

Inspiring Australian photographers

PHOTO REVIEW

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Mar – May 2024

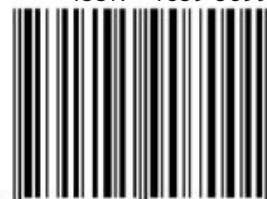
Going with
the flow

SEAN SCOTT

In the
birdscape

MARTIN ANDERSON

ISSN 1839-5899



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Issue #99

HDR SHOOTING AND EDITING
CAMERA SHUTTERS EXPLAINED
KIYOMIZU-DERA TEMPLE KYOTO, JAPAN
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The sharing spirit

It was a brochure-perfect summer morning in Forster. Tourism NSW could not have improved upon the view from our umbrella-shaded table at a beachfront cafe. Just beyond the kids squealing and leaping as the little waves scudded into the still uncrowded sand, a solitary swimmer made his leisurely progress in a glittering sea.

Around us, the cafe was busy, with servers coming and going and patrons sipping coffee, studying their phones or just chatting while waiting for their orders to turn up. One group, finished with their breakfasts, stood up at a nearby table and made to leave for the beach. But two of their number, a couple I took to be in their late twenties, gestured that they'd follow the others soon.

They were delayed because the young man was puzzling over a little analogue camera. From the way he was going back and forth between a pamphlet of instructions and the device, I was reasonably confident that he wouldn't object to a little unsolicited advice from a white-bearded stranger.

Making a dad joke about him looking like he needed an old person to explain old technology, I offered to show him how one loaded film and set the camera up. Mildly bemused and confiding that he'd never used a film camera before, he handed me what turned out to be an Olympus Trip 35, a rather well-regarded model produced between 1967 and 1984.

Showing him how to load the film, wind it on and take a couple snaps to get past the exposed film at the start of the roll, I then walked him through setting the ISO, explained the aperture and focus settings and, crucially, how to rewind the film when he finished.

When I handed the camera back, he thanked me and then insisted upon taking my picture before setting off to catch up with his relatives who by now were on the beach. It was only later, when thinking about the little psychic reward we get from being helpful, that it occurred to me I'd accidentally become the subject of that young man's first ever film image.



Azure Kingfisher by Martin Anderson.

This experience reminded me of the conversation I'd had with nature photographer Martin Anderson for this issue's Inspiration feature. As you'll learn when you turn to page 16, sharing his knowledge with others is profoundly important to Martin on a number of levels. It is very much a piece of everything he is and does.

And sharing one's excitement about the world with others happens to be the very first thing coastal lifestyle and travel photographer Sean Scott talks about in his Q&A with Steve Packer in *Going With The Flow* (page 4).

Sharing knowledge is of course second nature to our esteemed technical editor, Margaret Brown. In her *Locations* feature (see page 32) for this issue, she takes an in-depth look at the picture taking opportunities at the Kiyomizu-dera temple complex, in Japan's cultural capital, Kyoto. And, as usual, she also provides detailed advice about the practical side of a visit to Japan; from transportation and accommodation

considerations, to suggestions about the kind of gear you'll want to take on your trip.

With her Technical Editor's hat perched on her head in a jaunty but dignified fashion, Margaret next turns her attention to that clicky bit of your camera in her *Insider* feature *Camera Shutters Explained* (page 39). Not only will you come away knowing your leaf shutters from your focal-plane shutters, you'll also be able to discourse confidently about the very latest iteration of this essential part of the photographic image capture process, the global shutter.

No matter what kind of shutter your camera has, it is also certain to be equipped with a memory card slot (or two). For as long as there have been digital cameras it seems there has also been an unending parade of different types and flavours of memory cards. In *Memory Cards Revisited* (page 51), Margaret takes a deep dive into the current state of the technology. By the time you finish reading her *Buying Tips* feature on the subject, you'll know as much about these essential little cards as you do about your camera's shutter.

Rounding out her extensive contributions to this issue, Margaret's *Shooting and Editing* feature (see page 46) focuses on just what it takes to produce a High Dynamic Range image. In the early days HDR was a geekishly manual process, but as Margaret explains it is now an easy to use option to be found in everything from professional cameras to your mobile phone.

Thank you for supporting *Photo Review* and may you have opportunities of your own to share, help and encourage others on their photographic journeys. 📷



Don Norris
Editor

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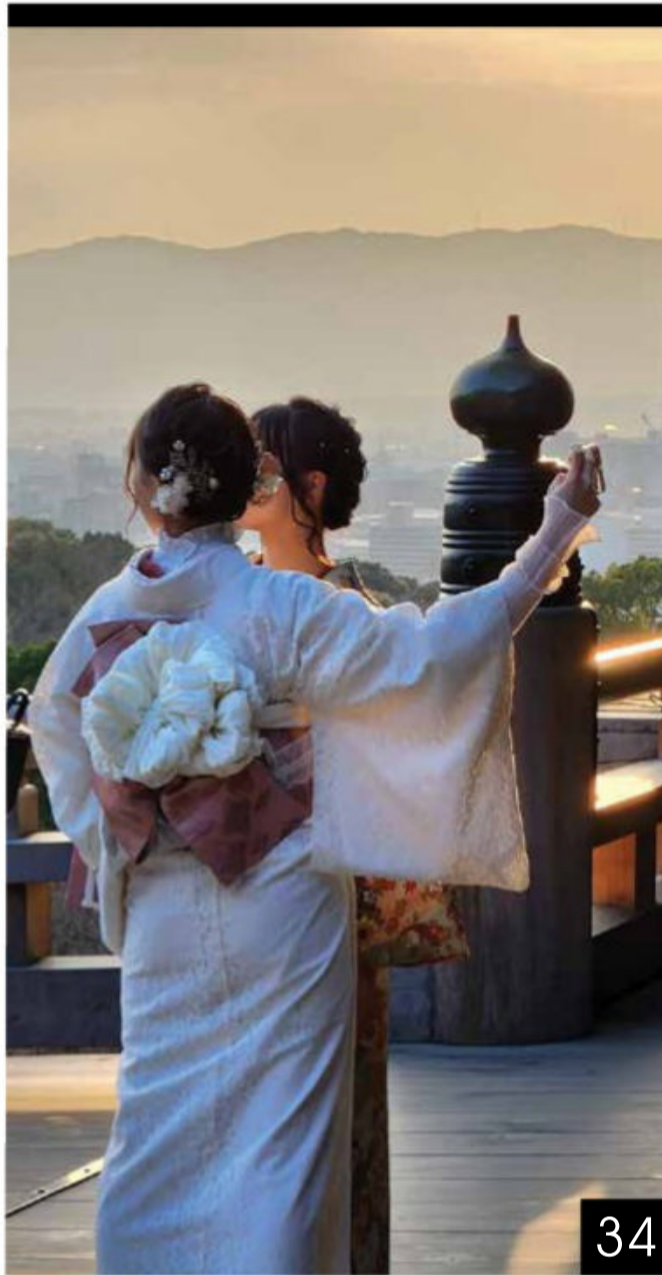
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See page 4

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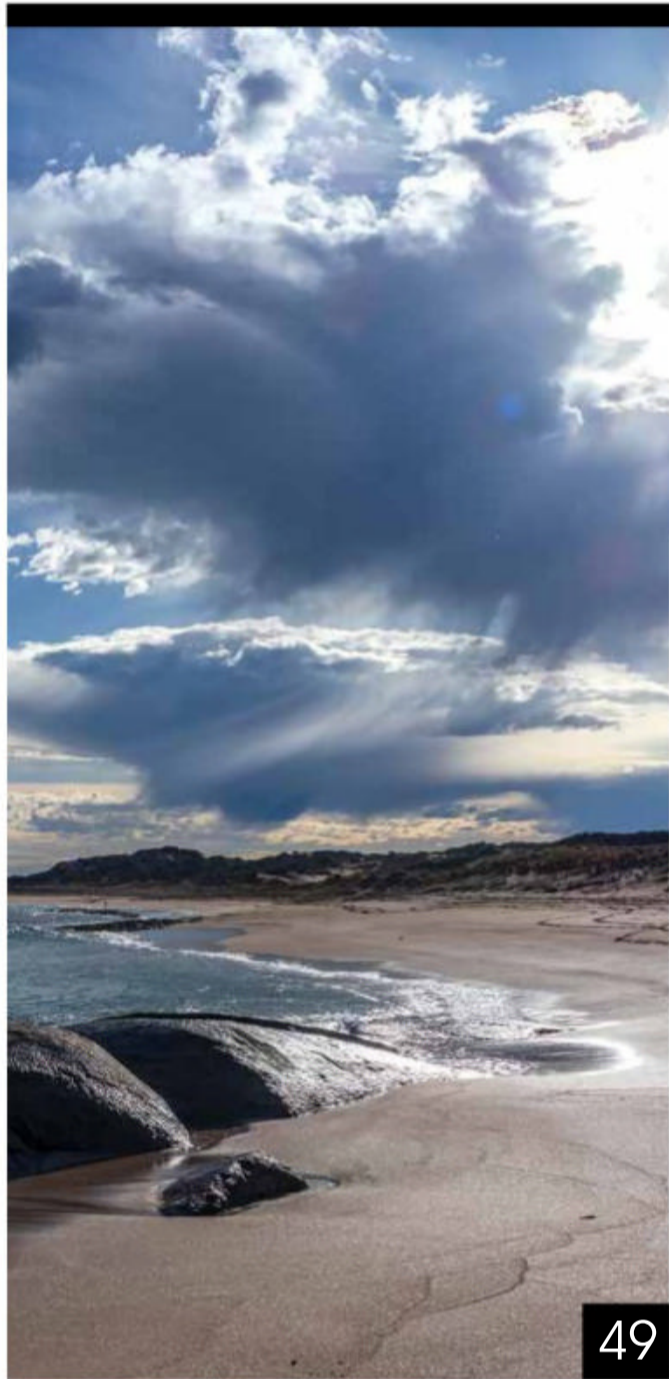
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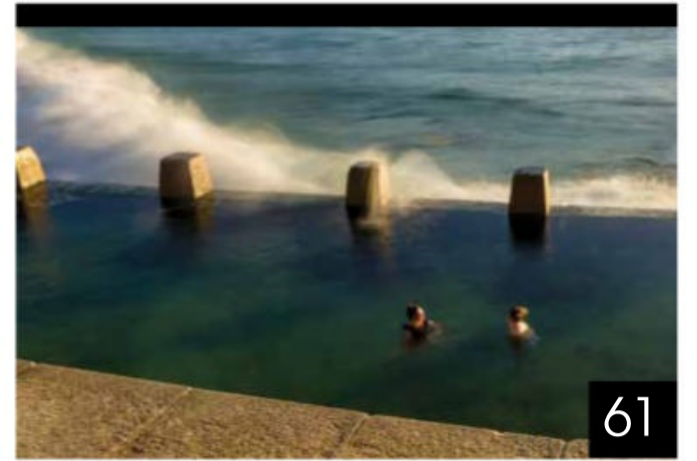
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Distributed by

Wrapaway Distribution

Subscriptions

One year \$45 including GST and delivery in Australia.

See inside back cover or phone: (02) 9948 8600

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Photo Review Australia is printed on FSC Mix Source

with ISO 14001 Environmental Accreditation.

Printed in Australia by Innovative Print Solutions.

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Photo Review Australia is published by

Media Publishing Pty Limited ABN 86 099 172 577

Kuring-gai Country

PO Box 4097

Balgowlah Heights NSW Australia 2093

(02) 9948 8600 | edmail@mediapublishing.com.au

www.mediapublishing.com.au

www.photoreview.com.au

Digital edition ISSN 2208-424X





Going with the flow

GOLD COASTER SEAN SCOTT HAS BUILT HIS GALLERY AND TRAVEL PHOTOGRAPHY SUCCESS ON HIS LIFELONG LOVE OF SURFING AND HIS FASCINATION WITH THE WATER, WATER EVERYWHERE PRINCIPLE.

Steve Packer





How did you first get into photography?

I've always liked to show people things, and I found photography the best way to do that. 'Check this out, mum. Check this out, dad.' As a young surfer, I was captivated by the look of the ocean and the coast from out in the water, and in my early teens I played around with disposable cameras. I don't think I had a lot of influences. I just went out to see what I wanted to see and tried to capture it in photos.

A few years later, on a road trip to Tasmania, I bought an SLR film camera at a pawn shop and I taught myself to use it through the film era and into the digital age. Going back 20 years, I was working fulltime as an electrician linesman, climbing power poles, but I spent every minute I could taking photos, learning to print them, making frames for them. Before long I was spending all my weekends shooting, and selling the photos at beachfront markets. I kept reinvesting in gear and I worked out how to use a waterproof housing.

When did you open your first gallery?

By the time I married and we had our first child, I'd opened a small gallery in the old Burleigh Heads Theatre Arcade. But it was when our second child was born that I was able to take 12 months' paternity leave without pay and really jump into the photography gig.

Is the Gold Coast a particularly good place to have a photography gallery, because a lot of people in Australia have found them financially challenging in the long run?

I suppose so. This was pre-GFC. Building was going crazy, people were buying houses. I worked out how to print photos on canvas very early and it was a help to be ahead of the game there for a while. My water, wind and weather sort of style went down well and I found that

if I had a good photo, printed very well, at a price point that suited everybody... I got a local following that push-started my career.

Your current gallery [in downtown James Street, Burleigh Heads] also sells other products. How does that concept work?

Even back in the Theatre Arcade, I was right into surfing, so we had a few brands of t-shirts and the like. Now we have a women's boutique, which is one of the busiest in the street, but it still has that coastal feel, with my photos throughout. We have the Sean Scott Collection, which is all things we love. We've had vases, jewellery, furniture, other artwork, surfboards at times. It's really a coastal living kind of store, with artwork all over the walls.

Tell us about your parallel career as a travel photographer.

Back when social media came along, I got in early and developed quite a large following, which made my associations with tourism promotion of mutual benefit. Instead of, say, going to Western Australia to chase whale sharks for my gallery, I had WA Tourism inviting me and paying for me to be there. I'm now a 'Friends of Australia' ambassador for Tourism Australia, and I've also done a lot of work overseas. Eight trips for Destination Canada, several to Switzerland, etc.

Tourism boards want shots that express the lifestyle and adventure of travelling to their area, so I changed the way I worked to adapt to that. But at the same time, I rarely set up a staged scenario. My style is about looking for that next photo of the most amazing thing I can see. I go to places I want to be in and essentially photograph for myself, and I keep moving rather than going back and back to the same locations. I'm after beautiful images that tell a story that's genuine and unique.





Going back
20 years, I was
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that's genuine and unique.





As they say of photography, the harder you work, the luckier you get. Can you describe a shot where you blessed your luck?

There's a shot of two big sharks in a breaking wave that became quite famous. I was at Red Bluff, north of Carnarvon in WA, and as I was pulling into the camping area, I could see a huge bait ball – a cluster of millions of little fish – off the beach, with sharks all around it. So I'm with my wife and three kids, trying to get the caravan parked in this dusty, arid place, and I'm kind of losing my mind with all this National Geographic stuff happening. I got my drone up straightaway and it turned out to be a huge, kilometre-long bait ball in perfect turquoise water, with two or three hundred sharks circling. Some of that video footage was used in a lot of media, and one of David Attenborough's BBC Planet Earth shows.

Then I grabbed my young son, and a Canon camera with a 400mm lens, and headed for the beach. I did a test shot of the first wave to get the exposure right. Then, with the second wave, several sharks were almost washed onto the beach. I remember showing my son the shot on the back of the camera and he was jumping around with excitement, and I thought, 'This must be pretty good.'

When did you first start using a drone?

I think I got the first one that came out, with no camera on it. Then everyone was doing it and I left it for a while. But I really enjoy using them,

bar the fact that the image quality isn't nearly as good as my mirrorless Canon cameras. But with the ability to get those different perspectives, you can really showcase locations and it makes you feel very connected to where you are.

For the last six or so years I've been working on a series of images called 'Flow', which comes from my fascination with abstractions made by the movement of water. I have a huge library of drone and underwater images from all over Australia, and even from overseas. When I'm driving along, I'm constantly looking at Google Maps and Earth for lakes, tributaries, mudflats and the like, and I might get a drone up at first or last light. If it turns out really well, I might try to arrange a plane or helicopter so I can use a better camera. I'll probably hold a Flow exhibition in a larger venue than the gallery in the next year or so.

When I look across your work, the word 'clarity' comes to mind. Everything has a clean, crisp look to it, from the quality of the detail to the overall concepts of the photos.

I suppose it's something I've always tried to maintain. I've always used the best Canon cameras and lenses I can get. I was a Canon Ambassador and they made me a Canon Master three years ago. Having the equipment is one part, and then looking for beautiful light, editing the photos... Clarity is a big part of my photography, for sure.

You obviously have a broad set of skills that covers many types of photography, and extending to social media, running galleries, printing and framing, the business side of it... Do you enjoy all those aspects?

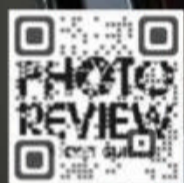
I taught myself to do all of those things, and I've had, and have, a lot of people to help me. Especially when I've been on a great trip and I'm in there printing new images in glorious large format, ready to be framed or stretched over a canvas, the whole process takes on a new life again. So, yeah, I enjoy all of it and most of it still doesn't feel like work. 📷

📷 To see more of Sean Scott's images, visit seanscottphotography.com.au

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In the birdscape

FOR NATURE PHOTOGRAPHER MARTIN ANDERSON,
CAPTURING BIRDS IN FLIGHT HAS TAKEN HIM INTO THEIR WORLD.

Don Norris

A few years ago, Martin Anderson set himself an ambitious goal. He would take two years away from paid employment to focus all his efforts on establishing himself as a nature photographer.

There have been a few hurdles to overcome, not the least of which were COVID lockdowns, but three years into the journey, he's feeling increasingly confident.

His plan was to start locally, to provide content for his community, to be generous with his time, to be successful in photo competitions and to earn the recognition of his photographic peers. And late last year his project to build a name for himself took a leap forward when he won the 2023 Birdlife Australia Portfolio prize.

His remarkable six-image sequence of an aerial tussle between a Spotted Harrier and a Brown Falcon (one of which is shown here and all six can be seen at www.bit.ly/bird-awards-23) justifiably wowed the judges and caught the eye of media outlets both in Australia and elsewhere. That he had only taken up the highly challenging art of bird photography a mere three years earlier, makes his achievement all the more impressive.

Martin first started taking pictures in his teens and he soon came to understand that his image-making was in part a way to contend with much deeper currents in himself.

'The reason I was interested in photography was because I suffer from depression,' he said. 'And the camera gave me a new way to look at things in life. I started to embrace that and try to find ways to photograph with a fairly simple point and shoot camera; to come up with ways to "trick" the camera to focus closer and to control lighting.'

He was drawn to photographing the tiny denizens of his garden; the ants, the beetles and, in particular, the tiny, colourful and surprisingly personable peacock spiders of the jumping spider family.

'Their intelligence is similar to a cat's but they're only the size of a match-head,' he said. 'They can see a good foot in front of them, and they hunt and stalk like a cat would.' But capturing something only a millimetre or two long was extremely challenging with a point and shoot camera. Happily fate, in the form of his mother-in-law, intervened.

Seeing how much Martin was benefiting from his photography, when she upgraded her DSLR, she gave him her old Nikon D5000.

'She wanted to see how far I could go and what I could do with a more complicated camera,' he said. 'The new camera allowed me to do things differently. It allowed me to get closer to the subjects, to run flash systems, to play around with settings and to develop my own style and technique to photograph spiders.'





Above: Spotted Harrier vs Brown Falcon.
Previous page: Nankeen Kestrel Golden Hour



Botany Bay Weevil



... the camera
gave me a new
way to look at
things in life.





Yellow-tailed Black Cockatoos
Opposite page: Varigated Fairywren Tobacco Flower

Unfortunately, not long after stepping up to his first proper camera, Martin injured his back so badly that for several years he effectively had to stop taking pictures. 'Eventually I had my spine fused, which dramatically improved my physical abilities,' he said. 'So I got some new equipment and was going to go back to macro but with higher quality and better gear.'

'I wanted to push myself just a little bit further to be able to do other forms of photography. I bought myself a 200-500mm lens about three and a half years ago. And I've always liked birds,' he explained. 'My mum was into birds. I think they're an interesting subject so I decided I'll start photographing birds – and since then, I've gone a bit crazy.'

'I find them infinitely fascinating and watching them just gives me the feeling of freedom. It gives me so much pleasure to witness these beautiful creatures interacting and the freedom they experience. It gives me peace from my issues with depression when I'm out there, witnessing this amazing stuff. It drives me to do my best to portray what I'm seeing, and then share that with other people who aren't as lucky as me.'

'Maybe they can't get out of the house because they're depressed or physically not capable or too old. I want to share it with them, so that they can get a piece of the enjoyment that I get from our wildlife.'

'I do a lot of work within the Winston Hills community,' Martin said. 'I'm very thankful for the amazing community that I'm a part of. They are always very appreciative of all the hard work I put in and it brightens a lot of people's days – which gives me a lot of positive energy and makes me a better person.'

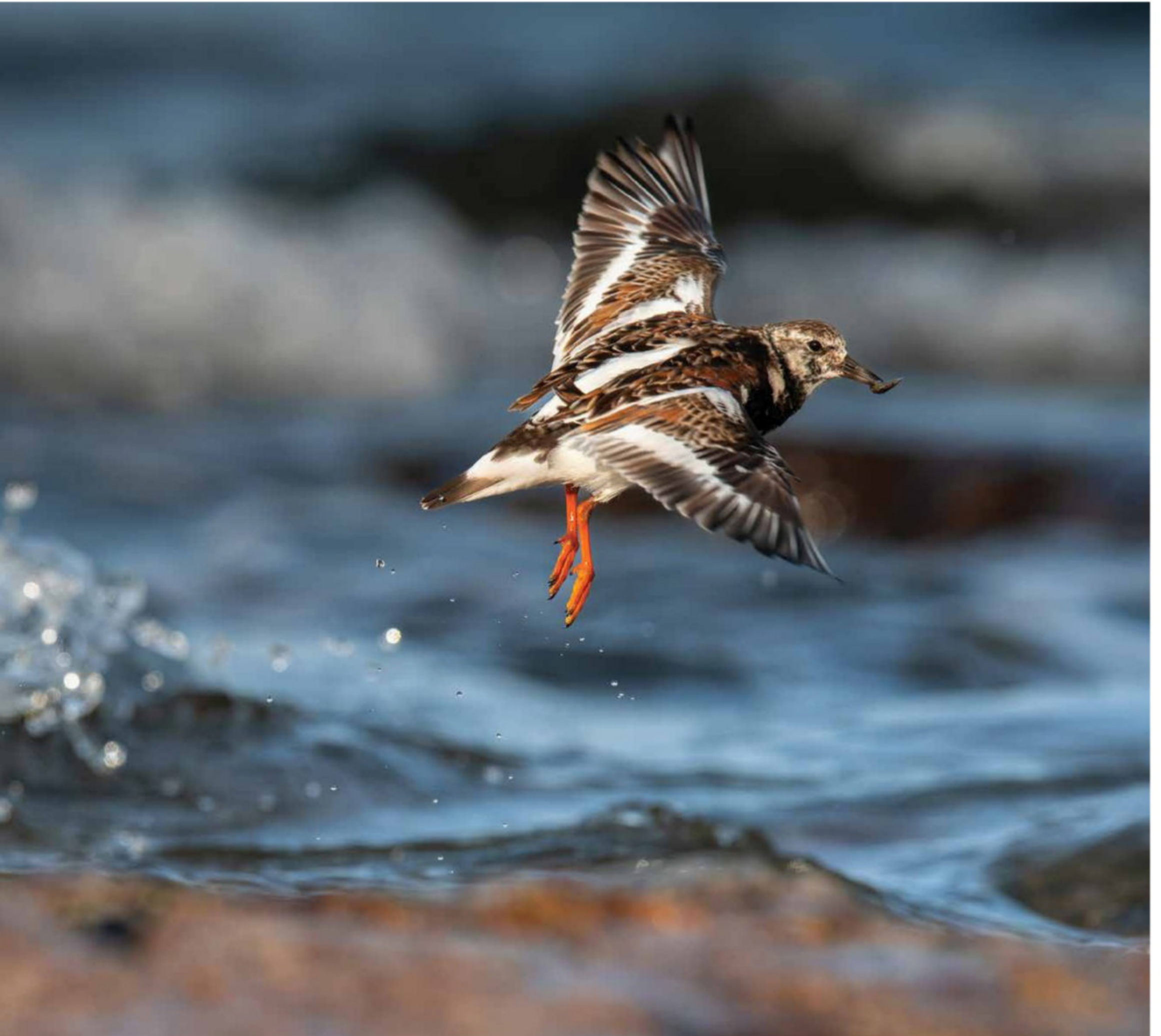
As anyone who's tried can attest, capturing birds in flight is an extremely challenging exercise. But capturing them in flight, while they're also doing something dramatic or interesting, is orders of magnitude more difficult again.

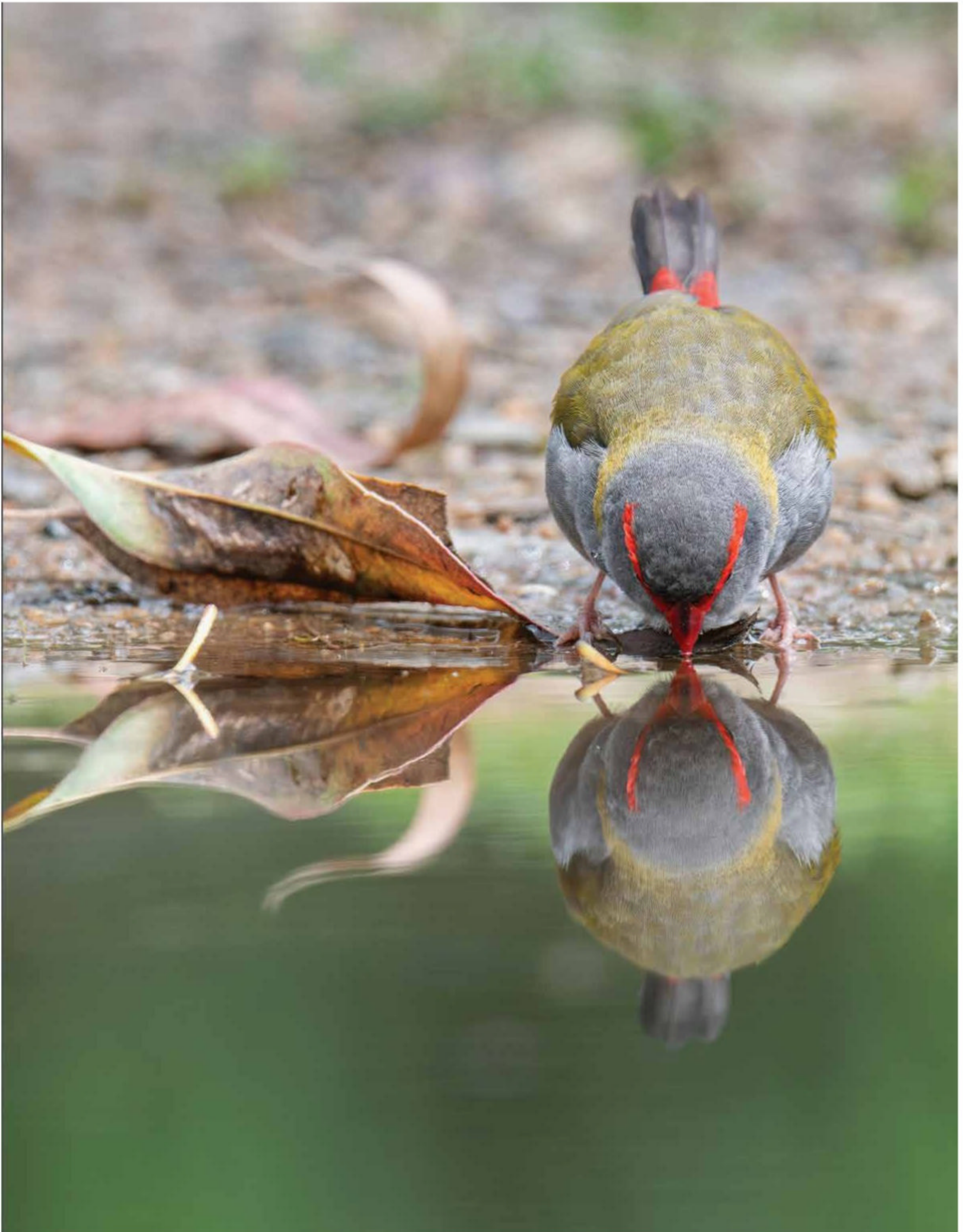
Martin estimates that to capture his award-winning sequence of the tussling raptors in the Richmond wetlands, required about 150 hours of planning, preparation, patient observation and just waiting for something interesting to unfold. But those hours were in a sense, the tip of the iceberg. Below the surface, so to speak, were the months and months of practice to make his shooting technique second nature.

'It's a lot of muscle memory and training,' he said. 'The most crucial thing for action photography is the ability to bring your camera up to your eye and have the bird in the centre of the frame. If the bird is not there when you look through the viewfinder, you've missed that moment.'



Ruddy Turnstone Flees waves with mollusk





Red-browed Finch Reflection



Great Egret Nepean River

'My advice to anyone interested in bird photography is to go to a duck pond and start focusing on the birds landing and taking off. Ducks are abundant. They're easy to find. They're going to do stuff. Practise as much as you can and when you are bringing that camera up to your eye and the bird is in position almost every time, then you'll be ready to start walking around and looking for action.'

'All that stuff is muscle memory, it is no different to learning guitar. Your fingers don't know the chords, but the more you practise, the more your hand knows those positions. And it moves freely. It's no different than anything physical. You have to repeat the process. Your muscles will get better at it and then your body will start to move when you're panning because you're getting better at holding the camera. It's all just practice, practice practice.'

As well as developing the kind of muscle memory that makes the camera almost an extension of his body, Martin has immersed himself in the birds' world or 'bird-scape' as he likes to describe the complex dynamics of birds, and bird behaviour in a habitat.

'I go to these environments so frequently,' he said, 'that I know each bird's call in that area and whether it's either a distress call or a contact call. The soundscape is completely familiar, so when I hear an odd call, my brain just instantly goes "that was different..."'

Exploring, understanding and ultimately capturing birds in their particular birdscapes has been fundamental to Martin's photographic practice – and a conscious differentiation from what might be called typical bird photography.

'Mostly I see birds on sticks,' he said of typical bird pictures. 'And they are very well presented birds on sticks. But what's there to draw you in? If you're a bird lover, the details, the feathers, the beak and so on, are enough for you. But for everyone else who is not necessarily interested in birds, it's just a bird on a stick.'

'So. I try to make it more than that. I'm looking for a bird interacting with another bird, a bird drinking or bathing, a bird flying, a bird fighting. There's always going to be something there, and if it's just a bird, it's going to be a pose, looking into the distance with the elements in the environment scaled to show it from the perspective of the bird. Everything is at bird scale.'

Looking ahead, with his love for avian photography as strong as ever, Martin has set himself the challenge of capturing the lives of birds in ways little explored by other photographers. Martin will be doing bird photography workshops and tours throughout the year. And he's been thinking deeply about how to capture aspects of a bird's life cycle across a series of images that will illuminate their behaviours from courtship displays and nesting, through to raising their young.

'I feel very privileged to have been given the gifts that I have,' he said. 'It is hard for me to say that because for the majority of my adult life I've been in a very negative headspace. But I'm very blessed to have the skills and the experiences that I have had. I'm always going to share those life experiences with other people, to give them peace or at least the strength to keep pushing on. 📷'

For more of Martin Anderson's work, visit www.martinandersonphotography.com.au

@martins_nature_photography

MartinsNaturePhotography

Patterns and colours

OM SYSTEM Global Ambassador, Lisa Michele Burns has been earning a crust as a photographer since 2007. Back then, she was working as travel journalist for Lonely Planet, but when she found herself in Marrakech on assignment, she discovered her wordsmithing wasn't enough to capture the magic of that fabled city. As she notes on her website at, 'Marrakech begged me to take its photo. Then I couldn't stop!'

And stop, she didn't. Lisa went on to establish a thriving travel photography business producing imagery for global brands, tourism boards and publications in the travel sector.

When asked how she'd describe herself as a photographer these days, Lisa responds 'I'd say I've grown to be quite relaxed. I love being outdoors with my camera, especially if there's no one else in sight and I can just wander in silence and assess what I want to photograph slowly. Ten years ago, when travelling, I couldn't eat until I'd seen the very last glimmer of light disappear for fear of missing a moment, but now, I feel content with just being out in the elements and witnessing whatever crosses in front of my lens each day.'

'Currently, I always have the OM-1, OM-D E-M1 Mark III bodies in my camera bag, along with the M.Zuiko 12-40mm f/2.8 PRO lens, the M.Zuiko 40-150mm f/2.8 PRO lens, and the M.Zuiko 2x Teleconverter MC-20,' says Lisa. 'This is my base kit that comes with me everywhere, regardless of if I'm photographing a desert, city scene, tropical island, or glacier. I used to leave the MC-20 2x teleconverter at home for some trips, but now it's essential to my core kit, and has helped in being able to get closer to the patterns within a landscape without adding too much weight. It's such a cute little compact gadget.'



Shark Bay patterns, WA



“

It's fascinating just how many colours and patterns exist within the environment.

Red Sand Beach, Roebuck Bay, WA



Vatnajökull, Iceland



'For deserts or coastal scenes, I'll add in the M.Zuiko 7-14mm f/2.8 PRO lens because it can be really useful to get low to the sand and see the closer patterns with a wider angle as the lines extend toward the rest of the dune. I don't use this lens as much in icy conditions as I'm usually a little further away from the details I'm photographing. That's where the MC-20 2 x teleconverter comes into play – I love pairing this with the 40-150mm f/2.8 lens!'

Lisa's latest project is a book devoted to the Australian environment. Her aim, she says, was 'to create a collection of images that showcase the colour palettes visible in Australian landscapes. From the east to the west coast, across deserts, salt lakes, rainforests, dunes, rocky outcrops and along coastlines, it's fascinating just how many colours and patterns exist within the environment. The book will feature the images I've captured alongside information on how the colours came to be due to the geological elements and climate over time.'

On one memorable occasion while shooting for the book project, she was given rarely-granted permission to photograph the dunes of Mungo National Park. 'I wanted to capture the lines of the dunes stacking toward the horizon minimally, and on the day I had permission to be in the location, it was gale force winds which were whipping up sand all around me! Having the OM-1 and OM SYSTEM gear with me meant I didn't have to worry about sand being an issue, and both the cameras and I were completely covered in sand by the time I got the shot.'

'The OM-1 is the most recent addition to my gear, and has been such a game changer in terms of enabling me to capture the type of

images I dream of. I added it because I knew based on the OM-D E-M1X and the OM-D E-M1 Mark III that any new features would only be beneficial to my work. I've loved using those cameras and find that any new innovative advancements that OM SYSTEM make, are worth using, so I had to add the OM-1.'

It's ideal for the environments I photograph in – it's compact and rugged, while offering features like the built-in Live ND filter, the best in-body image stabilisation, handheld high-res mode to capture 50MP images, and incredible battery life.'

As for where to next, Lisa says, 'I've finished photographing for the book and am now writing it up and it's due to be published later this year. It'll be so nice to have those adventures on the page and in print.'

'I'm travelling to Patagonia next to document the glaciers there, then hopefully back to Greenland for summer to host a photo tour, and spend a bit of time afterward, late in the season, to watch the cooler conditions sweep over the Icefjord.'

'In addition to my photography work, I've been building a site of creative resources and online courses for travel photographers too. The Wandering Lens has been publishing travel guides focusing on photography locations since 2015, but now the new site, www.travelphotographycourses.com offers resources for anyone keen to pursue a career in photography or improve their composition skills and learn how to work with natural light.'

 www.lisamicheleburns.com

 www.explore.omsystem.com

Kiyomizu-dera Temple Kyoto, Japan

KIYOMIZU-DERA TEMPLE IN KYOTO IS ONE OF THE MOST CELEBRATED BUDDHIST TEMPLES IN JAPAN AND PROVIDES A WEALTH OF OPPORTUNITIES FOR ALL KINDS OF PHOTOGRAPHERS.

Margaret Brown



A closer view of the wooden stage jutting out from in front of the main temple, a popular spot with locals for meeting friends and with visitors for capturing views over Kyoto city.

Why visit?

Kyoto rates highly on the 'bucket list' of anyone planning to visit Japan – for its culture, food, temples, shrines, gardens and geisha. One of the 'must visit' sites in the inland city is the Kiyomizu-dera temple complex, which is one of the top attractions for visitors. The admission fee is 400 yen and the site is open daily from 6am to 6pm (until 6.30pm in July and August) but remains open until 9.30pm during special evening illuminations.

The name 'Kiyomizudera' means 'Pure Water Temple' and is derived from the adjacent Otowa Waterfall. The ancient wooden temple at the heart of the complex was founded in A.D. 790 and dedicated to the eleven-faced, thousand-armed Kannon, the Buddhist Goddess of Mercy.

Built on 30-metre-tall pillars, it has terraces overlooking the city and is reached by walking along Tea-pot Lane which is full of small shops and craft stores. Features that make it famous include its wooden stage, which extends out from the main hall, and provides excellent views over the surrounding area. These become a sea of colour in spring during cherry blossom time and glow with yellow and red during autumn. The entire building was constructed without the use of nails.



At 31 metres high, the three story pagoda at the entrance to Kiyomizu-dera is one of the tallest of its kind in Japan.



Young women in traditional dress take selfies on one of the terraces at Kiyomizu-dera.

The temple was originally associated with the Hosso sect, one of the oldest schools within Japanese Buddhism, but formed its own Kita Hosso sect in 1965. It was added to the list of UNESCO world heritage sites in 1994.

When to go

You can visit Kyoto to see the temple at any time of the year but many tourists come in

late March and early April to see the cherry blossoms. During this time Kiyomizu-dera holds special evening illuminations although the temple is likely to be crowded so it may be difficult to get the photos you want.

Autumn is also a great time for a visit as the weather is usually more predictable and the area around the temple is ablaze with vibrant colours. Between mid-October and late November sunny

and warm days are the rule, with the peak of autumn foliage usually coming in mid-November and extending until early December.

Evening illuminations during the autumn leaf season in the second half of November draw many visitors to the temple complex and also provide opportunities for photographers and videographers. The buildings are also lit up during Obon in mid August.

Summers are probably best avoided as they are often hot and humid, with average daytime temperatures extending over 30 degrees Celsius and average minimum temperatures of 21.5 °C. Because Kyoto is surrounded by mountains, the heat and humidity can become trapped overnight.

Winter can be a good time for photographers to visit since it's the least popular time for most tourists. You'll have few problems taking photos, even in normally popular places but many businesses and some tourist attractions shut down from 29 December until 3 January.

Getting there and getting around

Kyoto is easy to include in even a relatively short trip to Japan. Most visitors purchase a Japan Rail Pass, which should be bought before you leave home. This will cover travel on all trains operated by Japan Railways, including the Shinkansen bullet trains, which link Kyoto to Osaka, Tokyo and many other destinations, including international airports.

The price of the Japan Rail Pass increased by 69% in October 2023 to \$519 per person for 7 days, although it remains a good deal if you plan to make extensive use of the rail network. It's borderline for those who'll only visit Tokyo, Kyoto and Hiroshima, although it's still worth buying if you plan day trips from any of those places. Find out more here: www.japanrailpass.com.au.

According to JR, the new passes enable users to access the faster shinkansen ('bullet train') lines, reserve seats through a dedicated website and access special discounts and services. However, you may be able to save money by purchasing short-term regional passes that cover the area you're in, rather than the entire country.

The JR West All Area pass (~\$270 for 7 days) covers the Kansai, Chugoku and Hokuriku regions, which include the Kansai (Osaka) airport, Kyoto, Himeji and Hiroshima and includes unlimited use of local JR buses around Kyoto, Kanazawa, Hiroshima and Yamaguchi, as well as buses between Kyoto Station, Takao and Shuzan, and between Yamaguchi, Hagi and Akiyoshidai. If you want to include Tokyo,

you could consider the Hokuriku Arch Pass (\$264 for 7 days), which will take you from Tokyo (including Narita and Haneda airports) to Kyoto, Nara and Osaka Full details can be found here: www.bit.ly/japan-rail-passes.

Getting around Kyoto is easy as there's plenty of public transport (trains, subways, buses and taxis) and the streets are laid out in a grid system. The city is also compact and relatively flat, which makes walking an option. Cycling tours are also available and popular with many tourists.

Many Japanese people can understand English, especially the younger ones – although they may be shy about speaking it. To avoid problems with translating signs or instructions if you're lost or confused about where to go, install Google Translate on your phone as a back-up resource (it's easy to use and can save a lot of hassles).

Kiyomizu-dera can be reached from Kyoto Station by bus number 206 (15 minutes, 230 yen). Get off at Gojo-zaka or Kiyomizu-michi bus stop and follow the ten minute uphill walk to the temple. Alternatively, Kiyomizu-dera is about a 20 minute walk from Kiyomizu-Gojo Station along the Keihan Railway Line.

Where to stay

Kyoto has a wide variety of excellent hotels in all budget classes as well as ryokan, which are traditional Japanese inns in which you sleep in futons on tatami mat floors. Ryokan usually include meals in their prices, but some places allow you to choose breakfast only or no meals.

Kyoto's high-end ryokans are traditional wooden buildings with attached gardens, while mid-range and budget ryokan are often contained within modern buildings that look like hotels. Only the service and the guestrooms are traditionally Japanese.

AirB&B and Stayz are also available in Kyoto for visitors who would rather self-cater. Bookings can be placed on the selected website and both cater for individual travellers or groups of varying sizes. You can pick the location, your price range, the number of rooms you want and other key amenities to find the stay that fits your needs. Stays with flexible cancellation facilities make it easy to re-book if your plans change.

What gear to take

You'll be doing a lot of walking and travelling on public transport to get to Kiyomizu-dera so it's best not to burden yourself with complex or heavy gear. This is one place where your smartphone camera should be able to capture most of the shots you want to take as well as recording all the video footage you might need.



The approach to the Kiyomizu-dera temple complex showing the Sai-mon (West gate), which was reconstructed in 1633. It has long been considered a gateway to Paradise because of its spectacular sunset views.

If you'd rather use a 'proper' camera, a lightweight model with a wide-to-moderate telephoto lens provides enough versatility without hampering your freedom of movement. We'd recommend a focal length of 24-200mm as providing adequate coverage for almost all situations.

Stabilised equipment is advisable, especially if you plan an evening visit and also to enable

you to take photos and shoot videos indoors as well as out. Leave your flash and tripod behind (or at your accommodation) as it will get in the way when you're in crowded places.

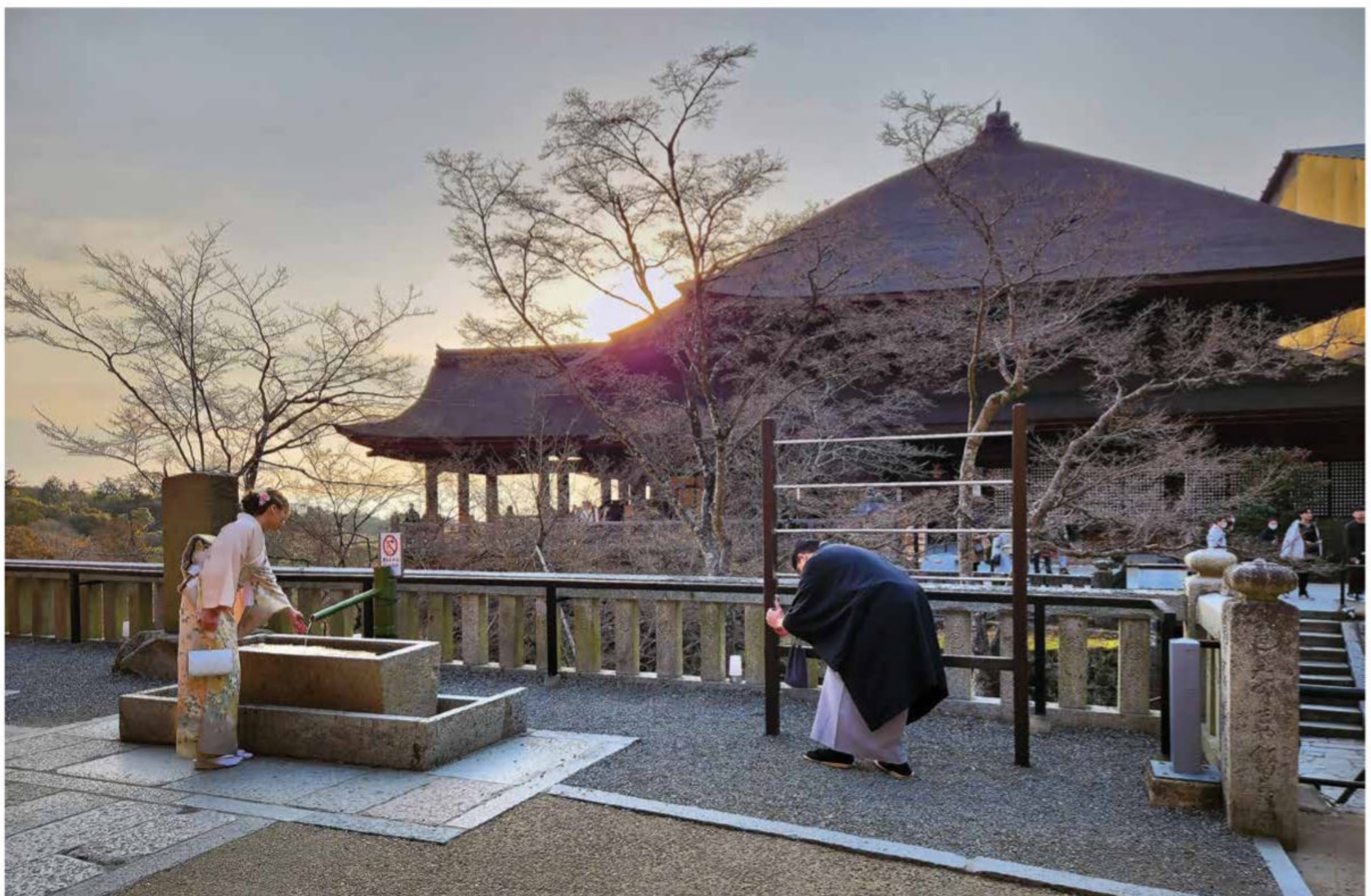
What to photograph

Watch out for photo opportunities on your way to and from your main destinations. Kyoto is popular as a place where Japanese people can



Kyoto rates highly on the ‘bucket list’ of anyone planning to visit Japan – for its culture, food, temples, shrines, gardens and geisha.

The three-storied Koyasu Pagoda on the hill opposite the main hall.



Young people dress in traditional costumes to visit Kiyomizu-dera after work and take photos.



Left: Looking down on the Otowa Waterfall, where visitors are queuing up to drink from one of the three streams of water.

Right: The ancient temple complex of Kiyomizu-dera is perched on a hillside, overlooking Kyoto city, viewed from one of the adjacent terraces.

hire kimonos and dress up to visit the temples and shrines. Many will be happy to pose for your camera, although you can also capture candid shots if you don't draw attention to yourself. Be respectful when visiting temples and shrines. Watch what the locals do and, if you want to participate, do the same.

The temple complex provides plenty of photo opportunities, whatever time of day you visit. In the evening you'll be able to snap people in traditional dress at most times of the year since this is a popular place with locals as well as tourists. Always respect local traditions and don't intrude upon (or take pictures of) family gatherings or private ceremonies, especially when people are in prayer.

Around the entrance to Kiyomizu-dera and outside the paid area, are other temple buildings, including a vermilion three storied pagoda, a repository for sutras, large entrance gates and the Zuigudo Hall which is dedicated

to Buddha's mother. For a small entrance fee (100 yen) you can wander into the pitch-black basement that represents the womb of a female bodhisattva. Coming out of it back into the light symbolises being reborn again.

The Otowa Waterfall is a great place for interesting pictures. Located below the main hall it has a small building where the water is split into three separate streams. Each stream's water is said to have a different benefit; one conferring longevity, another success at school and the third luck in love. Visitors can use cups attached to long poles to drink from them – but don't drink from all three streams as you'll be seen as greedy.

Behind Kiyomizu-dera main hall stands Jishu Shrine, which is dedicated to the deity of love and matchmaking. In front of the shrine are two stones, placed 18 metres apart and it's said that if you can find your way from one to the other with your eyes closed you'll have luck in

finding love. However, if you need someone to guide you, it means you'll need an intermediary to guide your love life.

There are a number of smaller buildings scattered around the complex, including a small hall with nearly 200 stone statues of Jizo, the protector of children and travellers. The three-storied Koyasu Pagoda on the hill opposite the main hall is said to bring about an easy and safe childbirth for pregnant visitors.

Part of the fun of visiting Kiyomizu-dera is the approach to the temple along the steep and busy lanes of the atmospheric Higashiyama District. Some of these streetscapes are worthy subjects in their own right. Be alert for the quirky nick-nacks that represent Japanese traditions and the unique approaches many of the locals have to their cities and suburbs. Japanese food can also make attractive subjects so keep your camera handy when you visit a restaurant or stop on the street for a snack. 

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Camera shutters explained

WE LOOK AT THE EVOLUTION OF CAMERA SHUTTERS IN THE LIGHT OF SONY'S INTRODUCTION OF A GLOBAL SHUTTER INTO ITS LATEST MIRRORLESS CAMERAS.

Margaret Brown

A camera's shutter is one of the two mechanisms that control a key aspect of exposure by determining how long the sensor is exposed to light to record the image. In the early days of photo-imaging, all shutters were mechanical. There were two types: leaf shutters and focal-plane shutters.

Leaf shutters consist of a set of overlapping blades (or 'leaves') that open by moving outwards when the shutter is engaged and remain open for a set time. They're used mainly in fixed-lens cameras and some lenses, where they are located between lens elements near the iris diaphragm blades that control the aperture diameter. This design minimises vignetting at high shutter speeds.

Focal-plane shutters usually consist of two segmented blinds located close to the light-sensitive sensor plane. They work by creating a travelling slit between the trailing edge of the first 'curtain' and the leading edge

of the second one, which moves vertically or horizontally across the sensor. The width of this slit determines the exposure duration.

In early SLR cameras, the shutter curtains were designed to travel horizontally across the camera in front of the film plane. Today, most focal-plane shutters travel vertically because the shorter vertical distance means they can support slightly faster shutter speeds. The diagram on page 40 shows the sequence that occurs during an exposure.

There are a few important issues associated with focal-plane shutters, the first being their physical nature, which can produce blurring in cameras with mechanical shutter mechanisms due to 'shutter shock'. Some cameras provide 'mirror up' or 'exposure delay' settings as workarounds for this problem.

Another problem arises because at 'normal' shutter speed settings, the entire sensor isn't totally exposed. This means there's a fixed upper



This illustration shows the structure of a vertical-travel focal-plane shutter unit. Note the mechanism that operates the shutter blinds on the left hand side.

limit to the speed at which the camera can be used with flash because flash exposures are, by their nature, extremely brief. If the shutter blinds are in front of the sensor during that time, only part of the frame will be exposed.

Focal-plane mechanical shutters can also produce 'rolling shutter' distortion when used to photograph fast-moving objects and when the camera is panned across a scene at high speed. This is because the moving subjects in the scene change position as the travelling slit crosses the image plane.

A well-known example is shown on page 40 in the 1912 photography of a racing car by Jacques-Henri Lartigue. The technology of the



This illustration shows how a leaf shutter works in three stages: on the left the shutter is closed; the middle frame shows it partially open and the right hand frame shows it fully open.



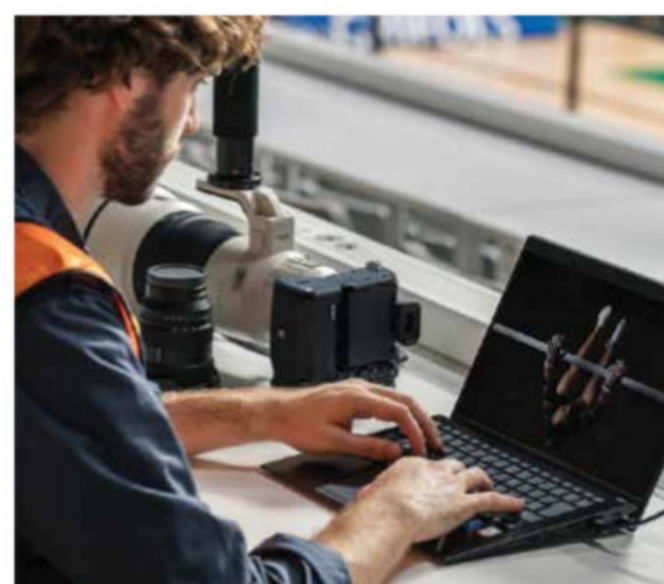
The focal plane shutter operates as follows, after the release button has been pressed: (1) the rear curtain opens; (2) and (3) the front curtain begins to travel downwards, exposing a moving slit of light from the scene; the rear curtain closes, after which the front curtain will close, ending the exposure.



This photograph by Jacques-Henri Lartigue taken at the Grand Prix of the Automobile Club of France, Course at Dieppe, 1912, shows an example of rolling shutter distortion produced by a horizontally travelling focal-plane shutter. (Source: Wikipedia Commons.)



An example of the 'rolling shutter' distortion that can be produced by electronic shutters; (Creator: Dicklyon; licensed under the Creative Commons Attribution-Share Alike 4.0 International license.)



The Sony α9 Mark III camera's global shutter makes it ideal for professional sports photographers for the reasons outlined on this page. (Source: Sony.)

time meant there was a sizeable difference between the shutter speed settings required to capture the subject and the motion of the narrow curtain slit so one side of the frame was exposed later than the other, causing the subject to be distorted. This linear distortion has been adopted by cartoonists ever since when they want to suggest fast forward motion.

Electronic shutters are increasingly common in modern cameras, in line with the increasing use of electronics throughout imaging systems. Indeed, most mirrorless cameras provide both mechanical and electronic shutters.

Unlike mechanical shutters, electronic shutters have no moving parts so they are much less susceptible to wear and tear.

Essentially, the shutter works by turning the sensor's data feed on and off. During the actual exposure the data is 'scanned' line-by-line, in much the same way as a scanner's head moves (although generally a lot faster). Like focal-plane shutters, cameras with electronic shutters fall into a category loosely known as 'progressive shutter' or 'rolling shutter' cameras.

The scanning method gives electronic shutters three additional advantages: they can support faster shutter speeds, they can operate silently and they are largely immune to camera shake. However, because they operate by scanning and fast-moving subjects can change position slightly as the data is being 'read out', they can also

be susceptible to rolling shutter distortion. Artificial light sources like fluorescent lights can also cause noticeable banding because the brightness and colour of a scene can change while the sensor data is being read out. It can be difficult to sync a flash with an electronic shutter because the duration of the actual flash burst is extremely brief so the intensity of the illumination changes during the exposure. Many recent cameras come with high-frequency flicker detection modes to circumvent this problem.

In October 2021, Nikon took the first step towards removing mechanical shutters when it launched the Z9.

Global shutter cameras go a step beyond regular electronic shutters because the

mechanism is able to expose the entire sensor array all at once and read out the image data simultaneously. They're already used in professional 'cine' cameras like the PMW-F55 CineAlta 4K, Canon EOS C700, RED KOMODO and several Blackmagic production cameras as well as surveillance and industrial inspection cameras, and some robots and drones.

Sony's $\alpha 9$ Mark III camera, the first full-frame model with a global shutter, sets a new precedent. Because the technology requires extremely fast channels to get the data to the image processing chip, its sensor resolution is restricted to an effective 24 megapixels.

Global shutters are preferred by professional sports and action photographers, cinematographers and videographers, particularly those involved in high-speed photography, scientific imaging and professional video applications. They offer four main benefits over progressive shutters:

1. Because the data from the entire sensor is captured at exactly the same time, illumination from a flash will be recorded, even with the shortest exposures. This means photographers can adjust the camera's shutter speed to determine the balance of ambient and flash exposures.


2. Global shutters are ideal for applications such as capturing high-speed events, synchronising multiple cameras and recording scientific data with precise timing.

3. High frame rates (currently up to 120 fps) are available for continuous stills and video recording and cameras can pre-buffer frames while the shutter button is half-pressed.

4. Distortion and banding are eliminated for the same reasons. This is true for both stills and video recording.

While global shutters may be more important to videographers to counter rolling shutter distortion, for both stills and video shooters they have a few disadvantages.

Simultaneous sensor capture can generate more heat, particularly in cameras that must operate for extended periods. Under flickering light sources there's a small risk of recording a frame when the light source is part way through refreshing.

The additional complexity and power requirements of global shutter technology can reduce battery capacity. In addition, the technology will only work with very fast image processors and high-speed memory cards, which will exclude most current SD cards. 

Flash synchronisation

In flash photography, the light emitted illuminates the scene for a tiny fraction of a second. The fastest mechanical shutters take about 1/250 second to travel across the sensor, so for any exposure shorter than this the second curtain must start closing before the first one has fully opened. The highest shutter speed at which the entire sensor receives light is the flash sync speed.

Most recently-released cameras allow users to choose between slow sync, first curtain sync and rear sync as well as the normal 'auto' and 'fill-flash' modes that fire the flash whenever the shutter is triggered. It helps to know when each mode is best used.

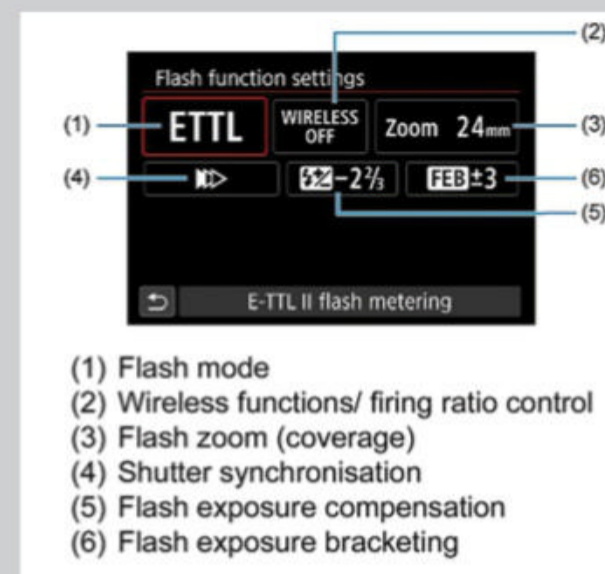
The **auto mode** will fire the flash when the camera detects low light levels that require additional illumination and also with strongly back-lit subjects (where the 'fill-flash' mode will also operate). However, where the auto mode will only fire the flash when it's needed, the **fill-flash** mode fires it every time, usually varying the flash output to match the subject's requirements.

The **slow sync** setting combines the flash with a slower shutter speed that allows more of the subject's background to be recorded (even if it falls outside to the reach of the light from the flash). This mode forms the basis of most 'Night Portrait' pre-sets.

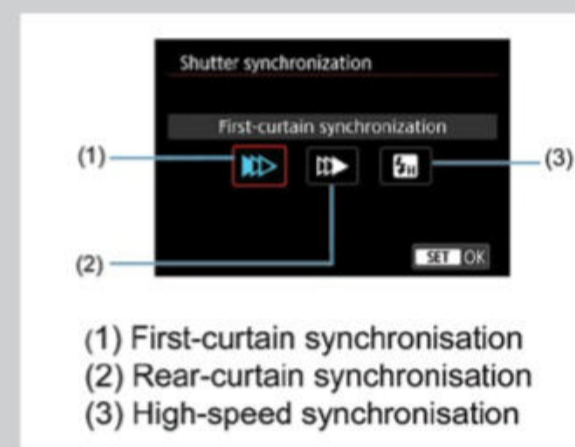
First curtain sync fires the flash immediately after the first shutter curtain opens. It's essentially the default setting for the auto and fill-flash modes. Unfortunately, this setting is susceptible to shutter shock, particularly at slower shutter speeds between 1/2 and 1/50 second for most lenses.

The **rear curtain sync** mode fires the flash just before the second shutter curtain closes. This mode is used when you want to record a blurred trail of a moving subject like a car or running person while keeping the subject correctly exposed. Firing the flash at the end of the exposure reduces the potential for shutter shock.

High-speed sync enables faster shutter speeds to be used and is best used with an open aperture in aperture-priority AE mode to create blurred backgrounds in outdoor subjects with daylight illumination.



A typical menu page from a modern camera showing the main flash function settings. (Source: Canon.)



The flash synchronisation modes provided by a modern mirrorless camera with a fully electronic shutter. (Source: Canon.)

Electronic front curtain sync makes use of both the mechanical and electronic shutters. In this mode, the camera opens the front curtain and the exposure is triggered electronically. It is ended mechanically by closing the rear curtain shutter.

Without a reflex mirror, mirrorless cameras are immune to shutter shock and most cameras include electronic front curtain sync. There's no need to open a first curtain as the camera can start an exposure electronically and end it by blocking off the sensor with the rear shutter curtain.

Electronic front curtain sync has a few disadvantages. Problems can occur when shooting fast action due to the time it takes to read data off the whole sensor electronically at exposures shorter than about 1/2000 second. The brightness of images can become uneven or they can be distorted when wide apertures are used – or even cut-off in some cases.

Camera House

Your photo and video experts

Every Camera House store prides itself on being experts in photographic creativity and technology.

Our longevity and success have been achieved through our store owners' and staff's passion for photography.

This is a photographic showcase of three of our very talented Camera House staff members.

Gus Wood | Works at Camera House in Lismore
Winner of **The 2023 Camera House Photo Award**

Initially, I started taking photos on my mum's old camera. I did a mix of learning through YouTube and teaching myself. I went on to study a course in film making and commercial video.

After finishing the course I was excited to see that Camera House here in Lismore, was hiring. I applied and have happily been here since. I've learned more every day through working at Camera House and I have been able to apply it to my photo and video work. >

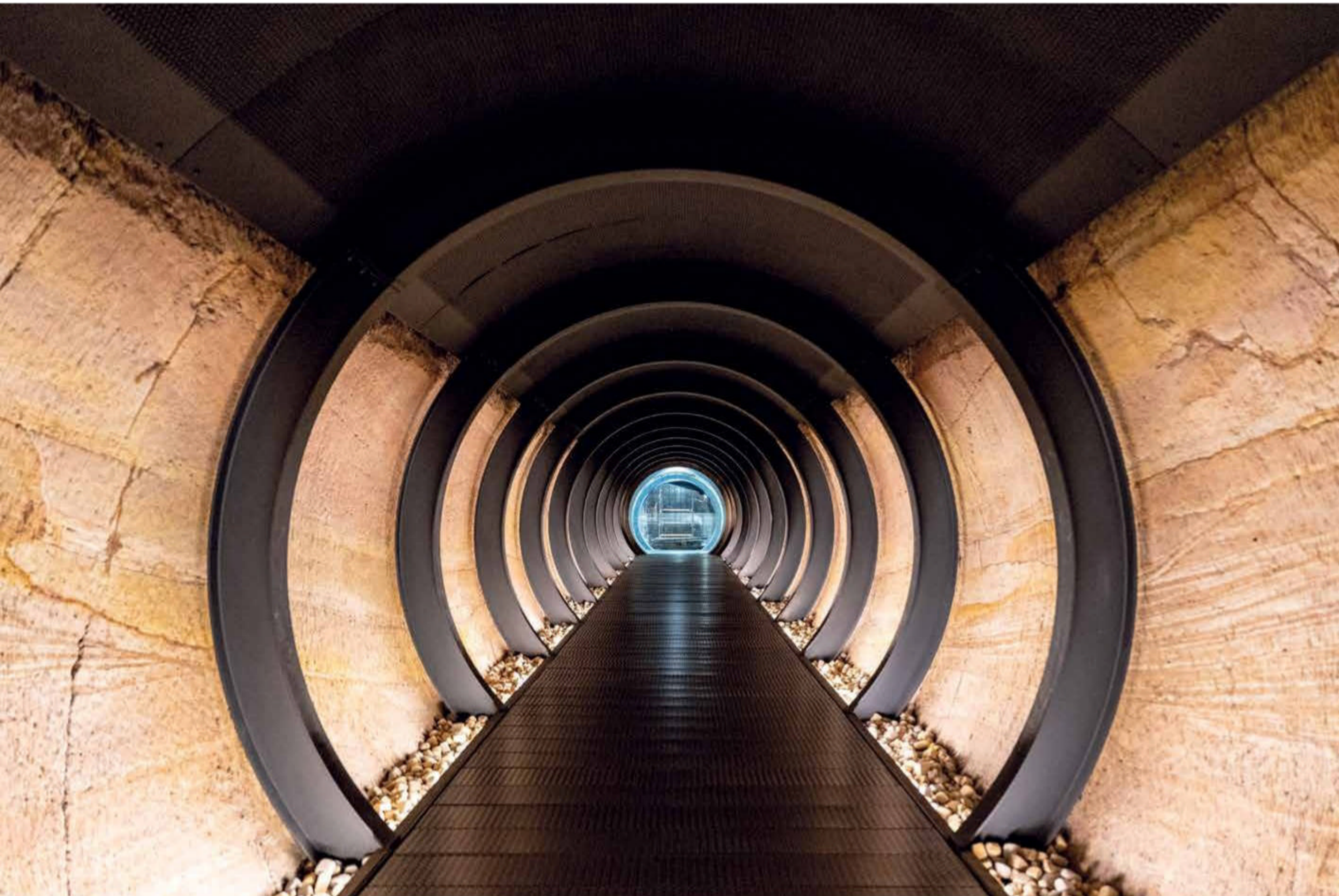


Photo above 'I Wonder' Lonely Maquace Monkey at Bali's Monkey Forest
Photo below '888' - The Award winning photo

Both photos by: **Gus Wood** | Photography equipment used:
Sony A7III + Sigma 24-70 DG DN Art | 1/40 sec, F2.8, 4000 ISO

> There are many things I like about working at Camera House. The passion that you get from both staff and customers is great, we are always learning and teaching each other new things or different ways to do something.

When I get asked what I like photographing most, I'm never able to answer it very clearly. However, I think I enjoy documenting things through photos the most. Whether it be people, places, or things.





Michelle Kennedy | Works at John Ralph Camera House in Erina

I started to play around with photography about 20 years ago, when my son was born. I was really only using my camera for family snaps and my kids. Around nine years ago, I decided to start playing with Photoshop and joined a local camera club to learn a bit more about the creative side of photography. I instantly fell in love with digital composition and have used Photoshop nearly everyday since!

I have a passion for digital composites. I shoot a variety of elements, which I then use to create images where animals are in place of people, so I'm always up for a trip to the Zoo! >

2022 Award winning photo, left 'Firey' Portrait of daughter
2022 Award winning digital composition, right 'The Commute'

Photo credits: **Michelle Kennedy**

> I also love to shoot portraits and macro. Both of these styles are entwined in my composite work. I have often used portraits as a basis for my creative images. My images are not just about the style of photography I enjoy, but my style of 'image creation'.

Our store is abundant of people with different skills and talents. I find the people I work with inspiring. I am always learning. I know our customers also benefit from the talented staff we have here.



Andrew Murrell | Works at John Ralph Camera House in Erina

I'm coming up on my 8th year working here at John Ralph Camera House in Erina.

I run my own photography business as well as working for Camera House. I shoot weddings & events. Also I run workshops on landscape and nightscape photography.

After 20 years, the worry has gone, but my wonder and enjoyment for photography stayed. I love my landscape still, shooting sunrise every day of the year (almost). >

> My interest at the moment, is astrophotography, for both nightscape and with a telescope. Hence my photos shown here in the article.

Photo above by Andrew | Deep sky image: 'Bubble in the LMC'
Shot with a 1200mm f4 telescope on a Skywatcher EQ6-R mount and a dedicated astro camera. Total of 7 hours exposure.

Photo in ad next page, also by Andrew Murrell | 'tracks to the stars'
Shot with the Nikon Z9 and the 20mm Z lens. The settings were f1.8 and a 20 second exposure at ISO6400.



Photo Credit *Brolga stretch* by Michelle Kennedy | Michelle works at John Ralph Camera House in Erina

Photo Credit *Track to the stars* by Andrew Murrell | Andrew works at John Ralph Camera House in Erina

Your photo and video experts



CameraHouse

HDR shooting and editing

WE TAKE A FRESH LOOK AT THE PROCESSES INVOLVED IN HIGH DYNAMIC RANGE PHOTOGRAPHY.

Margaret Brown

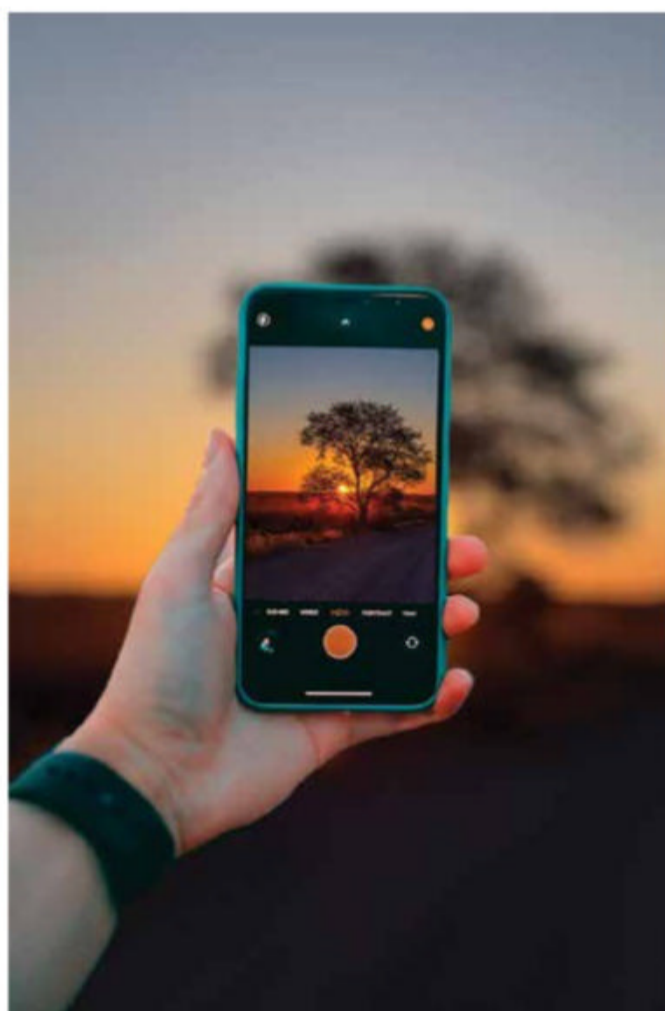
The objective of High Dynamic Range (HDR) photography is to capture the full range of tones within a scene, including those that are beyond the dynamic (brightness) range of the image sensor. Even the best sensors have cut-off points where highlights are recorded with the maximum raw value (i.e. pure white) and shadows are 'blocked up' to black.

You can't get any more image data out of the top end, while details in the shadows are obscured by increased noise. Because the shadows threshold depends on noise, it's influenced by noise reduction processing and how much the image is enlarged or downscaled due to cropping and/or viewing parameters.

When we last looked at it in May 2012, HDR was a mostly manual technique that required the photographer to shoot a series of frames of the subject, varying the exposure frame-by-frame to take in over- and under-exposure levels that would encompass the entire tonal gamut in the scene. Today the process is largely automated and it has become common in both cameras and smartphones and usable for both stills and video. Most editing software also includes HDR modes and/or editing tools.

When to shoot HDR

HDR settings are best reserved for situations where you have trouble balancing light levels. These can be difficult to define because, while normal human eyes can detect details across a dynamic range (from shadows to highlights) of between 11 and 20 f-stops (a contrast ratio of



Many of the latest smartphones include selectable HDR shooting modes that can be used for recording both stills and movies.

1,000,000 to 1), our eyes can pick up details in deep shadow and bright highlights and adjust seamlessly when we scan between bright and darker areas in the scene.

Because cameras capture the scene all at once, their ability to record the full brightness range in a scene is dictated by the capabilities

of the sensor and image processor.

Recent advances in image processing have greatly improved the range of brightness most cameras can record – although even the best cameras can only record a dynamic range of around 15 stops. (This is just enough to enable HDR modes for recording video; not just for stills.)

An example of a situation in which HDR shooting can be useful is for landscape photography, when you encounter a scene in which the foreground is much darker than the sky, as shown in the illustration on the opposite page. Using a normal shooting mode with the exposure meter set for multi-pattern or centre-weighted average metering will average out the tones and expose for somewhere between them.

The result is likely to be disappointing because the brightest tones will be blown out and the darkest tones will block up to black. This can leave the middle tones either slightly under-exposed or over-exposed.

Recording an HDR sequence gives you the chance to capture details at both ends of the brightness range and combine the optimally exposed areas from each frame to ensure tonal details across the full brightness range are recorded. This is why HDR is popular with landscape and real estate photographers who frequently encounter scenes with very wide dynamic ranges.

It can also be a way to capture silhouettes when a subject is backlit against a bright sky. Using HDR can help you to brighten up the dark shadows cast by the backlit subject just

enough to produce a natural balance while making sure the highlights aren't over-exposed.

In this feature we'll look into the tools needed for capturing HDR photos and videos and the tools and processes used for editing them.

Equipment requirements

Any camera that lets you control exposure levels can be used for creating the sequences of bracketed photographs that underpin an HDR image. Many recent smartphones also offer HDR modes, with Google's Pixel phones providing HDR+ and HDR+ Enhanced modes, the latter for low light situations. With these fully automated HDR modes you'll miss out on the learning experience of evaluating how much to vary exposure levels for a given scene.

Many contemporary cameras include special HDR shooting modes in which the camera captures the required frames and blends them together without requiring you to do anything beyond selecting the mode and releasing the shutter. In some cameras this mode is JPEG only, although more sophisticated cameras let you shoot raw files.

Cameras with Auto Exposure Bracketing (AEB) modes can be used for recording HDR sequences and most let you set the number of frames to record and the difference in exposure from frame-to-frame. Using AEB enables you to set the lens aperture to suit the type of subject you're shooting. Small apertures (f/8 to f/16) are best for landscapes, while large apertures (f/4 or wider) give you the ability to blur-out backgrounds with selective focusing.

A range of -2EV, 0 to +2EV across a sequence should be enough to cover the majority of situations. Some cameras let you set up to nine frames across a range of up to +/-5EV. Be cautious about using such a broad range as it can produce unnatural-looking results in some situations.

More sophisticated cameras let you control the exposure difference between frames. Some cameras also let you set up warnings to alert you when highlight and/or shadow details are likely to be compromised, making it easier to see when HDR shooting techniques might be needed.

How to record an HDR sequence

While it takes a little longer to capture an HDR sequence than a normal exposure, most of the latest cameras can record bursts of shots quickly enough to let you use their HDR modes with the camera hand-held. These cameras may also be able to combine the shots in-camera and display the end result on the camera's monitor screen to give you some idea of what has been recorded.



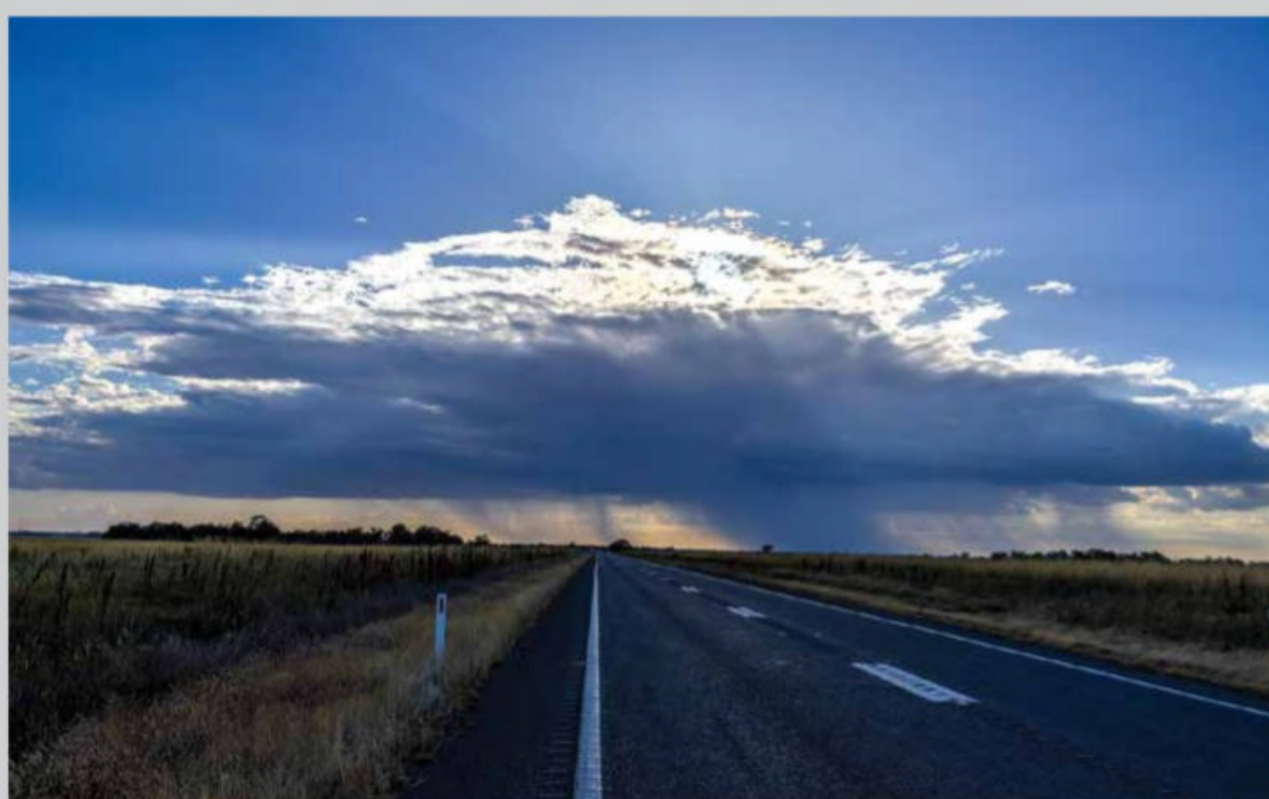
When normal metering patterns are used for capturing scenes with very wide brightness ranges, the exposure will average out the tonal values and often leave the brightest highlights blown out and the shadows blocked up to black, as shown in this image.

HDR alternatives

Unhelpfully, the term *High Dynamic Range* can refer to different things. It could be tone-mapped photos that try to convey a wide DR scene on a display with a standard dynamic range. These can develop a rather distinctive 'look' if there's an attempt to include too wide a dynamic range. The alternative is wide DR images shot for playback on HDR displays, which can present this wider dynamic range in a more realistic, life-like manner.

You need to find out which one you're using before you begin recording stills or movie clips.

If your camera doesn't have an HDR shooting mode, a good work-around is to shoot raw files. Most raw file processors can extract the full range of tones the sensor has recorded and provide a good simulation of the scene, as shown in the illustration in this box.

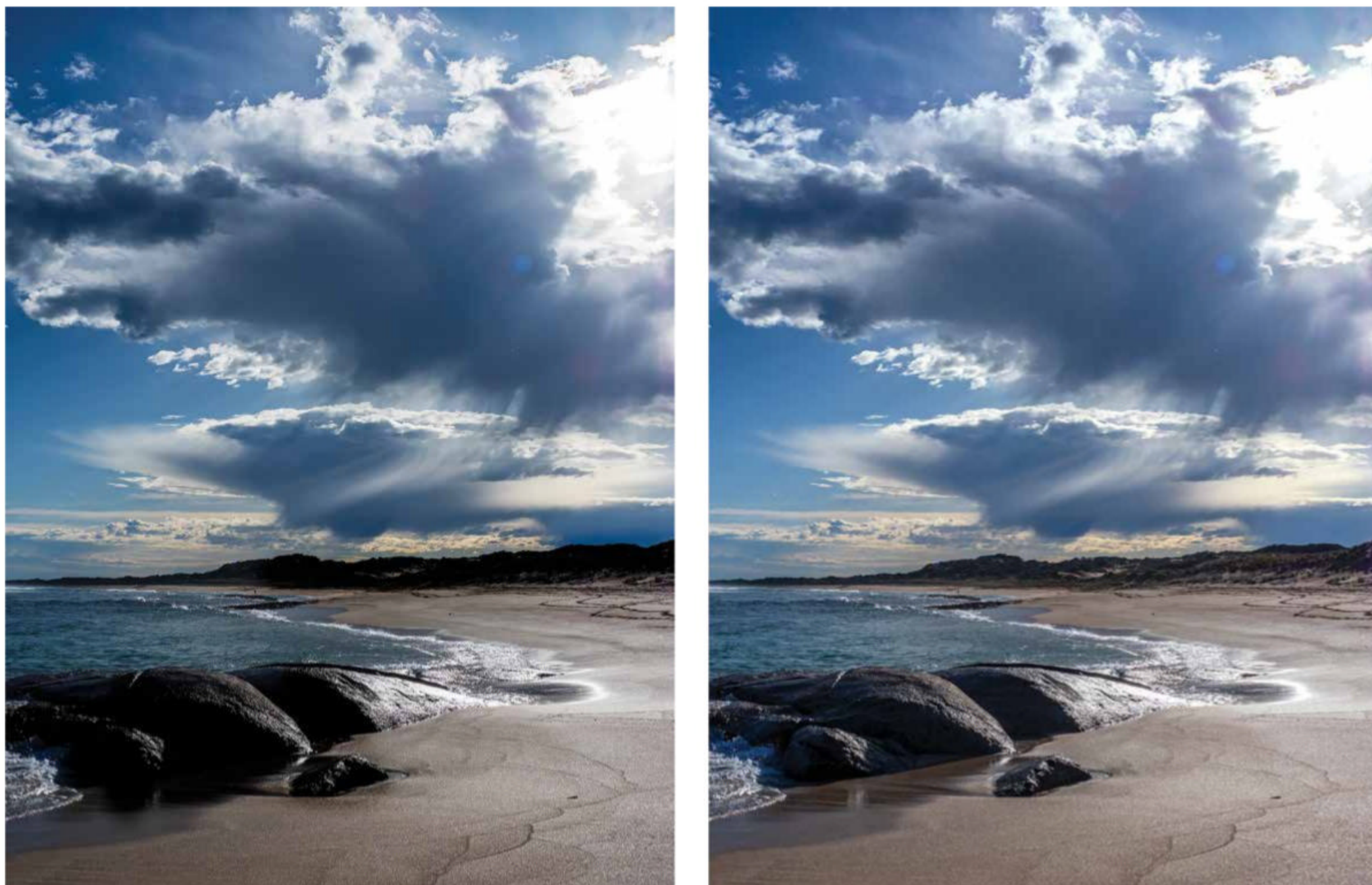


This raw file version of the image shown on this page has been processed to simulate HDR capture. The software gives photographers full control over all tonal levels but highlight details in the clouds that weren't recorded remain blown-out.



A typical three-frame HDR shooting sequence combines separate exposures for highlights, shadows and an averaged metering to produce a final image with a natural-looking wide range of tones. The fourth frame shows the HDR-merged end result.'

The objective of High Dynamic Range (HDR) photography is to capture the full range of tones within a scene



These two images show the advantages and disadvantages of HDR processing. On the left is a normal shot of a very contrasty scene with blown-out highlights and blocked-up shadows. On the right is the same scene after HDR processing, which has opened up shadow details but done very little to address the blown-out highlights in the top right corner. The message: there is no way to put back image data that wasn't recorded in the first place.

Users of older cameras probably need to mount their cameras on a tripod to prevent motion blurring between frames in the sequence. Self-timer or remote triggering can provide added 'insurance' against camera shake. Some experimentation is usually required.

We suggest you start with a three-frame sequence covering one stop of under-exposure, the metered exposure and one stop of over-exposure. (If you're doing it manually use the Exposure Compensation dial and set it to -1 then 0 and then +1.)

Check the three exposures on the camera's monitor, looking for how much shadow detail is recorded in the over-exposed frame and how much is captured in the sky in the frame that was under-exposed. If details are missing in both ends of the scale, re-set your Exposure Compensation dial to a -2EV, 0 and +2EV sequence and check again.

If there's enough detail in the shadowed areas but the sky is blowing out, re-set the exposure sequence to -2EV, 0 and +1 and try

again. You can keep on adjusting the mid-point of the exposure sequence until you've recorded details in both highlights and shadows or, for situations in which the brightness range is very wide, record a five- or seven-frame sequence that can encompass a wider range.

HDR software


Most image editing software should be able to merge the frames recorded in an HDR sequence. Adobe's three programs – Photoshop, Lightroom and Photoshop Elements – all provide it but you're required to look in different sub-menus. In Photoshop, the sequence is File > Automate > Merge to HDR; the Lightroom sequence is Photo > Photo Merge > HDR. Photoshop Elements includes HDR merging in its Guided Edits in the Photomerge Exposure function.

Another application with HDR merging is Affinity Photo, which provides full support for 32-bit float editing and tone mapping to ensure the resulting image can be viewed properly

on most displays. Luminar Neo is another popular application that includes HDR merging, although it requires users to install an additional HDR Merge Extension. Up to 10 frames can be merged with this software.

Some applications allow users to simulate an HDR effect from a single image. This can be handy if you've photographed a moving subject since few HDR capture modes are able to record quickly enough to avoid blurring when the frames are merged.

The results will depend a lot on the recorded brightness range in the original and the software's processing algorithms. The best results are achieved with subjects that have a modest brightness range.

Don't expect any kind of HDR processing to overcome highlight blow-outs produced by specular highlights, caused by light reflecting off a shiny surface directly toward the viewer's eye. Specular highlights are often prized by portrait and sports photographers to create reactions that would be lost if diffused light was used. 

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Memory cards revisited

A SURVEY OF RECENT CHANGES IN THE MEMORY CARDS MARKET, HOW THEY'LL AFFECT YOUR CAMERA CHOICES AND HOW TO SELECT THE BEST OPTIONS FOR DIFFERENT APPLICATIONS.

Margaret Brown

The camera dictates what type of memory card you can use since all cameras come pre-configured with dedicated memory card slots. Higher-featured cameras may have two card slots; sometimes with both accepting the same type of card but at other times one slot is designed for a different type of card.

The market has changed in the past 10-12 years. CompactFlash (CF) cards predominated in the late 1990s and early 2000s but, since the technical specifications were last updated in November 2010, they've fallen out of favour. Fortunately for owners of older cameras, they're still being sold, although not at 'bargain' prices and available capacities are limited.

A variant of CompactFlash known as CFast was launched in late 2009, with the main usage being in video cameras. But since 2017, many cameras and video recorders have supported faster data rates than CFast media can offer so in September 2016, the CompactFlash Association introduced the much faster CFexpress standard.

Around the same time, the SD (Secure Digital) card format began dominating the market for in-camera storage media, particularly in smaller cameras. Being based on solid state memory they have no moving parts, so they are highly reliable and also relatively cheap to manufacture. Until recently, they have offered an adequate range of speeds for most cameras.

Factors affecting memory card prices

Our market survey showed huge differences in prices for cards, including cards with identical formats and capacities, while also revealing the main factor influencing card prices: data transfer speeds. As with the SSDs we examined in the previous issue of Photo Review, you'll pay premium prices for high speeds as well as high capacities.

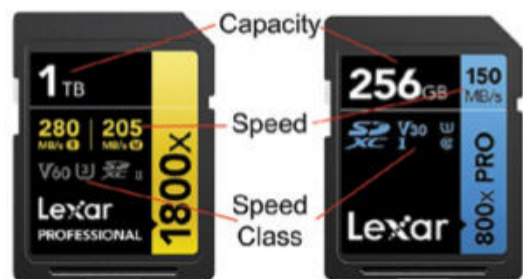
The bus speed (UHS-I or UHS-II) dictates the maximum data transfer speed of both cards and cameras. If your camera is rated for UHS-I, a UHS-II card is limited to the maximum UHS-I speed.

If you only shoot stills and your camera has a modest resolution of 20 to 30 megapixels, there's no sense in paying top dollars for the fastest cards – although it may be worth paying more for greater storage capacity (but that can be debatable). Fast cards are only worth investing in if you're shooting a lot of 4K 50p video or if you're a sports or wildlife (including birds) photographer who records long bursts of high-resolution JPEG or raw files.

The table below provides a guide to the approximate capacities you need for a day's shooting and the speeds required if more than 50% of your files are 4K 50p video.

HOW MUCH DATA CAN YOU STORE ON YOUR MEMORY CARD?

Capacity	JPEGs at 20 megapixels	Uncompressed RAW files from 20 MP camera	Minutes of 4K 25p video	Minutes of 4K 50p video
16GB	6,500	200	32	16
32GB	13,000	400	65	32
64GB	26,000	800	130	65
128GB	53,000	1,600	260	130
256GB	107,000	3,200	520	260
512GB	214,000	6,400	1,000	520
1TB	420,000	12,800	2,000	1,200



This illustration shows the different speed class ratings in use. (Images sourced from Lexar.)



This illustration provides a comparison of SD cards by showing a microSD-to-SD adapter (left), microSD-to-miniSD adapter (middle) and microSD card (right). (Source: Wikipedia.)



Three SDXC cards with identical capacities but different form factors and speed ratings. (Images sourced from SanDisk.)

SD cards

Most cameras today are designed to use SD cards, which come in several ‘flavours’ and sizes and should be fine for recording the image and video files produced by today’s consumer-level and enthusiast-level cameras. The ‘standard’ SD card measures 32 x 24 x 2.1 mm in size and weighs around two grams. There are also smaller miniSD and microSD form factors measuring 21.5 x 20 x 2.1 mm and 15 x 11 x 1 mm, respectively, which have been developed mainly for use in mobile phones and are usually sold with an adapter housing that fits into a standard SD memory card slot.

While a few cameras have subsidiary slots for the smaller cards, most use the standard form factor. The original SD specification had a read speed of 12.5 MB/s but a later version (V. 2.0) introduced a High-speed bus mode that doubled the speed to 25 MB/s. Even so, standard SD cards have virtually disappeared from the market as their data transfer speeds are too slow. All SD cards are backwards compatible.

SDHC cards, which were launched in January 2006, are physically and electrically identical to standard-capacity SD cards and come pre-formatted with the FAT32 file system. They are sold with capacities from 2GB to 32GB.

Launched three years later, the SDXC format, which covers capacities from 32 GB to 2 TB. SDXC cards have an additional row of contacts and adopted Microsoft’s exFAT file system so they’re not fully compatible with the original standard. They also introduced the Ultra High Speed (UHS-I) bus with interface speeds from 50 MB/s to 104 MB/s for both SDHC and SDXC cards.

Version 4.0 of this standard, introduced in June 2011, brought in the four-lane UHS-II bus, which allows speeds of 156 MB/s to 312 MB/s. Version 5.0, announced in February 2016 at CP+ 2016, added Video Speed Class (V) ratings for UHS cards with a minimum write speed of 90 MB/s to cater for higher resolution video formats.

The **SD Express** standard was announced in June 2019 to meet the demands of 8K and 3D video by offering speeds up to 4GB/s for SD Express and almost 2 GB/s for microSD Express cards. A subsequent SD 9.1 specification, released in October 2023, added multi-stream access and improved power and thermal management.

Although SD Express cards work in an existing camera with an SD slot, they’re not widely available and it’s not worth buying them as the camera’s slower transfer speeds determine the maximum speeds at which image data is recorded. Furthermore, no camera manufacturer has taken advantage of the high speeds of these cards, instead re-configuring one or more card slots for CFexpress cards.

All SD cards are classified according to capacity and Speed Class. SDHC cards cover capacities up to 32GB, with SDXC cards extending beyond that. For commonly-available SD cards, speed ratings are split into three areas: a speed class mark with a number between 2 and 10 inside a large ‘C’, a UHS Speed Class with a figure (1 or 3) enclosed in a capital ‘U’ and a Video Speed Class between V6 and V90.



SDXC UHS-II

4K+ RAW



CFexpress Type A

4K+ RAW



CFexpress Type B

12K RAW



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Write Speeds (read is even faster)	280MB/s	730MB/s	1550MB/s
	260MB/s	650MB/s	1300MB/s



The table below shows the speed class ratings for each type of SD card.

Interface SD	Min. sequential write speed	Speed Class				Video Usage (Speeds vary with recording and playback device.)
		Speed Class	UHS Speed Class	Video Speed Class	Express Speed Class	
SD	2MB/s	Class 2				VGA video
	4MB/s	Class 4				
	6MB/s	Class 6		V6		
	10MB/s	Class 10	U1	V10		HD/Full HD video
	30MB/s		U3	V30		
	60MB/s			V60		
	90MB/s			V90		
PCIe/NVMe	150MB/s					4K multi-streams, 4K Intra video
	300MB/s					
	450MB/s					8K multi-streams, 8K Intra video
	600MB/s					

Adapted from SD Association data.

Too many
**AWARD
WINNING
LENSES**
to list here!

SONY E FUJI X NIKON Z

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The top camera in this illustration, the Sony Alpha 1, has dual card slots that both accept CFexpress Type A cards but can also accept SD cards, while the lower camera, the Sony Alpha 7 Mark IV card slots are configured so one slot only accepts SD cards, while the other accepts CFexpress Type A cards but can also handle SD cards. (Source: Sony.)

CFexpress cards

The first cameras to use CFexpress cards were the Nikon Z6 and Z7 mirrorless cameras, which both supported XQD cards on their release in August 2018. A subsequent firmware update enabled support for CFexpress.

Faster data transfer speeds are the main reason camera manufacturers have adopted the CFexpress format, largely driven by demand for more cameras to be capable of recording high-resolution, high frame-rate movies. The table on this page shows the read/write capabilities of the currently-available CFexpress cards used in our cameras, along with how modifications to the standard have boosted transfer speeds.

As you can see from the Table 1, Type B CFexpress cards are roughly twice the speed of Type A cards.

Interestingly, different camera manufacturers have adopted different versions of the CFexpress format – often for different reasons. Canon and Nikon cameras have so far chosen the Type B format, while Sony favours Type A, which has a similar form factor to SD cards. Using Type A has allowed Sony to make cameras with media slots that can accept both CFexpress and SD cards. This can be handy for some photographers as it increases the camera’s versatility.

Table 2 shows the cameras with one or more CFexpress slots as of the end of 2023, along with the type of card they use. 📷

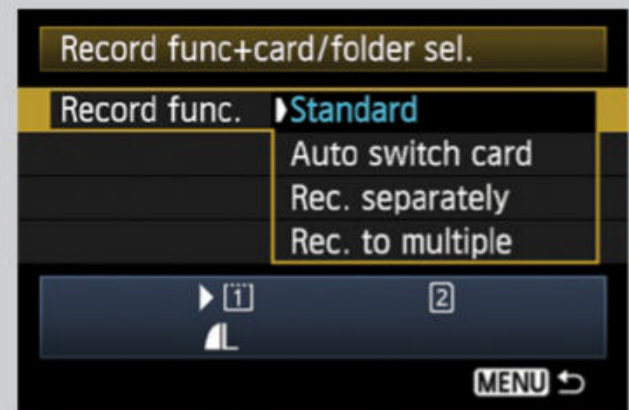
Using dual card slots

If your camera comes with two card slots, there are several ways in which you can use them, regardless of whether both cards are the same type or if they’re different. Your camera’s menu should provide ways to access the options for directing files.

Because different camera manufacturers put these settings in different parts of the menu and use different terminology to label them, we’ve used generic terms that describe what actually happens with your image files for each of the settings.

1. Overflow (or Auto switch card), the normal default setting, directs the camera to save all files on Card 1 and then swap to Card 2 once the first card is full.

2. Backup (or Rec. to multiple) sets both cards to record the same files each time you shoot. This setting is popular with wedding and event photographers as it provides a safety net in case their primary memory card fails. Make sure it works in your camera for both photo and video files if you record both types on the same card because some cameras will only duplicate still image files.



The menu page from a Canon camera showing the settings for dual slot recording. (Source: Canon.)

3. RAW + JPG (or Rec. separately) sets the camera to record raw files to one card and JPEGs to the other. This is handy if you like to store the files separately in your image database. It also lets you change the size and quality of each type of file independently of the other, which can be handy when storage space is reduced.

4. Photos/Videos is similar to RAW + JPG but lets you save your stills and movies to different cards. As well as providing the same benefits as the RAW + JPG setting, this can be handy if your camera uses different media formats as you can set it to save the video clips to the faster memory card.

Standard	Version	Launched	Bus	Speed (read/write)
CFexpress	1.0	Q2 2017	PCIe 3.0 x2	2.0 GB/s
	2.0	Q1 2019	PCIe 3.0 x1	1.0 GB/s (Type A)
			PCIe 3.0 x2	2.0 GB/s (Type B)
	4.0	Q3 2023	PCIe 4.0 x1	2.0 GB/s (Type A)
			PCIe 4.0 x2	4.0 GB/s (Type B)

Table 1.

Brand	Models	Type A	Type B	SD card slot
Canon	EOS-1D X Mark III		Dual slots	
	EOS R5		1x CFexpress	1x SD UHS-II
	EOS R3		1x CFexpress	1x SD UHS-II
	EOS R5 C			2x SD*
Nikon	D6		Dual slots	
	Z9		Dual slots	
	Z8		1x CFexpress	1x SD UHS-II
Sony	α7S III	1x CFexpress		1x SD UHS-II
	Sony α1	1x CFexpress		1x SD UHS-II
	FX3	1x CFexpress		1x SD UHS-II
	α7 IV			2x SD UHS-II**
	α9 III			2x SD UHS-II**

* One slot supports CFexpress Type A cards
 ** Both slots support CFexpress Type A cards

Table 2.

Image review



Storm Front at Phillip Island

By Ingrid Makowski

Nikon D500; 18-140mm lens @ 18mm; ISO 400; f/11; 1/160s

Thunderstorms had been predicted for the afternoon, but it was a surprise to see this one roll in so quickly and with such 'angry' and ominous clouds! My husband and I ran out to the edge of the ridge and watched the massive cloud bank gradually engulf the sky and the changing light of the late afternoon. The wind had picked up and not long after this photograph was taken it was time to head for shelter before the skies released sheets of rain!

Don's response

You obviously couldn't plan a picture like this one. But while being in the right spot at the right time is plainly a matter of good fortune, it takes a skilled photographer to make the most of the opportunity presented. Where casual picture-takers would likely fill the frame with those dramatic clouds, an experienced photographer like Ingrid Makowski understands the importance of context and of anchoring the wild skies to the landscape. Giving over the bottom third of her composition to the cliffs, the sea and the tiny figures walking along the beach, she establishes a sense of scale and a feeling of an extraordinary event unfolding as we watch.



Statue of David

By Phil Berry

Olympus PEN E-PL6; f/5.6; 1/60s; 27mm; ISO 1600

Michelangelo's statue of David. It came to symbolise the independence and civil liberties of Florence. David's eyes cast a threatening glare in the direction of Rome, serving as a warning to any who dared to challenge the city.

This image does not show David's glare but I captured enough of the statue for it to be easily recognised. I aimed to show the respective expressions of the two visitors as they gazed up at the 5.17-metre statue.

I did not see the humour in their expressions until much later.

Don's response

Ah, the glory of the unintended consequence. Kudos to photographer Phil Berry for admitting that he'd missed noticing this delightful moment when he was taking the picture. But accidental or not, full credit for capturing the visitors' respective reactions at precisely the right moment.



Tongue Orchid & Wasp Pollinator

By Ingrid Makowski

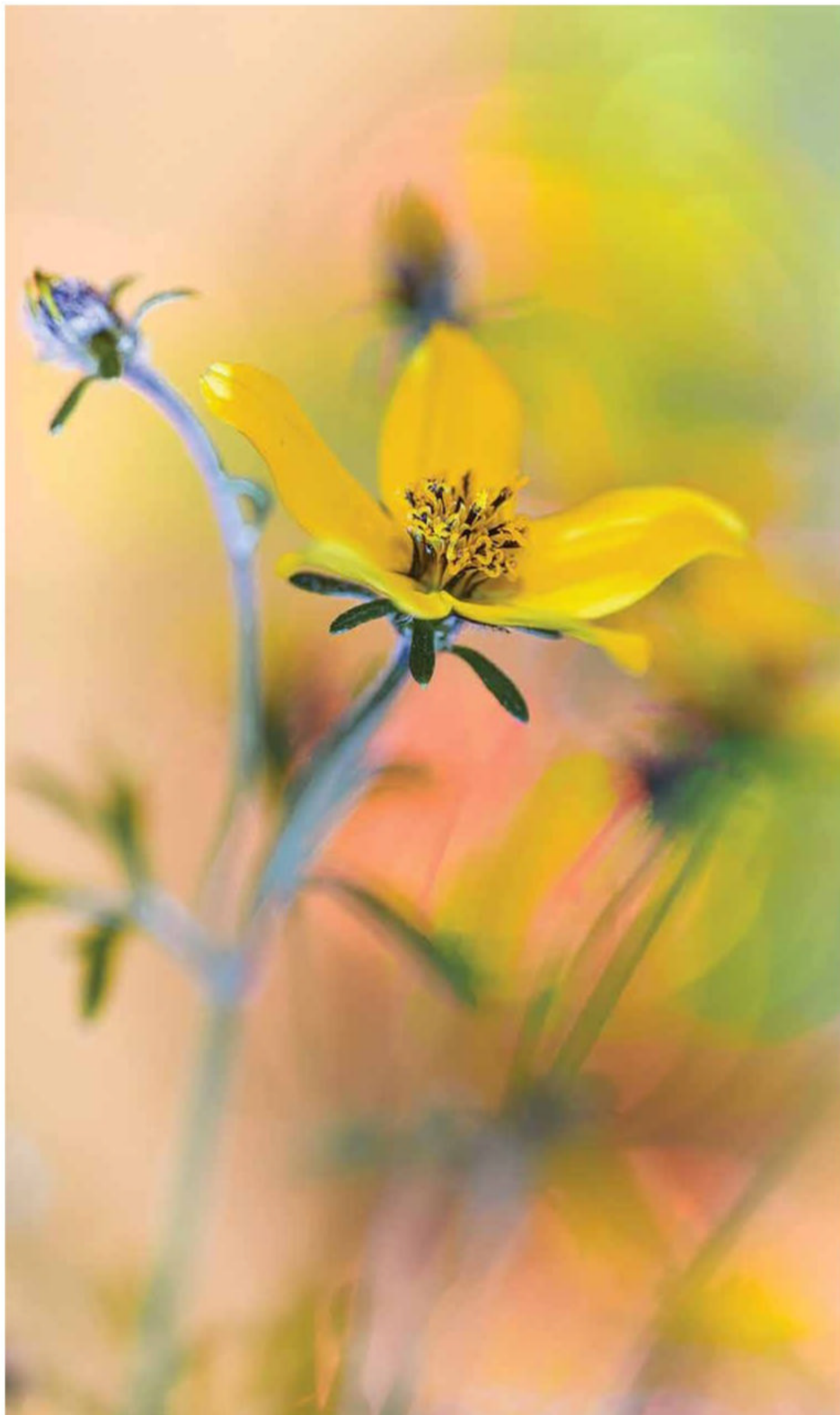
Nikon D500; 105mm macro lens; ISO 2500; $f/10$, $1/800s$

We were photographing wildflowers, including orchids in the hinterland near Anglesea, along Victoria's Great Ocean Road.

I came across this lovely specimen of a Large Tongue Orchid (*Cryptostylis subulata*) when an Orchard Dupe Wasp (*Lissopimpla excelsa*) turned up and began to mate with the orchid. As it turns out, this wasp is the primary pollinator for this species of orchid.

Don's response

There is so much to admire in this picture. First, of course, there is the serendipitous happenstance of Ingrid Makowski zeroing in on this orchid only to have its pollinator arrive at the moment. But that wouldn't necessarily have mattered were she not technically adept (and quick) enough to get her subjects into the very narrow zone of focus imposed by her lens and its extreme proximity to the wasp and flower. Apart from being a nice composition in its own right, it's also a great illustration of pollination and mutualism.



Daisy

By Mardi Harrison

Canon 7D; Macro 100mm lens; ISO 100; f/2.8; 1/5s

Out in the garden taking photos of the flowers and I thought this daisy was a good place to start. I love the way the background looks.

Don's response

It's easy to concur with photographer Mardi Harrison about the background in her cheerful little botanical study. The slow shutter speed and very shallow depth of field of her 100mm Macro lens at its maximum aperture, have combined to produce a painterly effect that is so pronounced you could be forgiven for suspecting it involved some pretty aggressive post-production manipulation. A most satisfactory outcome.



Serious Family Portrait

By Gavin Kellett

Canon 5D Mark III; Tamron 90mm macro lens; 1/200s; f/2.8; ISO 1250

Taken inside with ambient light, no flash, so a higher ISO was required. With the possibility of any movement, I didn't want to shoot any slower than 1/200 and I had already pushed the aperture to f/2.8 so all I could adjust was the ISO. I like the orange/red splash of colour with the cushion but in hindsight wish I had either had it flat or turned it more so that the uneven nature of the shape didn't matter. I took several shots to get the serious focused look of my beautiful boys.

Don's response

Did you smile too?

Dogs have been human companions for so long now that we've moulded each other's behaviour in profound and subtle ways. A few years ago, anatomists and behavioural scientists demonstrated that our canine companions evolved a special muscle to allow them to lift their eyebrows in that familiar quizzical fashion specifically when they meet a human's gaze. This is not something their wolf ancestors can do, so it's most likely caused by humans preferring dogs with the trait, and those dogs in turn getting more scraps from the feast.

All of which goes to explain in part why I, like most humans, find Gavin's affectionate portrait so endearing.



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Rock Pool

Blane Coulcher

Describing himself as a corporate suit whose right-brain had been too long dominated by a mechanistic left-brain, Blane Coulcher, at the age of 60 and with more time on his hands, decided to redress the cerebral imbalance in favour of his creative side by undertaking an ambitious photographic project.

In late December of 2022, while visiting friends, he happened to pick up "Rock Pools of Sydney" by Vincent Rommelaere. 'It is a beautiful book,' Blane said. Intrigued and then inspired, he set himself a challenge to shoot a rockpool for each week of 2023.

'I started the "List" at Queenscliff in North Manly. It was dark at first but as the sun rose, I experimented with slow shutter speeds, capturing the dawn swimmers.'

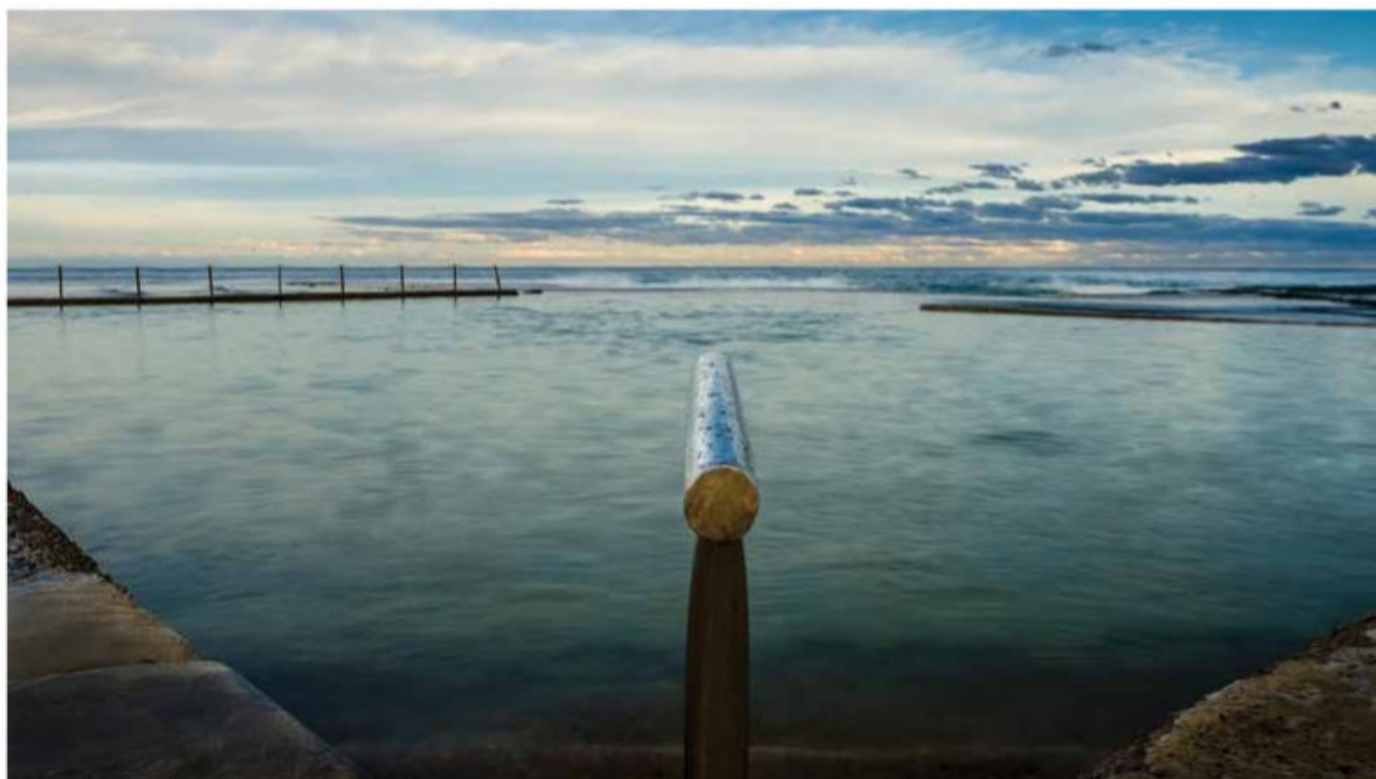
The following week he was still feeling the oppressive tug-of-war between the corporate to-do list urgings of his left brain and the dreamier, creative right half. 'I rebelled and let

my newfound creative instincts determine the schedule. That was my first lesson,' he said, 'to let go, don't force it, to be a human being – not a human doing.'

Originally intending to photograph each pool at dawn, he quickly discovered that not every location was at its best early.

'Those more south facing ones that can be shadowed by cliffs, as for example at North Curl Curl, were better photographed in the evening. Pools that face directly east, although providing an attractive dawn and pre-sunrise glow, were quickly overwhelmed by the sensor-burning rising sun.'

'As I wanted to push my creativity and avoid a documentary style, I soon found my favourite approach was to use slow shutter speeds. This enabled me to smooth, soften and relax the image, which made the pool and sea the harmonious focus. Where humans appeared, they became spectral and transient. Just visitors.'



Mona Vale

OM-1, *f*/14, 1.3s, 12 mm, ISO200

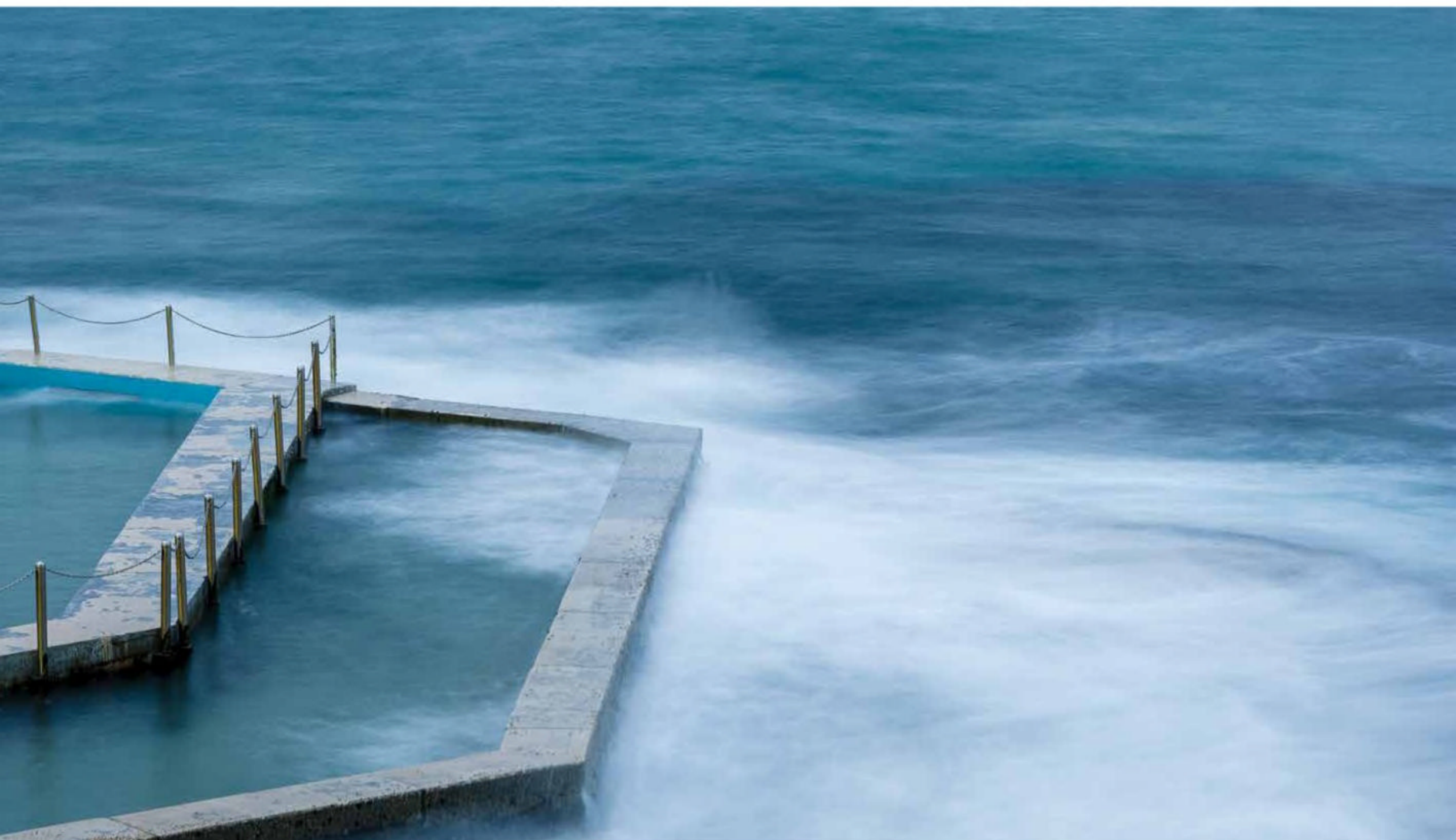
Mona Vale pool in late afternoon. My first visit to Mona Vale in 30 years of living on Northern Beaches.



Coogee

OM-1, *f*/14, 1.6s, 10 mm, ISO200

Discussing the day ahead.



South Curl Curl

OM-1, $f/4$, 5s, 54 mm, ISO200

I loved the outer pool which provides a barrier between the stormy sea and the pool, as well as breaking the 90-degree angle tradition.

portfolio SUBMISSIONS

Photo Review's Portfolio section is designed to showcase mini-portfolios from our readers. If you would like us to consider a set of your thematically-related images, please submit your pictures to portfolio@photoreview.com.au in jpeg format, minimum 20cm on the longest side, 300 DPI, accompanied by captions, shooting notes, and a brief note about yourself and your collection's theme.



North Curl Curl

OM-1, *f*/20, 1/5, 24 mm, ISO80

North Curl Curl silvery pool and rainbow.

On a technical note, Blane said, 'I generally shot with OM System's versatile 12-100mm *f*/4 lens, but also used the 25mm *f*/1.2 prime and my wide-angle 7-14mm *f*/2.8 lenses. I soon learned that shooting directly into the sun with a wide angle is tough because you end up with lots of flare to fix in post-production.'

By the time he finished the project, he'd photographed 24 pools along the Northern Beaches and Eastern suburbs, as well as Marrinawi pool at Barangaroo in Sydney's CBD.

'My favourite was South Curl Curl, my local. It was the only pool I revisited and shot a few times. I love the angles, the mini pools, the headland above looking down and of course it is 'mine'.

'I have learned a great deal from this project,' said Blane, 'and have extended my photographic skills to another level. The whole experience has allowed my right brain to come to the fore, which in turn has shifted the way I think about life's challenges.' 📷

Blane Coulcher

I am a photographer living on the Northern Beaches of Sydney and began taking photos using a Pentax KM at school in the early 80s. My first digital camera was an Olympus E-P3. I have stayed with Olympus/OM System with the OM-1 due to its lightweight format and significant technical advantages such as in-camera lens stabilisation and ND filters.

I don't have any particular subject focus as an amateur... just an inherent passion to challenge my left brain.

🌐 www.bit.ly/blane-coulcher-photos

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Spotlight on Darktable

▶ www.bit.ly/pr99ne1

We've been watching Darktable, the open source photography workflow and raw file development suite of tools, for some years now. Quite apart from the fact that it's free, this capable and well-featured raw converter not only has an exhaustively detailed user guide, but it also has a dedicated YouTube channel with nearly 60 tutorials on every dimension of this digital toolbox's extensive capabilities. Well worth a look.



Landscapes to inspire

▶ www.bit.ly/pr99ne2

The International Landscape Photographer of the Year awards have now been around for a decade, and from the look of the 2023 category winners, the art of creative and eye-catching landscape photography is in rude good health. So why not pour yourself a favourite beverage, pull up a tablet or a monitor, and explore the work of 101 top landscape shooters on the ILPY website linked above. (Fun fact: 10 years ago, Photo Review profiled Tony Hewitt, this year's International Landscape photographer of the Year. See www.bit.ly/pr51-th)



Vale Elliot Erwitt

▶ www.bit.ly/pr99ne3

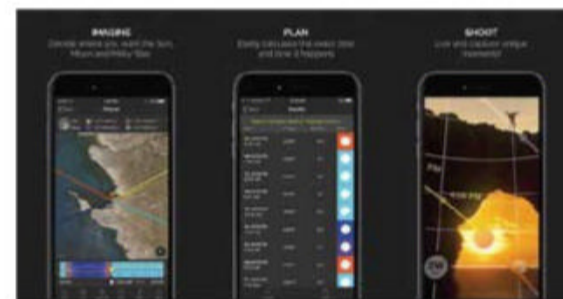
Elliot Erwitt who died late last year at the age of 95, was, arguably among 20th century photography's greats and truly, in the words of Magnum, a legendary photographer. Whether you realise it or not, you have almost certainly encountered at least one of his witty, slice-of-life juxtapositions (usually tagged with a Magnum Photos credit). Given his stature and life-long membership of the organisation, Magnum's image-rich tribute to Erwitt is well worth any photographer's time. A delight.



BIF bodies

▶ www.bit.ly/pr99ne4

Over the last four years, professional photographer and co-owner of the Mirrorless Comparison website, Mathieu Gasquet has been tracking the Birds in Flight (BIF) performance of the cameras he reviews. The result is an ever-growing list of the latest mirrorless cameras, ranked from "best" to "worst" according to Gasquet's simple assessment formula; Sharpness, Focus Accuracy (keepers per sequence at a specific frame rate) and Drive Score (the ratio of keepers to frame rate in a one-second burst). The main takeaway, perhaps unsurprisingly, is that the best models are very similar in performance – and at or near the top of the brand's camera range. Where does yours come in?



Take the pill

▶ www.bit.ly/pr99ne5

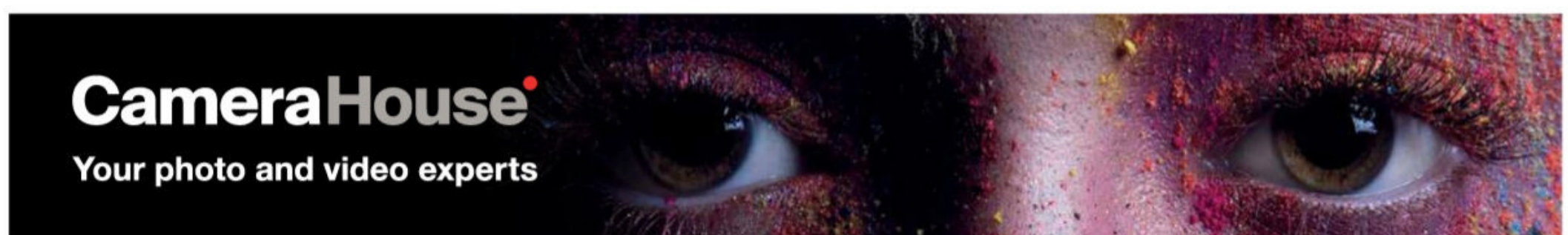
PhotoPills was one of the most popular photography applications of 2023 and a quick glance at its feature list gives you an inkling why. Is there a photographer who hasn't encountered a scene that would be just right if the moon was rising in a specific spot? With PhotoPills you simply hold your phone up to a scene, choose where you want the moon, sun or even the Milky Way to be in relation to your subject and at the press of a button the app will display the dates and times when your desired conjunction will occur. PhotoPills also offers exposure, depth of field and time lapse calculators along with a host of other tools. It costs USD16.99 and is available on both the iPhone and Android platforms.



Setting up with Simon

▶ www.bit.ly/pr99ne6

Simon d'Entremont is a wildlife photographer from eastern Canada. He also has a very popular YouTube channel where he offers tutorials, many of which are, like this one, aimed at beginning photographers. In "Do this with every camera", d'Entremont takes viewers through ten settings he always tweaks on a new camera. It's fairly generic, but nevertheless useful and he helpfully tells you what a particular control is called on Nikon, Canon, Sony and Fujifilm cameras. While experienced photographers will be interested in more subject-specific set-ups, this 11-minute guide makes a good start for most picture takers' initial configuration of a new camera.





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