

CAMERACRAFT



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Editorial and Publisher's Office, Subscriptions Management, Scotland
David & Shirley Kilpatrick, Icon Publications Ltd
Maxwell Place, Maxwell Lane, Kelso, Scottish Borders TD5 7BB
Tel: +44 (0)1573 226032 Mobile: 07971 250786
email: editor@iconpublications.com

Associate Editor, USA
Gary Friedman
8661 Mossford Dr.
Huntington Beach, CA 92646
Mobile: +1 (714) 805-8468
email: gary@friedmanarchives.com

Editorial and Web Development Office, England
Richard Kilpatrick, RTK Media
The Grange, Pincet Lane, North Kilworth,
Market Harborough, Leicestershire LE17 7NE
Mobile: +44 (0)7979 691965 email: richard@rtkmedia.co.uk

Cameracraft is printed by Hi-Tec Print, Units 9/10, Houghton Road, North Anston Industrial Estate, Sheffield S25 4JJ, UK. Telephone +44 (0)1909 568533
Contact: enquiries@hitecprint.co.uk or see website, www.hitecprint.co.uk



WE HAVE two themes running through this issue – Water and Flash. Flash is already a popular tool and new camera types with very fast leaf shutters increase its potential. Water is in the news and in images all round the world right now, whether it's stranding polar bears on broken up Arctic ice, flooding communities, being trucked in for fracking operations, or battering our shores. The Thames Barrier went into action to protect London, and we were shown maps of just how much of the city would have been flooded.

Because film doesn't have EXIF data, and my working diaries are not easy to find, I can't be sure of the date of my photograph above. I think it's 1978. It shows something you would never see today, a crowd of engineers (executives down to blue-collar) manhandling the key pivot pin of a Thames Barrier gate into place using liquid nitrogen to shrink the huge casting a few thousandths of an inch. Protective clothing? Gloves, boots, torn anoraks, jeans and boiler suits. Not a hard hat in place. It was very early in the morning, just after dawn.

And no flash. Flash could have dramatised this. But not without new work clothes and those essential hats!

– *David Kilpatrick*



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Untried and untested: rushing the product to market is an old failing

In the past few years we've seen too many new cameras hit the shelves with failings so obvious the first buyers spot them within days. How did they get past the experts?

Back in the era of twin lens reflexes, the roll of film had to pass over a roller forming a 90° bend. The original Rolleiflex design had the film leave its roll, go over the bend, past the film gate and then to the take-up spool. Users would leave the camera for a few days with film in, wind on, and take a shot. It would be out of focus in the middle because the film kept the bend formed by the roller.

Despite this, millions of TLRs were made using this arrangement. Minolta reversed the film direction in their Autocord, so it came off the spool and straight across the film gate, then round the roller through 90° to the take-up spool.

Lessons were not learned, and even Hasselblad ended up needing to advise owners *not to leave magazines loaded and use the next frame* with many films, especially the lighter more flexible ones like FP4.

Similar problems plagued 35mm cameras because of the original 'radial exit' cassette design. The angle of film leaving the cassette could leave a kink in the film, which pushed it out of focus for the next shot. A new tangential exit lip design and many different pressure plates and film track designs set out to solve this problem, as did Agfa's Karat cassette-to-cassette system.

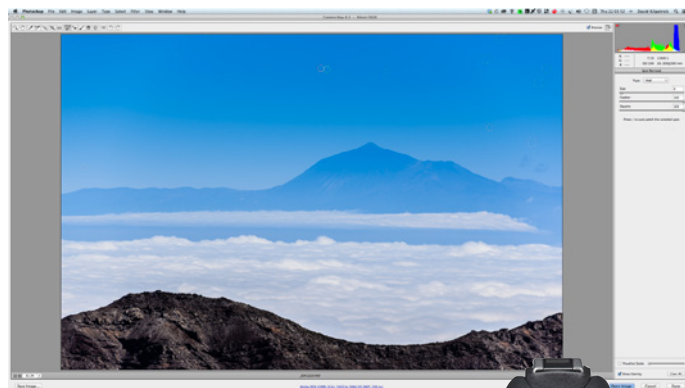
Throughout camera design history, simple matters like this have ended up spoiling the experience for owners. The sprocket drive for film advance in some cameras could give a little kick when the shutter was fired (Russian cameras were good at this) jerking the film slightly during exposure. The photographer would be

convinced they had very shaky hands and dealers would teach owners how to squeeze the shutter release gently. It was to no avail as the 'shake' was being provided by the camera. This type of fault also affected early auto-winder film cameras.

We could continue to catalogue dozens of inherent defects which appeared in generation after generation of mechanical film cameras. There was a Zenza Bronica with a mirror action so powerful it could suck the film into a convex surface which deflated during exposure. Early Leicas, and not-so-early Russian copies, had a shutter which could jam out of sequence if the user forget the exact order in which to change shutter speeds and wind the film on. Hasselblad and Bronica leaf shutter lenses were equally picky about their state when fitted to a body – get it wrong, and the lens was locked in place with nothing working. There were professional rollfilm cameras made for years with no shutter lock if the darkslide was left in a rollfilm back.

Along came digital, and so many of these mechanical puzzles disappeared. All the interlocks between film wind, shutter and other parts were simplified. You could still manage to shoot without a card in the camera, but life was now far more certain.

However, the gremlins have not been eliminated. Two cameras from the last two years have been launched with shutter mechanisms which either cause vibrational shake or trigger image stabilisation to react incorrectly – the original Olympus OM-D E-M5 (which received a firmware



Above: the Nikon D600 shutter seems to have sprayed oil or debris on the sensor though Nikon has never officially admitted this. The shot above, taken a few dozen frames after sensor cleaning, had eleven large spots – and this was an easy one.



The jerk or shake shown by a Sigma 70-300mm OS lens attached to a Sony A7R is shown left.



Tamron's 18-200mm Di III VC should work. Does it?

fix to cure it) and the new Sony A7R. Though some new owners are unwilling to accept the possibility, it has a very heavy shutter action which under certain conditions either induces user camera shake, or misbehaves with stabilised lenses. A solid tripod solves the problem, but in the A7R's case adapted or third party lenses with image stabilisation seem to react to the shutter. Sony has *disabled* stabilisation entirely for several of their own lenses despite the camera's crop format compatibility with them, indicating that they spotted this problem.

But it didn't stop them putting the camera on sale, and even more oddly, selling it without any lenses other than unstabilised primes – the stabilised 28-70mm f3.5-5.6 Sony G OSS was only offered with the A7 (non R) which uses a different type of shutter, and the more expensive 24-70mm Carl Zeiss OSS f4 was not

released until two months after the camera. It all points to known gremlins and much hasty remedial work by the engineers, while the marketing side pressed ahead according to schedule.

Nikon's D600 issue has never been acknowledged by the company, though cameras were exchanged and shutter units replaced. Many will remember Konica Minolta's 'first frame black' error and Canon's early ERR messages. And how many lenses never focused accurately on film, before high resolution digital revealed it? Scanning slides, the near-miss focus becomes only too clear, along with a need for AF adjustment.

Would you prefer it if the next generation arrived six months late, without a single 'early adopter' issue to discover? We seem to like things the way they are – fast to the market.



In a year without photokina, the world's most important platform for photo technology, the trade has used terms like anti-photokina and mini-photokina to describe a group of product launches in the Autumn of 2013.

Of these, Sony's announcement and retail delivery of the full-frame mirrorless system variously called FE or A7 was the most anticipated and perhaps also the most hurried. They didn't even have time to give the new system a name, as it's just another part of the Alpha line to them despite having little connection with the A-mount.

So, we have two full frame cameras called A7 and A7R without any reference to the NEX range or the Cyber-shot RX1 design which have been combined to create them. They are not 'Alpha 7' and R although they could be – as models, they are called ILCE-7 and ILCE-7R. The E probably refers to the NEX-derived E lens mount, as it does in the ILCE-3000, the equally non-Alpha A3000 which is an APS-C mirrorless camera in an SLR-style larger body.

Although the E-mount on the camera bodies is unchanged, new FE lenses have been introduced and announced for future development, all of which are full frame compatible. The FE lenses will fit all previous NEX bodies, and just to be safe, the two new A7/R bodies also work perfectly with APS-C type E-mount lenses.

At the same time, Sony announced that the name NEX was to be dropped – but also that the A-mount series, full SLR size even if 'SLT' design, would continue.

This leaves everything vaguely called Alpha or A if it came from NEX or Alpha to begin with, and a parallel series called RX which has Cyber-shot roots.

Sony RX10

The Cyber-shot DSC-RX10 is the latest model from that source, a substantial magnesium body bridge camera with a fixed motorized

CAMERACRAFT UPDATE



The RX10 has a very chunky lens, and it extends to impress rather too much



24-200mm $f2.8$ equivalent zoom and the same 20 megapixel one-inch sensor as the RX100 Mk2.

At over £1,000 (UK) a chunky bridge camera like this has to offer something unique to compete with DSLRs, ILCs, camcorders and compacts. It does exactly that. The EVF body is shaped like a DSLR and handles that way, while the lens is of a size for its specifications that no APS-C mirrorless or full-framer could aspire to. If the optical unit was scaled up by 2.7X for 24 x 36mm, it would be 189mm from mount to front rim, with

a barrel diameter of 200mm and 170mm filter thread! That's without the lens hood, and without zooming in. At full zoom, it would be 325mm long.

It would be larger than this page. Now you know why a 24-200mm equivalent Carl Zeiss Vario-Sonnar $f2.8$ constant aperture zoom will probably only ever be made for this 8.8mm x 13.2mm format. Nikon could match it on their 1 System.

The RX10 goes beyond this and adds video functions which exceed the Alpha 99, Sony's DSLR flagship. The HD1080p/50/60 quality is higher than the A99 with support for a codec matching Sony's semi-professional camcorders, putting the RX10 on a level with the best Panasonic mirrorless cameras. There's a good built-in stereo microphone, a 5v phantom power stereo microphone jack, and a Multi Function Accessory Shoe which accepts an XLR preamp module. Live headphone monitoring is provided, with optional synchronisation delay to match the tiny lag in the finder image. Gain can be auto or manually controlled. In use, the new

AF mechanism and the power zoom are both so extremely quiet they have no effect on video shot using an on-camera mic with manual gain.

The RX10 is also near-silent for still shooting in theatres, on film or TV sets, in court or anywhere that a shutter noise is unwelcome. It has a leaf shutter and all you hear is the faintest of clicks.

The camera is moderately weatherproof and has only a few weak points like the zoom when extended, and the zoom and on-off switches round the shutter release. This is metal and designed for the traditional Compur thread cable release!

The RX10 has WiFi file transmission and Smartphone triggering, but not the full live view control of some WiFi models today. It does not have GPS either, and we remain waiting for the add-on GPS module which Sony must one day introduce for the new shoe.

Sony A7/A7R

For the serious photographer – enthusiast or professional – the arrival of the full-frame E-mount models was a big day. The weeks that followed were slightly deflating, as early users (ourselves included) discovered that the choice between the two models was more than just a matter of 24 megapixels (A7) versus 36 megapixels with no AA filter (A7R).

The cheaper A7 has a different shutter mechanism which many will prefer, as it allows electronic first curtain, and therefore no shake or shock before the exposure is made. It can also synchronise to 1/250th, where the A7R has a permanent mechanical first shutter curtain leading to a considerable shutter lag and a maximum X-sync of 1/160th. Both are fairly noisy but the A7R takes almost 400 milliseconds for a shutter cycle (noise alone – the actual overall time is longer with pre-release lag and a lingering 'echo' tail).

The A7 sensor does not produce much colour cast to the corners when used with wide-angle lenses, but tends



Inside the Sony A7R body there's a big 24 x 36mm sensor. The camera is ideal for using manual lenses and adaptors, centre. The sensor matches 35mm film, but that means it actually captures more than colour slides ever did. Right, the actual sensor size used to scan a 35mm slide.

to be less sharp in the same zone; the A7R remains sharp to the corners but has a strong magenta vignetting with many legacy Leica and other rangefinder wide-angle lenses. A downloadable app can now be installed on the camera to correct this problem.

The A7R has also proved to be more prone to camera shake and both cameras have a limited compatibility with Sony OSS in-lens stabilisation, even when used in cropped mode. Lenses like the 18-55mm and 55-210mm, for example, have OSS disabled when they are fitted and this can not (yet?) be over-ridden.

Against this must be weighed the almost Leica-sized compactness of these full frame bodies, their exceptionally accurate manual focusing, and in the case of the A7R probably the best sensor ever made for the full 35mm format. At 35.9 x 24mm, it is the largest full format sensor and almost 1.5mm all round larger than slide mounts used to be for film. No other digital body makes better use of wide-angle lenses.

With only one modest-quality zoom issued with the bodies (and then, only available on the lower resolution model for good reasons), the two launch primes were unstabilised 35mm *f*2.8 and 55mm *f*1.8 lenses, reminiscent of your granddad's ambitious SLR outfit in 1959 – only missing the ubiquitous manual preset 135mm *f*3.5! But, of course,

it is exactly those 1959 lenses which owners have been so keen to adapt and use on the A7 and A7R. The NEX system caused a leap in the value of old glass, the A7 system has taken things to a new level.

As we go to press, I'm still getting to grips with the A7R and hope to have a properly informed view of its abilities by the next edition. Sorry, but these things can't be rushed!



Nikon Df

And so we come to the other big launch of the last quarter – the Nikon Df. This retro-styled camera with 16 megapixel full frame sensor does have auto exposure, does have AF, but also has mechanical-style top dial settings and a special flip out coupler to enable full aperture metering with original Nikon F (Photomic coupling) lenses. Thus the value inflating effect has been doubled in the vintage Nikon market.

The Df is also a particularly rugged camera, without any video function at all despite

having live view on its fixed rear screen. It has a large optical glass prism finder and most resembles an FM2 in metal and leather-cloth looks. Needless to say it is already the camera of choice for many professionals.

Nikon's D5300 went almost unnoticed but actually this APS-C entry level camera is the most complete ever made.

It has 24 megapixels, it has an optical finder (good and big), it has live view, it has HD1080/60p video with full control, it has WiFi and it also has built-in GPS. It is light, performs well, and should be listed as one of the most travel-friendly and affordable recent DSLRs.

Samsung Galaxy NX

The huge rear screen of the NX system compatible Samsung Galaxy NX resembles their 2012 Galaxy camera, which was the first 'compact' (hardly) to have an Android operating system and run apps. The same function is now put into a compact system camera with a 20 megapixel APS-C sensor, and very powerful it is too. We even relied on one of these cameras, with a 4G phone SIM card installed, to create an internet connection and a WiFi hotspot during a difficult period between service providers. It is certainly capable of becoming a kind of news-gathering camera with immediate upload to picture sharing sites, needing no computer. The very large touch screen makes arm's length style composition and shooting easier, but it still has a regular eye-level EVF.

Samsung, like Olympus and Canon, designed a mirrorless system mount which won't allow full frame in future – but most users will prefer APS-C or the one-inch standard.



GO WITH THE FLOW

by David Kilpatrick

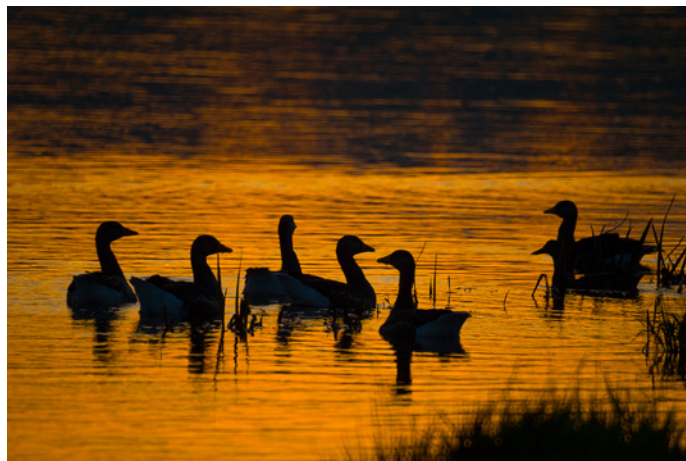
Photography started out, like life itself, depending on water. That's if you exclude Niépce's experiments with bitumen. I would count that phase of photography rather like the primeval volcanic Earth – there was plenty going on, but it didn't come to life until water got into the act.

In our earlier issues of *Cameracraft*, water is also present in so many images. It was used to show the effects of Time in Issue 1, and had a substantial part in Reflections in Issue 5. José Ramos's portfolio in 4, and Paul Gallagher's in 2, relied to a great extent on the interaction between the camera and water as a subject or part of the scene.

Thinking about it, one of the first things most photographers do if they want good landscapes is head for somewhere with water. It's what I do too. Give me a new camera to look over, and I'm straight down to the banks of the River Tweed. The light over water can be double or more the level I'll find in the streets of our town.

I don't think it mere coincidence that the west coast of California has produced so many great photographers, or that west of Scotland is the most popular photographic destination in Britain. Whether the water is sea or rivers and lakes, facing the sunset works for most of us.

For different reasons, the camera loves waterfalls, fountains, streams and all kinds of water features whether natural or man-made. They refract, reflect and transmit light and nearly always have some degree of movement. This adds life to images – whether it's sparkle



Water simplifies scenes. Geese in silhouette on a river make a strong image where the same group against grass out of the water would not. 500mm mirror lens.



One of my first 'timeless' stock pictures, from 1970. The simplification of tones and shape in black and white helped it reproduce well on cheap newsprint and look even better in glossy magazines.

from the sun or smooth tones which are a perfect fit to the gradations of film or digital recording. In this respect the

camera has the edge over the paintbrush. Water is very difficult to paint but relatively easy to photograph.

Water of life

Water has remained vital for chemical development of images, and still is for the best digital processes. There have been 'dry' processes before today's inkjets. Event photographers take portable DNS, Sony, Fujifilm or Kodak printers to sports or social functions and make thermal transfer dye-sublimation prints on the spot. They are not as permanent or as natural in colour rendering as the photographically printed versions offered through on-line sales galleries.

Inkjet printing can be done using solvents, but photographers don't have the throughput needed to use solvent inks fast enough. Evaporation is a problem even with water-based inks, and the key to economical and reliable inkjet printing is to keep the printer busy every day. If you can form a small consortium to buy and share a high quality inkjet printer, as some photographic societies now do, it can save considerable time and frustration as the inks will be changed regularly and the whole system kept running optimally.

Although the inks may be based on pigments suspended in water, a combination of the paper coating and exact formulation of the ink can make them waterproof within seconds of application.

If you disregard the vast quantities used in energy generation and industrial production to provide our equipment and materials, photography itself is moving into a dry era. Water just won't be as important ever again except for craft and art workers who revive and preserve older processes.



Above: photographers head for water to find light – testing the new Sony A7R in December, with a 15mm Voigtländer Heliar lens, sunset over the Tweed was a natural choice. The severe colour casts given by the sensor with this lens towards the corners, even at $f/11$, meant that a black and white conversion produced the best result. The gardens of Alnwick Castle in Northumberland are one of the largest new landscapes open to the public and created by a private landowner in the last century. They include the longest water cascade in Europe as well as many other fountains. This one is designed to surprise, and for children to play in, its jets firing unpredictably. I could have spent an hour just catching shots of the families getting soaked, but this was not summer, just a warm day out of season and only an hour from getting dark. Brave youngsters!

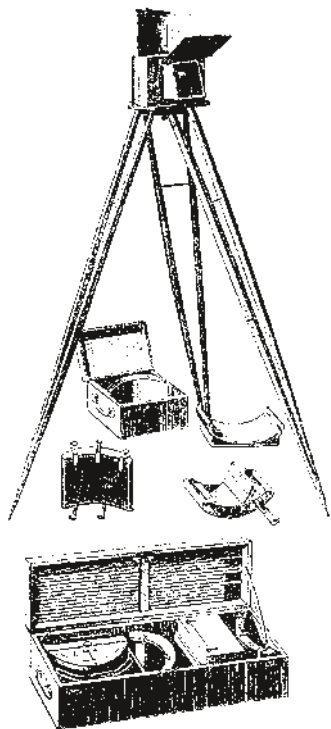


Nature's lens

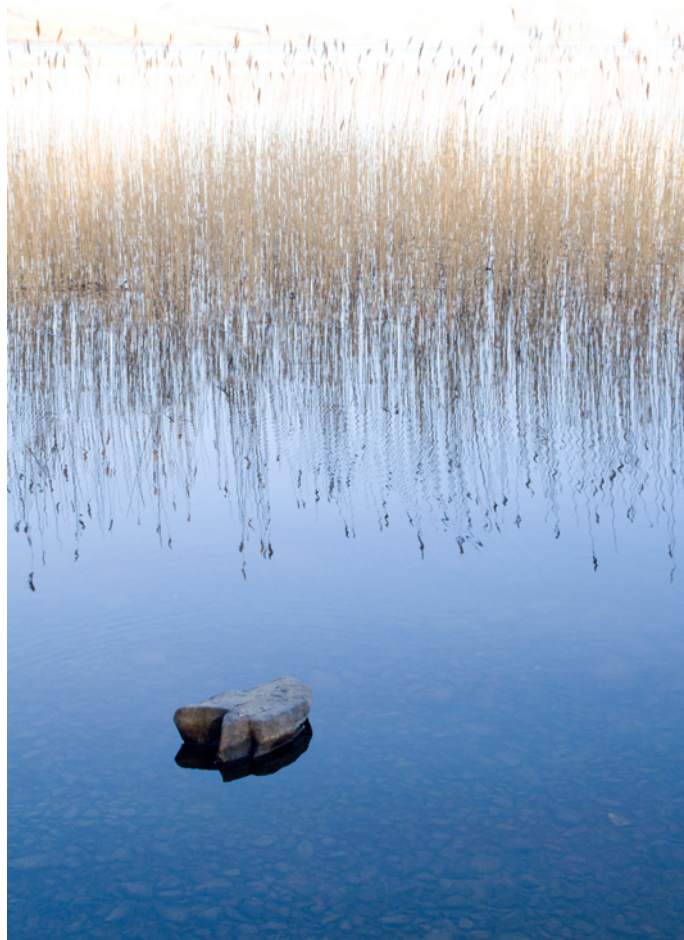
Through the power of macro lenses or close-focusing digital compact cameras, it's easy enough to observe how water can act as a lens. You can see the inverted images present in water droplets, or the sunshine focused by the same drops. It can not have been so easy to observe this in the past.

Unlike glass, water manages to bend light of all wavelengths to the same degree. It's like a very low dispersion glass. Camera lenses have been made using water instead of glass for this reason, and the most famous is probably the Thomas Sutton Panoramic Camera of 1859 – just a couple of decades after the invention of photography itself. Using a curved glass wet-coated plate, the Sutton camera could make a single exposure panorama covering a horizontal angle of 140°. To put this into context, the Sigma 12-24mm wide angle covers a horizontal angle of 101° at 12mm on a full 35mm frame, and the Zenith Horizon's 28mm lens on a 58mm long frame covers a 120° field.

Very few of these $f12$ spherical hollow glass lenses – designed to be filled with pure



Thomas Sutton's 140° curved plare panoramic camera with water-filled lens, from 1859 (courtesy John Hannavy Picture Collection).



Two very different photographs using water, by Shirley Kilpatrick. Shirley often sees subtle colours and compositions which I miss as I'm looking for the high-impact dramatic result. The results look better in a frame than my publication-oriented shots. Above, St Mary's Loch in Scotland with reeds in Winter, and the sunlit distance dodged back to lighten an already burned-out zone to white. Below, convex cylinder aquarium in Tenerife with endlessly shoaling magnified fish, destined to follow each other for ever against an artificial current.



water by the user – were made and the camera's curved plate design limited its appeal. What is most strange, however, is that a rollfilm device for the back was patented in 1867, some fourteen years before rollfilm itself was invented!

Underwater photographers know how water as a lens works in reverse. Underwater, air becomes a lens. The air space between your eyes and goggles or a camera lens and a flat glass window in a housing acts rather like a weak tele converter. Everything looks larger and both the field of view and minimum focus distance are changed accordingly.

The solution is not unlike Sutton's spherical water lens in air – a spherical dome glass in front of the camera lens, with air inside, removes the apparent magnification. In public aquaria, bubble-shaped viewing ports where you put your head or the camera inside the 'dome' restore the apparent size of the underwater scene to normal. For home aquaria, it's common to do the reverse, and fit a curved front, use a globe or a cylinder all of which enlarge the view. Nothing beats a flat sided aquarium for photography, though, as all the various curved glass types destroy sharpness or make focusing impossible.

One neat solution for pond life, aquaria or even swimming pool images is to use an inspection window or tube – a bucket with a glass bottom. The magnifying effect is present, but the camera can focus and never needs to go near the water.

The professional way to photograph specimen aquarium fish is very simple. Depth of field is limited, and water tends to lack clarity. A narrow tank is constructed with as little as 1cm of water between its sides, and the fish temporarily housed in this. Lighting, locating the subject and focusing are all made easy. Some photographers drop glass walls into an existing aquarium to do this without traumatising sensitive fish and some won't use flash for the same reason.



Three shots from my own small aquarium – the male guppy and ghost catfish taken through flat side walls, the peppered catfish (middle) taken through a curved front. Daylight with diffused flash through the aquarium top was used, and did not seem to disturb these fish in any way. I have since changed to an aquarium with all flat sides.

Salt water poses unwelcome problems for photographers. It's very important to clean salt spray off equipment as soon as you can. If left to dry, it can damage lens or filter coatings and corrode mechanical parts. Get a rain-cape or a EWA-Marine underwater bag housing for yachting, water sports or surfing, oceanside storm chasing, cruises or beach holidays. In an emergency wrapping clothing round the entire camera exposing just the lens (preferable with a hood and plain filter) can keep it safe.

British highways in winter, salt flats and salt pans, and even salt caverns (as seen in our last issue's *Rearview*) create an atmosphere full of salt particles. Treat them as if you were about to shoot in a chemical factory. And then there's chlorine in pools... maybe it's better just to keep away from water after all!



Nikon AW1 immersed and photographed by Richard Kilpatrick



How 'proof' is your camera?

The Japanese photo industry uses the JIS/IP standard scale to rate waterproofing of cameras, from 0 to 8.

- 0 Not water resistant in any way.
- 1 Vertical falling rain drops on camera held normally.
- 2 Vertical falling rain drops with camera tilted $\pm 15^\circ$.
- 3 Wind-driven rain, spray at up to 60° from vertical.
- 4 Heavy rain and direct splash proof, any direction, for 10 minutes.
- 5 Hose jet proof – 6.3mm nozzle, 12.5 litres per minute, 40mm jet core at 2.5m from nozzle, 3 minutes at 2.5 to 3m distance.
- 6 Powerful hose jet – 12.5mm nozzle, 100 litres per minute, 120mm jet at 2.5m distance, 3 minutes at 2.5 to 3m distance.
- 7 Waterproof against brief complete immersion. Submerged in zone 150cm to 1 metre below surface, water temperature similar to camera, withstand 30 minutes.
- 8 Waterproof against prolonged immersion, qualified by specifying a safe depth to which the camera has been tested. The minimum appears to be 30 minutes immersion at a depth of 1.5m but the manufacturer can specify their own test and advertise the conditions.

There are also International Protection grades for proofing against solids entering a mechanism. From 0 to 3 do not qualify as dust proofing at all. No 2, for example, covers 'fingers and similar objects':

- 4 Protected against objects $> 1.0\text{mm}$ diameter.
- 5 Not totally dust proof but dust does affect operation.
- 6 Absolutely dust-proof.

There are also many other JIS/IP testing standards, including shock-proof and freeze-proof grades. We'd love to reprint as an example Nikon's full 'proofing' statement for the Coolpix AW110 but it's a lengthy document. Despite the fact that this camera can dive down to 18m/59ft and has Grade 6 dustproofing, disclaimers include – "Camera should not be subjected to pressure by exposing it to running water" (watch those taps and keep out of rivers!) and "Do not handle, open or close the Camera cover with wet hands. This could cause water to seep inside the Camera or result in Camera malfunction". So, better have a warm dry assistant waiting on the beach... and don't travel by budget airlines, as "Camera cannot be forcibly stuffed into any type of bag".

Water and dust proofing

Water is no friend to optics or precision engineering, and many cameras now claim to be waterproof. Very few are if you combine water with pressure – a surge wave that knocks the photographer over may get into the best 'splashproof' camera, and the various so-many-metre depths for dive swimming with rugged cameras have proved wrong for us several times.

See the table on the JIS standards. You will notice that terms like 'weatherproof', 'environmentally sealed', 'rugged', 'all-weather', 'water resistant', 'dust resistant' and so on do not appear at all in the definitions. Manufacturers may use these or similar terms to describe qualities which fall short of the actual JIS tests. Most worrying is that dust-proofing can be claimed at IP rating 4. Dust with particle diameters of greater than 1mm is something worse than most sandstorms, and while it is reassuring that grit can't get in, most times you encounter flying grit of that diameter it's accompanied by a whole load of much finer dust.

Sensor dust is a different issue. Despite the feeling that it must surely be arriving from outside, the absence of excess dust on mirrorless cameras with completely exposed sensors indicates there are other causes. The Nikon D600 proved that a shutter mechanism can be the culprit, spraying oil or wear-induced debris on to the sensor with every shot. Nikon produced the D610 with a new shutter mechanism after replacing the shutters of spatter-plagued D600s, but the episode left many buyers resolved to switch brand. Some Canon sensors have been described as 'dust magnets' but there is now some suspicion that most sticky dust, which can not be shifted with a rocket blower, is created by mechanical wear and spread by the camera's own mechanisms.



UNDERWATER STUDIO

My first experience shooting underwater came about 12 years ago when one of my then regular advertising clients, McCann Erickson, asked me to shoot several scenarios for an AstraZeneca pharmaceutical product, one of which needing to be a young girl swimming in a pool with arm bands (see facing page).

The advertising world can really stretch you as a photographer especially when your clients use you as a 'one stop shop'. I had never shot underwater before, so there was a steep learning curve to travel. I sourced an outdoor pool for the light, hired a waterproof housing for my Nikon film camera and booked a reliable child model. The intended 'test run' turned out to be all we needed. My model performed perfectly, smiling sweetly towards the camera when asked, even though very new to swimming underwater herself.

My next underwater challenge came some time later when following a conventional child portrait session for Wendy Edmondson and her two girls. Wendy asked me if I could shoot underwater. She runs Aqua Babies classes for babies in several pools in the North West. I was faced with the logistics of photographing of over 70 babies in succession on one day. I wanted to get more than quick snaps with "flash on camera", so a good deal of experimentation was called for.

Early attempts to create a strong sunlight from behind the subject were modified, because particles in the water were accentuated, making it look like the photographs were done in one of those shake-up-and-watch-the-snow-falling domes. We realised it was important that the water was as clear as possible, so the session could

IAN CARTWRIGHT POOLS RESOURCES WITH AQUA BABIES AND AQUATIC MODELS ALIKE



not follow on from recent pool use. I decided at this stage to use studio AC mains strobe as my light source, rather than continuous light, mainly so that there would be enough light to allow for a small aperture and to stop the action. That was five years ago, and today the ISO sensitivity of newer digital cameras promises to let me try tungsten. Babies can flap around very quickly and even with flash duration of probably 1/250th of a second they sometimes show blurring of their hands and arms. I am responding to the call for more shots per immersion, which can not be done due to slow flash recycling times.

As a general rule, for any kind of people photography, it is a balance between directional light for drama and modelling, and a softer light for a more flattering result. Also, the babies' movement, once released into the water, is unpredictable. Because of that, I chose to have the main light as large as possible from the camera's direction.

Right now I am experimenting with reflectors on the pool's sloping ceiling, and different light-shapers, but most of these images have been taken using a direct softbox next to a Fresnel spot bounced off the 45° sloping white ceiling – or more recently, just a normal reflector head alongside the spot. All lights are securely fixed to prevent them from falling and are wired through cut-out devices. They are kept well clear of splashing.

I have used several cameras starting with the Canon G5, graduating to the G6, then to a larger sensor DSLR. My backup camera is a Canon G12, which has to have its on-board flash at minimum power to trigger a cell which triggers a radio trigger, which triggers the flash. It's a bit



Above: from Ian's first underwater commercial shoot, for AstraZeneca, shot on slide film using a Nikon in an underwater housing. Ian was impressed by how well his young models could smile and make eye contact. The drug advertised was the asthma treatment Pulmicort.



Heath Robinson, but works in an emergency. The G6 did not have this issue, and the radio trigger could be fired via the hot-shoe. The Sony Alpha 350 with its Quick Live View and articulated screen worked well in my housing, as did the A580 (briefly, as its flash delay was excessive) and currently the A58 which has a much faster response and excellent high ISO performance.

My EWA-Marine flexible housing is designed to fit all types of cameras and has a 'glove' for controlling the camera. A large memory card can handle the entire session. With articulated LCD screens and live view, I don't even have to get my head wet – I can use my reading glasses and speak to the instructor to let her know when the baby can be 'released'!

The pictures might imply that the baby is actually swimming along underwater. Whilst most of them are at ease in the 'womb-like' liquid environment, we don't want them to be underwater any longer than is safe. I get about one second to catch the shot, which ideally should



be clear of the instructor and with the baby's face free of bubbles and looking in the right direction. Some babies take a nose dive, some pop up like corks and some roll over. If I take too long I risk having the instructor's hands retrieving the baby. The choice of focal length of the lens is important. The further away the baby is from the camera, the more water there is to cloud the image and the more the natural blue effect from being in water affects the image. This is noticeable the deeper the subject is in the water. Water magnifies, so a wide focal length seems to

work best for me – normally a Sony 20mm *f*2.8 AF lens on the Alpha body. We use a pool which is shallow, and very warm. The depth is not a factor with babies, but adults can not be shown upright full length without bending their knees and touching the bottom.

I began the first few sessions using a blue-grey builders' membrane as a background under the water, but I was spending too much time retouching the hard-edged creases. I now use a blue vinyl background. I have punched holes with metal eyes down the three free edges and I fasten lead weights to keep the vinyl

down. The pool's pump and movement of swimmers can cause billowing and creasing, so periodic smoothing is required. I've also tried white vinyl on the pool floor to reflect more light and improve colour balance, but it proved to be more effort than the small difference in results was worth.

Shooting babies underwater has presented another peculiar phenomenon which I don't fully understand. Their hair colour often, but not always, takes on a strong ginger cast. It does not seem to affect adults, and it is more apparent when the babies are closer to the surface, but if skin tones look right, hair and eyes take on a redness which has to be adjusted. It comes down to creating the right presets in *Lightroom* to avoid this without spoiling the rest of the palette. I assure parents the ginger look will not be apparent... but I still get emails pointing out that their offspring has brown or blond hair and definitely not ginger!

For the youngest babies, we allow no more than four submersions and if the baby is distressed, we will abort the



shoot. For older babies, who are more accustomed to the water – and for those wanting to try different ideas, including family groups – we have enhanced sessions where they can have six goes or more. I do not underestimate the skill of a trained Aqua Babies instructor in releasing the babies so that they look good for the camera. I would not recommend parents to try it themselves, as they are, at best, likely to be caught in the picture – and, at worst, risk their child's safety.

I sometimes do montages which show siblings swimming together, or parents appearing to meet their children, or multiple images of the same baby. Sometimes I can do genuine family sessions (*top left*) which are surprising for the quality of expressions and poses.

In addition to the baby shots, I find mums are keen to experiment with underwater beauty. I am keen to offer an adult opportunity – paid for – but most of the beauty style shots are with volunteers. In exchange for free prints and



digital copies, some of my volunteers are happy to allow me to submit the images for stock use. They tend to be swimming naked, but for loose fabric which flows beautifully in a way which is difficult to predict. This uncertainty, and the way the light and the movement work in this weightless environment, can create a unique result. Despite the restriction of the water depth and the background width we now have a 12 foot wide background, which is much better than the three metre one we had for a while. There are still many surprises to be had from the set-up.

For examples of breathtaking underwater and other work I recommend taking a look at Howard Schatz. His interests are very similar to mine, but his budgets are many times greater!



You can view Ian's work at:
www.caramelphoto.com
<http://tinyurl.com/oa56bm6>
Also see:
www.aquababies.co.uk
www.howardschatz.com



THE FALL GUY

Whilst I always enjoy the prospect of a good day out photographing landscapes in my favourite locations, I have to confess to a guilty pleasure at this point, which is: *My absolute love of waterfalls and photographing them from a distance, from close up, from above, from below.*

There is something about waterfalls that draws me in every time. Like rivers, they are a moving landscape, always changing shape and form – never the same from one photograph to the next. Should I shoot them with long exposures to extract that sense of movement over time or use a quick shutter speed to show them as a moment frozen and captured for posterity? Or, indeed, both approaches?

I am fortunate in having some excellent waterfalls close to my home in Wales, in the Vale of Neath. All are easily accessible by footpath (except for one which requires a few river crossings) and all are superbly photogenic. I also visit the Yorkshire Dales, especially the Ingleton Waterfall Walk and the falls at West Burton in Wensleydale. In addition there are the Aysgarth Falls (also in Wensleydale) and the smaller but no less intriguing Wain Wath falls near Keld in Swaledale.

I try to seek out waterfalls with good access rather than those miles away in the hills, largely because of the gear I carry with me and also I have had some 'interesting' experiences with poor footpaths and/or uncrossable bridges.

I am also fortunate in running a waterfall workshop for Tatra Photography Workshops in the Plitvice National Park in Croatia. Plitvice offers a wide variety of shapes and sizes, from high drops to gentle, shallow falls

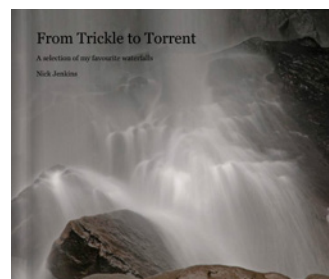
NICK JENKINS PICKS WATERFALLS AS ONE OF HIS FAVOURITE SUBJECTS - LOCATIONS DIFFICULT TO GET TO, UNPREDICTABLE WHATEVER THE SEASON, BUT ALWAYS COMPELLING



Above: *Scwd yr Eira, Vale of Neath. Nikon D300, Sigma 24-70mm, 1/2 at f20, ISO 200, Giottos tripod. Facing page, top: Gullfoss, Iceland. D300, Sigma 24-70mm, 1/50th at f32, ISO 200, tripod. Bottom left: Henryhd Falls, Swansea Valley. D300, Nikon 70-200mm, 1/100th at f22, ISO 200, tripod. Bottom right: at Lac de Montriand, French Alps. Nikon D800, Sigma 70-200mm, 1/100th at f14, ISO 500. (hand held).*



Nick (seen in his rôle as tutor, above – photo by Wendy Lilygreen) has authored a book on waterfall photography called *From Trickle to Torrent*. The book can be purchased from Blurb books at: <http://www.blurb.co.uk/b/2827125-from-trickle-to-torrent>



– and all within safe and easy distances from each other.

Iceland, of course, is famous for its falls. No gentle little trickles here. They are large, loud, noisy and amazing! Dettifoss, Gullfoss and Skogafoss are but three of a

very wide range and well worth visiting.

My equipment for a waterfall shoot is pretty consistent. It will always include a wide range of lenses, a map, a pair of Wellington boots, a very solid tripod,

a neutral density filter (for slowing down the water speed should I chose to), a polarising filter to remove or reduce some of the surface reflection for the river, a flask of coffee and a bar of chocolate. The wellies are useful as I can – if it is safe – walk into the river for some dramatic shots head on to the falls. As to my approach, it varies. I tend to shoot the falls in their setting first, using the wide lens focal lengths, then zoom in to crop closely on details.

As to whether I opt for slow shutter speeds or not, this is largely driven by the speed of the water over the falls every bit as much as the prevailing light. On a bright summer day the falls may be just a trickle, so I might give a long shutter speed to emphasise the movement. On an overcast day, however, I will tend more to capture the speed and force of the water by using the wider aperture, driving out a faster shutter speed.

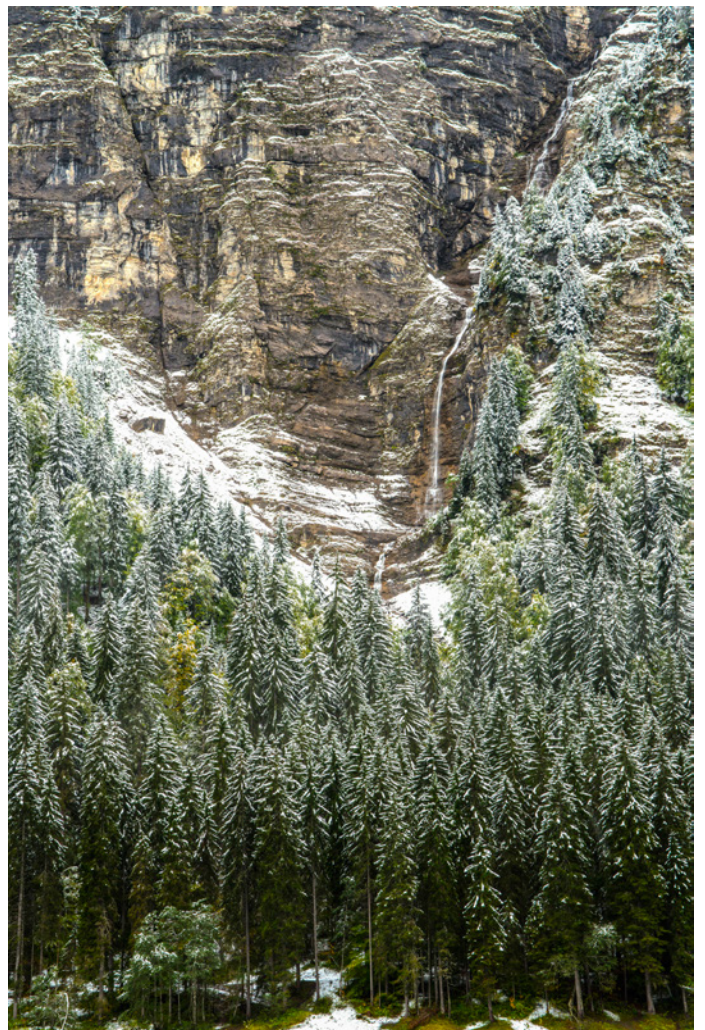
I always opt for a low ISO as this also helps slow the exposure down. When using this approach I will seek to achieve a 'spun glass' effect from the falls, rather than a fast capture. I will always endeavour not to over expose the shot, which results in a milky or yoghurt effect and spoils what I seek to portray. I do, however, seek to show both fast and slow water in my final portfolios.

Whichever way I approach my waterfall photography I find it immensely rewarding and very therapeutic. From just one location I can return with a set of images of varying approaches and techniques, all of which will teach me and from which I can improve my technique on my next visit.

– Nick Jenkins



freespiritimages.com
tatrphotographyworkshop.com





Pump Pwll Falls, Vale of Neath. Nikon D300, Sigma 70-200mm, 1/3 at f16, ISO 150, tripod. Though the water has no colour the reflected colours of Autumn foliage, sunlight, and blue sky contrast with dark rocks and green moss for a vivid result.



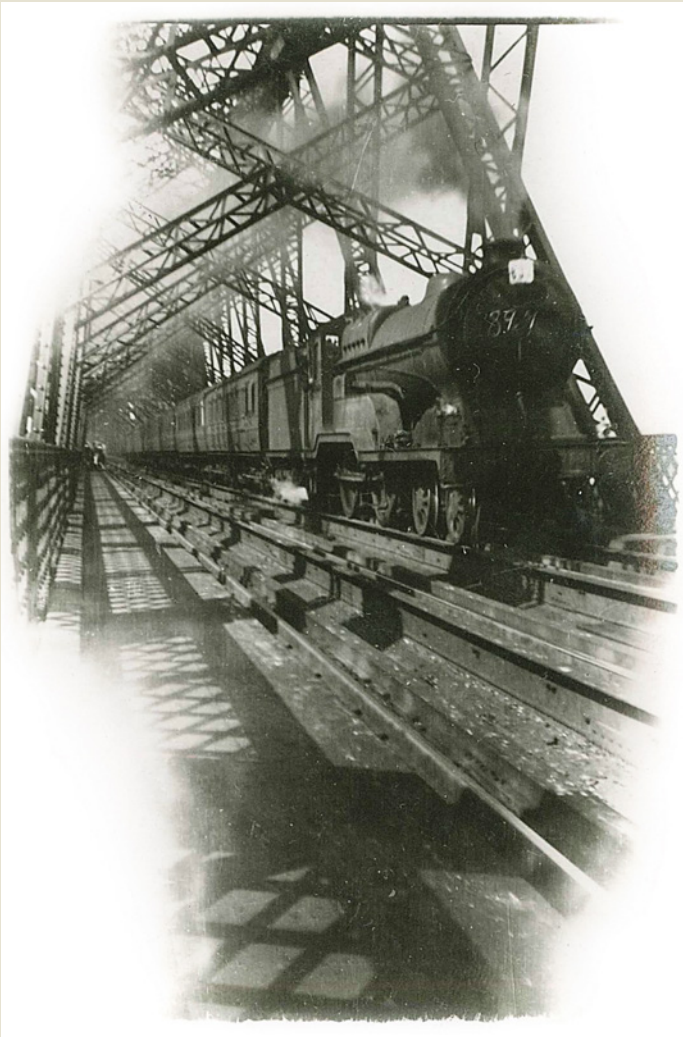
Plitvice National Park, Croatia. Nikon D600, Sigma 24-70mm, 2 seconds at $f/29$, ISO 100, tripod.



Above: Skogafoss, Iceland. D300, Sigma 70-200mm, 1/60th at $f/8$, ISO 200. Below: Melincourt Falls, Vale of Neath. D300, Sigma 70-200mm, 1 sec at $f/16$, ISO 200, tripod. Upper Ddwli Falls, Vale of Neath. D300, Sigma 24-70mm, 1/60th at $f/16$, ISO 200, tripod.



DÉJÀ VIEW



UNCHANGED REALITY, CHANGED VISION, GENERATIONS APART

This page often features historic images but they are usually from long departed photographers. Now we have something different – a photo competition won by submitting a picture 65 years after it was taken.

The Forth Bridges Forum organised a competition with Historical and Contemporary categories, to showcase pictures and help with the Scottish location's bid to UNESCO in 2014 to become a World Heritage Site.

The category winners were Billy Steven from Bathgate and Grant Ritchie of Edinburgh (shown left and right above).

What makes Billy's entry fascinating is that the fogged film negative of his entry gives it a now-fashionable soft framing, and that he was able

to enter his own print so many years after taking the shot. He was 16 years old and a Scout; his troop had been given permission to walk across the rail bridge when returning from an international jamboree at Blair Atholl. The low viewpoint and receding perspective of the rails show that wide-angle effects were not beyond the

scope of his father's pocket camera kit in 1948. Without the fog-faded margins and with modern materials, it would still be a winning image.

A different take on those receding rails comes in Grant's modern colour shot which may appear to taken from an illegal position on the tracks, but is actually a view from the west

platform of Dalmeny Station, looking north into winter fog with sodium lights.

The Forth Rail Bridge itself is over 100 years old, and its construction was documented superbly by the professional photographer George Washington Wilson. The 2013 competition winners were selected from over 250 entries. Second and third prizes were also awarded in both categories and a further 24 entries received Certificates of Merit.

All winning and commended images are displayed at: forthbridgeworldheritage.com and are to be used to support the UNESCO bid. See also our back cover, for the editor's personal pick from the runners-up.



Billy Steven and Grant Ritchie received their awards from the UK Transport Minister, MP Keith Brown (centre), along with a VIP visit to the bridge and a copy of the book 'Forth Bridge: Restoring an Icon'.



CAMERACRAFT PORTFOLIO

No 6

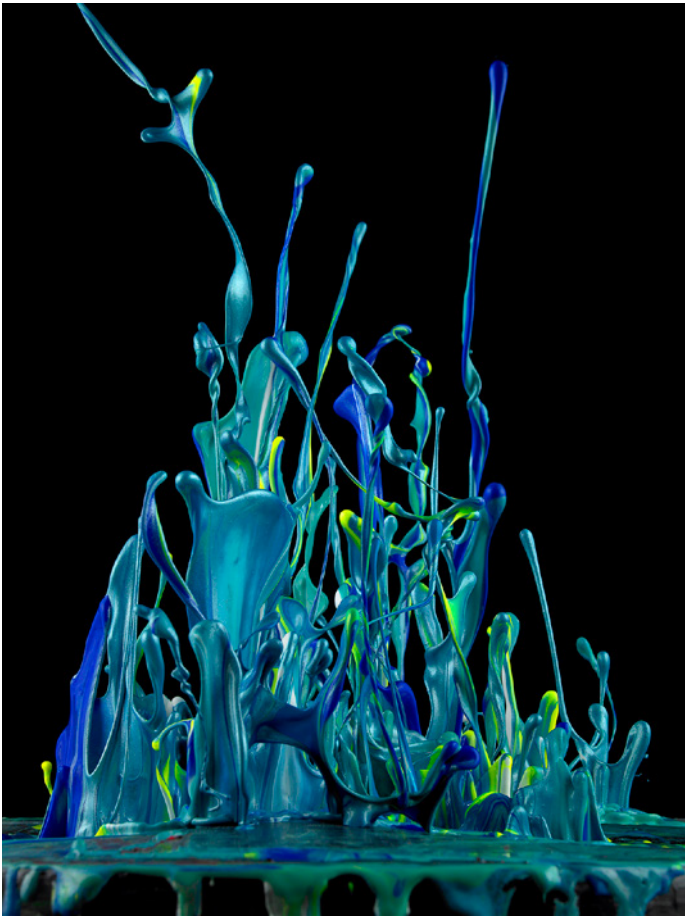
MARTIN KLIMAS



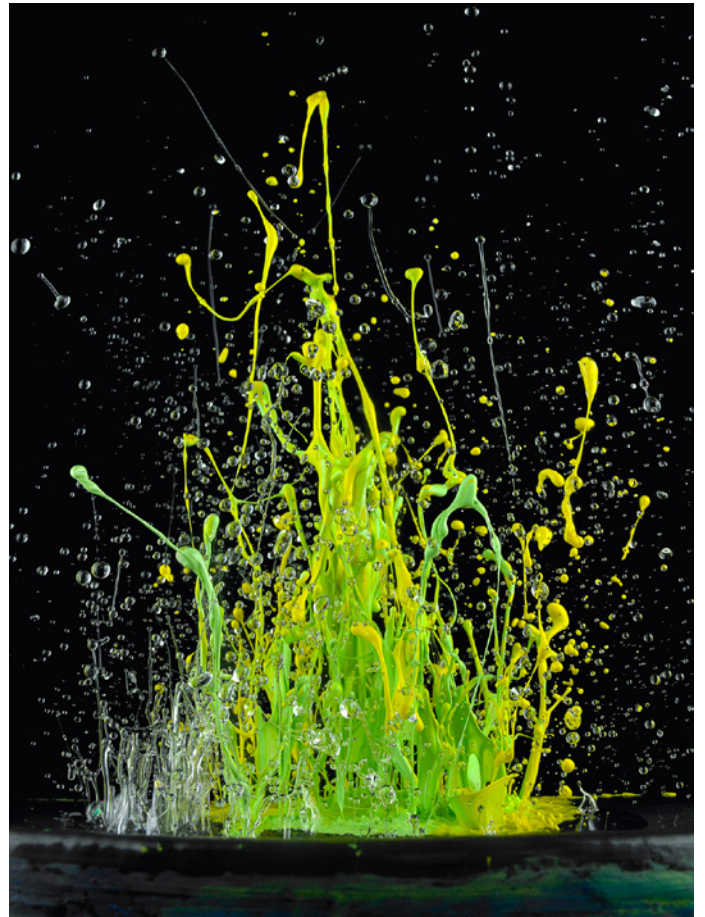
'SONIC' & 'FLOWER VASES'



*Previous page: Miles Davis, Pharaoh's Dance, 2011. Edition of 8, 56 x 42cm
Above: Richard Wagner, Ride of the Valkyries, 2011. Edition of 8, 56 x 42cm
Right: Steve Reich & Musicians, Drumming, 2011. Edition of 5, 100 x 135cm.*



Pink Floyd, Time, 2011. Edition of 8, 56 x 42cm.



Kraftwerke, Transistor, 2011. Edition of 8, 56 x 42cm.



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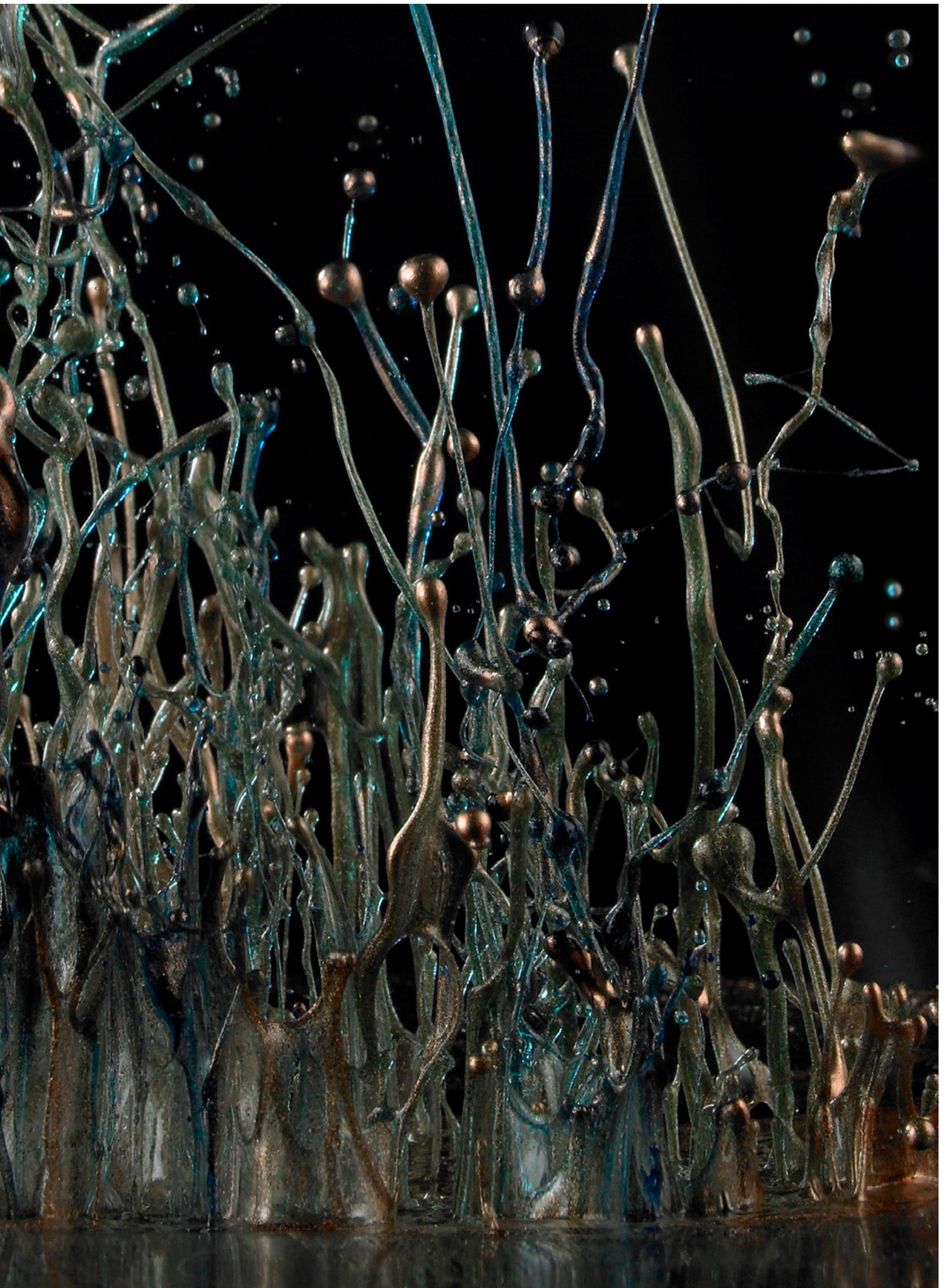
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*edition of 5
100 x 135cm*







*Left: Untitled, dog-rose hips, 2009, edition of three 150 x 110cm and two 220 x 170cm.
Above: Untitled, Orchids No 7, 2010, edition of three 150 x 110cm and two 220 x 170cm.*

SPLASH SYNCHRONISATION - THE HIGH SPEED ART OF MARTIN KLIMAS

That fluids react to sound waves is well known. Violin and guitar makers study the vibration of their carefully-profiled wooden soundboards by scattering sand on them, observing the changing patterns formed. Some experimenters claim that music performed at the modern pitch of A=440Hz is out of tune with the frequencies of matter and energy, and show 'superior' patterns formed by a lower 432Hz tone. Vibration can create fascinating textures on the surface of shallow water, as anyone who has put a their coffee down on a running washing machine or in a car cup-holder discovers.

Sometimes, that coffee will spray out of the cup, or a musical note will be played which sends the sand into the air instead of making a kaleidoscope-like pattern.

It's this powerful transfer of energy from loud sounds that Martin Klimas has harnessed to create more structured and substantial liquid forms for the camera to capture with high-speed flash.

Martin's experimental studio uses a large loudspeaker over which is stretched a membrane loaded with PVA paint (a medium developed by his fellow German artist and photographer Yves Klein half a century ago). It's the kind of paint children learn with, and body painting artists use. It dries slowly and is easily washed off. Suspended pigments, metallic powders and fluorescent dyes give the viscous, glossy carrier liquid a wide range of colours.

By depositing patterns of different paints on the acoustic membrane, Martin can control how the resulting transient formations mix in the brief window of shooting time before the components start to blend. The second creative control is the choice of music to play through the speaker, sustained loud tones creating tall stalagmites of paint while staccato drumming sends perfect spheres into



At Pavlov's Dog gallery Berlin, 2012



the air. Using medium format equipment and aiming for quality of images suitable for very large gallery exhibits, Klimas is not working with the very small low power flash units often used for ultra-shot durations. Instead, he's reliant on studio strobe flash with durations around 1/7,000th. This proves fast enough to turn the leaping liquids into sculptural forms.

He's not just letting the music create its own image, like the waveform of a digital soundtrack or the groove of a vinyl record. The colour, distribution and viscosity of the paint is a creative choice matched not only to the music track, but to the single bar or sound-hit selected from that music. A different note will produce a different response from the paint. The results are combination of the physical effect and Martin's creative experimentation.

The camera and flash, and Martin himself, remain safe behind acrylic screens, with a special window for the lens to look through without losing sharpness.

We have also shown here images from the series Flowervases. Once again, liquid (water in the vase) and high speed flash create the image. A flash trigger is used to synchronise with the moment a steel ball is shot through the ceramic vase, shattering it like a balloon and releasing a spray of water before the careful flower arrangement feels the effect of gravity. Klimas's earlier exhibition series using the same technique to freeze shattering porcelain destroyed dozens of ornaments, shown as they hit the floor but before the shape and form of the object was completely lost.

His limited edition prints have been exhibited in Berlin and New York, and published by international media. To learn more see his website:

www.martin-klimas.de

- DK



GOING TO EXTREMES FOR RECORD BREAKERS

If you could have visited the typical British camera club before Richard Bradbury was born, you'd have encountered an excruciatingly boring competition class called *Record Photography*. Misericords photographed on Rolleicords, architraves on Agiflex and the occasional stained glass window perfectly captured in black and white lent this technical challenge a distinctly churchy flavour.

Fast forward half a century, and the unstoppable Mr Bradbury has given a welcome new meaning to 'record' as a genre – he's created a personal style to capture the best of the title holders for the *Guinness World Records* annual book.

It all began a few years ago. "I was called by Craig Glenday, the annual's editor, who had seen my portfolio book, calendars and published work. He said the book had no trouble getting lots of snaps and plenty of press and PR shots, but was missing the wow factor for big double page spreads.

"They wanted DPS images which could also work for promotions and advertising – every shot had to be spectacular. The first brief Craig came up with was the world's longest crocodile. The idea was to photograph it in Regent Street. Needless to say that's one which didn't happen!"

Soon after, the book's current picture editor Michael Whitty joined the editorial team. Coming from *The Independent*, he had no shortage of photographic contacts, but Richard retained the work after Michael had a look at his portfolio. The first assignment they tackled involved a two-week trip to the USA which included many subjects like the giant bigfoot SUV shown on this page, which was the world's largest

How Richard Bradbury shoots set-pieces against the odds for Guinness World Records annual



Top: high speed flash picks out a flying pizza base from world pizza flinging champion Tony Gemignani Above: from Richard's first US trip, the world's biggest monster pickup truck. Showing normal or miniature counterparts in the shot has become a regular approach to making the point visually – but nothing is falsified. For details of the Guinness World Records Annual 2014, see: www.guinnessworldrecords.com

monster pickup. The locations and the personalities involved were new to the picture editor and photographer alike.

"For me, it was the most challenging and rewarding job ever", Richard told us. "We did not know where we were going, what we were going to find and what we were going to do with it when we got there.

"We usually turned up the day before, but sometimes it had to be on the day itself. We didn't have plans or layouts to

work to, though of course we had ideas. We can turn up at the most grotty location and have to make the result look amazing."

He's even had a go at breaking a record. Until recently, with children Millie and Marley and his assistant Kris Growcott, he held the record for the tallest stack of poppads in the world – "it was pretty damned impressive at 1 metre 42 centimetres", he says.

Creating the light

Flash is a very important tool for Bradbury, and he's no amateur battery-powered 'strobist' either.

When travelling abroad, he has to hire flash in, and often specifies the Swedish Profoto system. This has very reliable 'Air' wireless remote triggering and adjustment, good battery pack options for location use, and bullet-proof reliability. It's prohibitively expensive to buy, but the top worldwide rental brand. At home in the UK, he uses the Elinchrom system, a Swiss brand under British ownership which combines most of the professional features needed with a reasonable cost. His location kit is normally two Ranger RX 1200Ws power packs (studio pack size and output, but able to run from many power sources including large rechargeable cells). He has four flash heads, and additional 3.5m extension cables.

A typical *Records* image will use Richard's signature lighting. He puts the main and most powerful direct lights behind the subject, if he's not working in daylight and able to find the dramatic backlighting he prefers. These would typically be two reflector heads covered in a diffusing scrim. Near the camera, he places a softbox head to act as a large soft fill-in light for the shadows which now face the camera. Again, he'll use the studio flash outdoors as fill. He does not rely on camera speedlight systems and many of the *Records* subjects are just too big for smaller flash.

The camera is normally a Canon EOS 5D MkIII used with the 16-35mm f2.8 EF II USM lens, or for subjects where a safer camera distance is needed, the 24-70mm f2.8.

The gear's weather-proofing gets plenty of testing as for



The late Great Dane Gibson, in his day the world's largest dog, encounters Chihuahua Boo Boo who was the world's smallest, on the 'white house' lawn outside the California State Capitol in Sacramento. For advertising the 2014 book, this image was retouched to show leaf-free grass, remove the left-hand trees and soften the Capitol... but true to promise, Gibson and Boo Boo remain as the lens saw them. Below, the world's largest (playable) drum kit, operated by Austrian student band Big Boom. It requires fork lift trucks to lift it into place. "The hills are alive with the sound of..." – anyone got a pair of ear defenders?





Each year a maiden and a prince are elected by the town of Furth-im-Wald, culminating in a traditional dragonslaying play at the Bavarian town's 500-year-old theatre. The dragon is new, and the world's largest quadrupedal robot (see the main story).

Take a look at: www.bavaria.by/drachenstich-festspiele-in-furth-im-wald-bavaria-germany

Below: for the world's largest motorcycle to qualify, its custom-bike engineer maker Fabio Reggiani of Modena had to prove it could be ridden for 100 metres under its own power. It's 5m long, weighs 14 tonnes, and has Porsche brakes to end that 100m dash.



some reason he likes getting cold and wet, especially in Britain rather than warm places like California. The flash ends up getting a harder time than it's built for, as the two pictures on the facing page show.

"For the bog-snorkeling shot, we visited the bog at Llanwrtyd Wells in Wales, where these annual championships are held. I photographed events including the Bog-Snorkeling Triathlon which includes riding a weighted bicycle, running and swimming...

"It was a living Hell! I wore a pair of waders, which naturally started to leak, and all our equipment had to be hand-held. No tripods or light stands. The flash units kept going off on their own in the heavy rain, though we got assistants to hold umbrellas over them. Then they would not trigger reliably using the wireless system. In the end, I remembered that these RX flash packs can identify the pre-flashes from a camera's built-in flash and use their optical cells. So I programmed them to work with the Canon flash, and I was able to get the shot with the backlighting and camera fill."

The rain shown in the picture is real enough, but to get it looking right additional shots of the rain without the snorkeler had to be taken so the flash light could pick up all the droplets. Using *Photoshop* layers, Richard composed the properly lit rain into the shot.

"It's important for the *Guinness World Records* book that I do not manipulate or change anything", he told us. "The subject is always shown as the camera saw it. I may use my wide-angle lens and close perspective, or an unusual viewpoint, but I do not alter or move any part of the subject in the final shot.

"I use lighting and I will manipulate the contrast, colour or hue of the picture – and I may use multiple exposures or retouching to complete a set-up."

A good example of this is the bottom picture on the facing page, of the youngest



Top: like many professionals, Richard will put himself in place of the subject or model and demonstrate the kind of pose wanted (here, for the Bog-Snorkeling Triathlon running). Above: with Canon and Elinchrom Skyport trigger, before the rains came and the waders sprang a leak. Left: taking an additional portrait of the record-breaker, Natalie Bent.

trans-Atlantic rower, Olly Hicks (aged 22). "One of the challenges of these shots is that we do not have big budgets", Richard explained.

"Our first thought was – can we do this shot actually at sea? When we arrived at the beach in Cornwall where the Virgin-sponsored boat was stored, we realised it would be impossible to get the effect I wanted in the ocean. We had to get council permission to use the beach,

cordoned off for safety, and get the boat out of its boathouse on to a trailer, which we positioned on the beach near the sea. Two assistants had to chuck buckets of sea water at Olly to create the splashes, and I needed to shoot plenty of splash shots to get the best ones layered into the finished shot. I also couldn't get the sea horizon into the shot at the same time as the best angle on Olly and the boat, so a shot

was taken of the water and dropped in.

"This kind of shot is more of a portrait of the individual than a record shot of a record breaker so I have more freedom."

Richard Bradbury's Guinness World Records set-pieces have taken him all round the world. One of his most memorable subject was the fire-breathing, walking, roaring robot dragon which now stars in the annual Drachenstich (Dragonslaying) festival of Furth-im-Wald. This Bavarian tourist hotspot boasts the oldest folk theatre in Germany, dating to 1590, but the newest star for its mediaeval dragon tale is 21st century. The robotic creation known as 'Fanny' was sponsored with Euro-lottery funds matched against Zollner Elektronik AG sponsorship and production. This is a relatively straightforward shot for Bradbury, but involved rousing the dragon from its show cave where it snores wakefully and frightens visitors. That's a four-man team effort using remote controls and a transport chassis!

In Austria, Richard encountered student band 'Big Boom' and the world's largest drum kit. For the shot, he wanted to entire kit moved to the other side of a fence, to use the wonderful mountain scenery unimpeded. That involved two fork lifts as those drums are made of steel.

A favourite worldwide, the biggest and smallest dogs were photographed in Sacramento CA. Gibson, the towering Great Dane, is no longer with us (as the world's press recorded). "Boo Boo, then the world's smallest Chihuahua, nearly ended up under Gibson's paw once", said Richard. "His feet were bigger than she was. I was working with Kris, my six-foot-four assistant for the shoot. Gibson could put his feet on Kris's shoulders and stand a foot and half taller."

– DK



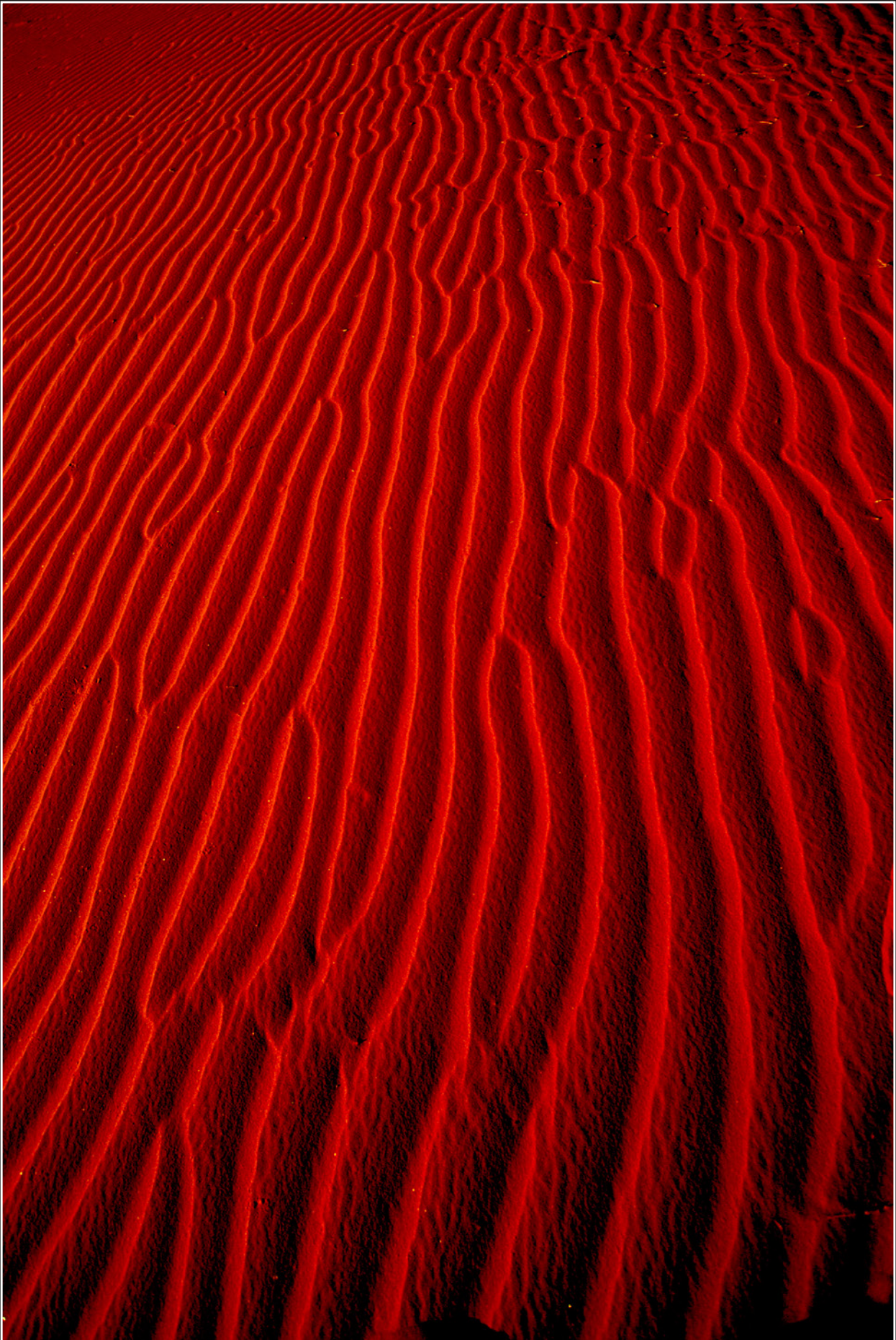
Further records await for the 2015 book! To see more of Richard's work visit: www.rbradbury.com



Bog-snorkeling champion Natalie Bent in the mire at Llanwrtyd Wells. If you have doubts about how flash and water mix, you are right – getting this shot involved overcoming flash failures and leaking waders. Below, on a Cornish beach, the Flying Carrot as rowed across the Atlantic by 22-year-old Olly Hicks. The sea horizon has been made visible using a second shot, and the water spray was created with buckets of seawater by two assistants. Several splash exposures were layered to create the final shot. All photographs © Richard Bradbury for Guinness World Records.



FROM THE FRIEDMAN ARCHIVES



From the worst trip I ever took, a shot which used no filters. The composition is pure texture, and while the Namibian sand was indeed a shade of red, it didn't look this intense. Not being able to Photoshop slides, I was able to enhance the color using a combination of techniques: shooting at sunrise, underexposing slightly, and using Fujifilm Velvia slide film (which was known for its vibrant colors). More about what made this my worst trip (and the life lessons that came from it) can be found on The Friedman Archives blog: <http://bit.ly/1fwglUg>

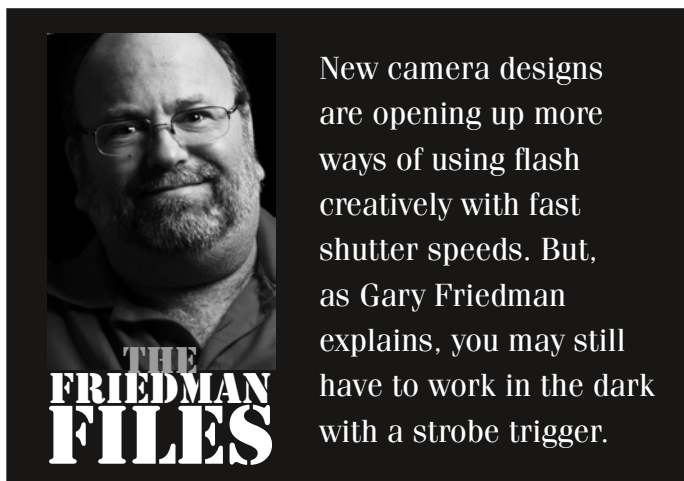
KITCHEN SYNC

In this issue you're seeing great examples of images frozen in time which, to be visually stunning, require some technical finesse to create. At the heart of the issue is "How can you freeze something moving so fast?". Your first thought is probably something like "I have a DSLR whose top shutter speed is 1/8,000th of a second!" – indeed impressive and may be fast enough. Your second thought might be "A flash burst is much faster than my camera's fastest shutter speed. That might be the way to go!" – you'd be getting warm. It turns out that not all flashes are created equal. To take the Yellow Robin photo, photographers Craig Roy and Geoff Morgan had to find the fastest speedlights that were up to the task and within their budget. They measured the flash duration of some speedlights on a lab bench. Here's the result from just one flash: *Metz 58AF-2 firmware v3.0*

Power	Microseconds	Duration
1/1	7000	1/143
1/2	1500	1/667
1/4	700	1/1429
1/8	360	1/2778
1/16	250	1/4000
1/32	180	1/5556
1/64	90	1/11,111
1/128	40	1/25,000
1/256	20	1/50,000



This is a rough approximation of what a real flash's output looks like. It's not a perfect pulse; it tends to start strong and then taper off "gradually" (a relative term). The shape of the pulse can have an effect on its motion stopping abilities too.



New camera designs are opening up more ways of using flash creatively with fast shutter speeds. But, as Gary Friedman explains, you may still have to work in the dark with a strobe trigger.

So the shortest duration that the Metz flash could go was 1/50,000th of a second using its lowest power setting – pretty gosh darned fast. How does it compare to other, more popular speedlights? The pair tried two other flashes:



Not all flashes can freeze things in motion. This Australian Eastern Yellow Robin in Flight required a flash pulse duration of 1/50,000th of a second. Image courtesy Craig Roy and Geoff Morgan – see more of their work at www.wildlife-horizons.com.au

Sony F60 Flash: 1/20,000th of a second at lowest power.
Sony F43AM flash: 1/33,333rd of a second at lowest power.

These differences might seem trivial to you – fast is fast! However for purposes of stopping the action, it can make a difference between frozen and blurred motion.

Which shutter speed?

One often misunderstood aspect of modern cameras is the subtle interrelation between shutter speed and flash. If it is your goal to freeze motion, why can't you use your flash at your camera's highest shutter speed?

To explain the answer, consider how a typical shutter works: When you take a flash picture; the first shutter curtain opens all the way, the flash goes off, then a 2nd shutter curtain comes down, blocking all light and ending the exposure.

Now here's the part that most people don't know: When your camera is set to use anything faster than the recommended flash sync speed, the second shutter curtain starts to close before the first has finished moving out of the way.

What you get is a "traveling slit" from top to bottom which does illuminate the sensor evenly, but wreaks havoc with flash because if the flash were to go off at anytime during this exposure, all that would be recorded is a horizontal stripe corresponding to where the traveling slit was at the time the flash went off.

This is why it's important to pay attention to your camera's Flash Sync speed – it is the fastest shutter speed your camera can muster without needing to resort to the 'traveling slit' method. Usually this flash sync speed is rigidly enforced – the camera may not let you choose a shutter speed faster than the flash sync speed when your flash is turned on. Some cameras allow a bit of leeway. Olympus OM-D E-M1 owners report that 1/400th and even 1/500th can be used instead of the official 1/320th fastest sync speed.



The synchro-sun capability of the Sony RX100 MkII – f9 at 1/1,000th with fill in flash.

Now that you've understood that, have a look at the picture of the boy on the all-terrain vehicle. It's shooting into the sun AND the boy is being illuminated by a flash. Is this an easy shot to take? No! Most DSLRs can't do it, and it doesn't take too much explaining to understand why. Let's say you're a camera, and your user has pointed you at the sun. You want to try your very best to make sure the sky doesn't blow out, and so you set your variables to something that lets in very little light: perhaps 1/2,000th of a second, f16, ISO 100. Oh, wait – the user wants to use flash too (otherwise the boy will be silhouetted). Well, I can't do that because my fastest flash sync speed is 1/200th of a second. So if I used a flash the boy would come out great but the sky would be overexposed. Or the sky would be OK but the boy would have motion blur (even at 1/200th of a second).

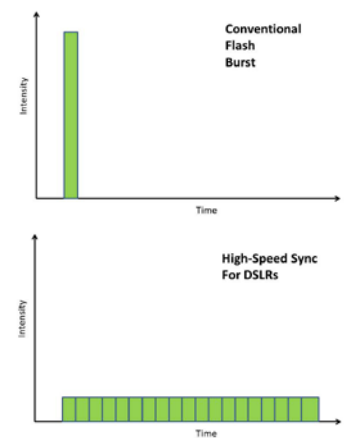


This is an example of the "traveling slit" which all focal plane shutters use in order to attain their highest shutter speeds. If the flash were to go off right now all you'd see is a small, thin horizontal stripe toward the bottom of the frame. This is why you can't shoot with flash at the highest speeds – the fastest speed you can use is your camera's flash sync speed which ensures that the shutter is all the way open when the flash goes off. [Image: Wikipedia, Wikimedia Commons]

Leaf shutters to the rescue! Unlike your DSLR's focal plane shutter (which sits directly in front of the sensor), the leaf shutter is built right into the

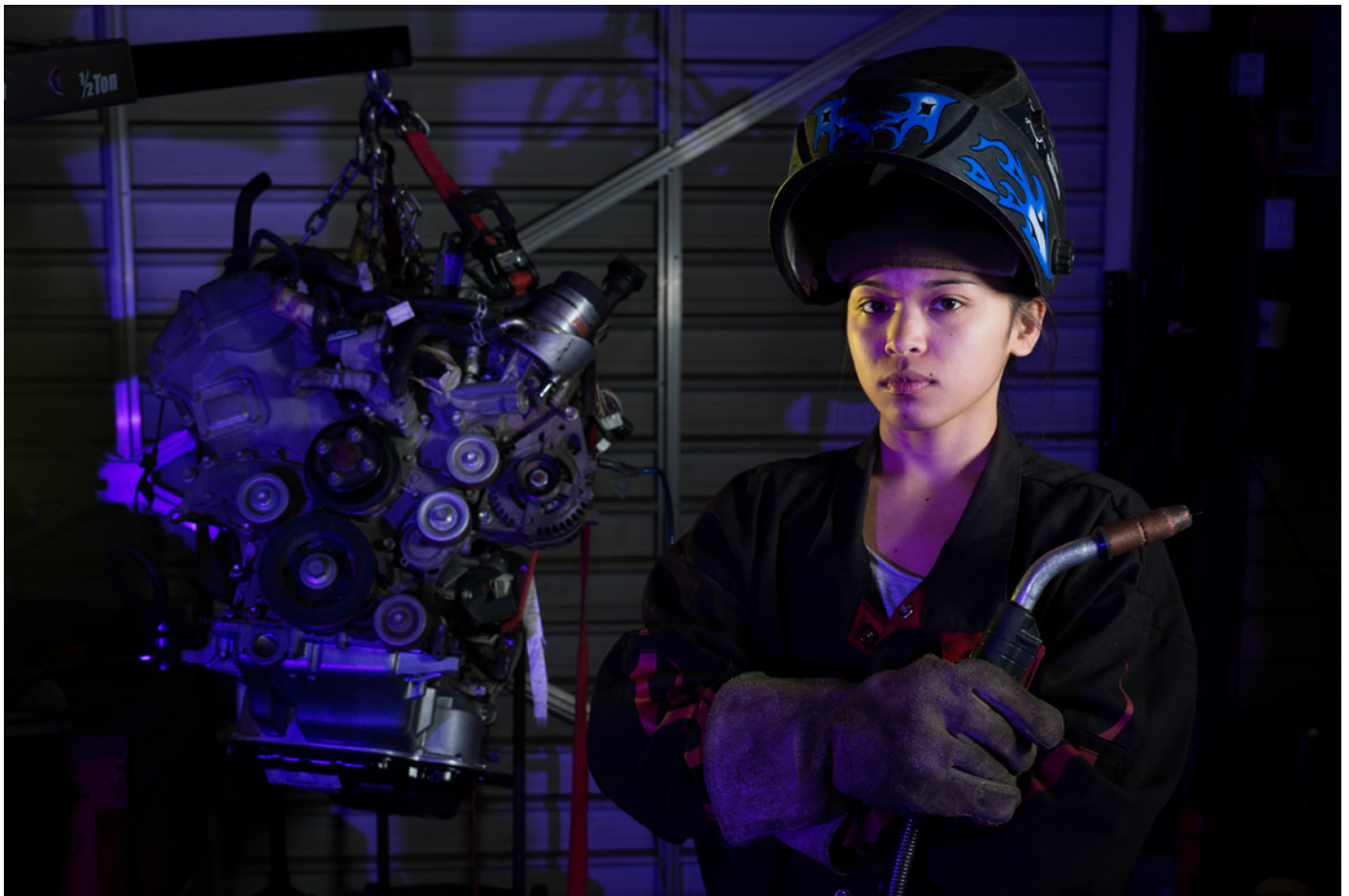
lens and can open and close much faster, allowing flash sync with no restrictions. (They're also insanely quiet, another fringe benefit.) The Sony RX1 can sync at 1/4,000th of a second; my wonderful RX-100 Mark II and Fujifilm X100s can both sync at 1/2,000th. These new leaf or electronic shutter designs have magical powers when it comes to using fill flash in extremely bright light.

Since you can't use your DSLR's fastest shutter speed for flash pictures like stopping bullets or freezing hummingbird wings, it is common practice to have the subject in a dark environment, leave the shutter open on "B", and then have the electronic flash triggered by a sound or motion sensor. The new leaf or purely electronic shutter cameras do have some delay, so despite their great flash versatility, using B or T open shutter at night or in a dark studio with triggered flash will remain the only way to get certain types of shot.



Some DSLR manufacturers offer a feature called High Speed Sync (HSS) or a similar name, which allows you to shoot as fast as your shutter speed will allow. But there's a tradeoff! Have a look at the two graphs above.

Normally, a flash discharges all of its energy in one single burst (top). With HSS, the energy is spread over a long, ultra high frequency multi-flash burst – level enough for the traveling slit to see it as continuous light. The tradeoff? The light intensity is much lower, so your subject must be much closer or instead of f9 you need f1.4 – back to square one. It's good for portrait and wedding fill-in lighting.



Light is right

A lot of people think that buying a more expensive camera or a more expensive lens is the way to improve their photography, but I'd say that approach is misguided. The real thing that sets great pictures apart from average ones is great light. The more dramatic your light, the more people will say "Wow!" to your images.

Case in point: The image above (*Wendy the Welder*) was created as a stock shot to illustrate women in the workforce. I used three wireless flashes with three light modifiers.

The first flash (near the camera) had a purple filter over it, and was placed on the floor to illuminate the entire background.

The second flash (left hand side, near the background) had a yellow filter over it with a grid to narrow the coverage, and it was pointed to the left of the model's face.

The third flash had no filter and was placed in a Lumodi beauty dish (these are designed to work with



The lighting diagram shows studio flash heads, but this set-up was actually created using wireless camera-top strobes of the normal type and power used by most amateur enthusiasts.



battery power camera top speedlights). See the behind-the-scenes photo, bottom, and the lighting diagram for a better idea of how this shot was created.

This example is part of a new **e-book** I just published called *Ways to Wow! with Wireless Flash*.

While there may be a lot of other books on flash out there, this one takes a decidedly different approach: Realizing that one doesn't need to know how a car works in order to drive it, you also don't need to learn all the technical stuff before you begin to play with it.

So this is designed to be a fun and non-intimidating way for newcomers to play with wireless flash (regardless of camera brand), and subscribers receiving this *Cameracraft* issue can get a copy for free! However, this is a limited offer and will expire on March 31st 2014.

The download link is here: <http://bit.ly/1dQ5YsG> and if you visit it after expiry, you will find details of other e-book offers open to readers.

- GF



TRIGGERED RESPONSES

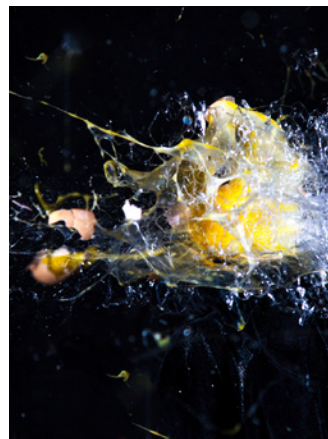
The very essence of photography lies in capturing the moment. Yet the moment varies from hours, to minutes, to seconds. Taking those longer exposures presents certain challenges, but it's the capture of the most fleeting moments that has inspired the imagination and driven a lot of technical photography. Even now, the fastest shutter speeds and frame rates, rather than the longest exposures, are the badge of high specification. Freezing motion faster than the eye can see it is one of the most accessible and rewarding explorations into an invisible world.

Finding the moment

There's a technique in video games, particularly the boxing style two-player types, which is colloquially referred to as "cheesing it". Fundamentally, it consists of frantically mashing all the available buttons in the hope that you either stumble upon the predefined "combo" moves, accessed through a sequence of presses, or simply fire off enough strikes to defeat your opponent. In photography, the equivalent these days would be finding a subject, pointing a long-lens, high ISO, fast DSLR combo at it then holding the shutter. If you have executed the trick correctly, you'll find the shots you wanted in the several thousand frames on the card...

It was not always thus. Whether working at high shutter speeds or not, photographers needed to anticipate the moment, if they were to capture with the limited resources available. Press and sports photographers had to time their execution perfectly, even when motor-drive bursts became possible, and even more so when digital arrived

Richard Kilpatrick looks at technology for freezing the moment – from high speed frame bursts to split-second timing



Cameracraft reader John Credland DPAGB is a member of Buckingham Camera Club (UK). Clubbing together to buy a TriggerSmart system they have set up many experiments such as crossbow bolts fired through fruit and veg, light bulbs bursting out of water - and smashing eggs with airgun pellets.

and removed the option of a 250-exposure back. Triggering the capture process, removing the need to fire a lengthy burst, provides one solution which digital capture has made simpler. The limits of film stock have been overcome by low noise, high ISO, pin-sharp capture at increasingly high resolutions.

The 24 frames per second of movie film, with a rotating mechanical shutter of 180° (1/48th) duration, is an anachronism which was forced on the industry by almost 19th-century limitations and

compromises. It's one that works for movies, optically aliasing the moving image, blurring the motion, fooling the eye.

The 50/60fps friendly for HDTV playback can look erratic or jerky especially if combined with fast shutter speeds. HD video capture does have a role to play in capturing high-speed motion. Freeze-frame stills are now a useful resolution with 4K video at 4096 x 2160 increasingly available in a variety of high-end camcorders and DSLRs such as Canon's 1D-C, though

they rarely break with 24fps and many drop to 12-15fps when in 4K mode. Red's Scarlet/Dragon system, which does run to five figures and is a highly modular professional camera, can capture 4K video at 75fps and 5K stills at the same time when upgraded to the Dragon sensor.

Dedicated high speed systems, like the Phantom, make light work of scientific and special effects capture – at a price. The latest Phantom V2010 captures at an incredible 22,000 frames per second at full resolution, in monochrome at 64,000 ISO with a 500 nanosecond exposure. The 1280 x 800 sensor has 28µm size pixels – a typical DSLR or medium format body has 6µm sensors. For higher resolutions, the Phantom 4K Flex can deliver 4K at 1000fps, with other models and lower resolutions hitting six-figure frame rates in resolutions closer to VHS/DVD quality, still relevant today for TV production.

Expensive, dedicated cameras like this are thoroughly justifiable in cinema and science, but really not an option for the typical photographer.

Fast shutter speeds

If you want to freeze action, the simplest route is to have a sensitive enough film or sensor to ensure minimal exposure is required. Just as 2014's photographers still pore over megapixels and frames per second, the great divider during the consumer boom of amateur photography was the speed and accuracy of your shutter. Pocket cameras, the low cost bread and butter of Halinas, Ilfords and Kodaks, rarely broke 1/200s and it was an impressive camera indeed that broke the 1/500s barrier. Low-cost SLRs offered

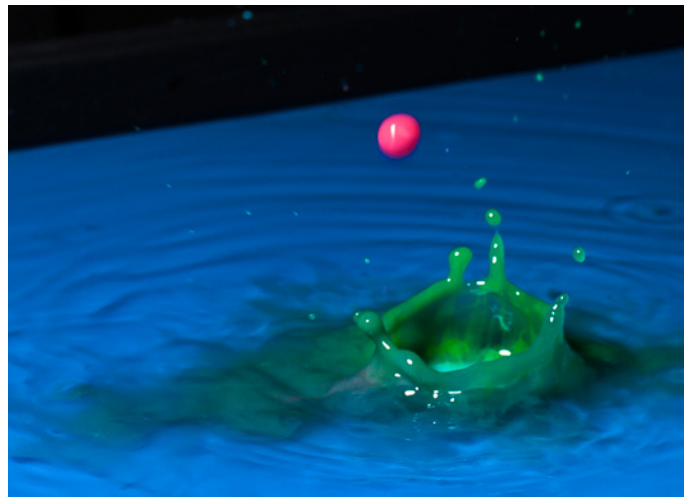
similarly restrictive speeds until the 1970s, as Copal's metal blade focal-plane shutter fuelled a revolution in design and a top speed of 1/1000s became entry level. Most professional bodies, film or digital, since the 1980s have offered a maximum shutter speed of 1/8000s, with consumer bodies offering lower speeds.

The very fastest mechanical shutters once offered 1/16,000s at a price (Minolta's Dynax 9xi with 1/12,000s was the fastest ever made for the consumer market). Now the new Micro Four-Thirds Panasonic GM1 and several cameras have 1/16,000s at lower cost/greater reliability. Electronic shutters give the added benefit of higher frame rates as the mechanical parts do not need to reset.

The electronic shutter as a concept is fairly easy to understand. The limitations of technology tend to need reductions in resolution for the fastest captures and frame rates, with 1/40,000s on Casio's fastest Exilim models. Their current 16.1Mp Exilim EX-ZR range with Exilim HS processor offers 30fps still photography and 1000fps motion (at 224 x 64 resolution) deploying a 1/25,000s electronic shutter in high-speed modes.

As in many consumer products this power is not accessible to the photographer. Instead it allows cameras to offer things like high-speed HDR, best-image selection and the 'pre-capture' that is popular in consumer compacts to negate the delays inherent with live-view style shooting. Nikon's 1 family uses the electronic shutter to great effect, capturing up to 40 frames at 60 frames per second in raw.

Sony and Canon offer a sound reducing shutter hybrid mode (First Curtain Electronic, or Quiet Mode), where the conventional shutter remains open during live view and the initial 'exposure' is created by clearing (and thus, re-exposing) the sensor fractionally ahead of the second curtain's closure.



Experiments with flash units using cornflour, food dye and water and a turkey baster to deliver drops – the lower 'RGB' example shows a flash duration with a long tail slightly blurring the drop. The top example shows 1/6000s achieved using Elinchrom Quadra Ranger RX flash. Many camera shutters can achieve the same. (RK).

Working with light

Regardless of your camera, light is the most important element in photography. Using it to freeze action is as obvious as the shape-throwing fashion for Vogueing in nightclub strobes, yet it is often one of the last considerations when thinking about the capture process, after a fast lens, a fast shutter and a fast frame rate have all been obtained. Yet it can compensate for all of those things, in various ways.

Speedlights and on-camera strobes often have low power paired with exceptionally fast

durations. Moving up to studio flash, specialised technology is needed to secure the fastest duration and the most power, and some lights will get the duration at full power, some will get it at minimum – there's no one rule.

When considering flash for action photography, you want to look at the $T=0.5$ and $T=0.1$ value, respectively referring to the flash duration which accounts for 50% of total output, and that for 90% output. The latter is most relevant, as the long tail as the flash fades out can give a soft edge, a blurring to the image

that defeats the purpose.

Some manufacturers are using electronics to cut the flash duration by effectively 'slicing off' the dimmer tail of the illumination, which also allows some control over colour temperature. At present this is generally found in higher-end systems such as Broncolor's Scorio. Profoto's high-speed models quote a $T=0.5$ value of 1/25,000s, which makes for good headlines but ends up closer to 1/12,000s including the 'tail'. More reasonably priced systems are Elinchrom's compact Quadra, which has a 1/6000s $T=0.5$, and the Einstein from Paul C. Buff which uses special circuitry to deliver a 1/13,000s $T=0.1$ duration at the cost of absolute colour consistency. Fastest duration is at lowest power on many modern systems - older systems often offer the fastest duration at full power.

Compact units like the MicroFlash Pro offer 1/28,000s duration with 150Ws output, or 1/111,000s with 27Ws in the MicroFlash Ultra. These specialised units cost £2,000-3000 (\$3,000-\$4,500), and are designed to withstand water, muck and general abuse.

More complex systems like the Scorio can allow advanced techniques. It provides powerful bursts at 10 frames per second on a 3200Ws pack, or at 50 frames per second at minimum power – further adding the ability to run multiple packs in alternating modes to increase that speed.

Ultimately, aiming and hoping that flash and frames per second will provide the image falls into the trap of "lower sensitivity, lower resolution, and less available light". The headline-grabbing 1,200fps of models like the Nikon 1 – for capturing stunning slow-motion video – assumes you've already planned to have a substantial amount of light to work with what by definition is going to be a 1/1200s exposure at the very best. If all you want is a single frame, some planning can get that image without resorting to the scattergun approach.



In 1941, fashion photographer Philippe Halsman first met surrealist artist Salvador Dalí in New York. They began to collaborate after WWII and the most famous outcome – *Dali Atomicus*, 1948 – includes: three cats and water thrown by assistant; a chair held by another assistant; carefully suspended easel, painting and steps; and Dalí jumping. It was all timed by trial and error. The mistreated painting is Dalí's *Leda Atomica*. Halsman apparently needed 28 exposures using the newly introduced electronic flash to get the final composition, featured in *LIFE* magazine. This unretouched version shows wires suspending the easel and painting, a support under the footstool and no canvas on the easel. Retouching is certainly not a novelty of the Photoshop age; this image combined technology and art. Photo: US Library of Congress.

Triggering flash

Triggering is not as complex a concept as it may first appear. Various solutions exist on the market, from dedicated systems that react to beam breaking, to complex third-party multi-purpose set-ups like the remarkable TriggerTrap. What you choose to trigger – flash, or shutter – depends on your subject and environment as well as your camera capabilities.

Most systems work on a variety of sensors – for movement, sound or 'broken beam'. Movement sensors are usually pressure, tilt or Passive Infrared (PIR), using the same technology as typical home

alarm systems, with more sophisticated variations being provided by video capture. Sound is self explanatory, usually with a controllable threshold of sensitivity, and broken beams can be provided with normal light, infrared light, or lasers.

The accuracy and reaction time of laser makes it one of the most sensitive triggers available. There are many ways of triggering a specific shot. At night with a vague idea of where wildlife might be feeding or nesting, a PIR sensor is a quick, easy setup. If you're capturing something at speed, pre-focused on a specific spot, a crossed beam laser setup guarantees firing only if the

object is in the frame *and* in the plane of focus. For the technical and methodical, part of the enjoyment of remote triggering and going for this style of shot is finding the right solution.

For a dedicated system, the SabreSwitch **TriggerSmart** is an affordable and versatile setup. For around £240/\$400 as a starter kit, the battery or AC-adaptor powered box accepts a variety of inputs, can pre-focus the camera, trigger once or in bursts, and offers a controllable delay (the fastest reaction is 1ms, 1/1000s) upwards. The shutter time can be adjusted from 5ms (1/200s) to 5s allowing bursts or timed exposure depending on your

camera or flash capabilities.

For the party popper shot, it was necessary to use sound triggering. As sound travels with a delay even humans can detect, the location of the trigger is of vital importance - too close to the source of the sound and even with a 5ms delay you may end up with a premature capture. The paper travelled so quickly I found even a camera firing at 10 frames per second would get one frame with insufficient material, and then a second where it had passed. If you've spent a long time preparing, there's nothing as frustrating as seeing the subject vanishing from the frame – so test your setup and adjust it.



Relying on the camera to do all the work – even with a Phase One’s remarkable 1/1600s flash synch and the fast duration of Profoto’s Air system which I used for this set-up – the delay in shutter response was such that a high-speed subject was lost before the camera fired.

The solution was to run a long exposure on the camera in the dark, and use the TriggerSmart to fire the flash. A wireless trigger was used, introducing another small delay but bringing the exposure into the right time frame. The explosion from the party popper was used as the signal, and with a small delay programmed in it was possible to capture the streamers in frame repeatedly and reliably, giving a choice of random arrangements, rather than picking through wasted images to find a single successful one.

The TriggerSmart system includes an invisible infrared beam sensor (which can be made very precise by placing restrictors on the receiver), tilt detection, light and sound. It can be expanded with pressure plates for wildlife photography. It’s all waterproof, as well. Working with the beam sensor, the reaction times are extremely quick, as can be seen with the space shuttle shot. This was purely a test, to see if it would be possible to make it look like something else had popped out of the party popper, and it proved



The TriggerSmart kit. This was used for the tests above. The party portrait combines two popper exposures (to get more contents) as does the lower ‘space shuttle launch’. (RK)

successful if a little ill-conceived. It’s a double exposure – the thrown shuttle’s image was captured first with one flash unit and beam sensor, and then a second flash was sound-triggered by the party popper’s explosion, all in the space of a two second shutter opening.

Other solutions exist similar to TriggerSmart, but cost a little more. The **ZigView R** attaches to DSLR optical finders, and detects motion through a video camera looking at the finder image. *TriggerTrap Mobile* is an app for iOS or Android devices,



The Seculine ZigView R detects movement on its viewfinder video camera and fires the camera via a dedicated remote cable.

and at around £25 takes full advantage of the capabilities of a smartphone or tablet (though it requires a connection dongle). It offers motion sensing (like the ZigView but using the live view WiFi feed from the camera), GPS-based distance interval shooting, complex pre-programmed intervals, sound (with a much slower reaction than analogue triggers, due to digital sound processing) and some interesting functions like star trail photography.

A range of adaptors and cables enables triggering of flash and control of many different cameras, working in the same way as a manufacturer’s cable release with focus and trigger buttons in the app.

With a smartphone and *TriggerTrap*, it becomes straightforward to record movies and time-lapse work with little post-production. The WiFi interface allows multiple cameras to be

triggered, and costs under £20 per module; if you want to work with the interface and dedicated solutions, for under £100 *TriggerTrap* have also released *Arduino* shield project hardware.

The main reason to watch what they’ve been up to, however, is the *TriggerTrap Ada*. This modular setup went through Kickstarter (as did the original *TriggerTrap*) in November and will be launched in May 2014 if everything goes to plan, delivering a very robust and versatile system including a laser trigger that has an insanely fast response time. The new “RedSnap” system of splashproof interlinked modules makes setting up multiple triggers for outdoor captures extremely easy, and the controller itself is extremely well designed, handling three devices (camera or flash) and interfacing with *TriggerTrap Mobile* as well.

Regardless of the hardware solution – whether you want to shoot bursts, pick and choose, or painstakingly set up a single opportunity and aim to capture it perfectly – the most important thing when trying to go for that perfect frozen moment is patience.

For the perfect gunshot, the classic water balloon, paint drops or the complex, built-up paint/liquid clothes that have become increasingly popular, planning is the most important resource.





CAMERACRAFT REARVIEW

Objects seen in this mirror may be closer than they look.
A curated gallery of selected or submitted images.
email cameracraft@iconpublications.com to submit.



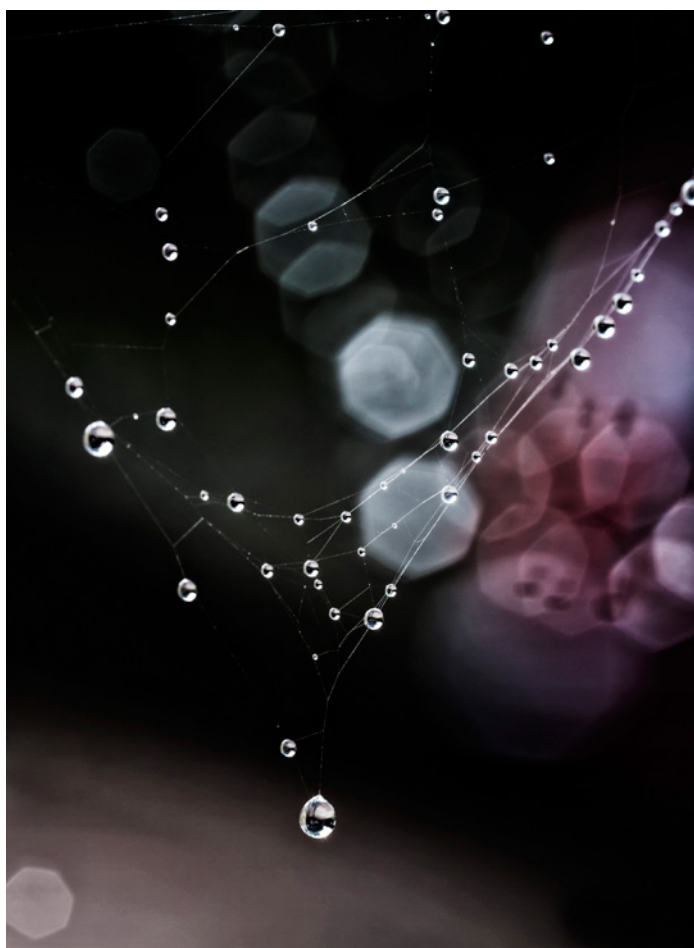
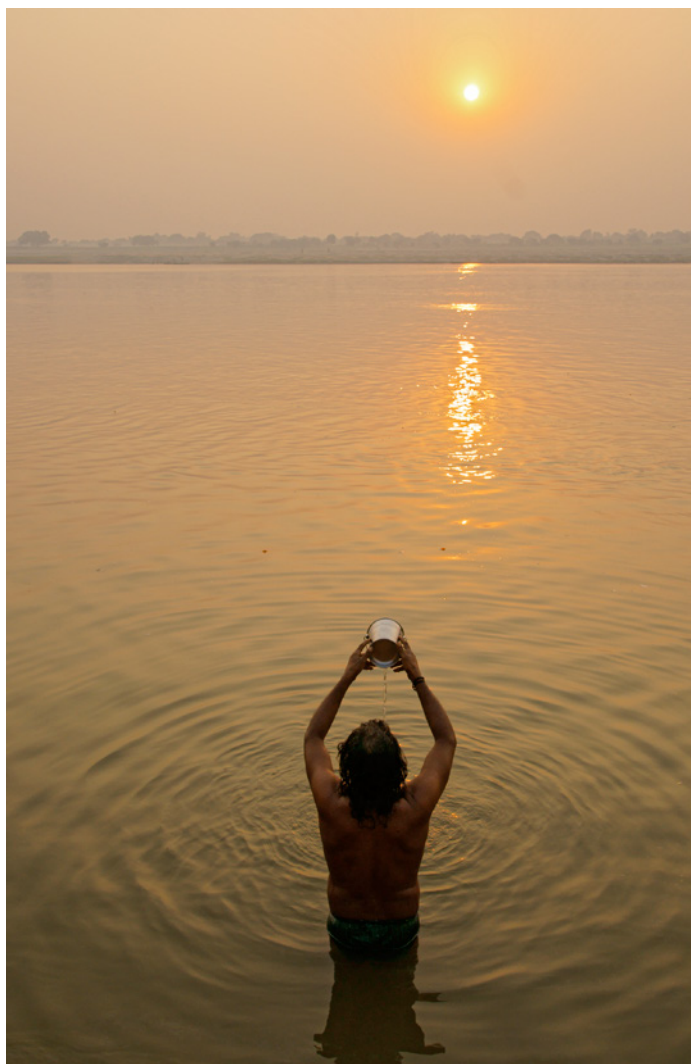
More images on the theme of water make up the inside pages of our Rearview Gallery in this issue.

Left, a great idea combining the flow of water with the flow of muslin drapes – very popular when thrown into the wind and floated out for wedding pictures. Sabah, Malaysia, photographer Roger Tan was awarded a Merit for this in the Master Photography Awards 2013/14. It's an inspiring example but can not have been very comfortable for the model! Canon 5D MkII, 17-40mm lens at 31mm, 1/3rd second at f22 and ISO 100. See: www.roger-tan.com.

Above, Wester Ross taken by Martin Paling, with a Canon EOS 5D Mk II and Canon TSE 24/3.5. "It was taken on a course with Paul Gallagher whom I suggested for one of your portfolios. Needless to say I was delighted to see that he appeared in Cameracraft No 2".

Top right, you have to hope this is washing not drinking – by Peter Karry, taken on an autumn photo expedition down the Ganges at Varanasi (with Colin Summers and Colin Westgate as leaders). Sony Alpha 700, 1/250th at f8, ISO 250, 18-70mm lens at 22mm.

Right, water drops on cobweb by Roy MacIntyre. Roy shoots fine art images sold as prints, mainly featuring his home area of Fife, Scotland. Canon EOS 7D, 60mm macro, 1/80th at f7.1, ISO 320. See: www.roymacintyreimages.co.uk





Above: Barbados sunset cricket game, by Ailsa Burn-Murdoch, Canon EOS 300D, kit lens at 40mm, ISO 400. Below: Master Photography Awards 2013/14 merit pass by Christopher Bradbury. Nikon D800, 70-300mm Nikon VR lens, 1/3200th at f5.6, 70mm. See: www.cbphoto.co.uk



CAMERACRAFT REARVIEW

The winning images from Travel Photographer of the Year 2013 will be exhibited at the Royal Geographical Society in London from July 11th to August 17th 2014. They will also go on tour internationally for the first time.

Here we have selected two images from the show which match one of the themes of this issue.

Right – Emanuel Coupe was the runner-up in the Monochrome Portfolio category, but this single image of Gullfoss in Iceland (compare with Nick Jenkins's view on page 235) took the award for Best Single Image in a Portfolio (Monochrome).

Below: there was a special award for "One Shot – Extraordinary", won by Justin Mott for his over and under water image of the elephant and swimmer.

Justin grew up in a small town in Rhode Island, and studied photojournalism at San Francisco State University. A year before he was set to graduate he took a trip to South East Asia, fell in love with the region and eventually settled in Vietnam.

You can learn more about the competition by visiting: www.tpoty.com



TWO IMAGES FROM THE TRAVEL PHOTOGRAPHER OF THE YEAR COMPETITION 2013





This superb view was not one of the winners in the Forth Bridge World Heritage competition which we feature on our Déjà View page, p238. It was one of the highly commended entries, and was taken by Bill Henderson of Edinburgh. However, it wins our award as a choice for this back cover!

The Forth Bridge is photographed hundreds of thousands of times each year, and is well known to your publishers. This view is totally different to most and shows a great eye for a potential foreground as well as impeccable timing. Bill took his Nikon D300S with 11-16mm f2.8 Tokina lens down to spot very few photographers would try to reach, when the sun was in exactly the right place. His careful and not overdone HDR processing has produced a powerful new view of a familiar icon.

CAMERACRAFT

REARVIEW

If you would like your work considered for our Rearview gallery, email a webpage link to editor@iconpublications.com or send no more than three email-friendly attached images. We will request a larger file if you're shortlisted.