



INTO THE LIGHT

The International Images for Science Exhibition 2013, opening on 31 Aug at the Great North Museum: Hancock, Newcastle, builds on the success of the first exhibition in 2011, as Exhibition Coordinator Accredited Senior Image Scientist Dr Afzal Ansary FRPS explains to David Land

“Words aren’t usually able to express all the information that a photograph can convey”, says *International Images for Science Exhibition* Coordinator Dr Afzal Ansary ASIS FRPS. “Therefore, scientists have always needed to communicate their discoveries through imagery. In fact, the application of photography to science is almost as old as photography

itself, while the images created are not only outstanding records of seldom seen objects and events, but also provide a bank of scientific information.”

The Society’s exhibitions have promoted the art and science of photography since it was established in 1853, showing the very best images by workers across a wide variety of genres.

One genre that had received little exposure over recent years however was scientific imaging. The Society’s first *International Images for Science Exhibition* in 2011 redressed this in spectacular fashion, with a much sought after world class exhibition, which served as a showcase for the vast range of applications for photography within modern day science, and attracted a large number of



visitors and extensive media coverage.

Building on the success of this first exhibition, in partnership with the Science and Technology Facilities Council, The Society has organised the *International Images for Science Exhibition 2013*.

Says Afzal, who coordinated both the 2011 and 2013 shows, "The first exhibition was seen at the Edinburgh Science Festival, the Palace of Westminster, the Royal Albert Hall, and at educational establishments in the UK and Europe. It has been exhibited in China, and one entire set of the 50 images in the show is going to be archived permanently at the National Media Museum, Bradford.

"It was a great showcase for the work that scientists do, and how they use photography to support research and development."

Conceived as an exhibition of the world's best scientific photography, the 2013 exhibition comprises a total of 100 images as

opposed to the previous exhibition's 50, and was open to submissions from both members and non-members of The Society.

Scientists, scientific photographers, researchers, engineers, and technologists, from 15 countries, including the USA, Australia, Sweden and Israel, submitted images. The final exhibition was selected after much rigorous debate.

"Scientific research and development is a necessity in today's world", says Afzal. "Without it, the world's civilisations would be at a standstill.

"To study and discover new fields, scientists need new tools. Analogue photography has evolved into digital imaging, with the capability of yielding excellent results for diagnosis, evaluation, measurements, assessment and investigations.

"Scientists also need such imagery for pictorial documentation, communication,

Left Coloured scanning electron micrograph of a Leafcutter Ant (*Atta cephalotes*) holding a micromechanical gear © Manfred P Kage.

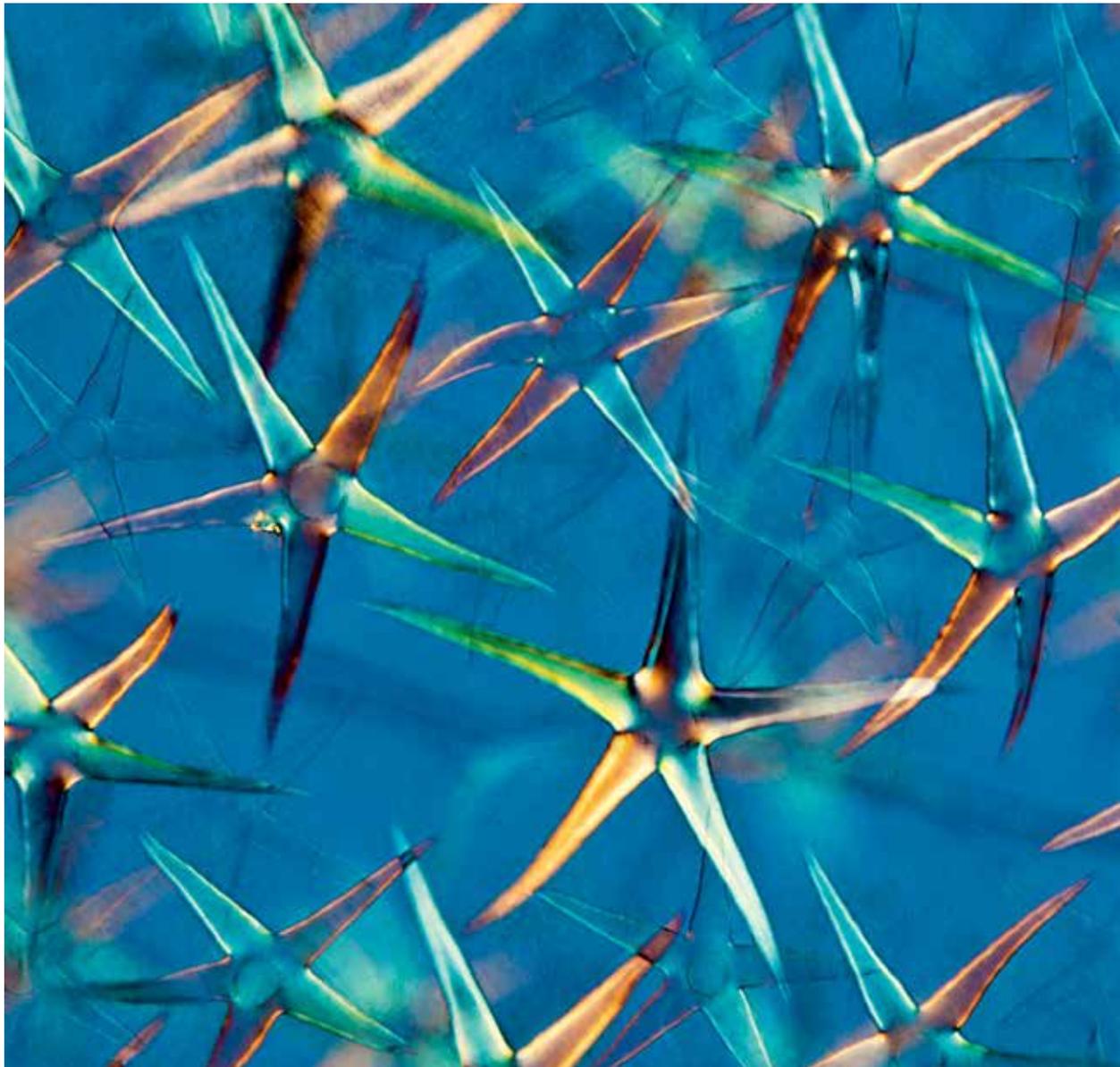
Above Coloured scanning electron micrograph of a fully-grown Tardigrade, or Water Bear (*Paramacrobiotus craterlaji*) of about 1mm in length, found on moss in Crater Lake, Tanzania © Nicole Ottawa.

presentations and publications.

"Astronomical imaging has now become an essential tool for astronomers. Exploration and understanding of space and galaxies has always intrigued humans, inspiring us to pictorially document what we've observed from very early on, while modern day imaging techniques have given us a better understanding of outer space, stars and galaxies, by showing texture and details that would otherwise be indiscernible.

"Such images are further analysed and

Right Polarised light micrograph of the hairs on the leaf of a Fuzzy Deutzia (*Deutzia scabra*), each of which is about 0.4mm across
© Steve Lowry.



processed by the mighty power of the computer, thus bringing vast galaxies much closer to us, and revealing the most fascinating aspects of astronomy.”

Images in the exhibition include pollen being discharged from an Ash Tree; bubbles beneath a contact lens; scanning electron micrographs of a male Fruit Fly sex comb and human lymphocytes; and a sequence of colour schlieren images of a flying bullet, captured using high speed digital video, taking 40,000 frames per second, with an interval of 200 microseconds between frames.

There is also an image showing the anatomy and mechanics of the simple but essential process of drinking water; an extreme close up of a Cuckoo Wasp; a thermal infrared image of an overweight woman; a 115 million year old jawbone; a malaria infected human red blood cell; a time lapse sequence of a Glory Lily opening; a Pond Skater walking on water; massive bladder stones; and a 3D reconstructed image of a mechanical heart pump implanted in a patient's chest.

“While there are a number of scientific

applications of photography”, says Afzal, “such as micro and macro, ultraviolet and infrared, time lapse, high speed, electron microscopy, thermography, fluorescein angiography, retinal photography, phase contrast microscopy, schlieren photography and stress analysis, the scientific areas in which photography and other imaging systems play an important role encompass everything from astronomy to zoology, including medicine, engineering, marine biology, botany, forensic science, archaeology, natural history and fundamental research – in fact, every branch of science!

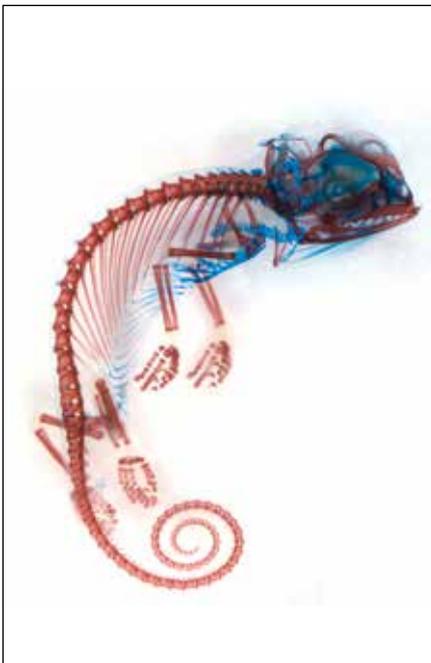
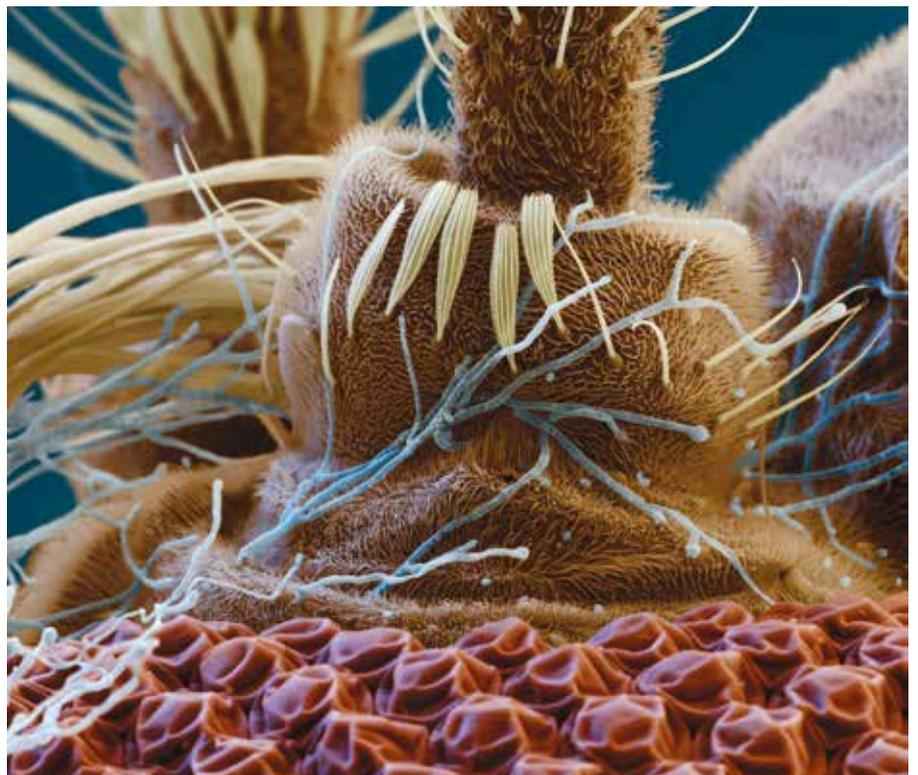
“The *International Images for Science Exhibition* is unique, in that it provides access to visually stunning images from a range of fields, which the public rarely gets to see, due to their generally remaining within the specialist scientific arena. This exhibition brings this material out into the open, allowing us to see that these images are not only important for science, but are frequently beautiful and fascinating works of art in their own right.

“With its remit as an educational charity, this exhibition gives The Society a unique opportunity to promote a better understanding of the role that imaging plays in scientific research and development. I hope you will enjoy seeing the exhibition as much as I enjoyed curating it.” **David Land**

info

INTERNATIONAL IMAGES FOR SCIENCE EXHIBITION 2013

- **31 Aug** Launched at the Great North Museum: Hancock, Newcastle. It will close at the end of September, after which it will tour the UK and abroad. It will be a highlight of the British Science Festival, in Newcastle from 7-12 Sept.
- All images in the exhibition will be displayed at www.rps.org, under Exhibitions
- Great North Museum, Hancock, 0191 2226765 www.twmuseums.org.uk/great-north-museum



Top Composite of light microscopy and scanning electron microscopy: extreme close-up of the head of a Cuckoo Wasp found on a window screen © Daniel Kariko. Cuckoo Wasps belong in the family Chrysididae, of which most species are dectoparasites – laying their eggs in host nests where their larvae eat the host egg or larvae. Part of a series investigating our often-overlooked housemates, a result of the expansion of our habitat into rural areas.

Above Coloured scanning electron micrograph showing the base of the antenna of a mosquito © Nicole Ottawa. The thin white tendrils are a fungus, *Beauveria bassiana*. Common to many soils, and parasitic on many insects, causing white muscardine disease, it is used as a biological pesticide to control many types of insect pests, such as termites, aphids and some beetles. More recently, it has been studied as a possible biological control for malaria-transmitting mosquitoes.

Left Skeleton of a Chameleon Embryo © Dorit Hockman.