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ANDREW HALL ON WHY MIRRORLESS WORKS FOR MOTORSPORTS

FIRST LOOK

TAKING THE COVERS OFF **FUJIFILM'S GFX 50S**

CHRIS SHAIN AND THE GIFT OF PHOTOGRAPHY

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D500

DX

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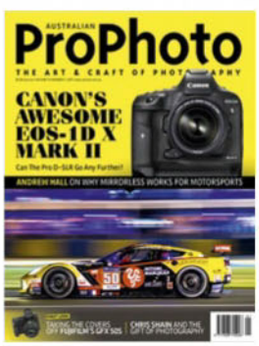
Image taken by Chris Shain, professional photographer and music lover. See Chris Shain's profile story on page 30.

Contents Volume 73 No.1, 2017

This issue's main cover photograph was taken at the 2016 Le Mans 24-hour endurance race by sports photographer Andrew Hall using the Fujifilm XT-2 pro-level mirrorless camera. Andrew is an enthusiastic adopter of mirrorless cameras for his work and explains why to Alison Stieven-Taylor in our profile which begins on page 20.



IT'S NOT JUST ABOUT THE PRODUCT

At the Japanese launch of the GFX digital medium format camera system – in the historic city of Kyoto – the press event was kicked off by Fujifilm's Chairman and CEO, Mr Shigetaka Komori. I've sat through a few of these things over the years and mostly all you get from the top man is fluff of little consequence. This is either because he hasn't really got a clue what's going on or there are bigger fish to fry than imaging products (often a small part of a much bigger business).

Komori-san is different. Yes, Fujifilm has lots of irons in lots of fires and apparently his attendance at the GFX launch was indeed considered a bit of a coup, but the reason became clear as he continued to speak. He became president of the company in 2000, which was the year the world changed as far as photography was concerned, and film sales went into free-fall. Panic ensued among the 'traditional' photo companies, but Komori held his nerve and, when chief rivals Kodak and Konica started unpacking the white flag, he recalls, "I committed to continue our photographic business in order to protect our 'Photo Culture'".

What he said next is the really significant bit. "I had a deep conviction that protecting, and even enhancing, 'Photo Culture' is one of the most important social duties for us as a photographic company."

Of course, things still had to change, but Fujifilm has rather cleverly diversified on the basis of its photographic technologies; including into cosmetics, pharmaceuticals and health care. Then again, in 2008, the company faced another challenge as the consumer digital camera business was threatened by the rise and rise of the smartphone. Again, Komori-san refused to panic. When he was asked why Fujifilm wasn't abandoning digital cameras, he replied, "Great cameras that can capture and deliver beautiful, inspiring and emotional photos will not disappear. The strong demand for that type of camera will definitely continue to exist. Fujifilm has the passion, technologies and knowledge to be a leader in this field".

Notice something about his language? He talks of "conviction", "passion" and "emotion" which are not words you hear all that often from a Japanese executive of his seniority. Of course, he's also concerned about sales figures and balance sheets, but he's got the pursuit of a philosophy and the pursuit of profits in the right order… and the right perspective. The original X100 was born out of this and, subsequently, the whole X Series has become one of this decade's great success stories as far as digital cameras are concerned. Yes, the products themselves are good – you still have to get this bit right – but it's the philosophy which informs them that bestows greatness on them. Beyond the design and the technology, there's an insight and an integrity which are born of the desire… no, the word "conviction" is probably more accurate here… to achieve something much more purposeful than merely 'move boxes'. And this comes from the very top. Wow!

GFX is anchored on the same values and will also undoubtedly benefit from the faith in its potential generated by the X Series's impressive track record so far. Fujifilm clearly has great faith in its new baby too. In all my years writing about cameras, I have never seen so much effort and resources – simultaneous launch events were held in New York and London – put into the launch of medium format product, film or digital. The sales projections – unknown, of course – would make very interesting reading indeed. My own estimation is that GFX will double the digital medium format camera market in volume within two years. And I could be erring a bit on the conservative side here.

So, when Mr. Komori says, "GFX will start a new chapter in the history of photography and the camera industry", he knows he hasn't been wrong about any of this so far.

Incidentally, the GFX launch was held in Kyoto's magnificent Nijo Castle complex, in an ancient hall… open to the elements on one side… unheated… requiring the removal of shoes… and in the middle of winter with snow still on the ground. In another first for me, the press kit was accompanied by hand-warmers and a blanket! Small details… and one very big objective.

Paul Burrows

Paul Burrows, Editor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The new Fujifilm GFX 50S hits our shores very soon and will be available with three lenses while further lens releases are planned for 2017.

Fujifilm Reveals Full GFX Specs… Deliveries Start Now!

Since announcing its mirrorless digital medium format camera system back at last year's Photokina in Germany, Fujifilm has kept a tight lid on the first GFX camera's full specs and pricing. Now all is revealed and, by the time you read this, the first shipment of bodies and lenses should be landing in Australia.

Let's cut to the chase regarding pricing first. The GFX 50S body delivers on the promise of being "well under $10,000", but that's in US dollars of course. In Australia it just scrapes under at $9999 which still makes it a lot cheaper than Hasselblad's rival X1D and in the ballpark in terms of competing with the top-end full-35mm D-SLRs from Canon and Nikon. The standard GF 63mm f2.8 R WR lens (equivalent to a 50mm) is priced at $2399 so that's a shade under $12,500 to jump into a digital medium format system…only Pentax's 645Z offers a similarly affordable route, but it's a significantly bigger and bulkier camera than the GFX 50s. There are two other lenses available immediately – a 32-64mm f4.0 zoom (equivalent to 25-51mm and priced at $3499), and a 120mm f4.0 macro lens (95mm and $4199) – but Fujifilm is promising three more lenses by the end of 2017; namely a 23mm f4.0 ultra-wide (equivalent to 18mm), a 45mm f2.8 wide-angle (36mm) and a 110mm f2.0 short telephoto (87mm). There's also an adapter for H-Mount lenses (which, of course, Fujifilm has some involvement with) and which give the GFX system a lens-shutter option.

A number of the GFX body's major features have already been well-documented since Photokina 2016, including the interchangeable EVF, the new G Mount with a fully-electronic 12-pin interface, and the 44x33 mm 51.4 MP (effective) CMOS sensor which is designed by Fujifilm – or "customised", as the company nicely puts it – and fabricated by Sony. What's now revealed is a 425-point contrast-detection AF system (in a 17x25 pattern), 256-zone metering and a continuous shooting speed of 3.0 fps with no limit on the JPEG burst length. The sensitivity range is equivalent to ISO 100 to 12,800 with expansion up to ISO 102,400 and a one-stop 'pull' to ISO 50. The camera's focal plane shutter has a speed range of 60 minutes to 1/4000 second, but there's the option of a sensor-based shutter which boosts the top speed to 1/16,000 second, or 'electronic first curtain' operation. Flash sync is up to 1/125 second.

The GFX 50S captures a maximum image size of 8256x6192 pixels with the option of one smaller size, but a total of seven aspect ratios – 4:3, 3:2, 16:9, 1:1, 5:4, 7:6 and 65:24 (i.e. the 'true' panoramic ratio). JPEGs can be captured at one of three compression levels while RAW files are captured with 14-bit colour (RAF format) and there's the option of RAW+JPEG recording. The GFX 50S has dual memory card slots for the SD format, both with UHS-II speed support for SDXC devices.

Not surprisingly, quite a number of JPEG processing features from the top-end X Series cameras have found their way into the GFX 50S, including the 'Film Simulation' presets (with the latest ACROS B&W modes), 'Grain Effect' and the 'Lens Modulation Optimiser'. New is something called 'Colour Chrome Effect' which is designed to boost the colour saturation without compromising tonality. Other notable features include five auto bracketing modes (including for the 'Film Simulation' presets), a multiple exposure facility, intervalometer and WiFi.

The GFX 50S records Full HD 1080p video with stereo sound and the availability of various functions such as the 'Film Simulation' presets. There's a stereo audio input for external mics and an output for monitoring via headphones. An uncompressed video output is available from the camera's HDMI connector for recording to an external recorder.

Physically, the GFX 50s looks and feels a bit like a supersized X-T2, although it's neither big nor bulky for a digital medium format camera. The fully weather-protected magnesium alloy bodyshell – which is actually smaller overall than either the Canon EOS-1D X Mark II or the Nikon D5 – weighs in at 920 grams with the detachable EVF attached. It sports a pair of dials – for shutter speeds and ISO settings – and a top-deck monochrome LCD read-out panel. The 8.1 cm LCD monitor screen has a resolution of 2.36 megadots, has a three-way tilt adjustment (like the X-T2) and provides touch controls including for autofocusing. There's an optional vertical grip which holds an additional battery and a tilt adapter for the EVF. Interestingly, there's a monitoring facility for the age of the batteries, scaled from zero to four.

For more information visit www.fujifilm.com.au

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New Lumix Flagship Delivers '6K Photo'… And Much More

Unveiled at last year's Photokina and launched at this year's CES in Las Vegas, Panasonic's new Lumix G flagship raises the bar again in terms of mirrorless camera capabilities both for still photography and video-making.

Featuring a more streamlined bodyshell than its predecessor, the Lumix GH5 is still a comparatively compact camera which again will be the attraction when competing against the likes of Canon EOS 5D Mark IV.

The magnesium alloy body is fully weather-sealed and has a new OLED-type EVF with an increased resolution of 3.68 megadots and a magnification of 0.76x. The monitor screen is an 8.1 cm LCD panel with a resolution of 1.62 megadots, touch controls and a full range of tilt/swing adjustments. As before, there are two SD memory card slots, but both are compatible with UHS-II speed SDXC types.

Panasonic's already impressive DFD (Depth From Defocus) contrast-detection autofocusing has been upgraded to operate at 480 fps with 225 focusing points and sensitivity down to EV -4.0 at ISO 100. Continuous shooting is possible at up to 9.0 fps with full AF adjustment, and up to 12 fps with the AF locked to the first frame. As the GH5 now records 4K video at either 60 fps (NTSC) or 50 fps (PAL), its '4K Photo' modes have been upgraded to operate at 60 fps as well. Furthermore, '6K Photo' functions are provided – running at 30 fps – which delivers still frames with a resolution of around 18 megapixels (up from 8.3 MP with 4K, taking these high-speed photography modes to a new level of usability.

In addition to recording 4K video at 50/60p, the GH5 is also the world's first mirrorless camera to record 4K video internally in 10-bit depth with 4:2:2 colour (either UHD resolution at 25/30p or Cinema 4K resolution) at 24p. This gives over a billion colours and four times the tonality of 8-bit. Equally importantly, it provides significantly more editing flexibility in post-production. Available down the track – via a firmware upgrade – will be 10-bit 4:2:2 colour for 1080p Full HD recording at 50/60p. The GH5 can also record a 10-bit 4:2:2 colour to an external recorder via its HDMI connector or, 8-bit 4:2:2 colour while simultaneously recording 8-bit 4:2:0 colour internally for back-up. A second firmware upgrade scheduled for later in 2017 will give 4K recording at a bit rate of 400 Mbps and 200 Mbps for Full HD via ALL-Intra compression (and with 10-bit 4:2:2 colour). The GH5 can record 1080p footage at faster frame rates up to 180 fps for enhanced slow motion effects. Notably too, there is now no time limit on clip durations with any recording setting so the only factor here is the capacity of the loaded memory cards or the external recorder.

Not surprisingly, the GH5 is packed with pro-level video functions, including luminance level adjustment (in both 8-bit and 10-bit), synchro scan (SS) mode, SMPTE-compliant time coding, waveform and vectorscope monitoring, colour bars, Cinelike profiles (plus Like709 for HDTV and, optionally, V-LogL) and a master pedestal control.

The GH5's new Micro Four Thirds size 'Live MOS' sensor has a total pixel count of 21.77 million and lacks an optical low-pass filter to help optimise resolution. The read-out speed has been increased by 1.7x compared to the GH4's sensor and there's a new 'Venus Engine 10' processor which is 1.3x faster to enable the 50/60p 4K recording. It also delivers a number of new image data processing capabilities, including 'Multi-Pixel Luminance Generation', 'Intelligent Detail Processing' and 'Three Dimensional Colour Control' which collectively enhance sharpness, detailing and colour reproduction. Noise reduction is also upgraded and Panasonic claims noise-free images across the camera's sensitivity range of ISO 200 to 25,600. Five-axis sensor-shift image stabilisation gives up to five stops of correction for camera shake. Built-in WiFi is integrated with Bluetooth 4.2 for more convenient connectivity options.

The Lumix GH5 is expected to be available in Australia by the end of March and is priced at $2999 for the camera body, but is also available packaged with either the Leica DG Vario-Elmarit 12-60mm f2.8-4.0 ASPH Power OIS zoom (equivalent to 24-120mm) or the Lumix G X Vario 12-35mm f2.8 II ASPH Power OIS zoom (equivalent to 24-70mm). Both these kits are priced at $3999.

For more information visit www.panasonic.com.au

Leica's Digital RF Camera Gets A Makeover

Leica has reworked its digital rangefinder M to create the M10 which is not only the most compact version of the camera so far, but also returns to a conventional model numbering system. After the M9 model, Leica adopted its factory codes to designate new digital M models, but the 'Typ' coding hasn't always been easy for consumers to understand.

Although the traditional M styling is retained, the M10 has an all-new magnesium alloy bodyshell which is slimmer than the previous M Typ 240 model. The top and bottom plates remain brass components.

A dial for setting the ISO now accompanies the one for selecting shutter speeds. The classical optical rangefinder is retained, but with a larger field-of-view (increased by 30 percent) and a higher magnification (now at 0.73x). Additionally, the eyepiece's eyepoint has been increased by 50 percent, making the viewfinder easier to use for spectacle wearers.

The M10 has an all-new magnesium alloy bodyshell which is slimmer than the previous M Typ 240 model.

On the inside is a full-35mm format CMOS sensor Leica says has been "developed especially for this camera" and which has a "unique pixels and microlens architecture". It has an effective pixel count of 24 million and a sensitivity range equivalent to ISO 100 to 50,000. There isn't a low-pass optical filter to help optimise the resolution and Leica's 'Maestro II' processor enables continuous shooting at 5.0 fps for a burst of 100 JPEGs or 30 RAW files. These long bursts are possible thanks to a 2.0 GB buffer memory. The M10 captures JPEGs in one of three image sizes and RAW files in the Adobe DNG format, but it has no video recording capabilities (although live view is available). There's a single memory card slot for the SD format. The LCD monitor screen is fixed and has a resolution of 1.04 megadots. It's protected by a scratch-resistant 'Gorilla' glass faceplate. A first for a digital M body is the inclusion of a WiFi module, enabling wireless file transfer and remote camera control via the Leica M-App (for iOS devices).

The rest of the M10 is essentially pure Leica M – manual focusing via a split-image rangefinder, centre-weighted average metering, aperture-priority auto or manual exposure modes, and a top shutter speed of 1/4000 second. Multi-zone and spot metering options are available using the imaging sensor. The Leica M10 is available with black or silver chrome finishes and is priced at $9700 (body only). It is available in Australia now.

For more information visit https://au.leica-camera.com

Lexar Rallys Around

The World Rally Championship (WRC) has selected Lexar data storage products – including customised USB drives – to be used in various areas of competition coverage. Lexar microSD cards are being used in stage-side GoPro cameras and aboard DJI drone aerial cameras.

Lexar's Compact Flash memory cards are in the CineFlex cameras used in the helicopters which follow each special stage, and Lexar Pro Workflow Hub readers are used in each rally's editing studio.

CEO of Filmworks and Head of Production for WRC, Marco Viitanen explains, "The Lexar storage cards and workflows are integral to the production and broadcast of every event. There are four Lexar CFast cards in every WRC rally car, capturing video from all the in-car cameras and capturing telemetry data that is used by the teams and in the video production."

The Lexar cards are removed from the cars at every stage, placed into secure storage and immediately flown by helicopter to the onsite production studio for inclusion in the live feed and video productions.

Marco Viitanen continues, "The use of Lexar removable storage has enabled WRC to capture images and data that were previously simply not possible. As a result, WRC can now provide viewers, partners and the racing teams with far more compelling content."

WRC rallies are held in some of the harshest conditions on the planet including snow, ice, high temperatures and choking dust, something that Marco maintains is another reason the WRC chose Lexar as its storage partner.

"There are also often major crashes and, much like all the safety equipment that ensures the drivers and navigators survive, Lexar has built in its own robust safety features into its storage products to guarantee the memory cards do too."

For more information about Lexar products visit www.lexar.com

ProPhoto On The Web

Today a Web presence is an integral part of magazine and newspaper publishing so you'll find *ProPhoto* – or, at least, some of it – at www.avhub.com.au Here you can also visit the other titles in the stable of Next Media AudioVisual Group magazines, including sister publication *Camera*. Have a look at these because you might find another magazine that you'd like to buy from your newsagent or subscribe to. If you're interested in hi-fi, video, home theatre, 'smart home' technologies or car audio, check out *Sound & Image*, *Australian Hi-Fi* or *Australian Guitar* (just follow the links from the AVHub home page).

Leica Sees Red

We have a feeling this might become a bit of a trend. Leica has announced a limited edition of APO-Summicron-M 50mm f2.0 ASPH lens which has a red anodised finish. On its own, the red lens looks a bit strange, but fitted to a black M Monochrom camera body – as it is here – it looks fabulous. Just 100 examples are being made so, if you want one, you'd better get in quick… oh, and you'll need a spare $12,900.

The APO-Summicron-M 50mm f2.0 ASPH is, of course, best known for being the world's sharpest standard lens and is made in Leica's state-of-the-art manufacturing facility in Wetzlar, Germany.

The optical construction comprises eight elements, three of which are made from high anomalous partial dispersion glass to provide apochromatic correction. Two elements are made from glass with a high refractive index, and all these special elements use Leica's own formulations. There's also a 'floating' element in the optical design to ensure optimum sharpness at short focusing distances.

For more information about the Leica M system in general and the special edition APO-Summicron-M 50mm f2.0 ASPH lens visit https://au.leica-camera.com

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Level 2, QVB and at selected authorised Leica dealers.
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Fourth Gen X100 Steps Up To 24.3 MP And More

Although most attention is on Fujifilm's launching of the GFX mirrorless digital medium format camera system, it isn't neglecting the camera which started the brand's current revival in high-end cameras. The X100F is the fourth generation iteration of the original X100 which was unveiled at the 2010 Photokina and went on sale early the following year. It's subsequently been followed by the X100S (2013) and X100T (2015) which have both introduced updates and refinements.

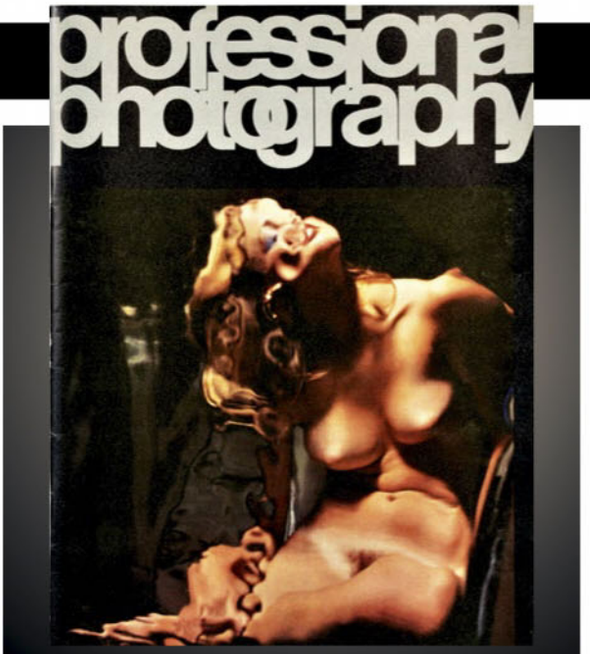
The X100F is more of a major upgrade as it has a new sensor and processor, an improved AF system and quite a number of significant ergonomic changes. An important new feature is the facility to automatically recognise when the wide-angle and telephoto converter lenses – themselves updated to incorporate electronic connections – are attached, adjusting the in-camera distortion correction accordingly.

The X100F has the same 24.3 megapixels (effective) 'X-Trans CMOS III' 'APS-C' sensor as the X-Pro2 and X-T2, mated with the 'X-Processor Pro' high-speed imaging engine which improves the start-up time (0.05 seconds), shutter release lag (0.01 seconds) and AF response time (0.08 seconds). The continuous shooting speed increases to 8.0 fps over a much longer burst of either 60 JPEGs or 25 compressed RAW frames. The X100F also inherits the joystick-type control for focus point selection from these models, and from the X-Pro2, the lift-and-turn ISO selector within the shutter speed plus the 'C' setting on the exposure compensation dial which extends the range to +/-5.0 EV. There's now a front input wheel to complement the rear control, making operations such as manual exposure control much more convenient. The sensitivity range is equivalent to ISO 200 to 12,800 with expansions to ISO 100 and 51,200.

The hybrid phase/contrast-detection AF system steps up to 325 points and now has the same 'Zone AF' modes (encompassing up to 91 active points) as the higher-end X Mount cameras. The hybrid optical/electronic viewfinder remains as before, but now allows the electronic rangefinder (ERF) element to be magnified at either 2.5x or 6.0x to further assist with focusing when using the OVF. The EVF's refresh rate has been increased to 60 fps. 'Real Time Parallax Correction' automatically shifts the image frame and focusing area in both the EVF and OVF. Also bringing the fixed-lens premium camera into line with its interchangeable lens cousins is the addition of the ACROS B&W modes to the 'Film Simulation' presets and the 'Grain Effect' processing function.

The basic magnesium alloy bodyshell remains unchanged as does the Fujinon Super EBC 23mm f2.0 lens (equivalent to 35mm) and fixed 1.04 megadots resolution, 7.62 cm LCD monitor panel. A single memory card slots supports the SD format, but still only at the UHS-I speed rate. However, there's a new battery – the NP-W126S higher-capacity pack as is used in the X-Pro2 and X-T2 – which Fujifilm claims gives up to 390 shots when using the OVF or 270 with the EVF. There's the choice of silver and black body finishes and the X100F sells in Australia for $1999.

For more information visit www.fujifilm.com.au



ProPhoto 40 Years Ago

There's nothing like a dip into the archives to reveal just how much things have changed in the imaging industry, especially over the last couple of decades. In the late 1970s colour film had finally been accepted and the makers of 35mm SLR cameras were trying to break into the commercial photography market. Here's a selection of what was on the pages of this magazine 40 years ago when it was called *Professional Photography In Australia*. This is a snapshot of the January/February 1977 issue.

COVER PHOTOGRAPH / Athol Shmith, Melbourne.

TEST REPORTS / Bowens Quad 2000 studio flash power pack

PEOPLE AND PLACES / The Historical Picture Collection held by La Trobe Library, Melbourne / Brian Brake, New Zealand and Hong Kong / Athol Shmith profile (in 1977 he was head of the Photography School at Prahan College of Advanced Education) / Adrian Orchard, Custom Colour pro lab, Perth

THE ISSUES / Portrait photography stagnant in NSW in terms of quality and standards / Education in photography / Working in a rural practice

THE ADVERTISERS / R. Gunz (Photographic) – Konica Autoreflex T3 35mm SLR / H Levinson Pty Ltd – Bronica ETR and EC-TL 120 rollfilm SLRs / H Levinson Pty Ltd – Olympus OM-1 and OM-2 35mm SLRs / Pako Pty Ltd – Pako BC-24 enlarging printer / GCS Photographic Industrial Sales – Broncolor, Gitzo and Zelox products / Photimport – Omega Super Chromega D colour enlarger system / Photimport – Seal dry mounting print press / Photimport – Minolta XM professional 35mm SLR system / Photimport – Hasselblad 500C/M, 500EL/M and SWC 6x6cm cameras / Haco Distributing Agencies – National on-camera flash units / C.R. Kennedy & Company – Pentax K2 DMD 35mm SLR / Hanimex – Durst professional photofinishing products / Kodak Australasia – Kodak Veribrom RC B&W printing paper / Kodak Australasia – Kodak Tri-X Pan Professional B&W film / The Colour Machine – colour pro lab, Carlton / Townsend Colortech – colour pro labs, South Melbourne and Fortitude Valley / Wagner Wholsesale Photographics – Rodenstock large format lenses / Greenson Traders – Zugna SP45 passport photo camera / Peter Michael Plastics – Unilab 3C Cibachrome colour print processor / Ilford – Cibachrome colour printing system products

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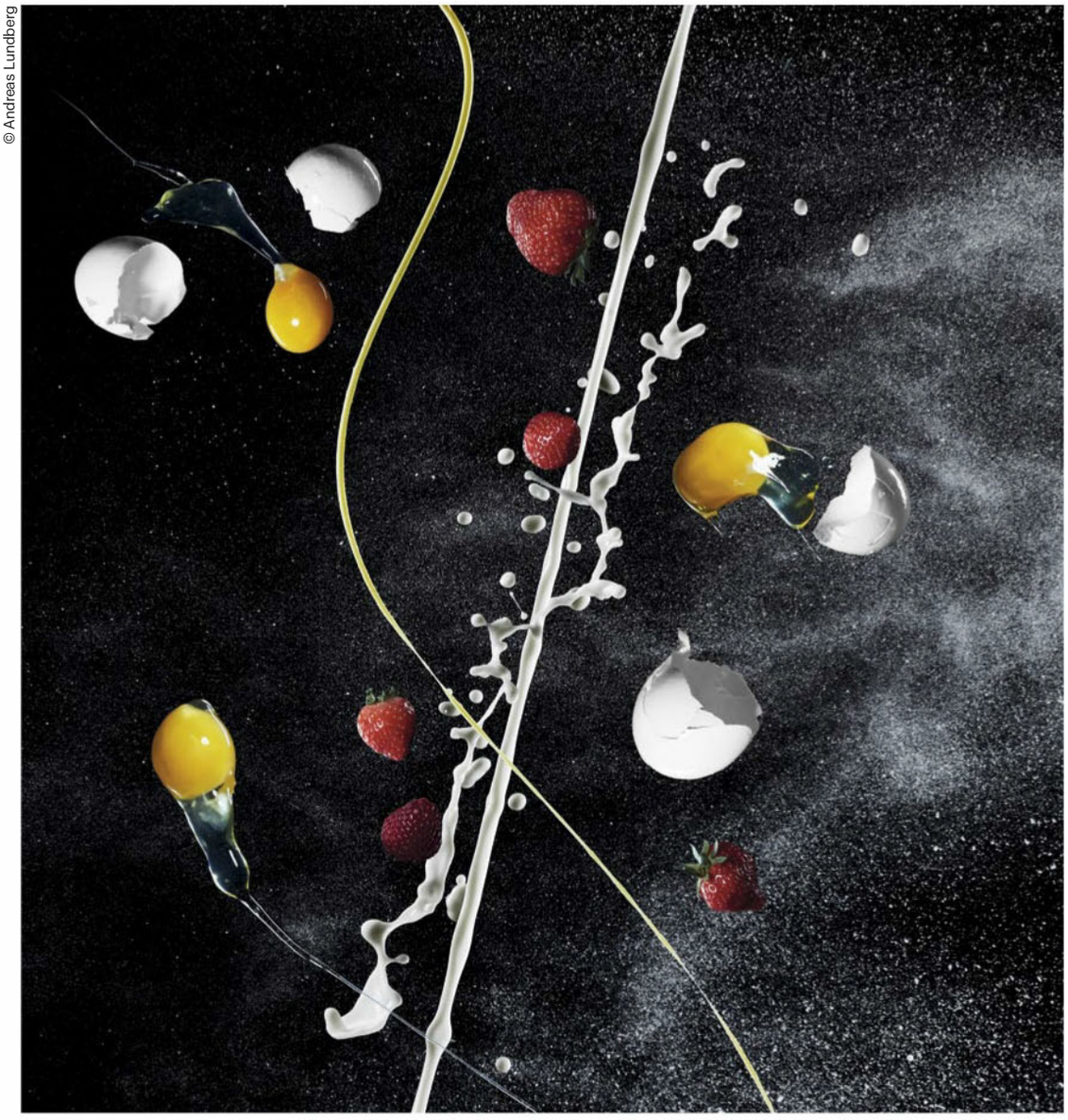

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Leica Ts Up

An updated version of Leica's T 'APS-C' mirrorless camera is now available. The new Leica TL features the same hewn-from-solid aluminium bodyshell as the T, but there's a choice of three finishes in silver, black or titanium. This last version also features bevelled edges on the top and bottom plates.

On the inside there's a bigger 32 GB internal memory (actually twice the previous capacity) and various improvements to the autofocusing system especially in the continuous mode. The new TL supports SL System lenses with optical image stabilisation and allows the use of Leica R System lenses in combination with the R Adapter L. What's now known as the TL System currently comprises six lenses – three primes and three zooms which span a focal range of 17mm to 200mm (35mm format equivalent). Additionally, the SL System lenses can be used on the Leica TL without an adapter. Unchanged from the T is the largely touchscreen-based operation – using a large 9.4 cm fixed TFT LCD monitor panel – 16.5 megapixels CMOS sensor, 5.0 fps continuous shooting and pop-up flash. As before, the TL doesn't have a built-in EVF, but can be fitted with an optional unit.

In addition to the internal memory, the TL has a single memory card slot for the SD format. WiFi functionality is improved via a new Leica TL app which is available for Android as well as iOS devices and allows for remote control of selected camera operations, including selecting apertures and shutter speeds.

The Leica TL is priced at $2450 body only (in all finishes) while special Nappa leather body protectors (in black, red or stone grey) are available at $170.

For more information visit https://au.leica-camera.com

Leica Oskar Barnack Award 2017

Entries can be submitted to the 2017 Leica Oskar Barnack Award between 1 March and 10 April. The long-running competition for professional photographers has a new category for this year – the Leica Oskar Barnack Award Newcomer – which is open to any working photographer under the age of 25. Submissions must comprise a self-contained series of between ten and 12 images which document the interaction between people and their environment in a "creative and ground-breaking style". These images can have been taken in 2016 or this year, or work from a long-term project in which some of the images were captured during this period. The winner in the award's main category will receive a cash prize of 25,000 Euros (currently around A$38,000) and a Leica M rangefinder camera (with lens) valued at an additional 10,000 Euros (around A$15,500). The winner of the Newcomer category will collect a 10,000 Euros cash prize and a Leica M camera (with lens). Ten finalists will receive 2500 Euros prizes. Entry forms and conditions will be available from 1 March at www.leica-oskar-barnack-award.com

The award honours the work of the legendary German optical engineer Oskar Barnack (1879-1936) who created the original 35mm Leica camera. The Award was originally established to commemorate the 100th anniversary of Barnack's birth.

Fujifilm's Pro Cameras Get New Clothes

Both Fujifilm's 'APS-C' format mirrorless flagships are now being offered in special Graphite editions. The X-Pro2 Graphite Edition and X-T2 Graphite Silver Edition have new high-grade metallic finishes created via a multi-layering process.

The X-Pro2 Graphite Edition is packaged with an XF 23mm f2.0 R WR lens which is also finished in the same graphite colour. This kit is priced at $3699.

The X-T2 Graphite Silver Edition is priced at $2799 for the camera body only and is accompanied by matched accessories comprising a leather camera strap, aluminium hotshoe cover and a dedicated version of the EF-X8 bundled accessory flash unit. The body colour on this model is created by first applying a matte black undercoat over which is sprayed a graphite silver layer created using 'Thin Film Multilayer Coating

Technology' which applies very thin layers of ultra-fine particles while the camera body is rotated at high speed. Finally, a layer of clear varnish is applied to give a glossy finish.

Both graphite coloured models are unchanged from the standard black versions in terms of their feature sets and specifications.

For more information visit www.fujifilm.com.au

BRIEF EXPOSURES

Chinese drone manufacturer **DJI** has reportedly purchased a majority stake in Hasselblad. DJI already held shares in the Swedish camera maker, but has been convinced to increase its involvement with the immediate goal being to provide the funding necessary to produce the X1D digital medium format mirrorless camera, following unexpectedly high demand. Hasselblad has struggled financially for the last few years, but the X1D has the potential to turn around the company's fortunes.

Photograph by Peter Eastway, G.M. Photog.

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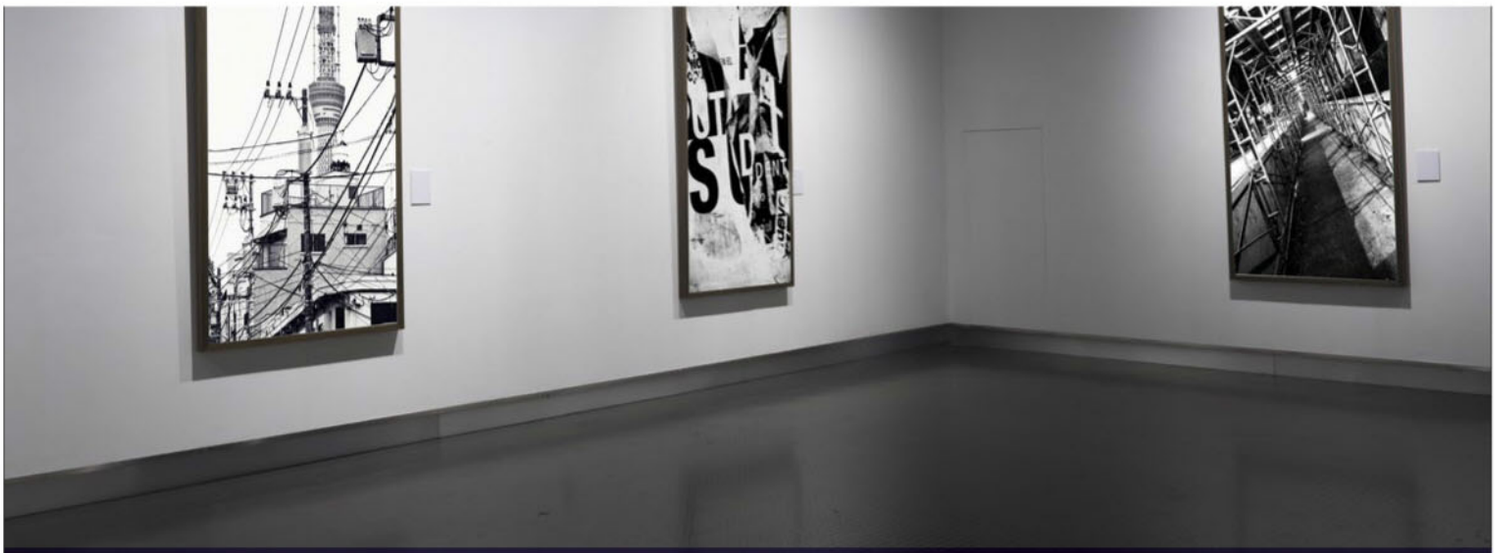

MAKE A DATE EXHIBITIONS – EVENTS – WORKSHOPS – SEMINARS

Current to 19 February: Exhibition. *New Matter – Recent Forms Of Photography.* Recent works by Australian and international photographers who interrogate the limits of photographic representation. Artists include Jacqueline Ball, Walead Beshty, Matthew Brandt, Zoë Croggon, Christopher Day, Cherine Fahd, Todd McMillan, Justine Varga and Luke Parker. At the Art Gallery of NSW (Photography Gallery), Art Gallery Road, The Domain, NSW 2000. Gallery hours are 10.00am to 5.00pm daily (open to 9.00pm on Wednesdays). Admission is free. For more information visit www.artgallery.nsw.gov.au or telephone (02) 9225 1744.

10 March to 27 August: Exhibition. *Bill Henson.* Recent photographs selected by the photographer, including portraits, nudes and landscapes. Part of the NGV Festival Of Photography. At NGV International, 180 St Kilda Road, Melbourne, Victoria 3000. Gallery hours are 10.00am to 5.00pm daily. Admission is free. For more information telephone (03) 8620 2222 or visit www.ngv.vic.gov.au

17 March to 18 June: Exhibition. *William Eggleston Portraits.* The first comprehensive exhibition devoted to Eggleston's portraits of suburban life in southern USA. Part of the NGV Festival Of Photography. At NGV International, 180 St Kilda Road, Melbourne, Victoria 3000. Gallery hours are 10.00am to 5.00pm daily. Ticketed event. For more information telephone (03) 8620 2222 or visit www.ngv.vic.gov.au

17 March to 16 July: Exhibition. Ross Coulter: *Audience.* A photographic series documenting audience members pictured in more than 70 Melbourne galleries and museums from 2013 to 2016. Part of the NGV Festival Of Photography. At NGV International, 180 St Kilda Road, Melbourne, Victoria 3000. Gallery hours are 10.00am to 5.00pm daily. Admission is free. For more information telephone (03) 8620 2222 or visit www.ngv.vic.gov.au

17 March to 30 July: Exhibition. *Zoë Croggon.* A new body of visual work created using photographs, video and a specially produced wallpaper. Part of the NGV Festival Of Photography. At NGV International, 180 St Kilda Road, Melbourne, Victoria 3000. Gallery hours are 10.00am to 5.00pm daily. Admission is free. For more information telephone (03) 8620 2222 or visit www.ngv.vic.gov.au

31 March to 30 July: Exhibition. *Patrick Pound: The Great Exhibition.* Images exploring the art of collecting and the way things can hold and project ideas. Part of the NGV Festival Of Photography. At the Ian Potter Centre, NGV Australia, Federation Square, Melbourne, Victoria 3000. Gallery hours are 10.00am to 5.00pm daily. Admission is free. For more information telephone (03) 8620 2222 or visit www.ngv.vic.gov.au

14 April to 23 June: Exhibition. *David Stephenson – Human Landscapes*. Includes a number of Stephenson's early works from the 1980s, including majestic pinhole photographs of the sea and sky, and expansive panoramas as well as his stark yet poignant works shot in the Antarctic in the 1990s. At the Art Gallery of NSW, Art Gallery Road, The Domain, NSW 2000. Gallery hours are 10.00am to 5.00pm daily (open to 9.00pm on Wednesdays). Admission is free. For more information visit www.artgallery.nsw.gov.au or telephone (02) 9225 1744.

29 April to 9 July: Exhibition. Head On Portrait Prize 2017. At the Museum Of Sydney, corner Bridge and Phillip Streets, Sydney, NSW 2000. Gallery hours are 9.30am to 5.00pm daily. For more information telephone (02) 9251 5988 or visit www.hht.net.au For more information about the Head On Photo Festival visit www.headon.com.au

31 May to 8 October: Exhibition. *Wildlife Photographer Of The Year.* One hundred images from the finalists and winners in the 2016 edition of the world's biggest wildlife photography competition. At the Australian National Maritime Museum, 2 Murray Street, Darling Harbour, Sydney, NSW 2000. Entry is $20 which includes admission to the museum's permanent galleries. Museum hours are 9.30am to 5.00pm daily. For more information telephone (02) 9298 3777 or visit www.anmm.gov.au

24 June to 8 October: Exhibition. *Mervyn Bishop.* A celebration of a central figure in Australian photography, and his contribution to art and photojournalism over half a century. At Yiribana Gallery, the Art Gallery of NSW, Art Gallery Road, The Domain, NSW 2000. Gallery hours are 10.00am to 5.00pm daily (open to 9.00pm on Wednesdays). Admission is free. For more information visit www.artgallery.nsw.gov.au or telephone (02) 9225 1744.

28 October to 18 February 2018: Exhibition. *Robert Mapplethorpe: The Perfect Medium.* Images ranging from early Polaroids to refined studio works from the 1980s. At the Temporary Exhibitions Gallery, the Art Gallery Of NSW, Art Gallery Road, The Domain, NSW 2000. Gallery hours are 10.00am to 5.00pm daily (open to 10.00pm on Wednesday). Entry fees apply. For more information telephone (02) 9225 1744 or visit www.artgallery.nsw.gov.au

25 to 30 September 2018: 2018 Photokina World Of Imaging. The world's largest exhibition of new imaging products and processes. At the Köln Messe, Cologne, Germany. More information at www.photokina-cologne.com

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Fujifilm GFX 50S

FIRST LOOK

The wraps are off Fujifilm's new mirrorless digital medium format camera system and it looks set to revolutionise the category with its size, capabilities and price.

PREVIEW BY PAUL BURROWS

The retro styled Fujifilm GFX 50S bears more than a passing resemblance to stablemates in the XT series.

SENSOR: "Customised" by Fujifilm in terms of the design of the microlenses and the handling of the data from the photodiodes. Sony-fabricated CMOS with an imaging area of 32.9x43.8 mm with an effective pixel count of 51.4 million which gives a pixel size of 5.3 microns. No optical low-pass filter. The bigger pixel size delivers an enhanced signal-to-noise ratio and better sensitivity which is equivalent to ISO 100 to 12,800 with extensions to ISO 50 and ISO 102,400. RAW capture gives 14 stops of dynamic range. Ultrasonic vibration for self-cleaning

PROCESSOR: Dedicated 'X Processor Pro' engine – but the same generation as used in the X-T2 and X-Pro2 – delivers 3.0 fps continuous shooting at full res, 1080p video recording at 25 or 24 fps and in-camera processing for functions such as the 'Film Simulation' picture presets.

CAPTURE SETTINGS: Plenty of options here starting with JPEGs at three compression levels and two image sizes. Maximum image size is 8256x6192 pixels and there's a total of seven aspect ratios – 4:3, 3:2, 16:9, 1:1, 5:4, 7:6 and 65:24 (i.e. the 'true' panoramic ratio). RAW files are captured with 14-bit RGB colour (RAF format) and there's the option of RAW+JPEG recording. RAW files are automatically captured with 12 MP thumbnail JPEGs. In-camera RAW-to-TIFF conversion.

BODYSHELL: Magnesium alloy covers with full sealing (at 58 points) against dust and moisture plus insulation to allow shooting at temperatures down to -10 degrees Celsius. Large main dials for shutter speeds and ISO setting, with front and rear input wheels. Top panel monochrome read-out panel. Unlike on the X-T2, exposure compensation consigned to a rear-mounted button with setting via the rear input wheel. Battery compartment adds depth, but overall the GFX 50S is still smaller than either the Canon EOS-1D X Mark II or Nikon D5. EVF is detachable which drops the body weight down to just 825 grams.

LENS MOUNT: New G mount is a stainless steel three-claw bayonet fitting on the camera body (brass on the lenses) with 12 contact pins for fully-electronic communications. External diameter is 76.5 millimetres, internal is 65.0 millimetres. Flange back distance is 26.7 millimetres. Mirrorless design allows a minimum back focusing distance of just 16.7 millimetre which delivers considerable flexibility when it comes to lens design.

AF SYSTEM: Contrast-detection system using 425 measuring points arranged in a 17x25 pattern. Single-point, Zone and Wide/Tracking modes. Choice of 17x25 and 9x12 point patterns for single point selection. Focus point 'joystick' selector carried over from the X-T2 and X-Pro2. Zone mode options are 3x3, 5x5 and 7x7 point clusters.

EXPOSURE CONTROL: Based on a 256-zone metering system (from the imaging sensor) with multi-pattern, centre-weighted average, fully averaged and spot measurements. Program, aperture/shutter-priority auto and manual control modes. Up to +/-5.0EV compensation and auto bracketing over two, three, five, seven or nine frames at up to +/-3.0 EV/frame.

EVF: Detachable module using an 0.5-inch OLED panel with a resolution of 3.69 megadots. Magnification is 0.85x (35mm equivalent) and the display is adjustable

for brightness and colour. Five lens elements in eyepiece which has strength adjustment and a proximity sensor for auto switching between the EVF and the LCD monitor screen. Optional tilt adaptor EVF-TL1 provides tilt and swing adjustments.

MONITOR SCREEN: Large 8.1 cm LCD panel adopts the three-way tilt adjustments introduced with the X-T2 plus there's adjustments for brightness and colour balance. Image can be enlarged by up to 16.7x to assist with focusing. Resolution is 2.36 megadots and touchscreen controllability extends to 'Touch AF' tap-to-focus.

VIDEO: Full HD 1080p recording at either 25 or 24 fps (PAL standard) with stereo sound, giving a bit rate of 36 Mbps. MOV format with MPEG-4 AVC/H.264 compression. HD 720p recording also available, but no 4K option. Processing options include the 'Film Simulation' presets.

HDMI VIDEO OUT: Uncompressed video (8-bit, 4:2:2 colour) available for recording to an external device via Type D Micro HDMI connector.

SHUTTER: The world's first focal plane shutter specifically designed for a digital medium format mirrorless camera (although, of course, the GFX 50S is the first such camera anyway). Speed range is 60 minutes to 1/4000 second with flash sync up to 1/125 second. Rated up to 150,000 cycles. There's also an 'electronic first curtain' shutter to reduce vibrations or a fully-silent sensor-based shutter which extends the top speed to 1/16,000 second and eliminates all vibration.

DUAL MEMORY CARD SLOTS: For SD, SDHC and SDXC cards. Both slots support UHS-II and UHS-I speed devices. Can be individually assigned to file types.

BATTERY: New NP-T125 lithium-ion pack is good for 400 exposures according to Fujifilm. The optional VG-GFX1 vertical grip holds an additional battery pack and can be used for recharging. There's a monitoring facility for the age of the batteries, scaled from zero (youngest) to four (oldest).

CONNECTIONS: USB 3.0 via Micro USB terminal, Micro HDMI (Type D), 2.5 mm connector for wired remote trigger, 3.5 mm minijacks for stereo audio in and out, PC flash terminal, DC power input.

EXTRAS: 'Film Simulation' presets (including ACROS and Classic Chrome), 'Grain Effect' and 'Colour Chrome Effect' processing, 'Lens Modulation Optimiser', five auto bracketing modes (AE, ISO, white balance, dynamic range and 'Film Simulation' presets), multiple exposure facility, intervalometer, tethered shooting, built-in WiFi, copyright info and dual-delay self-timer.

LENSES: Three GF Series lenses are available immediately, another three by the end of 2017. Given Fujifilm's track record with the XF lenses, there'll be more in 2018 with a longer telephoto probably heading the list. All the GF lenses are all weather-proofed. Current line-up is a 63mm f2.8 standard prime (equivalent to 50mm), 32-64mm f4.0 zoom (25-51mm) and a 120mm f4.0 macro lens (95mm). On the way is a 23mm f4.0 ultra-wide (18mm), a 45mm f2.8 wide-angle (36mm) and a 110mm f2.0 short telephoto (87mm).

ACCESSORIES: In addition to the battery grip and tilt adapter for the EVF, there's an adapter for Hasselblad's H-Mount lenses (which are made by Fujifilm), giving the GFX system a lens-shutter option. There's also a stereo microphone, view camera adaptor, the EF-X500 on-camera flash (launch at Photokina 2016) and a hard-wired remote release.

More info from
www.fujifilm.com.au

Get Your Motor Running

Andrew Hall

Motorsports photographer Andrew Hall has seen plenty of changes during his 30 years behind the camera, but he's now enthusiastically embracing another one – ditching his D-SLRs for a mirrorless camera system.

INTERVIEW BY **ALISON STIEVEN-TAYLOR**

Motorsports can be gruelling, and not only for the drivers and crews. Sydney-based photographer Andrew Hall knows only too well what it's like to stay awake for 41 hours while covering the famous Le Mans endurance race in France, or to weather the sand storms and blistering desert heat in Bahrain. But despite the times when he's been unable to see because of pelting rain or conversely from the sweat running down his face, he wouldn't change his job for anything.

Over 30 years, Andrew Hall has carved an enviable career as one of the world's top guns when it comes to shooting "… anything with a throttle". He first shot the Le Mans 24-hour endurance race in 2001. It's been staged on a terrifyingly fast street circuit near the French town of the same name since 1923. This year marked Andrew's 15th trip to Le Mans, so there's no surprise when he says that it's his favourite motorsports event.

Today the race draws a crowd of around 225,000 and Hall says it is more like a festival with the event running over a week in June, and the 24-hour race for sports cars being the highlight.

"It's hard to explain… there's something about hearing 150,000 people on the main straight in front of the grandstand singing the French national anthem – I'm getting goose bumps just talking about it! It's an event that has no equal and it gives the photographers so many opportunities. Every year I've shot something different and that's the aim… you don't want to go to the same spots all the time. Each year there

> "I try to get it right in camera as much as I can, and that goes back to the old days when you were shooting on transparency film, which was a real discipline.

Photography by Andrew Hall, copyright 2017

are different clients and different briefs which makes it a challenge".

For the first two years he shot Le Mans with film before switching to digital and, while he says digital has made it possible for him to capture shots he couldn't get before, it's also dramatically impacted the way he works.

"When I first went to Le Mans there were no crucial deadlines. Editors knew that you had to process the films and send the slides by courier. There was no workflow," he laughs. "You'd go out and shoot, come back to the media centre, have a coffee, charge batteries, make sure everything was clean on your cameras and go out again. Now it's completely different."

Hall explains that these days he is shooting for a lot of Websites and editors want images immediately. As soon as the flag drops his 'phone starts ringing with requests for pictures.

"Now I come in from a practice session, download, caption and send the images off as quickly as possible. The advantage is that by the time I get on a plane to come home, my work is done. I'm thankful for that and for onboard WiFi too. I did a 24-hour race in January in Florida. Flying back to LA, I uploaded all my stuff to FTP and sent it so, when I landed, the job was done."

Liberating

Shooting on digital is "quite liberating" says Hall. "I experiment a lot more because digital is not costing you like film did so there's the opportunity for greater variety. Another advantage you have with digital is you can see what you're getting right away and if the shot doesn't work you can make adjustments, or move a few feet to the left or right. I shoot completely differently with digital, and take more risk because I can".

While digital imaging may spell creative freedom, Hall doesn't subscribe to the digital trend of taking far more images than you need, which ultimately means more work in post-production.

"In motor sports we have what we call 'the pray and spray' where you switch it to autofocus, continuous high-speed drive and the minute the car is in the frame. it's brrrrrrrrrrrr [think machine gun fire]. I still shoot like I'm shooting film, so it's wait,


LIQUI MOLY
31 Andy Soucek
A Maxime Soulet
David Russell
Bentley Team
M Sport
M-SPORT
BENTLEY
SPORT
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LIQUI MOLY
10
A
Steven Kane
Guy Smith
Matt Bell
Bentley Team
M Sport
07
10

wait, wait... and then maybe I take just one or two frames and keep panning, then wait for the next frame. Otherwise you've got to edit all of that," he says rolling his eyes. "You know people say 'Oh, I got 2000 shots', and I'm like, 'Well yeah, but you still have to download, go through them all and make a selection, so why don't you just wait? I try to get it right in camera as much as I can, and that goes back to the old days when you were shooting on transparency film, which was a real discipline."

"I've embraced digital technology, but it's taken me a long while to get out of that film mentality that you can't change the ISO. As the tech has got better, I'm shooting stuff at ISO 1000, but there's a little voice in the back of my head saying you shouldn't be doing this," he laughs. "That's the legacy from 25 years of shooting film."

> My clients don't care what I shoot with, as long as I get the shots. I try not to be too evangelical, but with the quality of the image and the usability and reliability, the X-T2 really is bulletproof.

Legitimate alternative

In 2016 Andrew Hall shot Le Mans for Ford which was celebrating the 50th anniversary of its famous 1-2-3 finish with the GT40 back in 1966. For Andrew it was the first time he'd shot the event on a mirrorless camera system rather than D-SLRs, taking along the Fujifilm X-T2, then in pre-release testing. In fact, he only took Fujifilm X Series gear with him – an indication of how confident he is in the company's mirrorless system.

He says that the versatility and reliability of the X-T2 has won him over, and he is particularly impressed with the performance of the 100-400mm telezoom (equivalent to 150-600mm) which he says is now his "go to" motorsport lens because of its combination of focal range, size and optical performance.

"Fujifilm has made huge strides to become a legitimate alternative [to a D-SLR]. Even after doing this job for 30 years, I still look at the back of the X-T2 and shake my head and think that's not possible. The stuff that is in digital cameras was science fiction 20 years ago. I'm in the unique position to see it develop and to grow, and appreciate where we came from with film."

Andrew Hall is one of a group of motorsports specialists which is working closely with Fujifilm on the X Mount mirrorless system. In 2015 he spent two days at Fujifilm's headquarters in Japan working with technical experts improving the performance of the autofocus on the 100-400mm telezoom. Accompanied by "…a fleet of autofocus technicians", he spent a day at the Fuji International Speedway, covering a sports car event and providing feedback after each session.

"Fujifilm actually want to know what we like and what we're unhappy with. We're very honest with them. When I went to Bahrain later that year, Fujifilm gave me a new lens to test. It was chalk and cheese, and the development was amazing. They are not afraid to make changes mid-design based on our feedback. For me, this promotes loyalty and confidence because you know that the feedback you are giving is being taken onboard."

Twenty-sixteen marked the third time Hall shot Australia's international sports car endurance race, the Liqui-Moly Bathurst 12 Hour. This time his client was Bentley, and he shot with the Fujifilm X-T1.

He observes, "My clients don't care what I shoot with, as long as I get the shots. I've used the X Series in the snow and in the middle of Bahrain in the desert. This year I also shot the Daytona 24 hour race on the X-T1. It was pouring with rain and I got caught out and didn't have any covers. It says the X-T1 is weather resistant and I couldn't have gotten it wetter if I'd dumped it into a bucket of water, but it kept running!"

In conclusion Hall says, "The X-T2 is even more advanced. For Fujifilm to produce a camera like this is very impressive. I try not to be too evangelical, but with the quality of the image and the usability and reliability, the X-T2 really is bulletproof".

Alison Stieven-Taylor is a writer and photographer based in Melbourne, Australia. Visit her blog www.photojournalismnow.blogspot.com


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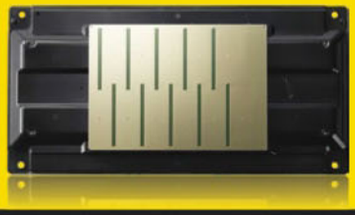

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*Based on 6-pass printing for high quality production, on photo media.

Time And Emotion

Chris Shain

INTERVIEW BY **BRUCE USHER**

Perhaps best known for his tireless efforts – with the ACMP in the 1990s – in helping to change the copyright rules for Australian photographers, Chris Shain continues to run a successful commercial photography business, but says the digital era has produced many new and different challenges. He talks to Bruce Usher about making time-lapse videos, his deep love of music, and working with the late, great David Moore.

"I don't really understand Photoshop! I couldn't retouch a photo to save myself," says Sydney photographer Chris Shain between mouthfuls of Greek salad. But if I was to ask him about creating a 15-second video clip from 60,000 still frames harvested from a two-year time-lapse photography project, we'd be at his favourite Balmain cafe for at least another two coffees.

Chris also mentions a job that he's been quoting recently, but thinks he may not want to do. His contact is an inexperienced corporate communications person and he's been saying to Chris, "Come and shoot some pictures. Let's do different backgrounds with 30 different people. How much an hour are you?"

Chris comments, "You just know it's going to be a bit more complicated than that". But perhaps not as complicated as the Tylor versus Sevin 2014 court case that Chris was called to as an expert witness and which brings us to the subject of copyright. Copyright protection is probably the subject that many Australian photographers most associate with Chris Shain – and it was a big part of his life for a while – but there's a lot more to him than that.

The Early Years

Chris Shain's father was a radio physicist with the CSIRO. He was a world pioneer in radar and bouncing radio signals, but also a keen amateur photographer. Chris still has many of his negatives.

"He died very young," Chris says, by way of saying there was no great photographic influence from this source. Chris went to Barker College on Sydney's North Shore where, he recalls, there wasn't a camera club. Besides, Chris recalls that he wasn't really interested in the visual arts at that time. He was a music and maths person, enjoying them both. But he does remember, at around 17 or 18, borrowing a telephoto lens from somewhere and photographing friends surfing at Avalon Beach. After high school, Chris obtained an engineering cadetship with a scientific and medical equipment manufacturer. He did everything from working in the tool shop to research and development and designing defibrillators, and ended up spending seven years there. It was actually during the last year that he became interested in photography – particularly the mechanics of the cameras – and set up a photography studio.

Chris started shooting corporate communications videos pretty early on, using a reel-to-reel tape machine and a massive camera. Now it happens online instantly, but back then video was revolutionary. He also began photographing some of the equipment that the company was manufacturing. His first "real commercial" photographic job came in the late 1970s. He recalls using the company's sales manager as the talent with a dummied-up tracheotomy using a hose coming from a humidifier.

Despite this promising start, a redundancy package arrived via the recession and Chris bought all the photography equipment for next to nothing. He just started shooting pictures… and hasn't stopped since.

After shooting an annual report for steel supplier William Adams, he became interested in doing more industrial photography and enrolled in a couple of

part-time courses at the newly-opened Australian Centre for Photography. One course was with Phil Quirk – who was then a young hotshot up from Melbourne – and he subsequently met Anthony Browell and Graham McCarter, and began working with this group of highly successful Sydney-based commercial photographers. Sometime in 1978 he received a telephone call from Mark Lang, another of this group, who told him, "David Moore is looking for an assistant tomorrow; he's caught out, are you available?"

That fortuitous call was the commencement of a long relationship. The 25-year-old Chris worked with David for the day and they got on well.

"I sort of hung around with him for ten years after that and, between my own assignments, we became friends. I even shot one of his daughters' wedding."

The Moore Years

"He had great passion," Chris says of David Moore. "He was obsessed with imagery, but also with other artistic forms. I learnt a huge amount from him."

One of the early jobs they did was to photograph the then chairman of Ampol, Sir Tristan Antico.

"He was a bit of work, I can tell you. I remember going into his office with David and Antico had a desk made from rock boulder, four meters across, that had been cut down. He was also very fussy, with minions all around him. The communications guy was trembling in his boots just talking to him.

"David was asked to do the job because Antico didn't like the pictures that had already been taken for the company's annual report. It was interesting to see how David walked in and just took control. He put a jacket and tie on to look conservative and, in a nice kind of way, David was saying, 'Look I can make you look like a dickhead or I can make you look good. You choose. If you want to co-operate I can make some nice pictures of you'.

"The way he handled these situations was very educational – it wasn't just the body language or the verbal language, but this air of professionalism. So there was a little bit of respect both ways, which obviously worked."

Chris says he learnt a lot about the interaction with clients from David, who he describes as "…an amazing networker. You should have seen him working the room at AGNSW openings".

He also learned a lot about the business of photography in general.

"David was really excited about photographing the construction of the Glebe Island Bridge – now called The ANZAC Bridge – but it was his own project. He wasn't commissioned, but he had to get access so he went to Baulderstone, the builder, and said, 'I'm going to shoot this thing, can you give me access? I want to come in whenever I like, because I want to document the construction of this historic bridge'.

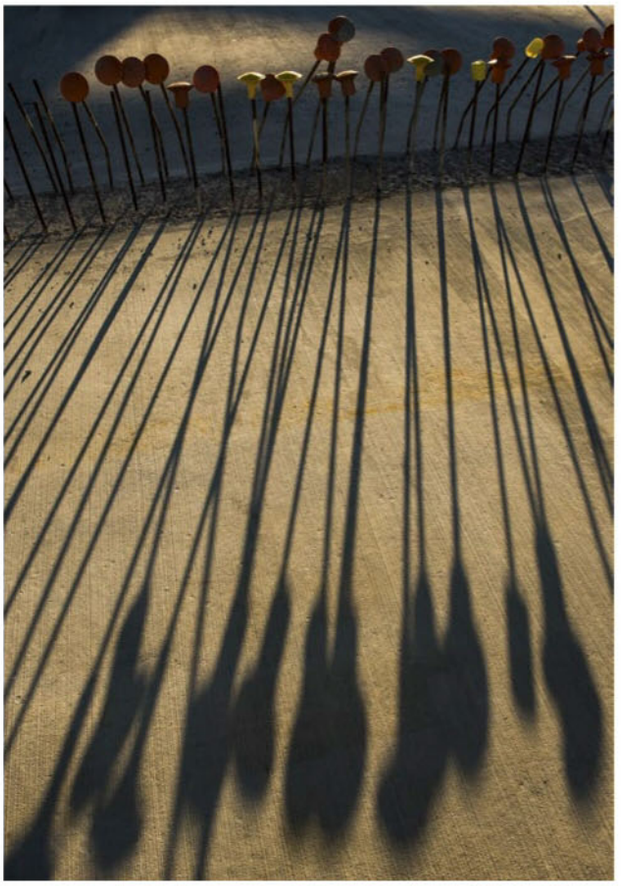
They let him do it, so David produced all these pictures completely unfettered, no commercial arrangement. In the end, though, he sold the books and Baulderstone bought a lot of the prints, but it was all on his terms. That was a big lesson for me about doing photographic projects on your own terms. He was commercially very savvy."

> "The biggest problem photographers have with copyright is themselves, because it's very difficult to make a stand.

Chris says David Moore was passionate about quite a few things and he lobbied hard to get the tax situation changed in regard to artists donating their works to galleries.

"He thought that if he wanted to donate his archive to the State Library, for instance, or the AGNSW, he should get some sort of tax deduction, because the collection had a significant value. I'm not sure how that all turned out. David was incensed – from a copyright perspective – that Max Dupain didn't own the copyright to many of his earlier pictures because he was actually employed by a client, Harland & Hyde. Max didn't want to deal with the business side of things, so H&H did his bookwork – all the backend stuff – and he actually became an employee."

Another of the earlier jobs on which Chris assisted David Moore was for Channel Seven's annual report when they lit up the massive interior of the Atlab film-processing laboratory at Epping with just three compact Lowel Tota lights.



Chris says that, the week before, he had been assisting an advertising photographer to photograph a fridge in a studio, and that, "…we literally had a truck full of gear".

Chris arrived at David's studio at six o'clock in the morning for his next job and recalls, "All he had was a bag with two Nikon bodies and four prime lenses and another little box – like a Globite suitcase – with the three Totas in it. That was it!

"I said to David, 'Do you want a hand with the gear?' and he said, 'No thanks, it's all in the car'. I looked in the back of the car and said, 'Yeah! You're sure?' David said, "You don't need much. It's not about relighting, especially when shooting architectural interiors. Base principal is to start with nothing, and see what's there. Rather than saying, I'm going to light this like this.'"

The Copyright Years

I ask Chris whether, with all the work he has done on copyright for photographers over the years, does he look back with some frustration?

"Yes," is his immediate answer. But he continues, "One of the most frustrating things is that the photographers often blame the client. They'll say, for example, aren't these media proprietors a bunch of bastards? In some ways they are, but they're also smarter, better organised and have better lawyers. They asked themselves; how are we going to control this content? We'll just write contracts… and the photographers were silly enough to sign them. The biggest problem photographers have with copyright is themselves, because it's very difficult to make a stand. When there are thousands of guys out there wanting to do it for nothing, or students who say, 'I'll work for a hundred bucks'.

"David Moore would have people telling him that those classic 1950 pictures of cars on the Sydney Harbour Bridge… well, everyone shot one of those! Maybe they did, but David could actually find his… and he owned the copyright. Down the track, images that may seem innocuous now, could well have some value to you.

"My family – to their financial detriment – has always been interested in service so it's in my DNA. Some people go so far and then draw the line. Sometimes my wife tells me, 'You aren't going to save the world!' Probably not, but you have to have a crack at it! One of the things about photography is that it's an ***experience***. So we are in a privileged position to see it and experience it and, depending on how good your skills are, to interpret and make something effective. That's where copyright is important. I think we should be able to control our own work. We created it, so why shouldn't we own it?"

Making Music

"Music is a balance to photography for me, another art form," states Chris, who found out that he was a natural at school. The Year Nine student had no singing lessons, but sang solos and duets with a taller, blond-haired student by the name of Peter Garrett. In another life Chris would like to have been a professional singer.

"I've dabbled in all sorts of music. I'm a tenor… a valuable and exchangeable commodity. I've sung all sorts of things around the world. One of the most stressful things I've ever done is sing a Negro spiritual at Michael Hutchence's funeral – it was ***Deep River***, a tenor solo with a choir. Oh, my God! St Andrew's Cathedral was packed with the rock-'n-roll world's luminaries and here is me getting up to sing in front of all these people and then walking out to the world's media with hundreds of flashes going off. It was pretty amazing. I'm going on a tour with the St James choir who are all professional musicians, but I sing with them part-time.

The tour is to England and includes singing in Westminster Abbey for a week, then the Winchester and Exeter Cathedrals, then to Rome, Paris, Vienna and finally back to Westminster Abbey for ANZAC Day."

Chris Shain arrived home from London to a massive pile of paperwork and more time-lapse photography contracts.

But the first photography to be tackled is the AIPP's Second World War Veterans portrait project which, when completed, will be to be presented to the Australian War Memorial. Hundreds of photographers around the country are involved, and there are still around ten thousand WWII veterans alive. Chris photographed ten of them at a Wollongong Nursing home and then another 15 at the Figtree Bowling Club which the local RSL organised.

ProPhoto caught up with Chris again a few months after he returned from his European singing tour. He arrived at this interview directly from setting up a time-lapse camera on a long-term construction site.

"There's a lot to do in these set-ups – deciding where the camera is to go and how to attach it. You have to imagine what the finished shot is going to look like. You're setting something up now for the finished shot which is a long way down the track."

Digital capture has made time-lapse photography much more feasible. His set-ups can involve up to ten Nikon D3300 D-SLRs in specialised housings each with a 3G modem which sends the image files wirelessly to a server.

"Right now, they're still coming in and, at some point, you have to gather up all these still frames… and there may be as many as 60,000 of them. Even getting the files off the server, processing them and turning them into a motion file is very time-consuming and computer-hungry. Then you have to edit and, at 24 frames per second, ending up with 15 to 20 minutes of motion which is actually completely ludicrous, you really only need 30 seconds. These clients are big corporations or government departments and the finished videos are mostly used for marketing. Some contracts for time-lapse videos can be worth $100,000 or even $150,000."

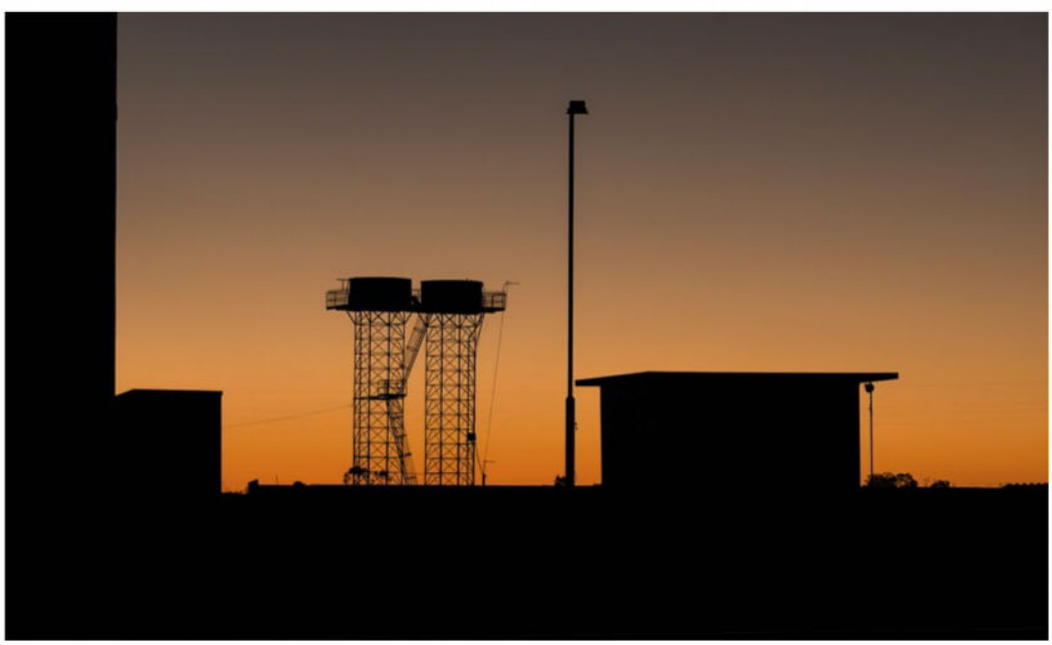
Tylor v. Sevin

The case of Tylor v. Sevin was decided on 26 February 2014 in the Federal Circuit Court of Australia, and it's become an important precedent in the pursuit of copyright infringements, especially in the digital era, because the dispute actually progressed to legal proceedings. Vincent Tylor is an American photographer who runs an online stock photo agency in Hawaii, and discovered one of his images was being used illegally by a Melbourne-based online travel agency. All attempts to obtain compensation failed so Tylor elected to take legal action in Australia. With his extensive experience of copyright issues relating to photography in Australia, Chris Shain was called as the expert witness. A public judgment was handed down in favour of Tylor and awarding both damages – which included the original license fee for the image – and costs. The total amounted to over $24,000.

"Photographers need to be recompensed for having their work abused," comments Chris, "and the magic of this is that here is a well-documented court case which starts to create some reality in terms of the money involved. Here someone has clearly ripped off the pictures and they have to pay. It went to court and the judge came down heavily on them. I know several lawyers who have used this case as a bit of a beating stick to say, 'Look, if you want to keep pursuing this, there is now case in law that makes it very clear that you have done the wrong thing and this is what it's going to cost you. A legal precedent has been set'. The problem previously was that there had never been any precedents.

"The commercial reality of being a photographer is getting harder. You have to be more business-like, and clients have bigger expectations now… for less money.

"The commercial reality of being a photographer is getting harder. You have to be more business-like, and clients have bigger expectations now... for less money."



And there are bucket loads of people out there who aren't making a living at all."

Chris Shain believes there is now a disconnect happening between having a passion for image-making and making a living from commercial photography.

"A professional is not just somebody who owns a camera. It's not about the camera, it's what you bring to the table and how you might make that work. I think the photographer is an observer and the emotional response to a photo is very important. It's a bit of a way of life for me rather than I get up and turn into a photographer at nine o'clock. I'm always thinking about pictures and the things I'd like to document. A project here or there. Plenty of it doesn't come to fruition, but it's a lifestyle. The time when all the photographers say no to contracts or change them, would make my day. Mind you, I also understand the realities of working with some clients, and what they want and demand.

"We're terribly fortunate as photographers. People think kids are born with eyes, therefore they can see. Often we're not! And photographers and artists in general, this is what you do. You see things and you interpret what you see… and lots of people don't get that. This is, I think, the gift that photographers have."

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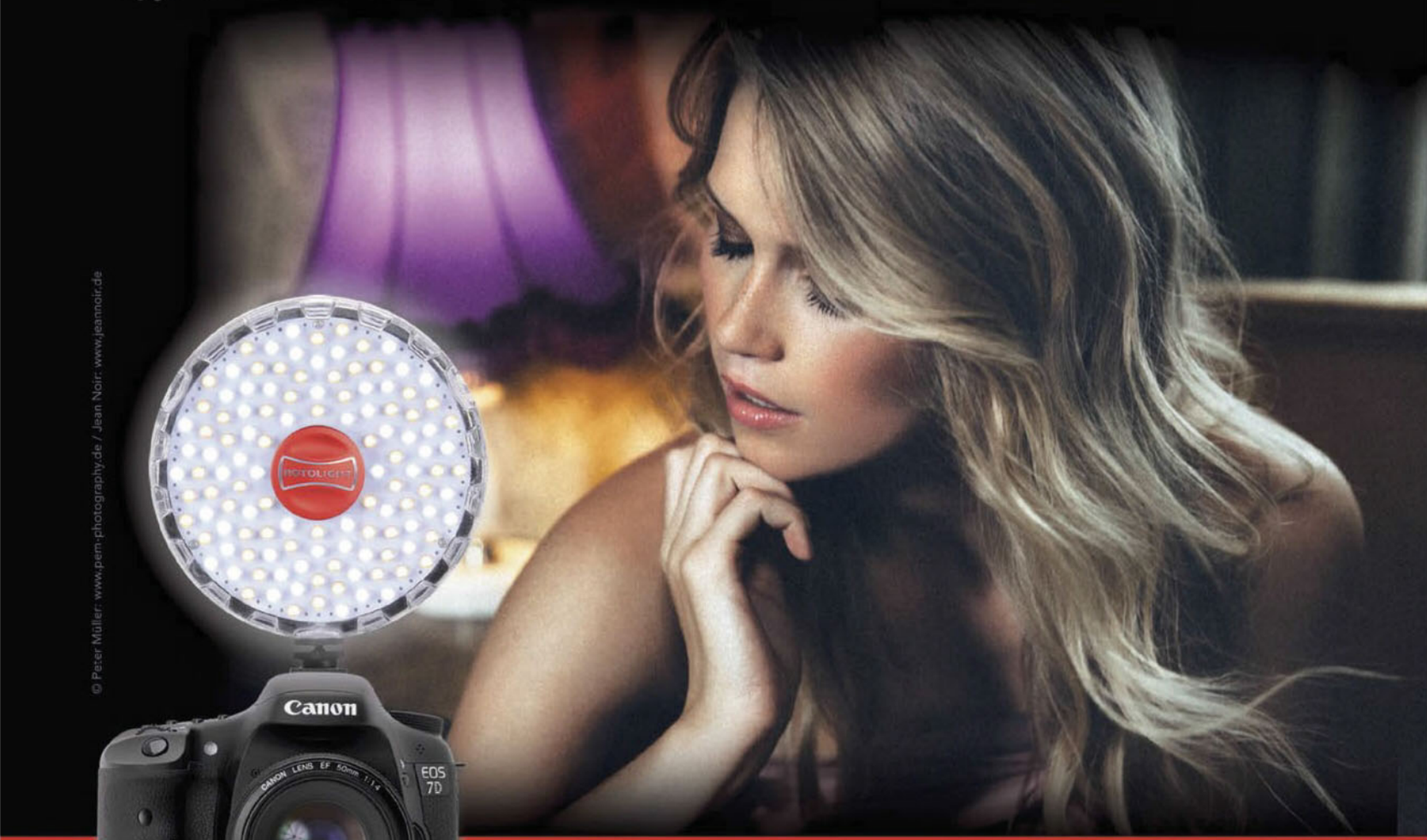

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CANON EOS-1D X MARK II

Canon has done everything possible to make its latest-generation EOS-1D the fastest D-SLR on the planet, and it beats its Nikon rival in a number of other areas too, but does anybody care anymore?

REPORT BY **PAUL BURROWS**

Big and bold. Canon's latest-generation pro-grade D-SLR is built to take plenty of punishment, but it's also built for speed.

OVER THE DECADES WE'VE EAGERLY awaited the regular stoush between Canon and Nikon as to who should wear the 'King Of The SLRs' crown. It all started in 1971 when upstart Canon launched the cheekily-designated F-1 to take on Nikon's well-established F (the F2 arrived shortly after) and it's been game-on ever since. For a while there, it did make a difference and Canon's bolder take on autofocusing – proven right in the end – made it unassailable for quite a while during the 1990s. The battle has continued into the digital era with Nikon's D3 perhaps the last truly significant model in terms of attracting defectors from the 'other camp'.

But now things have changed, and for a number of reasons. Of course, the professional photography landscape is very different and it's no longer a case of always buying the flagship model just because of what it is, rather because of what it does. Both Canon and Nikon make creditable alternatives which are smaller, lighter and, perhaps most importantly, more affordable – the EOS 5D Mark IV and D810 with full-35mm size sensors, but the 'APS-C' D500 more than qualifies here too. Then there's the rise and rise of mirrorless cameras and, in particular at the moment, a growing emphasis on higher-end models such as Fujifilm's X-T2, Olympus's OM-D E-M1 Mark II and Panasonic's Lumix GH5. Leica is in the mix with the full-35mm format SL, but it's Sony that's making the biggest incursions into D-SLR territory with its current A7 series (with an even heavier-hitting A9 reportedly on the way). Then there's the unknown quantity – currently, at least – that is digital medium format mirrorless cameras, but Fujifilm has already stated that its GFX system will be targeted at the users of pro-level D-SLRs, particularly in areas such as fashion, landscapes and advertising.

What all this means is that the Canon EOS-1D X Mark II and Nikon's D5 are defending shrinking slices of market share, and it's hard to see this sector ever being restored to its former glory. With model cycles in the region of four years, this sector is likely to look very different again by the time the replacements for these cameras are

due. So, as we asked with the D5, is the EOS-1D X II likely to be the last of its line?

Reflex Action

Whatever happens down the track, both the D5 and the EOS-1D X II are already pretty much niche models, designed primarily for applications where speed – and bullet-proof durability – are essential. Neither element, of course, is the exclusive domain of the D-SLR, but the combination of an optical viewfinder, super-fast wide-area autofocusing and high-speed shooting hasn't really been challenged by the mirrorless brands… at least not up until now. The OM-D E-M1 II, for example, is a taste of what's to come – it's already faster when using its sensor-based shutter – and everybody is working on better sensor-based autofocusing (as, incidentally, is Canon with its 'Dual Pixel CMOS AF'). Along with EVFs refreshing at 240 fps, expanding lens systems and the potential of frame grabs from 6K or 8K video, mirrorless is ready for an all-out assault on the high-end high-speed D-SLR.

Canon has worked hard to keep the EOS-1D X Mark II competitive under the banner of "Challenge What's Possible" so, in D-SLR terms, it's an exceptional camera. Canon has looked at every possible spec and asked, 'Can we squeeze a bit more out of this?' Bear in mind too, it's designed to replace two models – the -1D X and the cinematography-orientated -1D C. And it's the pro-level video functionality which mostly puts the Canon ahead of its Nikon rival, but there are other key superiorities such as the 14 fps continuous shooting speed (with full AF and AE adjustment, and with RAW capture), and the aforementioned 'Dual Pixel CMOS AF' system which brings the speed of phase-detection measurements to both live view and when shooting video. This is not only super-fast, but gives excellent frame coverage which benefits the subject tracking… something Dual Pixel AF particularly excels at. Being able to adjust the speed of the focus transitions is a really big plus when shooting video, allowing for the linearity and smoothness to be fine-tuned. The Canon's touchscreen controls are as limited as the Nikon's, but it does have the convenience of touch focus which allows for very quick adjustments or easy setting of the start point for tracking. Incidentally, with the reflex mirror out of the picture in live view, the EOS-1D X II can shoot full-res stills at a remarkable 16 fps… but then, of course, it's essentially working as a mirrorless camera. 'Nuff said.

Rear panel control layout is dominated by the large 'Quick Control Dial' which flanked by the eight-way jog-type 'Multi-Controllers' – one each for the horizontal and vertical grips.

> "Canon has looked at every possible spec and asked, 'Can we squeeze a bit more out of this?'

Built For Speed

The EOS-1D X Mark II is built for speed on quite a number of levels, including its duo of 'DiG!C 6+' processors and even the design of its CMOS sensor. This is, of course, a full-35mm size imager, but Canon sticks with a fairly conservative pixel count of 21.5 million, giving an effective resolution of 20.2 MP.

IN DETAIL

- A familiar layout to anybody who has shot with an EOS-1D series camera. Read-out panel can be illuminated, but not the controls.

- Depth-of-field and multi-function button pair is provided in both the horizontal and vertical positions.

- Dual memory card slots are for CompactFlash and CFast 2.0... the latter needed to realise 4K video recording at 50 fps and optimise the buffer capacity when shooting at 14 fps.

- Rear panel mono read-out display is devoted to card-related info.

Nikon takes the same approach with its D-SLR flagship and it's a case of 'enough resolution' for the job – an awful lot of images out of these cameras will be ending up online or on the pages of newspapers and magazines – and maximising pixel size to the benefit of both the signal-to-noise ratio and the sensitivity. The latter's native range spans ISO 100 to 51,200 with expansion settings to ISO 50 at one end and to 102,400, 204,800 and 409,600. These ultra-high settings are a little more realistic than the fantastical claims made for the D5 and which have subsequently proven unattainable.

The Canon's sensor retains an optical low-pass filter again because here it's more useful than not… an awful lot of JPEGs will be heading straight from this camera to the client wirelessly without going near a computer. The dual high-speed processors not only deliver the 14 fps shooting rate, but also Cinema 4K res video and the beefed up autofocusing capabilities. Also in the pursuit of speed, one of the Canon's two memory card slots is for the CFast 2.0 device – which also enables 4K video at 50 fps and Full HD video at 100 fps (PAL standard) – while the second is for the standard CompactFlash types with UDMA 7 speed support. Has anybody got their dual memory card combos right yet? Canon mixes SD and CF on the EOS 5D IV while Nikon hedges its bets by offering XQD or CF versions on the D5, but offers a curious combination of SD and XQD on the D500. In purely practical terms, two slots of the same format is more desirable, but both SD and CF are limited in terms of how fast they can go… hence the moves to XQD and CFast 2.0 while maintaining compatibility with the 'legacy' formats. As before, JPEGs can be captured at one of ten compression levels and in four sizes from 5472x3648 pixels down to 2736x1824 pixels. RAW files can be captured in one of three sizes with 14-bit RGB colour. RAW+JPEG capture can be configured in any combination of the above.

Working Class

Canon keeps things pretty business-like in terms of the -1D X Mark II's image processing functions which

> "The big Canon is surprisingly comfortable for such a bulky camera – the handgrip has been completely redesigned – and there's no question-ing the tough-as-nails build quality.

aren't even as frilly as the 5D IV's, but nonetheless include all the basics; namely noise reduction for both long exposures and high ISO settings, and the 'Auto Lighting Optimiser' and 'Highlight Tone Priority' processing functions for contrast control and dynamic range expansion respectively.

The in-camera lens corrections are the same as 5D IV's and comprise vignetting, chromatic aberrations, distortion and diffraction, plus the 1D X II has the on-board 'Digital Lens Optimiser' which does everything as required by the particular lens in use. Again, this is very useful for anybody delivering JPEGs straight out of the camera.

There's a multiple exposure facility, but no HDR capture or an intervalometer. The former is probably no great loss, but the latter would seem to have potential applications on a sports camera. Importantly, automatic flicker detection is provided for dealing with the switching characteristics of gas-ignition lighting (i.e. fluorescent types) which can affect both exposure and colour balance when shooting at faster shutter speeds. Given a lot of sports are conducted 'under lights', this is a very useful feature.

There's a choice of eight 'Picture Style' presets, including the Fine Detail setting first introduced on the EOS 5Ds duo and which processes JPEGs for increased sharpness. All the presets also have more advanced manual control over sharpness via three separate adjustments labelled Strength,

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TEST IMAGES

Test images captured as JPEG/large/fine files with EF 25-105mm f3.5-5.6 IS STM zoom lens. The -1D X II's 20 MP full-35mm sensor delivers an impressive balance of sharpness, sensitivity, dynamic range and noise levels. The higher signal-to-noise ratio delivered by the bigger pixels gives a significant boost in terms of the high ISO performance. Noise levels are very low all the way up to ISO 6400 and still quite acceptable at ISO 25,600.

Fineness and Threshold. These work in a similar fashion to Photoshop's Unsharp Masking, so Strength controls the amount of sharpening, Fineness determines the size of the details which will be sharpened, and Threshold sets the contrast level at which an edge will be subjected to sharpening.

The remaining 'Picture Style' presets are the system-wide offerings of Standard, Portrait, Landscape, Neutral, Faithful and Monochrome. The colour presets are adjustable for contrast, colour saturation and hue in addition to the sharpness controls while the B&W preset replaces the colour controls with a set of contrast filters (i.e. red, orange, yellow and green) and toning effects. There's also an Auto 'Picture Style' which adjusts the processing parameters according to analysis of the subject using AF, AE and white balance data. Up to three customised 'Picture Styles' can be stored in-camera.

Points Score

The demands of shooting high-speed action have been foremost in the upgrades to the EOS-1D X Mark II's autofocusing system, as is the case with the Nikon D5. It still employs 61 focusing points – 49 of them cross-type arrays – but the coverage is expanded by close to ten percent vertically, but a more significant 24 percent horizontally. Obviously this is beneficial when shooting moving subjects, as are the increases in responsiveness and speed derived from the new 'AI Servo AF III+' algorithm for continuous focusing.

All 61 points – and 21 of the cross-type arrays – work with lens speeds down to f8.0. The five points in the centre are dual cross-type arrays with additional diagonal detectors to increase their potential for finding a contrast edge on the subject.

Switching between the single-shot and continuous modes can be either done manually or automatically when the 'AI Servo AF' mode is selected. Manual AF point selection can be individually, in groups or in zones. A group – called 'AF Point Expansion' – comprises the selected point with either four or eight surrounding points. With 'Zone AF', all the points are divided into nine zones (comprising either nine or 16 points depending on their

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position), or there's the option of 'Large Zone AF' which divides them into just three zones. Of course, automatic point selection and switching is available, with subject tracking regulated by Canon's 'Intelligent Tracking & Recognition' (iTR) processing which includes input from the metering system.

The 'AF Configuration Tool' menu provides a selection of six scenarios which vary the tracking sensitivity, the acceleration/deceleration rates, and the speed that the points are switched. These three parameters are also manually adjustable so, for example, the tracking sensitivity can be varied from 'Locked On' to 'Responsive' with three steps in between.

AF micro-adjustment is possible for up to 40 lenses – applied either collectively or individually – and this allows for the correction of either front- or back-focusing.

In live view or when shooting video, Canon's 'Dual Pixel CMOS AF' comes into play. The sensor has two side-by-side photodiodes at each pixel point, enabling them to perform phase-difference detection autofocusing. The 'Dual Pixel CMOS AF' provides 80 percent frame coverage (although all the sensor's pixels are actually split types) with a 'FlexiZone – Single' mode for manually selecting a focusing point, but not the 'Multi' option provided on the 5D IV. There are also face detection and subject tracking modes which, of course, work on automatic point selection. Here the provision of touchscreen controls proves useful, allowing for the focusing zone to be selected by simply tapping the monitor screen… which also completes the AF process. And thanks to 'Dual Pixel CMOS AF' this is impressively fast. Here the EOS-1D X II is massively superior to the D5 which struggles along with contrast-detection AF and with the touchscreen hobbled to point selection only. Manual focusing in live view is assisted by a magnified image (up to 10x), but there still isn't a focus peaking display which is the much more effective method.

Exposure control is based a colour-sensitive 'RGB+IR' sensor which employs 360,000 pixels to give 216-zone evaluative metering which is also linked to the active AF point(s) and fine-tuned by Canon's 'Intelligent Scene Analysis' processing. Alternatively, selective area, centre-weighted average, single spot and multi-spot measurements are provided. These drive the usual selection of exposure control modes and the overrides for the auto modes comprise an AE lock, up to +/-5.0 EV of compensation and auto bracketing with adjustments of up to +/-3.0 EV per frame over a sequence of two, three, five or seven frames.

As on all the recent high-end Canon D-SLRs, the focal plane shutter assembly has been redesigned to minimise vibrations as has the reflex mirror mechanism which is actuated via a micromotor (rather than conventional springs) so it can be slowed towards the end of its travel to reduce bounce which also helps reduce vibrations. Shutter live is rated at 400,000 cycles and, as on the previous model, there's a counter so you don't have to keep guessing at how many actuations you've done.

The white balance controls include the choice of 'Ambience Priority' or 'White Priority' modes for the automatic correction. The latter is the standard way of doing things while the former is a development of 'keep warm colours', but works with whatever colour cast is predominant in a scene. Six different types of lighting are covered by presets and there's provisions for storing up to five custom measurements; plus fine-tuning, manual colour temperature setting and auto WB bracketing.

Control layout is largely unchanged from that of the previous -1D X or, indeed, of the more cinematography-orientated -1D C (it replaces both models). It may look busy, but it's surprisingly efficient.

> JPEG performance isn't the 'poor cousin' here because Canon understands that high-volume shooters don't often use RAW… especially if images are being transmitted directly from the camera.

In The Hand

At one time we wouldn't have commented much about the -1D X II's size and weight – it was what was expected for a pro-level SLR – but things have changed so now it feels massively bulky in the hand compared to, in particular, Sony's A7R II. The Leica SL – another mirrorless full-35mm rival – is a big beast too, but still not quite in the Canon's weight class. That said, the big Canon is surprisingly comfortable for such a bulky camera – the handgrip has been completely redesigned – and there's no questioning the tough-as-nails build quality.

The fully-sealed bodyshell is virtually entirely magnesium alloy except for one very small panel at the top of the pentaprism housing behind which is the camera's built-in GPS receiver. Curiously, though, there's no WiFi – which you'd think would be handy on a sports camera – and an external wireless transmitter is still needed. However, there's now a new accessory unit called the WFT-E8 which is exceptionally

compact and provides 802.11ac wireless connectivity.

The viewfinder itself is, of course, the crowning glory of a full-35mm D-SLR with 100 percent scene coverage and a magnification of 0.76x. Both a shutter blind and strength correction are built into the eyepiece. The displays are comprehensive and include dual-axis level indicators plus a choice of grid guides. Apparently in response to owners' pleadings, the active AF points are once again indicated in red which makes them a lot easier to see – especially against a cluttered background – than the previous black.

There's no shortage of real estate on the big body for external controls and Canon appears to have used up most of it, including for two monochrome read-out panels similar to the Nikon D5. As before, the control layout centres around two input wheels, the rear one being Canon's ubiquitous 'Quick Control Dial'. For the sake of continuity with the previous models (including the EOS-1D C), not much has really changed, including the eight-way jog-type 'Multi-Controllers' –

Standard 3.5 mm minijack terminals providing for hooking up a stereo mic or monitoring headphones.

VIDEO
Making Movies

GIVEN THE EOS-1D X MARK II ALSO replaces the EOS-1D C, it has some heavy-duty video capabilities, although it's still a bit hard to see it being preferred to the EOS 5D Mark IV for videography unless the extra durability is needed. And this could well be the reason why -1D C isn't continuing as a stand-alone line… especially as Canon also offers the hugely capable dedicated Cinema EOS models.

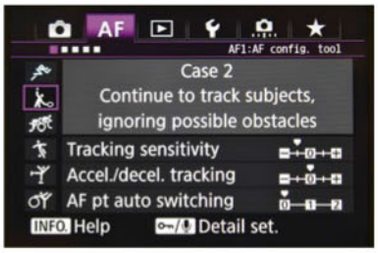
As it happens, the -1D X II was actually Canon's first D-SLR to offer 4K video recording followed by the 5D IV, although the latter ended up in many reviewers' hands before it. And, unlike the 5D IV, it can record the Cinema 4K resolution of 4096x2160 pixels at the higher frame rate of 50 fps which represents a massive bit rate of 800 Mbps. There's also the choice of 25 or 24 fps speeds, both delivering a healthy 500 Mbps. Like the 5D IV, the 4K frame direct 1:1 crop from the middle of the sensor so there's no scaling involved (eliminating related artefacts), but there is a focal length magnification factor of just over 1.6x… i.e. close to 'APS-C' (but Canon's EF-S lenses can't be used on this body).

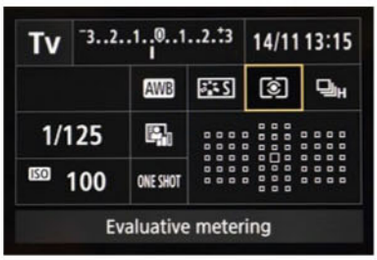
DCI 4K video is recorded in the MOV format with Motion JPEG compression which is easier to handle in post-production, but means very big files and the need for speed hence Canon recommends using a CFast 2.0 memory card (actually it's essential at 50 fps). Likewise for shooting Full HD video at 100 fps (we're just quoting the PAL speeds here, but the NTSC frame rates are also available) for quarter-speed slow-motion footage which obviously has applications when shooting sports action. Full HD footage at the standard frame rates can be recorded with the choice of ALL-I intraframe compression or the less space hungry IPB interframe regime. There's also the option of using the MP4 format for Web-based applications. There's no 4.0 GB file size limitation so the theoretical maximum clip length is 29 minutes and 59 seconds at the standard speeds, and just under seven-and-a-half minutes for the slow-mo clips. As with the EOS 5D IV, the HDMI connector only delivers a 2K output (8-bit 4:2:2 colour) while the camera records 4K internally, but not the other way around. Canon offers a '4K Frame Grab' function which delivers an 8.8 megapixels still from the 4K footage, effectively giving you 50 fps continuous shooting, but there isn't the same scope to exploit this as Panasonic provides with its '4K Photo' modes.

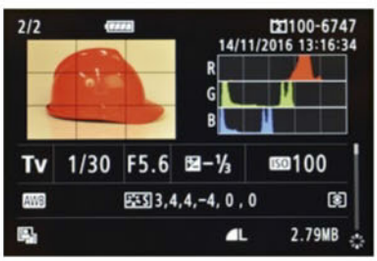
The built-in microphone is mono – presumably on the basis that nobody is likely to use an internal mic for serious shooting – and there's both a stereo input for connecting an external mic and an output for monitoring headphones. Audio levels can be manually adjusted and both a wind-cut filter and an attenuator are provided.

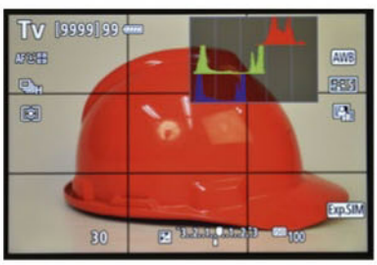
Most of the processing functions for still photography are also available for video recording, including the 'Picture Style' presets, the 'Auto Lighting Optimiser' dynamic range expansion and 'Highlight Tone Priority'. Exposures can be preset via any of the 'PASM' control modes and the Auto ISO range is 100-12,800 for 4K shooting, 100-25,600 for 2K. Neither the ISO 50 nor 409,600 extensions are available.

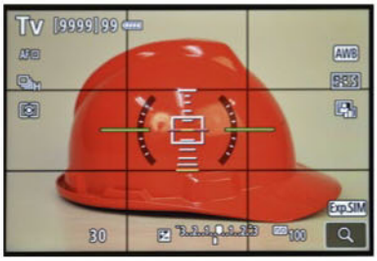
Continuous autofocusing is via the 'Movie Servo AF' mode with the options of face detection and subject tracking. Furthermore, the tracking speed and sensitivity can be adjusted as per still photography and the 'Dual Pixel CMOS AF' is impressively fast… especially in concert with the later 'STM' (stepping motor) lenses. Convenient focus pulling can be performed via the touchscreen, but again unlike the 5D IV, no other adjustments – although a 'Quick Control' screen can be configured to allow for faster on-the-fly adjustments to key settings. Manual focus assist is via a magnified image (either 5x or 10x), but there isn't a focus peaking display or, for that matter, any zebra patterns. No flat picture profile or time-lapse recording either. These are quite serious omissions as far as the pro video-maker is concerned and given that both Panasonic and Sony offer superior mirrorless packages, Canon's big gun will struggle to compete. What's more of a pity is that the still photographer who's drawn to EOS-1D X Mark II's considerable capabilities as a still camera – especially in the areas of sports and news gathering – will find it less competent if they then want it to work as a video camera.











THE MENUS

- Dedicated menu chapter for autofocusing functions includes six scenarios (a.k.a. Cases) for optimising the subject tracking.
- 'Quick Control' screens allow direct access to various capture functions including AF point or zone selection.
- Review screen can be configured with either a brightness histogram alone or a full set of histograms. You can also vary the layout style, the data included (including lens corrections) and add a highlight warning.
- The live screen can be configured with a real-time histogram (with RGB or brightness options), guide grids and a dual-axis level display.

one each for the horizontal and vertical grips – which are used for manual selection of the focusing point and various navigational duties.

The menu system is the same tidied-up version that has been in use since EOS 7D Mark II with, primarily, a more manageable custom menu, although the -1D X II still has a total of 35 functions packed in there. Curiously, although touchscreen controls are provided, they're only available in live view so, for example, navigating the menus is still done conventionally via a combination of the input wheels and the multi-controller. Canon is sticking doggedly with a non-scrollable arrangement which means if you want to progress from one page to the next, you have to use another control. It's also necessary to first press the 'Set' button in order to bring up sub-menus and settings rather than the more conventional right-click.

Unlike with the 5D IV, touch operations also aren't available with the 'Quick Control' screen. Perhaps Canon thinks users of the EOS-1D X II are likely to be more conservative, but again it's a feature which would seem tailor-made for this camera given it promotes more efficient control in the heat of battle. On the plus side, the 'Quick Control' screen is customisable so it only needs to include what's really needed… but navigation is conventionally via the front input wheel. Incidentally, a total of 11 external controls are customisable.

The monitor itself is fixed – to preserve structural integrity – and is an 8.1 cm TFT LCD panel with a resolution of 1.62 megadots. It's adjustable for brightness, but unlike on the 5D IV, not for colour balance. In addition to the 'Quick Control' screen, it can be set to show camera settings (in various configurations) or an 'artificial horizon' dual-axis level indicator.

The live view screen can be configured to include a real-time histogram (for either brightness or RGB channels), the grid patterns, level indicators, a set of status indicators, or just the image alone. The review/replay screens include a highlight alert, basic capture info or a thumbnail image with either a luminance histogram or the RGB histograms. The playback modes include pages of four, nine, 36 or 100 thumbnails, zooming up to 10x and a slide show function with adjustable image display times plus a repeat function. No touchscreen controls here either.

Speed And Performance

Loaded with a SanDisk Extreme PRO 128 GB CFast 2.0 memory card, the EOS-1D X Mark II is capable of delivering its maximum speed capabilities and is indeed impressive. A sequence of 202 JPEG/large/fine files was all over in 14.288 seconds – and sounds like nothing you've ever heard before – giving a shooting speed of 14.13 fps… and this is actually with continuous AF/AE adjustment.

The typical file size in this test sequence was 6.0 MB. It's fast, but it's noisy too, given how much the mirror is belting up and down in that time so what about the silent continuous shooting option? Well, it isn't completely silent, but it's much, much quieter and here the camera is still reasonably quick too – a sequence of 122 best-quality JPEGs captured in 24.464 seconds giving a shooting speed of 4.98 fps… a couple of full-35mm D-SLRs aren't much quicker overall without trying to keep the noise down. Incidentally, the live view shooting isn't all that quiet either because the focal plane shutter is still rattling away at up to 16 fps.

As with the Nikon D5, autofocusing is the EOS-1D X Mark II's party trick and it's incredibly responsive, fast and unerringly accurate. It doesn't need much of a contrast edge to lock onto a subject and there's plenty of scope for adjusting the selectivity. The tracking is very reliable, even with erratically moving subjects and the low-light sensitivity is exceptional. That you can shoot at 14 fps with continuous AF is also remarkable, and Canon has added further practicality via a decent-sized buffer memory… because at this speed it doesn't take long to generate a substantial amount of data. Our test sequence of 202 best-quality JPEG represented 1.2 GB and the camera will shoot longer… actually up to around 300 before slowing down. Better still, the 'strike rate' of sharply focused frames is very high. And it's also worth noting here that excellent AF performance continues when shooting

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in live view. You can't help thinking that the 'Dual Pixel CMOS AF' technology has set Canon up nicely for the big move into high-end mirrorless.

There's no question the various sensor sizes have a resolution 'sweet spot' – around 16 megapixels for Micro Four Thirds, 20 MP for 'APS-C' and around 35 MP for full-35mm – but 20 MP also works just as well on the bigger sensor arguably giving a better balance of sharpness, sensitivity, dynamic range and noise levels. The higher signal-to-noise ratio delivered by the bigger pixels gives the -1D X II a significant boost in terms of its high ISO performance – another big plus for sports shooters who still need fast shutter speeds and lots of depth-of-field even in low-light situations – so even at ISO 6400, images still exhibit plenty of definition and detailing with great colour saturation and contrast. You can push on to ISO 12,800 or 25,600 and still get very useable files, especially for magazine work or online usage. At the lower ISOs, best-quality JPEGs look very crisp with a wide dynamic range and excellent colour fidelity across the spectrum. And it helps here that the new 360k pixels RGB metering system is also very reliable in any lighting conditions. Of course, the 'Creative Style' presets allow for the tweaking of sharpness, colour and contrast.

Importantly too, JPEG performance isn't the 'poor cousin' here because Canon understands that high-volume shooters don't often use RAW… especially if images are being transmitted directly from the camera.

The –ID X II's JPEG performance is superlative, but RAW capture goes a step further in terms of dynamic range, high ISO performance and noise levels… which can all be further exploited when there's time for post-production.

The Verdict

In today's market, the EOS-1D X Mark II is much more of a specialised camera with high-speed photography applications clearly its forte, but here it is without peer. Everything works cohesively to this end. It's a pity the touchscreen implementation is so limited given the efficiencies it could bring to in-the-field operations, and this is really now more about conservatism in the design department rather than in the marketplace.

That said, the conventional control ergonomics are pretty good and the customisation options allow for the camera to be configured for rapid adjustments and confirmation.

AF performance, continuous frame rates, buffer size and high ISO image quality all combine to give the -1D X II awesome capabilities as a sports/action camera with all the ruggedness needed to deal with the demands of shooting in often challenging situations. It's the D-SLR equivalent of putting an F1 racing engine in a Land Rover Defender. There's also no getting away from its size and weight (or cost, for that matter), but given it's likely to spend a lot of time on the end of a big telephoto lens, this is probably less of an issue for its target audience than for others. For the time being. It's hard not to see mirrorless eventually making more sense here, but right now the Canon EOS-1D X Mark II represents the ultimate in pro-level D-SLR design.

The EOS-1D X Mark II is much more of a specialised camera with high-speed photography applications clearly its forte.

> "… autofocusing is the EOS-1D X Mark II's party trick and it's incredibly responsive, fast and unerringly accurate. It doesn't need much of a contrast edge to lock onto a subject…


Jerry Ghionis APP.L M.Photog IV


Steve Scalone APP AAIPP

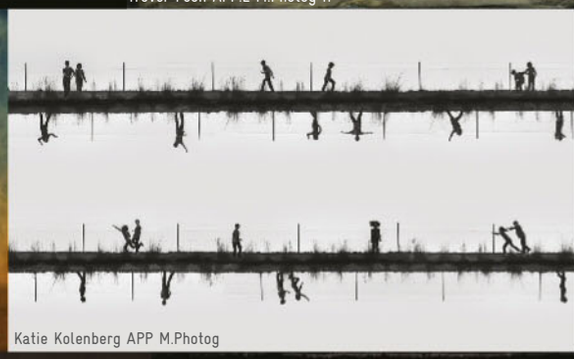

Jennifere Thompson


Trevor Foon APP.L M.Photog II


Johannes Reinhart APP AAIPP


Ricki Gestro


Peter Rossi APP.L GM.Photog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Metering: Via 360,000 pixels 'RGB+IR' sensor. 216-zones evaluative, selective area (6.2% of image area), spot (1.5%), multi spot, centre-weighted average and E-TTL II auto flash. Metering range is EV 0 to 20 (50mm/f1.4/ISO 100). Spot meter can be linked to AF point. 315 metering zones in live view.

Exposure Modes: Continuously-variable program with shift, shutter-priority auto, aperture-priority auto, metered manual and E-TTL II auto flash.

Shutter: Electronically-controlled vertical travel focal plane type, 30-1/8000 second plus 'B'. Flash sync to 1/250 second. Exposure compensation up to +/-5.0 EV in either ½ or 1/3 stop increments.

Flash: No built-in flash. External flash units sync via a hotshoe or PC terminal.

Viewfinder: Coverage = 100% vertical/horizontal. Magnification = 0.76x (50mm lens at infinity). LCD displays and LED focus point indicators. LCD overlay displays. Interchangeable focusing screens. Eyepiece strength adjustment and shutter provided.

Additional Features: Magnesium alloy bodyshell with weather-proofing, auto exposure bracketing (up to +/-3.0 EV over two, three, five or seven frames), flash bracketing, depth-of-field preview, AE lock, Bulb timer (up to 99 hours, 59 minutes and 59 seconds), dual-mode self-timer (two and ten second delays), mirror lock-up, audible signals, wireless (IR) remote control, wired remote control, silent shutter mode, 35 custom functions.

DIGITAL SECTION

Sensor: 21.5 million pixels CMOS with 35.9x23.9 mm area and 3:2 aspect ratio. Sensitivity equivalent to ISO 100-51,200 (expandable to ISO 50, 102,400, 204,800 and 409,600).

Focal Length Increase: None.

Formats/Resolution: Ten JPEG compression settings plus RAW lossless compression. Four resolution settings at 3:2 aspect ratio; 5472x3648, 4368x2912, 3648x2432 and 2736x1824 pixels. RAW images are captured at 5472x3648, 4104x2736 and 2736x1824 pixels with 42-bit RGB colour. RAW+JPEG capture is possible (any combination of size and quality).

Video Recording: MOV format (Motion JPEG compression) at 4096x2160 pixels (Cinema 4K), 50 fps and 16:9 aspect ratio (800 Mbps); MOV format (Motion JPEG compression) at 4096x2160 pixels (Cinema 4K), 25 fps and 16:9 aspect ratio (500 Mbps); 4096x2160 pixels (Cinema 4K), 24 fps and 16:9 aspect ratio (500 Mbps). MOV format (Motion JPEG compression) at 1920x1080 pixels, 100 fps and 16:9 aspect ratio (ALL-I , 360 Mbps, MOV format (Motion JPEG compression) at 1920x1080 pixels, 50 fps and 16:9 aspect ratio (ALL-I = 180 Mbps, IPB = 60 Mbps); 1920x1080 pixels, 25 fps and 16:9 aspect ratio (ALL-I = 90 Mbps, IPB = 30 Mbps); 1920x1080 pixels, 24 fps and 16:9 aspect ratio (ALL-I = 90 Mbps, IPB = 30 Mbps); 1280x720 pixels, 100 fps and 16:9 aspect ratio (160 Mbps). MP4 format (MPEG-4/H.264 AVC compression) at 1920x1080 pixels, 50 fps and 16:9 aspect ratio (IPB, 60 Mbps); 1920x1080 pixels, 25 fps and 16:9 aspect ratio (IPB, 30 Mbps); 1920x1080 pixels, 25 fps and 16:9 aspect ratio (IPB Light, 12 Mbps). NTSC standard speeds available. Mono sound recording with adjustable levels, attenuator and wind filter. Stereo audio input and headphone output provided. Clip duration limited to 29 minutes and 59 seconds, but a new file is automatically started when the 4.0 GB file size limit is reached. 4K recording requires UDMA-7 speed CF card or UHS-I/U3 speed SDHC/XC card.

Video Features: 'Dual Pixel CMOS AF' phase-detection autofocusing, uncompressed output (4:2:2, 8-bit colour) via HDMI connection with simultaneous recording to a memory card, time code support (rec run or free run), '4K Frame Grab' function, HDR mode, time lapse recording, auto flicker detection.

Recording Media: Dual slots for CFast 2.0 and CompactFlash memory cards, the latter with UDMA-7 support.

Continuous Shooting: Up to 140 frames at 14.0 fps in JPEG/large/fine mode, up to 59 frames in RAW mode with UDMA-7 speed CF card. Unlimited frames at 16 fps in JPEG/large/fine mode, up to 170 frames in RAW mode with CFast 2.0 card. Silent continuous shooting at up to 5.0 fps.

White Balance: Auto/manual with six presets and five custom settings, five 'Personal' settings, white balance bracketing (over three frames), white balance correction (blue-to-amber and/or green-to-magenta) and manual colour temperature setting (2500-10,000 degrees Kelvin). Auto correction can be set to either Ambience Priority or White Priority.

Interfaces: USB 3.0/AV, mini HDMI (Type C), 3.5 mm stereo audio input, 3.5 stereo audio output, remote control terminal. RJ-45 Ethernet terminal, system extension terminal.

Additional Digital Features: Live view functions (with phase-detection AF), built-in sensor cleaning, 8.1 cm fixed LCD monitor (1.62 megadots) with touchscreen controls and Colour Tone adjustments, sRGB or Adobe RGB colour spaces, eight 'Picture Style' modes (Auto, Standard, Portrait, Landscape, Fine Detail, Neutral, Faithful and Monochrome), three user-definable 'Picture Styles', six adjustable 'Picture Style' parameters (Sharpness – Strength, Sharpness – Fineness, Sharpness - Threshold, Contrast, Saturation and Colour Tone), B&W filter effects (Yellow, Orange, Red, Green), B&W toning effects (Sepia, Blue, Purple, Green), grid guides (choice of three), highlight warning, 'Exposure Simulation' display, dual-axis level indicators (OVF, monitior and live view), long exposure noise reduction (Auto, On, Off), high ISO noise reduction (Low, Standard, High, Off), 'Highlight Tone Priority' dynamic range expansion processing (On, Off), 'Auto Lighting Optimiser' settings (Low, Standard, High, Off), in-camera lens corrections (Peripheral Illumination, Chromatic Aberration, Distortion and Diffraction), 'Digital Lens Optimiser', multiple exposure facility (up to nine with Additive/Average/Bright/Dark exposure adjustments), multi-shot HDR capture (Auto, +/-1.0, +/-2.0, +/-3.0 EV) with auto align and four effects (Art Standard, Art Vivid, Art Bold, Art Embossed), real-time histogram in live view, in-camera editing functions (RAW-to-JPEG conversion, Image Copy, Cropping, Resize), slide show (with adjustable display time), auto image rotation, 4/9/36/100 thumbnail displays, zoom playback (up to 10x), copyright information, auto power-off (adjustable duration), DPOF and PictBridge compliant, built-in GPS reciever. May be fitted with optional Wireless File Transmitters WFT-E8E and WFT-E8.

Power: One rechargeable 10.8 volt 2700 mAh lithium-ion battery pack (LP-E19 type). Also compatible with LP-E4/E4N battery types.

Dimensions (WxHxD): body only = 158.0x167.6x82.6 mm.

Weight: 1340 grams body only (without battery pack or memory card).

Price: $8499 body only (includes 128 GB CFast 2.0 memory card and reader).

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