



Camera Clips

December 2010

From the Editor

James Allan

Welcome to the pen-ultimate newsletter for this year. We have had the judging and are now awaiting the results of the annual competition. I await with anticipation to hear which images have won each of the awards. After the Annual exhibition I will be putting out a small supplement with the program for next year along with the winners. Congratulations to all who have entered for creating such a high standard of competition. Check out the “up coming events” section (right) for a preview of what’s on during the first few months of next year.

Chris Schultz has been keeping us up to date on events within the club on the website. <http://blackwoodphotoclub.org/> It is worth reading about the October expedition to Second Valley, and the single use Camera competition. Also we have an activity for the summer break; The “31-day challenge”, which is planned for the month of December. Members are invited to submit an entry a day to the club Flickr site throughout the whole month. <http://www.flickr.com/groups/blackwoodphoto/pool/>.

Julie and Ray Goulter are now in possession of the Blackwood P.C. 2011 calendar. This excellent edition, features over 20 club members and includes many award winning images from the club competitions. We would encourage you to take 5 to 10 calendars on commission to sell for the club. (In the same way as the girl guides sell biscuits). The price will be \$15.00 as it was last year. Speak to Julie or Jenny at our next club meeting.

Ray Goulter and myself had an interesting time at the Onkaparinga community Centre during October where we had the pleasure to meet and teach 10 budding photographers at a summer TAFE course. We even had some entries from participants in our October competition, two of which scored an excellent score of 8. It is hoped that the TAFE course may blend with some of the club workshops and other activities to further develop skills amongst participants. The feedback was very positive and we have been invited to run further sessions.

In this edition of the newsletter we have an article on Man Ray. I was introduced to this photographer by Kathy Speck, judge for our “in the style” competition. I was reintroduced to his work during a discussion with Chris Schultz. He (Man Ray) was a great innovator and developed many new approaches to photography including the “Rayogram” and “Solarisation”. I have also included some tips on how to solarise your own images using photoshop. We also have a selection of entries to our “Street Life” competition. I must say that I particularly admire the work that Ashley Hoff has presented and would recommend you to view some of his images on the flickr website. Finally Chris has put together some of his ideas about whether to use RAW or jpg files to create and or store your images.

Whether to use RAW or .jpg -

Chris Schultz

Invariably, the question arises in digital photography discussions – **should I shoot in RAW rather than JPEG?**

Over the next couple of issues of Camera Clips we will explore this question.

To start to make sense of it the question, we first need to understand some of the physics of colour perception and digital image storage and display.

Part 1 – Counting the light

Colour perception

As we all know, mixing different colours produces new colours. Mixing red, blue and green light will produce all the colours that we can perceive and dates back to the work of James Clerk Maxwell in the 1850s. Maxwell showed that the human eye has cells sensitive to each of these colours and the mix produces the range of colours we see, with more green sensitive cells in the eye compared to red and blue – in the ratio 2:1:1.

Maxwell postulated that if we filter a colour image with each of these colours and then mix the individually filtered single colour images together (in the colour band) we will get the original full colour image. Thomas Sutton confirmed this by producing the first colour photograph in 1861. Unfortunately the method was ignored until the 1890’s – although others had similar results.

Effectively, what Maxwell showed was that the 3 filtered images represent the **quantity of light** in each colour channel distributed over the image – a map of colour intensity.

Colour can be displayed either as an

1. **Additive** process as Maxwell used – where light is emitted such as Continued page 2

Contacting a member from the club; This month Mark & Jenny Pedlar : mnpjpedlar@biqpond.com

Upcoming Events

November 18—Annual Exhibition—Display & Awards

December 4—Saturday—End of year Barbeque—at Ray & Jenny Goulter's new house 5 Penola Road Aldgate

January 20—Purely slides—bring along your slides for general viewing

February 3—Competition—Postcards—an image that would make a good postcard

February 17—Dinner and sunset at Henley Beach

March 3—Competition—Food Glorious Food

March 17—Workshop—Gimp—the open access image manipulation software (Hands on)

March 31—Competition—Corrugations

April 14—Workshop—explore your camera—bring your camera along

April 28—Competition—Nature—the usual rules apply

May 12—Workshop—Tabletop / still life and lighting—bring your camera

May 26—Competition—Yellow

“I do not photograph nature. I photograph my visions.” Man Ray



“Drinks stop” by Ashley Hoff from his Flickr group

with computer screens or through slides.

2. Subtractive colour absorbs the colour in the selected band and combines to produce the colour we perceive. This is the common method used in print and natural objects – the object *absorbs* a range of frequencies and what we see is what is reflected.

Capturing the light

Colour film emulsions were developed from this knowledge and various methods were employed, including sandwiches of different layers sensitive to each colour (eg C-41 negative film), mixing chemicals sensitive to different light frequencies and multiple exposures. The most successful method was Kodachrome which appeared in 1935 and used different layers but did not have a dye coupler. In modern terms, Kodachrome was equivalent to a 20 megapixel sensor.

Today, digital photography uses an electronic sensor that captures light using light filtration in the same way as Maxwell had described. If we look at the main type of sensor in common use is the Bayer pattern shown at right (developed by Bryce Bayer of Kodak in 1976). You can see there are red, blue and green filter elements as Maxwell suggested. There is also a sensor below to store amount of light from each filter, and they have the same colour ratio as our eye sensitivity – 50% green : 25% red : 25% blue. The result is a map of each colours intensity in an image – a series of numbers in a 2 dimensional matrix. We refer to each element in this matrix as a pixel. However, the individual colour pixel alone can't give the colour at that location – that needs some extra work to combine adjacent pixels which I won't describe here.

The next important definition to consider is the size of the number in each element of the matrix. Think of each pixel as a bucket that fills with particle of light (photons). But being a bucket, it can only hold a finite number of photons. When the bucket is full, we lose any additional photons. The number of photons in the bucket gives the intensity of that pixel. The more photons, the more intense the pixel – like turning up a dimmer switch.

Each pixel in the sensor counts the number of photons striking the sensor at that point using binary numbers (digital electronics uses either on or off pulses – a 1 or 0). The maximum each pixel can store depends on the size of the counter. The size is expressed as powers of 2 due to the binary nature of the counter – each power is the number of *binary bits* that describe the number. So $2^0 = 1$, $2^1 = 2$, $2^2 = 4$, $2^3 = 8$, $2^4 = 16$ etc. We can add these numbers as well – $2^0 + 2^3 = 9$. The individual pixels on most sensors in a digital camera can store 12 bits or 2^{12} or 4096 photons hits. That's 4096 levels of light intensity or shades for **each** colour. But we have 3 colours for each pixel – so its $4096 \times 4096 \times 4096$ or 68,719,476,736 shades of colour!

Finally, digital sensors need to have small enough pixels so that we see a true spatial representation of the subject. The more pixels, the finer the resolution. The down side of this is that as the pixels get smaller, the sensitivity is reduced a pixel cannot penetrate deep into a sensor so a pixel with more than 12 bits may not help.

Displaying the captured light

So now we have a way of building that colour intensity map electronically. Our Bayer pattern sensor has counted how many photons hit each pixel to give a colour map that represents our image.

This unmodified matrix of numbers obtained from the sensor is what we call a RAW image – a bit like an undeveloped photographic film. It contains all of the data obtained by the sensor and must be processed in some way to view the image – not unlike developing a film. Because the matrix is unmodified, and because it stores so much information in a large sensor, RAW files can be very large. A 10 megapixel camera produces a 12Mbyte image, and the latest 16 megapixel dSLRs produce 28Mbyte images. In addition to this size problem, the RAW format from the sensor varies with the camera manufacturer – so specialised programs are needed from each manufacturer, and some manufacturers change their own RAW format every few years.

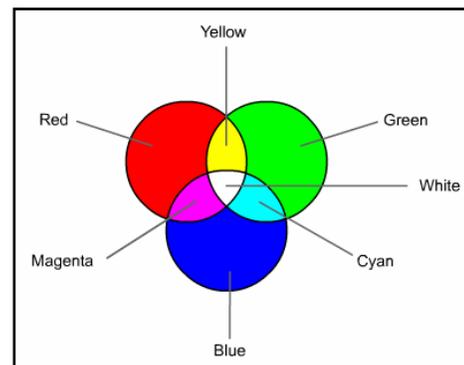
However, not all photographers want or need to process the image (or store large files) – again like film where we send the film to a processing lab to produce prints. The camera manufacturers have built in a processing. For this reason, the camera manufacturers have processing built into the camera. All modern cameras process the RAW capture into a JPEG image, which is widely supported by computers and printers.

Where did the JPEG come from? In the 1980s the Joint Photographic Expert Group of the International Standards Organisation began work on a method to display images on computer screens, and published its first standard in 1992. The JPEG image was born. This standard uses 8 bits for each colour ($2^8 = 256$ photons) or 24 bits for full colour (or $2^{24} = 16,777,216$ shades of colour) – which is more than enough if we are displaying an image on a computer screen. By reducing the number of bits, JPEG images are smaller than RAW images.

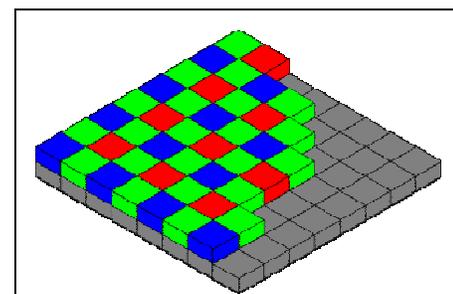
In addition to this, because the JPEG standard was designed for computers (which in the 1980s had low storage and speed), a compression of the image was required. The JPEG defined a method to compress the image for easy transmission which could reduce the size of the image but with the downside that high levels of compression would result in loss of information. So now, instead of a 28Mbyte image, our 10 megapixel camera will produce 4Mbyte images – a huge saving in storage. By increasing compression, this can drop to 2Mbytes.

Next issue we will discuss the pros and cons of each JPEG and RAW and when to use them.

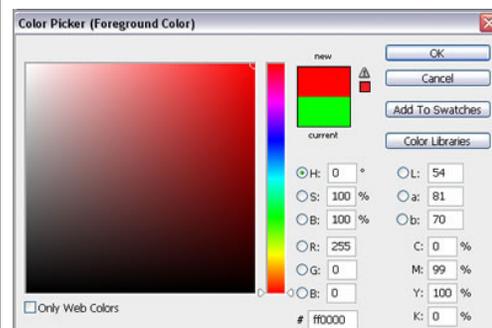
Continued next week



James Clerk Maxwell described how all colours could be created by mixing red green and blue light. This is because our eye has only red green and blue colour receptors.



Sensor pattern designed by Bruce Bayer from Kodak in 1976



The colour picker in windows can describe colour in 4 different systems. RGB— reflects the Red Green Blue system as described by Maxwell. The other systems represent colour in ways that may be beneficial for other purposes, like printing (CMY) or colour manipulation (HSB).



Above: Eric Budworth—The waiting Game

Ashley Hoff—Skater Boys
Chris Schultz—I think I saw Skywalker in Borders

Right: Theo Prucha—A Sad Story

Below: Alex Zapcev—Busker
Adrian Hill—Catch us if you can



Tips in Street Photography from the online “Photography school”

- **Less is More** – don’t take too much equipment and travel light.
- **Off the Beaten Track** – don’t just go to all the touristy spots – try to get ‘behind the scenes’ and ‘real life’ scenes. Cafes, Malls, Zoos, fairs, shows, parks, sporting events etc all can be worth trying.
- **Stolen Moments** – anticipate moments between people before they happen.
- **In the Background** – Billboards, signs, graffiti and other visual elements can really make a statement in a shot.
- **What a Performance** – street performers, parades and other street entertainment can be great subject matter on the street.
- **New Angle** – find ways to get up high or down low – these new perspectives on subjects that are familiar can lead to eye catching shots. Dare to go diagonal
- **Fortune Favors the Brave** – sometimes the best thing you can do is to get close to your subject – this can be a little confronting but will produce powerful images
- **Fun in the Sun** – don’t be afraid to shoot into the sun.
- **Revise and Revisit** – if you see a scene with potential don’t be afraid to keep coming back to it until you get the shot.
- **Frozen Motion** – make sure your shutter speed is fast enough. 1/125 or more with an ISO of 400 is recommended. It is also fun to experiment with slower shutter speeds and capture the movement as a blur.
- **Street Wallpaper** – blend in with the scene – shoot unobtrusively and unnoticed. Telephoto helps
- **Life Through a Lens** – try a wide angle lens. This will exaggerate perspective and provide a more forgiving depth of field’ – (even try a fisheye).
- **Be Prepared** – people can be suspicious. Shoot in places where people expect to see photographers. Smile, be polite and be willing to delete images if people protest.
- **Location, Location, Location** – really this is what it is all about. Choose places where people interact with one another and times when they are present.

Read more: <http://www.digital-photography-school.com/20-quick-street-photography-tips#ixzz13vO4kRQ1>

This is a challenge. I got the idea from Flickr some time ago. There is a group on Flickr called 365 Days. Members of this group pledge to take a self portrait every day for 365 days. You can view the results by searching under the tag “365 days”.

I was wondering whether we could run a 31 day challenge through the club Flickr group. December is a month where we have no meetings, and no competitions. Here is the idea. Take a photo every day for 31 days and post it on the club site with the tag “31 days”. The photo need not be a self portrait. I expect that the pictures will create a journal of life over the month of December. There are no topics and no themes.

I proposed the idea to Chris Schultz, Ashley Hoff, Ray Goulter and Matt Carr who have all agreed (along with me) to take up the challenge. Keep an eye on the club site and check out the results.

Alternatively why not take up the challenge for yourself. Refer to the last edition of Camera Clips for details on how to set up a Flickr account and how to post images on the club site. Alternatively if you are stuck give me or Ashley a call and we will help you out.

I look forward to seeing how this pans out. If it is reasonably successful we may get Chris to put together a slide show of the highlights to show in the new year at one of the club meetings.

Monster Bug Wars—Malcolm Ludgate**James Allan**

I had an e-mail recently from Les Ludgate. Les joined the club last year but has not been able to attend frequently. Les has extensive experience as a commercial photographer. I had an amusing talk with him about photographing horses and what he was expected to deliver when he did a “horse shoot”. He had a humorous way of recounting the expectations of his boss and the clients that they dealt with.

Les has kept in touch and has kept me informed of his brother Malcolm who is a wildlife photographer. Malcolm’s documentaries often screen on the discovery channel and recently had a documentary about sea lions, “The Oceans Supermum” screen on ABC 1 earlier this month.

Malcolm is currently working on another series, “Monster Bug Wars” where insects are pitted against other insects in monster insect-battles. It has received favorable reviews on the internet. I wondered about the romantic lifestyle, traveling to exotic locations and getting to know the wildlife and then filming those chance encounters where magical things happen in front of your eyes.

Apparently this romantic notion of nature photography is all wrong. Les has just flicked to me pictures of Malcolm at work on the current series. It all takes place in a giant warehouse. The entire microcosm is created in a studio and the bugs are filmed with studio lighting! Amazing. In fact I am fascinated by the preparation and planning that goes into each shoot. I guess it is all forgivable given the stunning results that can be achieved.

So keep an eye out when you are watching nature documentaries and see if you can pick the techniques being used in the filming. Perhaps you might spot the figurative “Volkswagen beetle” in the background that gives the game away*. Also keep an eye out for Malcolm Ludgate, a promising Australian nature photographer.

*Apparently there is an inconspicuous Volkswagen in one of the scenes from “Lord of the Rings”





Man Ray

(August 27, 1890 – November 18, 1976), born **Emmanuel Radnitzky**, was an American artist who spent most of his career in Paris, France. (top left a self portrait with half a beard and mustache)



Perhaps best described simply as a modernist, he was a significant contributor to both the Dada and Surrealist movements. He was a contemporary of Salvador Dali.



While appreciation for Man Ray's work was slow in coming during his lifetime, he was recognized for his fashion and portrait photography (bottom right). His reputation has grown steadily in the decades since.

In 1999, ARTnews magazine named him one of the 25 most influential artists of the 20th century, citing his groundbreaking photography as well as "his explorations of film, painting, sculpture, collage, assemblage" Some of his art could be regarded as prototypes of what has now become known as performance art and conceptual art

In Photography he often used solarisation to achieve a drawing like quality to many of his portraits (middle left). Solarization had previously been a problem of overexposed film where very bright objects (like the sun) become dark on the print. ManRay experimented with the effect, exposing film to light midway through development. Not only did this reverse the exposure of some areas of the print, but also created a line at borders of sharp contrast.



Another of his important works is the *Violon d'Ingres*, (top right) a stunning photograph of Kiki de Montparnasse, styled after the painter/musician, Ingres. (note: It is worth also looking on the net for the parody of this image using a Barbie doll.)

- "Of course, there will always be those who look only at technique, who ask 'how', while others of a more curious nature will ask 'why'. Personally, I have always preferred inspiration to information."

Solarisation was invented by various photographers concurrently, but most noticeably Man Ray and his assistant Lee Miller, who used the effect to create stunning images that mimicked pen drawings. The effect can be created by exposing a negative or print to a brief burst (eg 3 seconds) of bright light during development. In essence the solarisation effect consists of the following elements

- Bright portions of the image are reversed and become dark as if you were looking at the negative.
- The contrast of the image is increased in both the positive and negative parts of the picture
- A line of demarcation called Mackie Lines form between areas of high contrast.

The resultant images are surrealistic and vibrant. The technique works best for images with well defined shapes and have strong contrast. On the other hand it can increase clutter and make busy images more so.

Solarisation can be created in photoshop. There is a solarisation filter in the filters menu (Filters> stylize> solarize). This filter however has very little flexibility and no adjustment dialog to control the output.

An alternative is to create this effect in curves. I will go through this a step at a time.

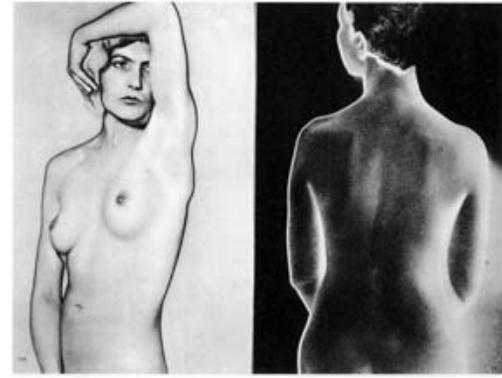
1. **Convert to Grayscale.** Mostly I find it is best to work on the monochrome image. (Image> Mode> Grayscale).
2. **Create a Solarisation Curve** (Image> Adjustment> Curves) The curve should be shaped as either a U, inverted U or as a 1½ cycle sine wave (see right). The sine wave seems to be more effective in producing the Mackie line effect as used by Man Ray. (Revision: remember that with curves, contrast is increased where the gradient is made steeper—ie most of the image except the crest of the curve)
3. **Invert if necessary** (Image> Adjustment> Invert) If the image looks too much like a negative you may need to invert the result.

You can also solarise in colour if you omit the first step. Solarisation can produce dramatic colour inversions and some eerie effects. (see below)

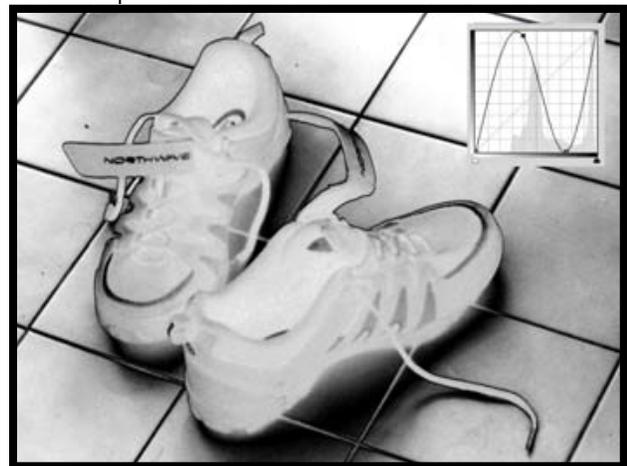
If you find you have a few spare moments, I would recommend that you try your hand at a little solarisation. Many attempts will fail, but the successes can be quite stunning.



Ship Funnel—Colour Solarised image—(most of this image is in the negative).



Solarisation images by Man Ray



Sandshoes on a tiled floor—original and Solarised images using the inverted U and the sine wave configuration.