Manchester Microscopical & Natural History Society

Microscopy

An Update ....



147th Year !

Mike Mahon

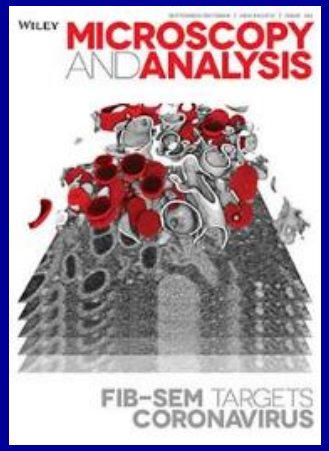
October 24th 2026

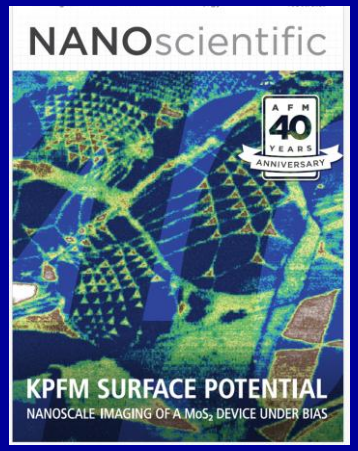
Keeping up to date …

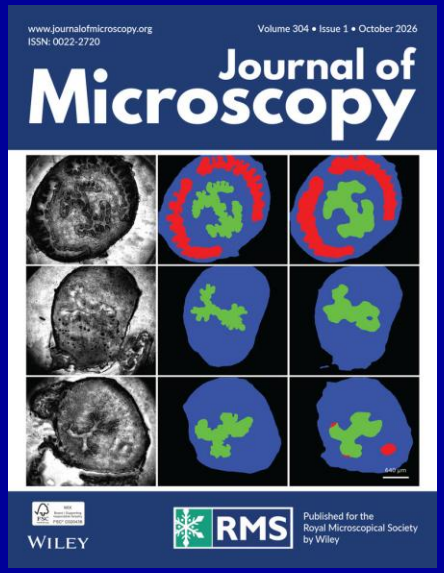
Microscience Microscopy Congress

Royal Microscopical Society

Website, Journal, Magazine/Bulletin, Meetings

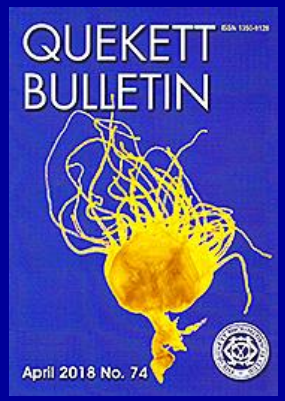












+ Zeiss, Nikon, Leica, ….

Manchester Microscopical & Natural History Society

Established 1880 … 146 years!

www.manchestermicroscopical.org.uk

& AI !!

2026 40 Years of AFM and 10 years of Expansion microscopy

Microscopy Landmarks

- <1600s magnifying lens
- 1600s simple microscopes
- 1650s compound microscope
- 1830s expansion of light microscopy+dg/pol
- 1900-60 UV & fluorescence microscopy
- 1930s+ phase and interference microscopes
- 1930-60 electron microscopes developed
- 1980s confocal microscopy
- 1990s-2010s scanning probe microscopies
- 2010s μCT, super-resolution, expansion, X-ray, photo-acoustic
- 2020s AI microscopy, 4D imaging, interferometric, ...

Recent Nobel Prizes

2014 – super resolution fluorescence microscopy
2017 – cryo-electron microscopy
2018 – optical tweezers
2026 -- optogenetics

The Ultimate Microscope ???

Diamond Light Beamline Facility

2007-2018 - ….

https://www.diamond.ac.uk/Instruments.html



Diamond Light Source is the UK's national synchrotron. It works like a giant microscope, harnessing the power of electrons to produce bright light that scientists can use to study anything from fossils to jet engines to viruses and vaccines.

The machine accelerates electrons to near light speeds so that they give off light 10 billion times brighter than the sun. These bright beams are then directed off into laboratories known as 'beamlines'. Here, scientists use the light to study a vast range of subject matter, from new medicines and treatments for disease to innovative engineering and cutting-edge technology.

…. a machine that is 10,000 times more powerful than a traditional microscope.

-scopy

- Macroscopy - photo, stereomicroscopes, endoscopes
- Microscopy - optical microscopes
- Nanoscopy - electron microscopes
- Picoscopy - scanning probe microscopies
- Femtoscopy - gas ion microscopes

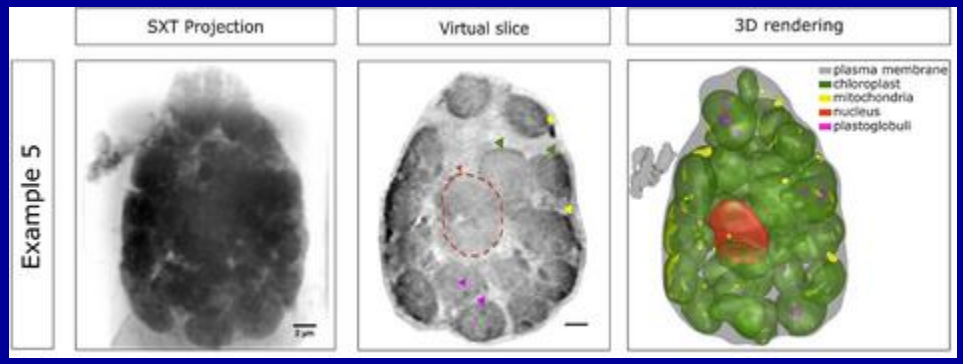
Journal of Microscopy

RMS

AFM-based nanomechanical mapping and mechanobiology, two unforeseen fields that have lifted each other up

Núria Gavara

Visualising *Physcomitrium patens* protoplasts with full-rotation soft X-ray tomography



Microscopy at a glance: New poster article series exploring the intersection of art, science and imaging

Extended depth-of-field reflected-light microscopy with a low-cost robotic microscope and Fiji focus stacking: Workflow integration and baseline evaluation

Juan M. Ballesteros, Carlos M. Garzón

First published: 26 August 2026 | https://doi.org/10.1111/jmi.70161 | VIEW METRICS

Read the full text > EPUB PDF CITE TOOLS SHAR

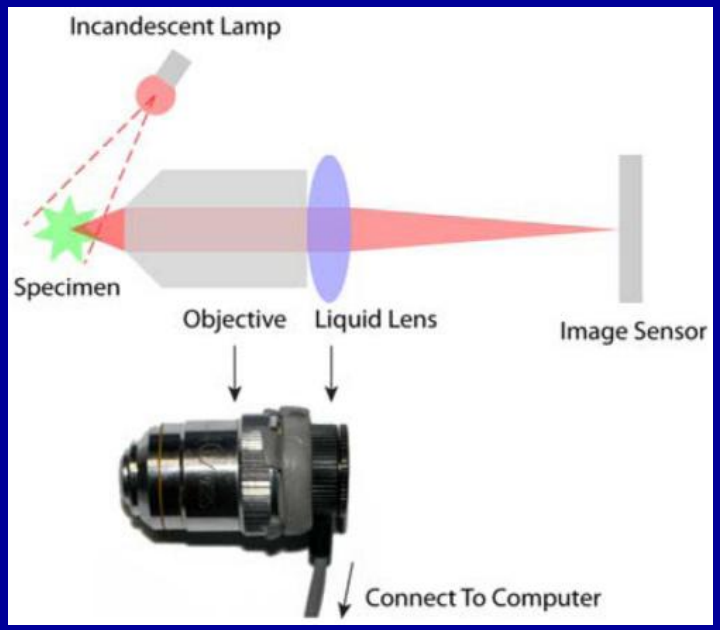
Abstract

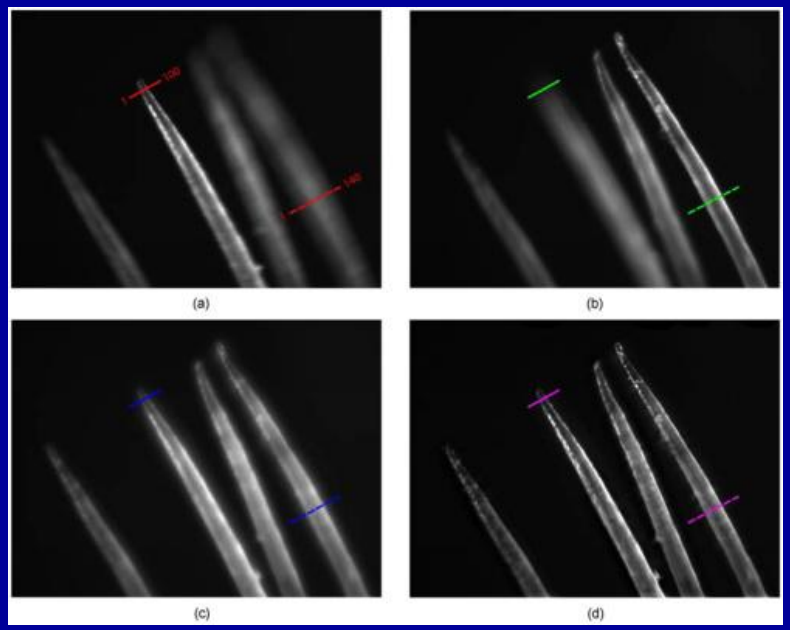
Optical reflected-light microscopy is widely used in mechanical and tribological testing laboratories, but its limited depth of field (DOF) restricts imaging of non-planar post-test surfaces when high-NA objectives are needed to resolve fine features. Here we present a low-cost robotic microscopy system (bill of materials around USD 300) that extends depth of field through controlled axial scanning and computational focus stacking. Built on the OpenFlexure platform and using open-source software tools, the system captures *z*-stacks and reconstructs all-in-focus micrographs in Fiji (ImageJ distribution) using extended-depth-of-field (EDOF) fusion engines. The workflow is demonstrated on

Extended depth-of-field microscopic imaging with a variable focus microscope objective

Sheng Liu and Hong Hua

2010





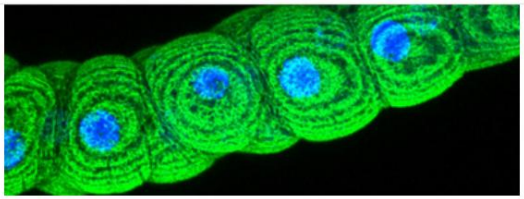


Infocus Magazine



RMS | Online infocus Magazine

https://www.rms.org.uk/resources/infocus-magazine/infocus-online.html



18 Sep 2026

infocus Magazine - Issue 83, September 2026

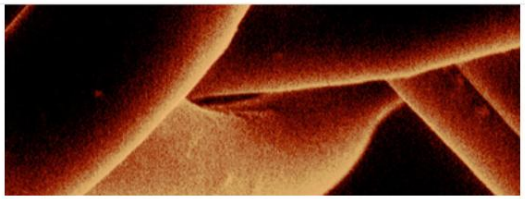
infocus Magazine - Full Issue



10 Jun 2026

infocus Magazine - Issue 82, June 2026

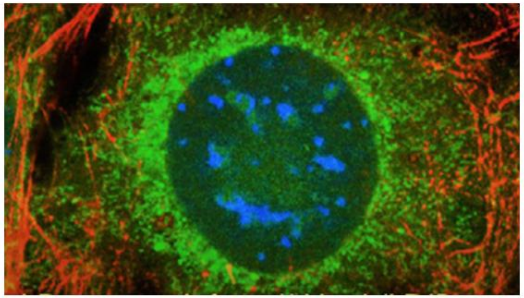
infocus Magazine - Full Issue



8 Mar 2026

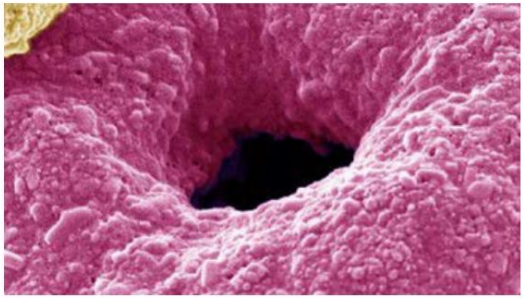
infocus Magazine - Issue 81, March 2026

infocus Magazine - Full Issue



8 Dec 2025

infocus Magazine - Issue 80,



7 Sep 2025

infocus Magazine - Issue 79,



5 Jun 2025

infocus Magazine - Issue 78, June

12°C Windy

Search

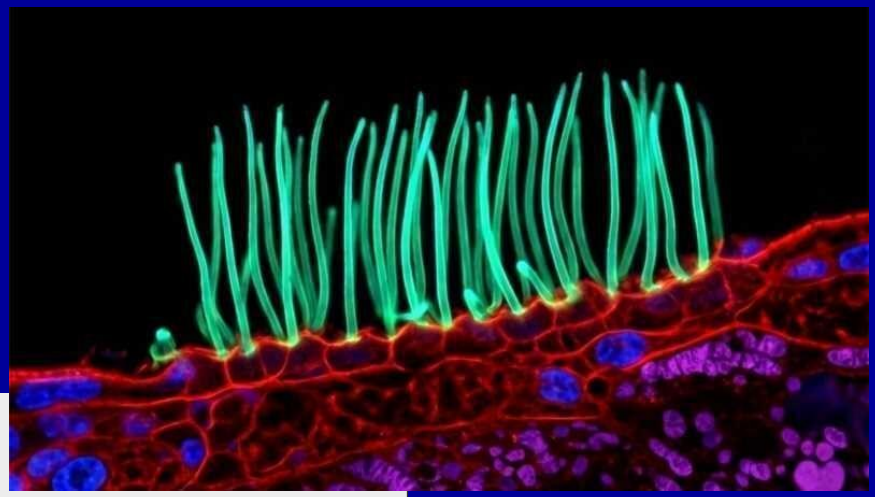
ENG UK

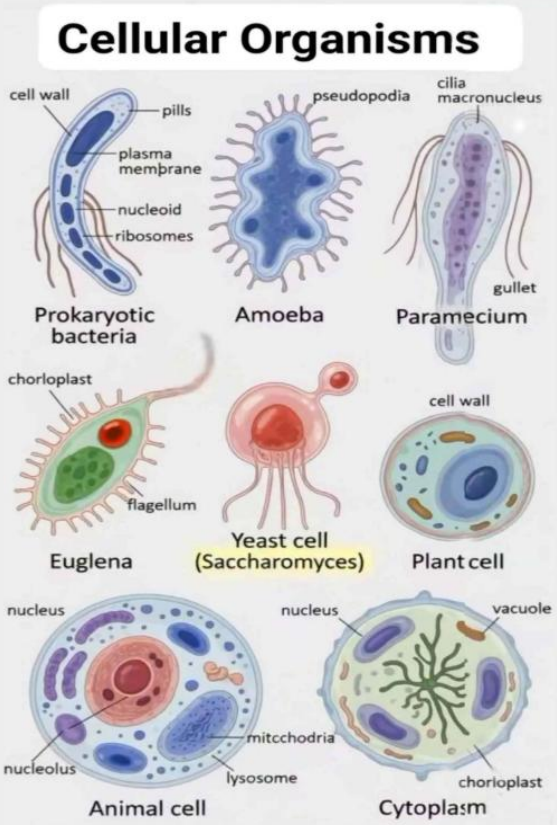
99%

11:59 10/10/2026

Is it Real ?

Nikon Small World Video Competition !!





This wantonly misleading plate opens the survey of microbes on the mtishtech site, and must surely qualify as the worst illustration of the microscopic world in the history of science. Their illustrated site claims to offer 'online training' for teachers of biology.

Microbial masquerade: The rise of the synthetic specimen

Prof. Brian J Ford, Hon FRMS, Hon FLS

Microscopy is the science of seeing for oneself. From Leeuwenhoek's single lenses to the digital instruments of today, its authority rests on the honest recording of what is actually observed under the objective. That authority is now under subtle but serious pressure. A growing volume of synthetic images and videos of faked microorganisms – generated by Artificial Intelligence (AI) and circulated as educational or scientific material – is presenting non-existent or grossly distorted specimens as fact. Students, teachers and the wider public are being shown convincing pictures of cells and microbes that have never existed.

The problem is not illustration itself. Stylised drawings, simplified diagrams and even cartoons have long been used to communicate the world of microscopy and the microbial universe. The difficulty now arises when synthetic images are offered as representations of real organisms.

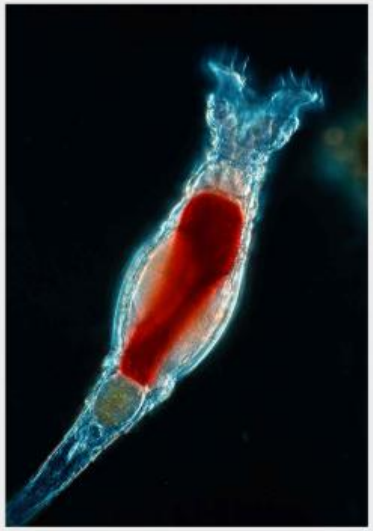


Fig 1a: The bdelloid rotifer Philodina is some 400µm long, and this study by Frank Fox is extensively reproduced online. It appears on his website www.mikro-foto.de and conveys a representative impression of the organism under dark-ground microscopy.



Fig 1b: By the time a typical rotifer is illustrated online by microscopicworld28, it has already acquired ventral abdominal legs, which no rotifer possesses. This image (likely created with Google Veo 3.1 or Kling 3.0) conveys a deceptively realistic appearance.



Fig 1c: The yog-blogsoth.blogsp site states: 'Drawing a rotifer is hard … their anatomy is a bit hard to parse' and shows this example as a menacing microscopic monster. The casual individual browsing the web could easily accept this for scientific accuracy.



Fig 1d: A rotifer video created by experimen3D has whirling coronal cilia that make it look like a power-tool, the mastax being replaced by gear-wheels and cogs, as if powered by clockwork. The appearance is that of a genuine micrograph, though it is pure fakery.



Fig 2a: Paired nuclei give Giardia lamblia the characteristic appearance of a curious face. The cell measures only about 12µm long, so in stained preparations little internal detail is resolved. Living Giardia have flagella that flutter ceaselessly, as it twists and turns.



Fig 2b: In the video of Giardia created by experimen3D, the detail claimed to be resolved by light microscopy is unachievable. Many Cytological features (the ventral axostyle, anterior rhizoplasts, a parabasal body) are missing, though the simulation is convincing.



Fig 2c: A vivid version of Giardia posted by microscopicworld28 lacks many details (axostyle, rhizoplasts) and its movement is erroneously embodied. Their Giardia glides gently along with graceful, balletic flagella and slowly turns head to tail, all remote from reality.



Fig 2d: Most bizarre is the version envisaged by the AI Grok. Using published digital images as references, it renders the nuclei as eyes, the flagella as appendages, and creates a dorsal fin from the caudal flagella. Rather than a protozoan, it looks more like a startled fish.

A new web resource for diatom optical microscopy

www.diatomimaging.com

Dr Jonathan Crowther, FRMS

When I started on my journey into microscopy in 2020, the initial aim was to make a UV transmission microscope for my research into sunscreens (previously written about in Crowther, 2021). Very soon I found myself in need of something to help me determine the resolution of my microscope and this was where I was introduced to the wonderful world of diatoms. For those of you who are not familiar with these little marvels, diatoms are algae that produce silica structures to live in. Some species are currently alive, and others are present in fossil deposits. The silica structures are amazingly intricate and come in a myriad of shapes and sizes with structures present in the micron and nanometer scale. For my UV work, I approached a couple of slide makers, and after supplying them with fused silica slides and coverslips, had some diatom slides made which I used to help with development and testing of my microscope (Crowther, 2022).

Diatoms have been a subject for microscopy since the 1800s and a huge range of slide makers had produced slides with them on. Some of these slides are strews (with a scattering of different material from a location), some were examples of selected diatoms, and some were amazing arrangements of tens or even hundreds of individual diatoms. I became fascinated by their widely varying structures and started to obtain slides to image. Soon I found myself looking out for specific makers and certain species to try and build my collection, and bit by bit the number of slides grew. All the while I was capturing images and gradually refining my technique, and as a result was building up a large collection of high resolution images. After sharing these images online (usually through the Diatom Images Facebook Group) a number of people had asked me what I was going to do with the photos. Initially I thought about a photobook, but then decided to create a website where I could share them, along with photos of the slide and details on how the images were captured.

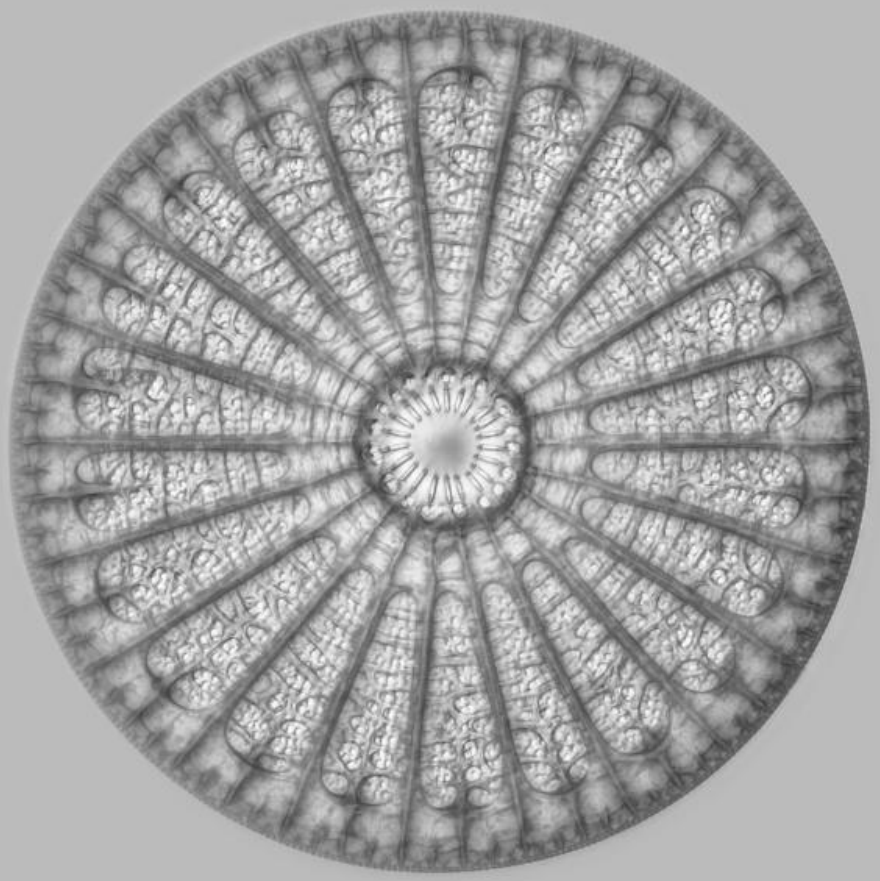


Figure 1. Arachnoidiscus ornatus by Mike Samworth. From Santa Ana, California. Olympus BHB microscope using 450nm LED light. 63x Leitz Pl Apo NA 1.40 objective, oil immersion. Olympus Aplanat Achromat condenser, oil immersion, slightly oblique lighting. Image provided by Dr Jonathan Crowther FRMS, JMC Scientific Consulting Ltd (https://diatomimaging.com/).

Microscopical Marine Marvels

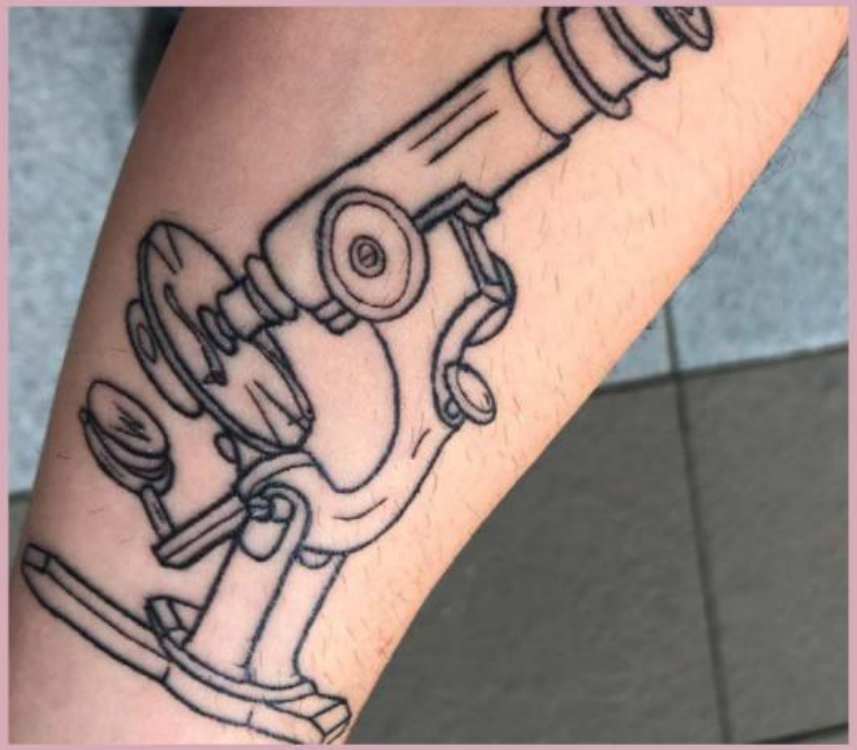
By Dr John Hutchison Hon FRMS

Our recently acquired collection of antique microscope slides includes some in the category "marine zoology". The earliest members of our society – mainly wealthy, professional gentlemen – were keen to explore the new world that was opening up under their microscopes, and having neither the time nor skill to make their own, were avid collectors of slides made and sold by well-known mounters.





The microscopical pathways of both light and electrons were intertwined for artistic effect on the back of Leandro's right arm in 2018.



An old brass microscope has taken pride of place on Leandro's left forearm since a further trip to the tattoo studio in 2022.

privilege to use them if you ever get the chance. it just seemed the right thing to do!"

Leandro added: "There might be some more microscopy-themed tattoos in the pipeline. I'm not sure yet, so we'll have to wait and see."

Get in touch!

With the gauntlet now firmly thrown down by Leandro, we're bound to wonder if any of our readers have been similarly inspired by microscopy in their choice of body art?

Do you know someone who has a microscopy-themed tattoo they might be willing to share with us? If not, this will prove to be a one-off feature – which would surely be a shame!

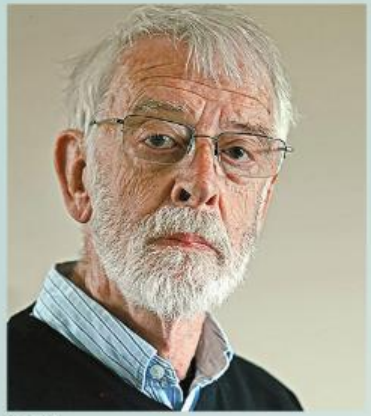
Contact: editor@infocus.org.uk



Leandro Lemgruber.

In Memoriam
Michael Ivan (Spike) Walker
1933 - 2025

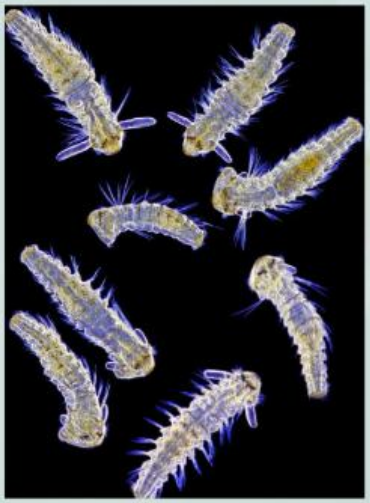
Spike was known internationally as an award-winning photomicrographer. His pictures delighted many people, both microscopists and the public alike. He won many awards and accolades for his work, including ten prizes and two honourable mentions in the Nikon Small World competition. Other awards include those from the Royal Society in 1961; the Royal Photographic Society in 2010 and again in 2016 for his incredible contribution to photography and its application in medicine. In the Polarioid International and Polaroid United Kingdom photomicrography competitions Spike won a Grand Prize, three first places, and three second places. He also received the 1967 Kodak Science Award for use of blue light fluorescence in the study of ciliate protozoa, and the 1984 RMS Glauert (gold) medal for photomicrography.



Spike Walker.

Spike's passion for microscopy started at the age of ten when he received his first microscope, a present from his father that, at £4.50, cost more than his father's weekly wage. Spike sold his first photomicrographs in 1961, flash photomicrographs of protista.

Born on the 27th October 1933 in Staffordshire, Spike graduated in zoology from the University of Liverpool in 1956. He began a dual career; from 1957 to 1989 he taught biological science in high schools and at Stafford college while also working as a freelance photomicrographer. Spike's work has featured in many publications and photo libraries. His book Amateur Photomicrography (1971) was published by Focal Press.



Living Spionid larvae from marine plankton. By Spike Walker.

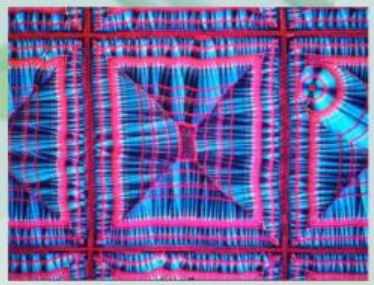


Daphnia water flea giving birth. By Spike Walker.

Spike was an active and enthusiastic member of both the RMS and the Quekett Microscopical Club. He became a Fellow of the RMS in January 1962, and was elected to the QMC in May 1964, being made an Honorary member of the Club in 2008.

Spike took early retirement in 1989 to pursue his hobby. It was always a pleasure to visit Spike in his laboratory at his home in Appleyard, Penkridge, where he and Christine made visitors very welcome. His Zeiss Ultraphot III microscopes and the Reichert Zetopan would be lined up ready for action. Amongst the many contrast techniques that Spike devised or adapted was 'Spikeberg' a variant of Rheinberg illumination from which came images featuring a riot of colour. A needle passed through a melt of vitamin C on the surface of a slide would, when cooled, result in fantastically-coloured shapes under polarised light.

Besides his wonderful photomicrographs, Spike was also interested in wood sculpture, gardening, writing, and seventeenth and eighteenth century music. Spike was remembered by his friends for his



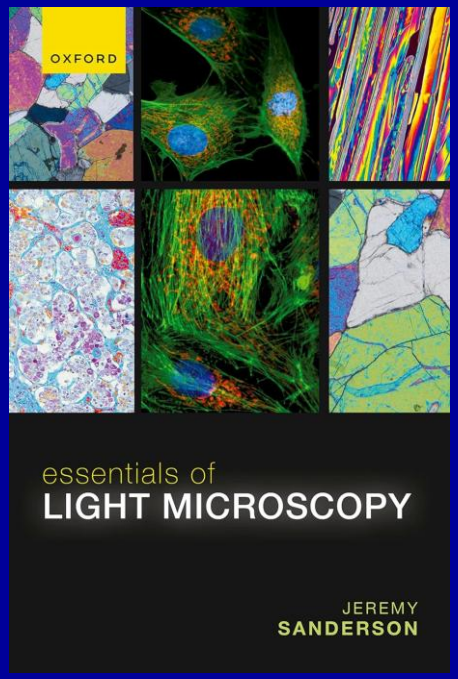
Crystalised vitamin C. By Spike Walker.

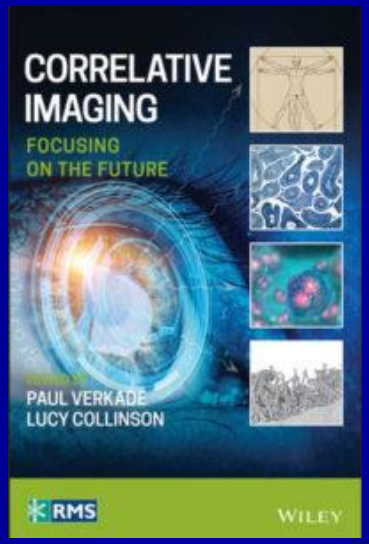
mischievous sense of humour which, at Christmas, would feature an alternative history of microscopy and microscopists, often at the gentle expense of Carl Zeiss, for his favoured photomicroscopes were the Zeiss Ultraphots and equipment from Oberkochen.

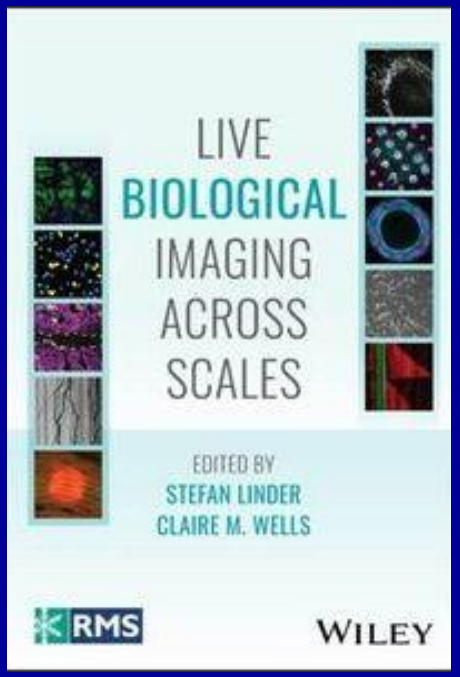
Spike died on the 5th November 2025 at the age of 92. We send our condolences to his family and Christine, his wife.

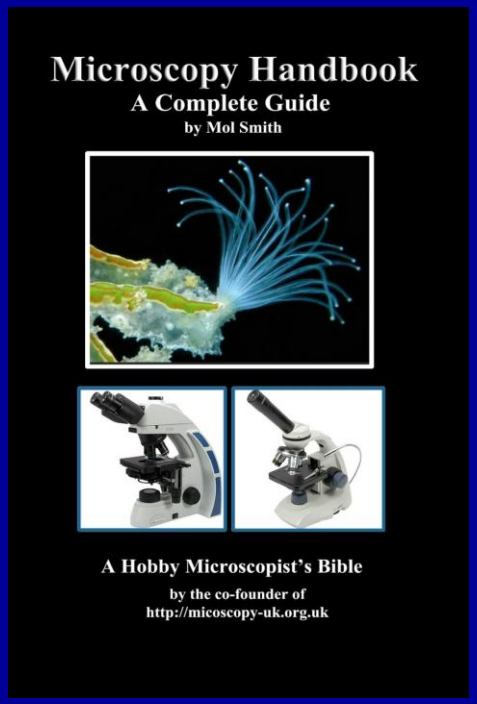
By Jeremy Sanderson

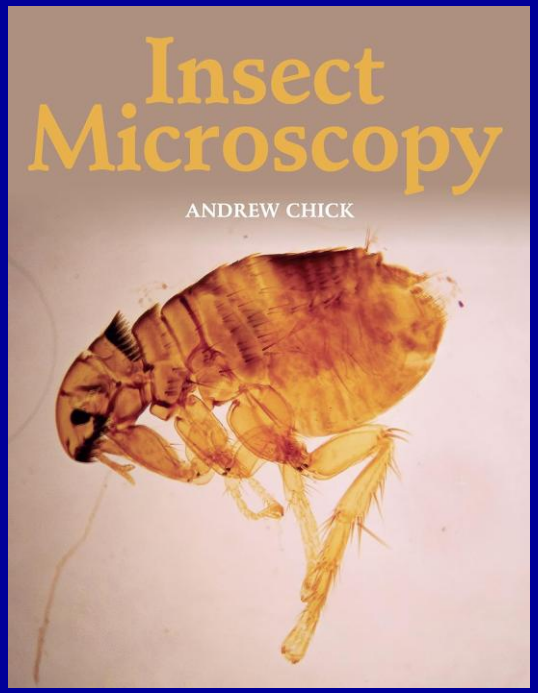
Books

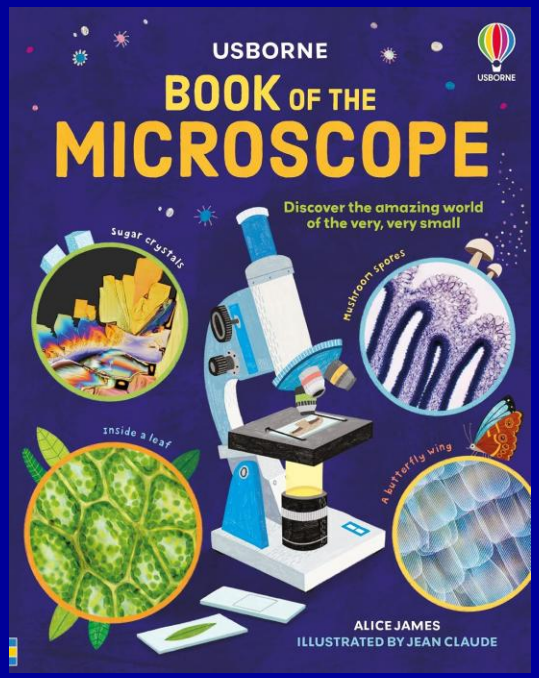

OXFORD
essentials of
LIGHT MICROSCOPY
JEREMY
SANDERSON


CORRELATIVE
IMAGING
FOCUSING
ON THE FUTURE
PAUL VERKADE
LUCY COLLINSON
RMS
WILEY


LIVE
BIOLOGICAL
IMAGING
ACROSS
SCALES
EDITED BY
STEFAN LINDER
CLAIRE M. WELLS
RMS
WILEY


Microscopy Handbook
A Complete Guide
by Mol Smith
A Hobby Microscopist's Bible
by the co-founder of
http://micoscopy-uk.org.uk


Insect
Microscopy
ANDREW CHICK


USBORNE
BOOK OF THE
MICROSCOPE
Discover the amazing world
of the very, very small
Sugar crystals
Mushroom spores
Inside a leaf
A butterfly wing
ALICE JAMES
ILLUSTRATED BY JEAN CLAUDE

Conferences

Phew – what a week!

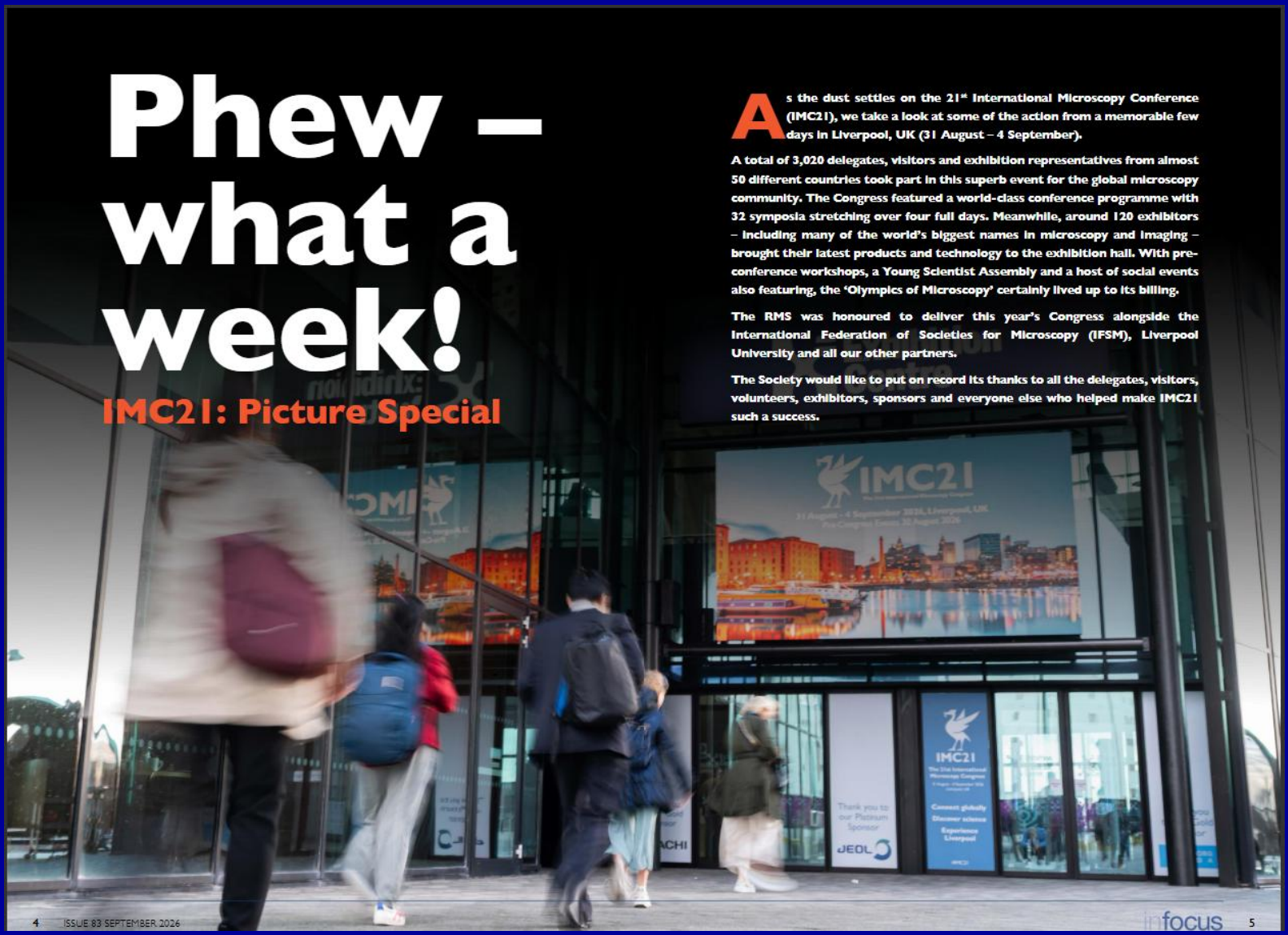
IMC21: Picture Special

As the dust settles on the 21st International Microscopy Conference (IMC21), we take a look at some of the action from a memorable few days in Liverpool, UK (31 August – 4 September).

A total of 3,020 delegates, visitors and exhibition representatives from almost 50 different countries took part in this superb event for the global microscopy community. The Congress featured a world-class conference programme with 32 symposia stretching over four full days. Meanwhile, around 120 exhibitors – including many of the world's biggest names in microscopy and imaging – brought their latest products and technology to the exhibition hall. With pre-conference workshops, a Young Scientist Assembly and a host of social events also featuring, the 'Olympics of Microscopy' certainly lived up to its billing.

The RMS was honoured to deliver this year's Congress alongside the International Federation of Societies for Microscopy (IFSM), Liverpool University and all our other partners.

The Society would like to put on record its thanks to all the delegates, visitors, volunteers, exhibitors, sponsors and everyone else who helped make IMC21 such a success.



Societies

See List of UK & International Microscopical Societies at
Manchester Microscopical Society website
Quekett Microscopical Club website

New …. For 2026

Welsh MS



SLIME – Society of Light Microscopy Enthusiasts (Quekett affiliated)

Keep up …. !

… and spread the knowledge !!