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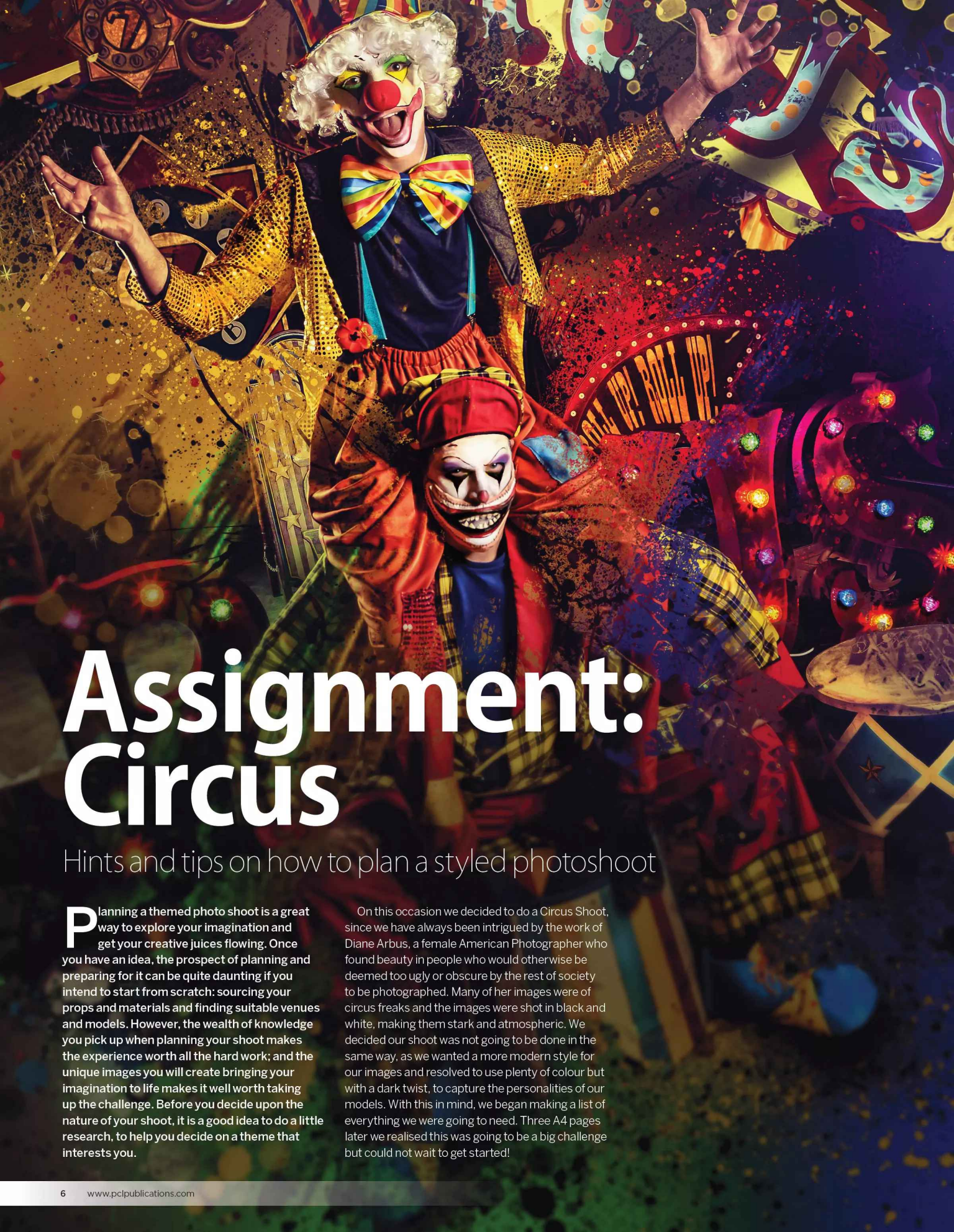
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Assignment: Circus

Hints and tips on how to plan a styled photoshoot

Planning a themed photo shoot is a great way to explore your imagination and get your creative juices flowing. Once you have an idea, the prospect of planning and preparing for it can be quite daunting if you intend to start from scratch: sourcing your props and materials and finding suitable venues and models. However, the wealth of knowledge you pick up when planning your shoot makes the experience worth all the hard work; and the unique images you will create bringing your imagination to life makes it well worth taking up the challenge. Before you decide upon the nature of your shoot, it is a good idea to do a little research, to help you decide on a theme that interests you.

On this occasion we decided to do a Circus Shoot, since we have always been intrigued by the work of Diane Arbus, a female American Photographer who found beauty in people who would otherwise be deemed too ugly or obscure by the rest of society to be photographed. Many of her images were of circus freaks and the images were shot in black and white, making them stark and atmospheric. We decided our shoot was not going to be done in the same way, as we wanted a more modern style for our images and resolved to use plenty of colour but with a dark twist, to capture the personalities of our models. With this in mind, we began making a list of everything we were going to need. Three A4 pages later we realised this was going to be a big challenge but could not wait to get started!



Sourcing a venue and props

For this shoot to succeed it was vital to find an atmospheric venue that would allow for both ambient light and the use of studio lighting. We would also need plenty of space for the acts to perform (preferably with a stage) and ideally somewhere with a changing facilities where the circus performers and makeup artists could prepare. We were told about a new music and arts based 'Speakeasy' style venue that had opened called The Lucky 7 Club which sounded perfect. We contacted the proprietors to ask if they would consider allowing us to use the club.

With a minimal budget for the shoot we asked if they would consider letting us use the venue at no cost and they kindly agreed, on the understanding that we would let them have a few copies of the images produced, to help promote their establishment. Perfect! We now had a fabulous venue. Collaborating with other businesses is a great way to source what you need for your themed shoots and also a great way to make new contacts in your local community.

Next we needed props, so we approached The Prop Factory, a Devon based company run by Carmen. She is a creative lady who along with her team create props for festivals, TV and all types of events. We had seen on her website that she had many circus props and also collaborated with photographers. Carmen kindly agreed to get involved with our project and so between us we set a date for the shoot.

Models, makeup & costumes

Once you have established a venue you will need to source suitable models and acts to feature in your images. Sourcing models can be expensive if you decide to go through modelling agencies, so if you do not already have models that you work with regularly, an alternative can be to advertise on social media sites. This is not only a great way to find models but also one of the best ways to gain exposure for your images after the shoot and encourage other models to work with you. If you do not have your own page set up already to advertise on, there are plenty of Model & MUA Networking Groups on Facebook, where models and makeup artists advertise their services. Most of these people are trying to build a portfolio and will offer their services

in exchange for images to use in their portfolio. On this occasion we used models and stylists already known to us, as we needed models with circus skills such as Hula Artists, Contortionists and makeup artists with the skills to create the looks we wanted to achieve for the shoot.

Many of the costumes were sourced from eBay and charity shops and some were made for us by family members; if you do know people who can sew, then try and get them on-board. Having unique exciting costumes will add volumes of interest to your images.

Creating the team

To communicate, we created a Circus 2018 Facebook Group. All of the models, makeup

artists and stylists, in-fact anyone involved with the shoot were added to the group, so that we had a great platform to communicate on. This was somewhere we could share times and schedules for the actual day and also somewhere to discuss the ideas for all the individual images. The group formed a great community spirit with many of the models themselves, sharing their own ideas for the characters they were playing. Creating the team is a vital part of any group shoot. If all the participants are invited to project their ideas and contribute, it creates a great community spirit and breaks down any communication barriers. Everyone involved in your project will feel part of the team, encouraging new relationships and bonds which will result in a great friendly atmosphere on the big day.

Behind the scenes shots

Taking photographs behind the scenes is a great way to prepare your models for the shoot before it happens. Getting used to the camera pointing in their direction will help them get in to character prior to the start. Walking around taking shots of everything that is going on behind the scenes breaks down barriers and encourages communication between the photographer and models. This is also a good opportunity to discuss various ideas with individuals for poses and facial expressions, so that they have some idea of what is expected of them during their individual slot.

Taking behind the scenes shots makes a great record of what is happening during the course of your themed shoot and for future events, a great reference to look back on to remind you of what worked, what could have been done differently and how your planning timed out.

Long lens

Using a telephoto lens while obtaining behind the scenes shots is a great way of keeping your distance when capturing candid moments as they naturally occur. For our circus shoot we used a Nikon D600 and for the candid behind the scene shots a Nikon AF-S NIKKOR 70-200mm f/2.8G VR lens was added. The wide maximum shooting at 2.8 meant we were able to take photos in poorly lit areas of the dressing room without the use of flash. This is a fast lens and along with the vibration reduction we were able to use it without a tripod, which would have been in the way with all the hustle bustle of everybody getting ready.

An eye for details

We also made use of the time we had, while the models prepared, to capture images of some of the props, artwork and curiosities within the club. Collating pictures of items that could be used as layers, backgrounds or brushes meant that later, during the editing process while creating composite images, we had the tools to make images that captured the atmosphere and details of the place where we were shooting.

The 24.3MP Nikon D600 is the smallest and lightest full frame camera created by Nikon. A quiet camera which is a very popular alternative to the D800 at a fraction of the price.



The Nikon AF-S NIKKOR 70-200mm f/2.8G VR is a popular all round lens suitable for a variety of applications. The optical image stabilisation unit allows for hand held precision of up to 3 stops lower than normal, with very little sign of camera shake.





Lighting our models

We decided that we would create a set of 20 images covering a variety of circus characters. The first of which would be Siamese Twins. This would be a composite image, allowing us to use 2 different images of our model Hayley's head edited into one final image in Photoshop. Using a selection of props including a giant chair, a gramophone and various children's toys and curiosities we found at The Lucky 7 Club, we set to work creating an obscure setting that our unusual character would look at home in. Our stylists Laura and Sammy set to work creating two different looks for our model, as we wanted both heads to have a different style in each image so that they did not simply look duplicated; instead implying different personalities. The corner of the room we had set up in was fairly dark. With dark blue walls clad with wooden panelling and parquet flooring, we did not want to lose the atmosphere this environment created, so we decided to use a hard directional light to make shadows that would create drama and a sense of mystery, and not flood the area with light. To do this we used Elinchrom D-100 lights. These are small but robust 100W flash units which will power up again after one and a half seconds. The beauty of these lights is that they are quite compact and perfect for the area we were working in. These flash heads are portable and easy to set up and another benefit to this small light is that they are quite inexpensive; this is always a good thing when you are in a busy environment or out on location where accidents can happen. Being a small light helps create a harder light with shadows and is what we wanted to achieve during this shoot to create drama. If you want to achieve an even harder light, use smaller lights. However, a D-Lite 100 system will give you approximately twice the power of using speedlites. To achieve the look we wanted, we opted for a hard directional light, positioned high; in fact as far up as we could get away with while still capturing the highlights in the subjects eyes, combined with a fairly narrow depth of field. Using the elevated position of the light, similar to



butterfly lighting, we cast shadows in the right places, i.e. under the cheekbones and the chin, which helped to cast shadows and define the models facial features. Using a light pointing in to an umbrella (positioning the umbrella fairly close to the bulb) and shooting forward to the subject, will achieve a hard light similar to that used in Hollywood lighting, and using the umbrella in this 'shoot through' way helps to get rid of any stark overly exposed areas, like a diffuser would. We decided to use this modifier in preference to using a soft box or beauty dish, which produces a much smoother flatter light and in turn takes away from the shape and definition of the face made by the shadows.



Once our lighting was set we selected a 24-70 lens, which is a great all-rounder for wide captures, portraits and everything in between, that gave us flexibility in the type of images we wanted to try.

Hayley is an experienced model so had no problem understanding our requests. However, many models are not so confident and so clear concise direction from you the photographer is paramount in achieving the photographs you are visualising. For this image we needed a selection of head positions ready for creating our Siamese twins look during post production; and then adjusted our light direction accordingly for each new pose.



Clear concise direction will encourage your models' confidence and help them understand what is expected from them to achieve the images you wish to create.



Organising the shots

Prior to shoot date one of the things we had discussed in our group was which characters we would need and the finer details of our characters' personalities. Discussing some of the personality traits and expressions that the models could inject into the roles of the characters, helped make the images more believable and helped our models relate to the role they were required to play. The 20 images we decided on for the actual day were based on our memories of visits to the circus as children, as well as TV programmes and films we had seen previously. The final choice of images was:

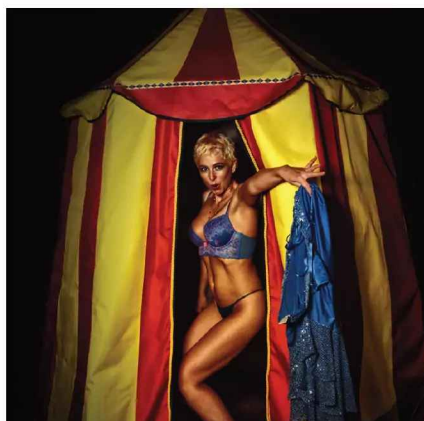
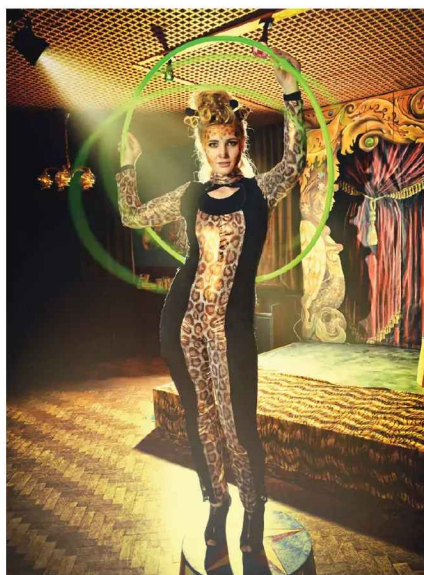
1. Siamese Twins
2. Clowns – Happy/Angry
3. Ringmaster
4. Fortune Teller
5. Strong Man – or in our case strong woman
6. Circus Dog – photographed in dogs home
7. Dancer
8. Trapeze
9. Contortionist
10. Hula Girl
11. Candy Seller
12. Pierrot Clown
13. Ticket Seller
14. Man Putting on Makeup
15. Puppets
16. Ribbon Trapeze
17. Levitation – bed of nails
18. Knife Throwers
19. Performing Animals – photographed at the zoo
20. Little People – we decided to use children for this image and photograph it on a separate occasion, so that the children were not overwhelmed by the hectic surroundings of our shoot day.

Given that we had 17 shoots to complete, 3 being photographed in separate venues, the time management of our shoot was paramount. We had use of the club from 9am until 5pm but had to allow for a lunch break as well as time for the models to get ready with the help of the stylists. This allowed us approximately 6 hours to do 17 shoots or 20 minutes per shoot.

In order to stick to such a tight schedule a floor manager was delegated (Rosie) who also doubled as our ribbon trapeze artist. Her job was to plan out a schedule that gave each of the models time to have the hair, makeup and wardrobe done, and a time for their shoot. It would be fair to say that without Rosie making things run like clockwork through the course of the day our shoot would

have been a disaster, so I would very much recommend that you consider an assistant when planning your themed shoot. This frees up your time to concentrate on the creative side of things like taking the pictures.

Working with stylists and makeup artists is much like working with models: they are not mind readers and require a certain amount of communication on your part to achieve the looks you want them to create. Discussion prior to the day, researching looks and discussion ideas for the styling of each of our models, meant that not only did our stylists turn up knowing what was expected of them but they also had plenty of time to source the materials needed for specific make up styles. Any planning for your shoot that can be done prior, should be done in order to take away stress on the day.



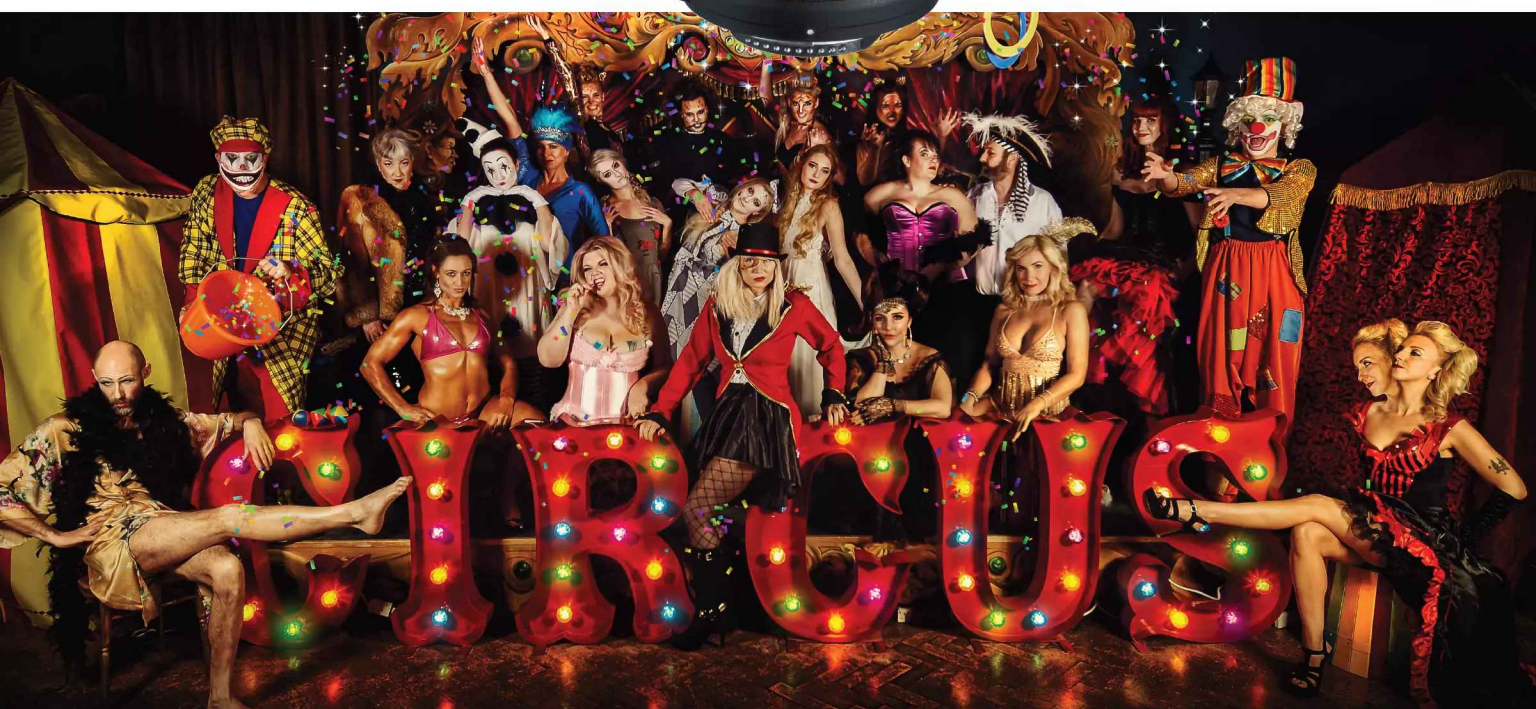
Time management on the day is one of the most important factors to take in to consideration when planning. It will not only alleviate stress but structure the day, so that you the photographer and models alike can work efficiently in the time slots given.



For most of our shoots we selected a 24-70mm 2.8 lens which is a great all-rounder for wide captures, portraits and anything in between and gave us the flexibility to try a variety of ideas during a shoot.



For wide angle portraits we selected a 12-24mm Nikon lens. This is a fantastic addition to any collection if you want to create dynamic portraits like our clown, where the body remains in proportion but the outstretched arm is enlarged.



Story telling images

The most successful images are ones that are thought provoking and captivate the imagination of the person viewing them. With this in mind we wanted each of the images to not only be exciting and colourful but also to tell a story, much like the circus images by Diane Arbus that had inspired us to do this themed shoot in the first place. The images had to have depth that went past what you see at a first glance. Therefore, a lot of time was spent creating concepts and stories behind each of our images. Each of the images we created tells a story of its own.

The strong man

To give you an example of what we mean by a story telling image let's take the concept of the 'Circus Strong Man', historically portrayed as

a robust male character, very muscular and often holding a glamorous assistant with one arm up above his head. How could we create a story telling image with a modern day slant, to illustrate the same concept, without falling in to this already portrayed image style? Firstly we thought about the character itself and decided the first change we would make was to use female models instead of the stereotypical man. We then thought about the word 'strong' itself and what it meant to us as a group. For the most part we decided it was a word to describe someone with physical attributes that made them appear very fit and powerful, so we needed to find a model who was physically fit and preferably with a bodybuilder type physique. We then discussed our concept further and went on to discuss mental strength and a completely

different meaning of the word 'strong', such as someone who needs to be strong to cope with daily issues. We discussed different examples of people who have been strong in their own lives and who cope with a variety of different circumstances, illnesses and social pressures.

We found our two perfect models: Carrie, a fitness instructor with a strong independent character and an incredible physique; also Claire, a Pilates instructor with stage 3 breast cancer, who shows strength on a daily basis fighting her illness and maintaining a strong mental attitude. We had found the story behind our picture. A strong person isn't just someone who appears to be fit on the outside, a strong person is someone who is coping and showing bravery in the face of adversity too: someone like Claire.





Expect the Unexpected

With all the planning and preparation in the world, invariably there will always be a few things on the day of your shoot that you did not see coming. Learning to adapt and be flexible with your arrangements is a great skill to have as a photographer. When working with a large group of models for instance there may be people on the

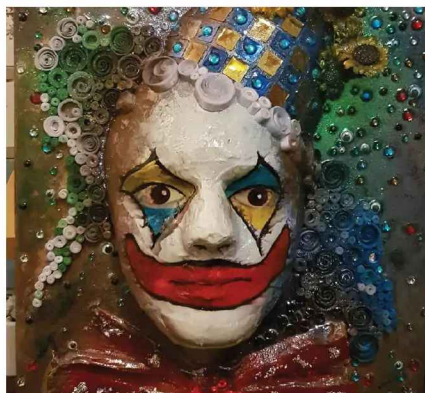
day who are unable to make it due to illness or perhaps their childcare has let them down, so having a plan B should these situations occur will put you at an advantage. Sourcing versatile models who are willing to step in to another's role is advantageous; and if you are not too bad at hair and makeup, be prepared to roll your sleeves up and get your hands dirty. Inevitably with lots

of different costumes being stretched in to different poses and positions there may be a few tears and burst buttons, so a little emergency kit containing items such as safety pins, cotton and thread, change for the car parking meter and a list of models and contact phone numbers will come in very useful on the day.



Post production

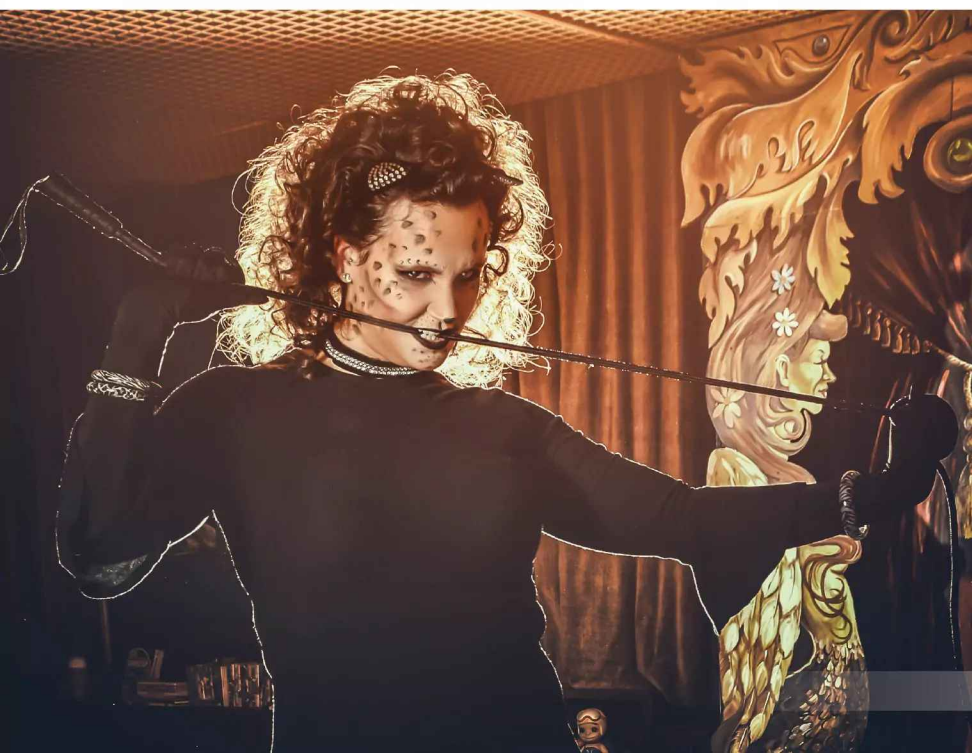
How you decide to edit your images post production will determine the final appearance of your images and as a photographer this may be what sets you apart from others in the industry; you may decide that a few simple tweaks to the white balance is all that you want to do. However, for our Circus 2018 shoot we decided to push our creativity one step further and use creative Photoshop techniques to enhance the images. For this final challenge we decided to take our imagery to a whole new level by creating a set of portraits by applying prints to three dimensional casts of our models faces. There are many great plug-ins available on Photoshop that create artistic finishes for your photographs and one of our favourites is Nik Software, which can be downloaded free of charge from Google. This has a selection of applications including: Colour Efex Pro, Silver Efex Pro and Analog Efex Pro. For the Circus images we wanted to create a dated finish with muted colours and so I adjusted the settings in Analog Efex Pro to create the desired effects.



Learn from your mistakes

The best way to learn how to create the perfect themed photoshoot is to have a go. There will be ideas you had prior to the shoot that will not go to plan and some of your greatest ideas will come to you during the shoot, when you are inspired by the people you are working with and the environment you are photographing in. Learn from your experiences, be encouraged by your successes and do not be defeated by the things that don't go to plan. Learn from the experience and plan another shoot. You are now armed with the tools necessary to improve on your first attempt and know what needs changing. Remember there aren't any rules to being successful: preparation will help but ultimately the success of the day will be down to how you conduct the event. If you are enthusiastic, so too will your models and stylists. If you have a vision, and follow it through, you will create images bespoke to you, as well as creating great memories of a day that everyone involved will remember for a long time to come. ■





Credits

Many thanks to:

THE PROP FACTORY - www.propfactory.co.uk
 THE LUCKY 7 CLUB - www.thelucky7club.com
 ONYX - www.onyxaerialfitness.bco.uk
 MUA: Estelle Cole - www.belush.co.uk
 MUA: Jodie Boulter - Bronzed Beauty
 MUA: Deb Miller & Holly Shears
 HAIR: Sammy Bond
 HAIR: Laura Lewsey - Hair Addiction
 VIDEO: Nicky Simpson
 COSTUME: Jan Drayton
 DIRECTION: Rosie Cawthorne
 ASSISTANT: Charli Miller
 MODELS: Paula Valpy, Hayley Prescott,
 Deb Miller, Rob Miller, Alana Miller,
 Hannah Williams, Carrie Darby, Claire Street,
 Rosie Cawthorne, Emma Green, Monika Haglundh,
 Estelle Cole, Kyle Shorland, Shaun Rogers, Kim
 Platts, Erin Collins, Holly Shears, Jodie Boulter,
 Zoe, Bowden, Abi Woltman, Sarah Bell & Mark Bell.

Assignment: Silhouettes

Strike the perfect balance of light and dark

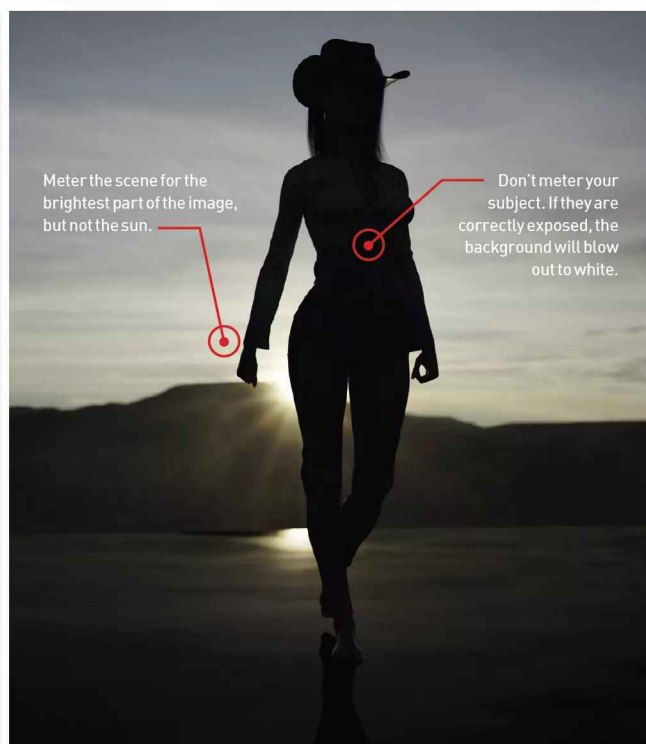
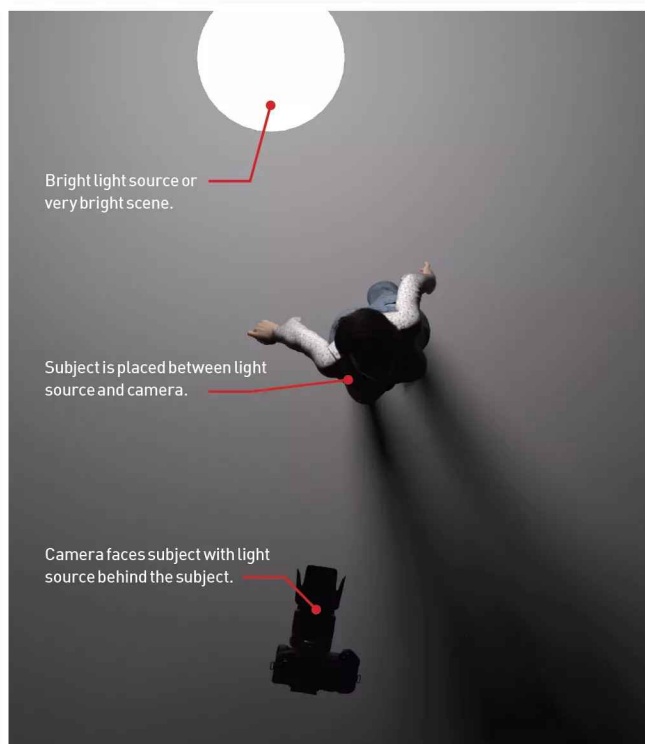
Let's get that word out of the way first. Silhouette, what does it mean? It came into being as a result of severe economic demands imposed upon the French people by their finance minister Étienne de Silhouette in 1759. His name became linked with anything that was thought to be done cheaply. In the days before photography, making a portrait cheaply and quickly from paper became known as a silhouette. It is a term used to describe the image of a person or object that is represented as a solid shape. The interior of the shape is totally black and featureless. Only the edge of the object describes what the object actually is. The term silhouette was originally thought to describe pieces of paper that were cut out and stuck to a contrasting coloured backing sheet, although the actual name 'silhouette' didn't become a well-used term until the early 19th century. Portraits cut from black card, became a very popular and quick alternative to the portrait painting or portrait miniature.

"It is a term used to describe the image of a person or object that is represented as a solid shape. The interior of the shape is totally black and featureless."

Maintaining a good exposure for the brightest parts of the image can just about guarantee the rest will fall into dark shadow with little or no detail to be seen. A little nudge in the right direction with post-work will help.



The basics of backlighting

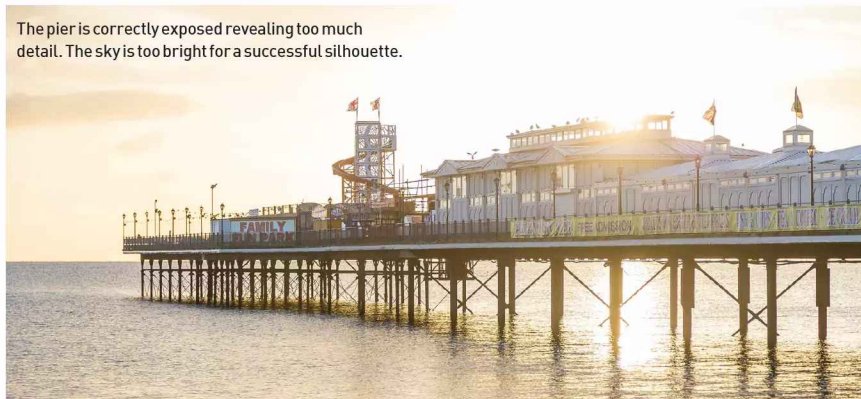


From that original meaning, it has now become a popular term to describe anything that appears as a shape dark against a much brighter background. The fields of architecture, moviemaking, fashion and photography all use the word silhouette as a descriptor for the form, shape and outline of an object, person, building and so on. In photographic terms at least, a silhouette is actually similar to a black and white shot. A black and white image relies on form, texture and composition since one of the key ingredients, colour, has been removed. Silhouettes are similar in the sense that they have had most of their detail and texture removed. The shot now relies on the composition, the form of the subject and being able to convey a mood, or story with the kind of presentation that is more akin to shadow puppet theatre.

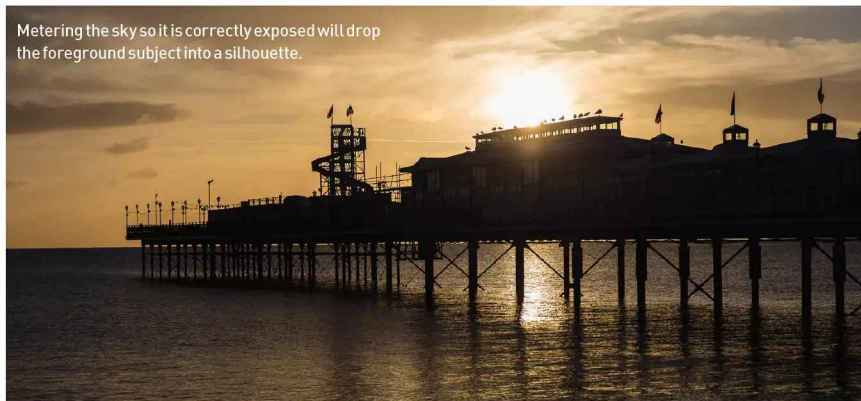
Basic ingredients

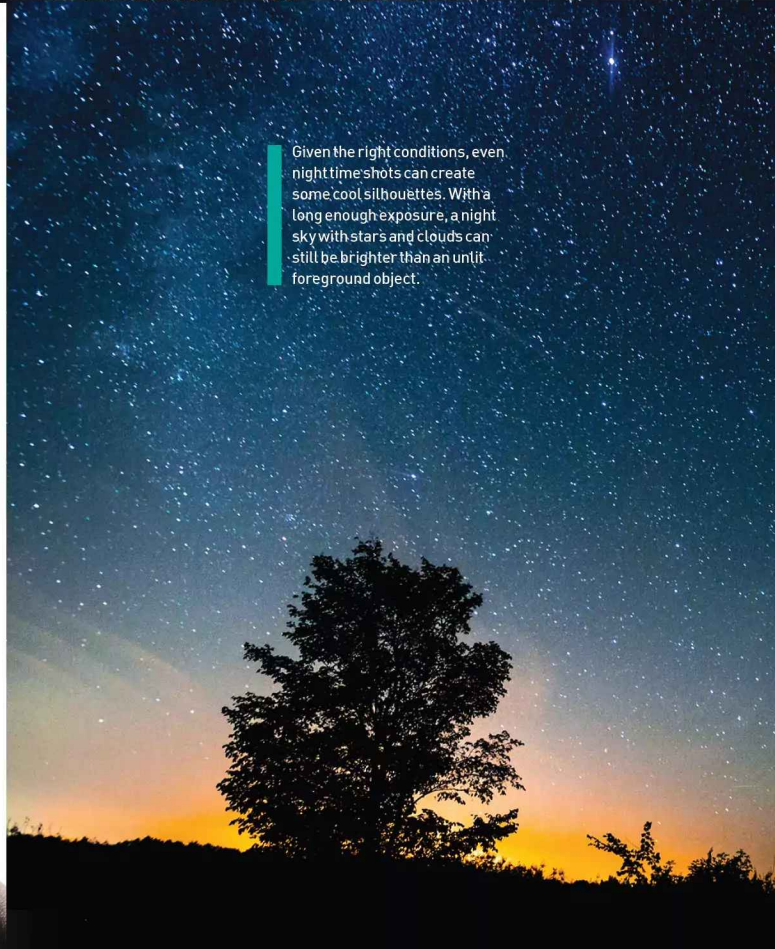
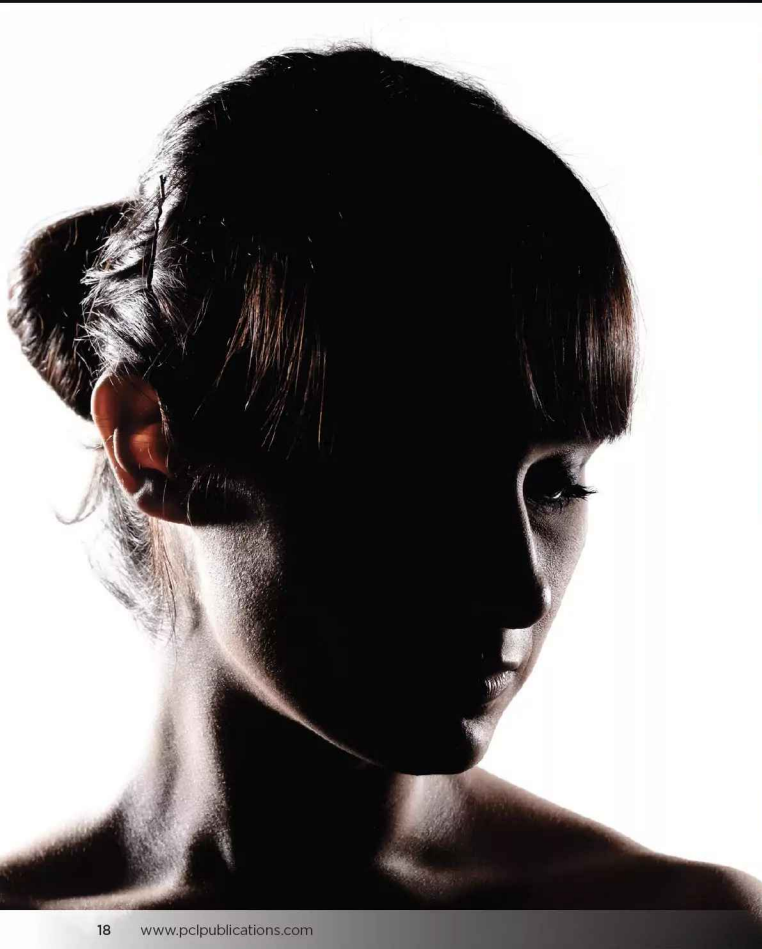
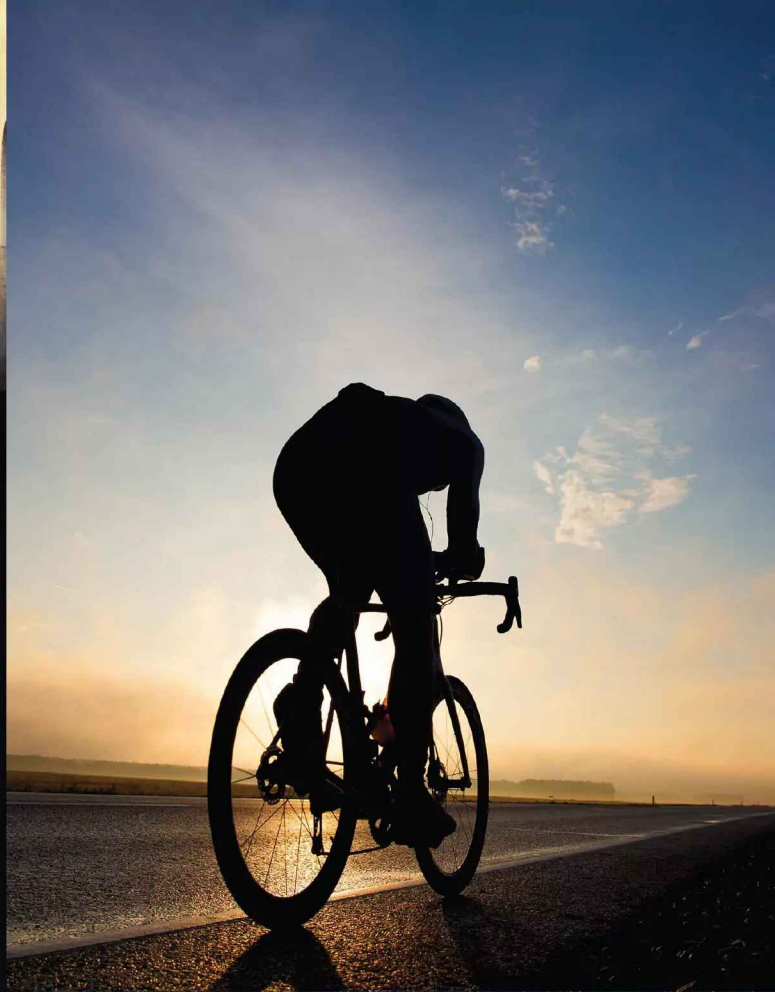
So what do you need to make a silhouette happen? First, you'll need your subject to be backlit. Backlighting is the term used to describe a lighting technique whereby a strong light source such as the sun, flashgun or even just a bright window in a dark room is positioned in such a way that it is directly facing the camera, or is at a slight angle to it. The subject is then placed between the camera and the bright source of light. Because of the strength of the backlight, the subject is reduced to a dark shape since they are in shadow. Depending on the angle of the backlight, you can create a highlight on the edges of your subject which is known as rim-lighting or kick-lighting.

The pier is correctly exposed revealing too much detail. The sky is too bright for a successful silhouette.



Metering the sky so it is correctly exposed will drop the foreground subject into a silhouette.





Given the right conditions, even night time shots can create some cool silhouettes. With a long enough exposure, a night sky with stars and clouds can still be brighter than an unlit foreground object.



Partial silhouettes are also very effective. In this case, rather than the light source being directly behind the subject, it is slightly off to one side. This gives you what is known as a rim light.

Embrace the dark

Shooting this technique requires you to throw away the rulebook in a sense, to achieve the very specific look that defines a silhouette. For a conventional backlit portrait, you would use some additional lighting from a flash or a reflector to make sure your subject didn't fall into completely dark shadow and make sure detail is preserved. Now though, you are going to reduce the subject to solid black or at least as close as we can get to it without ruining the rest of the shot. The basic premise here, is that you are deliberately going to underexpose the shots by a specific amount to correctly expose the very brightest parts of the scene, which should then render the subject totally dark.



Shooting silhouettes

Although the capture of silhouettes is fairly straightforward, there are a few things to be aware of to make sure you actually get what you are hoping for. Modern cameras will always do their best to meter the scene for the best overall exposure and if you use a camera in fully automatic mode, then you lose any input in the decision making process when you take the shot. For the best control of the situation, you should consider shooting in fully manual mode. Now the decision making is yours alone and you can fine tune your shots to make sure they turn out as proper silhouettes. ■



Assignment: Night-time

Some tips for quality night shots



A good quality, stable tripod, is essential for long exposure photography.



Whether it's the lure of bright city lights, barren moorland bathed in moonlight or a tumbledown barn in the country under a starry sky, night-time photography is a big draw for many photographers. It can be challenging, it can be very frustrating and time-consuming, but once you get the bug for it and get those first few 'wow!' images under your belt, it's a hard habit to break. There are a lot of photographers who find the whole process very relaxing.

As you are normally dealing with much longer exposures than usual and having to carefully compose and focus your shots, it forces you to slow it all down and take a much more considered

approach. After all, if you set up a ten-minute exposure and the end result is disappointing, you could angrily pack up your gear, set off home, and miss out on a very rewarding aspect of photography. To make sure you get the most out of your photos, here are a few tips that should see you well on your way to capturing amazing night shots.

Use a tripod

This may sound a bit obvious, but if you want to take photographs where exposure times can sometimes be in the tens of minutes, you're going to need something sturdy to put your camera on. You can of course set your camera to its highest ISO setting, open the aperture as wide as it will

go and shoot handheld, but to really do the image justice you're going to need a solid tripod. One thing is worth mentioning; pay particular attention to the surface on which you're setting your tripod. Shooting at the water's edge on a beach is a good example. The tripod may be pushed firmly into the sand and your long exposure is under way. One larger-than-usual wave and the feet of your tripod are swamped. Not a big deal, but the water can soak into the sand, which becomes soft, and the tripod can start to list over to one side ruining the shot. An attempt higher up the shoreline away from the waves might be in order.

Keep the ISO low

Because you have your tripod keeping things steady for the camera, you can use the lowest ISO setting your camera will allow. This is a big advantage from the point of view of image quality. High ISO settings create a lot of image noise, and can affect the sharpness of the shot, detracting from the overall quality of the image. Many modern cameras can produce fairly clean shots at high ISO, and it may well be that you can work in the 800-1000 ISO range if the situation demands it, but generally the lower the ISO setting, the better the result will be.

A lot of cameras also offer Long Exposure Noise Reduction (LENR). This works by taking a second exposure of just the sensor noise which is then used to subtract the noise from your original shot.

What this means is that if you take a five-minute exposure, it will then take another five-minute LENR exposure. For any exposure longer than a couple of minutes, the sensor may start to heat up and this introduces noise artefacts. This is what LENR is trying to remove. It's just a personal preference but many don't use LENR. Like a lot of recent DSLRs most cameras use a CMOS sensor which isn't as prone to overheating, and you could take ten-minute exposures without any noise issues. If you want to try very long night-time images like star trails, consider taking multiple exposures of 30 seconds each and stacking them in Photoshop. For example, 30 exposures of 30 seconds each is equivalent to one 15 minute exposure.

Shoot raw

Shooting in raw mode is a method that allows you to extract the absolute last pixel of quality from your image and process it any number of creative ways non-destructively. You can happily alter white balance settings, cross-process, split raw and any number of effects without losing your original image. Like using low ISO, it's another way of keeping the image quality as high as possible.

Lenses: zoom or prime?

When you're shooting at night there are any number of light sources, such as street lights, headlights, the moon, bright windows, neon

signs, all of which are capable of introducing unwanted lens-flare that can ruin an otherwise excellent shot. Lens flare is caused by unwanted light scattered by the optical elements inside your lens. Zoom lenses particularly suffer from flare as they contain many more optical elements. Your best chance of reducing lens flare is to use a prime lens. A prime is a lens that only has one set focal distance and therefore uses fewer internal optical elements. Whether you use a zoom or a prime, a lens hood is recommended for both. Also, wherever possible, use a lens with as wide a maximum aperture as possible, such as f/2.8. You may well be shooting at smaller apertures than this but the image in the viewfinder will be brighter with a faster lens, helping you to see and set up your composition.

Bulb mode

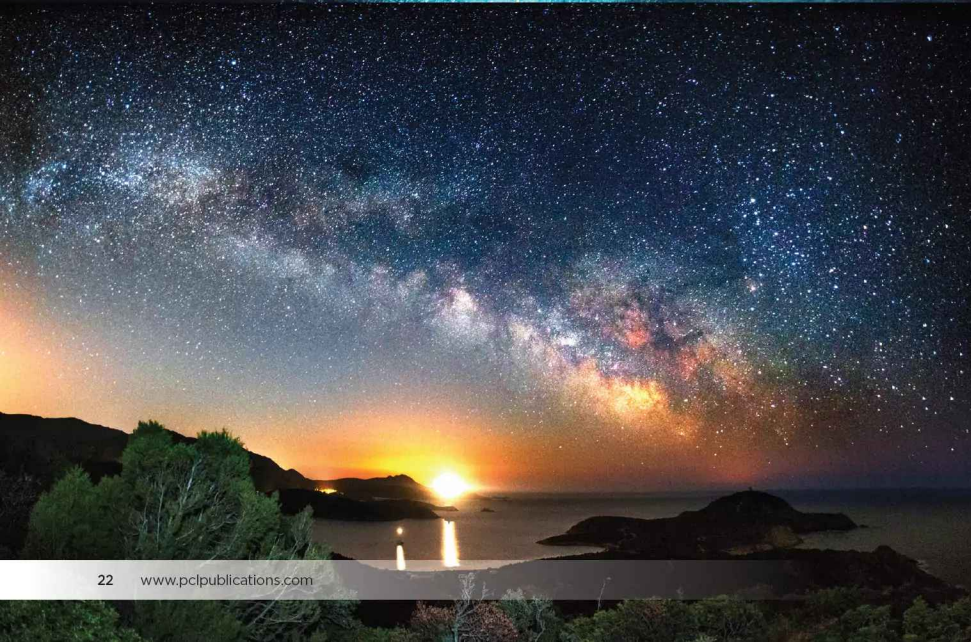
With most current DSLRs the longest shutter speed you can use in normal operation is 30 seconds. However if you switch to Bulb mode ("B") on your camera, you can keep the shutter open for much longer periods. "Bulb" in this case is a reference to the old squeeze-bulb, pneumatically activated shutter release systems from the earliest days of photography. What you don't want to be doing though is standing there with your finger on the shutter release button for five minutes. Your finger is going to ache and you are going to move the camera and spoil the shot. Attaching a cable release is the answer.

A good quality lens, whether prime or zoom, is expensive, but it is expensive for a reason.



The cable release makes the process of shooting long exposures much easier.



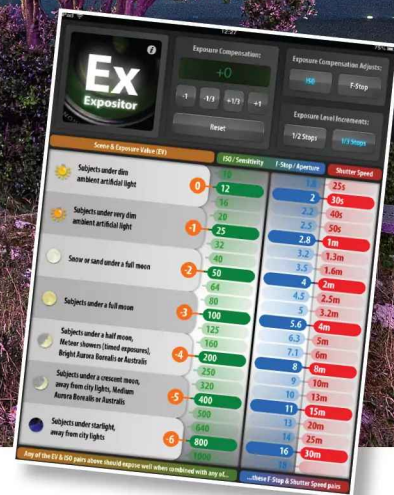
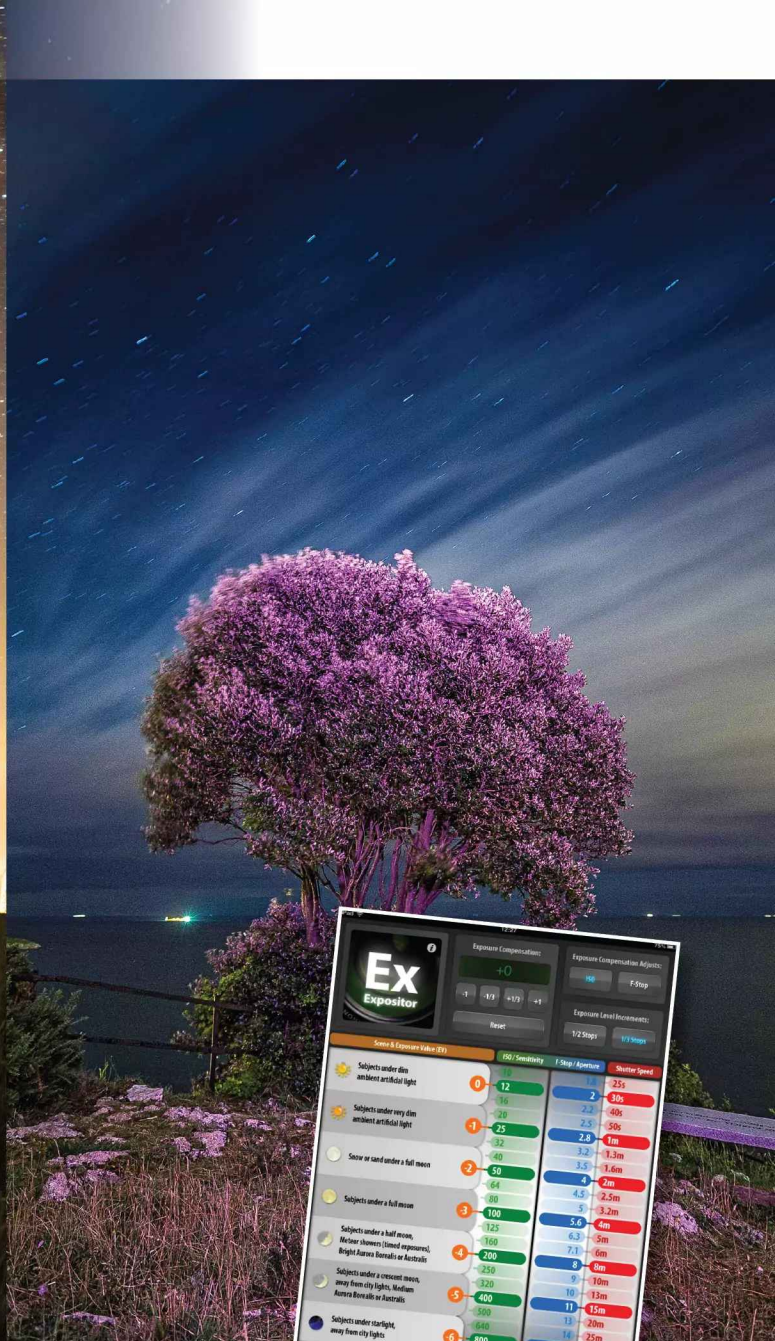


This means you can activate the shutter and lock it open for as long as you need. These vary from the simplest 'press to activate' types to fully programmable interval timers that can take multiple shots with durations and intervals between shots set by the user.

Take test shots at high ISO

Since most modern cameras offer very high ISO settings, it makes sense, before committing to a long exposure or a sequence of long exposures, to ramp up the ISO to the max, take a shot and have a look at the composition, framing and exposure. However if you've just done your test shot at 2000 ISO and it looks great, how does that translate to shooting the same scene but at a lower ISO setting to get the quality?

There is some maths involved but it's not



complicated, especially if you have your mobile phone with you.

The mathematical bit

At 2000 ISO your camera meter tells you that for the aperture you have set, a shutter speed of five seconds gives you a good exposure. Now you need to know how that exposure will change when you dial your ISO down to 100. Divide your high ISO number by the target low ISO number ($2000/100 = 20$), take your answer (20) and multiply it by the high ISO exposure value five seconds - this gets you a final answer of 100 seconds (1.6 minutes). Still with us? If you prefer, there are apps for iOS and Android that can do the heavy lifting for you. A popular one called Expositor, has a nice user-interface that can quickly calculate

any combination of EV, ISO, F-stop and exposure time you care to dial in. It's great for quickly and accurately working out the arithmetic without the need to do the sums in your head.

Earth, sky and water

Use this to your advantage. It may have been done to death, but a coastline shot taken with a long exposure reduces the sea to that wonderful misty blanket. If there are patches of clouds in the shot, they appear to streak across the sky when your exposures get up beyond 30 seconds or more. Of course, who can forget traffic trails? They are the staple of long exposure photography. The key word here is experimentation.

Light painting

Seen in the photograph at the top of this page,

Expositor is a great app for helping you calculate those tricky exposure times.

this refers to the technique of illuminating parts of your scene with additional light sources other than those in the shot. Light painting has become very popular and ranges from simply using a flashlight to illuminate a dark foreground subject, to using all manner of light sources, such as strobes, sparklers, coloured LED lights and even steel wool set alight to create huge showers of sparks, all of which create bizarre and abstract "light art". It's worth looking into if you're thinking of taking night photography to a whole new place.

It's dark out there. Go take some photographs. What are you waiting for? ■



Assignment: Happy Colours

Hints and tips on how to plan a styled photoshoot

Planning and photographing a styled shoot is a great way of exploring your creative ideas using your portraiture skills, combined with exciting colourful concepts you wish to try out. The idea behind a styled shoot is to collect ideas formed by a group of people with different skills, bring them to the table and create an elaborate concept, mock situation or event. The images resulting from your styled shoot can then be used by all involved for their own purposes, without any payment exchanging hands. Therefore a styled shoot is a great way of not only exploring new concepts but also gaining images which can be used for advertising and

promotion. Styled shoots are a great way of making new contacts and friendships within the industry which may lead to future collaborations and expand your knowledge in the theme of your chosen genre.

In this assignment we will show you how to create your own styled fashion Shoot, using our 4 simple stages to guide you: Team, Theme, Location and Preparation. Having previously met imaginative display artist Hannah Taylor at previous events, we arranged to work on a project together. This would combine her beautiful handmade accessories and colourful event decorating ideas with our photography, to see what the results would look like.

The team

Once Hannah had agreed to work with us, the next person we needed to find was a makeup artist. You will find many makeup artists looking to work on styled shoots, as it is a way for them to expand their portfolio of work. Makeup artists all offer different styles and looks and many have been trained to apply special effects makeup if you are searching for a particularly adventurous look! For a more experienced specialist MUA (makeup artist) you may need to pay anywhere between £30 and £75 per hour but it is money well spent as a professional can create the look you wish to achieve.



"In this assignment we will show you how to create your own styled fashion Shoot."

For this shoot stylist Hannah already knew of a makeup artist she wanted to use. Billie Edge is an established MUA in the South West, who has the skills required to create the look we were aiming to achieve. Then we needed our models. We chose Monika and Alana for this shoot as we wanted blonde haired girls with blue eyes and a fair complexion. Finally we needed clothing to suit our theme. Days of Grace is a clothing store specialising in vintage clothing; their unique pieces were exactly what we were looking for to complement our styled shoot 'Happy Colours'.

Theme - 'Happy Colours'

The idea behind our styled shoot was mainly focused on happy vibrant colours. Hannah wanted to create strong statement decor and styling made up with fabrics from her past and present projects and ideas. Using a collection of bold and exciting materials, mixing styles and eras, the textiles Hannah decided to use in the bespoke decorations ranged from antique embroidery to modern bright eccentric print. The clothing we decided to use ranged from 100yr old silk oriental trousers through to '70s and '80s pieces; these were supplied to us by Days of Grace. The main inspiration for the shoot came from

current catwalk fashion, including the eccentric use of mixed patterns, laying fabrics and the use of heavy embroidery.

Accessories and decor

Tablecloths were made up from fabric off cuts and clothing that Hannah loved but no longer fitted, along with favourite items from her own personal collection. Handmade alternative buttonholes and brooches were created for the shoot, based on a pattern found on the tablecloth, that complemented each other and added unique detail. The place setting details were also made

from fabric bought on Hannah's travels. With a riot of colour and pattern it felt right to create a bold bouquet which had a strong shape that would stand out.

The vision

This came from Hannah's favourite artist Henri Matisse; the use of bold colours and patterns was exactly what we were trying to achieve through styled photography. We also decided that by blending our models with some of the objects and patterns in our setting, we could create vibrant and interesting images.



Lenses for a styled shoot

One of our favourite portrait lenses, and often used on styled shoots, is the Nikon Nikkor 85mm f/1.8. It is a very sharp prime lens, which is perfect for portrait work as it keeps the subject perfectly in focus, while also creating Bokeh should you prefer more depth in your images. Due to the exceptional sharpness of this little lens, it is also ideal for capturing details of the accessories and decor in the surroundings and the clothes worn by the models.

The Nikon 24-70 is also a great lens for use on a styled shoot. Due to its wide-angle it is great for capturing an entire set in a fairly small setting. Often in the case of styled shoots, the sets created are in fairly small areas, so this is the perfect lens offering full flexibility for such a setup.

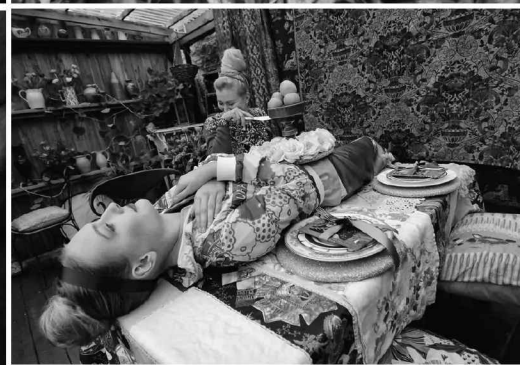
An eye for details

It is a good idea to make use of the time you have while the models get ready to assess your theme surroundings and set up the cameras with the correct lenses and lighting you require for your shoot.

The 24.3MP Nikon D600 is the smallest and lightest full frame camera created by Nikon. It is a quiet camera and is a very popular alternative to the D800 with similar capabilities, at a fraction of the price.

The Nikon Nikkor 85mm f/1.8 AF-SG is a great portrait lens that makes capturing detail easy and is fast enough for shoots on the go.





Location

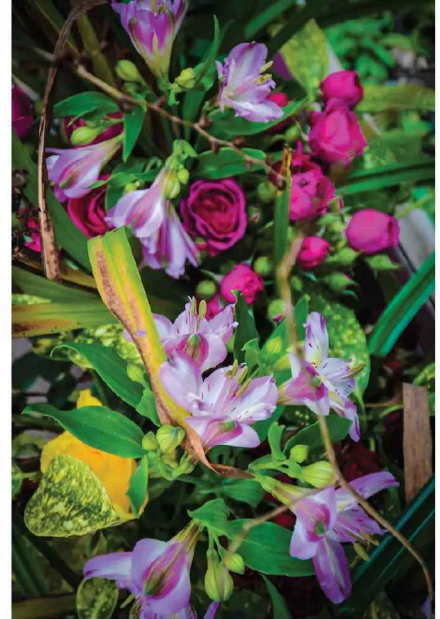
We decided that we would use natural light for this shoot. We did not want any flash lighting altering the colours or natural shadows in any way. Hannah Taylor decided to create the setting in her own back garden using an open sided out house, which had a clear roof and open front, which let plenty of natural light in. We would normally use a gold reflector in our styled shoots to give the models skin a warm glow but on this occasion, as we wanted the reflector to eliminate shadows and not to enhance the skin, we used a silver and white one, thus keeping the skin tones cool. This in turn drew attention to the colours and textures of our surroundings.

We spent a lot of time preparing the space by putting up a selection of materials on the walls and laying the table with a selection of the bespoke decorations which had been prepared for our shoot. Hannah then added a selection of rustic items before filling the location with an abundance of flowers in the colours which would complement not only the surrounding fabrics but also the clothing the models were wearing. More time was taken to make sure the details were positioned correctly, making composition easier when setting up shots.

In the past when we have done styled shoots the weather has been a very big factor to consider when deciding on the location for the shoot. When



planning your own shoot outdoors, it is vital that you discuss with the people you are collaborating with how you are going to proceed should the weather be bad. If you have spent weeks arranging an amazing setting, money on MUA's and then hours getting your models ready, the last thing you want is to call the whole thing off. Communicating with the others involved is important. Always try and have a plan B in place for possible bad weather.



When choosing your location, you will need to make provisions for the stylists to prepare your models for the shoot. Most makeup artists like to use natural light, so you need to make sure this is readily available at your shoot location. You will also need to check that there are facilities if your models have outfit changes during the shoot. Hannah had set aside a large room for our models and Billie the stylist.



Clear concise direction will encourage your models and help understand what is expected from them so you can achieve the images you wish to create.



During our shoot we selected a 24-70mm f/2.8 lens. This is a great all-rounder for wide captures, portraits and anything in between, giving the flexibility to try a variety of ideas during a shoot.



For wide-angle portraits we selected the 12-24mm Nikon lens. This is a great addition to any kit bag if you want to create dynamic wide-angle portraits.



Preparation

On the morning of our shoot we arrived to find our set in place. Our makeup artist was ready to start work on the models who had been asked to arrive with no makeup and with clean hair untreated with products. This gave the stylists a blank canvas to work with.

After quick introductions, we were ready to get started. Our models Monika and Alana were presented with a selection of garments both modern and antique to try on. Stylist Hannah and MUA Billie decided on looks which complemented each of

our models and then discussed suitable makeup. The MUA was able to create subtle soft facial tones which did not take away from the details in our surroundings and the cleverly selected eye colours enhanced the blues of the models' eyes. The rich colours of the lips complemented the fruits and flowers in our setting.

We discussed ideas for our images, making sure everyone had input and the concept for our shoot was agreed upon. We wanted the feeling of an eccentric tea party and as such we wanted to introduce a few obscure poses, making use of the

dinner table, and ideas which would inject a modern surreal twist into an otherwise antique style setting.

It is important on a styled shoot that you not only capture interesting eye-catching images that appeal to you the photographer but also to make sure you are including as much of the set as possible. Your team has collaborated with you in order to obtain images that show off their work, so special attention must be paid to make sure that you have captured everyone's contributions. It is always a great idea to have an assistant if you can, as it frees you up to concentrate on the photography.



Explore your imagination

A styled shoot is your golden opportunity to explore ideas that you might not have the chance to photograph normally. Our theme contained both new and old styles in the textures and colours used, so we decided to use our props to add further contrast to our images. An example of this was having our model holding bright citrus fruits, which against the muted colours of the models' dresses made interesting contrasts; as did the smooth textures of the fruit against the fussy ornate patterns in the background.

We encouraged solemn, serious expressions on the models' faces, to offset the bright and uplifting colour scheme. We also decided that removing areas of a model's body in some of our images, using Photoshop during post production, and replacing with props and backgrounds, would create modern surreal images in contrast to our antique attire and rustic props.



Post production

A styled shoot is mostly about giving you the opportunity to work on a creative project and there is no reason why you cannot take your images to a new level using post production and create your own photographic art. Creative portraits can be created in Photoshop using masking layers and blending modes to enhance the colours in the models' makeup and clothing. We used a selection of paint splash Photoshop brushes, to lift out some of the colours in our models' outfits and makeup.

After the shoot

Once your shoot is over and you have finished preparing your final images, you will need to share them with the people who collaborated on the shoot. However, you may have multiple images

or some that are too large in file size to email; therefore you will need another method to share them. One is to use We Transfer, which is a free website that allows you to share images with others via the web. Alternatively a free Dropbox account can be created that lets you create and share a folder containing the images. Do be aware that once you go over your free allowance, you will be needed to pay to upgrade your account.

If you are using the images to gain more commercial exposure via social media, you may want to make sure your images are clearly watermarked with your name or logo. This will not only raise your profile and possibly attract prospective customers, it might also attract other professionals who may be interested in working with you on a styled shoot in the future.



Credits
Many thanks to:

Design and decor:
HANNAH TAYLOR DECOR
www.hannahtaylor-decor.com

Clothes:
DAYS OF GRACE
www.daysofgracevintage.com

Photography:
VICKI-LEA BOULTER
www.vickiboulter.com

Hair & Makeup:
BILLIE EDGE
www.billieedge.com

Model:
ALANA MILLER & MONIKA HAGLUNDH

Assignment: Fireworks

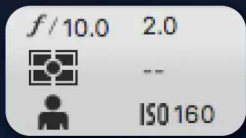
How to capture all the explosive action



There was a time, and not even that long ago, when fireworks in the UK really only happened on Guy Fawkes night on November 5th or as a climax to some massive celebration or event. If you wanted a chance to photograph a big display, you were fairly limited and had to travel large distances to find them, or buy your own and set them off in your garden. These days it would seem that firework displays happen with a much greater frequency. Local towns will often end staged events with a display and there are even fireworks competitions

where a number of teams with big budgets will each stage 10-15 minute displays. These competitions will often happen over a couple of consecutive nights so you get a couple of bites of the cherry so to speak. If you have access to a local display, what is involved in actually capturing the action? Photographing fireworks is easy and great fun, although it does require a little bit of preparation on the part of the photographer, and if you've never shot in full manual mode before, this is a good time to give it a go. It's not in the least bit difficult and we can show you how.

"These days it would seem that firework displays happen with a much greater frequency."



The basics

Since this is a guide on shooting fireworks, you are going to be working in the dark. This means you will be dealing with longer exposures than normal and so the first order of business is to mention that all important tripod. Without the tripod, you cannot fix your camera in place in order to prevent unwanted image blurring due to camera shake. A blurry image cannot be rescued with post processing. Even a tiny amount of movement can ruin a shot. Get your camera locked down securely on a good, sturdy tripod. You can also hang a heavy weight from the tripod's centre column in order to help minimise any kind of movement.

Some people also think that if their camera has image stabilisation (IS), turning it on will also help. In fact, it can have the opposite effect. A camera with IS turned on that is locked in place on a tripod, can actually generate unwanted image blurring. The effect is generally more noticeable at longer focal lengths, but it is there. Remember then, turn off IS when the camera is securely mounted.

Cameras and lenses

The great thing about this kind of photography is that you don't really need any specialist cameras or lenses. You are more than likely going to be dealing with exposures no longer than a few seconds, so as long as you can set your camera in manual mode and dial in a maximum exposure of 10 seconds, you will be fine. In addition, if your camera does have a setting for Bulb mode, which allows the shutter to be kept open as long as the shutter button is pressed, then this is also useful.

Lens choices are also not critical here. Even a cheap point and shoot camera with a built-in

lens has a focal length range perfect for this kind of work. You will also be dealing with apertures around the f/8-f/11 mark, so expensive f/1.4 lenses need not apply. Ultra wide-angle lenses are possibly going to be less effective if you are shooting from a distance, which is very likely given that the display has to be a certain safe distance from the crowds anyway.

Remote release

Since you've gone to all the trouble to secure your camera and lens to a tripod, manually pressing the shutter release button to capture your shots is just reintroducing the possibility of joggling the camera. To avoid this, you could use a remote release which can connect to your camera via a cable or by using a wireless version to trigger the camera instead. Using a remote

From a simple cable release to activate the camera without touching it, to more complex, programmable intervalometers, you have plenty of affordable triggering options for your DSLR.

Even point and shoot cameras can provide you with some great fireworks photos. They may not have ultra wide lenses, but since you are likely to be at a distance, that is not going to be an issue.



A sturdy tripod is essential to eliminate camera shake and prevent blurry images.

release removes the possibility of nudging the camera as you press the button. If your camera doesn't have this facility, but does have a self-timer, you can use this at a pinch. The downside is that self-timers usually give you either a 10 second or 2 second countdown before firing. Even a 2 second delay may be tricky when it comes to trying to time the start of your exposures with the fireworks as they are going off.

Focusing in the dark

Once you're all set up, it's time to figure out how to focus in the dark. As a general rule, since you are going to be some distance from the action, you can set your lens to manual focus and set it at infinity and leave it there. The infinity symbol, which looks like the number eight on its side, will be marked on your lens. If your lens doesn't have a focus distance window, you can always use a torch to illuminate a point about one third of the way into the scene or roughly 5m-10m. You can then set manual focus on that spot.



Shooting from a distance means you can set your lens to focus on infinity and just leave it there during the shoot.



Cheap but powerful LED head torches are extremely useful in keeping your hands free for camera operation and button pressing.

Bring some light

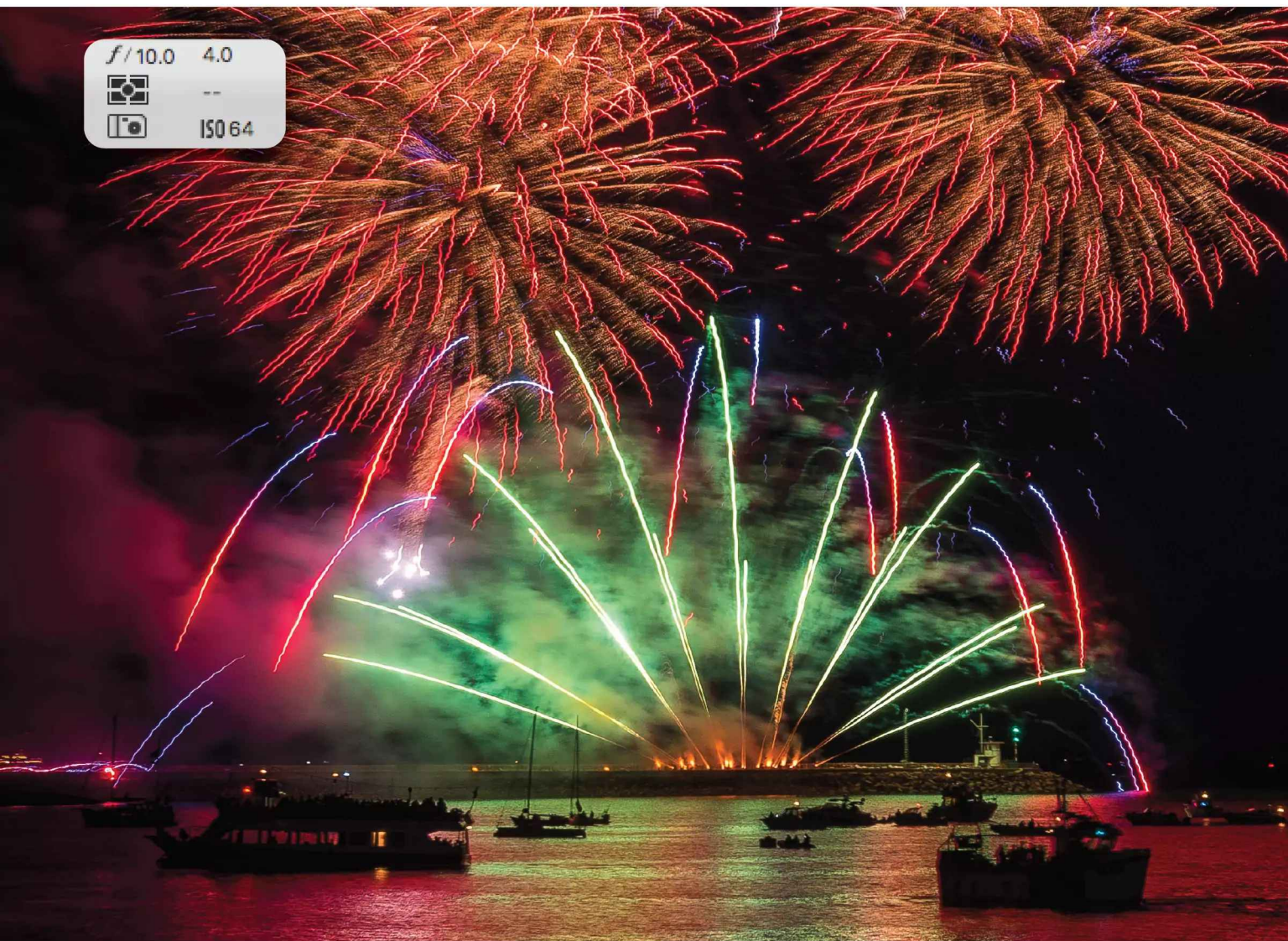
Speaking of torches, it makes sense to bring one. Better still, a head torch is great for keeping your hands free to alter settings and operate the remote release if you are using one. Head torches are lightweight and cheap to buy. Their LED bulbs mean that a set of batteries will last for ages and can provide plenty of light to work by.

Setting up

It makes sense to get to your venue early in order to nab the best spots to make the most of the display. Arriving late and having a sea of heads in your foreground, dominating the shot, is not going to work unless you can raise your camera on its tripod high above the crowd and use them to frame the bottom of the shot. If you do this, you may need a small stepladder or stool to get your head up to the same height as your viewfinder.



As long as they are not too intrusive, you can use foreground crowds to frame the lower portion of your shots.



About Raw

Yes, once again we have to talk about Raw mode. If your camera supports it, use it. You can glean so much more data from a Raw file than an already processed jpeg file. Besides, if you take all your shots as jpegs and use the wrong white balance for instance, all your jpegs will be processed with the wrong white balance. With Raw, it doesn't matter what white balance you use, as you can alter it at the post-process stage anyway.

Settings

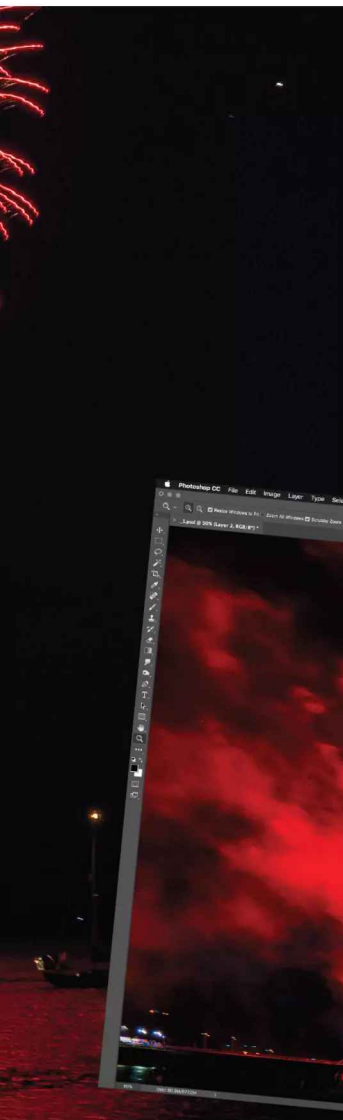
Until the fireworks actually start, it will be difficult to actually get your settings dialled in precisely. If you were to try to get a decent exposure without the light from the fireworks themselves, you may find that the ambient light is much dimmer, requiring a longer exposure. That longer exposure may result in the much brighter fireworks being badly overexposed and blown out to white. A very broad rule of thumb is to try starting with an aperture of f/11, a shutter speed of 2s and ISO 200. Once the display starts, you can grab some test shots and

analyse the images on your camera monitor screen. If the images are blown out, you can either reduce the amount of time the shutter stays open, increase the aperture to f/16 or drop the ISO to 100 or 50. Take another shot and see how it affects your photos. Try altering one setting at a time rather than making lots of changes at once. Be aware that different fireworks and their colours will have different intensities too. If the fireworks look too dark, you can increase the ISO gain, open up the aperture to f/8 or increase the exposure time. One thing to bear in mind is that longer exposure times will create much longer light trails in your photos. This comes down to personal choice of course, but bear that in mind.

Take the shots

Now you can concentrate on getting the shots. Firework displays have low-level and high-level displays. The high-level fireworks generally give the bigger explosions and are usually fairly easy to spot as you can see the fired rockets climbing

much higher into the sky. It comes down to timing to guess when the rockets will actually explode, but keep your thumb on the remote release and get ready to press. If you have a decent sized memory card, just keep shooting. There is actually a great little trick you can employ once you are back at home to combine some of the shots that have little going on in them. Another option is to set your camera to Bulb mode. Then you take a small piece of black card and cover the lens with it. Be careful not to bump the camera with it. Open the shutter and keep it open using Bulb mode and only uncover the lens when there is firework activity that you want to capture. If the lens is covered, no light is getting in, so you can keep the shutter open as long as you want. Keep uncovering the lens for each light trail you want captured. Once you have amassed a few seconds worth of light trails, you can close the shutter again. You can experiment with different focal lengths to pick out details from the display and also try shooting in either landscape or portrait orientation.



Merging multiple shots in Photoshop means you can create an image absolutely bursting with light.

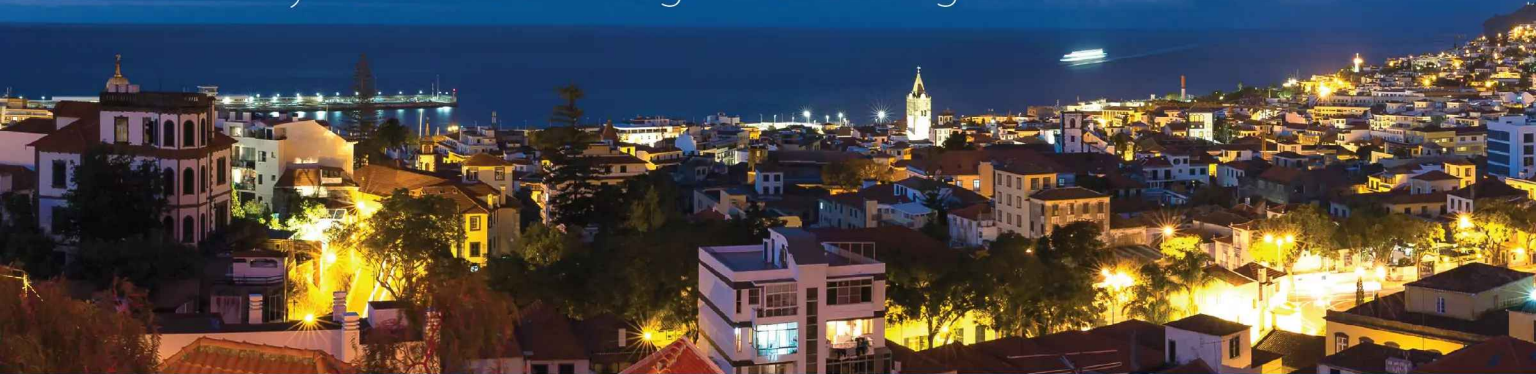
Post-processing

Once you have your shots in the bag, you can process them using your favourite processing software. You can recover quite a bit more from Raw files than jpegs. A certain amount of the highlights can be pulled back from overexposure and the darkest shadows can be lifted too, before the image starts to degrade. You can also merge a number of the more empty looking shots in Photoshop to create much more densely populated fireworks images, if that's what you want. Just load a number of them into a document as a series of layers and set all of their Blend modes to Lighten to combine their brightness; crop it into a tighter composition and save that out as a single image.

Firework photography is great fun and hopefully, after reading this guide, you'll realise that it is quite easy to capture all the excitement and action from your next local display and create some wonderful images for yourself. ■

Assignment: Panoramas and Vertoramas

We show you how to think big and shoot big



The word panorama means 'an unbroken view of the whole region surrounding an observer'. In more simple terms, it means a photograph containing a wide view. A vertorama is simply a panorama that is shot in a vertical orientation. It all came about in the 1700s when artists would paint a horizontal image that encircled an entire room. These wide, expansive views are much prized by landscape photographers who strive to capture entire vistas to give the viewer of the final image a sense of the scale of the scene that was visible

to them whilst they were there. Conveying all this 'bigness' would normally require the use of wide angle lenses. These lenses have short focal lengths of around 14mm to 24mm and can capture an angle of view of around 90° measured diagonally across the frame. This angle of view is an aspect of landscape photography that can be a slight issue for some.

Seeing is believing

One thing that a lot of people comment upon is that the scene they view with their own eyes always

looks far grander and more impressive than the photograph they take of it. Human vision is amazing, it can encompass an angle of view that is almost a complete 180° if you take peripheral vision into account.

Of course a photograph is not going to be quite so impressive. However, there are methods that can let you capture super-wide vistas that go some way to emulating human sight. We have some tips on capturing entire majestic panoramas that will make your viewers go 'wow!'.





The images shown here are great examples of super-wide panoramas. Both are comprised of multiple portrait orientated shots and were merged using the Photomerge option in Photoshop.



This coastal image was captured on a Nikon D810 using a 15-30mm Tamron ultra wide zoom lens. Although the shot covers a roughly 100° angle of view as measured diagonally across the frame, there was still a lot more to be seen either side of the image that couldn't be captured in one go.

The Nikon 14-24mm f/2.8 wide angle zoom at around £1800

The Nikon 8-15mm f/3.5-f/4.5 fisheye zoom at £1200

The Nikon AF NIKKOR 14mm f/2.8 wide angle prime for about £1100



The lens option

We mentioned that the best guy for the landscape photographer is the wide angle lens and those serious about capturing extremely wide views will be using a lens somewhere in the 14mm focal length range. Lenses like this have roughly a 105° angle of view, which is great. You can capture some impressive scenes with a 14mm lens. The problem for most budding photographers is that a major brand name lens like that is going to cost upwards of £1500 for a fixed focal length version. Step up to a variable focal length 14-24mm wide angle zoom lens and you can expect to pay a lot closer to £2000. That is out of the reach of most photographers. Manufacturers like Samyang do make a 14mm f/2.8 lens available in Nikon, Canon, Sony, Samsung and Micro Four Thirds fits at a much more reasonable £350. Be aware that a full-frame 14mm lens fitted to an APS-C camera for instance will actually behave like a 21mm lens, due to the smaller size of the sensor the full-frame image is projected on to. In this sense,

the benefit of that 14mm focal length has been lost. That said, even in a normal frame taken with a wide angle lens, it is still only a relatively small part of the bigger picture.

Fisheye

Another option to capture large angles of view in your shots is to use a fisheye lens. A 15mm fisheye can capture an almost 180° angle of view image. The effect of a lens of this type is the distortion. Fisheye lenses are designed to actually show the spherical distortion you would normally not want to see in an image. The centre of the frame is quite acceptable but as you get to the edges of the image, you'll see the curved outer corners produce a goldfish bowl effect. For landscapes, this is not usually a desirable effect. Yes, you can remove the distortion at the post-process stage but that involves enlarging and distorting the image still further to remove the spherical view created by the lens in the first place. Any views that have strong horizontal or vertical lines in them will appear like something you would see in a funhouse mirror, so they are to be used with caution for landscapes. This still doesn't allow us to see the much broader canvas that our eyes see.

The alternative

What happens if you do not have a wide angle lens or a fisheye? What are your options then? A lot of photographers who step up to a DSLR for the first time, will probably purchase a camera with a kit lens. A kit lens is a utilitarian jack-of-all-trades that can get you started in the world of photography. If you choose a cropped sensor camera such as a Nikon D3500 or Nikon D5600, it invariably comes with a kit lens in the 18-55mm focal length range. In 35mm full-frame terms, the images you capture with it are actually more like a 27-82mm lens. A scene shot with this lens in landscape orientation is not going to be terribly impressive. It isn't a problem though since you can use the multi-image approach instead. Rather than take one landscape orientation shot, you simply turn the camera to portrait orientation and shoot a sequence of images for stitching together later. Let's explain in a little more detail.

The process

Essentially you are going to take a number of stills. Rotating the camera a few degrees left to right with each shot taken, whilst allowing enough overlap from image to image so that they can be stitched together. This can be achieved with programs like Photoshop,

PT GUI or Hugin, that rely on features in each shot being matched together to create accurate stitching points; as a general rule, shoot with a shorter focal length lens and always try to overlap your images by 25% or more. For example, look for features that are right-most in your current shot like a car or building (something that isn't moving). For the next shot you rotate yourself on the spot so that those features are now left-most in the frame. These matching features will help your software to stitch the shots together more accurately and avoid odd tearing and mismatches that can spoil the image.

Another consideration is to try and avoid a scene where a lot of objects are very close to the camera. Unless you are using specialist panoramic photographic equipment and lenses, you will find that even slight unwanted movement and rotation of the camera (which is unavoidable if you shoot handheld) will result in big parallax shift errors in very near objects that even the best software will not be able to put right. Parallax shift describes how objects close to you seem to move a greater distance relative to those that are further away when you move your head or camera.



The bigger picture

The benefits of shooting multi image panoramas are twofold. You are of course capturing a much wider view than is possible with just a single shot; the other benefit is that when the image is stitched together, it creates a much larger file, containing more detail than a single ultra wide image. As an example, this scene was captured with 5 portrait orientation shots, each measuring 3333 pixels wide by 5000 pixels high. When the 5 shots were merged in Photoshop, the resulting panorama, once cropped, measured 9768 pixels wide by 4676 pixels high. Roughly speaking, the result is a 45MP image. Granted you do need a reasonably powerful machine with plenty of RAM to work with large files but the results are quite impressive.



Settings to use

To capture a basic panorama from left to right you can set up your camera in the following way. First, set your camera to portrait orientation and set focus to manual. Select a point of focus roughly a third of the way into your scene. This is an utterly basic rule of thumb to quickly set yourself up to record as much sharp focus in your scene as possible. Working out the exact point into the scene that gives the best overall focus based on your aperture, referred to as the Hyperfocal Distance, is not to be approached lightly. For our purposes the most basic approach will do for now.

Your camera settings need to be set in such a way as to produce as little noise as possible but keep a fast enough shutter speed to avoid camera shake or motion blur. Camera shake is a main concern if you are going to choose to shoot hand-held and we would always recommend using a tripod whenever possible. For shot-to-shot colour and exposure

consistency, it is always a good idea to shoot in manual mode and use a preset White Balance setting rather than Auto White Balance. If you shoot in Raw format, this is less of a worry since you can non-destructively alter the white balance of each shot to match your favoured colour temperature. With trial and error you can arrive at settings that yield enough detail on the ground and the sky without either losing detail in shadows or blown out highlights. It is also a good idea to use a narrow aperture of at least f/8 to ensure that your entire is a sharp as possible from front to back.

More accuracy

We would always recommend the use of a tripod when shooting panoramas. It creates a nice stable platform with rotation that is easy to control in both the horizontal and the vertical. You can level both the tripod and then the camera on the tilt-head by using a small spirit level that can attach to the hot-shoe of

the camera. For even greater stitching accuracy, you can attempt to rotate the camera around its nodal point. The nodal point is the point around which the lens must rotate in order to completely eliminate parallax shift. Without specialist equipment it can be very difficult to achieve. The hi-tech method for shooting accurate panoramas is a device such as the Nodal Ninja. It is made from metal and is very robust with an optional levelling plate to provide a very quick way of getting things on an even keel. You can quickly shoot accurate and level panoramas with devices such as this. There is a very low tech way you can do it yourself, whereby you rest the camera lens barrel on a pole or stick (even a sawn-off broom handle) so the front lens is as near the pole's centre of rotation as possible. It will be up to you to keep the camera as level as possible but it does help avoid those nasty parallax shifts. Oh, and people will wonder why you are rotating around a pole stuck in the ground!

On the right are two approaches to getting more accurate panoramas. The first is to attach your camera to a Nodal Ninja so the camera rotates around the front lens element. A quick method to emulate this piece of equipment is to place your camera on a pole with the lens element as near to the centre of rotation as possible.



The Nodal Ninja is perfect for capturing accurate panoramas in horizontal or portrait format. Once the camera's nodal point is established, you can shoot full 360° pans if you want.



Starting position at 0°



Rotate camera/body to 45°



Rotate camera/body to 90°



Rotate camera/body to 135°

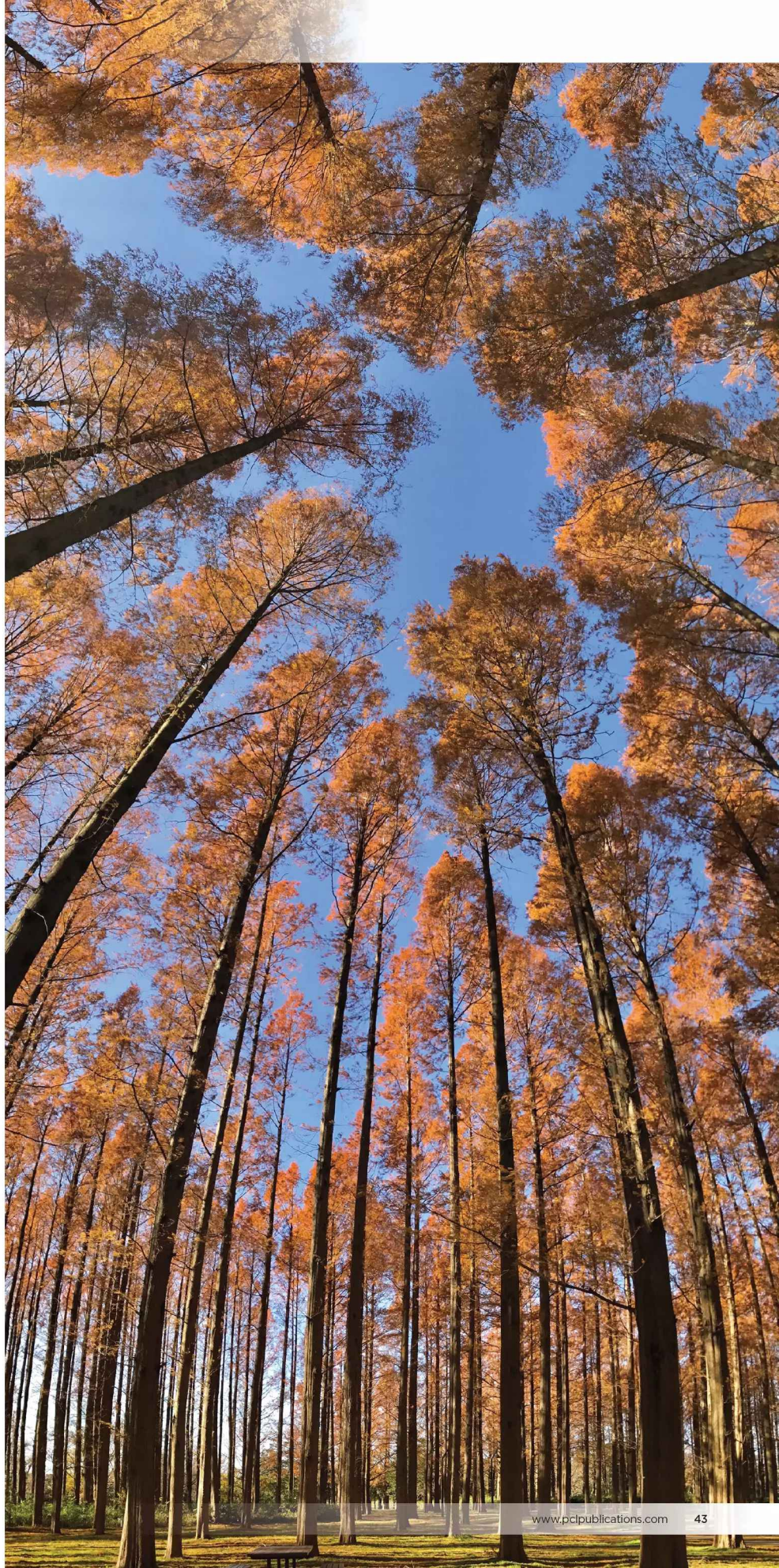


Rotate camera/body to 180°





Whether you are using a tripod or a more advanced Nodal Ninja, always try to get it as level as possible. Most tripods feature a small bubble level. If it doesn't have one, you can always get a small spirit level that fits in the hot shoe attachment of your camera.





Go vertical

There may be certain times when you might need to capture a panorama that doesn't fit into our happy horizontal world. Sometimes, you need to think vertically. Vertical panoramas, or vertoramas as they are called, can produce some very spectacular and mind-bending images. The methods for shooting a vertical panorama are the same for those you would employ for a normal one. This time, you can actually shoot with your camera in landscape orientation but you pan from the ground and rotate the camera upwards to the vertical, and even over the vertical if you can stretch far enough (just don't fall over). Shooting a vertorama in the woods, city centre or an enclosed space such as a church or cathedral





"There may be certain times when you might need to capture a panorama that doesn't fit into our happy horizontal world."



All the shots you see here were merged into their final panorama or vertorama by using the Photomerge option in Photoshop CC. The vertoramas will require some additional work to clone out either your own feet or the legs of the tripod you were using that will most likely be captured when shooting directly downwards with a wide angle lens.

can produce some intense images. You are likely to end up photographing your feet or the legs of your tripod when shooting directly downwards but once you have stitched the images in Photoshop or other favourite program, you can crop or clone them out. With this in mind, make sure you give yourself plenty of room at the bottom of the frame for cropping.

Go wide

Shooting panoramas, whether horizontally or vertically, is a very diverting method of landscape photography. It does mean you are working with a large number of files and they need all that extra work to stitch them together but the result is a very large image file that is significantly larger than a single shot from your widest lens. Not only that, it contains a vast amount of detail and its larger combined resolution means that if it were ever needed, it could be printed at a huge scale with a reduced loss of detail. Give it a go: you can start with hand held versions and if you like it, you can upgrade to a good tripod; or better still, get yourself a Nodal Ninja for the ultimate panorama. ■

Assignment: Long exposure

Take your time and explore this fascinating subject

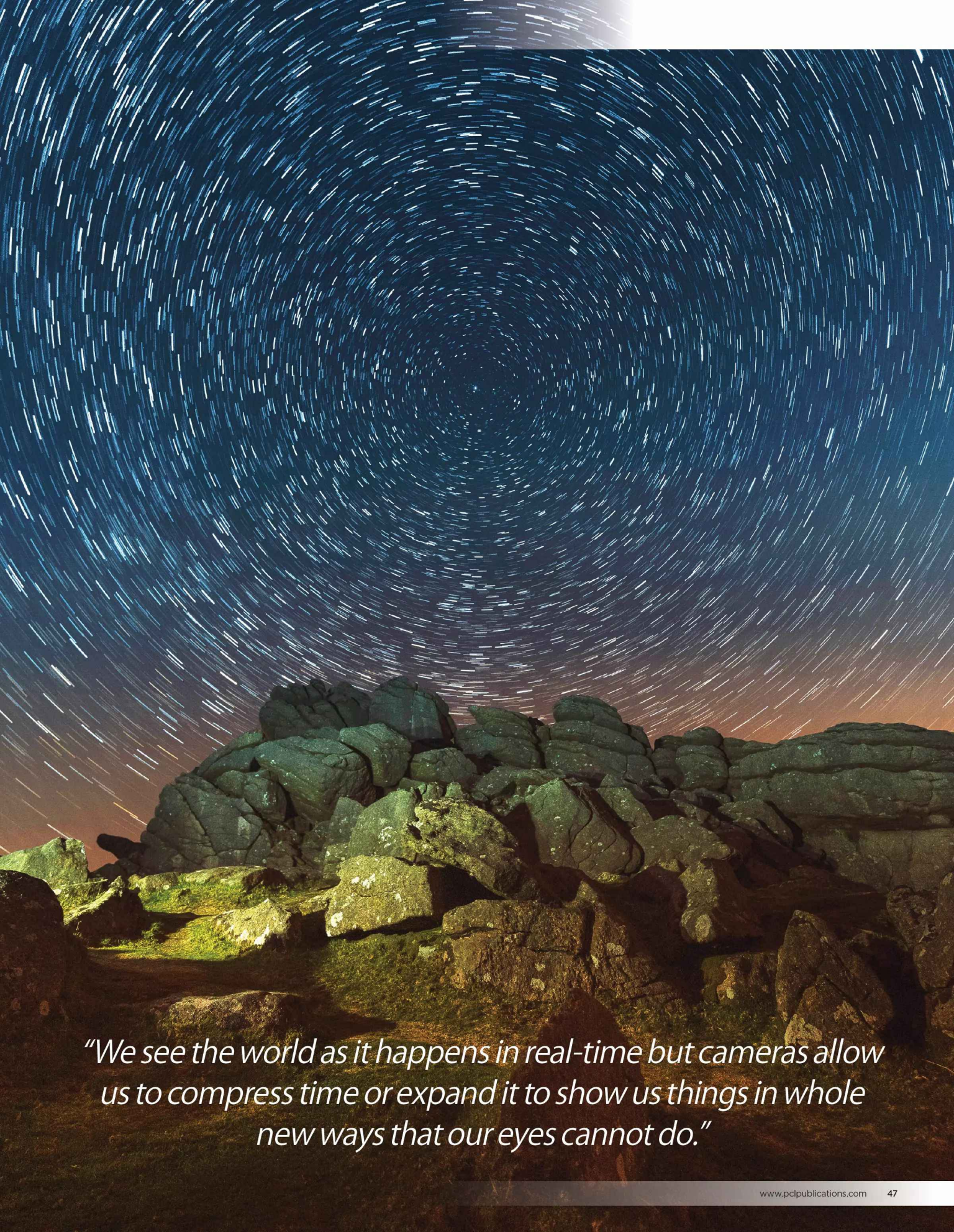


The human eye is a wonderful thing. An organic marvel that is unparalleled in its complexity. We see the world as it happens in real-time but cameras allow us to compress time or expand it to show us things in whole new ways that our eyes cannot do. It has been determined that our eyes, although not governed in the same way as the moving parts of a digital camera, can detect flashes of light as short as 1/100s. Depending on the health and age of the viewer it can in some cases be as short as 1/200s.

Given the way our eyes and brain perceive and process the things we see then, we have a natural 'shutter speed' of about 1/200s. This means that we can turn to our cameras to create the kind of images that reveal the world of motion beyond what we see. The camera offers two options. Using special lighting, you can capture things that literally happen in the blink of an eye or you can go in the opposite direction and delve into the fascinating world of long exposure photography.

Long exposure photography is a very popular subject for photographers of all skill levels. Take a look on any image sharing site or in digital photography magazines and you'll see plenty of examples of the genre. What is long exposure photography all about?





"We see the world as it happens in real-time but cameras allow us to compress time or expand it to show us things in whole new ways that our eyes cannot do."



f/16.0 13.0
AWB ISO 31



f/5.6 30.0
ISO 640

Just as a matter of interest, compare image 1, to image 2 on the left. You'll see that the exposure time of image 2 is almost three times longer than image 1. A 10-stop filter was added to drive up the exposure time but given the speed of the moving water, any exposure over a few seconds will generally look much the same as a photo where the exposure is 30s. There may be a little more smoothing of the water as it flows but this is a good example of knowing how to gear the exposure time to your subject matter. Sometimes less is more than enough!



The technique

Although the name is self-explanatory, let's elaborate. A long exposure is usually defined as being several seconds in duration or longer. It is possible to have exposures that last many minutes, even hours in extreme cases. The camera is placed on a solid surface or mounted on a tripod so it doesn't move and then the shutter is opened, and kept open, for a predetermined period of time. Any static objects in the scene are still captured sharply since the camera is not moving but any object that is in motion through the camera's field of view, is blurred as it moves within the frame. The amount the object is blurred will depend on the length the shutter is kept open and the speed of the moving object in the shot. How you combine the two is a matter of artistic preference but experimenting is a lot of fun; but how do you get shutter speeds so long?

Creating a long exposure

A long exposure relies on several important factors in order to get your shutter speed down to a duration that will yield the kind of blurred motion you were hoping for. Your aperture can be set to its minimum, which is around f/22. This reduces the amount of light that can fall on your sensor and requires the exposure to be longer to allow the camera to gather more light but apertures this narrow can lead to the optical phenomenon

known as diffraction. Normally, you would be better off using an aperture of about f/9 or f/11.

The settings

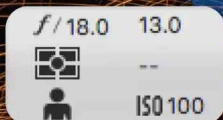
These kinds of shots would require you to set your camera in manual (M) mode or Aperture Priority (AV). This way, you have control over how the camera reacts as you alter the parameters. Since you don't want to focus accidentally on the wrong thing, we would also recommend you switch to manual focus. This way you can compose your shot, use live view to confirm you have the correct point of interest in focus and since it's in manual focus mode, it will maintain focus with no further input from you.

Next, you can set your camera's ISO sensitivity to its lowest value. The less sensitive your camera is to light, the longer it needs to gather light for a good exposure. Most camera's offer a minimum ISO of 100 but some will let you set ISO values down to about 31. In combination, the aperture and ISO values will affect your shutter speed durations, requiring it to be a longer duration in order to capture more light. The next factor you have to take into account though, is just how bright the scene is you are shooting.

Your first port of call when attempting to get exposure times as long as possible, is to use apertures of f/16 or narrower. Beware of diffraction when you use apertures around the f/22 - f/32 area. You might suffer from soft images even though everything is in focus. You can also use the lowest ISO values your camera allows. The Nikon D810 above, can use ISO 31 as its lowest value; this enabled long exposures of the waterfall image on the far left based on the ambient light available at the time.

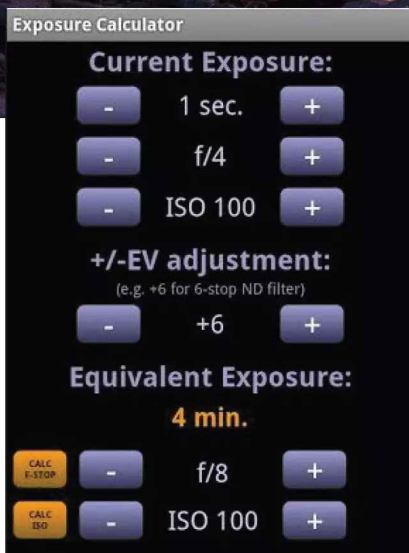
Night time

At night, you will be dealing with longer shutter durations as a matter of course since there is very little ambient light. In fact, you may find that you need to open up your aperture and even raise your camera's ISO sensitivity to stop the exposure durations from being too long if you are in extreme low-light conditions. A typical city street scene at night, with your camera set to an aperture of f/9 and ISO 100 would need a shutter speed of anywhere between 2s to about 30s, which is perfectly manageable. A scene lit only by the stars in the night sky could take many minutes; as an example, a clear starry night, with only the most minimal amount of light from a nearby town would require a shutter duration of about 60 minutes, if you were using the same settings mentioned previously.



This is an example of the popular photographic technique of shooting burning steel wool, which has been placed inside a steel whisk and spun around on a long tether, during the course of a long exposure. It can create some amazing light art.

There are no shortage of apps for both iOS and Android mobile devices that can calculate different exposure times for you if you need them. The apps can also allow for the use of ND filters and recalculate correct exposures once they are added.



Obviously, you need ensure that your exposure settings are correct, it would be very disheartening to spend an hour waiting for the exposure to complete, only to find it is either badly underexposed or overexposed. It is better to shoot at a much wider aperture of $f/2.8$ and a higher ISO, just so the exposures are shorter. This lets you fine-tune your exposure, then you can calculate the exposure time required when you use lower ISO and narrower apertures. There are plenty of apps for your mobile devices that can calculate the alternative exposures needed without the need for mental arithmetic. Check you histogram too; if the histogram is bunched too far to the left of the screen, then

it is way too underexposed or if it's all bunched on the far right of the histogram, then it is too overexposed and you will lose detail in the burnt out highlights.

Night time subjects

To be honest, anything is fair game when it comes down to what to shoot at night. The classic traffic trails are always a good place to start. Using an aperture of $f/5.6$ and an ISO of 100 as a starting point, you should be able to get shutter durations of about 4s. From there, you can alter ISO and aperture to get shorter or longer shutter speeds. Fireworks are also a popular subject to shoot with similar settings. Then comes astrophotography. This is taking photos of the night sky with short enough exposures of about 20s so the stars show no recorded movement; or actually deliberately using much longer exposures of 60 minutes or more, that reveal the movement of the stars overhead. Another trick is to take a back-to-back sequence of about 15-30 shorter exposures and blend the resulting images in Photoshop to create a star trail effect. Another popular effect is to shoot flames or other pyrotechnics with longer shutter durations. The path of a ball of burning steel wool in a metal egg-whisk as it is spun around on a tether can create some intense and surreal images. Always take care with fire and pyrotechnics of any kind though. It's not worth getting burnt for a photo.



A sturdy tripod is a must for anyone serious about doing long exposure photography.

Use a tripod

It goes without saying (but yes, we're going to say it anyway), that these kinds of shots demand the use of a tripod to stop camera shake from ruining the shots you have patiently waited minutes or even hours for. A good, sturdy tripod is essential and there are plenty to choose from to suit your pocket. Try to avoid cheaper, light travel tripods for this kind of work, since they may not be as sturdy as you would hope. Even a light breeze might be enough to cause it to flex or vibrate just enough to ruin the shot. If you are using a heavy DSLR, then the rule for these shots is to use a heavy tripod too.



The humble cable release has come a long way from its simple squeeze bulb arrangement. Now they are electronic devices that can be programmed in multiple ways to shoot sequences with user-controlled exposure times and intervals between shots.

Cable release

Be aware that most cameras can handle exposures as long as 30s. For longer exposures, you will need to set the camera in bulb (B) mode. In bulb mode, the shutter remains open only as long as the shutter button is depressed. Once you let it go, the exposure will end. You could stand there for the duration of the shot with your finder on the button or you could use a cable release device that you can either lock during the exposure and unlock when the time is up, or use a programmable one with a timer that will do it all for you. These devices are called intervalometers and range from simple cabled devices with a single push-button activation to complex wireless versions that you can control from a distance.

Too bright

During the day, the problem is much greater as you might imagine. On a bright sunny day, even with your camera at its lowest ISO and smallest aperture, you would struggle to get exposures any slower than about 1/125s. Even if you had a lens that could stop down to f/32, you would still be looking at a shutter speed of about 1/60s. By comparison, a daytime scene like a woodland waterfall shrouded by trees has a much lower amount of ambient light. Camera settings of aperture f/9 and ISO 100 would yield a shutter

speed around 1/10s. That's better but still not what we would call a long exposure. How do you overcome that problem?

Going dark

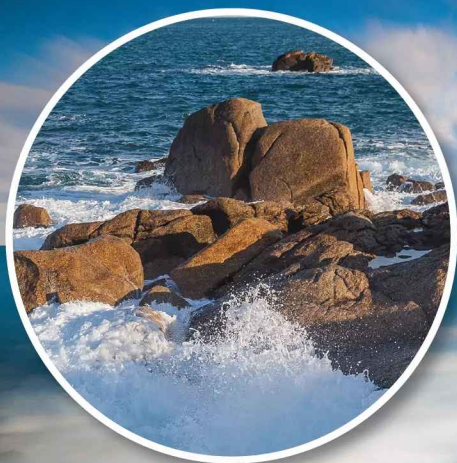
To achieve long enough exposures during daylight hours, you will need to use a Neutral Density (ND) filter. It is referred to as 'Neutral' since it is optically neutral in colour and shouldn't create any colour cast in your final shot. Cheaper versions may not be as neutral as they claim, so beware of bad quality knock-offs. The filters also come in various densities. A 2-stop ND filter for instance will block enough light to make an example 1/500s exposure become a 1/125s exposure. A 10-stop filter would make the same example a 2s exposure. An ND filter is a bit like a welder's mask for your camera lens, in that it blocks a large amount of light entering the camera and requires the use of longer exposure times. ND filters come in two varieties depending on your preference or pocket. The first and cheapest method is to buy a screw-on type. The downside to these is that you need to buy a filter that matches the filter size diameter of the lens you



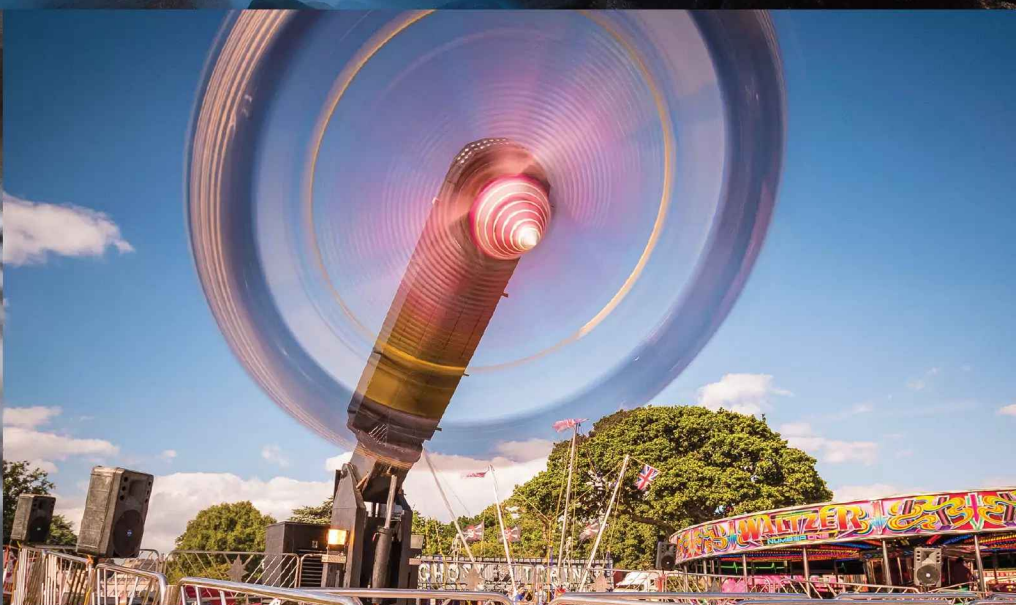
Whether it is the simple screw-on variety of ND filter or the filter holder system that you use, these different density filters are what you need to take your daytime shutter speeds from fractions of seconds down to seconds or even minutes.

are using. If you want to use more than one lens with different size diameters, you would need a filter for each size.

The alternative is to use a filter holder system that you can screw on the front of any lens you have provided you use an adaptor ring for each size of lens you want to use. The holder uses square or rectangular filters that simply slide into place and can hold two or even three filters in one go. Manufacturers such as Lee and Cokin make a number of filters and filter holders for various sized camera bodies and lens types.



Compare the two shots of the North coast of Tresco shown here. The inset image uses a normal exposure based on the ambient light settings for a fast shutter of 1/400s. Adding a 10-stop filter and narrowing the aperture allowed us to reach a 2 minute exposure time in the same lighting conditions.



Daytime subjects

Just as with the night time alternatives, daytime subjects are down to creative choice. A popular subject for landscape photographers is to photograph streams, rivers and coastal scenes during the day with a 10-stop filter in place. This gives you shutter speeds of around 4s. If you are lucky enough to own a camera that offers lower ISO speeds down around the ISO 31 area, you can achieve shutter durations as long as 15s even on a sunny day. We have some examples taken on the moors as the sun was getting near the horizon. With the aperture set at f/22 and the ISO down to 50, when the 10-stop filter was

put in place, the exposure was almost 3 minutes long. The clouds that were visible became wispy trails in the sky thanks to the longer exposure. Even city street scenes captured during the day take on an unusual quality when pedestrians and moving cars are reduced to ghosts as they pass by. Even fairground rides become surreal objects and their apparent speed defies the sense of what is normal.

If you have never tried it, we can heartily recommend giving it a go. Even if you don't have ND filters, you can still venture out at dusk and at night and experience the fun of capturing long exposure images. ■

Assignment: Macro Photos

Who needs outer space when you can photograph 'near space'?

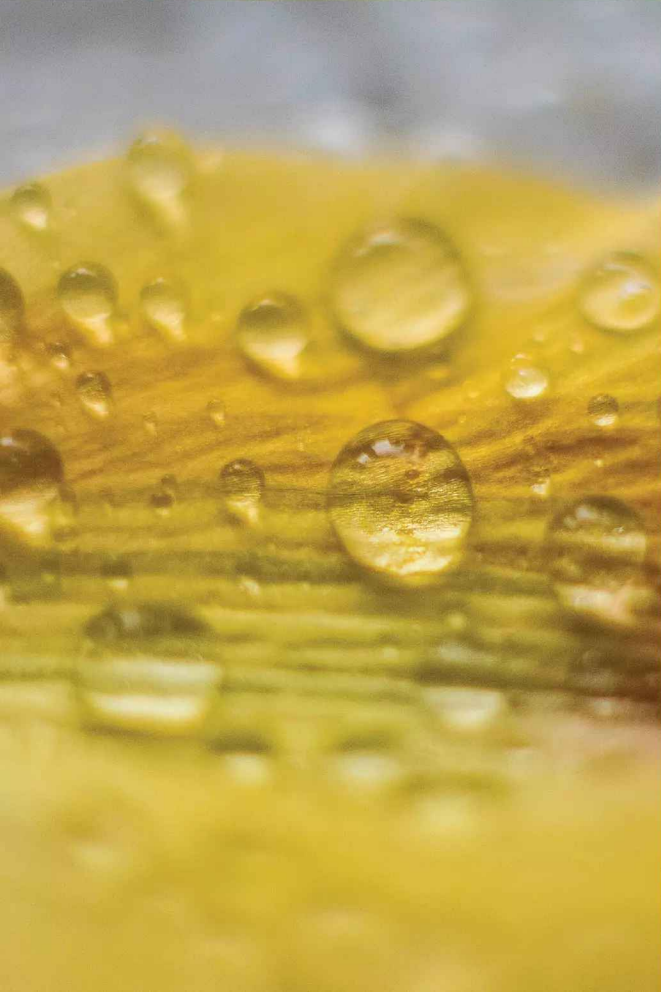
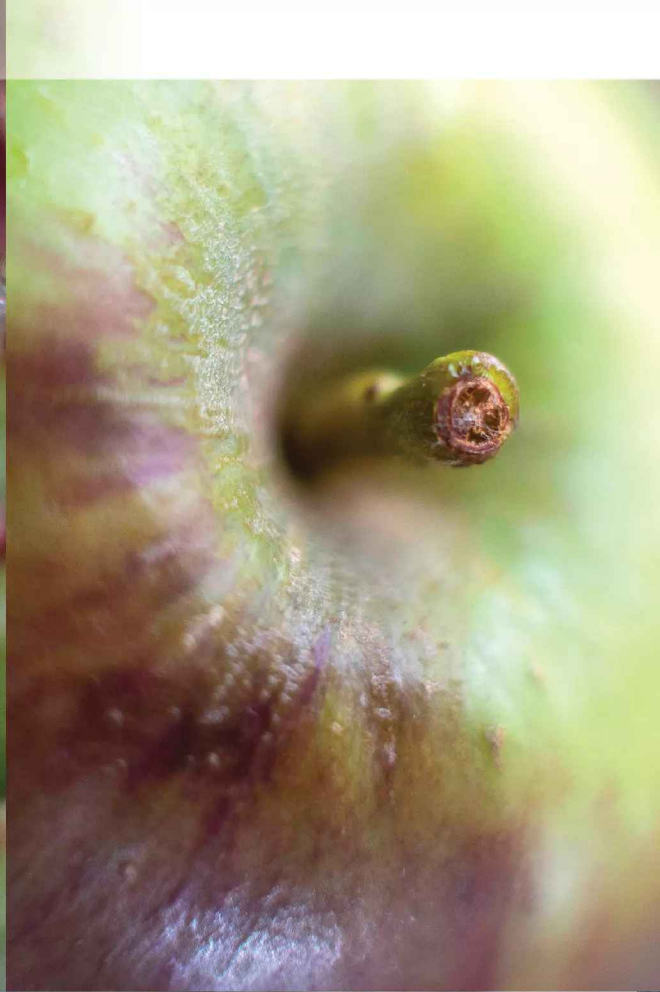
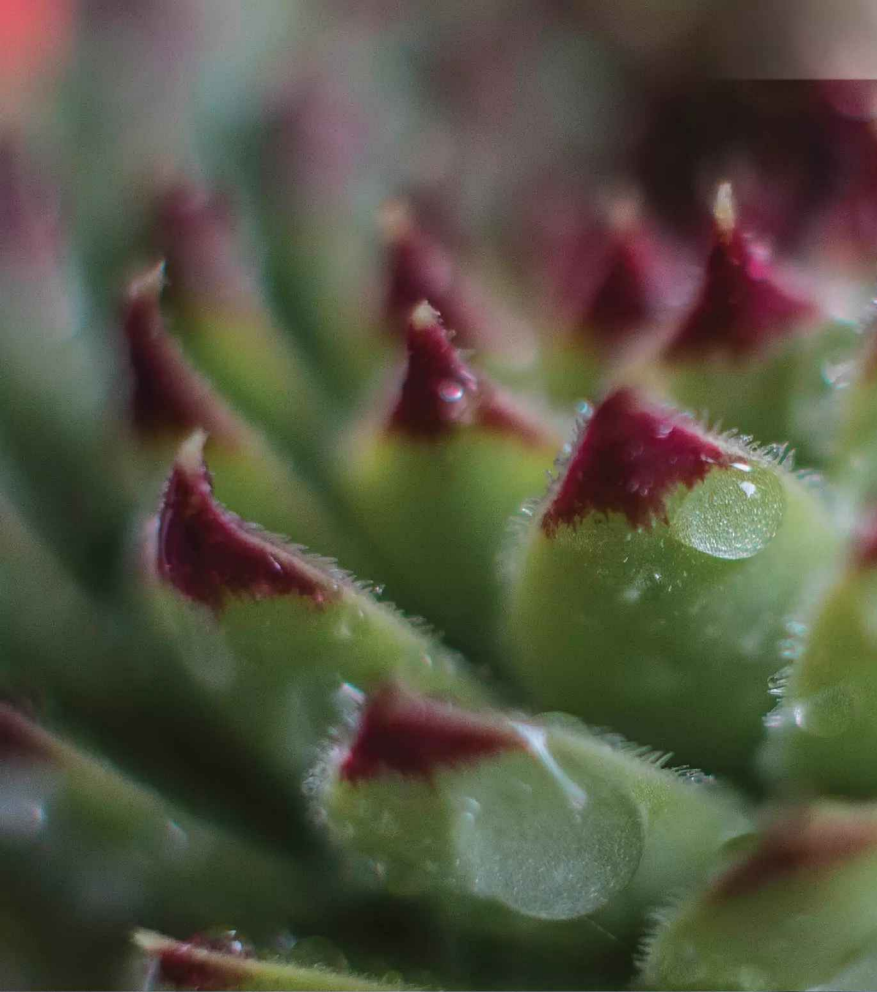
"As long as you have your camera, lens, tripod, a tabletop and a light source, you are ready to begin."

It comes down to personal preference of course, but we would always recommend beginning your macro photography experience indoors. This type of photography does not require a lot of space. As long as you have your camera, lens, tripod, a tabletop and a light source, you are ready to begin. You're in comfortable surroundings and you aren't subject to the vagaries of the weather. You can concentrate on learning the craft and a cup of coffee isn't far away either!

To be honest, anything and everything is fair

game for macro photography. A lot of macro work can be seen on picture sharing sites like Flickr. The insect world is a popular subject for macro photography, as is plant life. Browsing through our images may give you inspiration. We did once read somewhere about a piece of advice given to budding macro photographers: "If you're struggling to find a subject, go look in the fridge". The chances are there will be some fruit or vegetable in there that will happily pose for your shots; something colourful with interesting textures or maybe something more minimalist and abstract. It's up to you.







*"Looking through the
viewfinder, it is now
a case of finding the
point of focus, the point
of greatest interest."*

All the images in this macro guide were shot on a Nikon D5500 with an AF-S 35mm f/1.8 lens using a 12mm macro extension tube.

f / 4.0 1 / 500



+0.33



ISO 800



Setting up

In the case of our example, we set up the camera with a AF-S 35mm f/1.8 lens and 12mm macro extension tube [1] on a tripod next to the dining table. We had white card which was placed behind it and set up two flashes controlled by a wireless trigger [2], one directed at the subject and set manually to 1/128 power [3], the other pointed at the card to bounce some light from behind. This one was set at 1/128 power. If you don't have off-camera flashes you could work on your kitchen table with a desk lamp or by a bright window.

The camera was set in manual mode at 1/160th of a second with an aperture of f/1.8 and an ISO setting of 100 [4]. The macro lens is set to manual focus. The combination of shutter speed and low power flash meant that we could eliminate any possible camera shake or movement in the subject. A shutter-release cable is also a wise addition as it means you don't have to touch the camera and risk it moving. At these magnifications, the slightest movement will be noticeable.

For these particular shots we wanted to have

very shallow depth of field. We wanted to pick out a very small area of focus and just concentrate on that. You could go the other way, of course, and set your aperture at f/16 or greater to resolve a larger area of focus. After a bit of fiddling around with the light positions, subject-to-lens distance and composition of the flower, we could make a start on the macro project.

Focus

Just to reiterate: make sure your lens is set to manual focus. If left in auto-focus mode it may struggle to lock on to your subject or may actually decide to focus on to another area. Looking through the viewfinder, it is now a case of finding the point of focus, the point of greatest interest. Since we are dealing with very shallow depth of field, it is quite important to spend some time getting this right. To help us, we used a very bright torch to illuminate the subject so it can be seen very clearly and manually fine-tune the focus. It is always good practice to check your focus after every shot because something might

have moved, albeit a tiny amount. At this kind of magnification and at such a shallow depth of field, that could ruin the shot.

Since you're at home, you can download the shots you've done so far and review them. We did the same with the first set of shots taken. They were OK, but not great. Something was missing, some little detail to lift the shots. Staring out the window, we noticed it was raining. Rain! There was a lightbulb moment and we raided the cupboard under the sink for an ancient, empty bottle of detergent with a spray nozzle. We cleaned it out and filled it with fresh water, set up another flower and sprayed it liberally with water. As we sprayed, the liquid started to 'bead up' forming globules that clung to the petals and leaves of the flowers [5]. Some dripped to the edges of the petals and hung there. This is where it really took off. Suddenly the flowers were looking much more visually appealing. So we sprayed and clicked away quite happily. At the end of the shoot, we had a great collection of macro shots and a very wet dining room floor! ■



“What if you don’t actually have the right kind of filter and really wanted to have a go at those kinds of shots.”

Assignment: Long Exposures

How you can shoot long exposures without the aid of neutral density filters

It seems everyone loves those shots of the sea or flowing water in streams that have been taken with a much longer exposure than normal to create the misty water effect. During normal daylight conditions, you would not really be able to get the length of exposure to render the water as that silky fog that is so popular. That’s where a 10-stop neutral density filter comes in. It blocks a large percentage of the available light, driving

up exposure times into seconds, or tens of seconds. However, what if you wanted to take shots like that only to discover that you’ve forgotten your filter? What if you don’t actually have the right kind of filter and really wanted to have a go at those kinds of shots. Well, over the next few pages, we outline a method that can let you emulate the effect without the need for filters of any kind.



BEFORE



AFTER

f / 22.0 1/5



+0.33



ISO 100



The 10-stop ND filter is the usual go-to guy for long exposure photography. If you don't have one, or if you didn't have it when you needed it, here's a solution.



A tripod is definitely essential for this kind of technique where your shutter speeds are slower than you can comfortably manage hand held and not get excessive camera shake.

The 5DMK3 is one of Canon's most popular cameras. At 21 megapixels, it's not the largest sensor available for this kind of DSLR but it has great image quality. Coupled to a good piece of glass like the 24-105mm f/4 L series lens, it is a great all rounder.

Long exposure trick

Let's start with our original scenario. You set out to shoot some daytime long exposure images and arrive at your destination only to discover the 10-stop filter required to give you the long shutter durations needed is not in your bag. It isn't quite the disaster you might imagine as there is a handy workaround that could still yield you some great results. We will assume that in this case, you've got a tripod, camera and lens. The first thing you have to do is set up your camera and compose the shot until you have it exactly as you wish. It's a good idea to set everything to manual, including the focus. Depending on the available light, a normal exposure would be around 1/100 of a second unless the conditions are extremely bright. One of our examples of a stream was shot in a wooded area called Golitha Falls on a bright morning and we were getting an average exposure

of around 1/30 of a second at an aperture of f/5.6. Not exactly a long exposure but we could get closer to our goal.

What you need

Well, if you had your 10-stop filter, this would have been a very short project. However, to recap, since we are trying to emulate its effect you'll need your camera and lens of course. We were using a Canon 5DMK3 and a 24-105mm f/4 zoom lens. It had a minimum aperture of f/22 that proved useful later. We also had a beaten up but sturdy tripod and a cable release attached so we didn't have to touch the camera once it was set up.

Set up the camera

It's a good idea to shoot in manual mode for both your settings and the focus, as you will require the shots to be consistent. As always, we would recommend shooting in Raw mode

if your camera supports it, or at least set your jpeg options to capture in it's highest quality setting. The next port of call will be to stop your lens down to its narrowest aperture. As a general rule, lenses can go down to f/22 or even f/32. This tiny aperture limits the amount of light hitting the sensor, driving up the duration of the exposure. So far so good. Next, you'll need to set your ISO sensitivity to its lowest setting. This is usually 100 ISO, although some cameras can go down to ISO 50. In the case of our example, we could set an aperture of f/22, a shutter speed of 0.5 sec and ISO 50. A test shot revealed that the shutter speed was giving us a good exposure and just enough duration to begin to blur the fast-flowing water of the stream. Since we didn't have any other means to slow the shutter speed any further, we had reached the limit. Apart from the weather conditions changing to an overcast sky and bringing the ambient daylight levels down, this is what we had to work with.



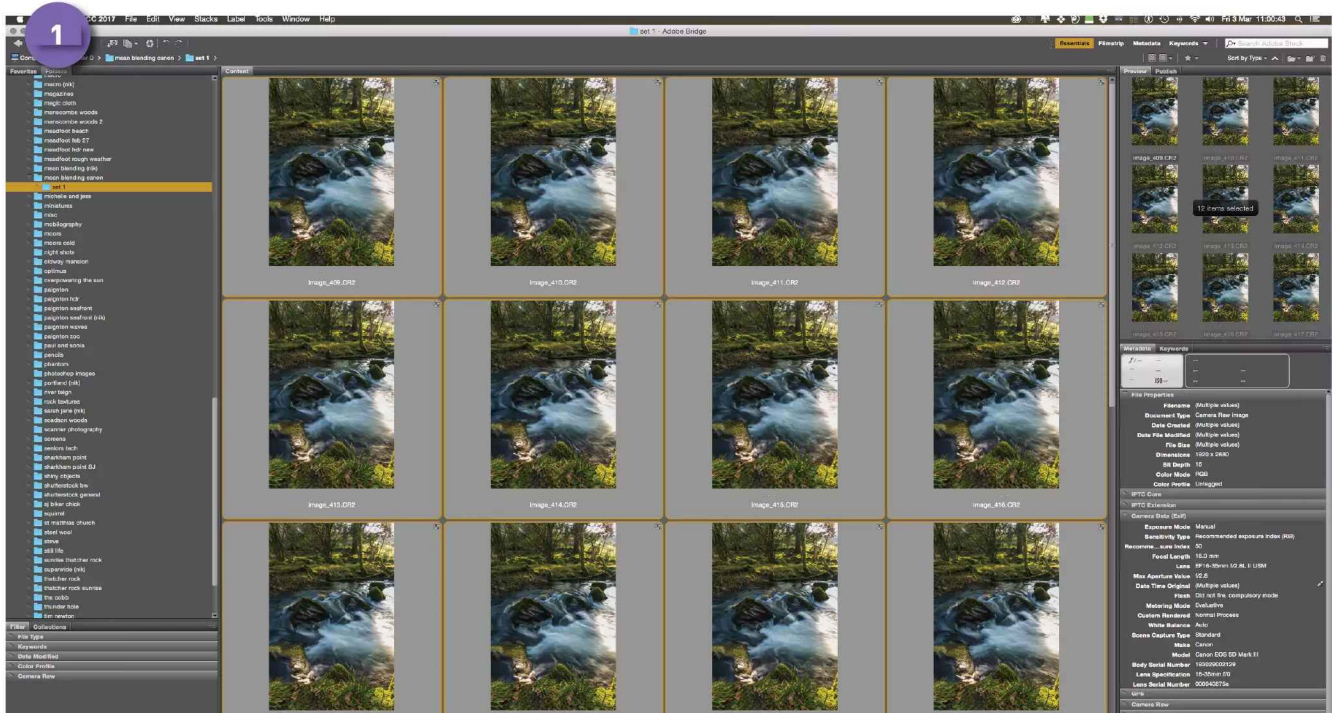
BEFORE

AFTER

$f/22.0$ 0.5



ISO 50



The trick is revealed

With your camera settings dialled in, your lens manually focused on your point of interest and your cable release attached, the final thing to do is to set your camera's drive, or release mode, to Continuous High Speed. This means that if you were to press the shutter button and hold it down, it would continuously take shots until you either took your finger off the shutter button or cable release button, or the camera's image buffer was full. This image sequence capture is key to the success of the 'illusion' of a long exposure. You'll need to capture at least 6 or preferably 12 images in as rapid succession as you can. Given that in this case, our shutter speed was 0.5 sec, we could capture a number of frames every 0.5 sec, which is obviously well within its 6 frames per second high speed shooting capability. In essence, you have just captured a 12-frame time-lapse of the water flowing by [1].

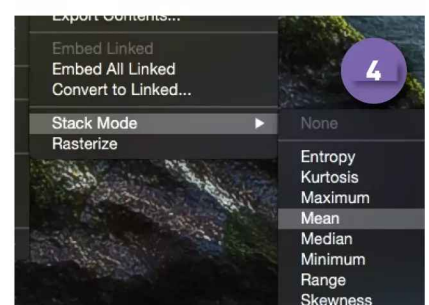
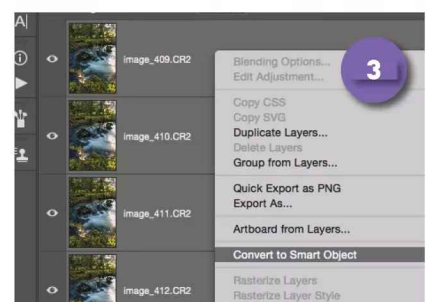
Completing the illusion

Once you have your sequence of images, it is a case of processing them in your favourite Raw editing program. We used Adobe Camera Raw (ACR) to process the shots all at the same time for consistency. Those 12 shots were then opened in Photoshop and all 12 images were stacked in a single Photoshop document [2]. It is worth noting that you will be dealing with large file sizes, so if your computer doesn't have much processing power and memory, you might want to save your images out as smaller jpeg files before proceeding. Since we had used a tripod when capturing our sequence, we didn't have to worry about aligning them. Then it was a case of

combining all 12 images into one single Smart Object [3], which allows non-destructive adjustments to be made without destroying the original images. Then comes the magic. Photoshop has a method of blending multiple images using something called Mean Blending [4]. All this does is compare all the images it is being asked to blend, and arrive at an average based on all the pixel data present and what the differences are between each image. The upshot of this is that your flowing water in each shot will be averaged across 12 images. The result will be a much smoother result that is in effect a 0.5 sec image that now looks like a pseudo 6 sec image because of all the blended images of the flowing water. If no-one knew the process involved, they would be none the wiser to the sleight of hand that had been used here.

More testing

So we had a successful result with a set of 0.5 sec images using a tripod. We were curious if you could push the technique a little more. So we set ourselves the task of capturing an image sequence at higher shutter speeds without the aid of a tripod. Since flowing water reduced to mist is quite an iconic look, we decided we would try and see what we could capture handheld that could approach these popular images. Our main constraint here, was the requirement for shutter speeds that could allow the taking of photos hand held. Our Canon 5DMK3 was pressed into service again with its 24-105mm lens which has image stabilisation capabilities. This gave us the option to shoot slightly slower shutter speeds and still avoid camera shake.





Even if you are actually getting shutter speeds slow enough to give you images with enough motion blur, shooting a sequence of these and blending them can give even more intense results.

BEFORE

$f/20.0$ 1.0



--



ISO 50

AFTER





BEFORE



AFTER

f/16.0 1/50



--



ISO 50

Our testing took us to the beach where the surf was rolling in on a fairly blustery day against the barnacle encrusted legs of Paignton Pier. Using the same idea as the shots taken at the stream, we stopped down the lens to f/16 and once the ISO was set at 50, we had a shutter speed of 1/50 of a second. A test shot showed that with the image stabilisation of the lens turned on, and by holding the camera in as a rigid a pose as possible, shake-free images were no problem whilst shooting at a focal length of about 75mm. Once again, the camera was

set to High Speed Continuous shooting and a burst of about 12 images were shot at 6 frames per second. These were combined in Photoshop and because we shot these hand held, the option to Auto-Align all the images was used to make sure they matched up. We were pleased to note that the effect had actually worked reasonably well, converting a set of images shot at 1/50 of a second into a pseudo 1/4 second shot. The different position of the waves in each successive shot, once averaged, was just enough to create the illusion of a single long exposure. If you had been able to capture more

images in the sequence, you could create an even mistier water effect, but it does come down to what shooting and write speeds your camera and memory card are capable of.

More neat tricks

So we've covered how to shoot images that can look like long exposures even without the aid of a ND filter using multiple images and the magic of Mean Blending in Photoshop. However, it doesn't stop there, Mean Blending can also help you out in other shooting situations. Read on as we cover two more great ideas. ■

Assignment: Low Light

Get more confident shooting in low light without a tripod at very high ISO and lose all that noise

Now that you've got the hang of how to shoot images and create an illusion of a long exposure by combining them in a special way in Photoshop, we can also show you more techniques that will benefit you if you find yourself stuck in a particular photographic quandary. Let's outline another situation that you're likely to encounter at some point.

This main image was shot at ISO 3200. It should be very noisy because of the high sensitivity used. However, using a great little technique, you can shoot low light without a tripod, with high ISO and be able to drastically reduce the noise without having to use noise reduction software.



Shooting hand held in low light conditions at very high ISO settings can result in some poor quality images. Photos taken at ISO 3200 on a seven year old camera, for instance, will have all the telltale noise you would expect as seen in the 'before' image. The 'after' image is exactly the same, shot at the same time, with the same camera and settings. So how is it that much cleaner? Read on and all will be revealed.

No tripod

You are traveling home, it is dusk and you happen to see a lovely scene that you just can't pass up and need to take a photo. The problem is, you don't have your tripod with you. You know it's possible to shoot high ISO sensitivity to get faster shutter speeds and eliminate camera shake but the idea of shooting any landscape way beyond 400 ISO seems like a waste of time.

The noise created at higher ISO, even on current cameras, can be a deal breaker that just stops you from getting the shot. Well, there is a technique that can allow you to shoot hand-held at high ISO and eliminate a great deal of noise into the bargain. Okay, we know it's no substitute for using a tripod and low ISO settings but now and again, when your back is to the wall and you have a shot you simply must capture, you have an option.

Tripod trouble

As mentioned, you want to photograph a low-light scene and you have no tripod. The idea of shooting very high ISO to give you the faster shutter speeds you need to avoid camera shake is putting you off. You're all too aware of the image noise that will be present in the shots. Well, you have some options. If you can rest your camera on something solid to help stabilise it, then of course, that's the best solution to keeping the ISO settings as low as possible. If you don't have that option, then hand held is the only way to go.

Good posture helps

Before we start shooting, let's talk a little about posture. You might wonder why, but knowing the correct way to hold a camera can make quite a lot of difference to the resulting photographs. If you're holding the camera in a horizontal orientation, the key is to make sure both your elbows are tucked in tight to your chest. These solid points of contact will help stabilise the camera, particularly if you also press the viewfinder firmly against your face and cheek.

This creates a triangle shape that is more stable than just holding your arms away from your body so your elbows are dangling in thin air in front of you. Some people also find that the greater the weight of the camera, the steadier they can hold it. A camera that is too light offers no resistance for your arms to work against and you may find that you are more shaky because of it.

The other way up

If you're shooting with the camera in a portrait orientation, this introduces a certain level of instability as you will have to raise your right arm up to be able to hold the camera grip correctly now that it is rotated 90°, and also be able to press the shutter release button now it is facing upwards. In this situation, you can still keep your left elbow tucked into your chest but it is the least stable position. Some people have been known to rotate the camera in the opposite direction so that the shutter release button is facing downwards. Whilst this does mean you can keep both elbows tucked into your body, some can find this way around pretty awkward as both your hands are now in very close proximity and it will feel more like

you are balancing the weight of the camera on the thumb and forefinger of your right hand.

Get a grip

An alternative to the portrait orientation dilemma, is to get a battery grip for your camera. This is essentially a device that is coupled to the bottom of your camera that can hold two batteries and extend your shooting time. The great thing is that battery grips have an extra set of shutter release and function dials built in. This means that you can actually have the camera in portrait orientation but hold it as if it were still in horizontal orientation because the position of the second set of buttons means that you're not having to reach up and over the camera. Now whilst it's true that the main camera manufacturers make battery grips for their range of cameras, they are not exactly cheap. A battery grip for something like a Canon 5D MK3 can run to about £250. That said, there are third-party battery grips available for under £40. They may not be built to the same high standards as their original counterparts but some of them are well worth the money.



In portrait orientation, without a battery grip, you will have to reach up and over the grip to press the shutter release button. Your right arm is not anchored to your body, but you can still keep your left arm pushed against your chest.



Holding your elbows out away from your body will not be a very stable setup. There is the possibility of too much movement because your arms are not anchored.



With the camera in horizontal orientation, the best way to hold it is with your elbows tucked in to your chest to create a stable configuration that can help reduce camera shake.



Having the camera the other way up so the shutter button faces down is a possible method. It does mean both elbows can stay pushed against your chest but it can be rather fiddly having both hands in such close proximity.



The battery grip is very handy for extending your shooting time, by holding two batteries; and it has a set of shutter release and control dials that mean you can shoot with the camera in portrait orientation but hold it as if it were still horizontal.



$f/3.5$ 1/200
-0.67
ISO 6400

Before you shoot

Now that you've got the posture sorted out, you need to get the camera settings organised. Bear in mind that if your camera supports image stabilisation, either built into the camera or the lens, then make sure it is switched on. Any advantage is useful here. Modern image stabilised camera and lenses can give you a 3-5 stop advantage. This means an image that would normally require a shutter speed of $1/10$ of a second, can effectively be stabilised as if it were more like $1/80$ - $1/320$ of a second. This gives you the option to use longer shutter speeds than you might at first think to be viable for a steady shot. Next, depending on the lens you're using, you need to open up the aperture to its maximum setting. A lot of zoom lenses normally have a maximum aperture of around $f/3.6$ - $f/5.6$. More expensive lenses offer $f/2.8$ as their widest aperture which lets in 2-stops more light than an aperture of $f/5.6$ for instance. Fixed focal length lenses, or prime lenses as they are known, can offer apertures as wide as $f/1.4$ or $f/1.2$. An $f/1.4$ prime lens would be 4-stops faster than an $f/5.6$ lens. Often referred to as 'fast glass', the fastest primes tend to be around the 50mm - 85mm focal length area. Not quite so good if you're looking to shoot a wide landscape. There is also the often quoted 'shutter speed as inverse of focal length' rule. Simply put, this states that if you are shooting with a focal length equivalent in full-frame terms to 50mm for example, then your shutter speed should be at least $1/50$ of a second. More a guide than a rule, you'd be better served to always try and shoot as far above this as possible. With today's larger sensors, our example 50mm focal length would be better off if it were shot at $1/100$ of a second to yield crisper results.



The very affordable Canon EF 50mm $f/1.4$ (above left) is a fast piece of glass but may not be an optimum lens for shooting a landscape. As with the Nikkor AF-S 35mm $f/1.8$ (above) which is roughly equivalent to a 50mm full-frame lens.



The very wide angle lenses like the Sigma 10-20mm $f/3.5$ shown opposite, which is equivalent to the EF 16-35mm $f/2.8$ full frame lens pictured below, are great choices for landscape shots. Although not image stabilised, their short focal lengths allow for longer shutter speeds before camera shake becomes too apparent.



The 16-35mm $f/2.8$ lens is a good all round lens. Although not as wide as the lenses above and a maximum aperture of $f/4$, it is still serviceable for most conditions. The addition of image stabilisation is a bonus for low light shooting.

What is image stabilisation?

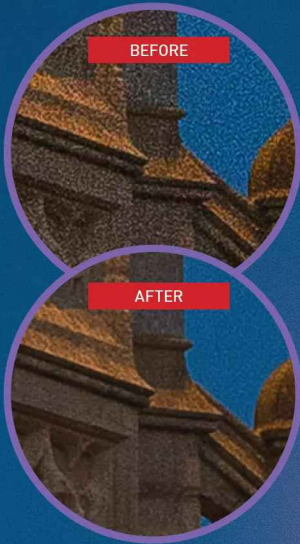
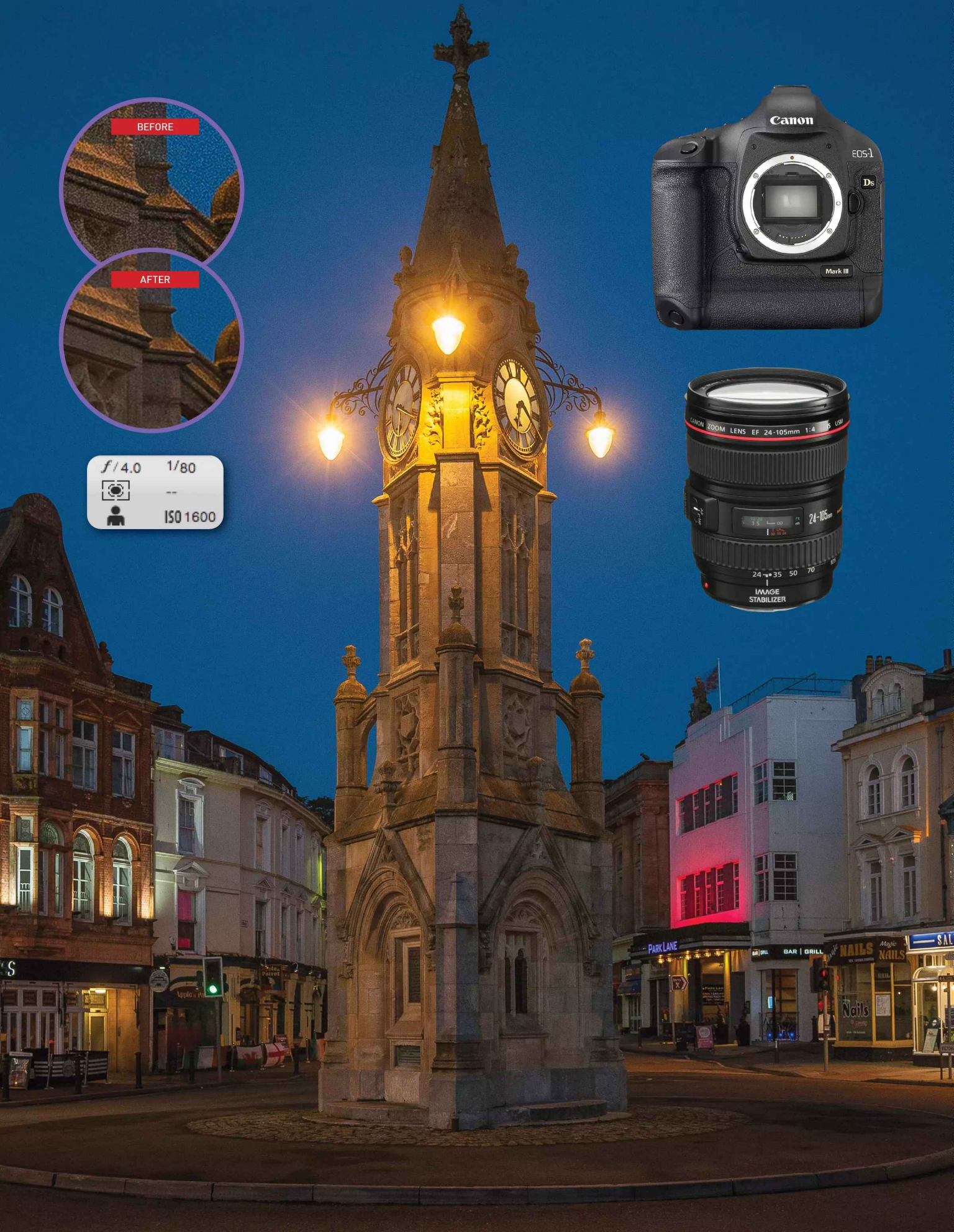
Image Stabilisation (IS) is a method used in digital still photography and videography to reduce blur caused by the unwanted movement of the camera. In stills photography, once the shutter speed gets below the reciprocal of the focal length of the lens (i.e. 100mm focal length requires shutter speed of $1/100$), the chances of camera shake spoiling the image increases dramatically. Image stabilisation can steady the image by using either lens-based stabilisation or sensor-based stabilisation. Elements within the lens or sensor actively move to counter the detected movement of the camera. These methods can give an apparent 3-5 stops advantage.



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$f/5.6$ $1/320$
 -0.67
 $ISO 6400$

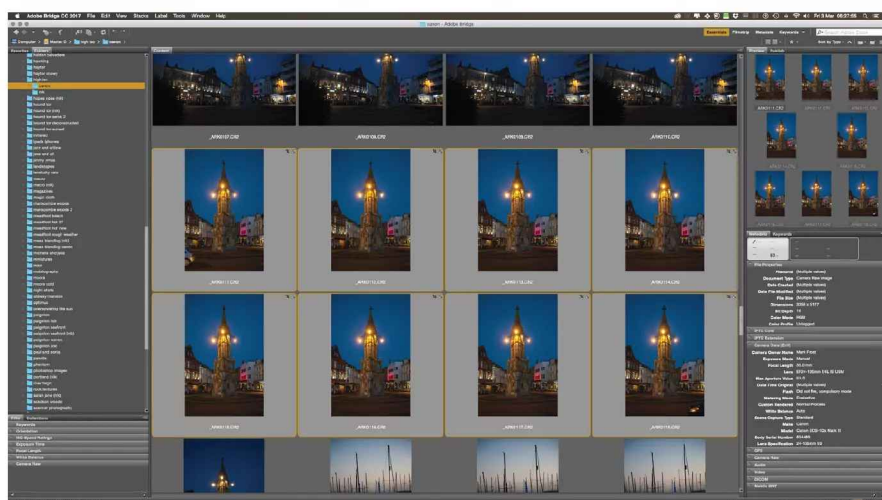
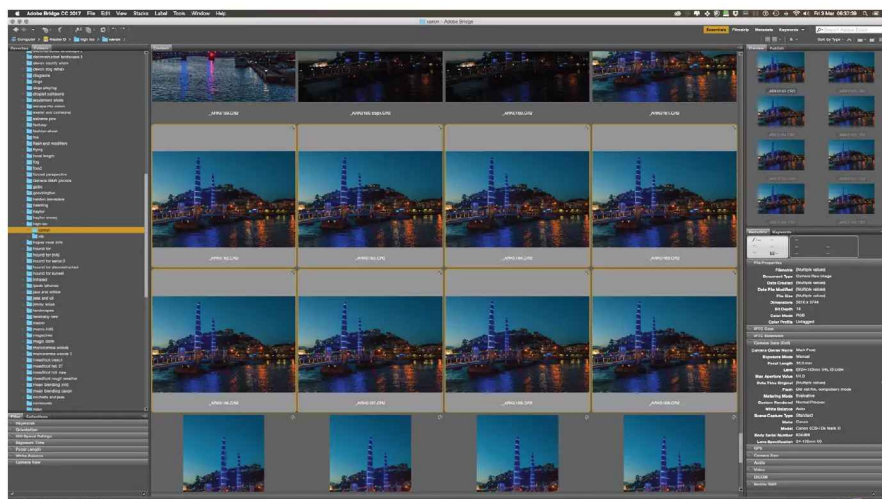


BEFORE

AFTER

f/4.0 1/80
ISO 1600





An image sequence

Just like the long exposure trick, a sequence of at least 6 identical images will be required. You can't shoot one and copy it a number of times in Photoshop as that won't work. The multiple images are the key to eliminating as much noise from the final shot as possible. Our camera was set to Continuous High Speed shooting mode which meant we could capture a sequence at up to 6 frames per second. The shutter speed will ultimately dictate how fast you can shoot the sequence but taking it in as short a time as possible will help.

Something to bear in mind

If you are using image stabilisation, there is one thing to bear in mind that can be overlooked. Although the image is stabilised to steady shots taken with slower shutter speeds than normal, that doesn't mean that any objects moving within the shot are frozen in place. If you're photographing a scene that has people or cars moving through the frame, they will appear blurred because the slow shutter speed dictates it. The stabilisation applied only has the illusion of increasing your shutter speed, if it was 1/10 of a second before, it will still record any movement for that duration.



To achieve a shot that was shake free and as low in noise as possible, a careful mix of aperture, ISO and shutter speed was needed to give the final shots a fighting chance of being the best quality.

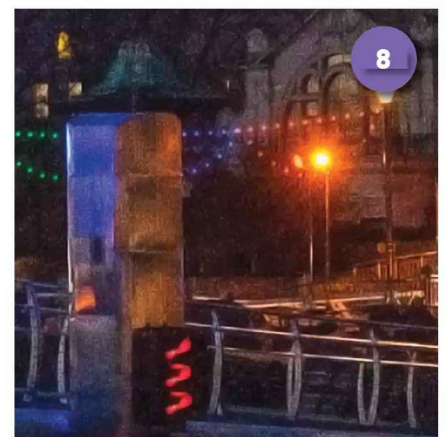
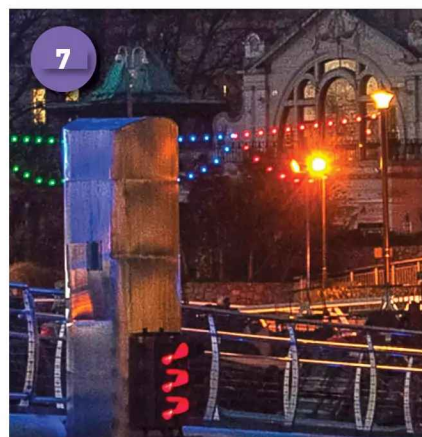
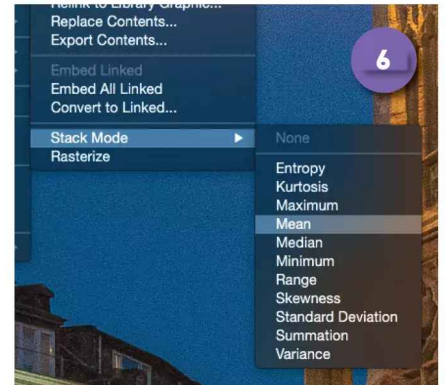
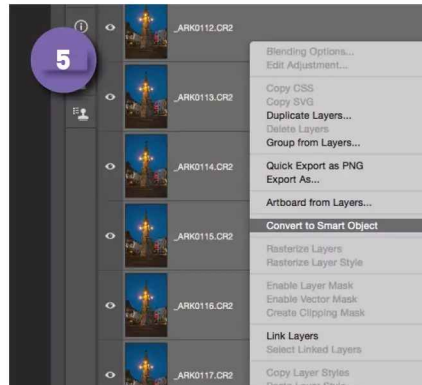
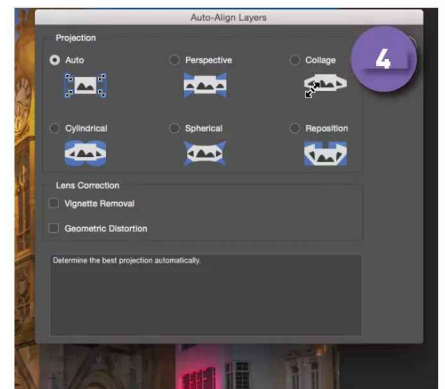
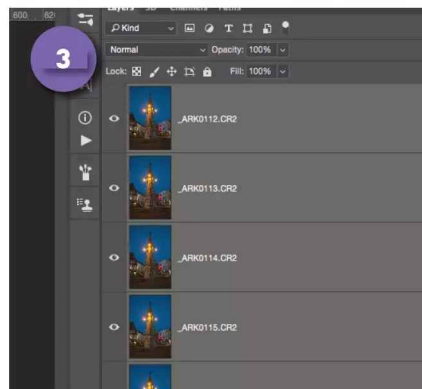
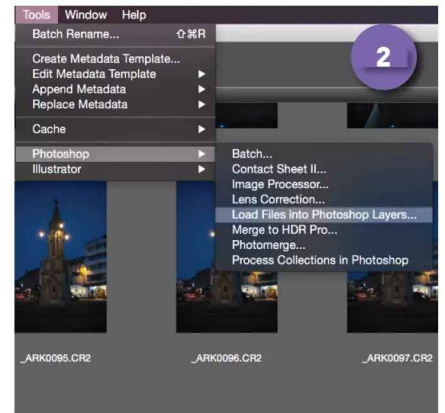
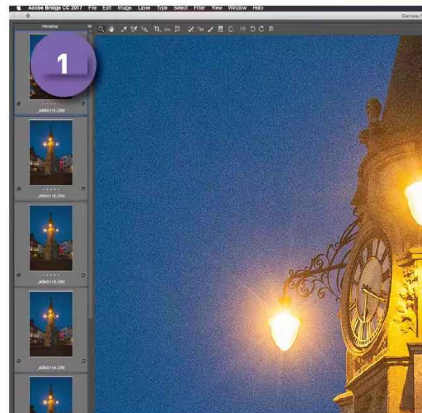


Taking the shots

Our examples were taken with a Canon 1DSMK3 and a 24-105mm f/4 image stabilised lens and also a Nikon D5500 and Sigma 10-20mm f/3.5 non-stabilised wide angle lens. We focused roughly one third of the way into the shots to try to maximise depth of field and made sure the cameras were shooting in Raw format. On the Canon we were getting shutter speeds that varied between 1/40 of a second up to about 1/100 with an aperture of f/4, that was the widest available on the lens, and trying an ISO of 1600 and 3200 that was its maximum. For the Nikon, we pushed things a little more and used an ISO of 6400. We fired off test shots to check exposure and used the camera's LCD screen to view the shot at a large magnification to check for camera shake. All was well, so we set up our various compositions and fired off sequences of 6-8 images just like the previous long exposure technique, taking multiple images of the same scene. Since you're shooting a number of image sequences, it's a good idea to shoot one blank frame between each set of shots, just so you know where each one ends and the other begins, when you're reviewing them later. Once we were happy that we had a good set of captures, it was time to get back home and view them on the computer and start the next stage of the process.

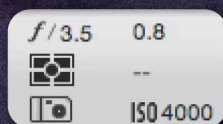
Processing

Back at the computer, we picked out our favourite sequence and opened the shots in Adobe Camera Raw (ACR). How you process your shots is down to personal taste but the key is make sure they are all selected so any adjustments are made to all the shots [1]. Things like lens correction particularly should be applied to all the shots otherwise they won't align in the next part of the process; also, try not to overdo the amount of shadow detail you try to reveal. The shots are high ISO and therefore carry a lot of noise, particularly in shadow areas. The more you push the exposure, the more prominent the noise will become. The image sequence was then opened in Photoshop [2] and stacked together as multiple layers in one document [3]. In this case, because the shots were hand held, the layers were all selected and aligned using Photoshop's Auto-Align feature [4]. Once they were matched up, all the layers were combined into one Smart Object to allow non-destructive adjustment and editing to be performed [5]. Then the Mean Blending option was used. This analyses all the shots and averages out the pixel data [6]. Because each image contains a certain amount of noise, and that noise is different from shot to shot, once it is averaged out, the amount of visible noise is dramatically reduced. You can of course use the noise reduction option in Photoshop. Here is a direct comparison between the blended version [7] and the one with noise reduction applied in Photoshop [8]. Notice that the blended sequence of shots is much more crisp than the default noise reduction used in Photoshop.



“They were processed and stacked in Photoshop and converted to a Smart Object. Once the Mean Blending option was applied, it did improve the image.”

A sequence of 6 lighthouse shots were considered too underexposed to be any good. Coupled with the noise at ISO 4000, they almost went in the bin. They do however, provide a good, albeit extreme, example of the Mean blend method.



Extreme example

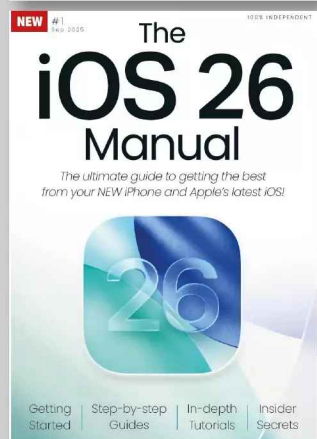
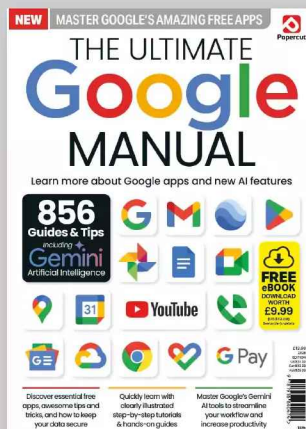
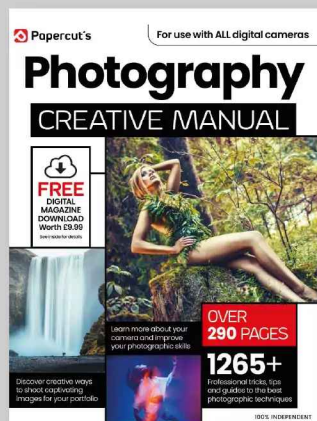
It was such a great little trick, we wondered how far you could push it. We remembered that we had a sequence of images of a light house that we shot a little while ago. They were shot on a Nikon D5500 at ISO 4000 and to be honest, they were so underexposed and noisy when processed that they were almost consigned to the trash. However, we'd kept them so we thought it would be quite an extreme test to see how the technique worked on them. They were processed and stacked in Photoshop and converted to a Smart Object. Once the Mean Blending option was applied, it did improve the image. We can't claim it now looked like an ISO 50 shot but, at certain sizes, it would be quite usable.

One more to go

So, we've covered long exposure effects and high ISO hand held photography. We have one more coming up next that is a really great solution to a common problem. ■

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