: digital imaging, theory and applications* ... (http://books.google.co.in/books?id=VYyldcYfq3MC&pg=PA686&lpg=PA686&dq=toning+sulfide&source=bl&ots=sZm7EzSi2Y&sig=BUYtYHo8C2EigqwENDMxv33euOM&hl=en&ei=AkKZTcXbKMLqrAf2lemBDA&sa=X&oi=book_result&ct=result&resnum=10&ved=0CGMQ6AEwCQ#v=onepage&q=toning%20sulfide&f=false). p. Page 686.
- ↑ "Selenium Toning" (<http://www.ilfordphoto.com/aboutus/page.asp?n=135>). Ilford Photo. Retrieved 2007-05-11.
- ↑ "Silverprint News May 07 - Not Fade Away..." (http://www.silverprint.co.uk/more_archive.asp). Silverprint Ltd. May 2007. Retrieved 18 March 2010.
- ↑ graphic-design.com (http://www.graphic-design.com/Photoshop/Seminars/sepia_sepiatone/index.html)
- ↑ "Photographers' Resources: Toning" (<http://www.xeromag.com/fvresrc.html#Anchor3>). Xero magazine. Retrieved 2007-05-11.
- ↑ Adams, Ansel: *The Print*, page 94. Little, Brown, and Company, 1995.
- ↑ Bailey, Jonathan: "Split-Toning: Processes and Procedures," *Camera Arts*, February/March 2001.

External links

- Sepia Toner (http://download.cnet.com/Sepia-Toner/3000-2192_4-75000067.html) Application to convert digital images
- Ilford: Toning prints (<http://www.ilfordphoto.com/applications/page.asp?n=97>)
- Sepia toning (<http://www.ephotozine.com/techniques/viewtechnique.cfm?recid=105>) in a developing tray.
- Sepia Effect (<http://easyphotoeffects.com/tutorial-vintage-sepia-effect.php>) Vintage sepia effect in Easy Photo Effects
- Sepia toning in Adobe Photoshop (<http://landscapephoto.us/Articles/DigitalBlackAndWhite.html#Sepia>)
- Sepia toning (<http://www.gimpguru.org/Tutorials/SepiaToning/>) in the GIMP
- Sepia toning in Java (http://groups.google.com/group/comp.lang.java.programmer/browse_thread/thread/9d20a72c40b119d0/18f12770ec6d9dd6?lnk=raot)

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Categories: Photographic techniques

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