

Words Adam Waring Location shots Ben O'Leary

GREAT HEAVENS ABOVE

Forget about the golden hour or the blue hour – head out at the witching hour under a starry sky for a night-time landscape shoot with a difference...

FACTFILE

The Milky Way

WHAT IS IT?

THE Milky Way is the galaxy that contains our solar system – and all the stars we can see with the naked eye. It's spiral-shaped, and our solar system is on one of these spiral arms. It's made up of

billions of stars, and towards its centre, individual stars are indistinguishable and form a 'milky' band of light – and it's this we refer to when we talk of the Milky Way.

WHEN TO SEE IT

WHILE it's present year round, it's at its most visible between May and August. In the northern hemisphere it appears towards the south, while in the southern hemisphere it appears directly overhead.

BEST PHOTOGRAPHY CONDITIONS

THE light from the Milky Way is relatively dim, so you'll need to be well away from the light pollution of towns and cities. You'll also need a moonless night as moonlight easily overpowers the Milky Way. It will be at its very brightest at the dead of night, directly between dusk and dawn, which is typically an hour either side of 2am. You'll also need clear, cloudless skies, for obvious reasons...



APPRENTICE

NAME:

DAVE FEASTER

CAMERA:

CANON EOS 5D MK III

DAVE is a retired policeman based in London. A keen landscape photographer, he's tried his hand at astrophotography but with mixed results. He's planning to visit his daughter Kim later this year, who's living and working in the remote Canadian Rocky Mountains, and wants to perfect his night photos to capture the best star-filled skies, so came to *PhotoPlus* for help...



CANON PRO

NAME:

DREW BUCKLEY

CAMERA:

CANON EOS 5D MK III

DREW is a professional landscape, wildlife and astro-photographer based in Pembrokeshire, southwestern Wales. He's been a full-time professional photographer for the past five-and-a-half years, and runs a wide range of workshops, from photographing seabirds on Skomer island to landscapes in the beautiful Pembrokeshire National Park, as well as the night sky. More details at <http://drewbuckleyphotography.com>

THE APPRENTICE

TECHNIQUE ASSESSMENT

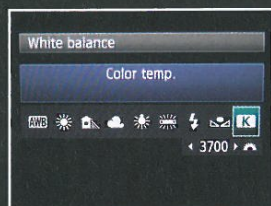
Drew checked over Dave's settings then offered a number of improvements for shooting stars



THE 500 RULE

"DAVE had set his camera to Manual exposure with a wide open aperture and 30 secs shutter speed because 'it's the longest you can have the shutter

open without using Bulb'. While these are what I'd recommend, it's for a different reason – the shutter speed has to be open long enough to let in enough light, but not so long that the stars start to trail. To work this out, divide 500 by the focal length to calculate the maximum shutter speed. For Dave's 16mm lens, $500 \div 16 = 31.25$ – which rounds down to 30 secs. Then use ISO to control the exposure."



WHITE BALANCE

"DAVE had set Auto White Balance, and while you can always tweak this later, I prefer to dial in a specific Kelvin value to enhance the blues of the

sky. From the Quick Control screen, select the 'K' white balance preset, then scroll the Main dial to set a white balance of 3700 K. This is important when shooting star trails as, if left to its own devices, the camera will take different readings as the sky darkens, resulting in trails of an uneven whiteness."

PRO TIP

REACH FOR THE STARS

"IT'S absolutely vital that you focus so that the stars are pin sharp, rather than on the foreground subject, and this means focusing at infinity – marked as a sideways '8' on the lens barrel," states Drew. "At infinity, *everything* looks sharp beyond a certain distance – determined by the lens's focal length and aperture setting. However, it's very difficult to tell whether you've achieved focus in the dark, so it's best to do this beforehand – simply focus on something a good distance away, as on a wide-angle lens even relatively close objects will be at infinity. Then lock your lens with manual focus, and tape the focus ring to the lens barrel to prevent accidental refocusing."

DAVE'S COMMENT



"This old, abandoned chapel makes a great focal point; as Drew explained, it's what's in front of the starscape that really adds

interest to the shot. Taken earlier on in the evening – at around 11pm – there was still some residual light in the sky that helped to light up the building, but to help highlight the stonework, Drew ran around with his torch, painting the building while my exposure was open. We reviewed the image after each shot, which enabled us to see which areas needed more light, until we got a shot I was happy with. **"**

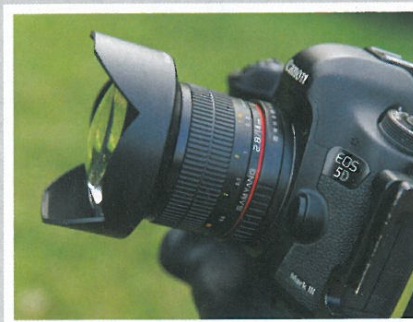
HOT SHOT #1

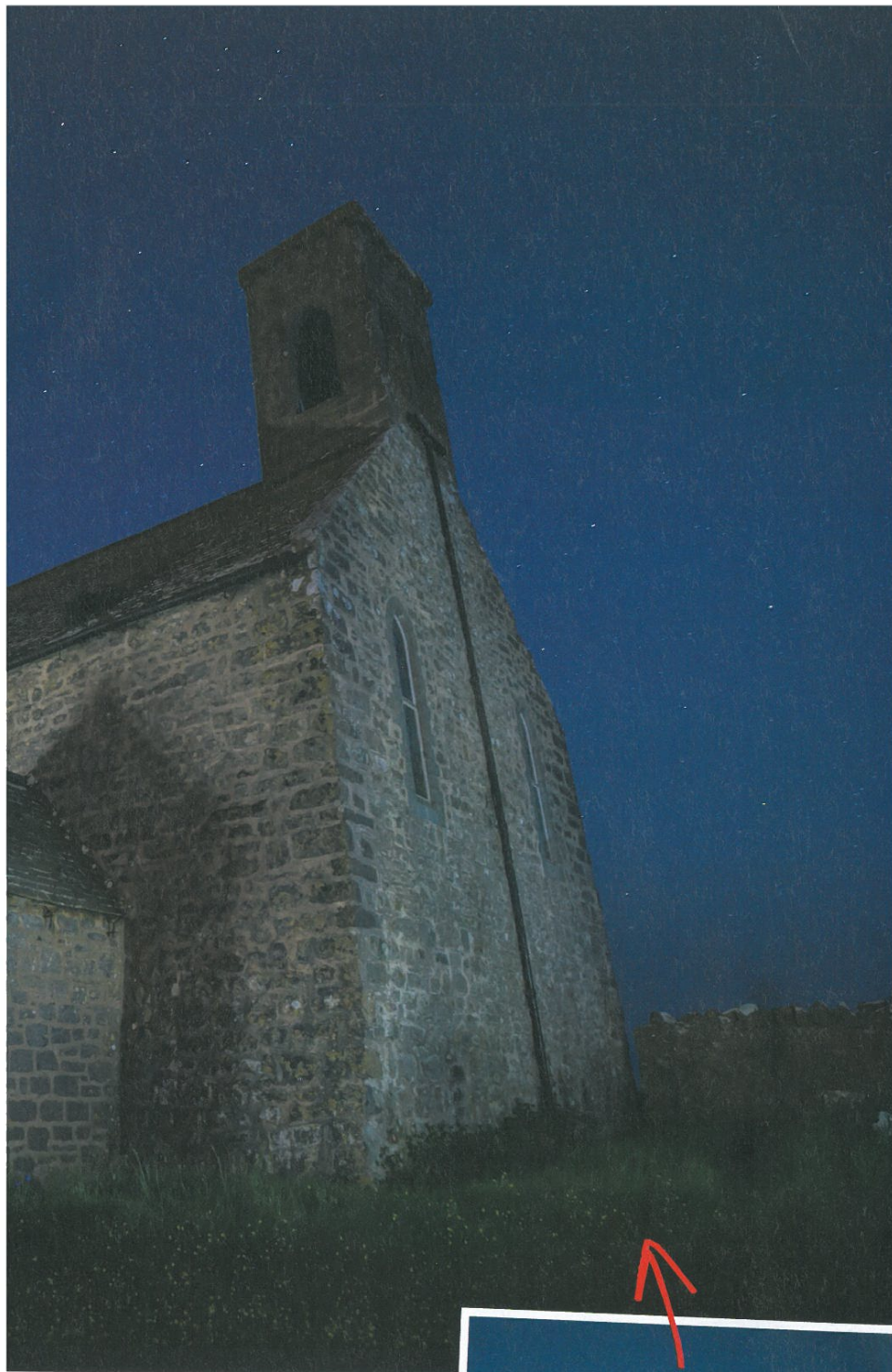
Lens	Canon EF 16-35mm f/4L IS USM
Exposure	30 secs, f/4, ISO6400

TOP GEAR #1

Samyang 14mm f/2.8 ED AS IF UMC

"FOR astrophotography you really need a wide-angle lens with a maximum aperture of f/2.8 or better," reveals Drew. "My Samyang was relatively inexpensive at around £270, but its very well built and the optical quality is superb. It's manual focus, but for astrophotography you'll be shooting at (or close to) infinity, so that really isn't a concern. Always attach the lens hood to help shield the front element from stray light."

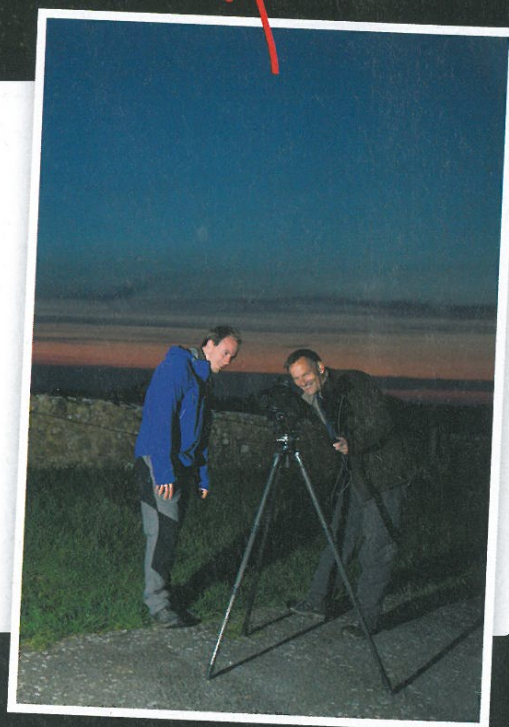




EXPERT INSIGHT

FROM A DARK PLACE

FOR the best views of the night sky you'll need to get well away from light the pollution of towns and cities, which means remote, rural locations. Pembrokeshire, whose entire coastline is a National Park, has no less than seven officially recognized 'Milky Way Class Dark Sky Discovery Sites' – where the Milky Way can be seen with the naked eye. For a comprehensive list of dark sky areas throughout the UK, see www.darkskydiscovery.org.uk



SHOOT WITH A PRO

TOP TEN TIPS FOR ASTROPHOTOGRAPHY

- 1 A shot in the dark**
You'll need to be well away from city lights otherwise light pollution will overpower the stars in the sky.
- 2 Clear skies**
If there are clouds in the sky, they'll obscure the stars, so check weather forecasts for clear nights.
- 3 No mooning**
If shooting the Milky Way, you'll need a night without the moon in the sky as moonlight will overwhelm starlight.
- 4 Stay out late**
The Milky Way will be at its most brilliant midway between dusk and dawn, so this means staying out well into the early hours.
- 5 Let there be light**
Full-frame cameras have larger photosites and so suffer less from noise than crop-sensor models, so you can safely ramp up the ISO to allow in plenty of light.
- 6 Foreground interest**
An interesting foreground object is vital – without this, one starry shot will look very much like another!
- 7 Be safe**
The great outdoors can be extremely hazardous in the dark, especially when close to cliff edges, so take all sensible precautions and use a torch when moving.
- 8 Keep warm**
The temperature can plummet at night, so wrap up warm. A flask of hot coffee can work wonders, and keep you awake, too...
- 9 Recharge your batteries**
Keep spare batteries warm as the cold reduces performance significantly – use an inside pocket to keep them toasty with body heat.
- 10 Like the back of your hand...**
You'll need to be able to operate your camera in the pitch black, so practise changing settings until you can do it with your eyes closed.

THE APPRENTICE

DAVE'S COMMENT



It took about an hour to take all the images for this shot! I composed with the cross on the left, according to the rule of thirds, but ensured that the pole star was visible in the image, which the rest of the stars would rotate around. After the sequence was finished we took one final frame, where Drew showed me how to 'paint' the cross with a torch with a couple of gentle strokes on the face and side, as otherwise it would have been in silhouette.

HOT SHOT #2

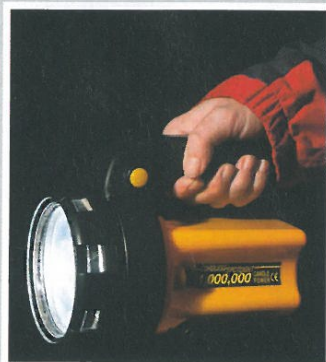
Lens	Canon EF 16-35mm f/4L IS USM
Exposure	113 stacked exposures - 30 secs. f/7.1, ISO1000



TOP GEAR #2

Torches

"IT GOES without saying that when you're in the middle of nowhere, far away from city lights, it's going to be tricky to see where you're going or what you're doing, so torches are a must," warns Drew. "But they're also great for painting foregrounds, such as buildings, over the course of a long exposure."



A SHOT IN THE DARK

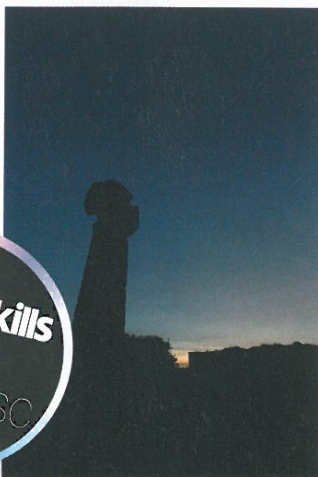
NIGHT photography is essentially about shooting what you can't see, and that makes composing difficult. Live View is of little use – and chews through batteries. You'll have to learn to shoot blind – roughly line up your composition, take a shot, review the image, then fine-tune your composition. You'll also need to memorize where all the buttons are on your camera, so you can dial in adjustments by touch alone.

EXPERT INSIGHT

MAKE A MOVIE

THERE'S another trick you can do with a star trails sequence, – create a time-lapse.

To look fluid, the sequence needs to be replayed at 25 frames per second (fps), so our 113 shots condense into a five-second film clip. See it at http://bit.ly/pp_116_10



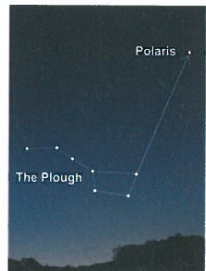
EXPERT INSIGHT

STAR TRAILS

NORMALLY you need to ensure a shutter speed that's fast enough to 'freeze' the movement of the stars to prevent the points of light becoming elongated streaks, but you can use this movement to artistic effect. However, to get long enough trails to properly portray movement you'd need to leave your shutter open for about an hour or more – which would result in an overly noisy image or one that's ruined by ambient light. The solution is to take a series of shorter exposures, then stitch them together in software. Ensure that your battery is fully charged, set your camera on a sturdy tripod and use a cable release with a lockable trigger.

POLE POSITION

FOR circular trails you'll need to point your camera towards the north (or south) pole. To locate the pole star, find The Plough constellation; the two stars at the end of the 'pan' point towards Polaris; everything in the night sky will revolve around this star as it's the closest one to the Earth's axis.



EXPOSURE

ENSURE the lens is focused on the stars so they're pin-sharp. Set your widest aperture, set shutter speed to 30 secs, and increase the ISO to suit the scene. Set Continuous shooting mode, so that the camera takes images consecutively once you depress and lock the trigger on your cable release.



DON'T TOUCH

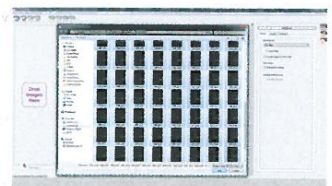
LOCK the cable release and don't touch the camera again until finished. Shoot for at least 45 minutes, but over an hour is best. Once the sequence is done, shoot one final frame, lighting up your foreground subject with a torch for added impact – or use a full moon to illuminate your scene.



STACK 'EM UP

DOWNLOAD the free StarStaX software from www.markus-enzweiler.de/ StarStaX/StarStaX.html, open up your

sequence of images and it's pretty much a simple case of pressing the Go button and watching your star trails image unfold before your very eyes...



THE APPRENTICE

EXPERT INSIGHT

LET THERE BE LIGHT

HERE are a selection of ways to balance the foreground with the starry night sky...

LIGHT PAINTING

USE a torch to 'paint' the surface during the exposure in regular sweeping strokes, taking care not to linger in one place for too long as otherwise this will lead to 'hotspots'.

MOONLIGHT

A BRIGHT moon – or man-made light from a nearby town – can bathe your entire scene in a lovely even light, and with a 30 secs exposure it can look as bright as day.

EXPOSURE BLENDING

TAKE a second exposure using Bulb mode. Mask out the sky of the foreground image in Photoshop, and copy as a new layer onto the sky image for a balanced exposure.

30 SECS, f/2.8, ISO4000



300 SECS, f/2.8, ISO1600



PRO TIP

OVER THE MOON

"FOR the best Milky Way shots, you'll need a moonless night, whereas a full moon can illuminate your foreground subject and is great for star trails. To see the position of moon, constellations, planets and the Milky Way, I use the free Stellarium program (www.stellarium.org)," says Drew.

TOP GEAR #4

Wired remote release

"IT'S critical that you keep your camera rock-steady during the exposure, and that means not touching it as you take the shot," reminds Drew. "A wired remote not only prevents inadvertent camera shake, but unlike wireless models, you can lock the shutter button down, which makes taking the multiple shots required for a star trail a simple case of setting Continuous drive mode."



THE SKY'S THE LIMIT

Drew shares a selection of his favourite shots of the sky at night...



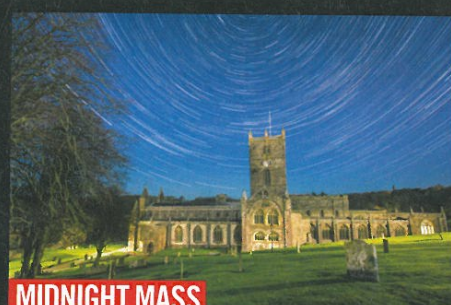
RISE

"THE composition is deliberately minimalistic, with the perfect tide and belt of the Milky Way pointing out to sea to the iconic Church Rock. The bright spots to the right are the planets Mars and Saturn. I took this in early May, but had been planning this photo since last year, waiting for the Milky Way season."



BROAD MILKY WAY REFLECTION

"STANDING alone on Broad Haven beach at the dead of night is a pretty surreal experience. The receding tide had left a bit of a lagoon on the beach, which made for the perfect reflections, so I made the most of it. The two brightest objects on the right are the star Antares and the planet Saturn."



MIDNIGHT MASS

"STAR trails over the iconic St Davids Cathedral. It's made up of 114 images for the stars and two different exposures for the foreground to combat street lighting and balance the image. I love shooting trails when the moon's out, as it not only helps with some fill light but the sky looks blue, too."

SHOOT WITH A **PRO**

HOT SHOT #3

DAVE'S COMMENT



I borrowed Drew's 14mm f/2.8 prime for this shot – it's not only a little wider than my 16-35mm f/4 lens, it's a stop faster,

enabling the camera to capture double the light during the same 30 secs exposure. At 2am we had reached the midpoint between dusk and dawn, so the stars were at their brightest. This was a blend of two shots; there was no way we could use torchlight to paint the faraway sea stacks! For the land we reduced ISO for quality and opened the shutter for a full five minutes. It's amazing what such a long exposure can reveal in seeming pitch-blackness...

Lens	Samyang 14mm f/2.8 ED AS IF UMC
Exposure	30 secs, f/2.8, ISO3200 (sky); 300 secs, f/2.8, ISO1600 (foreground)

THE APPRENTICE

DAVE'S COMMENT



“I reckon my Shot of the Day – or should that be Night? – was this one of Flimston Chapel. It was a combined exposure, with the shutter open for around three times as long as the exposure for the sky. As this shot was taken a little earlier on – around midnight – there's a bit of light pollution, but this isn't necessarily a bad thing, as it lights up the stonework and every blade of grass beautifully!”

DREW'S VERDICT



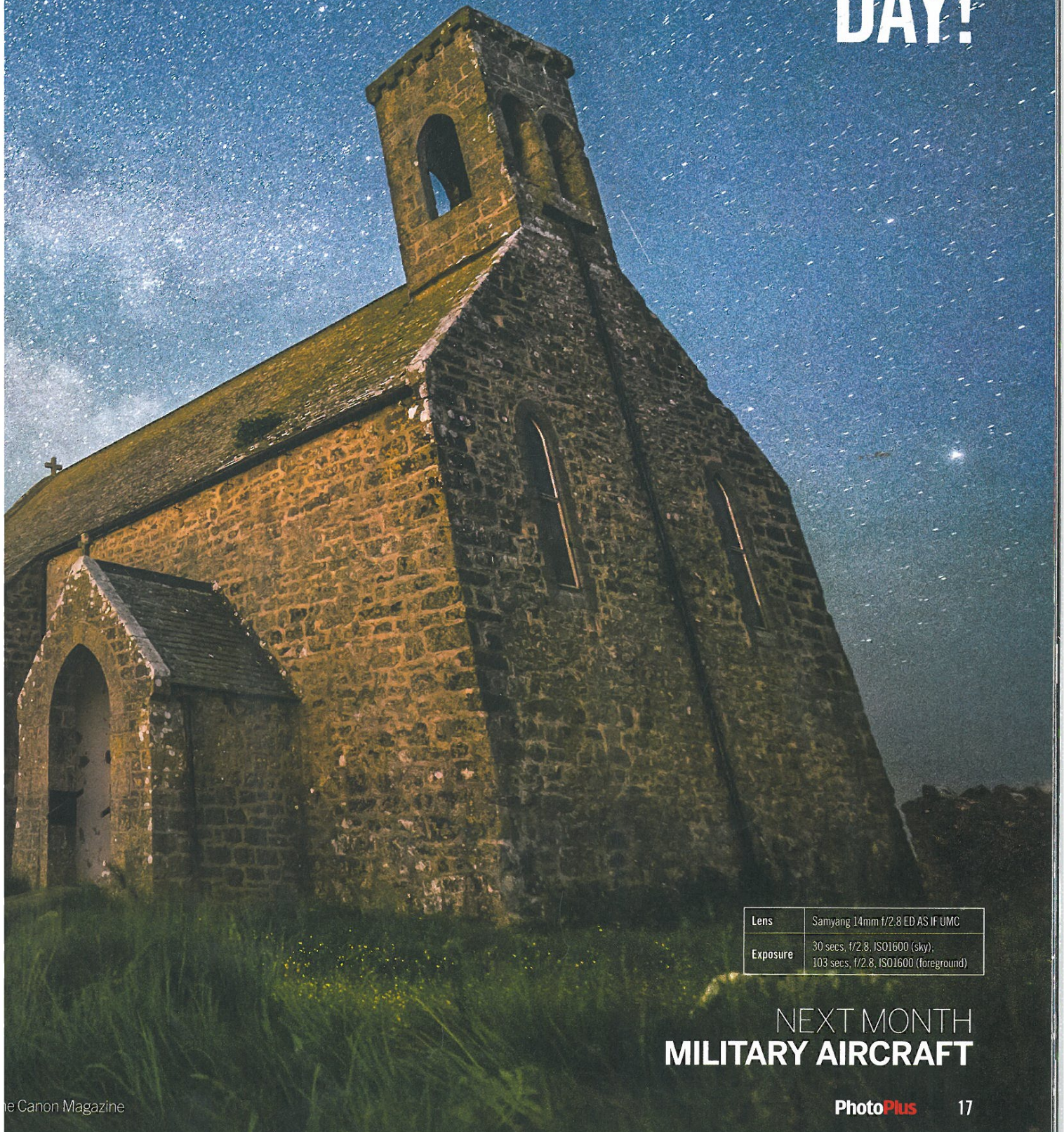
Night photography is a very different discipline to the daylight landscape shots Dave's used to taking, and he was an attentive student and a pleasure to teach! This shot is near-perfect, with the stars as perfectly focused pinpricks of light and plenty of detail in the building. It's well composed, with the church tower bang-on the right-hand third and the starry sky dominating the sliver of land below – no mean feat when you can barely see through the viewfinder.”

BE OUR NEXT APPRENTICE

Do you need some help to take your Canon photography to the next level? Let us know what you'd like help with and we could pair you up with a top pro for the day! Send an email to photoplus@futurenet.com with 'PhotoPlus Apprentice' in the subject line, and include your telephone number and address.

SHOOT WITH A **PRO**

SHOT OF THE DAY!



Lens	Samyang 14mm f/2.8 ED AS IF UMC
Exposure	30 secs, f/2.8, ISO1600 (sky); 103 secs, f/2.8, ISO1600 (foreground)

NEXT MONTH
MILITARY AIRCRAFT