

The background of the entire image is a composite of several microscopic slides of diatoms. These slides show various shapes of diatoms, including elongated, oval, and circular forms with intricate internal structures. The slides are arranged in a way that they overlap and fill the frame. Overlaid on these slides are artistic, hand-drawn or painted elements in bright yellow and red. These elements include long, thin, curved lines that resemble stylized diatoms or perhaps calligraphic strokes. There are also more complex, branching or cellular structures drawn in the same colors. The overall effect is a blend of scientific observation and artistic interpretation.

The Art of the Diatom

Winston Ingram

I consider myself very lucky that having been retired now for eight years I can still continue with both art and science. The number of subjects one can research with the microscope is never-ending and this time I found yet another fascinating subject in the Diatom Strew. If you consider they are just two atoms covalently bonded together with Silica and there are hundreds of thousands of different types and shapes from all over the world, they can become a lifetime study. I enjoy the blending of science and art and therefore researched many different slides that I felt would make good subjects to turn into works of art. The final results are here.

To obtain the following photos I made up over 2000 diatom slides and examined each using a microscope to find shapes that I could combine to look like items we use in our everyday lives. A diatom is a one cell alga found as plankton and forming fossil deposits. The amazing thing is that they have millions of different shapes; many of which have great visual beauty.

To create the slides I used a simple technique. I dropped clean diatoms, in solution, onto a 3x1 inch standard glass slide and allowed them to dry naturally. Then, I attached a 60mm cover slip with super glue; this is called 'dry mounting'. The reason I used a long cover slip is so I have plenty of diatoms of different shapes from which to make my selection.

Having manipulated the shapes I required on the slide, I then photographed them using a Nikon D5100. I transferred them to my computer using Nikon Capture Pro 11. To get the best detail of the structures I used phase contrast, dark field and differential interference contrast (DIC).

The microscope used is a Leitz Ortholux 11 and the objective powers range from x40 to x100 giving magnifications of 400 to 1000. I found that the most effective was the use of the dark field condenser with the Iris Diaphragm fully stopped down and the aperture diaphragm $\frac{3}{4}$ closed to get the best depth of field with high magnification. This is always a problem and in the post-processing using "Photoshop" I sharpened my images with sharpen image then sharpen edges and, after further art manipulation, used the un-sharp mask facility before printing and saving the final result. A very interesting effect with the dark field condenser was 'colour fringing' occurring on the edges of the subject and I incorporated this into my art work as it was a natural phenomena and suited what I wanted my end result to look like.

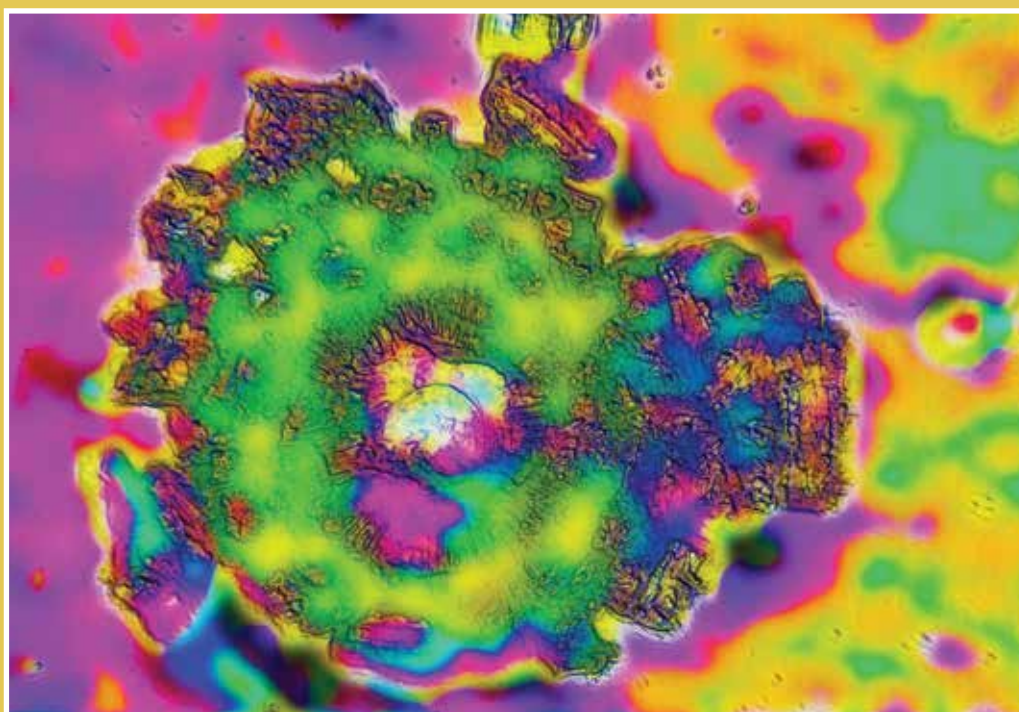
Next I turned to the Heine Condenser. This was designed for Leitz and what a fantastic invention, capable of switching from bright field through phase contrast to dark field. I found there is a marked difference between using the dark field with this

condenser to using the dedicated one but it gave me the opportunity for a greater variety of effects. Using the phase contrast would allow me to change the background colour from a deep brown through to a mid-grey. Once again the bright field capability of the Heine gave a much darker cream-grey colour than a dedicated bright field condenser from which you would expect near white light. Using the dark field with the Heine I still managed to get the edge colour fringing experienced with the dark field condenser.

Once I finished using the bright field condenser, the results from this would then require more art manipulation in the post-processing. I then had a departure from my normal Photoshop programme and switched to using Serif Photo x5. Although it is budget price, the claim is it will rival Photoshop. This is the first time I have used this to post-process the final artistic results and I have to agree it will do a super job. It has the main features associated with Photoshop for sharpening, cloning, painting and many more too numerous to mention. Since this experience I am using it all the time.

I have tried in the artwork to keep any distortion of the original image shape to a bare minimum, although some will occur due to artistic licence. To get the final desired result I changed the colours, in some cases, using the painting facility. I find the standard mouse the best option for me; I have tried other types, even the different pen and tablets, but always return to the standard hand mouse. It's strange, I can't paint a picture and if I tried to paint a wall I get more paint on me than the floor yet I can achieve the most intricate and delicate lines with the mouse. In the days of film I could colour negatives and prints yet without photography I would never have produced any artwork.

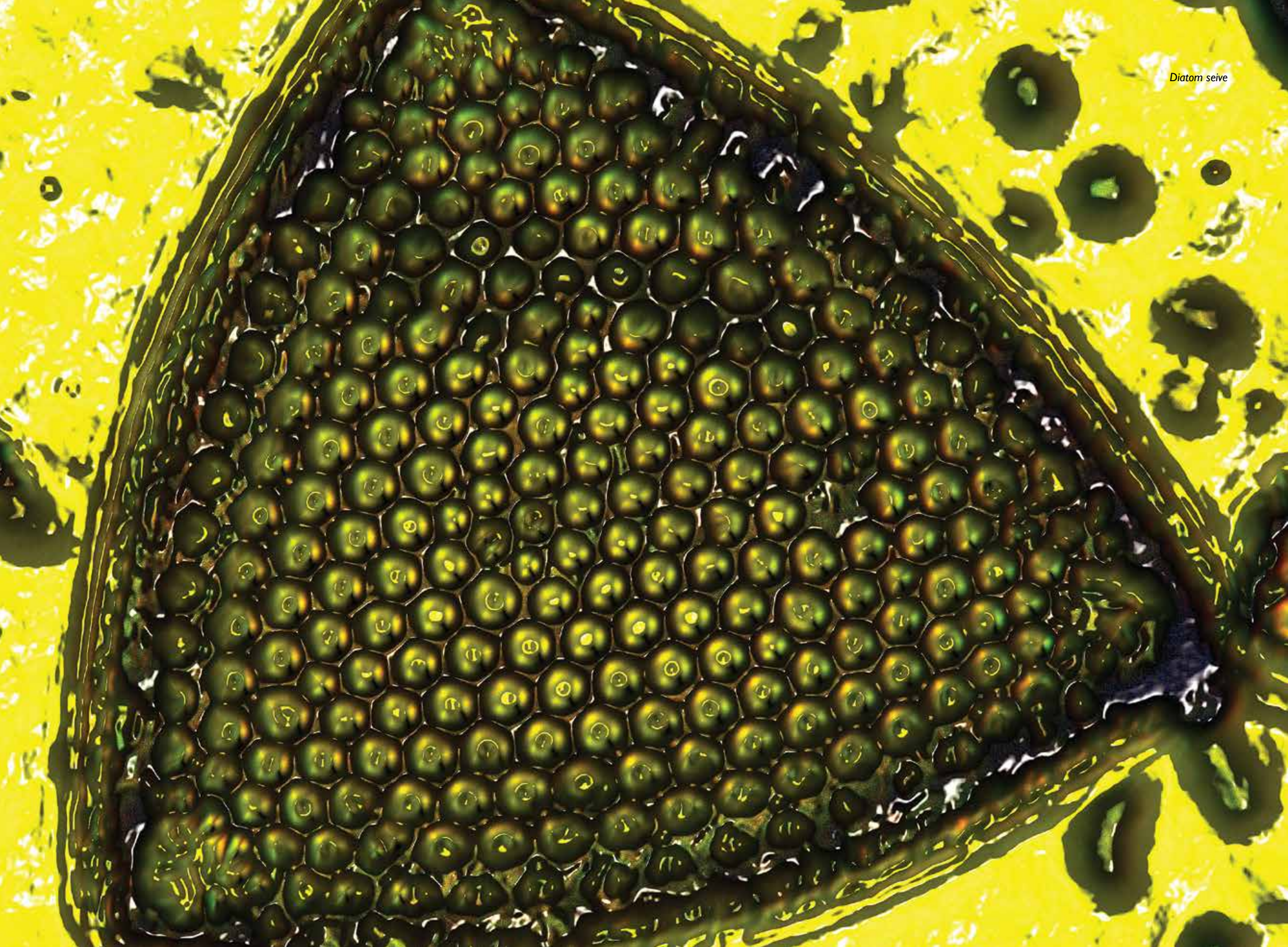
The subjects here are from Diatom types from all over the world. I have tried to identify most but some shapes I could find no reference to. When you consider there are many forms on each slide and I am picking out individual shapes and spending many, and I must say enjoyable, hours finding the ones I want to use.



Multi colour meteor



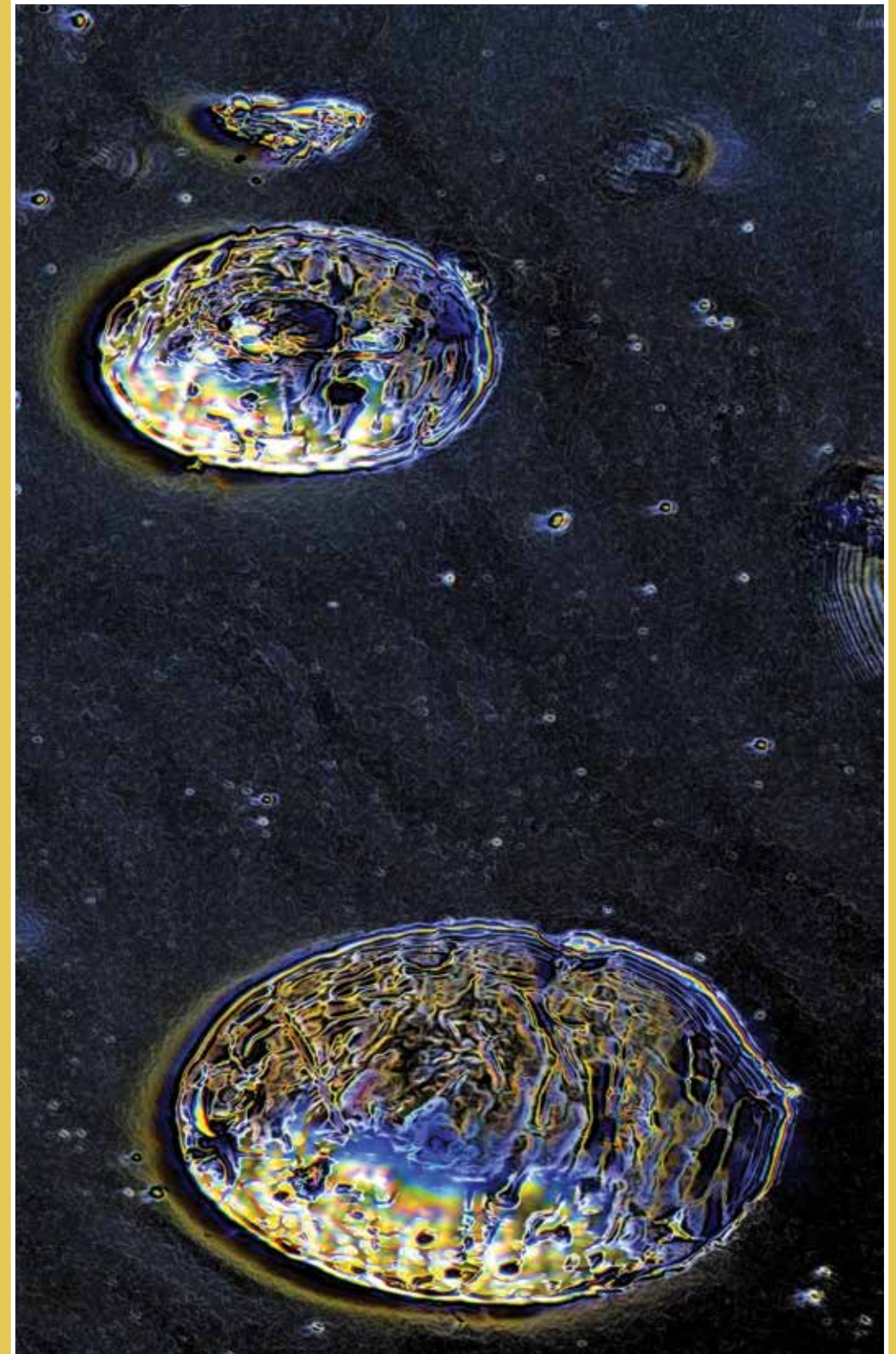
Diatom treasures



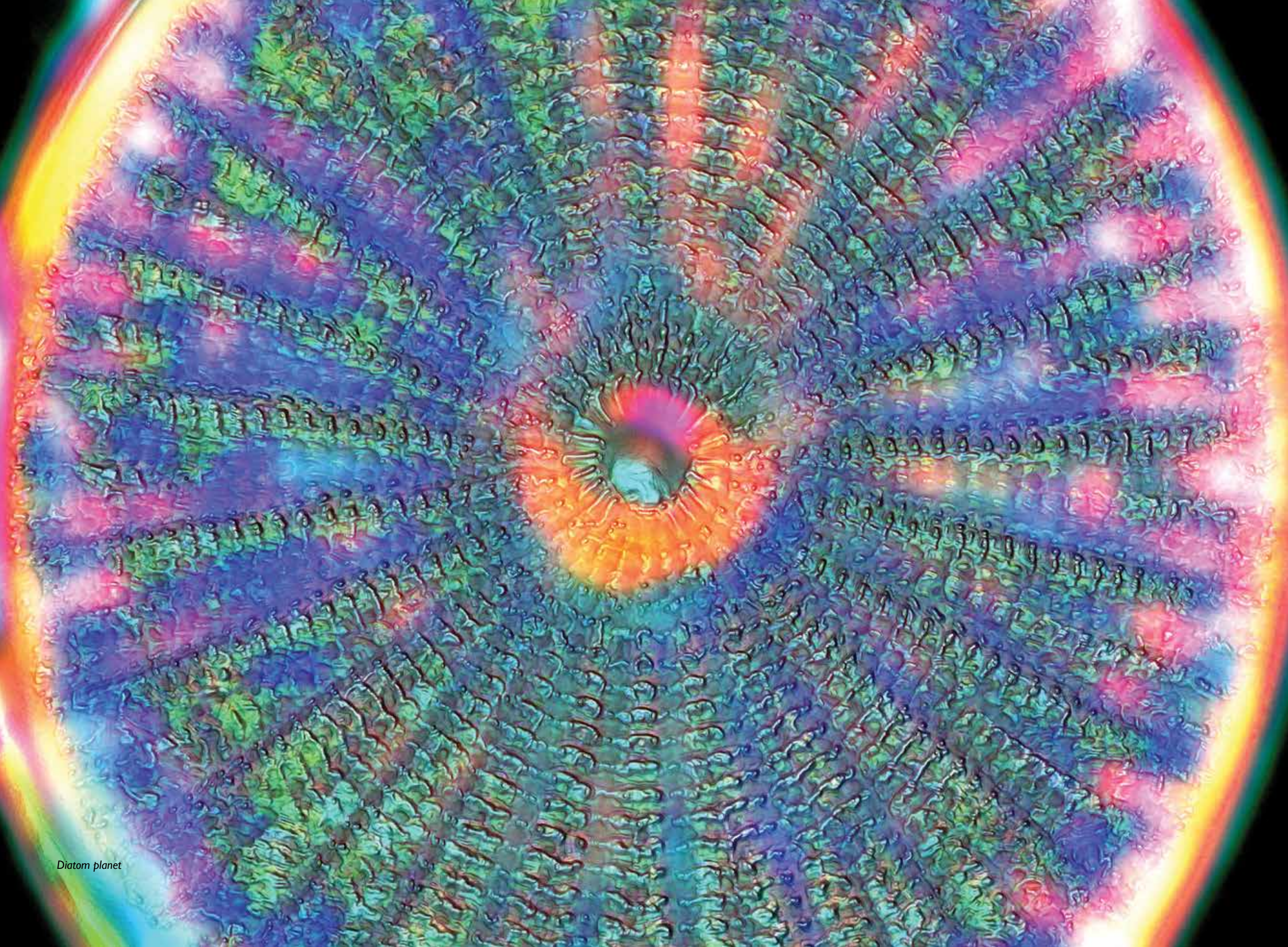
Diatom seive



Diatom cucumbers

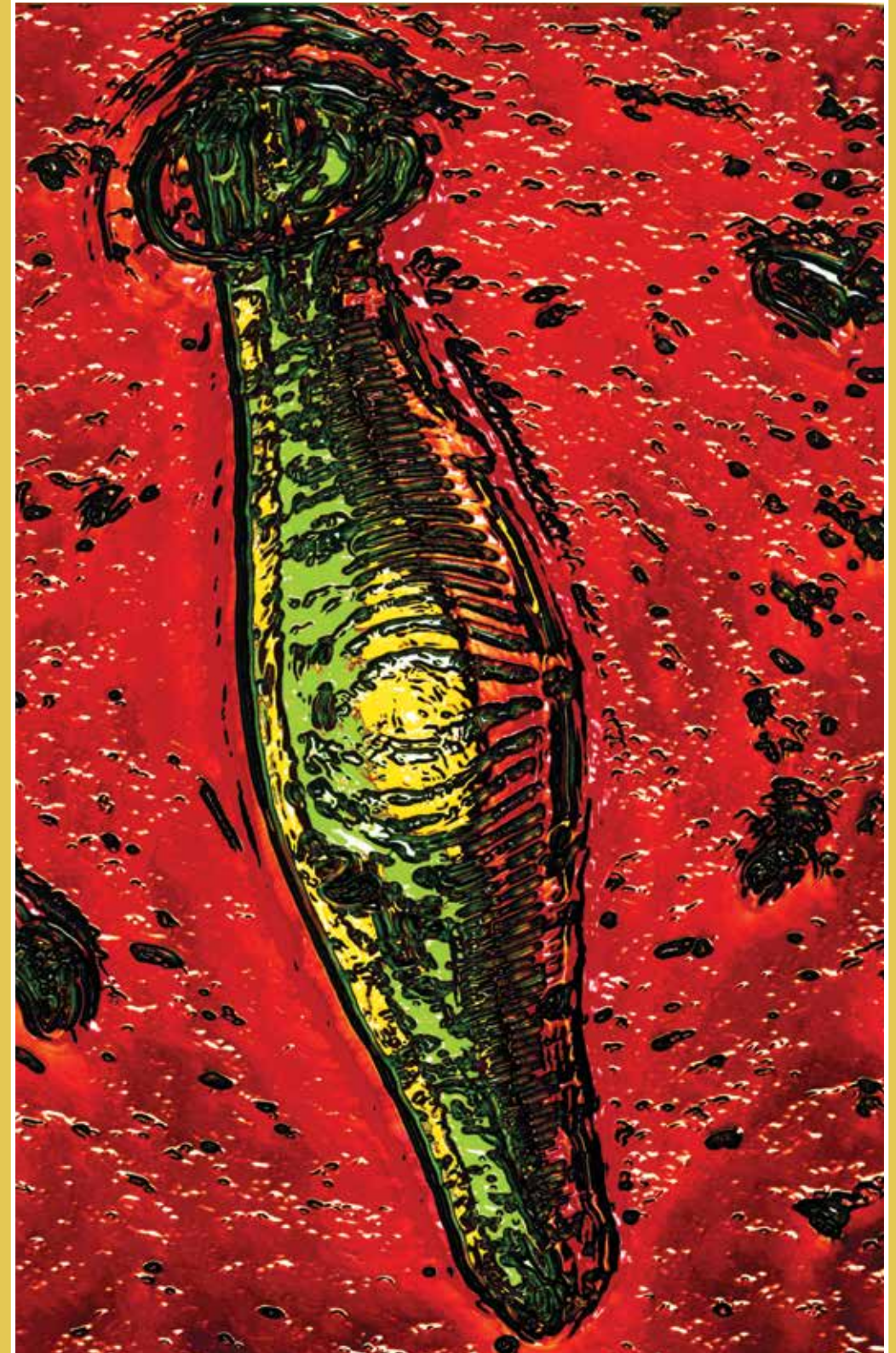


Planets apart





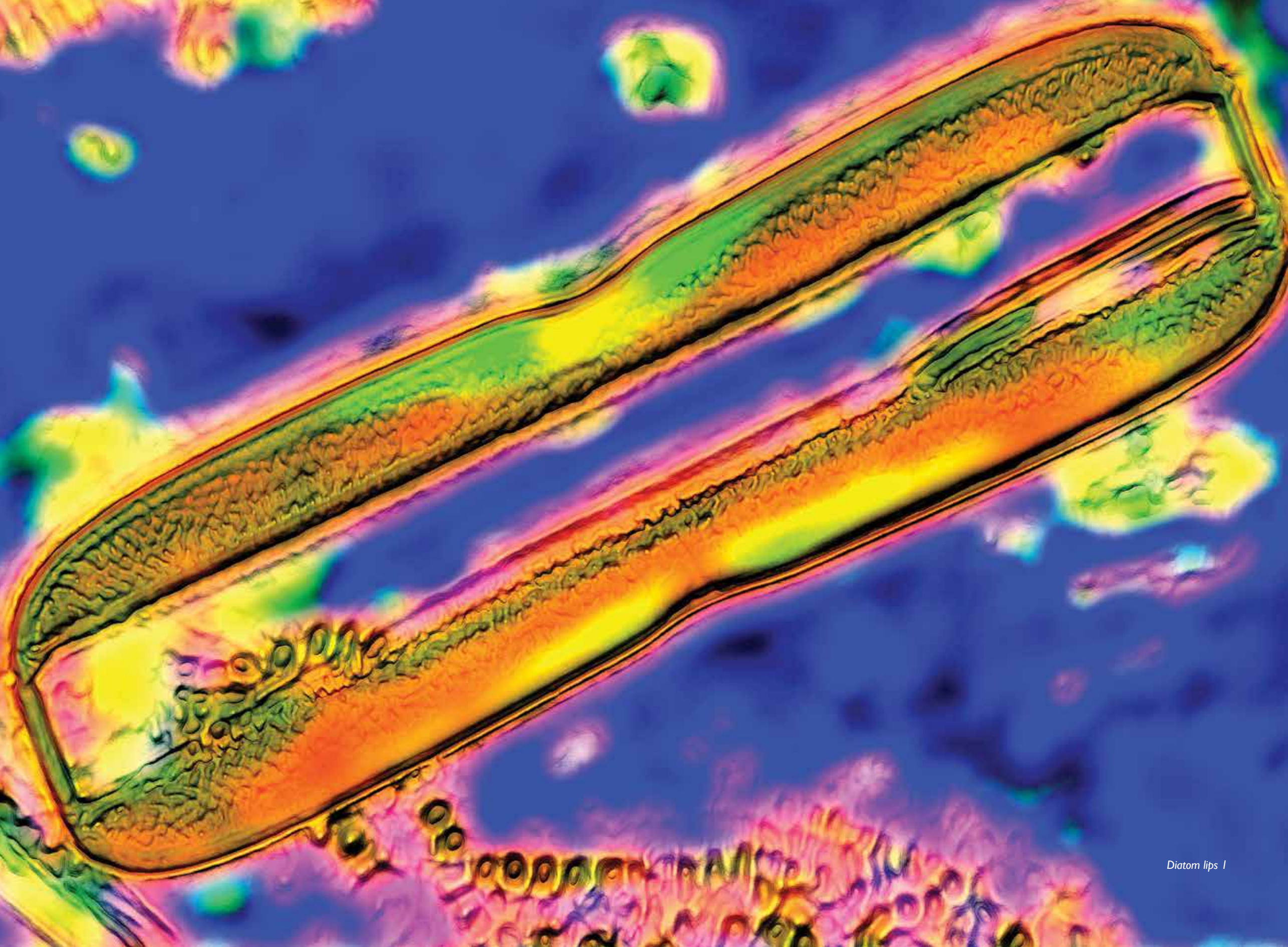
Jewel of the madonna



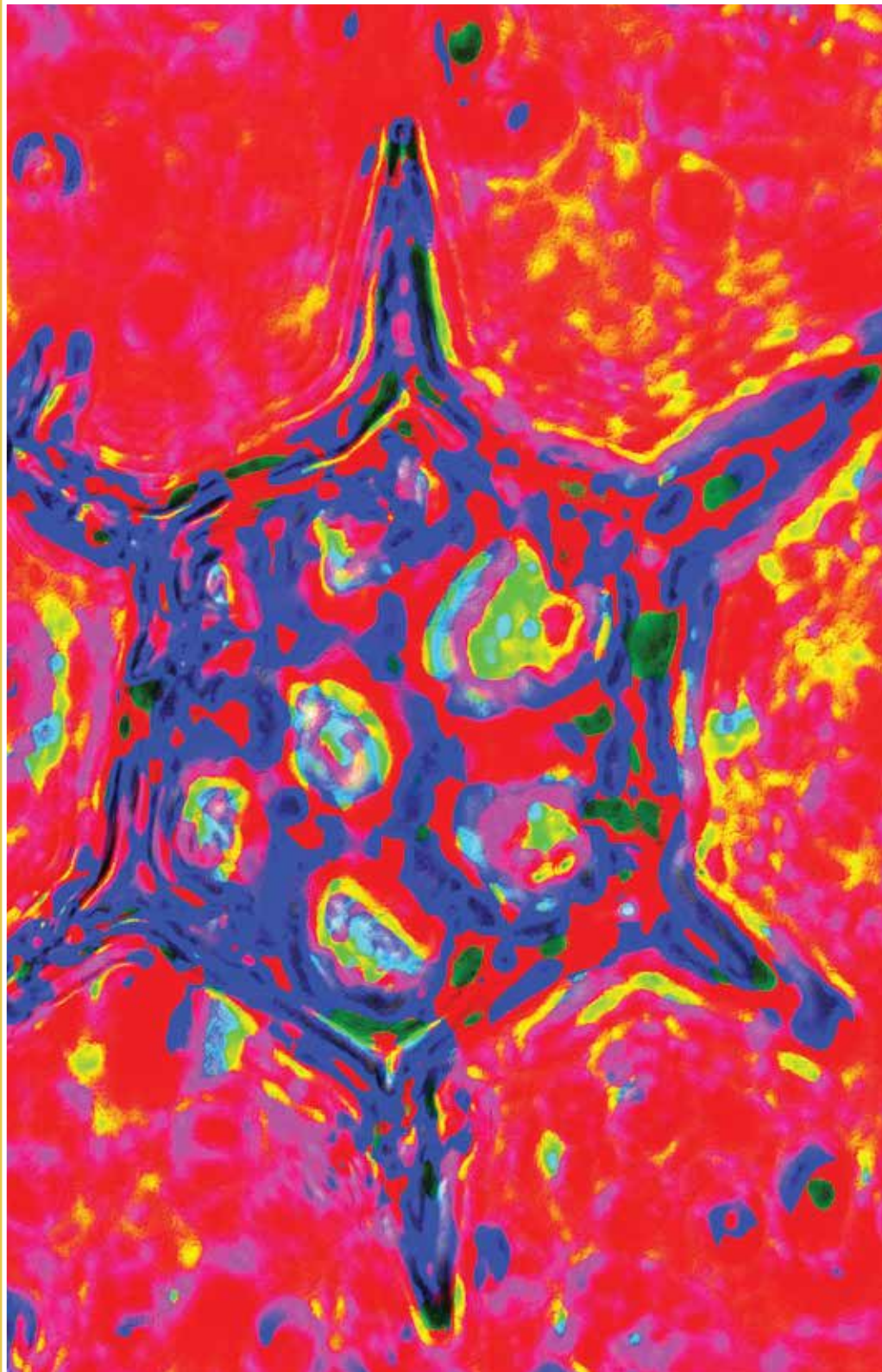
Diatom worm



Diatom wheels



Diatom lips 1



Sci fi star

Multiply Faster

ImagEM X2



The new ImagEM X2 is a completely redesigned electron multiplier camera and the fastest 512 x 512 research grade EM-CCD camera on the market.

High-speed readout

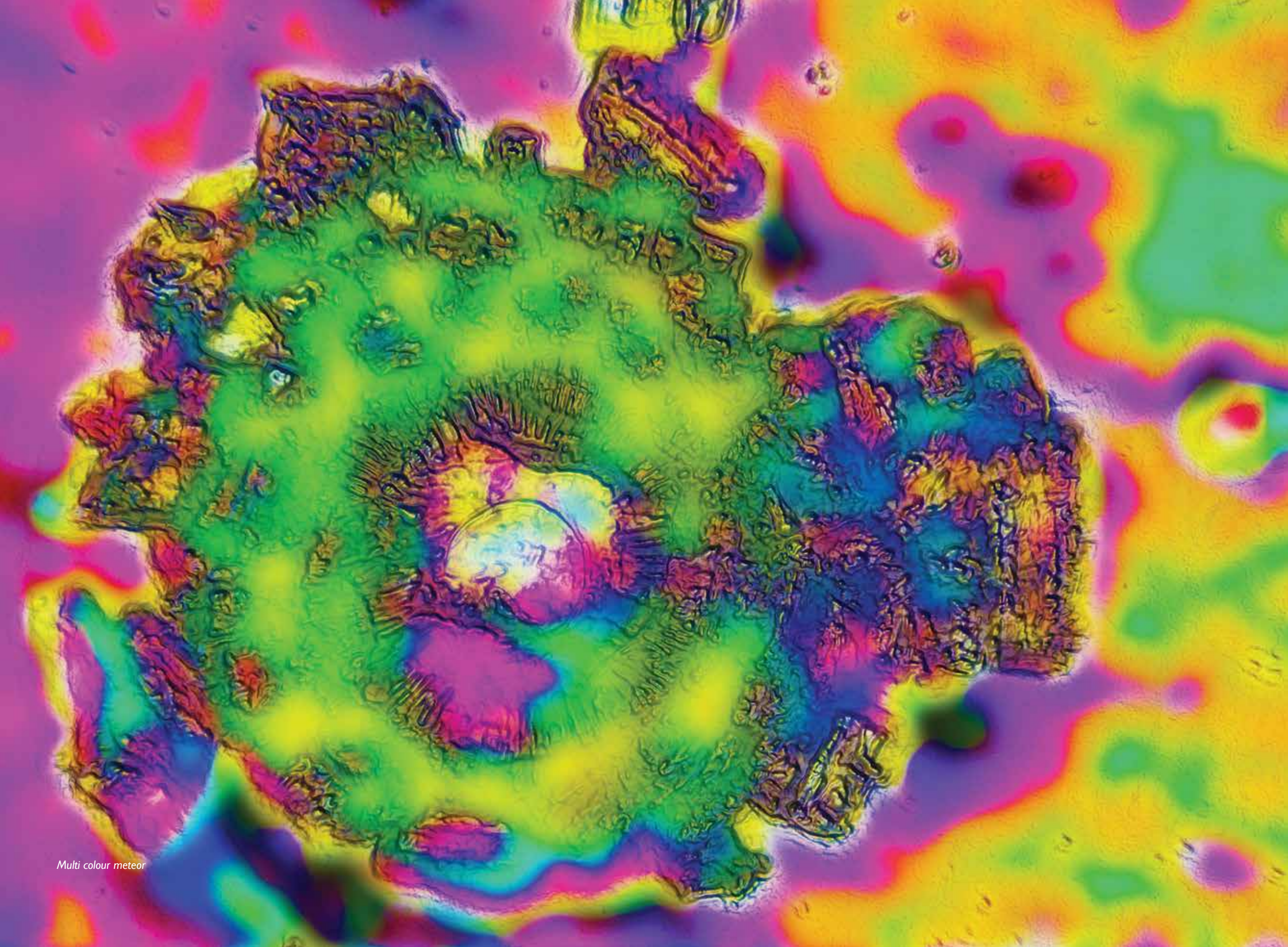
70 frames/s
at full resolution high-speed readout

1076 frames/s
at 16 pixel x 16 pixel ROI, 4x4 binning

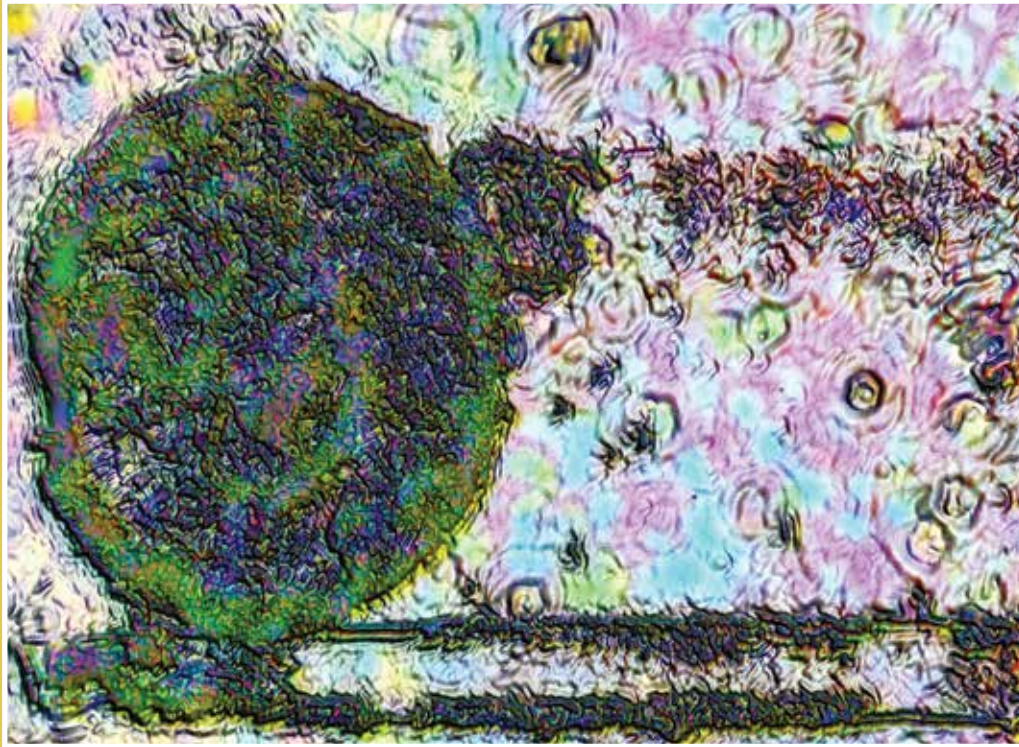
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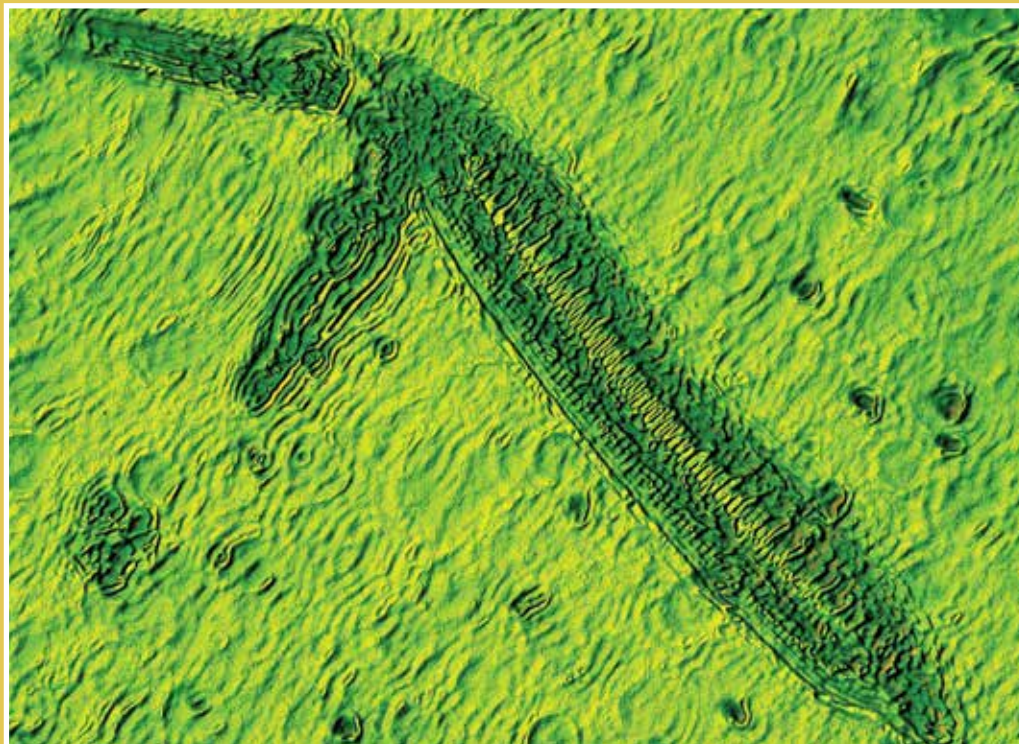




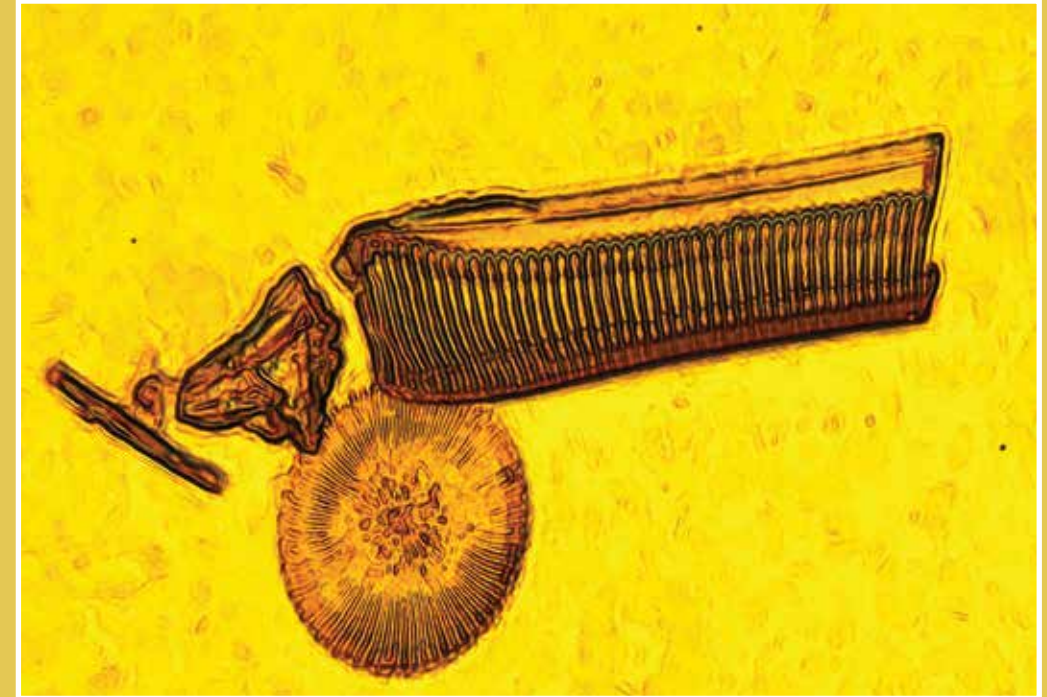
Multi colour meteor



Stick ball



Crocodile



Diatom cannon



Winston Ingram
g4pef@ntlworld.com,
Tel: 020 8459 2543

Winston's main interests have always been music, science and photography, and he qualified in all disciplines. His qualifications include: FBPA, FISTC, FRSA, ARPS (Medical), LCGI, NIMIT, and although no longer a member, he also passed ABIPP (Micrography) and the AMPA Distinction. He spent most of his career involved in these subjects. Positions he has held include Royal Household staff music teacher 1974 – 1979, and composer of music for HM The Queen, Magnum jubilee Opus, Princess Margaret and HRH Prince Charles, The Prince of Wales Sonata for cello and Piano. In photography, he has been a teacher and government training provider and Chief Examiner for the British Professional Photographers Association for many years before retiring in 2005.

Winston has always been fascinated by the microscope and photomicrography, and the fine art creativity side of photography and has spent over 40 years with this kind of photography.

To date he has produced five books: Let the Lens Speak, Photomicrography Art, Photomicrography Creativity, Banned Horns Plus Art and My Body in Medical Art.

Winston was a teacher for many years and has kindly offered to help any member with photography or photomicrography techniques and the editing or printing of images. Please contact him by telephone or email for further advice. He is also keen to buy collections of unwanted microscope slide from any member to allow him to continue with photomicrography projects.

