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# CAMERACRAFT



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As this magazine rolled off the press, the Mayan calendar was renewing itself for another long cycle – an aeon, if you like. Renewal was mistaken for termination by some. If you are reading this, they were wrong. If no-one ever reads this, I was wrong.

We are in a new Mayan long cycle, the so-called Age of Aquarius, and over a decade into a new calendar millennium. So what's changed?

Human cognitive perception has developed beyond recognition in the last century. Art, photography and film-making have all played a big part. There are still cultures which avoid the camera but images are everywhere. Eastman's mission to sell everyone a camera eventually came true, even if the camera makes phone calls and sends text messages.

People all round the world can understand complex spatial and temporal representation; blur, stroboscopes, multiple angles or viewpoints, transparent montage. We are able to see and understand many elements simultaneously. Picasso does not look like chaos to a 21st century eye, Duchamp's 'Nude Descending a Staircase' is understood without explanation.

We are now so accustomed to the end result of photographic technique that we can visualise the world in our mind's eye much as we see it through Instagram. For many, a literal representation of reality is incomplete.

In this edition, we look at time in images and also at the phenomenon of retro and toy cameras. Both go with the awakening of visual consciousness in the general public. It's not restricted to photographers and art directors.

In this sense we truly are in a new aeon. Photography has changed the human mind, just as language and mathematics changed it at pivotal points in the past.

'I am a camera' has found its meaning.

– *David Kilpatrick*



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# Looking back for inspiration

We only tracked down an historic collector's copy of *Camera Craft* after deciding on the name for *Cameracraft*, aware that a similar title existed until 70 years ago. Gary Friedman obtained the valuable bound edition from August 1901 and sent it winging to Scotland.

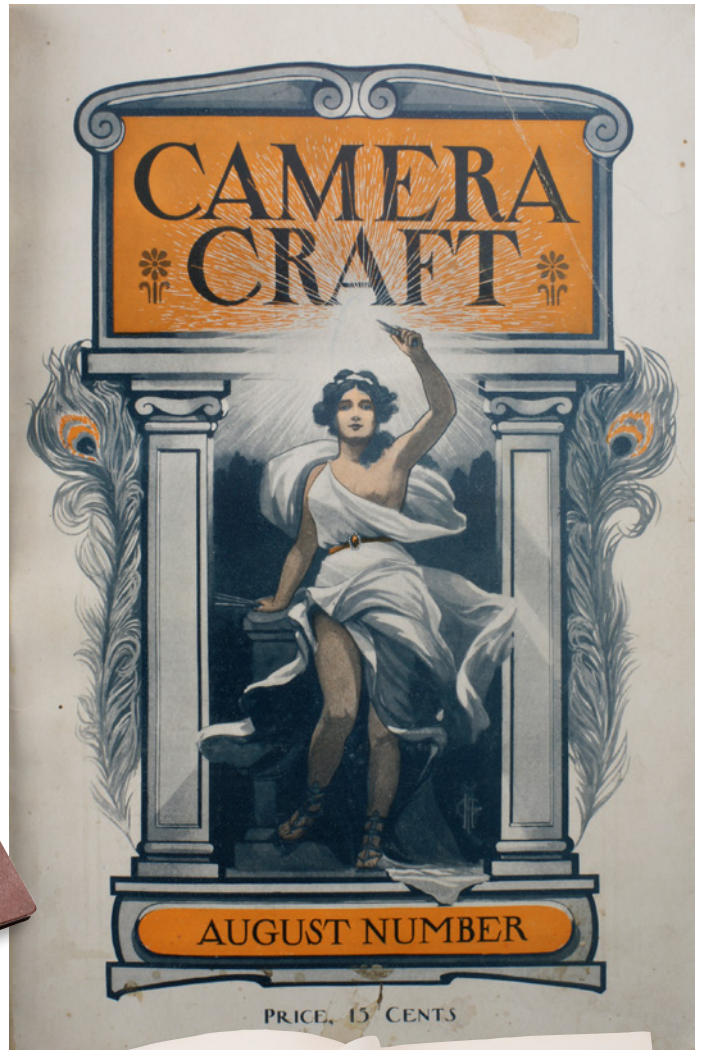
*Camera Craft* was launched in May 1900 by Camera Craft Publishing Co., 220 Sutter St, S.F. and published monthly. Apart from the wonderful advertising (below) and not very photographic cover (right) it was fascinating to realise that many of its ideals were the same as ours.

Good reproduction mattered, as the opening article with its tissue leaf protecting *Summer Breezes* by F. E. Monteverde shows. This is a single sepia halftone that under a linen glass shows truly fine control of the press.

Gary Friedman has scanned the entire issue to PDF format and you can download this from:

<http://tinyurl.com/d4lhfef>

Inside, Kendrick Perrie starts with four pages on using your brains, into which he puts many essential facts disguised as comment. There follows a piece on using ordinary rooms and household gear for darkroom work, and if I was still lighting my house with candles, it's advice I could pick up and use today! "There



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is no more need of a sink and running water than there is of a fire-plug and six-inch hose", writes Fayette J. Clute. From a London member of the Royal Photographic Society, the Rev. F. C. Lambert's *Table of Pinhole Exposures* appears. A commentary on 'foreign photographers' includes Craig Annan as 'English!' Other articles include *The Elements of Photographic Exposure*, a reappraisal of old-timer California Camera Club prints, *Toning Bromide Prints*, a travel piece *Summer*

at Shasta, one obituary tribute (not unlike our final two pages in this issue), a miscellany of world photo news, and a digest of critiqued excerpts from other publications. A page or two for amateurs, then for professionals, a page from Chicago, and *Business Notes* trade news end the Royal Octavo size editorial pages. As No 4 in Vol III, these start at 124 and end at 168 – exactly the same as 44 as we chose for our 21st Century *Cameracraft*. What goes round...

Photokina 2012 happened as our first edition was being read worldwide. Our second update is mainly about the equipment which appeared at the biennial show in Köln, some of which has only just started to go on sale at the beginning of 2013.

For our readers using Sony's Alpha system, there was almost too much news to take in. At the beginning of 2012, Sony's management decided to make substantial cuts in staffing and one of those who left was Paul Genge. For the first photokina in a decade, Paul was not present to greet UK visitors.

Sony also broke down the barriers between previously competing and almost secretive divisions. Cyber-Shot, HandyCam, Professional Video and Alpha (including NEX) swapped know-how and technologies to make the whole Sony digital imaging range better integrated.

The results could be seen in a full-format 24 megapixel pocketable Cyber-Shot RX1, a full-format NEX mount video camera, and a new replacement Multi Function Accessory Shoe replacing the HandyCam microphone and light shoe, the Sony DSC hotshoe, the NEX accessory slot and the 24-year-old Minolta Auto Lock flash shoe.

The new shoe, with the same dimensions and central main 'hot shoe' contact as a regular ISO flash shoe, features a densely packed gold plated terminal connector on its front edge, engaged when you push the accessory home. The connector doesn't just control flash, it also feeds stereo audio in and out, can run an external video monitor, and link to a GPS satellite positioning module we have not yet seen.

The shoe appears on the new full frame 24 megapixel Alpha 99, the EVF equipped NEX-6, the video VG-900E and VG-30E models, and the full frame compact DSC-RX1. The days when each division produced their own different accessories may be over. The downside is that although the new shoe comes with a

# CAMERACRAFT UPDATE



*The Sony RX1 costs nearly £3,000 (UK) and has a 35mm Carl Zeiss f/2.35 lens which can't be removed, imaging on a 24 megapixel full frame sensor. The new Sony Multi Function Accessory Shoe, above, features a standard central flash contact and a 21 pin gold-plated edge connector digital interface.*

bundled or optional adaptor for the 'old' Auto Lock flash, this is not an ideal fix. The new HVL-F60AM flash includes a 1200 lux (at 0.5m...) LED video light, and will control all the older models wirelessly. But the A99 is a like the old

Alpha 900, without built-in flash, and as we write no small pocketable standby like the HVL-F20AM has been announced. You can fit it via the adaptor but that removes its lie-flat folded convenience. Needless to say the new shoe

design has been greeted with mixed feelings by Minolta/Sony Alpha owners – and even by those who bought a NEX-7 just before the change. Owners switching from other systems will see it differently.

## Competing full framers

The biggest single change after photokina has been the switch of emphasis in the consumer market from APS-C to full frame by Nikon and Canon. Both have models which appeared in the final quarter of 2012 and rapidly fell to match the price of their highest end offerings with the smaller crop format sensors.

Nikon's D600 is 24 megapixels, light and small by comparison with the still available 2008 D2X. At one-third of the price, with far superior image quality and high ISO performance, it sold fast. Very soon, reports of oil spots appearing on the sensor began to circulate. This is true; we have a D600, and during its first week of use such spots gradually arrived. The D600 was used alongside our Alpha 99 which didn't get a single visible dust spot during the same week of travel and shooting.

The Alpha 99 cost £2,300 (UK) for the body only and the price did not fall as expected. The Nikon D600 cost £500 less on launch and by the end of the year, a further £300 had been knocked off typical prices.

When Canon's EOS 6D arrived with a similar formula of a small, travel friendly body and full frame (20 megapixel) sensor its pre-announced price was redundant. It immediately hit stores at the same £1,499 including VAT tax as the discounted D600 despite the



*Sony's long-awaited 500mm f/4.5 SSM lens arrived after photokina*

extra functions built in to its body. Where Nikon provides one connection port which can be used for either a GPS geotagging module or a WiFi image transmitter, the EOS 6D has both built-in. You do not have to choose between accessories, pay for them or put up with vulnerable add-ons connected to the body.

At the same time, Nikon and Canon updated their lens ranges to include more image stabilised wide angle and standard zoom choices. Nikon reintroduced the classic 24-85mm  $f3.5-4.5$  specification, revised and with VR, to give the D600 a kit lens. Canon added IS to their 24-70mm  $f2.8$ ; it was left as the only such zoom to lack stabilisation out of Canon, Nikon, Tamron and Sigma choices. Nikon had already updated their 28-300mm superzoom for full framers, so the D600 arrived with an alternative on the shelf.

The shift to full frame 35mm sensors may be driven by a desire to sell replacement lenses rather than make more from higher specification bodies, as these two cameras arrived at a price never before associated with full frame high resolution (though Sony's Alpha 850 had come close, and Canon's 5D MkII once replaced by the MkIII proved a bargain buy of late 2012).

But it also reflected a shift of emphasis in smaller sensor cameras to compact mirrorless systems for the APS-C market, and vastly improved performance from high-end pocketable fixed zoom models.

## Mini mirrorless

Canon launched the EOS-M system, using a 1.6X factor APS-C sensor like their DSLR ranges. Two years after NEX and NX, long after MicroFourThirds, it was a very late entry into a booming market. Despite being an entire new system, and having particular compatibility with Canon EF lenses, the EOS-M was greeted with very little applause. The smaller sensor means lack of appeal to the third party rangefinder lens



*Here's an LED light idea which is great for macro – and it's from classic flash makers, Mecablitz.*



*The Canon PowerShot G15 produces exceptional results from its  $f1.8-2.8$  28-140mm equivalent lens.*

enthusiasts, who find even the 1.5X of NEX a little restricting and would love to see a full frame compact mirrorless.

Fuji pushed their X-1 system ahead, adding an X-E1 without optical hybrid finder to the X-Pro1, using the same 17.7mm register wide throat lens mount and high performance 16 megapixel sensor. New lenses extended the everyday appeal of the system, with a fast 18-55mm zoom, though very long tele designs have not yet appeared.

Sony revised the NEX optical range to suit phase-detection on sensor, launching a 16-50mm and a 10-18mm.

Panasonic launched the Lumix GH3, a bridge camera style Micro FourThirds mirrorless. The emphasis at photokina was all on its video quality. The way that format is developing, Olympus is the name turned to for optical excellence, and Panasonic is the video hero. This is just as well, as during this period Sony

stepped in to take a stake in troubled Olympus ownership with the promise of optical co-operation. Panasonic and Canon are Sony's main rivals in pro and semi-pro video.

Tamron, Cosina, Carl Zeiss, Hoya-Tokina-Kenko and most recently Schneider Kreuznach have expanded the Micro Four Thirds group in 2012.

Nikon's tiny 1-system got a radical rethink in the V2, a solid looking metal body with large controls and a better 16 megapixel sensor (the original 10 megapixel one remains the main limit of appeal for the J1 and V1 bodies). Prices for the original models fell sharply.

## Zoom compacts

Reasons for the slight cooling-off towards mirrorless APS-C include the proliferation of confusing NEX models, Samsung's comparatively low profile (and inconveniently thick body), and the success of Olympus's OM-D retro design.

Two pocketable fixed zoom cameras helped. Fuji's X10 in early 2012 showed unusually good optical and 2/3" sensor performance, and when Sony's RX100 arrived in the summer

*The Leica Vario-Elmarit zoom on the Panasonic Lumix DMC-FZ200 runs from 4.5 to 108mm on a 1/2.3" sensor – at a constant  $f2.8$ . The full zoom extension, shown here, equals a 600mm lens on full frame. This is the direction future all-in-one cameras will take.*



combining the size of the Nikon 1 system sensor with the pixel density of the X10, it delivered results which rival APS-C.

The next step was taken by Canon, introducing the PowerShot G15 with a 12 megapixel sensor performing as well as the Fuji's and a lens with an effective 28-140mm equivalent at  $f1.8-2.8$ . The G15 lens turned out to be not only fast, but stunningly good glass delivering very high resolution across its range. As we went to press, Adobe updated Camera Raw to handle G15 files and we were able to examine our tests again. The surprise is that G15 JPEG processing, in camera, is so good that it's really difficult to achieve the same result from raw. Highlight detail separation in particular is superior, and the overall balance of noise reduction and sharpening combines with a clean JPEG engine to better or match ACR.

With Nikon's similar P7700 and Fuji's X-F1 lacking optical viewfinders but otherwise staying in the race, there has never been a wider choice of fine pocketable zoom cameras with raw capability and very fast glass. They generally handle ISO 800 cleanly and because of the sensor format (see later article in this issue) are as useful as APS-C models at ISO 3200 or full framers at 6400, at this setting.

There is certainly good reason, after photokina 2012, to think hard about what kind of camera you carry now and what you may use in future. See that 500mm  $f4.5$  lens on the left? A Panasonic DMC-FZ200 will take you to 600mm equivalent, at  $f2.8$ , and be smaller than any bridge camera used to be. Things are changing fast.

# TIME & TIDE

by David Kilpatrick



There are places in the world where the sea has been permanently replaced with mist. Hardly an image exists where the photographer has not tried to beautify the ocean by turning into a ghost.

This is photography following fashion. Some such images have real merit (*see facing page*), many are little but clones of the covers photographic magazines choose year after year. I'm sure a mathematician could devise a formula for the composition, colour, lighting, and perspective of these shots.

Looking back beyond a century, we find that long exposures gave rivers and lakes an unreal fluid quality whether the photographer wanted this or not. Today we



*Above, two star trail images by Adrian Court. The clock records a 50-minute total exposure. Right: a 300 second exposure by José Ramos of Lison, using ND10 and graduated filters combined.*

have almost total control over how we portray movement and time in photography. Recent developments in glass production have made very

high neutral density (ND) filters affordable, and variable twin-polariser versions both slim enough to use on wide angle lenses and good enough

to shoot colour through.

Before the arrival of robust digital imaging able to handle longer exposures, colour film suffered from reciprocity law failure colour shifts. Twin polarisers could only be made to give true neutral density at great expense; anyone who tried stacking two regular ones will remember the deep blue or brown achieved instead of grey.

Now you can buy top grade high density single filters, ND10 or a factor of ten stops, for no more than the cost of a good UV filter the same size and variable density typically four to nine stops for not much more. £40 or \$60 is all the outlay required to start making 30 second exposures in full daylight.

In practice, you need more than just this. I've found my



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4X, ND2, filters originally sold to allow wider apertures in studio portraiture or for synchro sun flash also come in useful for extending exposures at the ends of the day. Our portfolio photographer in this issue, Paul Gallagher, prefers dawn or evening light for long exposures especially with sea. It tames the highlights on foam. His exposures are timed to create realistic rather than extreme effects – you can see the direction and flow, and track the effect of time in the image. Some ‘pure mist’ shots of water are great, but we see far too many where the photographer has not considered anything except the effect. Like those old views of rivers in Victorian prints, the water ceases even to look like a liquid.

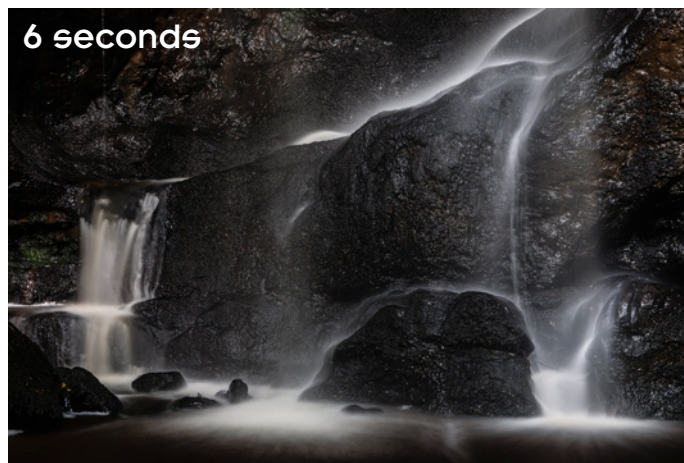
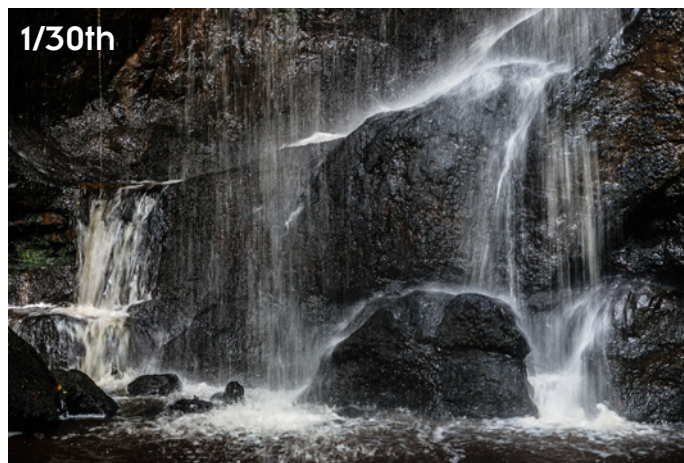
## Range of light

Most DSLRs can now manage ISO 100, in contrast to some years ago when a few models were limited ISO 200 minimum. Long exposures with movement rarely work in full brilliant sun because of the specular highlights or reflections of very bright sun from surfaces. Hazy sun or bright overcast light needs around 1/125 at *f*11 at ISO 100.

A 10-stop neutral density filter enables an exposure of 8 seconds without using a smaller and possibly loss optimal aperture. Nearly all DSLR shutters allow 30 seconds as an automatic or manual exposure time. That means that if you can close the lens to *f*22 you can work in full daylight and get 30 seconds.

When doing this, you should enable the setting ‘Long Exposure Noise Reduction’. This is unrelated to high ISO noise reduction, and involves the camera making a second exposure of equal length with its shutter closed (a dark frame). Any pixels which are ‘hot’ and appear as brightly coloured on this black field are then located on the original exposure, and set to zero. In place of hot pixels, you get dead pixels. Some camera processors will then

## FROM 1/500TH TO 30 SECONDS



*I used ISO 6400 and *f*2.8 for the 1/500th shot, ISO 800 and *f*4 for 1/30th, ISO 100 and *f*11 with variable ND for 6 and 30 seconds.*

interpolate adjacent values making the dead pixel invisible.

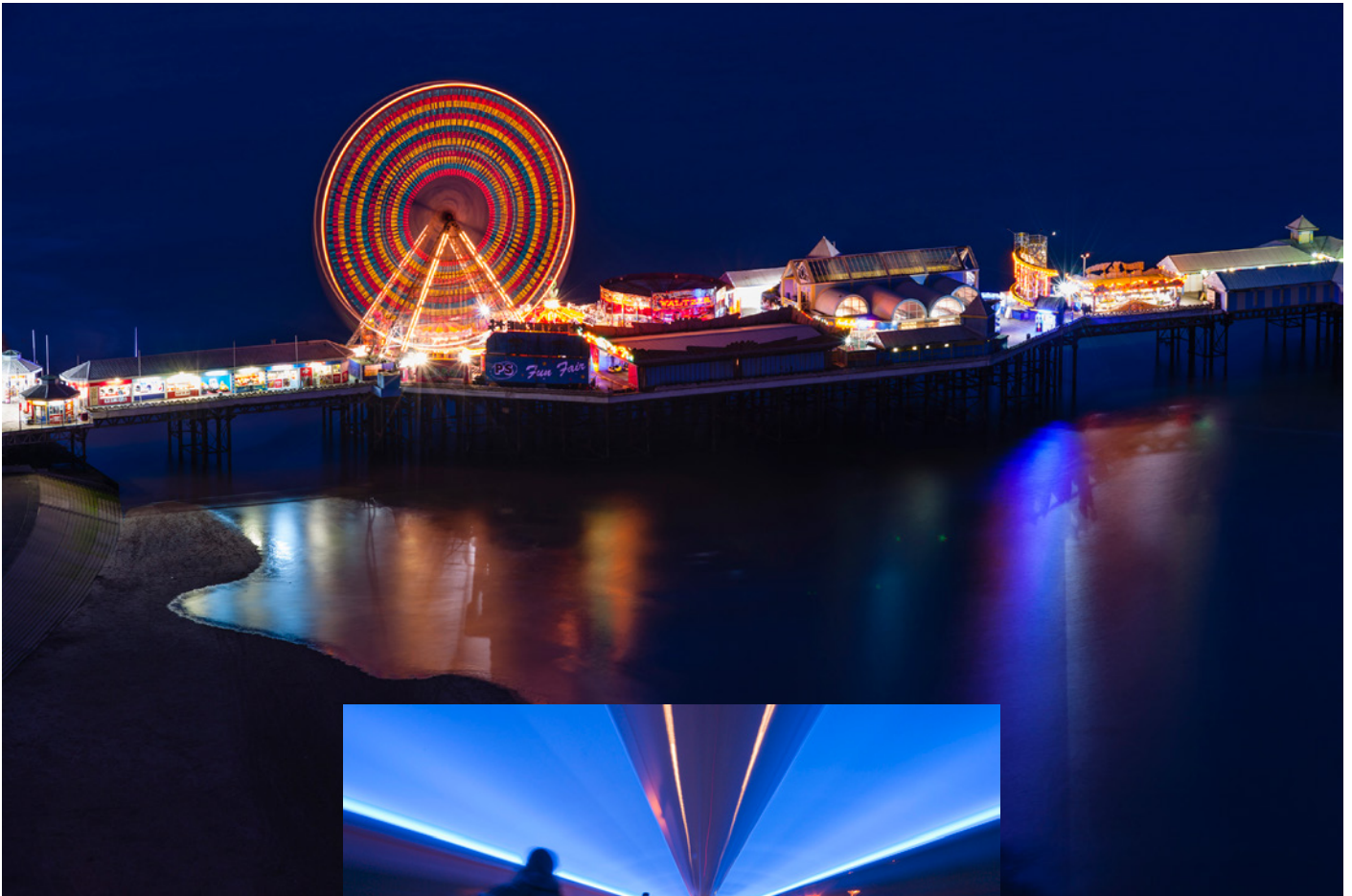
The inconvenience of having the camera work for a further 30 seconds after each 30 second exposure is worth it for the difference made to results. It does reduce battery life considerably. If you set out to make long exposures this way, whether with an ND filter or in low light, you should carry spare batteries and only shoot with a reasonable level of charge.

From test exposures between 1/500th and 30 seconds, I concluded that times from 2 to 10 seconds were optimum for the waterfall (Roughing Linn in Northumberland) seen on this page. The wide ISO range of a Sony Alpha 900 was used in combination with an SRB branded 2-8 stop variable ND filter.

Although this filter claims such a high maximum density, it's optimal to around 7 stops. Some uneven density appears once you move towards the MAX marking. It is similar to filters sold by Hama, Camdiox and other brands. They are now a third or quarter of the price they were a few years ago.

After using the variable filter, I bought a 10-stop Camdiox ND1000. There's one small problem with this inexpensive but high quality rim-mounted filter – the camera AF can't focus through it, and you also can't see to compose or focus your shot. There are good arguments for using a rectangular filter holder with slot-in ND. And there are also problems with that – you need a light-sealed filter holder. The circular screw-in filter avoids this. A slightly less dense filter, such as a 6-stop, lets you compose and even autofocus and meter. With ND1000, you need to work things out and use manual settings all round.

It's essential to use a viewfinder eyepiece cap or shutter even though you are unlikely to use auto exposure. Light can enter despite the best attempts to prevent it. EVF cameras don't need the eyepiece shutting off.



## Stable support

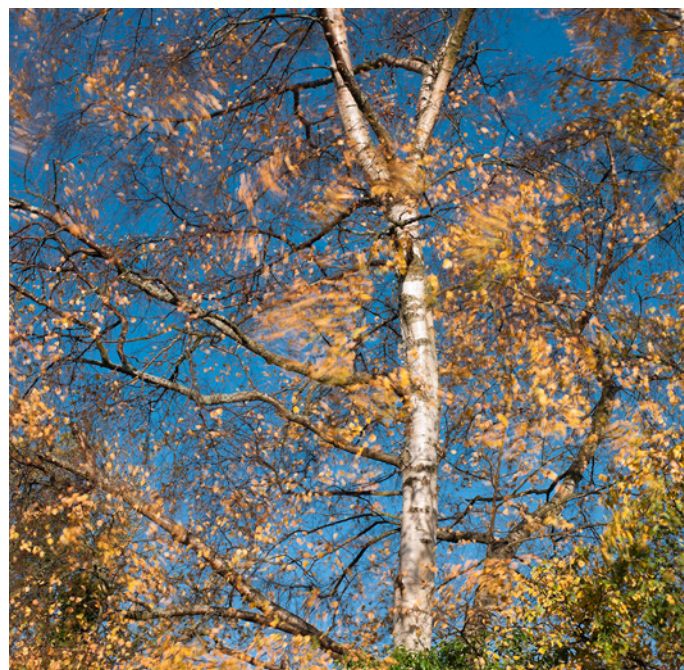
Having control over the light reaching your film or sensor is not the biggest problem. Your choice of tripod and head is critical. I have only one tripod which really works for long exposures in the field, a slightly large and heavy Slik model with a chunky two-arm pan and tilt head. My normal preference for tripods is light, fast to use, with a ball and socket head.

The problem is tripod or head drift. During a 30 second exposure, it only takes one leg to slide a millimetre or two, or the camera to sag gently on the head, and you get an unusably blurred result. Whether for one second or hours you need a tripod and head which can hold any camera position rock-solid. Care in setup is also essential, rocks must not move, people must not walk nearby on floors which flex or transmit vibration.

A stable support does not have to be static. It can be a moving vehicle, escalator or travelator. As long as you can fix the camera in relation to something which moves



*When different parts of a scene move at different speeds: top, the total shutter opening time had to match one full turn of the ferris wheel, at 25 seconds, shorter times did not show a full circle. Above, a 10 second exposure at  $f/22$  proved about optimum for the Manchester Airport Skyway to show figures relative still against an unbroken 'zoom' of blue light, at 12mm focal length on Alpha 900. Below: with  $f/22$  and ISO 50 to allow 1/4 second exposure, a classic Hasselblad 80mm shot using a Phase One digital back catches violent wind-blown leaves against a static trunk and branches in full sunshine.*



along with it, the rest of the scene can blur with time and movement.

Most DSLRs have some kind of remote release, wired or infra-red. Use this if you can. If not, either a 2s or 10s self-timer with mirror lockup can help cut vibration. It is possible to use mirror-up or standard self timer delay without a remote release given care.

## Partial movement

People and things move fast enough to blur in relatively modest exposure times like 1/4s. There are great opportunities out there to contrast parts of a scene which stay still, and parts which move. One example is the classic wedding photograph idea developed by Monte Zucker in which the bride and groom stand like statues, and guests are asked to waltz round them creating their own whirlpools of blur during a long exposure.

Architectural photographers have eliminated all people from street or interior views by making very long exposures.

Try this on a busy station platform, and you'll nearly always have several figures which manage not to shift at all in 30 seconds while other people will disappear entirely.

The important thing to remember is that the scene must be lighter than the people. It works perfectly for Lowry-like dark figures against concrete, sand or snow. Light colours against a dark ground, like black-top road tarmac, record as a blur which is usually more visible than the slightly dark shading of the reverse situation.

As with slow-speed flash shot, ghosting must be watched for if any lights or bright patches appear beyond foreground figures that move. It's possible for someone to walk in front of a wall-light and lose most of their head when the body is almost intact.

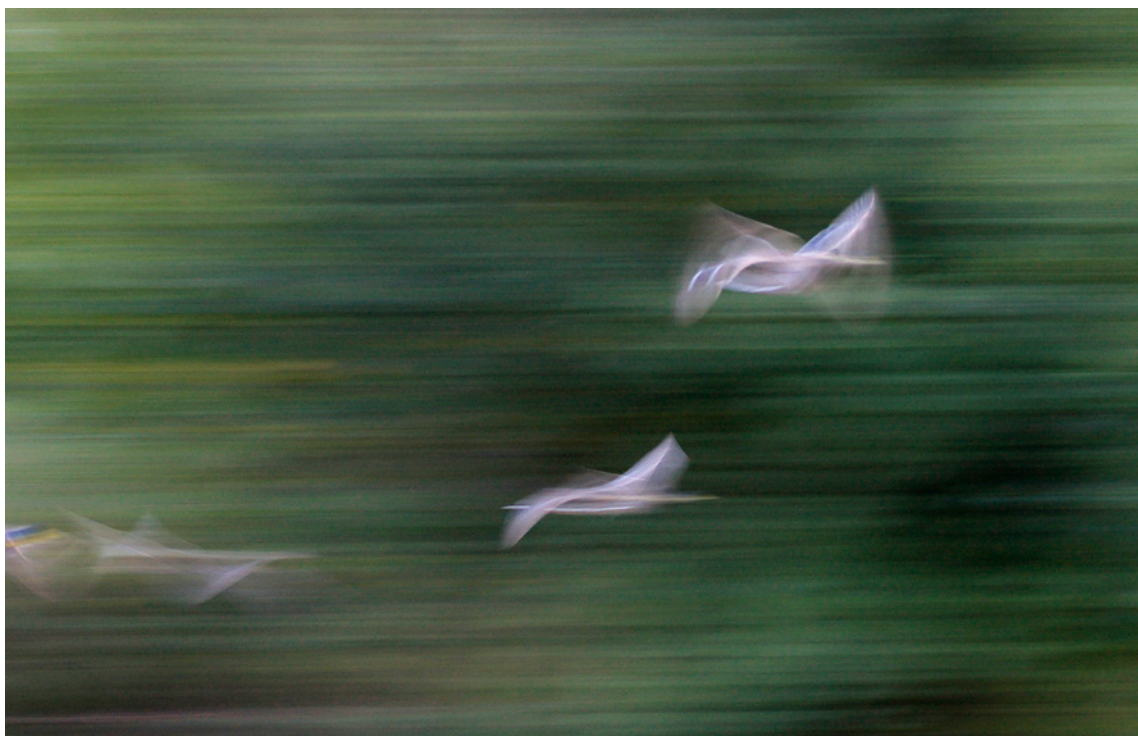
Examples of places where moving people disappear include New York Central Station and the Musée d'Orsay in Paris. Your only problem anywhere may be tripod use.

In nature, most long-exposure shots rely on very solid backgrounds like rocks to provide the sharp framework of the image. Trees and grasses can provide the moving element, it's not confined to water. The same rules apply, however – you need a dark background with brightly lit, or light coloured, moving elements. This can be achieved using polarising or colour contrast filters.

## Different approaches

There are many other ways of using time in your images, from the star trails which opened this article. These can involve multiple exposures merged in *Photoshop*, using 'Lighten' blending to combine the traces. If you have a spare camera and a timer with power supply, sequences of hundreds or thousands of shots showing change can be used to create timelapse videos or a printed series.

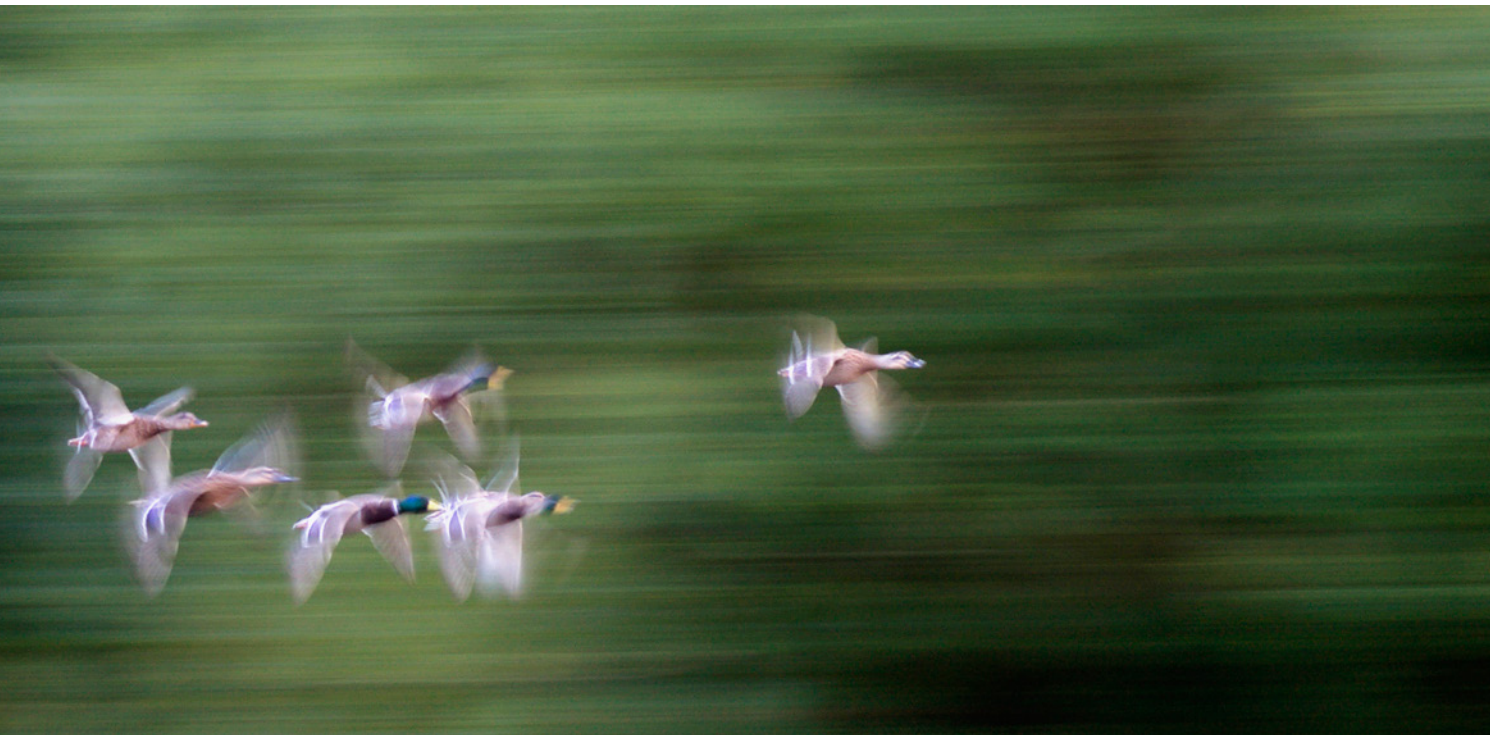
There are other aspects of time which I intended to illustrate, whether by trying to produce examples or find



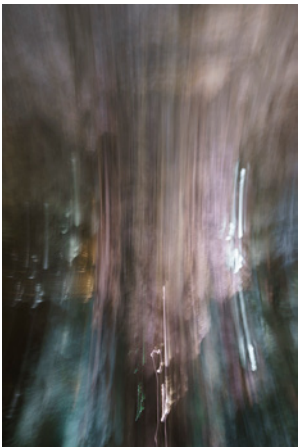
them, that have eluded me. Motion can distort objects captured with either a focal plane shutter or a digital sensor's scan, most often seen in video. People can

appear more than once in the same exposure, a trick often played on the panoramic group photographers of 50 years ago. A fast runner could beat the camera's slow swing from

one end of a large group to the other. Panning with movement can produce unusual effects, especially of birds in flight or animals running where parts of the subject move in different



Above: a shutter speed at 1/13th was long enough to create strong wingbeat blur but short enough to pan with the action. 70-300mm zoom at 100mm, Alpha 900. Facing page: a short exposure without ND filter, and a 30 second exposure with the filter, taken on a tripod with the 24mm Carl Zeiss lens on A900 (no chance of a tiny focal length change). Merged in Photoshop. Below: long exposures in Cuevas de Nerja, Spain. Left hand pair shows the effect of failing to lock the tripod head firmly, during a 15 second exposure. The main shot only shows two people as a small transparent trace remaining, of several groups moving along walkways during a 25 second exposure. Sigma 12-24mm at 12mm.



planes. Digital capture and processing has made it easy to merge short exposures with long, to combine sharp foliage or human elements with motion-blur. What could not

be done in a single exposure can now very easily be merged from two. Although timed exposures on digital bodies are limited, external time lapse and long exposure timers

are inexpensive and do away with the need to stand by the camera holding a release for many minutes.

I've only touched on the potential for using time and

movement in your work and concentrated on elements of the image becoming blurred or motion-streaked. Experiment for yourself and enjoy!



# LOCALITY

Many years ago, at a friend's flat in San Francisco, I met a photographer named Duke Baltz. He was showing off his latest oeuvre, a collection of 6 x 9" prints on 8 x 10" paper, from black and white 35 mm negatives. The subject matter was a new subdivision being built. I was taken aback by the photographs – they were sparse, minimalist even, relentlessly rectilinear except for the occasional pile of dirt.

If you follow the history of photographic movements, you may know that Lewis "Duke" Baltz was one of the invited exhibitors in the seminal 1975 exhibition *New Topographics: Photographs of a Man-Altered Landscape* at the George Eastman House International Museum of Photography.

The photographs I saw in San Francisco became part of Baltz's book *The Tract Houses* – currently available as part of his *Works* – and the New Topographics show has hugely influenced the genre ever since.

## A positive angle

I have never been comfortable with the implication of the New Topographics photographers and their multitude of followers that man's interaction with the landscape is uniformly a negative thing. In their view, the landscape is despoiled and disfigured, stripped and trivialized, converted to nothing more than a matrix for the works of man.

But this is not always, or even most often, the case. We humans also interact with the world around us in ways that are beautiful, humorous, charming, and altogether delightful. I offer my own Brentwood neighborhood, in Austin, Texas, as an example. I am sure it looked as bleak and rectilinear as any other



AL EVANS FOUND THE DETAILS OF THE YARDS,  
DRIVES AND CURTILAGES OF LOCAL PROPERTIES  
STARTED OUT AS INCIDENTAL OBSERVATIONS  
BUT DEVELOPED THEIR OWN RELATIONSHIPS AS  
THE IMAGES WERE GROUPED INTO SETS



subdivided cotton field when it was built in the late 1940s. But nowadays, it is a happy participant in an ongoing love affair with the people who live in it.

About a year ago, I began taking my camera with me on my morning walks. My initial objective was to give my neighbors a different view of the world they create and inhabit. In doing this, I intended to develop my own approach to "urban landscape" photography, oriented toward showing the beauty in the interactions between humans and their environment.

For a good while, I limited myself to using the equivalent of a 24 mm wide-angle lens. Then I began switching lenses, and consequently, changing scales. As I added more lenses to the rotation, I began to realize that I would never run out of images.

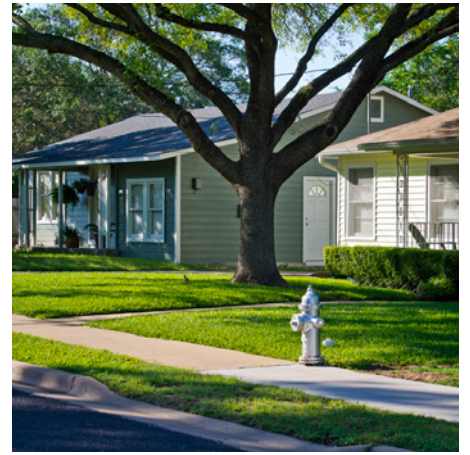
Even within one smallish area of one fair-sized city, the landscape is fractal, and thereby infinite. I believe this is true at any scale. As I walk daily, with my camera and one lens or another, in this area of about 50 blocks around my house, I can find as many beautiful pictures as I want. Putting the images together into rows and columns seems to be a good way to hint at this fractal nature.

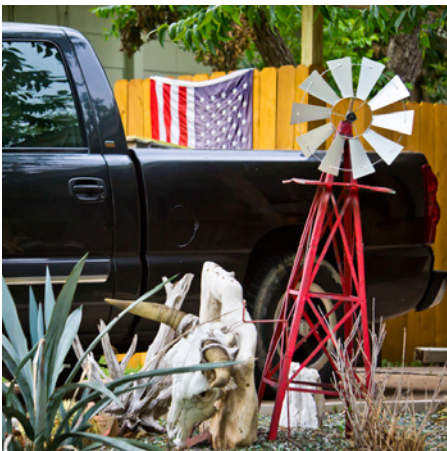
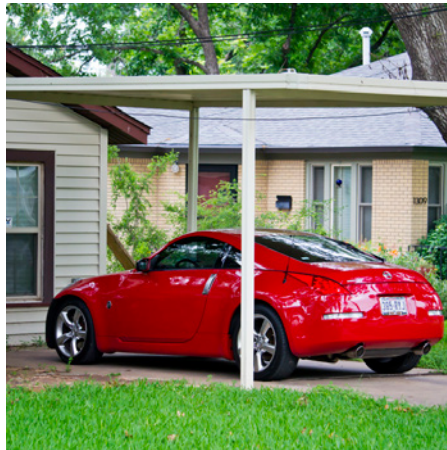
My neighborhood is indeed a matrix for the works of man. But these works, far from being dreary and monochromatic, are playful, colorful, full of humanity and life. Here is a very small sample of the wonders I've seen just walking around one small section of Austin, Texas.



*Information on Lewis Baltz and New Topographics can be found readily on internet – consult Wikipedia, check Amazon for books, and remember Google is your friend – Editor*







# GUIDED NIRVANA

We first saw Leo Edwards' Nepal images as part of a set which also included very different magazine glamour work, top level beauty shoots taken on the unexpected platform of Sony Alpha 700 and 850 cameras. The travel work was taken, in contrast, on the much heavier Canon 1Ds Mark III. It turned out that where superb skin tones mattered



workshops over the years personally – what I have tried to do here is build the photographic holiday/workshop I've always been looking for but never quite found, Matt brings years of complicated logistical 'boots on the ground experience' all over the world and has really been the missing link for what I have been trying to build. We are creating a market

most for the beauty work – delivered by Sony's colours and Carl Zeiss glass – battery life is the main consideration for remote travel despite the weight of the pro Canon kit.

Leo had visited Nepal to create a brochure and website for a new venture, Image Quests, he has set up from his Dubai base with expert adventure travel organiser Matt Farr. Unlike most photographic travel, this offering starts with the assumption of a slow pace rather than packing the itinerary to the limit, and uses top hotels with the comforts of secure room safes, good food, and internet when possible.

"We have just returned from Namibia after plotting our course for Image Quests", Leo told *Cameracraft*.

"Image Quests has been born from attending lots of mediocre photographic holidays and

LEO EDWARDS IS A WIDELY PUBLISHED MAGAZINE PHOTOGRAPHER NOW BASED IN DUBAI. HE HAS JOINED MOUNTAINEER AND EXPLORER MATT FARR TO CREATE IMAGE QUESTS, PHOTOGRAPHIC TRAVEL WITHOUT THE RISKS OR RIGOURS OF BACKPACKING

segment that doesn't currently exist in the luxury end of photo tourism. All of our itineraries are designed purely with photography and photographers in mind. All accommodations are hand picked with star ratings, every Quest has a cap of ten participants with two photography leaders, and ten percent of the cost of every Quest is donated at source in the Quest to orphanages in the lands we visit."

See: [www.imagequests.com](http://www.imagequests.com)

The first itineraries are to be

Nepal, Istanbul, Namibia, Sri Lanka, Cambodia, Vietnam, Cyprus, UAE and Oman, and Lakes Maggiore and Como.



*The photographs shown were taken on a preparatory trip to Nepal and its capital Kathmandu (left). The sadhus were taken using Canon's 70-200mm f2.8 L IS USM lens, and the city view with a Fuji X-Pro 1 and 18mm lens.*





# DÉJA VIEW



Nothing in this magazine should be taken for granted! *Déja View* is a regular feature and will continue for all time. Our first example showed the modern view of a Scottish castle compared to the ruin it was for Edwardian photographers. Here, we show one image by the San Francisco photographer Shawn Clover which expertly melds the past and the present. In black and white, Shawn chose a harrowing document of dead horses made in the aftermath of the 1906 earthquake that devastated the West Coast's golden city. To this, he added a current colour view matched in viewpoint and perspective. It is a technique he has employed to create a series of images that bridge a century.

This composite drew more hate-mail to Shawn than any of his other views. Why? People love horses. The detached observer will see that these horses were the 1906 equivalent of the car, their presence in the streets matches the parked Mercedes and the car park sign. Shawn devised his project after reading *San Francisco is Burning*, by Dennis Smith. "I've always been frustrated by typical 'then and now' photos because the photographer always seems to do a sloppy job aligning his 'then' photos with the 'now' photos", Shawn told us. "I got to thinking. What if I could precisely line up photos taken in 1906 with my own and combine the two together?". He researched library images, rejected those where he found buildings now stood at the point of view, and even matched the time of day. The results speak for themselves.

[www.shawnclover.com](http://www.shawnclover.com)



CAMERACRAFT PORTFOLIO

No 2

# PAUL GALLAGHER



BLACK SANDS & WHITE ICE: THE STRANGE SHORES OF ICELAND



*Above, previous page and following spread: ice on black sand, Jökulsárlón.*

*All images produced using Nikon D800E, mostly with 24mm PC-E Tilt Shift Nikon lens to provide movements similar to using large format. Paul also uses a Manfrotto 410 geared tripod head for precision framing.*



*Above: Jökulsárlón Glacial Lagoon.*

*Below: Skógafoss.*









*Above and lower right: Vik Beach with basalt sea stack columns.*

*Below and upper right: Reynisdrangar beach.*





# LEADING THE WAY: PURSUING THE FINE DIGITAL PRINT AND THE B&W IDEAL

I feel very fortunate indeed to have started my career in photography at a very young age. I left school at sixteen and went straight into studying photography for two years and at the tender age of eighteen I was working in studios and studied printing for a further two years. By the age of nineteen I was obsessed with landscape photography and was fortunate to have access to large format cameras and darkrooms. Much has changed since then, and although I do love getting out with my Ebony 5x4 camera I also pursue this obsession today with modern digital equipment.

I have of course been fortunate to travel to some amazing places over the years but one place that had never been ticked off on my list was Iceland. I have had intentions of visiting Iceland for many years and recently it has featured highly in the articles of many photography magazines as the place to be if you are a landscape photographer. One of the reasons Iceland has appealed to me is the very fact that many images of the place 'look' monochrome and having a long career working in monochrome it seemed a natural place to be.

I travelled to Iceland with my business partner Michael with the added intention of visiting enough locations and hotels to run a landscape photography workshop there next year for my company Aspect2i. For this reason alone we had to plan the entire trip carefully and make each day count during our seven-day window of opportunity. During the planning stages I soon realised how big the island actually is and the decision was made to concentrate purely on the southern part.

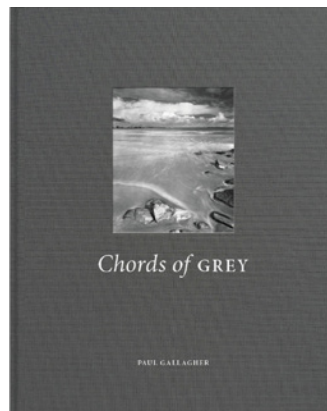
The days that followed were filled with moments standing beneath roaring waterfalls where the human figures appeared tiny as they gazed upwards at the cascades falling from the cliffs. There



*Paul Gallagher at work with his Ebony 5 x 4" field camera, Gitzo tripod and Lee graduated filter included. Prints are made using an Epson inkjet system, Below: his latest book, 'Chords of Grey'.*

were black beaches with blocks of ice that looked like jewels washed up from the sea. I will never forget the glaciers and iceberg lagoons, being stood there with my camera trying to make sense of it all and at the same time hearing the ice cracking and falling into the lagoon as the sun rose and warmed the air. I recall the vast basaltic columns rising out of the black sand of Vik beach and the huge waves from the Atlantic crashing at their feet and the flat-lands that separate the coast and mountain areas that are often overlooked, with perfectly straight roads and old abandoned farms and machinery in what seemed like the middle of nowhere.

In short the place mesmerised me and I was almost overwhelmed by its beauty and the amount of



photographic opportunities it presented to me. Many locations give you good days and when you return to your hotel you feel it all came together. Iceland was in a league of its own and will be a place I will return to year after year. In fact I have already scheduled my return visit for April next year with my first workshop group.

## About Paul Gallagher

Paul Gallagher has been a fine art black and white and colour photographer for over twenty seven years, dedicating his photography to Northern England and the Scottish Highlands and photographing predominantly using large format equipment. He began his photographic career photography at Southport College of Art from which he gained a distinction in photography. This led him to work professionally in a commercial studios in Liverpool. Some years later, Paul was invited to return to teach photography part-time at Southport College. Paul has mostly exchanged the dark room for the use of digital print production. Paul's techniques are very traditional in the field and he is regarded as an expert in the use of the 5x4 view camera.

Paul is a much sought-after lecturer throughout the UK regarding his work and techniques in both the use of large format equipment and fine art digital print production. Paul is workshop leader for his company Aspect2i and directs and leads workshops for the Epson Print Academy. He is planning workshops in Iceland – see web links below.

He has written extensively for photographic publications about his techniques and approach to landscape photography and digital image production for many years. His book *Aspects of Expression* discussing the expressive monochrome image was commissioned by Argentum and released in October 2008. Paul's fine art limited edition book *Chords of Grey* was released in 2010 supported by a two week exhibition in the gallery@oxo in London. "Chords of Grey" has achieved six awards to date.

See:  
[www.paulgallagher.co.uk](http://www.paulgallagher.co.uk)  
[www.aspect2i.co.uk](http://www.aspect2i.co.uk)  
[www.chordsofgrey.com](http://www.chordsofgrey.com)

# SENSOR SENSIBILITY

Some 35 years ago, the magazine *Photo Technique* produced a special edition with extra pages and a single theme – the Battle of the Formats.

At that time, it wasn't as if all the ultimate formats for film had even arrived. I think the idea was triggered by the contrast between the new 110 miniature cartridge and still-popular large sheet film (from 5 x 4" to 8 x 10" in normal professional practice). In between, there were still countless different major formats and a stack of obsolete sizes which the film makers continued.

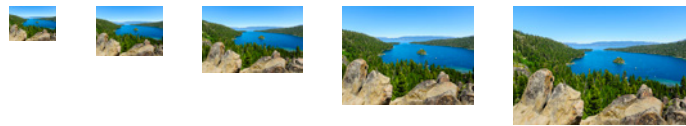
Today, this exercise could be repeated. There have been countless different digital image sensor formats over the years. Only now do we see the choices crystallising into a known and named series.

The implications of format choice now go beyond the simple issue of final printed image size. Using film, reduced grain and processing artefacts such as scratches and dust outweighed all other considerations. You had to accept the depth of field, lens choice and range of camera controls which went with each larger format size if you wanted the benefit of clean, grainless prints.

With digital sensors, everything has changed. The detail resolution is now independent of the physical size of the image plane and to an extent the noise or grain is no longer predictably related.

Depth of field has a new base for calculations, and has become a complex function affected by the type of sensor and image processing used.

Here I'll look at aspects which are overlooked by most writers because they are not key points promoted by the manufacturers.



Above: the exact size, from left to right, of Pentax Q, 2/3", Nikon CX or 1", FourThirds, and 1.5X factor APS-C



Above, full frame 24 x 36mm; right, popular medium format slightly cropped 49 x 37mm.

## Sensor size naming

There are three legacy formats used as a basis for sensor size names – the one-inch television imaging tube, the 24 x 36mm of 35mm film, and around 42 x 56mm for 645 rollfilm.

The **one-inch** video standard is very confusing

because it does not actually mean one inch. The circular tubes had a one-inch diameter surface, with the image confined to a rectangle considerably smaller than this, a 16mm diameter or diagonal.

So, all sensors expressed relative to the original one-inch video tube are actually

Below: in proportion – the Nikon J1 is 106mm wide, the Sony NEX-5R is 110mm. The relative sensor sizes can be seen here.



a fraction of 16mm, not a fraction of 25mm. A 2/3 inch sensor has a diagonal of 10.7mm, and 1/2 inch sensor of 8mm. From this measurement we get the peculiar mixed fraction-decimal descriptions used for smaller digital camera sensors. Examples include 1/1.8", 1/2.3" and so on. These fractions are uniquely impossible to put into words – 'one over one point eight' or 'a one point eight' size is about the best we can do. This size, 1/1.8", has a diagonal of 8.88mm.

The largest one-inch based sensor is, in fact, called the 1 format or in Nikon's terminology, CX size. It is the same as the original video tube image in diagonal even if the shape of the sensor may not be the near-square of early TV sets. Nikon CX, as used in the Nikon 1 V1, J1 and V2 mirrorless system cameras, is 13.2 x 8.8mm with a 15.86mm diagonal. The same sensor size is also used by Sony in the DSC-RX100 compact zoom camera, and for many reasons we expect it to appear in future models from various makers.

The smallest mirrorless system sensor size is Pentax Q, at 2/3" or 6.17 x 4.55mm. The largest sensor size based on the one-inch series is well known – the FourThirds format, created by a consortium of worldwide manufacturers including founders Olympus and Kodak and subsequent members Panasonic, Leica and Sigma. Recently, others including Carl Zeiss, Schneider, Tamron and Cosina joined the MicroFourThirds group.

FourThirds and Micro FourThirds are identical in sensor size, the difference lies in the body type. The original was an SLR-type system and the Micro is a mirrorless system with much slimmer bodies. Inside, both have a

sensor measuring 17.3 x 13mm active area.

The next step up involves sensors described in terms of 35mm film. Full Frame is also known as FF, and coded by Nikon as FX. It is often a true 24 x 36mm or very close, and this makes today's FF digital bodies exceed film systems especially for wide-angle lenses. The dimensions of a standard 35mm slide mount are 22.5 x 34.5mm, cropping 0.75mm all round. Printers for negatives can be even tighter on their crop.

All sensors between this and FourThirds are described by the amount of enlargement in linear terms they would need to match full frame – or the apparent increase in image magnification for the same focal length of lens, if the whole image is printed or viewed at the same size.

Common sizes include APS-C which can range from 1.7X to 1.5X, and APS-H at 1.3X. Cameras have been made with almost every factor you can think of from 2X to 1.1X over the years. Recently, full frame has replaced 'slightly cropped' and the APS-C size reduced to two variants, 1.6X used by Canon and 1.5X used by everyone else including Nikon who code this as DX format. Buyers have become increasingly familiar with the idea of the 'sensor crop factor' and no longer get confused about whether it changes lens focal length. It is now common to use this when describing some of the smaller formats using interchangeable lenses – Nikon 1 system is 2.7X, FourThirds is 2X and Pentax Q is around 5.3X.

The reason for this is that all system cameras may be fitted with lenses made for larger formats. You can put a Pentax 35mm SLR lens on a Q body, making your 300mm telephoto equivalent to a 1600mm. Knowing the factor helps you know the possibilities.

There are a few minor differences even between the same nominal size. Sigma's Foveon 1.5X sensor is a true 16 x 24mm, most other 1.5X sensors are 15.7 x



*Because it has no anti-aliasing filter, the vintage 16 megapixel Phase One P20+ back for Hasselblad extracts detail equal to a 24 megapixel DSLR. The inset shows an enlarged area reproduced at 150dpi from a 78MB (28 megapixel) Adobe Camera Raw conversion 5117 x 5120 pixels, a 1m/34" square print.*



*One of the smallest sensors (1:2.3") is used with one of the shortest focal length lenses made, a 2.5mm equivalent to a 15mm fisheye, in Sony's Action Cam HDR-AS15. Mainly intended for video, it can also capture rather mean 2 megapixel stills. Pictures: Sony.*

23.6mm, and Canon's 1.6X is significantly smaller at 14.8 x 22.2mm. They also have a cut-down version in their G1X zoom lens compact camera, at 14mm x 18.7mm.

These small differences may seem insignificant but they count when you are comparing lenses. Canon must make their versatile all-rounder kit zoom a 15-85mm to match the wide angle of Nikon's 16-85mm.

Moving up to Medium Format sensors, there is no relative way to describe them even if the information is hidden away in specifications. Remember, the first location friendly Kodak and Philips digital backs for 645 system cameras actually had a 24 x 36mm imager but they still called them medium format backs, not 35mm backs for MF bodies!

The first really functional MF digital sensors were the Kodak and Dalsa 37mm



square 16 megapixel types which suited cameras like the traditional Hasselblad 500 series perfectly. They are in effect a 1.5X sensor for 6 x 6cm, which is normally 56mm square in film image size.

The next step up from this is the related rectangular format, 37 x 49mm, but there are variations such as the Leica S sensor at 30 x 45mm and the Pentax 645D at 33 x 44mm.

The largest sensors approach the actual size of 645 film, around 40 x 54mm from Phase One and a 35mm-like 36 x 56mm shape from Leaf. It's worth noting that the largest sizes were not envisaged when some MF systems first appeared. Hasselblad, for example, first designed a 28mm lens which covers the 37 x 49mm format and relies on software correction for straight line geometry. It was a digital only-lens, not intended for film. This was fine until they moved on to a larger sensor. Now they have an extremely wide 24mm introduced in 2012, they have made sure

*Sensor size has a huge influence on how close the camera can focus. The Sony RX-100 has a 1" type sensor, and its zoom lens when set to 10.5mm can focus close enough for pine needles and water drops to be large scale objects. The NEX 16mm lens, with 12mm wide-angle converter, can turn small areas into strong foregrounds, below.*



it covers all sizes up to and including 645 film.

It is possible to capture a larger focal plane area. Early tethered scanning digital backs covered a decent section of 5 x 4" and some home engineers have adapted desktop scanners or their parts to create even larger formats. None of these can be used hand held or for moving subjects.

## Scale and perspective

As you can see, there is a vast range of sensor sizes capable of high quality photography. I've not even mentioned the tiny sizes down to 1/10" used in CCTV, phone cameras and medical devices. There's no firm relationship between sensor format and overall camera size, as Sony's RX1

full-frame 24 megapixel compact launched in September has proved. You can find surprisingly chunky bridge cameras from many makers with very small sensors but extreme zoom lenses, equal to a 28-750mm or similar range. If the zoom was scaled up for a full frame 35mm image, you'd need a shopping trolley to take your camera around.

That famous film which used very short focal length lenses, *Honey I've Shrank the Kids*, did so with the help of medical endoscope technology. Fibre optics relayed a tiny image received at one end and projected it to movie frame size at the other. For a long time, an endoscope was the only way you could do this.

Now, all you need is a good pocket camera with one of the smaller sensor formats and a wide-angle range plus close focusing. Some cameras focus down to the front glass of the lens, 1cm or less.

When a lens like the Pentax Q 3.2mm f5.6 fisheye is specified to focus to 7cm, this



The scale of the real world: how sensor size, and lens focal length, affects the apparent scale of foreground and background. Left, we have used a Canon IXUS 700 with 1/1.8" sensor and close-focusing zoom set to 7.7mm (37mm equivalent) and right, a Sony Alpha 55 APS-C body with 30mm f2.8 Sony SAM Macro. This lens shortens its focal length (internal focusing) as you move closer, so that at 1:1 it is actually 24mm. The camera positions relative to the egg are not exactly the same although the lens position is as close as I could get. I tried this with everything from an iPhone 4 (3.8mm lens, terrible white balance) to Alpha 99 but it proved difficult to get any kind of match between focal lengths, angles of view and close focusing. This comparison does, however, fairly represent the difference between using very small sensors for small subjects, and larger sensors. Depth of field can not be controlled with the IXUS. It is permanently at f2.8 and stops down using neutral density filters.

includes 9.2mm of internal camera space and 30mm of lens so the subject is actually around 4-5cm from the lens.

You can use such close focus for extreme perspective effects. This example would be equal to Pentax's old classic 17mm fisheye which dates back to screw thread Spotmatic days. With sufficient depth of field for the foreground and distance to be sharp, neither lens needs to be extended significantly from its infinity position, so the apparent scale of the distant 160° view is about the same.

However, for the 3.2mm lens a blade of grass two inches high focused at 4cm from the front element is the same size in the frame as a flower 10 inches high focused at 20cm from the 17mm.

The close foreground is in proportion to the sensor format, but the distant background has a scale



*Putting the tiny IXUS as close as it will go produces a result the DSLR couldn't match in any way – even getting the lens in the same position was impossible.*

independent of the format. Small format sensors and wide lenses can be used to make doll houses or architectural models appear to be life size when compared to the traditional 4 x 5" view camera once used for most interior

and architectural photography. The Pentax Q or any 2/3 sensor camera has an image just 1/20th of the sheet film in height, and can make any shot of a 1/20th scale model taken from the correct position look like a classical perspective on full scale life.

In proportion, all sensor formats have their own unique relative perspective for any given type of subject. An APS-C crop sensor will give a slightly more exaggerated scale to close objects compared to full frame. The CX or 1 size sensor is more obviously different to the eye. Contrast it with medium format, and even a non-photographer may see the difference. There is a myth that 'perspective has nothing to do with focal length' but this is a fallacy.

I like to give the example of a simple subject, an egg in a cup, 90mm or 3.5" high. Shoot this to fill a comfortable

composition using a 4 x 5" view camera and you're taking a 1:1 life-size macro image. Your lens will be at twice its focal length in terms of focus extension, and also working at two stops less effective aperture. If your lens gave a 45° view at infinity, you will get a 22.5° view for this shot and show one-quarter of the background area. The egg is 360mm from the lens.

Now repeat the shot on a full-frame 35mm camera. The egg now needs to be one-third life size to be 30mm high in the 24 x 36mm frame. Your 50mm lens needs just under 15mm focus extension, loses half a stop of light, and the angle of view changes to only 35°. Less background view is lost.

Use APS-C, and you might now be fitting a lens like the Sony 30mm f2.8 SAM Macro which I use. This lens like many autofocus designs changes focal length as you

focus, to avoid a long focus travel. It's only needing 4mm of physical extension, making light loss insignificant. It is focused on 25cm, but the egg is just 100mm from the lens front rim.

Now go right down to the 2/3" sensor of the Pentax Q. The lens is the 8.5mm standard, equivalent to a 45mm on full frame just like the 30mm quoted above. The egg and cup need to be imaged only 4.5mm high, or 1/20th life size, to fit the composition. The optical geometry is the same as using the 180mm lens on 4 x 5" to photograph a fully grown man 1.8m tall from a distance of 3.78m or over 12 feet!

In the world of a Pentax Q, that egg is a Tenniel-drawing size Humpty Dumpty and the camera has done an *Alice Through the Looking Glass*, shrinking down to fit into a world where caterpillars and mushrooms are as big as your pets and furniture.

Across this range of extremes, each step may be subtle but if you have grasped the facts so far, there's one more to come.

That is how depth of field, greatly affected by sensor format, is also controlled by pixel density and the low-pass or anti-aliasing filter of the camera.

## Sharpness and depth

Depth of field in the past was calculated on the basis of viewing a 10 x 8" print held in your hand just eight inches from the eye. This is a close viewing position, examination rather than leisurely appreciation of the entire composition of a print.

Today, we have a much better idea of what a real circle of confusion limit is. It's the point at which you start seeing pixels instead of a smooth image. My iMac 27" screen hits that point neatly. A change of an inch or two in a 24" viewing distance makes the difference between the 2560 x 1440 pixels, or 108 dots per inch, being resolved or disappearing.

This magazine is printed at 170 dots per inch and you



*Taken at f4 using the 300mm f2.8 Nikon VR11 lens, the left hand clip is from the D800, and the right hand from the D800E. The D800E is not only sharper on the focused plane ('ME') but also pulls the wall plaque and street sign into better focus. This is clearly visible on-screen at full size. No AA filter = more depth of field.*

should be able to see them in the pictures. If we used a 240 dot per inch screen, something I've experimented with in the past, you probably would not see them but the colour and tone would be harder for the printer to control.

Over time I've learned that for screen display to 27", digital projection to the highest resolution I can obtain, or prints up to 8 x 12", an image of six megapixels or 2000 x 3000 pixel size will do well.

Today's popular 16 to 24 megapixel cameras have enough pixels to cover A3 or the larger A2/16 x 20" exhibition print equally well. They must be considered like yesterday's rollfilm formats for depth of field. That means that where in the past you might have considered f8 sufficient for a typical scene, you may now want to use f11.

There is an alternative. By moving down only one sensor



format – from full frame to APS-C, or APS-C to FourThirds, or FourThirds to 1" – you win one stop or more in depth of field. The gain from FF to 1.5X is around 1 stop, even though the pixel pitch which limits how far you can stop down only changes by a 0.66X factor.

So, using my full frame 24 megapixel camera and a 35mm focal length lens I can shoot without losing detail sharpness at f13. My APS-C 24 megapixel camera with a 24mm lens lets me shoot at f10 without diffraction loss, and make a small gain in total depth of field. It's not massive, about six inches more sharp depth in front of my subject around ten feet away if I also want the distance sharp. But as the sensor gets smaller, the change is more than proportional.

Use the Fujifilm FinePix X10, set its quite exceptional lens to 7.1mm (28mm

equivalent) and a fairly wide f5.6 and you'll have everything sharp from nine inches to infinity when you focus on a foreground subject 18 inches away.

This, at least, is according to the old 10 x 8" print values. In fact, you will see very clearly that the distance is unsharp on the 4000 x 3000 pixel image when it ends up on a 24" monitor. Those familiar old ideas about depth of field just do not apply.

Digital sensors are, in theory, less forgiving than film. Emulsions have a physical thickness and they are turbid (light scattering). A point focused on a film emulsion may be sharpest within the emulsion layers, and always surrounded by a natural halo. Silicon lacks this depth. What's in focus is sharp, and what is out of focus gets that way very rapidly. Sensors without low-pass or anti-aliasing filters produce more depth of field. An AA filter takes the focused image, and blurs it; software reconstructs sharpness from this controlled blur. You don't just end up with slightly soft sharp focus, you also further blur out-of-focus detail.

We found, when using the Nikon D800 and D800E for identical shots, that the D800E which has no AA filter showed more depth of field. Pentax advertise the same claim for their K-5 IIs, another camera with no AA filter. From Sigma SD1 Merrill use, we have found the Foveon sensor produces the highest apparent depth of field of any type but also has the smoothest transitions between sharpness and blur. It has no RRGB Bayer pattern and no AA filter.

The value of using different sensor formats may be clear, I hope; I have not gone into the question of full frame and lens bokeh, as that deserves a full coverage in future. I will admit to being in love with smaller sensors. They enable points of view and perspectives which become progressively less possible with each step up in format size. That's why I use all sizes of camera.

– David Kilpatrick



# STUDIO 'LITE'



## THE FRIEDMAN FILES

All you need for a basic studio at home is probably in your DSLR outfit and a furnishing store, as Gary Friedman shows here

It happened on David Kilpatrick's first trip to California. He and his wife Shirley dropped by last summer for some tea and crumpets (we always keep crumpets handy!) to talk about launching *Cameracraft* magazine... and for David pose for the cover of my book on the Sony NEX-7. But when they went upstairs to see the studio, David seemed to be surprised and impressed by the setup.

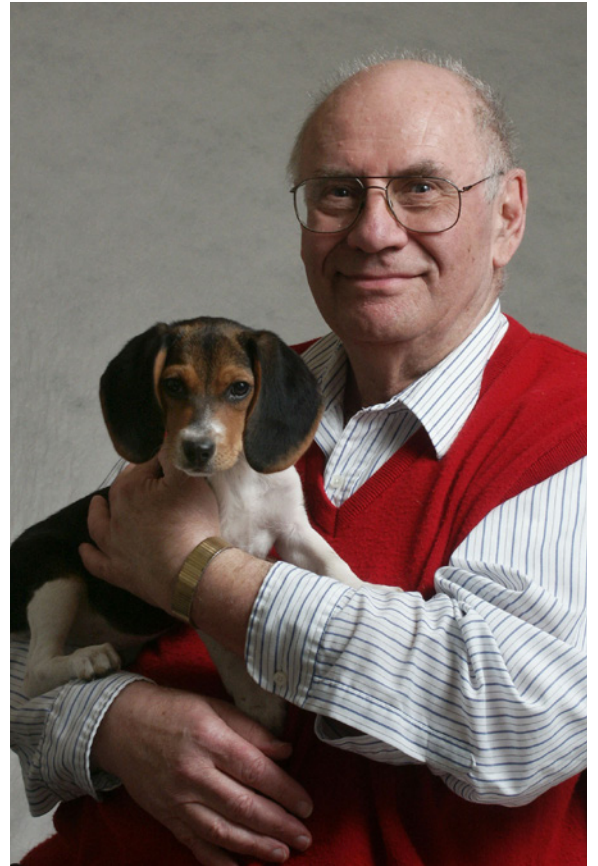
David's an old pro. He knows what a studio should look like and how much they cost to put together. My studio had none of that.

Instead of an expensive custom-made backdrop, I used black and white window shade roller blinds from IKEA. Instead of expensive monobloc studio lights, I used a small wireless flash and a softbox. Good light is good light.

"Write an article about your setup!" he said to me on his way out the door.

Let me start by showing you three professional-grade portraits that were made using only ONE accessory flash, on this page.

There are only three (sometimes four) simple things to do to make these images work:



- Use flash in wireless mode
- Soften the light
- Inexpensive backdrop
- Optional – use a hair light for an added touch.

First of all, about using **Flash in Wireless Mode.**

Anyone who's read my books knows what a fan I am of this technology. Just the act of moving the flash off-camera can bring drama to even the most boring of subjects!

You can see a bad result of on-camera flash – where the flash ends up positioned to the right of the lens as you hold the camera for a portrait – compared to a simple flash off camera result, top center of the page.



Although I have both, I find myself using the softbox a lot more often because it can control the “spill” light better – soft light only hits my subject and doesn't spill over to the backdrop.

Here's the setup I use for the umbrella:

- An Umbrella reflector
  - Umbrella Swivel hardware (for tripod mounting)
  - An accessory flash capable of TTL wireless triggering.
- And because I use a Minolta flash with a non-standard shoe, Minolta Off-camera shoe OS-1100 to physically mount the flash

A picture of this setup appears below.

For the softbox setup, I found one that was designed to use small accessory flashes for the light source: the Lastolite Hot Shoe Ezybox Softbox kit <http://tinyurl.com/93g5e9t>

It comes with its own mounting hardware to allow a humble accessory flash to power it. You can see this in use, left, and a detail of the mounting behind the softbox rear opening.

If those options are too expensive for you, there's always the \$5 Dollar studio I discussed in my blog: <http://tinyurl.com/472s8ta>

Thirdly, let's look at my **Inexpensive Backdrop.**

Since my studio was designed for head-and-shoulders portraits, a standard roll-down window shade can act as a useful backdrop.

In my case, I went to IKEA and bought two of them – one black, one white – and hung the two one in front of the other on a wooden ceiling mount. It takes me 20



seconds to switch from one color to another. David seemed particularly impressed by this. He even took pictures of my window shade setup. You never know what's going to interest someone – then I learned he's got exactly the same IKEA blinds, black and white, and also one he uses as a projector screen.

You can mount a wooden batten on a lighting stand using a Manfrotto clamp, or by drilling a 3/8" Whitworth threaded metal bush into the wood. The roller blind can be fixed to the front of this as a portable background.

Finally, on to using a **Hair Light** for an added touch, especially with the black background.

While the amount of drama you can get in your image from just one flash is pretty remarkable, there can be times when you run into problems. For example, check out the center picture here. Notice that subjects with black hair have a head that blends right into the background. With side lighting and fair hair (center right) there's no problem. The traditional solution is to use a second light called a "hair light" which is positioned above and behind the person and is aimed directly at the back of the head to illuminate the dark area and provide a sense of shape. You can see the effect, on both skin and hair, in the three shots at the bottom of the page.

The tricky part is narrowing the beam of the flash so it only illuminates a part of a person's head and doesn't spill into the camera lens, causing flare. I originally solved the problem by wrapping a piece of paper around the flash so it creates a tube, narrowing the beam of light (top left). That's the crude solution.

The more generally accepted solution is to place something called a honeycomb grid in front of the flash. The one I show here was homemade out of cut-down drinking straws, and wrapped up in Velcro – I told you this stuff was cheap!

– Gary Friedman



*Elements of a simple studio – IKEA roller blinds, a light stand, softbox and battery operated wireless flash. Right: my home-made paper diffuser tube and drinking straw honeycomb grid.*

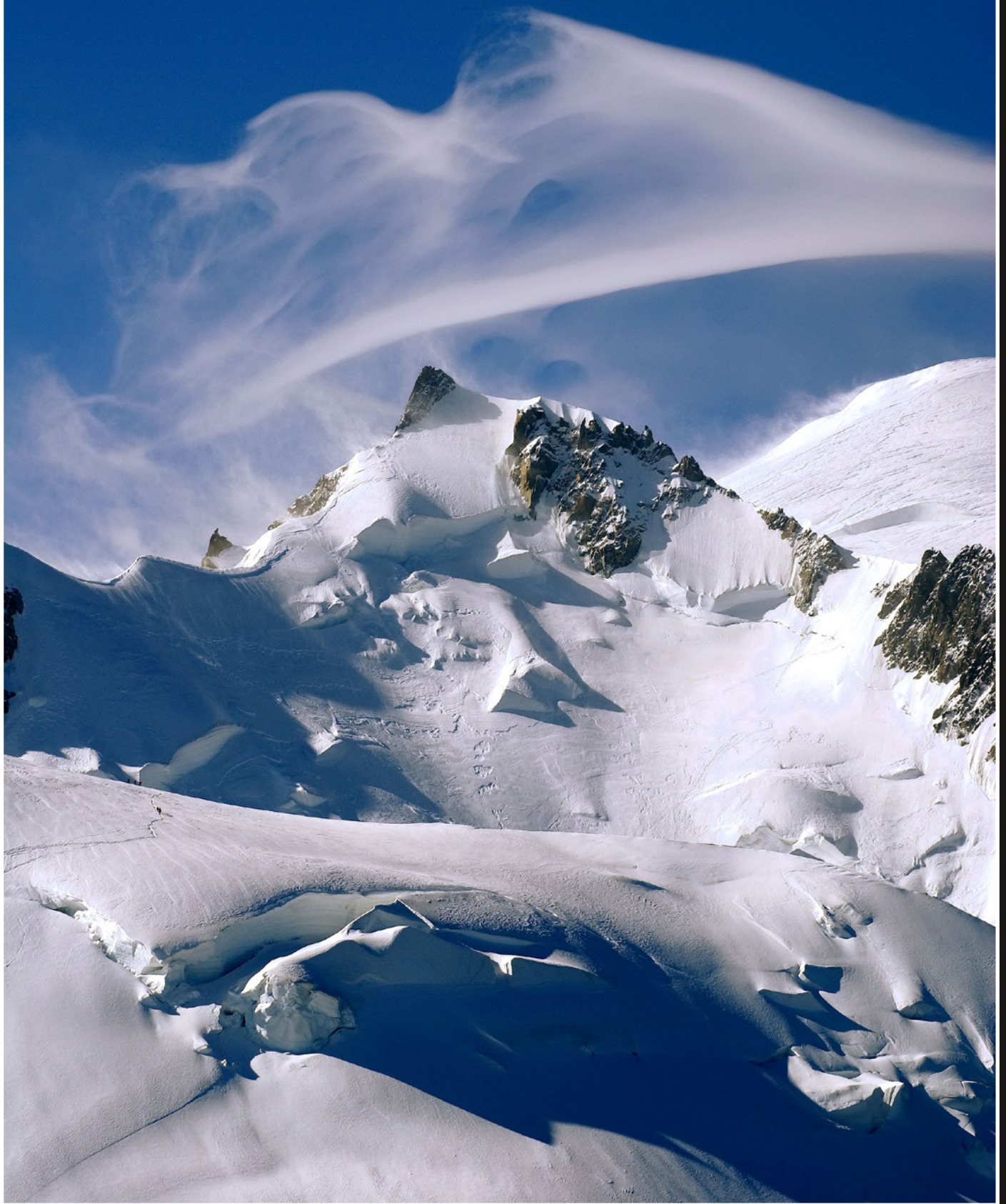


*Side rather than straight-on frontal lighting produces a more interesting modelling. But in the left hand picture, dark hair in shadow blends into the background. In the right-hand shot, the directional lighting from a single flash works well, and no second flash is needed.*



*A simple second flash added from behind my right hand side provides separation from the black background. The power does not need to be high, as you can see from the shot with this alone.*

# FROM THE FRIEDMAN ARCHIVES



*Some shots last only a few seconds, and you're either ready for them or you're not. This was one of the few times I was actually ready. There we were, at a lookout overlooking Mt. Blanc, when a fast-moving cloud (they're all fast moving at that altitude) flew by. This wispy dancing vapor went from right to left, and I had only 10 seconds to capture one horizontal and one vertical shot before it moved away from the mountain and dissipated. I always try to take a horizontal and a vertical of all travel photos, since you never know what shape a photo editor will need to fill.*

# PLASTIC PASSIONS

Right now, the tools of an established, fun artistic movement are scattered across the car boot sales and junkshops of the land, available for pennies – and yet, they are being ignored in favour of brand new products. The Lomographic society, now in its 21st year, is in a period of immense growth and membership is free, just grab a camera and start snapping.

At least in theory. Of course, for instant credibility, new bodies are being produced, from the original Lomo LC-A that kicked everything off to the Belair X-612, a stunning medium-format rollfilm body that looks set to disrupt the market for secondhand models quite significantly.

**Analogue and often flawed, the cameras you used to avoid are now the flavour of the 21st century, says Richard Kilpatrick**

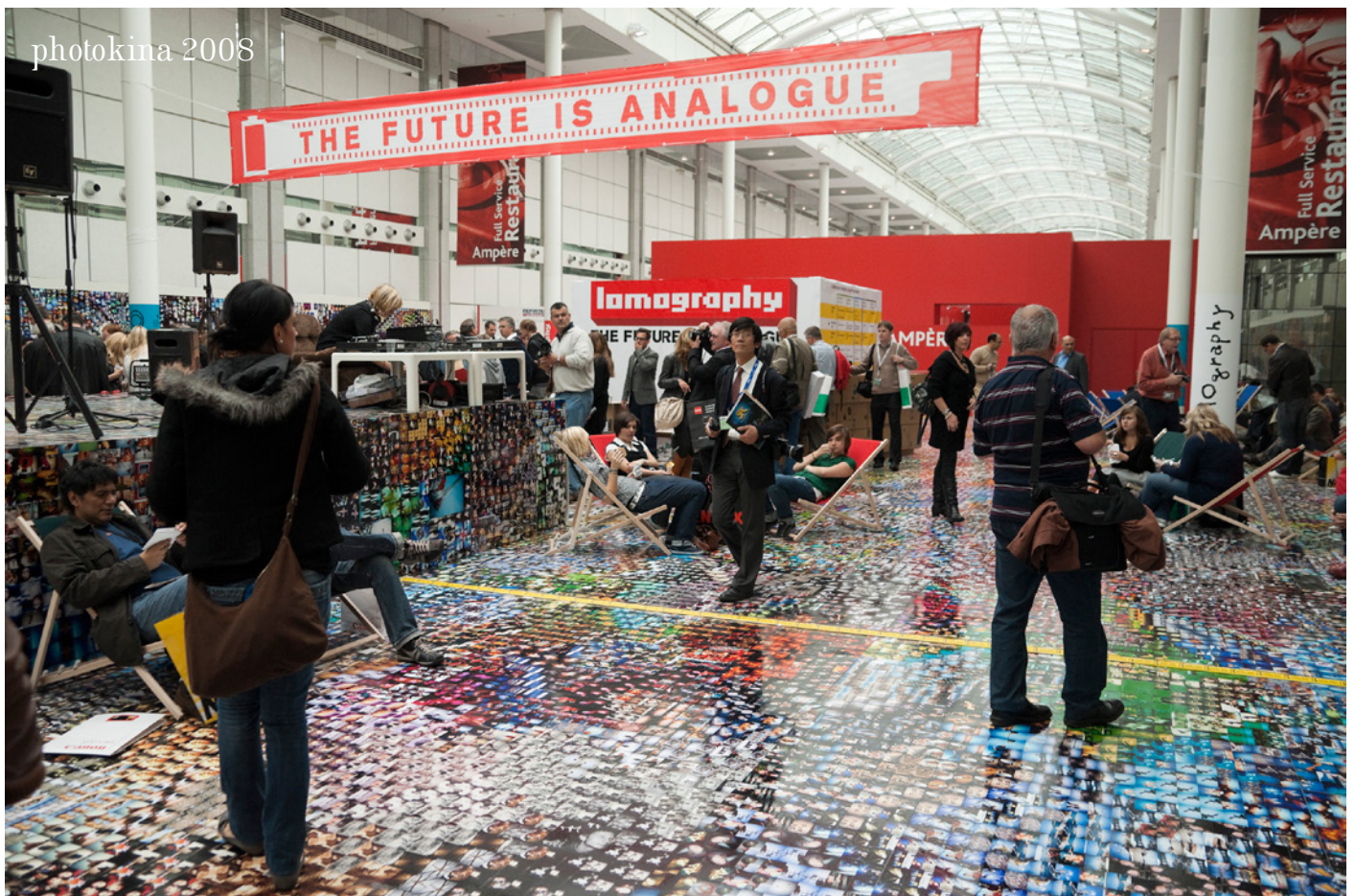
Lomography's success is in part due to a softly-softly approach, allowing it to grow organically and not forcing the issue until demand hits the right levels. Founded by Austrian students in 1992, the fascination with the Russian Lomo cameras drove them initially to collate, promote and exhibit work created using the Cosina CX-1 derived LC-A camera. After becoming sole distributors for the LC-A outside the former

Soviet Union and fighting for tax concessions to save the production in St Petersburg, by 2005 production had moved to China and development of new LC versions was underway.

The LC-A+, with Russian and Chinese made lenses at different stages of production, was joined by the exceptional 17mm f/4.5 LC-W+ in 2011. The LC range costs between £200-350+, and the CdS light meter provides simple, easy exposure with few possibilities

for overriding the 'ideal' calculated balance. At 220g, these light cameras are easy to handhold and robust. Yet iconic as they are, it is in the sillier, the plastic and cheap, that Lomography has really made an impact with a generation brought up on digital.

The Holga and Diana bodies, even cheaper models produced in China, provided a low-cost and distinctive way to reach the mass market. Sold through Lomography stores, the funky plastic beasts also got into trendy fashion outlets like Urban Outfitters. The range of cameras now marketed spans 110 film through to 120 rollfilm, in a bewildering array of colours and special editions which

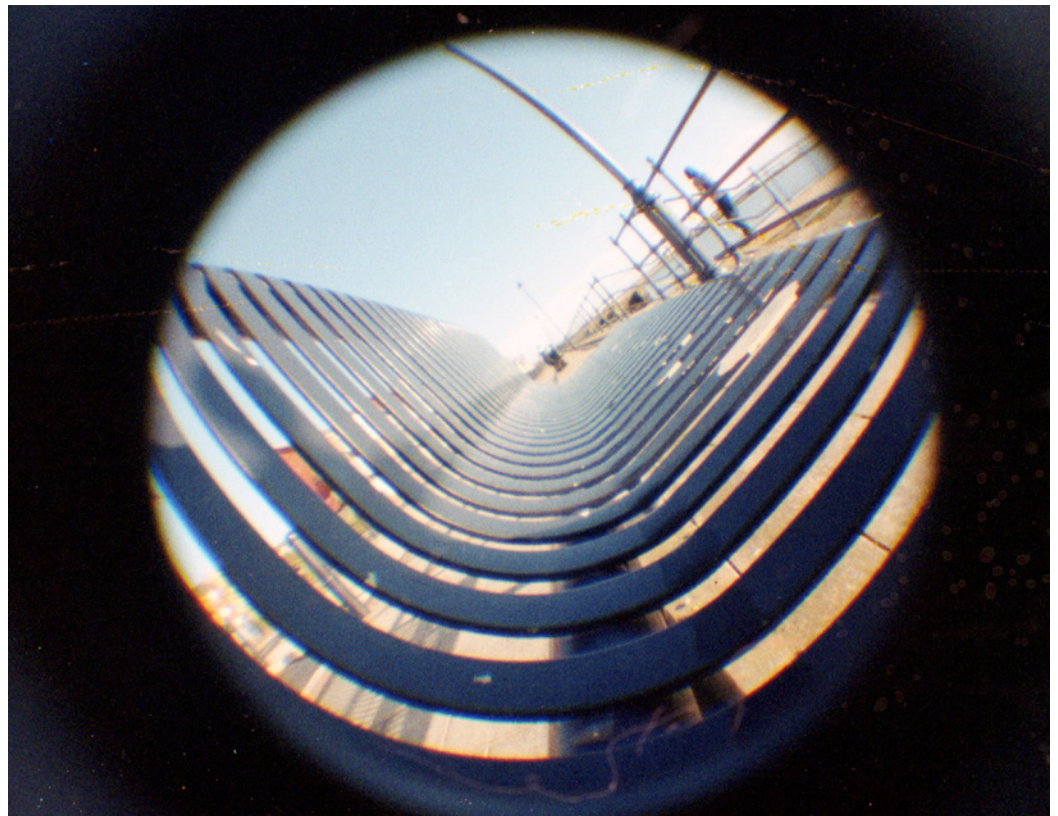


frequently sell out rapidly. All of these cameras, old and new, have found favour with a new generation of photographers purely for their imperfect and disposable – and thus, modifiable – nature. Light leaks, aberrations, flare, internal reflections are no longer the disastrous side effects of trying to develop the cheapest feasible container for film and shutter for light, they are the pre-set ingredients for images that lack the digital perfection of the modern era.

Where the Lomographic Society has pioneered, it has really filled niches. The Spinner 360° is a mind-blowingly simple panoramic camera powered by a pull-cord and rubber band, using 35mm film, and costing under £100. It can, for precise work, be motorised and remote controlled for £149. Capturing the trend for fitting 35mm into Holga 120 bodies, the “Sprocket Rocket” camera exposes the full height, including the sprocket holes, for a stylish effect with panoramic, overlaid, multi-exposure images not through technology, but lack of – film can be freely wound back and forth and the spring loaded shutter just works.

The 110 Baby Fisheye gives a circular image on 110 film and looks more like a keychain than a real camera, despite offering bulb mode,  $f8$ , 1/100th shutter and flash sync on the metal and Bauhaus models. Alongside the Baby Fisheye, the Diana Baby 110 offers an interchangeable lens option with 12 and 24mm optics whilst retaining the 1/100th fixed speed shutter.

The 40 year old 110 format was considered obsolete by 2009 – and 110 film’s lack of availability was clearly an issue for a huge available pool of cameras including Kodak’s Ektramax which brought aspherical elements to the consumer market, and National Panasonic’s radio-equipped models. Many firms started aiming high, and brought the products down in quality and price until they were competitive with the cheapest 35mm models,



*Top: taken with Lomo Bauhaus Baby 110 fisheye camera, Color Tiger 200 film. Above: strip of Pentax 110 negatives on Lomography Orca BW 100 film. Pictures by Richard Kilpatrick except where credited.*

and by the 1980s with cheap AF, zoom and so forth it seemed only the plastic, basic viewfinder models were viable. The only destination for this once popular option was the bin or the car boot sale.

At least, it was until Lomography reintroduced 110 in 100 ISO Black and White ‘Orca’ and then 200 ISO Colour ‘Tiger’ forms, revitalising those junk-shop plastic bodies and the stunning array of

experiments undertaken with the 1970s consumer format; from Minolta’s Weathermatic A to the exquisite Pentax 110 SLR – still the smallest interchangeable lens SLR system ever made, there are

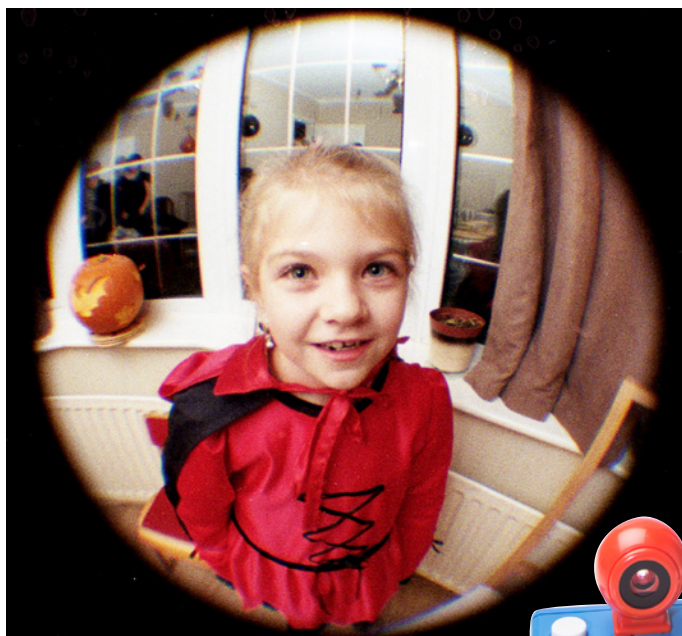


*Classic Russian Lomo Sport image – the 40mm lens gives a distinctive vignetting, high contrast and saturated colours. Photograph by Colin Edwards.*

hundreds of usable variants to cover almost any style of use and most are practically free.

Orca's resolution on the 13 x 17mm format (the same area as FourThirds system cameras) is quite impressive, with subtle grain. In the right bodies it delivers almost high-quality images (prints up to 11 x 14" were suggested for the Pentax 110, even on 1979's film and processing equipment), and is easy to process at home. Scanning, however, is another matter – and the Lomographic Society offers a combined bundle of processing, printing and scanning for £13, which compares favourably with £4-5 for typical processing only. You're unlikely to find high-street labs able to handle 110 these days, and it is apparent that many supermarkets that once retained the carriers for 110 in typical minilabs have simply abandoned the accessories even when the equipment and operators could easily offer the service.

Tiger, the 200 ISO (as with later colour media from Konica, Kodak etc.) C41 negative media is inevitably a little harder to deal with, and Lomography's service is more appealing. As 110 could only detect 100 or 400 media through a tab on the end of the cartridge the colour media is best suited to models with exposure compensation or manual/fixed shutter speeds. The Minolta 110 SLR Mk 2, a bridge-style zoom body that was very much a premium option when new in the early 1980s, offers the best support with good metering and



*Lomo Fisheye Baby 110 Bauhaus edition with big Metz flash attached – and resulting shot.*

exposure control as well as apertures from  $f3.5$  to  $f16$ . The original and unusually styled 110 Zoom SLR of 1976 also offers exposure compensation with apertures from  $f4.5$  to  $f16$  and shutter speeds up to  $1/1000$ th, with a 10 second maximum exposure. Both Minolta models are limited to a 50mm equivalent field of view at the widest end, and have impressive close-up

modes. The 110 Zoom SLR can be found for under £10 in working order, the 110 SLR Mk 2 may approach £80 but often sells for a fraction of that.

Pentax's Auto 110 lacks exposure compensation, and even the rare Auto 110 Super only extends to a +1.5EV backlight compensation. However, it's the most versatile 110 camera ever produced, with a selection of lenses from 18mm to 70mm and a 20-40mm zoom as well as common 24mm and 50mm options. All of the lenses are exquisitely tiny and featherweight, and all are  $f2.8$  thanks to the ingenious arrangement of an internal aperture ( $f13.5$  @  $1/750$ th minimum on the Auto 110,  $f18$  @  $1/400$ th on the Super). Paired with Orca, this is a street-shooters' dream; when 400 ISO B&W film becomes available the



Pentax 110 will be the way to get the best out of it.

There is little point delving into 35mm's non-Lomo options, as the market is immense. As well as the current Chinese Lomo, Holga etc. models notable classics include the clockwork winding Russian Lomo 135BC.

Even the moving picture is now catered for. The LomoKino – with, once again, a  $1/100$ th shutter and a simple  $f5.6-11$  two-blade aperture behind a simple 25mm lens – allows 144 24 x 8.5mm shots on a single roll of 35mm 36-exposure film. Viewing can be analogue or digital, with processing from Lomography or smartphone capture via the clever *LomoKino Maker App* and LomoKinoScope viewer.

The results, at around 3fps to a rather frantic 5fps, are fun, and with patience some impressive movies can be made; various enthusiasts have found ways of motorising the LomoKino. It's important to ask your lab not to cut the film at all, as



*Lomo 110 films and a collection of cameras old and new*

the loading can be fiddly. Yes, it's also a fun low-res panoramic camera, if you so wish. LomoLab offers scans of individual frames, and there's a flash synch socket as well.

The LC-W+ is probably the most appealing of the current 35mm range of Lomo cameras, offering a 17mm focal length, ultrawide field of view and flexibility that appeal despite the circa-£350 price. Using half-frame mode without inserts, half-closed front shutter, fiddling with the ISO control, it becomes a challenge to push the otherwise reliable exposure system and pleasing optics to create more interesting images. And, that price does include a presentation box and book of Lomography.

Books, walls and exhibitions with global appeal are what drives the Lomographic society. Not necessarily products. For the past two decades, images which any other photographic group would decry for flawed technical quality and even the mundane, the ordinary, in their subject matter have found life through people who see the moment as captured for all it is. The plastic toy, the cheap little box of memories with an ease lost by the clinical and accurate depictions of auto white balance and precision engineering. In a typical 24 hour period the Lomographic society website will have thousands of images uploaded from film-using enthusiasts around the world.

Moving into larger format, the end of 2012 included an exciting announcement from Lomography – the introduction of a camera which is neither expensive, nor toylike. The Belair X-612 is a new breed of camera for the company which has focused on resurrecting and supporting low-cost Russian and Chinese production, a medium format rollfilm camera with serious potential. At the time of writing it is yet to ship, but by the time you read this examples will be in the hands of enthusiasts worldwide, from the plastic bodied to the faux-snakeskin



*The Belair 6 x 12 multiformat with interchangeable lenses*



*Lomos old and new, Pentax 110, and Lomo Life –The Future is Analogue book*



*It's a small world and it smells funny... Lomo vintage 135BC normal angle of view, above, and new Lomo LC-W+ 17mm lens, below.*



metal clad limited edition. The bellows body is, as the name suggests, a 6 x 12 camera but has 6 x 9 and 6 x 6cm masks. It ships with 58mm (21-35mm equivalent) and 90mm f8/ f16 optics. 90mm or 114mm superior Russian lens options are recently announced,. It has a fastest 1/125th shutter speed with auto exposure – very similar to the LC-A system aside from that slow shutter. The plastic body city slicker is only £199 with the two lenses and optical viewfinder, the Jetsetter edition under £300. Even up against more sophisticated secondhand options, it promises affordable access to medium format panoramas.

As plastic photography has continued to grow in popularity, Holga lenses have been produced for digital cameras, as well as the popular LensBaby system. Yet there's an integrity to the wholly analogue process that feels natural; the plastic lens on digital is a broken machine, the plastic camera is a much-loved toy.

It's easy to see how the tough little LC-A/W+ or pocketable 110s just become companions. You learn to see as they do and it's easy to feel part of the Lomography movement when waiting for the results from the last spool.

For more information, just go to their very busy website: [www.lomography.com](http://www.lomography.com)

You can find Lomography stores in Antwerp, Rio de Janeiro, São Paulo, Toronto, Guangzhou, Beijing Chaoyang, Shanghai, Hongkong, Beijing, Hongkong Tsim Sha Tsui, Paris Marais, Paris, Munich, Cologne, Berlin, Milan, Tokyo, Amsterdam, Singapore, Seoul, Madrid Echegaray, Barcelona, Madrid Argensola, Taichung, Taipei, Bangkok, Istanbul, East London, London, Manchester, San Francisco, Santa Monica, Austin, Los Angeles, Chicago, New York, Santiago Chile, Jakarta, Monterrey Mexico, Puebla Mexico, Lima, Lisbon and Porto.

*Lomo Life – The Future is Analogue: Thames & Hudson. ISBN: 9780500544211.*



# CAMERACRAFT REARVIEW

*Objects seen in this mirror may be closer than they look.  
A curated gallery of selected or submitted images.*



*Editors crop images to fit space, but in the case of this simple and beautifully toned capture by Mike Nobbs (above) taken in Nôtre Dame cathedral, we've cropped it to square as it cleans up the composition – despite losing some of that lovely streaming light. Taken on a NEX-7 with 18-200mm SEL lens, hand held, Peter Karry took the glowing snow scene with deer on a Quest photo workshop ([www.questphoto.co.uk](http://www.questphoto.co.uk)) to Glencoe. A project documenting life in Govan, Glasgow, produced the portrait of a welder by Findlay Rankin, posed rock steady for a 1/6 second exposure on Canon 5D Mark II, 24-105mm at 35mm, f14 ([www.findlayrankin.com](http://www.findlayrankin.com)). Paul Steinberg of Muscoda, WI, captured the sculpture and water-cascade glass using a Canon G11.*

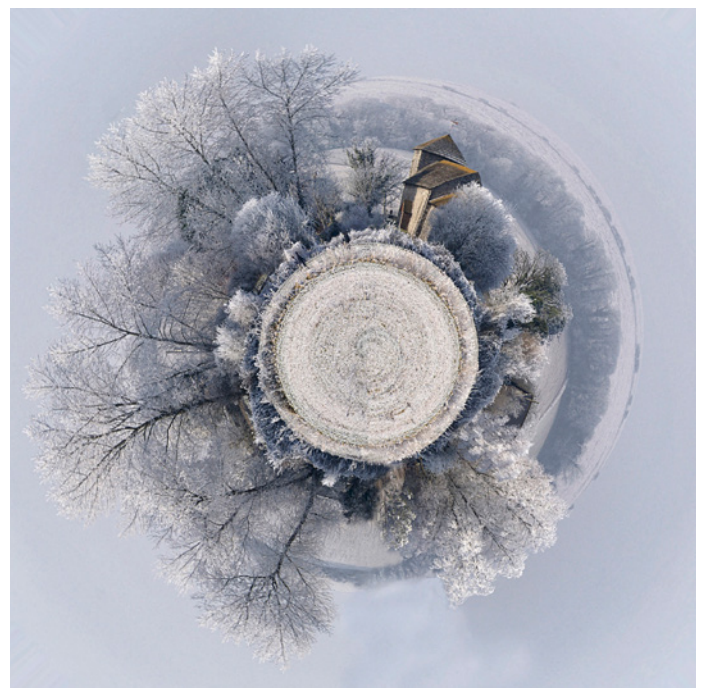




Street photography: left, by Karl Klauda, Vienna (NEX-7 and 24mm CZ). Right, by Ron White, Monterey in winter, Nikon D7000 with 50mm f1.8 standard Nikkor, guitar player doing left hand exercises while walking to the music school ([www.rfwhitephoto.com](http://www.rfwhitephoto.com)).



Nick Higham: Alan Turing Building, University of Manchester, stitched from multiple 16-35mm shots taken at 27mm, on Canon 5D Mark II.



Circular universe: left, by Dr Harout Tanielian, 8mm fisheye on Nikon (film); right, by Cliff Carter, 'small world' in winter ([www.cliffccd.com](http://www.cliffccd.com)).

# CAMERACRAFT REARVIEW

Sir Patrick Moore was always one of my all time heroes. He seemed to have been on television since time began!

When I made the portrait which appears on the back cover, I was 38 years old and Sir Patrick had been there looking out of the magic box at me all my life. His eccentric nature and great charisma made him a real people's favourite whether into astronomy or not. He represented, for many people, a time gone by when men were gentlemen and life was a great deal simpler. When you add to this Patrick as one of the last of a dying breed of English Eccentrics, it is not hard to realise why he found a place in so many of our hearts.

He brought the incredible story of the Human Race's exploration of space to the British public from the first satellites to Curiosity on Mars. He was there commentating live on the BBC when Neil Armstrong walked on the moon in 1969. I was sat on the floor of a dusty school hall with about forty other kids wearing short pants watching a black & white TV (the old sort with a pull out hood around it) looking at fuzzy images of spacemen bouncing around a dusty landscape.

Patrick was one of those very rare experts fantastic at putting over their subject in a way that is not only easy to understand but that is exhilarating and exciting to someone who knows nothing about it. He must be responsible for getting more people into astronomy than any other person in his field. More than this he has made many people stop thinking about the complexities of their lives and instead think about the vast expanse of universe out there. He helped you to see the bigger picture. After all, space is only 30 miles away, from wherever you live.

When you put all this together it is no surprise that when I had the opportunity to shoot Sir Patrick Moore portrait I was 'over the Moon'. What a fantastic subject he would make and what an

## The story behind a great portrait: how our back cover choice was taken, or very nearly not

*Paul Wenham-Clarke is an advertising, commercial and documentary photography based in London. He has been funded as a Research Fellow by The Arts University College, Bournemouth, for 'The Westway' project documenting life underneath London's huge A40 flyover, exhibited at St Martins-in-the-Field Crypt Gallery, Trafalgar Square, London, from January 9th to February 28th 2013.*

opportunity to meet and talk to the man! The actual day of the shoot would be more eventful than I was expecting. We arrived at Patrick's house at about 10am – myself and Anita my wife who is also a photographer. We often work together. The first thing that struck me was how big Patrick was, towering over my titchy frame. He had mentioned on the phone that he had a trapped nerve in his right arm that was making life very difficult. I could see he had limited use of his hand and he was in quite a bit of pain. However in true stiff upper lip style he dismissed his ailments and welcomed us to his home.

His office was an Aladdin's cave of books and astronomical nick knacks from all his trips around the world. There was everything from a small meteorite to a miniature Clanger on those shelves. Maps of the Moon and photographs of solar eclipse adorned the walls. There were two desks each a with huge black wartime manual typewriter on it. This turned out to be Patrick's favourite method of writing. He had a third desk with a PC connected to the internet but preferred not to use it. At one point he said to someone on the phone "You can send an e-mail if you like but I never read them."



I started setting up my lighting equipment to take a close up of him in his office. Meanwhile he was talking with some astronomer friends who had come to visit. He suggested that we both should have a gin and tonic; I should have known this was not a good idea.

When they arrived they were so big you could have drowned yourself in them. Unlike myself Anita is not much of a drinker and on an empty stomach was very quickly sloshed! However we got on with the shoot and even though we had a top-up I managed to focus all right. By now we were getting on very well with Patrick and he invited us for lunch with him at his local restaurant.

Some how at the bar there was a mix-up and I ended up with two pints of Guinness and Anita had a Bloody Mary. Also there was a bottle of wine to share amongst us, so what could we do but knuckle down and drink the lot, anything else would be rude. Soon I found myself discussing life the universe and everything with the great man as if I had known him for years. I was trotting out all my tin pot theories and quizzing him on subjects as wide as intelligent alien life, dinosaurs and manned missions to Mars. Luckily I didn't get on to time travel or alien abduction. Patrick

in his inimitable style dealt with every question like he had never heard it before and without making me feel like a twit for asking.

We returned to his house, went through into his oak-panelled living room and sat down to catch up on the Wimbledon matches.

Suddenly I woke with an incredible rush of panic as I looked up at the ceiling and remembered where I was. I had fallen asleep on Sir Patrick Moore's sofa, why did I eat so much and drink so much? I looked around and Anita was sparked out next to me and Patrick was fast asleep in his armchair with his beloved pet cat Jennie laid over him.

I wanted to take a pic of him like this as he looked so good but I thought that wasn't fair... then another wave of sleep came over me. I thought to myself there will be no more photography to day, go back to sleep. One hour latter we all regained consciousness and were quickly revived by a cup of tea.

I thought that would be it, but suddenly Patrick leapt to his feet, said "you wanted to take more pictures" and off we went to his observatory in his garden.

We did several shots but the one you see was actually shot in daylight. I added the night sky from another shot of the Plough I took a few nights later.

A few hours and many cups of tea passed by before we left for home. This had been one of the most memorable days shooting in my career. Often when you meet a celebrity face to face you can be very disappointed. The character you have apparently got to know is not actually the real one. However Patrick the real man was even more fascinating and endearing than the TV persona we all know.

I wrote, back then, how I hoped Sir Patrick would live to see at least one more great discovery or venture into space. In his final decade he saw many.

– Paul Wenham-Clarke



[www.wenhamclarke.com](http://www.wenhamclarke.com)



*Sir Patrick Moore, 1923–2012*

*Photographed by Paul Wenham-Clarke in 2002.*

*Paul used a Hasselblad, with Fuji Provia transparency film. Although the observatory was in daylight, he placed a Bowens Quad flash generator and head outside to bring dramatic light in through the open roof. He took the image of the night sky a few days later, and after scanning, combined the two using Photoshop.*

# CAMERACRAFT

## REARVIEW

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