

# Updating a *classic*

*When Stephen Dalton first unveiled his high-speed images of insects in free flight back in the 1970s the world was mesmerised, and now, after several decades, he's updating the series using digital capture*

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**FOR ANYONE WHO MIGHT NOT HAVE BEEN AROUND AT THE TIME, IT'S PERHAPS HARD TO APPRECIATE THE GROUNDBREAKING NATURE OF STEPHEN DALTON'S HIGH-SPEED IMAGES OF INSECTS IN FLIGHT WHEN THEY WERE PUBLISHED FOR THE FIRST TIME SOME 40 YEARS AGO. THIS WAS A WORLD THAT WAS USED TO SEEING STATIC IMAGES OF SUCH SUBJECTS, OFTEN CAPTURED IN UNINSPIRING BLACK & WHITE, AND THE TECHNOLOGY REQUIRED TO FREEZE CREATURES THIS SMALL IN ACTION, IN PIN-SHARP DETAIL, QUITE SIMPLY DIDN'T EXIST**

**S**tephen's pragmatic riposte when faced with the non-availability of dedicated high-speed hardware was to develop his own bespoke system from scratch, with help on the flash side of things from a colleague, Ron Perkins. Despite the fact that he was approaching the challenge with no particular electronic know-how to back him up, Stephen persevered with a distinctly Heath Robinson looking set-up, which was powered by a 12V battery and incorporated adaptations of off-the-shelf gadgetry, home-made boxes of tricks and the occasional strategically placed lump of Blu-tack.

Despite its slightly haphazard appearance, the whole affair was eventually made to work brilliantly, and it allowed images to be produced that were unlike anything that had ever been seen before. The bespoke nature of the kit ensured that the work coming out of Stephen's Sussex workshop wasn't being replicated anywhere else. Once he started to achieve success he was able to refine his approach, to increase his hit rate and to broaden the scope and size of the creatures that could be captured by his kit.

"The set-up was all based around the principle of a narrow beam of light being broken," Stephen says, "which then fired a shutter that had been specially adapted to open particularly quickly, which triggered a flash that was firing at 1/25,000sec. I could control the size of the beam to adapt it to different subjects, and it was so sensitive that it would even respond to something as fine as a single human hair.



"The shutter, which is placed in front of the camera's lens, opens in around 1/250sec, compared to the 1/10sec that a regular shutter might take. In that time a fast-moving creature might have moved a metre or so. I still need to set the focus for a distance that's slightly in front of where the beam has been broken to take account of the fact that there will be a degree of forward movement involved. The problem is that it's impossible really to second guess in which direction a subject might choose to move, and so there are a lot of failures along with the occasional successes."

Incredibly Stephen produced his early classics working with ultra-slow 35mm Kodachrome 25 film, chosen for the low-grain quality of the emulsion. It wasn't ideal, and along with the implications of such a slow emulsion came

**ABOVE** The set-up is the same but now Stephen has gone digital. This image of an imported jumping spider - which lives in a plastic container in his kitchen - was shot with the amazingly well-specified Nikon D800E DSLR.

all the usual drawbacks of film: the fact that you couldn't see the image you had achieved on the spot; the need to change the film every 36 exposures; and the huge cost of buying and processing the film. Kodachrome was a quirky product that had to be sent off in the post and could take weeks to come back (plus there was always the risk it could get lost in the post), and even if other transparency films were used that could be processed via the E-6 process it would still involve a lengthy car journey to the lab and an hour or so to wait for the results.

None of these challenges stood in the way of Stephen achieving breathtaking results, and after his *Borne on the Wind* book was published in 1975 his imagery became widely celebrated around the world. Over the years that followed, several other books were published and there

was even a full-length TV documentary produced about the photographer and his working methods. The ultimate accolade, he even has one of his insect flight pictures carried on-board NASA's Voyager Spacecraft, which is currently deep in interstellar space. The image, along with the rest of the records on board, has been designed to last for a billion years or more and will potentially give any extraterrestrial beings out there a glimpse of the diversity of life on earth. There can't be too many other photographers around who can match that!

**Moving on to digital**

The massive leaps and bounds taken by technology over the past four decades have seen others follow Stephen's lead and experiment with high-speed capture, but nothing →



has ever quite matched the groundbreaking power of those early images. Having presented his vision to the world Stephen was then happy to step back and to concentrate on other projects, in particular the maintenance and development of a personal patch of woodland that has been lovingly managed to attract the widest variety of wildlife, not just for its own sake but also to provide a range of subjects for his photography (see Stephen's blog, on his website [www.stephendalton.co.uk](http://www.stephendalton.co.uk)).

However, after a gap of 21 years, Stephen was encouraged back into his studio two years ago through an offer by Phase One to loan him one of their latest cameras and backs. It wasn't the first digital model he'd used – he went out and bought the full-frame Canon EOS-1Ds as soon as it was available – but it was the first that truly offered him the quality and subtlety of colours that work of this kind required. It was a revelation and, sticking with the original set-up that was still in good working order, Stephen found himself fully engaged once again, producing more of his trademark 'insect in flight' images. As a bonus, the flash speed now being utilised was increased to 1/60,000sec thanks to some adjustments to the electronics, allowing maximum advantage to be taken of the amazing resolution now being delivered.

"The move to digital has made so much sense on so many levels," he says. "For a start I can work at a higher ISO speed while still maintaining incredible quality. I set the Phase One to work at ISO 200, a three-stop improvement on what Kodachrome 25 offered me, and could no doubt go higher if I wished, and the results are way better than film. I can even pull out quite small sections of the image if I need to, and you can just pull the image up and up and the detail is all there: it's quite remarkable."

When the Phase One kit was eventually returned, Stephen went out at the start of this summer and invested in a Nikon D800E DSLR, which gave him a full-frame 35mm resolution of 36.8 megapixels and the ultra sharpness that comes with the removal of the optical bypass filter. "I spoke to Nikon when I bought this camera because there was a danger that its resolution was so high that it would outperform its lenses," says Stephen.

"I ended up buying a Carl Zeiss 100mm f/2 macro and a Nikon 200mm f/4 macro, and because I wanted a wide-angle lens I

**IMAGES** After borrowing kit from Phase One, Stephen rekindled his love of high-speed picture-taking. The digital approach neatly does away with many of the drawbacks that came with film, and gives him a higher ISO speed to work with and unprecedented resolution in his images.



also bought a Nikon 24mm f/1.4. They are all extraordinary lenses and in combination with the D800E I'm getting remarkable quality, which is approaching what I was getting with medium-format."

For anyone imagining that you have to travel the world to find exotic subjects to photograph, Stephen's photography is a revelation. Once you start to focus on the insect world variety and extraordinary natural design can be discovered in abundance. One of the more remarkable shots hanging on the wall of the workshop depicts a longhorn grasshopper at the start of its leap, and this specimen was collected pretty much on the doorstep. "I wasn't even looking for it," says Stephen. "I just happened to see it while I was out in the garden and I put it in a set which had been designed for another insect. The very first shot I achieved with the trigger was exactly what I was after – a lucky shot, as normally a satisfactory image takes around one or two days to produce."

Other specimens that might not be local can be sourced through other routes. An exotic butterfly arrived in pupa form from a butterfly farm and was hatched out before being photographed, while a jumping spider returned home with Stephen from a trip

## “The very first shot I achieved with the trigger was exactly what I was after – a lucky shot”

abroad. It now lives happily in the kitchen, curled up in a plastic tub and fed the occasional fly to keep it in tip-top shape.

The best way to see a Stephen Dalton image is to walk up and examine a large print. Book and magazine reproduction can't hope to do justice to the intricate detail and quality that each shot contains in abundance. It's only when you look into the face of a giant creature that you might only ever have seen scuttling around your feet or buzzing around your ears, that you realise quite how magnificent and awe inspiring it can be.

Examining a print, you also get a feel for the excruciatingly tiny depth-of-field that's being employed, which can result in one tip of a fly's wing being soft, the body being sharp and the further tip going soft again.

Such an approach means that the background will usually be soft and largely unrecognisable, but to add an air of authenticity to the shot Stephen always adds biologically correct vegetation to the scene, and in his most recent digital work he has taken to placing a photograph of the

creature's habitat in the background, so that the actual environment is shown.

The wonderful thing about the latest images from Stephen Dalton is that, while the image-gathering tools might have changed, everything else has remained the same. The delightfully eccentric set-up continues to perform, the approach to each session hasn't altered and the magic is still very much in evidence. We all see the world in a different way thanks to Stephen Dalton's trailblazing ingenuity and who knows? Maybe one day, aliens out there in deep space will get their first glimpse of life on earth through one of his images as well. **PP**



**Stephen Dalton has pushed the boundaries with his close-up insect shots over the past four decades. Today he's updated his equipment, but his new images still carry on amazing his audiences.**

### MORE INFORMATION

[www.stephendalton.co.uk](http://www.stephendalton.co.uk)  
[www.naturepl.com](http://www.naturepl.com)