science LENS news

THE NEWSLETTER OF SCIENCELENS LTD

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inside

sciencelens.

PHOTOGRAPHING
SCIENCE, INDUSTRY
AND TECHNOLOGY

Editor's Note

Gerry le Roux

Professional photographer
and owner of
Sciencelens Ltd.

Welcome to the final Sciencelens newsletter for 2013.

Over the past few editions I have perhaps veered a little from the essence of what Sciencelens is about – photographing science. Having focussed on some of my other photographic interests beyond science, I thought the final newsletter of the year would be a good time to return to basics. Hence this edition features a showcase of my science images from the past few months.

Having worked hard to establish myself in the local science scene over the past few years, I am proud to have developed lasting relationships with a growing number of science organisations. Not only are Sciencelens' images seen with increasing regularity in local science reports, newsletters, websites and more – we have also been honoured to see our images featured on the covers of various publications, some of which I've shared on page 4. Thanks to all the organisations and individuals who continue to support Sciencelens' activities in the science domain.

Before getting into the science, however, let's take a quick detour into the world of fireworks photography (although, come to think of it, there's a fair bit of science in fireworks too!). Given that we're into the last stretch of the year, fireworks displays are the order of the day. Guy Fawkes has come and gone, but there's still a number of fireworks displays being planned across the country between now and the new year. For those of you who will have an opportunity to attend one of these events (or who want to be good and ready for Guy Fawkes 2014), I've prepared a quick tutorial on photographing fireworks – see page 3 for a few simple suggestions to help you get the most out of capturing these breathtaking displays.

In our regular *'Date with Science'* feature, we celebrate the work of American physicist Gordon Gould, one of the inventors of the laser. Turn to page 10 for more on this fascinating, and photographically challenging, subject.

Finally, a quick word on the 2014 conference of the Science Communicators Association of New Zealand (SCANZ), scheduled to take place in Palmerston North in March 2014. Planning is well underway, and it looks like it's going to be a cracker of a conference. Have a look at the conference flyer on page 11 for more on the conference themes, and for information on how your organisation can get involved in supporting the event.

As always, please don't hesitate to contact Sciencelens for all your photographic requirements in the fields of science, technology and beyond. We also work extensively in the events domain, and would love to assist in capturing your year-end functions and awards events.

To everyone who made use of Sciencelens' services over the past year – thanks, it's been a blast. I hope we will have ample opportunities to work together again in the new year, making 2014 an exhilarating year for science communication in Aotearoa.

With that, all that's left is for me to wish each of you a joyful festive season and a relaxing, invigorating end-of-year break.

Gerry

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Full member

NEW ZEALAND GUILD OF AGRICULTURAL JOURNALISTS & COMMUNICATORS

Fabulous Feedback

"Gerry has presented the Malaghan Institute of Medical Research with a wonderful array of photos whenever he is called upon. We have enjoyed working with Gerry over the last two years and would recommend him to anyone who requires professional, friendly and prompt photography."

– Jenny Sim, Fundraising Operations Manager, Malaghan Institute of Medical Research

Shooting Stars

Attending a fireworks display anytime soon? Don't forget your camera!

Herewith some quick tips to get the most out of your fireworks photos:

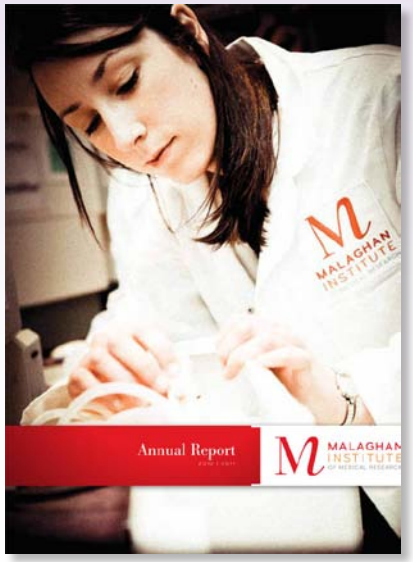
1. Use a tripod. Fireworks photos typically require very slow shutter speeds, so attempting to hand-hold the camera will just result in blurry disasters.
2. Aim your camera at the section of the sky where the fireworks are expected to explode. If you include some land in your photographs, make sure that it is an area that is not overly bright, as this may cause over-exposure.
3. Set your camera to manual exposure, and choose a small lens opening/high f-stop such as f22. This will ensure that the background of your photo stays nice and dark, and will also help ensure that the fireworks (that are surprisingly bright) don't over-expose on your photo.
4. Choose a slow shutter speed of between 15 and 30 seconds. The exact setting will depend on the amount of background/ambient light in your scene, and how regularly the fireworks go off. Ideally you want more than one firework explosion while the shutter is open, but if the display goes off at a blast a second, leaving the shutter open too long will result in a scene that is not only too bright, but also way too busy.
5. Change your focus mode to manual and focusing distance to infinity - the last thing you want is a lens going zzzzt-zzzzt-zzzzt-zzzzt as it tries to achieve autofocus while you're missing all the fireworks.
6. Wait until things are underway, press the shutter release button, and wait for the magic to happen!

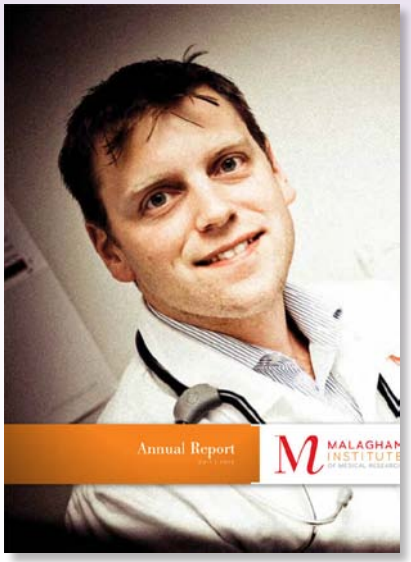
For most fireworks photos, flash is not required. Slow-sync flash (flash firing at the end of the exposure) can be useful to add some foreground detail to long exposure photos.

One more thing – don't forget to charge your camera's batteries beforehand. Long exposure photos are notorious for sapping battery power, and you don't want to have the camera die on you half-way through the show!

FOCUS on

science photography



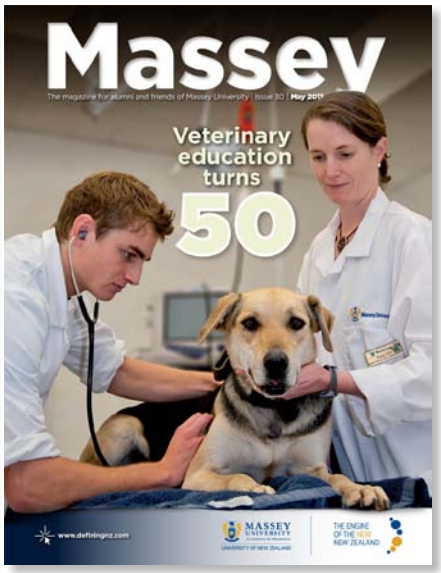


While I enjoy photographing a wide range of subjects, using various techniques, science and technology remains my first love and primary focus. As such, after a number of newsletters featuring some less scientific subject matter, this edition returns the focus to Sciencelens' science photography offering.

Showcased over the next few pages are some recent science images, captured for clients across a range of domains, including the health sciences, bioscience, food technology and agri-science. Through these images I endeavour to illustrate science in action and scientists at work, in clear, striking and visually appealing ways.

I am sure most photographers will agree that, even after years of working as a professional photographer, it remains exciting to see your images on the covers of publications in your chosen field, be it magazines, newsletters, annual reports or trade publications. As an introduction to this science photography feature, I am proud to showcase a sample of covers from publications in the New Zealand science and technology space featuring my photos – thanks to all these organisations for their support.

If your organisation is engaged in science and technology, I would love to assist in the visual communication of your activities – please don't hesitate to contact me should you require any photographic support.



AgResearch

Working with New Zealand's largest Crown Research Institute, AgResearch, at its Grasslands campus, provides exciting opportunities at the intersection of science and agriculture.

With subjects ranging from laboratory science to livestock on the farm, there's a thrilling new challenge in every shoot.

Malaghan Institute

The focus of my photography for the Malaghan Institute of Medical Research is to provide a consistent and continuous window on the work done by the Institute, and in particular, the dedicated team of scientists and researchers behind it.

As such, much of my work for the Institute can be classified as science portraiture – a category of photography that I am particularly fond of.

NZ Pharmaceuticals

While much of the activities of local pharmaceutical company NZP is focused on commercial production, their products and services are supported by science and research conducted in their in-house laboratories.

As such, doing photography for NZP gives me a welcome opportunity to work in a scientific and industrial context simultaneously.

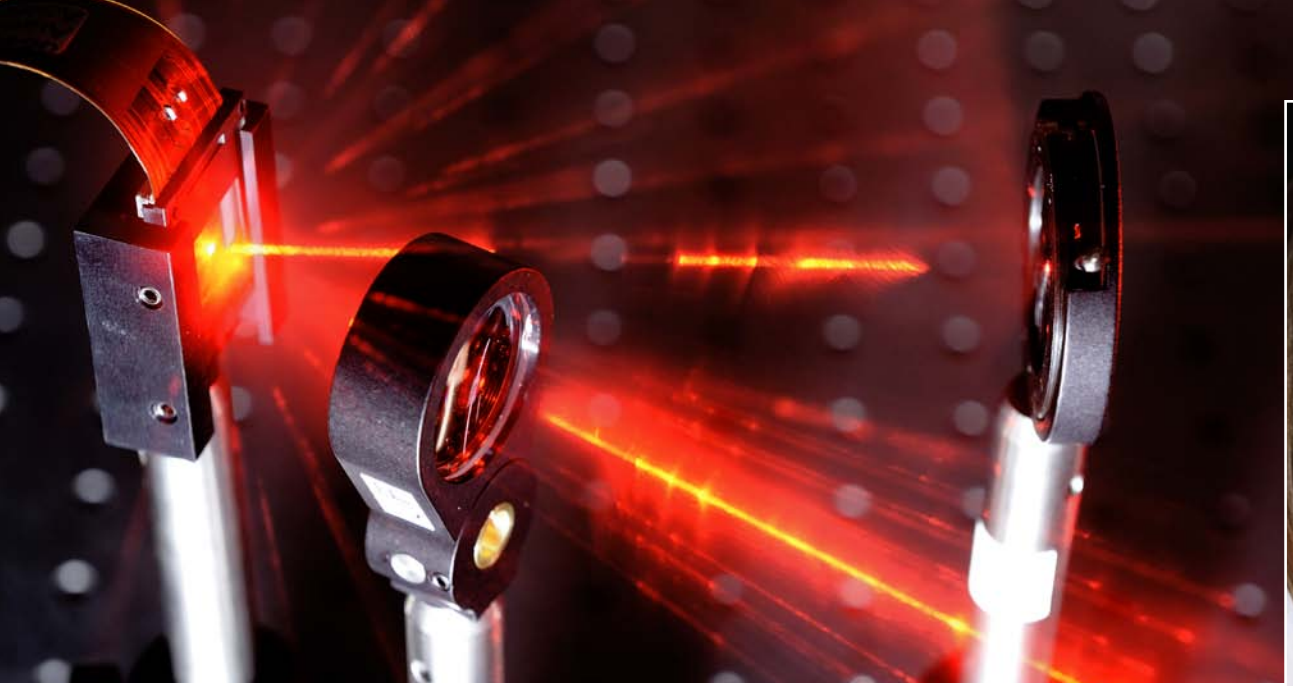
Riddet Institute

The world-class food research activities of the scientists and students at the Riddet Institute continue to provide fascinating subject matter in the domain of science photography.

Silver Fern Farms

In this shoot for Silver Fern Farms, the goal was to illustrate the critical role played by SFF's master graders who are responsible for grading the beef carcasses at the Pacific meat processing plant.

Doing photography in a cold-room presents some unique challenges (such as lenses fogging up when moving out of the fridge, not to mention my numb red fingers!), but it only added to the fascination of working in this environment.



Lasers are not just important scientific tools – they're also a great subject for science photography.

Gordon Gould, laser shows and space battles

If you were young in the late 70s/early 80s, you may have a special appreciation for this edition's subject. Remember those high-tech night club laser shows that were so popular at the time?

On 5 November 1957, the American physicist Gordon Gould, noted down the principles of *Light Amplified by Stimulated Emission of Radiation*, or LASER in a dated notebook entry. His notes also included various applications for laser light, and he was the first to coin the term LASER at a conference in 1959.

Sadly Gould's patenting savvy at the time didn't match his physics skills, and his 1959 patent application was denied by the US Patent Office. The USPO subsequently went on to grant a patent in 1960 to Bell Laboratories, whose scientists, Charles Townes and Arthur Schawlow, were independently and in parallel to Gould, also working on the concept of lasers.

This effectively robbed Gould of his share of the benefits – money, prestige, science acumen – derived from the invention. Not willing to accept this fate, Gould took the matter to court, an action that set in motion 28 years of lawsuits. He won a minor patent in 1977, but it was only in 1987 that he succeeded in achieving a major victory, claiming patents for a number of laser devices.

To this day, science historians are not in agreement about who to give primary credit for the invention of the laser, but there is no doubt that Gould deserves a large portion of the credit.

Since its discovery, many different types of lasers have been developed, producing emissions in ways too intricate to try and discuss here. However, the key feature of a laser beam is its high degree of spatial and temporal coherence. *Spatial coherence* means there is very little diffraction in a laser beam, so it can be focused on a tiny spot over a significant distance. *Temporal coherence* means the wave phase of the light beam is correlated over a large distance, producing a polarised wave at a single frequency. Of course lasers are far more useful than simply creating special effects light shows. They have become a ubiquitous part of modern society, used in electronics, information technology, medicine, industry and military applications. In any single day you may encounter lasers in barcode scanners, CD players, computer hard disks, laser printers and much more.

Thanks to their precise focusing ability, the medical applications include surgery, treatment of kidney stones, eye treatments etc. They are also used in cosmetic skin treatments. Their accurate cutting ability makes them extremely useful in many modern industrial cutting and part-making applications. They are also an integral part of many military systems, including guidance and electro-optical defence systems.

And last but not least, judging by countless science fiction movies over the years, lasers will apparently be absolutely indispensable as the weapon of choice to defend our planet and obliterate enemy space ships!

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Te Kai o te Rangatira

The Food of the Chief

23-25 March
Palmerston North
New Zealand

Science Communicators Association of New Zealand
2014 Conference

The name of the 2014 SCANZ conference comes from a Maori proverb:
He aha te kai o te rangatira?
He korero.

What is the food of the chief? It is korero. That is, the food of the chief is communication, oratory, debate, speechmaking, research, persuasion, facilitation and information. Korero is what sustains a leader.

The two general themes of the conference will be woven together.

Theme One: Collaboration, Connections and Networks
The first theme of Te Kai o te Rangatira will explore how we work together in our science and in the communication of that science; discussions will also include how we engage with each other and with our communities.

Theme Two: Communicating the science of food
While the first theme explores the theory of how we work together and why working together is important, the second theme will use communication about food and food science to provide illustrations of best practice, case studies of lessons learned and examples of overcoming barriers. The programme will also include successful examples of collaborations and connections from outside the world of food to show how best practice in one field can be applied to another.

www.scanz.co.nz

Science Communicators Association of New Zealand
2014 Conference

Te Kai o te Rangatira

The Food of the Chief

23-25 March
Palmerston North
New Zealand

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Catering breaks, satchel sponsor & speaker gift sponsors
- Please contact us to discuss this option

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Please contact us to discuss the conference sponsorship opportunities above.
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Gerry le Roux
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For more information, please visit www.scanz.co.nz.

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NEWS SNIPPETS

Upcoming conferences

- **26th International Applied Geochemistry Symposium**, 18-21 November, Rotorua
- **Coastal Society Conference**, 19-22 November, Hokitika
- **PSA 2013** (1st International Symposium on Bacterial Cancer of Kiwifruit), 19-22 November, Tauranga
- **Australasian Telecommunication Networks & Applications Conference**, 20-22 November, Christchurch
- **NZ Sports Medicine Conference**, 21-23 November, Wellington
- **19th Australasian Plant Pathology Conference**, 25-28 November, Auckland
- **Health Informatics New Zealand 2013 Conference**, 27-29 November, Rotorua
- **2013 New Zealand Association for Impact Assessment Annual Conference**, 28-29 November, Palmerston North
- **7th International Conference on Sensing Technology** (ICST 2013), 3-5 December, Wellington
- **12th International Conference on Frontiers of Polymers and Advanced Materials** (12th ICFPAM), 8-13 December, Auckland

2014 Sony World Photography Awards

The 2014 Sony World Photography Awards, organised by the World Photography Organisation, is now open for entry. Professional, amateur, youth and student photographers from across the world can enter their best work for free. Photographers will compete for a range of cash prizes and the latest digital imaging equipment from Sony. Overall winners will be announced in London on 30 April 2014. Seeking the very best in international contemporary photography, the awards have established themselves as one of the world's leading photography competitions.

The winner of the 2014 L'Iris d'Or/ Photographer of the Year title will be awarded with $25,000 (USD) and the Open Photographer of the Year will receive $5,000 (USD). All category winners will receive the latest digital imaging equipment from Sony and the Student Focus winner will receive a range of new, cutting edge Sony equipment for their university. Winning and shortlisted photographs will also be published in the 2014 edition of the Sony World Photography Awards book and exhibited at Somerset House, London.

The 2014 Sony World Photography Awards include the following competitions:

- **Professional** – 15 categories judged on a series of work: Closes 9 January 2014
- **Open** – 10 categories judged on a single image: Closes 6 January 2014
- **Youth** – three categories for photographers under 20: Closes 6 January 2014
- **Student Focus** – for higher education photography students aged 18-30: Closes 6 December 2013

See the website for details about categories and more: http://www.worldphoto.org/about-the-sony-world-photography-awards/

Writing for Science Workshop with Dave Armstrong

Join award-winning writer Dave Armstrong for a two-hour session that will help you hone your writing style and refresh your approach to your work. Learn techniques that will improve your delivery of important information and engage your audience.

Dave has run the popular Writing for Science class at Victoria University in Wellington for the last five years.

Limited to 12 SCANZ attendees only
Date: Friday 15 November, 10am-12pm
Venue: Science New Zealand, Level 14 Prime Property Tower, 86 Lambton Quay, Wellington

Price: $40 (plus GST) -members; $65 (plus GST) -non-members

RSVP at scanz2011@gmail.com. For more information, visit http://www.scanz.co.nz/wellington-events.html

At Six: 'The poisoner's guide to life', 28 November, Wellington

The second of a new Royal Society of New Zealand lecture series of inspirational stories, stimulating discussions and fascinating talks 'At Six' at Te Whare Apārangi features Professor Deborah Blum, Pulitzer prize-winning science journalist, columnist for the New York Times and Professor of Journalism at the University of Wisconsin-Madison.

We take for granted our CSI-era society in which scientists work with police detectives to solve crimes. But what was it like before we built the profession of forensic medicine, when – as New York City announced in 1918 – the clever poisoner could "operate with impunity" because no one could catch them? This talk explores the building of forensic science in both homicide and in public health and looks at the ways its lessons help us navigate our chemical world today.

Details: 6pm Thursday 28 November, Te Whare Apārangi, Royal Society of New Zealand, 11 Turnbull St, Thorndon, Wellington. View webpage. Drinks from 5.30pm.

Tickets cost $20 ($15 RSNZ Members) including a glass of wine on arrival. Buy tickets online or there will be door sales (credit card/Eftpos/cash)

Professor Steve Jones' public lecture tour: 'Nature, nurture or neither?'

The Allan Wilson Centre for Molecular Ecology and Evolution is proud to bring you 'Nature, Nurture or Neither?' - a public talk by Professor Steve Jones, University College London, geneticist and popular science writer, rescheduled from last year. The more we know about genetics, the more important environment seems to be. Professor Steve Jones looks at the implications for our big obsessions: obesity, IQ, the education system and sporting ability.

Professor Steve Jones will be touring New Zealand in November and giving talks in Auckland, Wellington, Palmerston North, Christchurch, Nelson and Dunedin from 18 November to 26 November.

Visit the Allan Wilson Centre at http://www.allanwilsoncentre.ac.nz for more info.

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