

NEW PLYMOUTH PHOTOGRAPHY CLUB

The Importance of Light to Photographic Artists. - No. 2 - 2019

Introduction

During a recent presentation on this topic, mention was made of a set of notes which had been prepared as part of an introductory course to help newcomers to the club and also others. The aim of these was to show how photography can be successfully used to help those who are interested in becoming visual artists. We are part of this spectrum of the creative world. This includes painting and drawing. Here we stand alongside the other artistic forms: music, dance and so on.

To provide a 'club wide' document, as was suggested, these notes have been re-written and added to. Here we are trying to build on what is already provided when drawing on the advice and comments of experts, and also move beyond those areas in which photographers, when initially exploring this genre as an art form could become quite narrowly focussed. For example:-

- * the notion that we are primarily making images of 'things' or specific subjects and topics.
- * a fascination with the camera, its make, and then model, followed by the overly comparative sophistication of its technology relative to the cameras of others.
- * to take quite basic images on the understanding that all can be made right by the use of post processing rather than making images, and then using this as a tool to enhance our better images.
- * the added value of the many fascinating photography tools and gadgets that people can purchase.
- * then the numerous other matters that each of us in our own way find to be fascinating within what is for most of us, a very worthwhile hobby.

We need a more common foundation, and as Fran Halsall [UK] writes that 'she soon came to the realisation that in the purest sense that **light** is the substance captured in the camera'.

So as a means of becoming rather more interdependent on each other within the wider group, it could be helpful to go back to some of these cardinal or pivotal matters for our art form instead of being tempted to focus on our own specific needs, or wants and then to encourage the club to explore some quite esoteric skill requirements. However special interest groups could be useful so long as they did not become isolated, independent, or overly competitive relative to other interests.

The Foundation is Light

Just what is this? That which Halsall conceptually describes. Here is a list that seems reasonably common to those who mentor and teach. While there may be minor differences among them, the general focus is usually the same, and these are about the importance of light:-

- * the first is that we are artists who draw with light. That is what the word means - light/drawing [English] or photo/graphy [Greek]. For Edward Weston an early American Master, light was the most important element. The one that each photographer must deal with or eventually learn to deal with. Then some may prefer the idea of painting with light – as described by the late Galen Rowell [USA], a very fine wilderness photographer. The importance for each is to be able to connect in some way with the foundational concepts and ideas and in language or terms that are useful to all.
- * the second is that we already know something about it. We have lived with light all of our lives. It then becomes a matter of a specific focus. Building on, or becoming focused on, what each of us instinctively or intuitively understands, and then as it can be related to our hobby. This should not be all that difficult. It should be a hobby for all.
- * the third is an observation by Freeman Patterson [Canada]. It is that those who come to these courses, to clubs or other activities like ours are either consciously or unconsciously trying to gain something far more important than the art form itself, i.e. photography, that is to try to express our,

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[your and my], own creative selves. To achieve this we need to be curious, then use our imagination, and our skills in order to be creative in capturing what we find and see. A recent club weekend programme considered how each can use the place of fantasy as a means of development.

Sir Ken Robinson [UK] suggests that in general terms this, i.e. creativity, can be as important in our lives as literacy. That is to be able to read and write.

* the final factor is that our eyes are specifically designed for the above to occur. It is not our drawing skills or our technical skills that matter. It is our seeing skills. The ability to perceive edges, spaces, relationships among the items [that we decide to place in the frame], lighter areas, darker areas, and the whole [or gestalt] before we see the individual parts. It is appropriate light that illuminates what we see. Our eyes are also designed to see and detect differences from the usual. We can relate this to how we drive a car. It is the atypical that alerts us to danger or to be careful.

Many good images are where we individually find, then see and capture the unexpected or the atypical, provided the illumination is also what we each require. It will often be different for us individually. So we need to be comfortable within ourselves using trial and error and comparing the results, to become more experienced in this process.

The Physical Properties of Light.

This is the stuff that we have lived with all of our lives. It is part of the essential energy on which we depend. It comes from the sun by radiation. It is ever present. Here is a brief description:-

“Light is the visible and quite small part of the electromagnetic spectrum of energy that is radiated from the sun. It arrives constantly and in waves. These are measure in time: each wavelength varies in time: very very short amounts of time.”

We have a chart to help us understand this. It has a coloured scale.

Like all of the various parts of the electromagnetic spectrum, the visible portion comes to us in a specific range of wavelengths and different frequencies. At either side are the ultra violet [UV] invisible rays to the left [of the chart], and infra red [IR] to the right. For the want of a better word the ‘speed’ of the visible spectrum ranges from 380 nanoseconds to 750 nanoseconds.

As the ‘waves’ reach the earth they become highly excited. Some or each wavelength will activate a specific surface which will then **reflect** a very specific colour. This is the wavelength’s own colour signal. The remaining waves in the spectrum will be **absorbed** by the surface that has been excited.

If you seek more than that, then you could do your own research, for what is written might not satisfy a specialist physics teacher. On our chart which shows this, the cooler colours – **violet**, **indigo** [disputed] and **blue** are at the left hand side, while the warmer colours – **yellow**, **orange** and **red** are to the right. So far there has been no comment about **green** which in the centre and measures from 495 to 570 nanoseconds. It has a special place as follows next.

These colours are not in blocks. They are ‘pure’ at the middle of their range. Staying with **green** this could possibly be at 520 to 540 nanoseconds [ns]. Between 520 and 495 [ns] it merges towards **blue** and gradually becomes cooler i.e. shades of **blue/green**: then from 540 to 570 [ns] it merges towards **yellow** and gradually becomes warmer i.e. shades of **yellow/green**.

This can be applied either side of each colour at its purest, except violet [to the left] and red [to its right] where ‘they’ become increasingly deeper.

Beyond the visible spectrum **violet** merges into ultra violet [UV] rays and **red** merges into infra red [IR] rays. The other, and also invisible rays, from left to right start with gamma rays and end with long radio waves. The now indispensable **microwave** operates within a specific range of waves: i.e. to the right of 'infra red'.

For our purposes **indigo** [even though disputed] has been left in so that **green** is now the centre or mid point in the range. On a flat surface [that is a photograph] the cooler colours tend to recede from our view, while the warmer colours tend to advance. This is important for us as a part of our approach to composition or visual design. Mid hue **green** tends to do neither, so can be seen as neutral: at times useful, and at other times, quite boring.

A bit more about Colour.

This is a short diversion from the theme or topic. Within the artist's colour wheel, which is pigment based, the primary colours are **red, yellow, and blue**. Nothing is mixed together to create these.

The secondary colour **Green** is made by mixing **yellow** and **blue**. As the primary colour **red** is not included in the combination it becomes the colour opposite of **green**. Can you work out the other two obvious colour opposites? [Please leave indigo out]. Then by observing this chart, that is the artist's colour wheel, it can provide you with other useful combinations. Beyond secondary colours the chart also has tertiary colours. Extra mixing. These are displayed on this chart in blocks of colour. **Light**, as explained, is not like that: it merges in an orderly manner from one specifically to another throughout the visible spectrum.

The use of these colour opposites can be a useful way of creating contrast within an image other than by light and shade.

Some Practical Suggestions for Photography as 'Art'.

* Here Fran Halsall suggests that **this art form** is a study of opposites: by analysing the light falling onto surfaces, and then the subsequent creation of shadows. So while this paper has already hinted to the colour opposites, it is more than that. All the shades of grey [black to white] that lie in among or between the other material in the image are also very, even critically important for many photographers.

* She then confirms that this is about the contrasts created by the light and the shadows working together. These that are created and then seen, when observed in appropriate lighting: **that is for her**. This can be the same for each of us. In this the direction of the light source is important. [We will come to that at page 5.] The art of photography is to emphasis these contrasting aspects. Light and dark. Large and small. Rough and smooth. Warm and cold. Positive and negative. Orderly and chaotic. Thick and thin, and so on. She builds her images around seeing these opposing elements, then composing 'them' in such a way so to bring these elements into balance with each other. She also describes these elements as 'blocks of information'. If any more than five elements in an image – for her this is too many, and often confusing. So she recomposes the frame, if that is possible.

* Now we can move away from photographing 'things' or specific subjects and topics, primarily as a record, though still useful, and may started on a journey into imagination and creativity as artists.

* So when we arrive at a location there are three main possibilities – no appropriate light, for you or me, which results in flat images, where the illusion of the third dimension on a print or DPI is lost. Or in other words: no depth or form. Then there can be too much light – where it exceeds the capacity of the camera to cope, even after trying different exposure values. [compensation] Or hopefully, having the appropriate light if carefully managed, that is suitable for our purpose.

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The point here is that to get the opposites and degree of contrast that Halsall describes you may now be starting to 'shoot at the edge'. It does not hurt to step outside your comfort zone occasionally.

* Now challenge your self to make several different images as quickly as you can and with different exposure values, different shutter speeds and so on, to get one the one that works best for you.

* Light then is the key to highlighting good composition or visual design, rather than the subject matter itself, and ultimately it is the key factor in the best of our images. These may not be just interesting, but also capture a sense of beauty that can be elusive. These can convey mood or feelings.

* Thus a good, even great subject taken in inappropriate or inadequate light, is unlikely to provide you with either an effective [good composition or visual design] or affective [capture of mood or feelings] - image. A lesser subject or topic taken in appropriate light may surprise you. It takes us back to using our eyes. Our ability to see, not subjects, but edges, shapes, inter-relationships etc. One writer suggests removing the names from 'things'. Our mountain is really about a specific shape - a triangle. Then the contrast between light and shadow in certain lighting conditions.

* Technically if you are ever in doubt, expose for and manage the highlights. This will control the hot spots or highlights, though the rest may become darker than you would have wished. Here the use of exposure compensation will get you there if an image is at all possible. My personal experience is that at certain times some good ideas simply will not work as images. It is not just you that experience this!! We all have this experience. It can be part of learning and growth.

* Finally it is here that our experience and our expertise in our other life skills are important, for these 'seeing' opportunities often arise out of momentary chances. So seeing, then acting quickly, intuitively, or even instinctively is critical. Everything can be transferable. We each need to recognise this proven ability that we already have, then readily connect with or tap into this.

Directing The Eye.

Graham Mourie a former All Black captain once said that the best form of attack is to have a sound defence. For us it is about continually directing the eye. Being observant about the state of the light.

* First a general comment. The intensity and the direction of the light constantly changes especially when impacted by the weather. For example on a cloudless day all the shadows may be black and some of the reflective surfaces can be 'shiny' white or just glare. If the sun is obscured by cloud all may change. It may become too flat for our purpose. Then as the sun comes out of the 'edge of cloud' shadow, some useful lighting can momentarily occur.

* Then some shadows in the right places can allow for images when otherwise the frame as fully lit, would not work. For example in a wheat field, rape seed in flower, on the beach and so on.

* Michael Frye's [USA] book – Digital Landscape Photography – has useful tips for all. I have mentioned bright spots. These attract our attention. If in doubt turn the 'play-back' screen upside down. What do you see first?. Either avoid these altogether, or recompose so as to place these spot[s] in the frame where they add to, rather than detract from the overall image.

* Next direct the eye to the warmer colours. Just like the bright spots, our eyes are also drawn here. These – red, orange, magenta, and yellow attract our attention and if misplaced in the frame may detract from our purpose in making the image.

* Then visual conflict. Where the brightest area in the image is definitely where you do not want people to look first. Often this can be because it is in the best light. Perhaps that lighting would be best placed elsewhere in the frame.

If so the questions can be – what attracted you in the first place?. Am I still on track?, or have I been sidetracked from the initial enactment or attraction?. If so why?. This also happens to us all. Then there are no rules so there can be exceptions. So try it and then decide.

Soft Lighting.

While lighting conditions in New Zealand can often be quite harsh, soft lighting can be easier to manage, allowing for those exploring photography as an art form, at times, a less demanding journey. To use a second voice, and in order to have something ‘said’ in a different way, these notes turn again to Freeman Patterson.

We have been considering the fact that light illuminates visual design or composition. He says that in photography there are two basic elements of design. Tone and Colour. Colour is about those parts which are directly lit, while tone is generally about those parts that are created by shadows. This is the impact of the grey scale as it effects the colours themselves or otherwise just as the grey scale itself – black to white. In soft lighting these differences can be quite subtle, so not as easy perhaps to see, but as indicated, often much easier to manage in an effective image.

This, when made visible by appropriate lighting, in fact creates the lines, shapes, textures or patterns, and perspective upon which all visual design or composition depends. As previously indicated, our eyes are designed to see this. If it were not so then this could never have been written.

This particular lighting, for each of us can be boldly direct, in between, or subtle yet elusive, so a comment from Eliot Porter [USA] may be helpful. “I began to see the effect of available light on my subjects [attraction] from a clear blue sky or of from an overcast sky, and began to recognise that direct sun lighting was often a disadvantage producing spotty and distracting patterns”.

One clear example of this is reflections. There are a range of specular [Refer to page 7. It follows.] reflective surfaces however these comments relate to water. Frye says that best of these images tend to show sunlit objects reflected in fully shaded water [soft lighting]. Strong or spotted sunlight on the water can kill these. A smooth mirror like surface can be great but not essential. Just how many images capture the mountain reflected in Lake Mangamahoe?. Ripples reflecting a range of hues [colour] can be more interesting. You can try different shutter speeds. At present [early January] in Pukekura Park’s top lake the dominant reflected hue will probably be ‘middle of the spectrum’ green. The warmer late autumn hues, that is colours, may provide a better result.

The Direction of Lighting.

These are adapted from Michael Frye’s book. Given his outdoor background these references are for sunlight.

1a. Front lighting – putting the light source at your back.

From directly behind. Even lighting with shadows falling behind the objects. May be flat thus lacking in depth or perspective. Works quite well for colourful objects e.g. flowers with the shadows falling behind to create small areas of contrast.

1b. Front lighting but Quartering.

Light from a slight angle behind, or over the shoulder. In stronger lighting can introduce small and effective shadows which create effective contrast. For example rock formations or flowers.

1c. Front lit – Silhouette. A term usually associated with back lighting. Works well in larger scenes with foreground in the shade and the main area of interest in front or quartering light. Can 'block out' some unnecessary elements, even clutter or chaos for example in a cityscape: provides contrast.

2a. Side lighting – at right angles.

Light raking across the image from the sky from left to right can be exquisite especially during the golden hours where the warmer orange light is effective. Horizontal shadows occur.

2b. Side lighting – from higher or lower in the frame

The direction of this can create long oblique shadow angles and thus create greater dynamic tension within the frame. Find or use a different point of view.

2c Top lighting – from in front.

These images can be effective when the shadows fall from the top and in front of the subject matter. That is towards you. For example fir or similar trees. Also for birds and animals where these impact on the feathers or fur.

In all of these examples the softness or harshness of the lighting is a matter for the individual photographer to judge based on what is required. However there must sufficient contrasting aspects, even opposites [dark/light: large/small etc] to create an artistic image [Halsall], or to have both the tones and colours sufficient to illuminate the visual design elements that are required. [Patterson].

3a. Back lighting – Translucence.

These are subjects which transmit light through their individual characteristics though are not clear enough to transmit the whole light source – for example an ordinary window. To be effective these need to have contrast within the brightest area – for example, a leaf, or flower, or cloth, or a stained glass window, though this of itself may be not enough. The photographer may need to find a location where there will be sufficient contrast in the background or elsewhere to create additional effects. These images may glow. Direct backlighting may be hardest to manage. Also see *item 3d*.

3c. Back lighting – silhouette.

This is virtually opposite to translucent where the subject matter transmits light. Little or no light is transmitted. A common subject is the human head. Here a quite defined and lit outline or edge can result in what is known as rim lighting.

The outline shape and lines need to be interesting and not too complicated if they are to have any meaning. Thus recognisable without too much guessing.

3d. Back lighting – Quartering – and the effect of Lens Flare.

In the right place this may be effective. Otherwise you may need help to control this. Get a friend out in front to block off the light that impacts on the surface of the lens. Something held in the right place to create a shadow. Some interesting images mainly silhouettes but sometimes with more obvious detail if the light is as for quartering. That is from an angle that may be effective. *item 3a*.

4a. Twilight.

Just when to do this can be interesting. This produces some fine images when the light is bounced in off the sky or clouds after sunset. Initially this light can be too strong. Eventually the artificial lights and the bounced daylight will even or balance out.

From then on good images can be made until the bounced light cease. Night and darkness has arrived. Towards the end the strongest of these lights can be hard to manage. More bright spots.

4b. Sunrise/Sunset.

These are different, and require management as for daylight images. There is a tendency by some for deliberate underexposure to get highly saturated colours. What is essential to remember, if you have worked it out **at page 3** – that the primary colours red and yellow when mixed together create orange [a secondary colour]. As blue is missing from the mixture it becomes the colour opposite of orange, and the ‘artistic’ affect of this combination could be a factor to consider in these images. Here the warmer colour could advance within the frame, while the cooler colour recedes.

4c. Night Lighting.

As indicated at item **4a**, the bright spots can now be even harder to manage. These create distractions and may need to be avoided. Otherwise it is worth the practice and effort. Use exposure compensation even if it seems to be extreme. The camera can try make these images appear closer to daylight than you have actually seen or want to achieve.

5. Bounced Lighting.

Many surfaces reflect light on to others. A common example is the shiny leaves of our native forest. Enough of this will give the other material in your image a green tinge. Then some books use images showing the strong warm colours in canyons used to reflect light into the other areas. We can demonstrate bounced light with ‘fill in’ reflectors. This can be shown courtesy of a recent gift.

The Effect of Reflection, Light Scattering, and Light Absorption.

All surfaces have different textural properties and these determine how each will react to light when illuminated. Knowing how surfaces reflect or absorb light – please see page 2 – could allow the photographer to have more control over their imagery.

When light strikes a surface it can be reflected in different ways. When it hits a smooth surface it bounces off following parallel trajectories. This ordered reflection is responsible for mirror like reflections.

When light strikes an uneven surface such as roughness or facing out in several ways its reflection is random resulting in scattering and in many directions. A leaf appears green because it reflects green wavelengths in a reasonable range of directions, [somewhere in the 495 to 570 nanoseconds range] but absorbs all other wavelengths.

The most spectacular scattering is the sky. In bright sunlight atmospheric gas molecules are very effective in reflecting and scattering violet/indigo/blue light wavelengths. It appears to us as blue because human vision or seeing is more receptive to blue. The green and warmer coloured wavelengths are absorbed by the gas molecules. If this did not happen we would have a black sky. This is known as Rayleigh scattering. We could ask what does dust in the atmosphere reflect?.

Reverting to the above – the smooth mirror like reflections are know as **specular** reflection, while the scattered variable surface reflections are know as **diffuse** reflection. Most objects reflect both types relative to their degree of smoothness.

Finally the darker colours which may be a mixture of a colour toned with the black end of the grey scale appear this way because they absorb more light wavelengths than the pale ones do. Here [pale ones] reflect more of a colour that is tinted with the white end of the grey scale.

Pure white reflects all light while pure black absorbs all light. This might help explain something about hot spots and the like.