micROCK Scopica Rock Art

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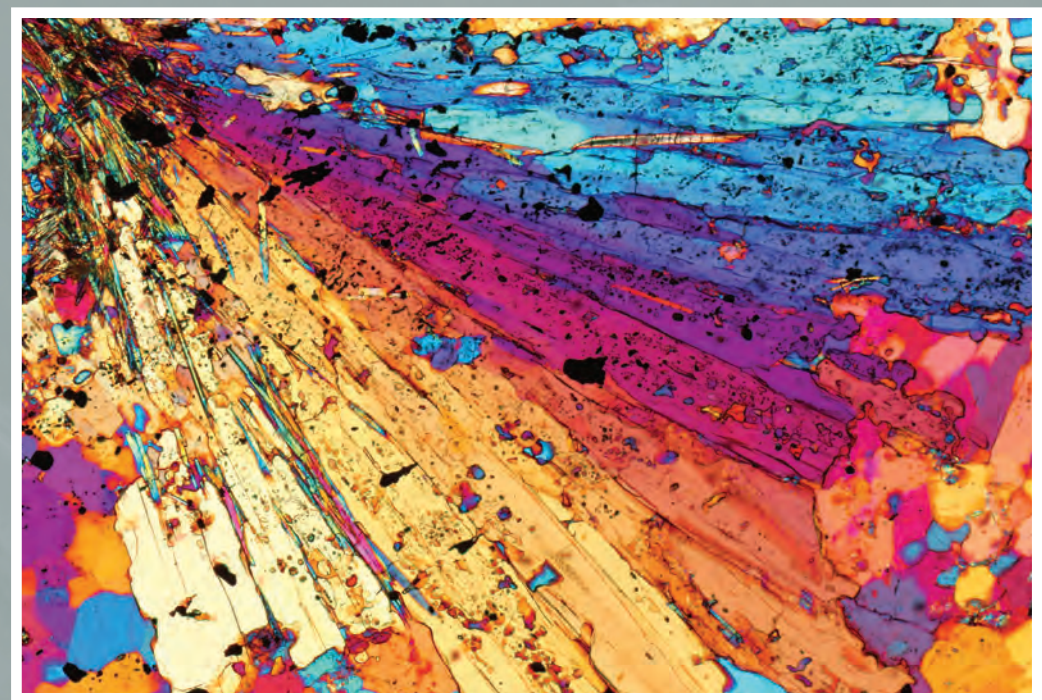
I have been studying and photographing rocks under all sorts of microscopes for more than thirty years. I enjoy this part of my work as a geologist more than ever. A good optical microscope, with a well-trained eye, is still the essential tool for successful research in my field.

Along with their scientific use, I have explored the aesthetic power of rocks and minerals under the microscope with my project called "*micROCKScopica – Rock Art*". I would never have used the high word "art" for rock photomicrographs, until I read that "*art does not reproduce the visible; rather it makes visible*". It looks as if Paul Klee (*Creative Confession,* 1920) may have had the content of this article specifically in mind!

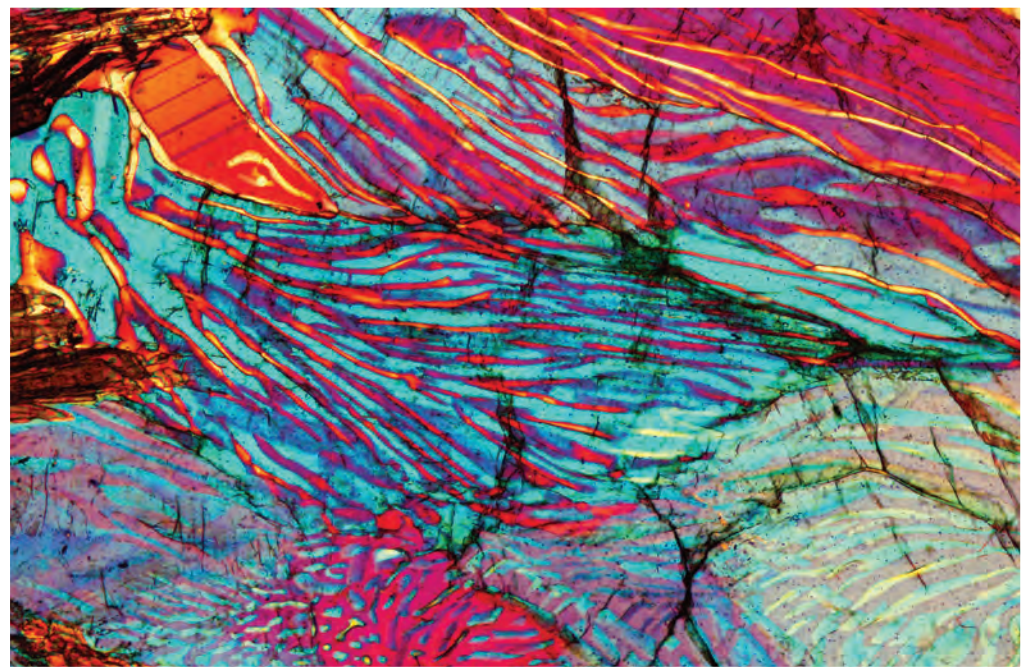
The intersection of art and science has long been investigated in biology, much less with a polarising microscope and specimens of rocks. *micROCKScopica* tries to fill this small niche, and here I present a selection of shots taken over the last decade.

The polarising microscope discloses the inner beauty, grace and elegance of rocks and minerals. Photomicrographs so taken provide a feeling of both the ordered, geometric development of crystal structures and, on the opposite, the chaos and irregularity that characterise the geological processes of rock formation and evolution. Thus, images themselves may in turn be dominated by regular patterns or by random distribution of faintly defined spots of colour. But at the very end, the geological story behind the photo is less important than the "wow" that it provokes.

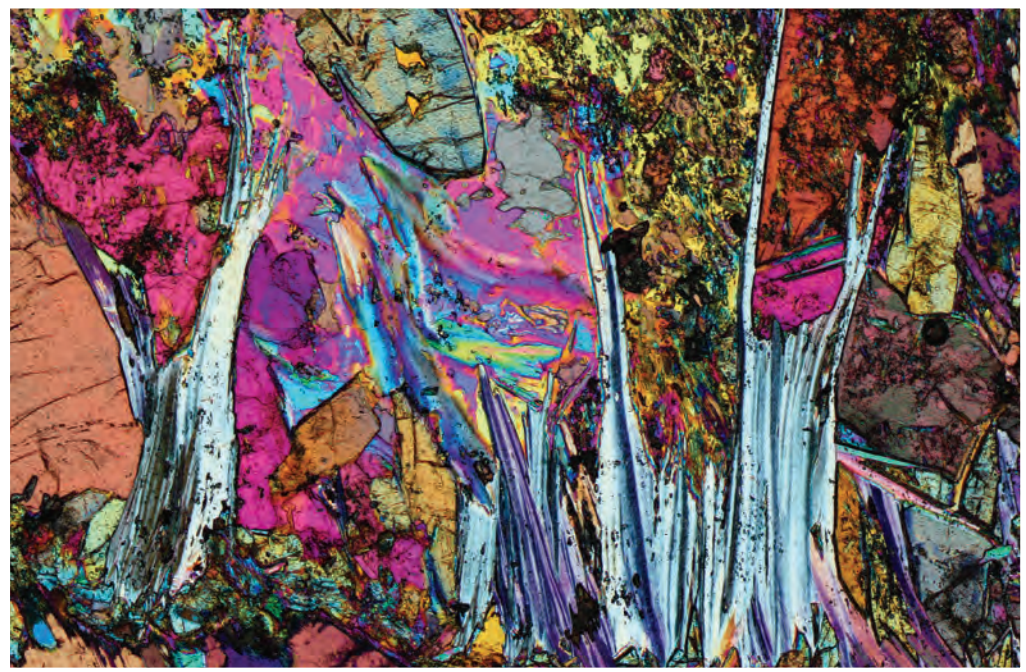
All images in this article are photomicrographs of 30 µm rock 'thin sections', taken in transmitted polarised light mode with crossed polarisers and lambda plate - plus some extra tricks to obtain the desired combinations of color, but without digital post-processing after image capture. The objectives I most commonly use are the 2,5x and 5x, resulting in a width of view of 5,3 or 2,7 mm, respectively. More rarely the subjects are smaller, with width going down to 0,6 mm.



Andalusite with radiating texture. Lipari, Italy. Width 2,7 mm.

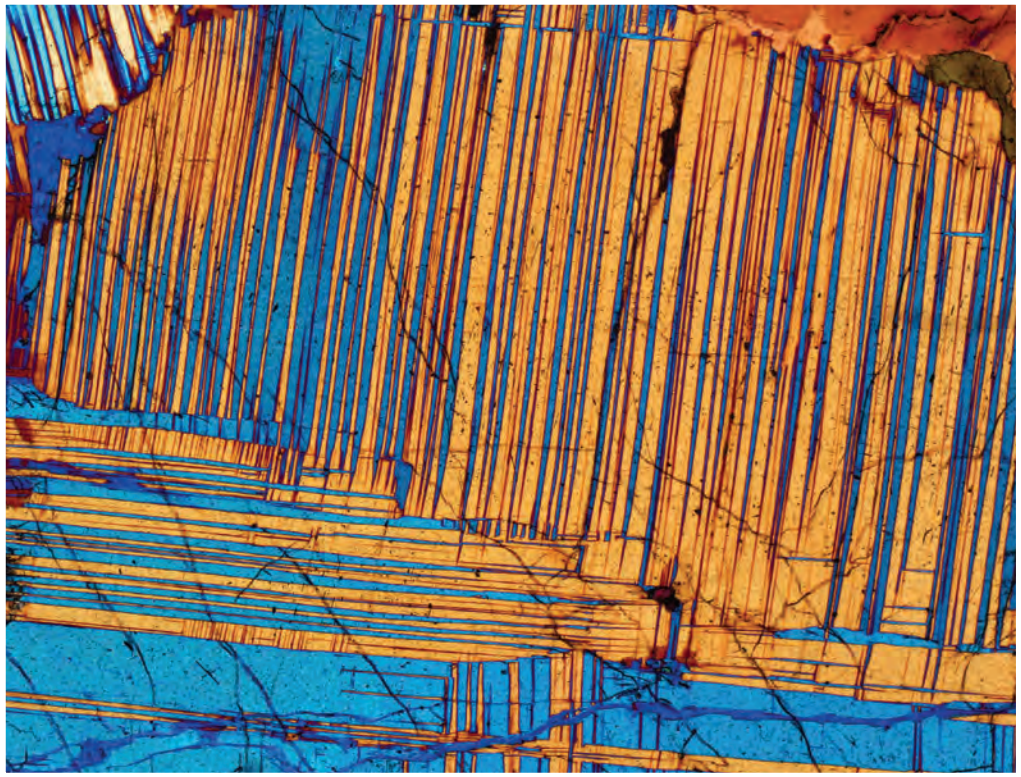


Myrmekite in gneiss. Ivrea-Verbano zone, Italy. Width 2,7 mm.

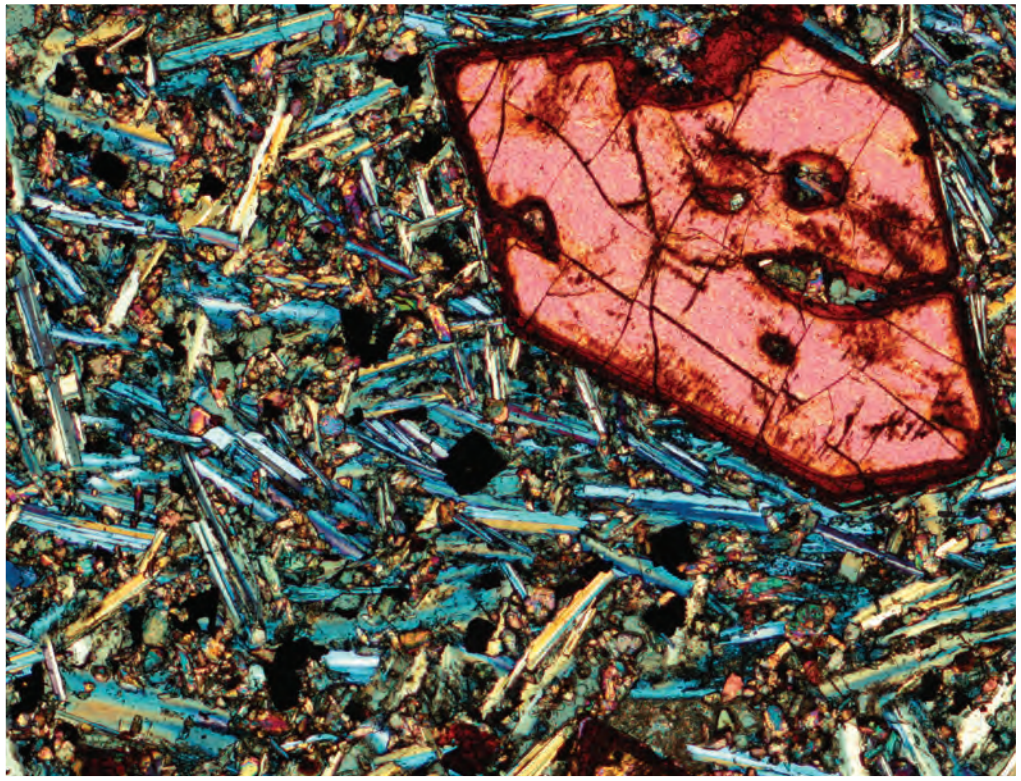


Chlorite in blueschist. Valle d'Aosta, Italy. Width 2,7 mm.

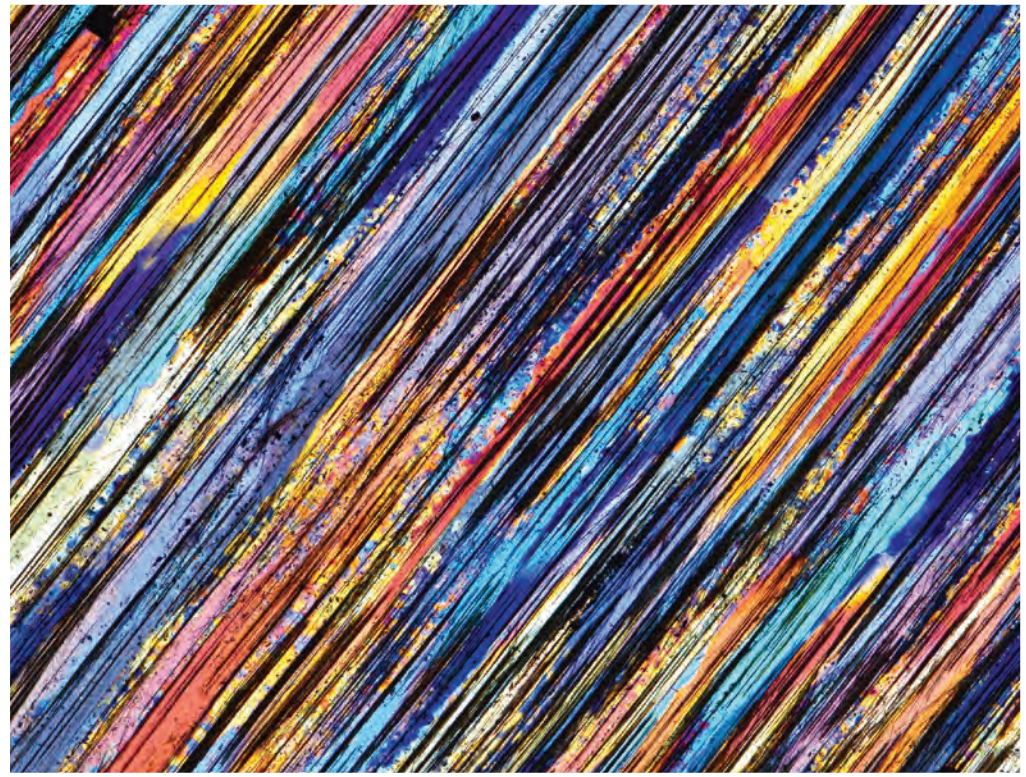
The rocks for these photos come from all over the world. Some are part of my research; some others have been collected or borrowed specifically for aesthetic work.



Twinned plagioclase feldspar. Adamello, Italy. Width 2,7 mm.

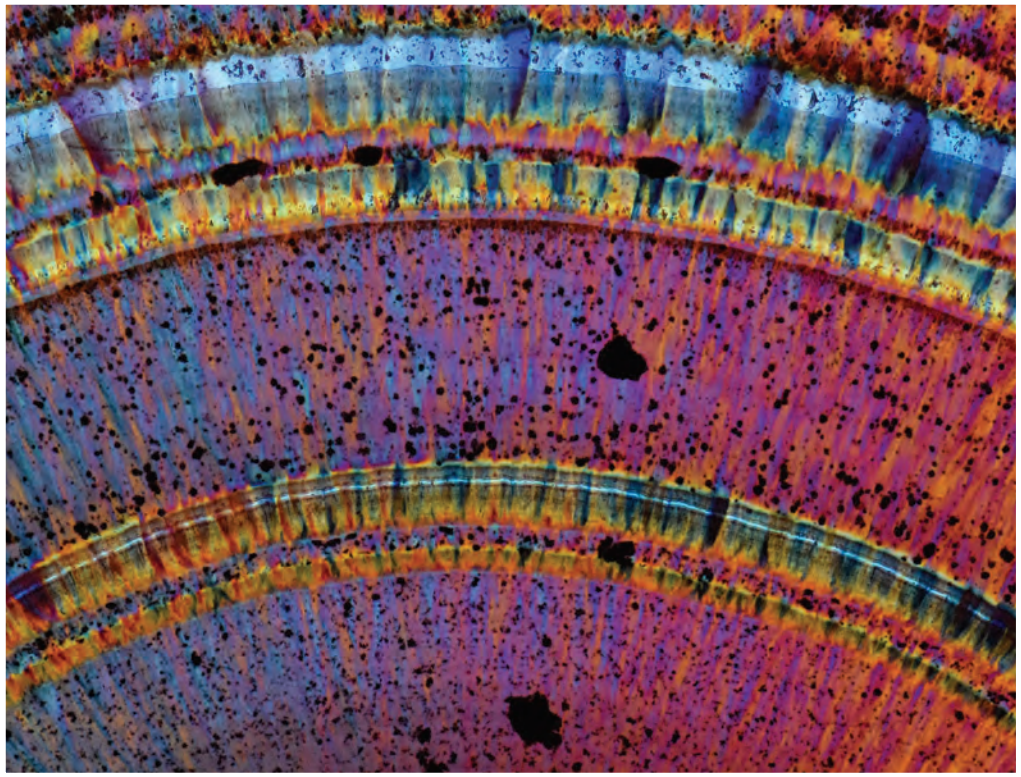


Olivine in basalt. Tiberias lake, Israel. Width 1,3 mm.

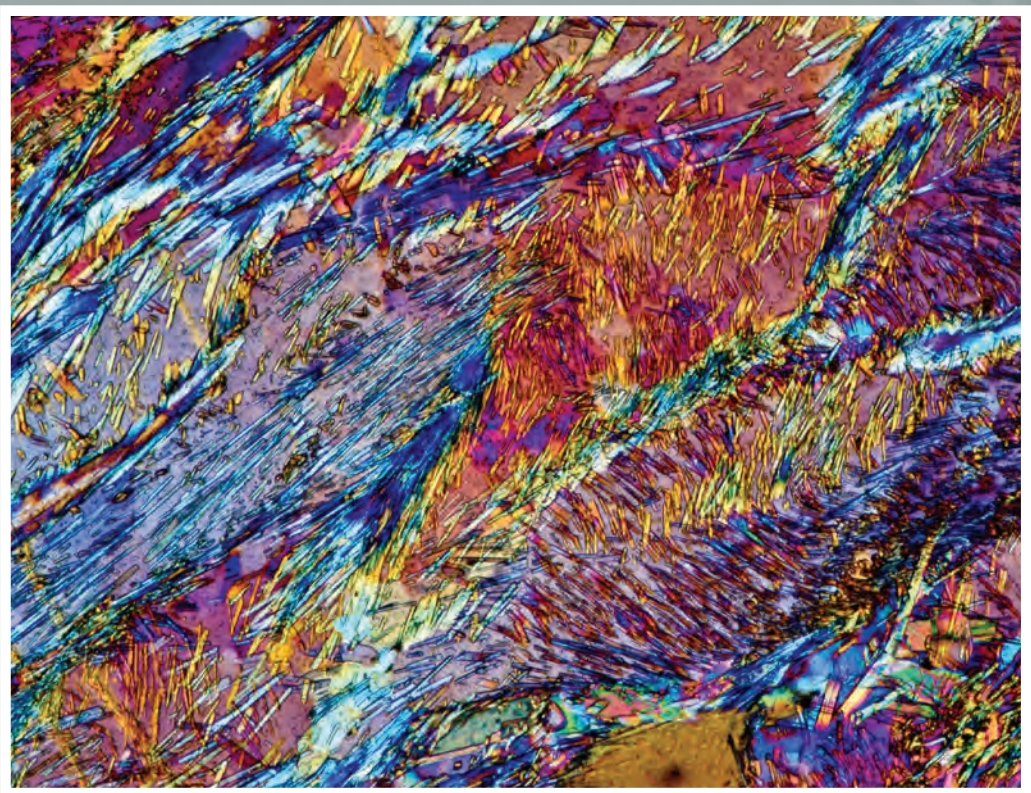


Tiger's eye. South Africa. Width 2,7 mm.

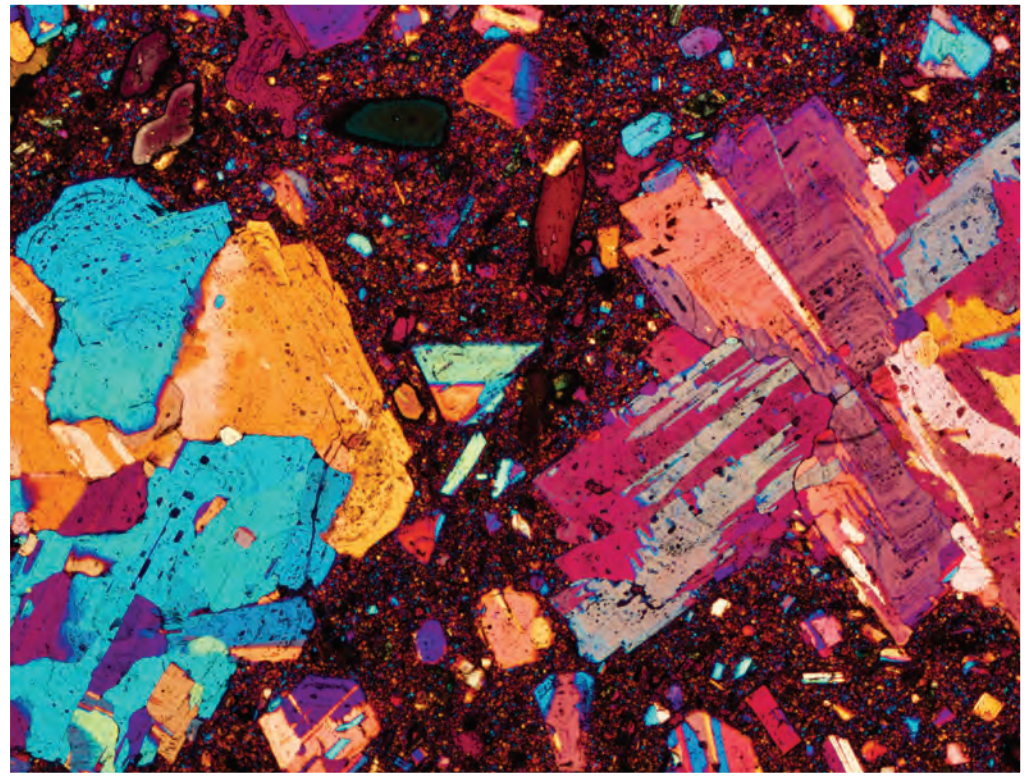
Ocean Jasper. Madagascar. Width 5 mm.



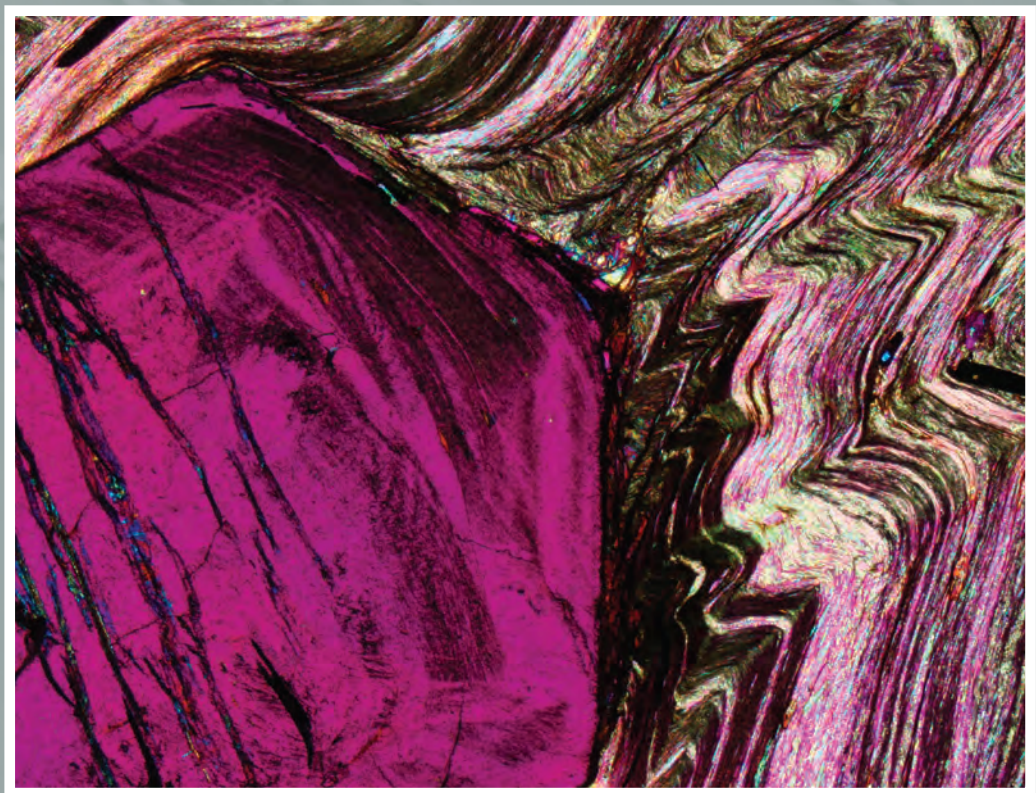
"Dryhead" gate. Montana, USA. Width 2,7 mm.



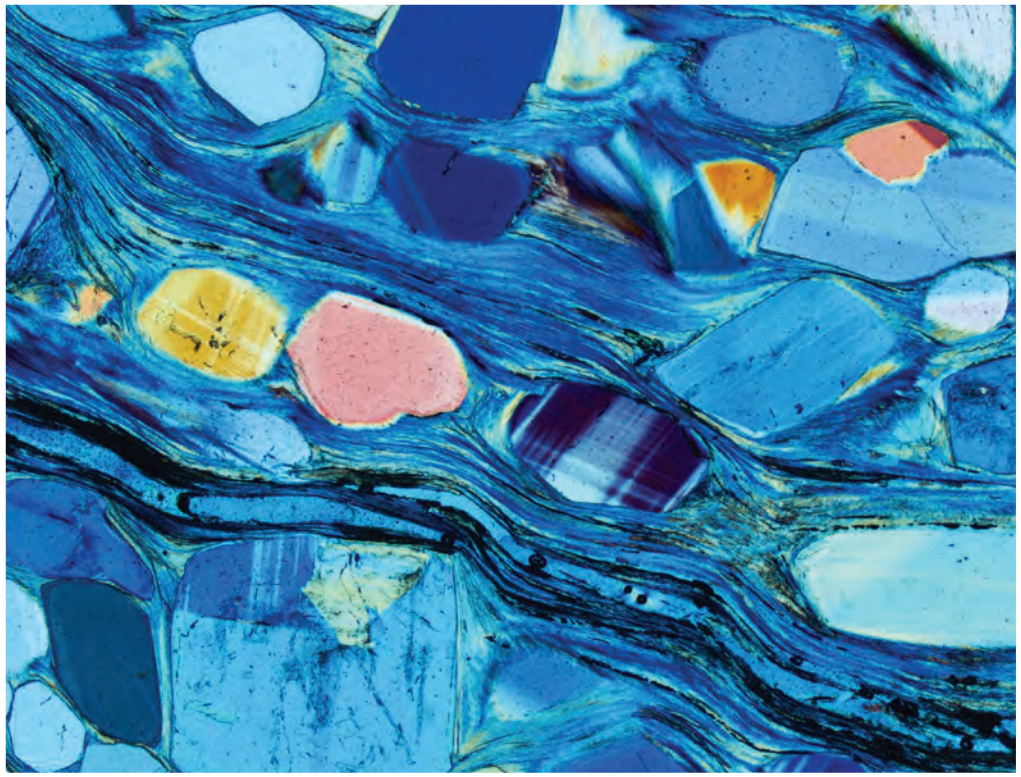
Sillimanite and cordierite in granulite. Aus, Namibia. Width 2,7 mm.



Plagioclase glomerocrysts in lava. Cabo de Gata, Spain. Width 5,4 mm.

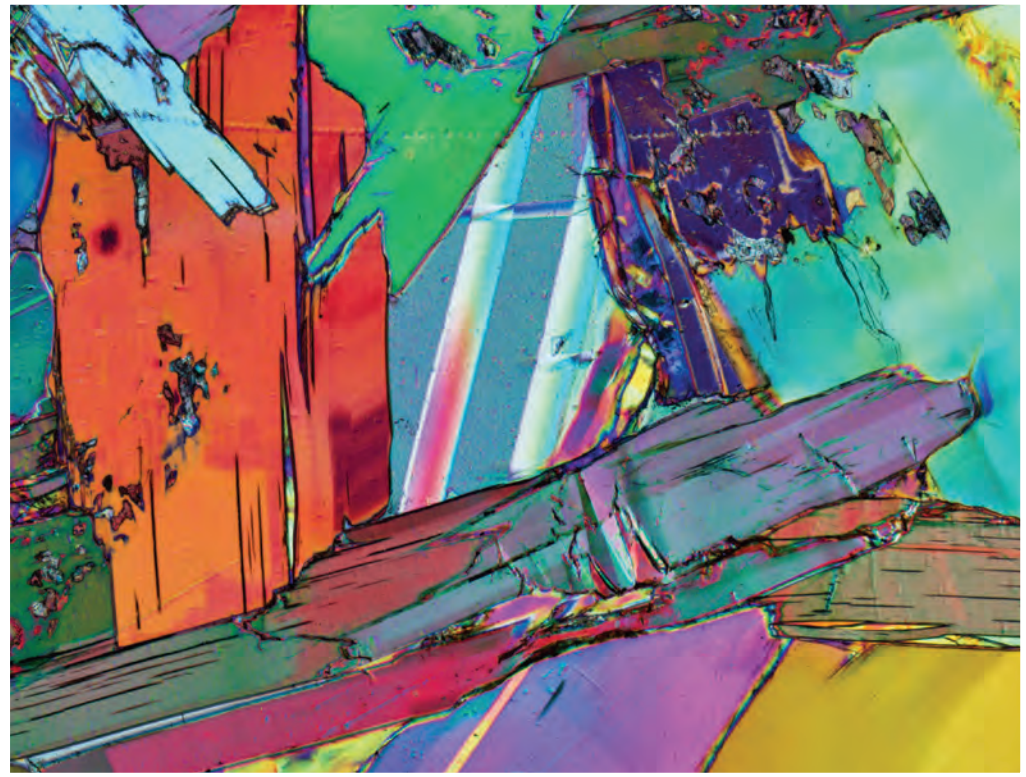


Garnet in graphitic schist. Pfitsch valley, Italy. Width 2,7 mm.

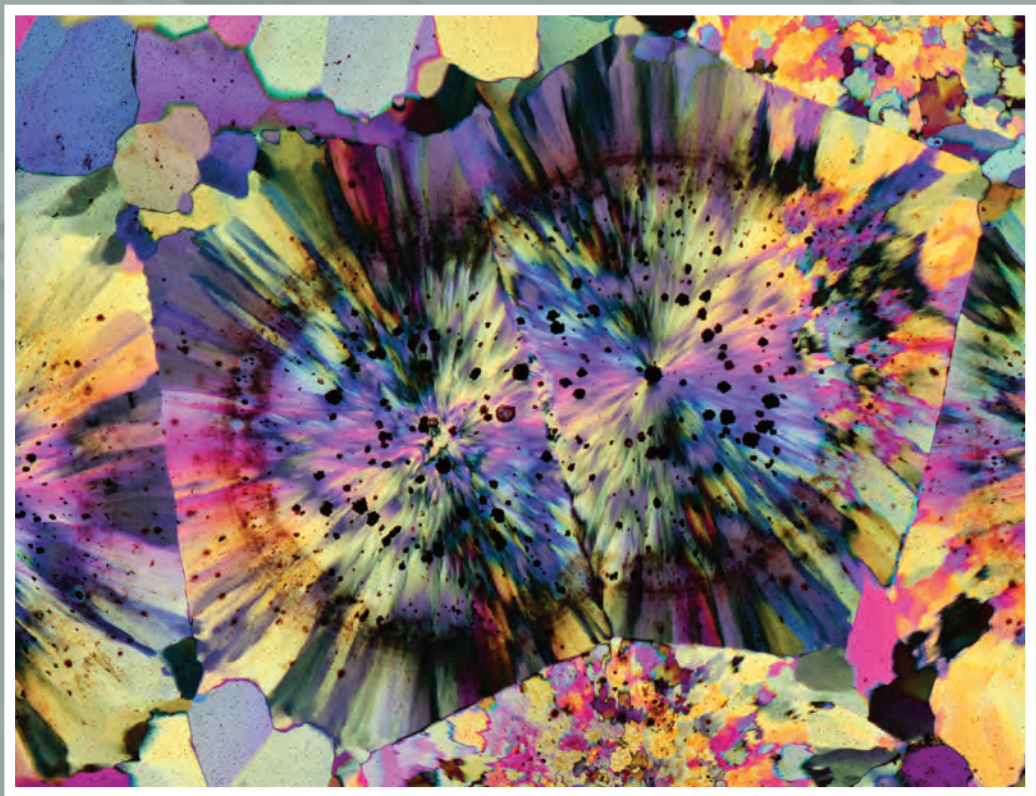


Charoite schist. Yakutia, Russia. Width 5,4 mm.

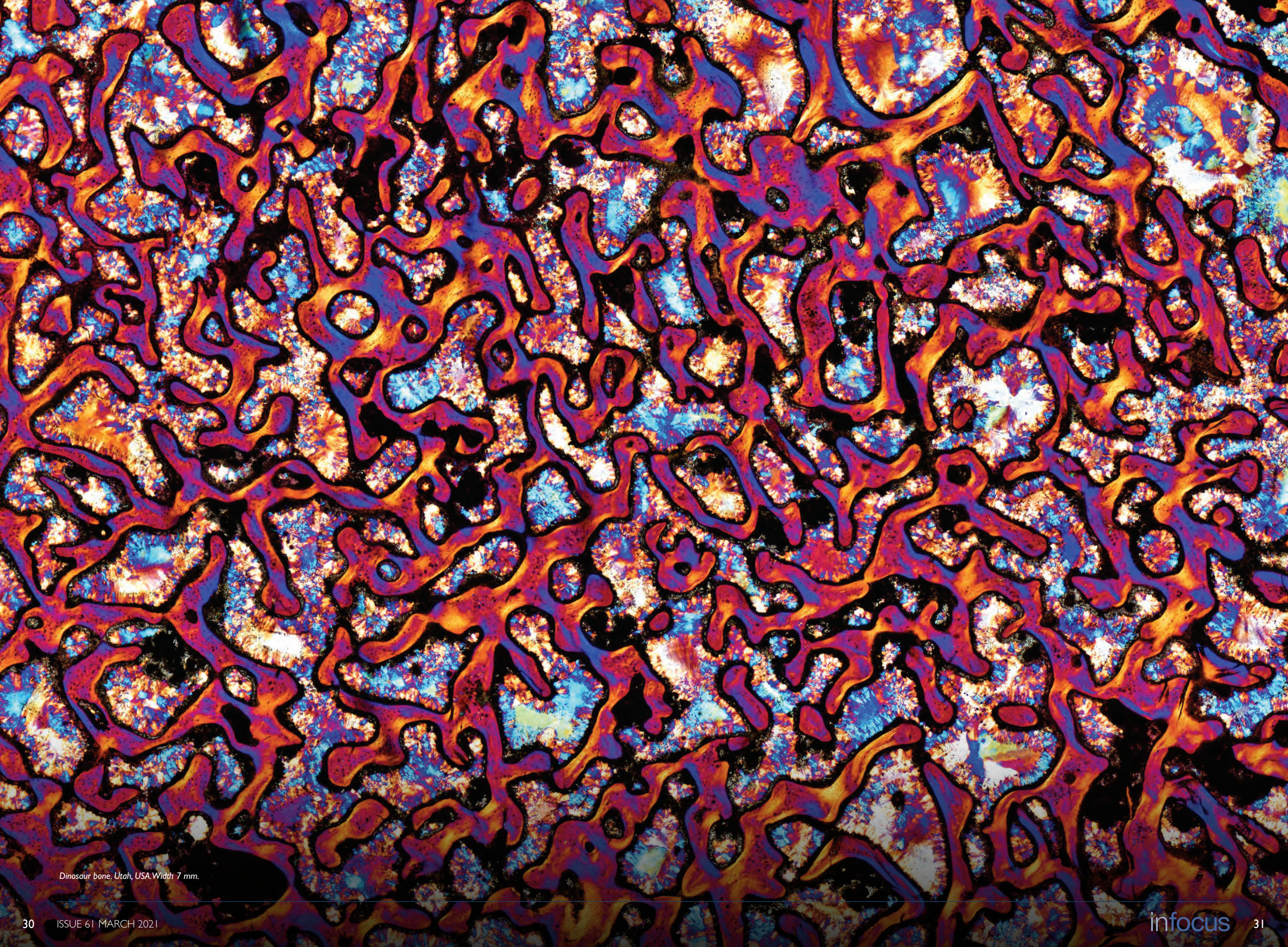
Graphite and alkali feldspars in granulite. Kerala, India. Width 5,4 mm.



Phlogopite mica in contact skarn. Monzoni, Italy. Width 2,7 mm.

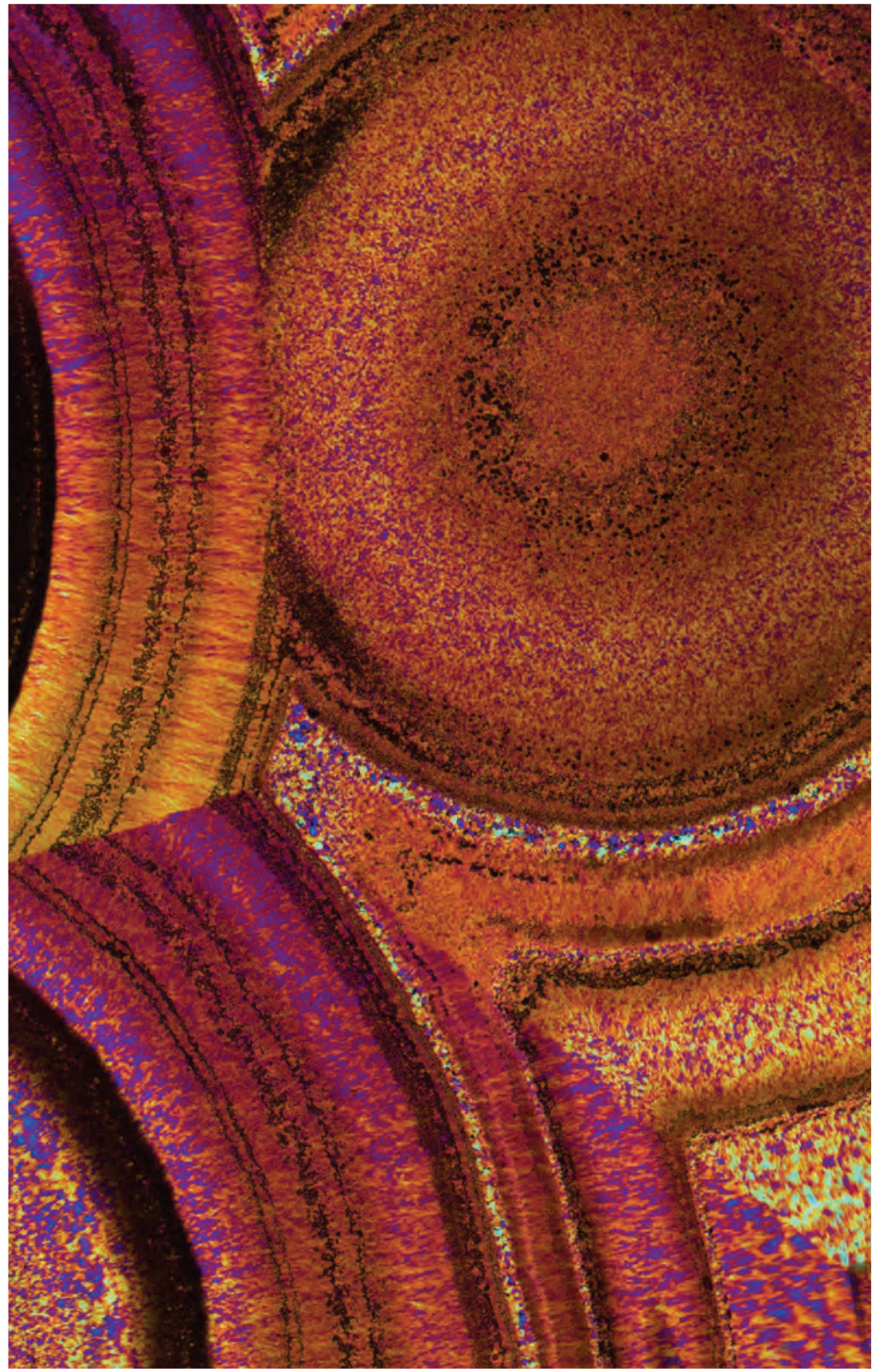


Ocean Jasper. Madagascar. Width 2,7 mm.

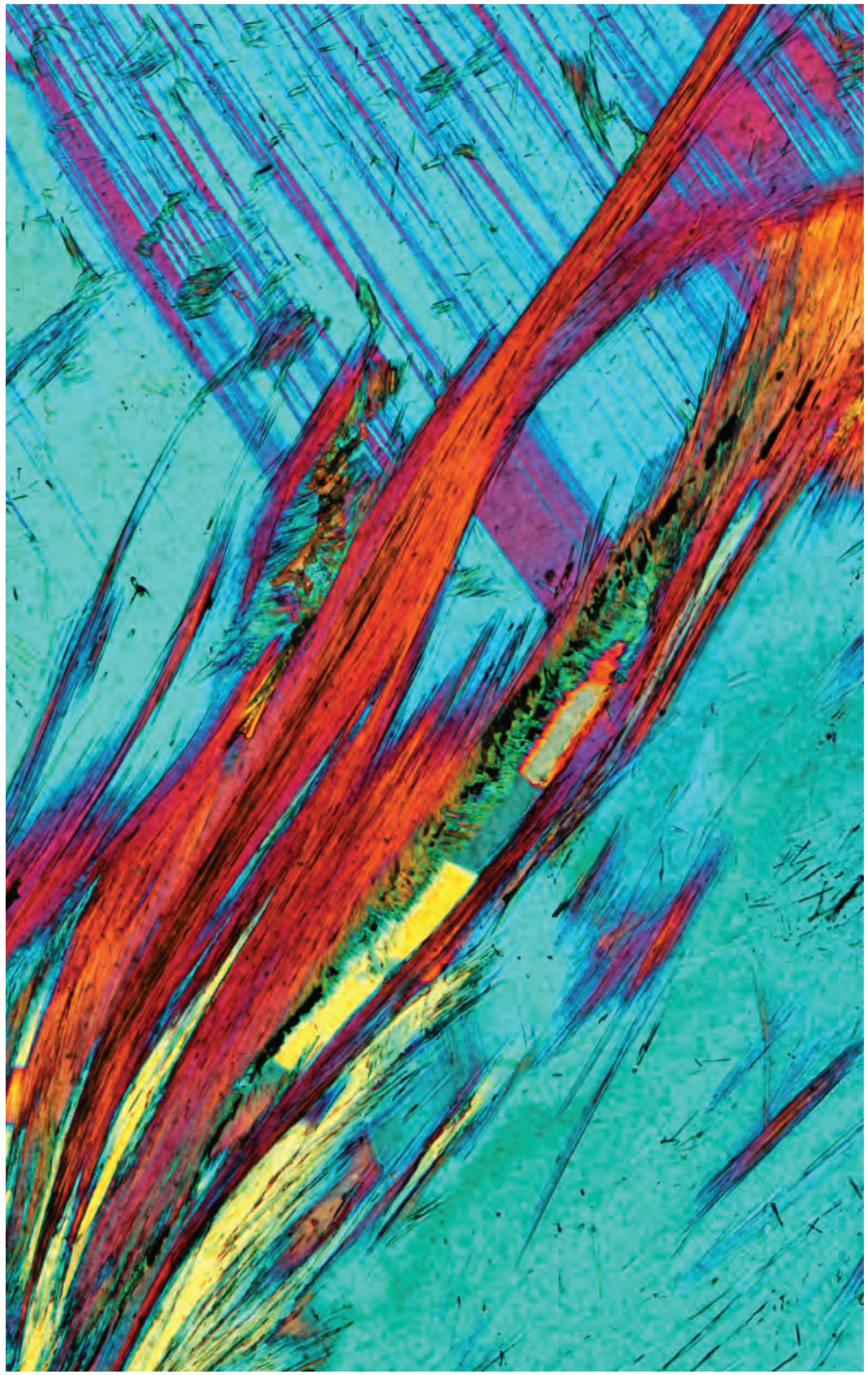


Dinosaur bone. Utah, USA. Width 7 mm.

Agate. Malawi. Width 1,8 mm.

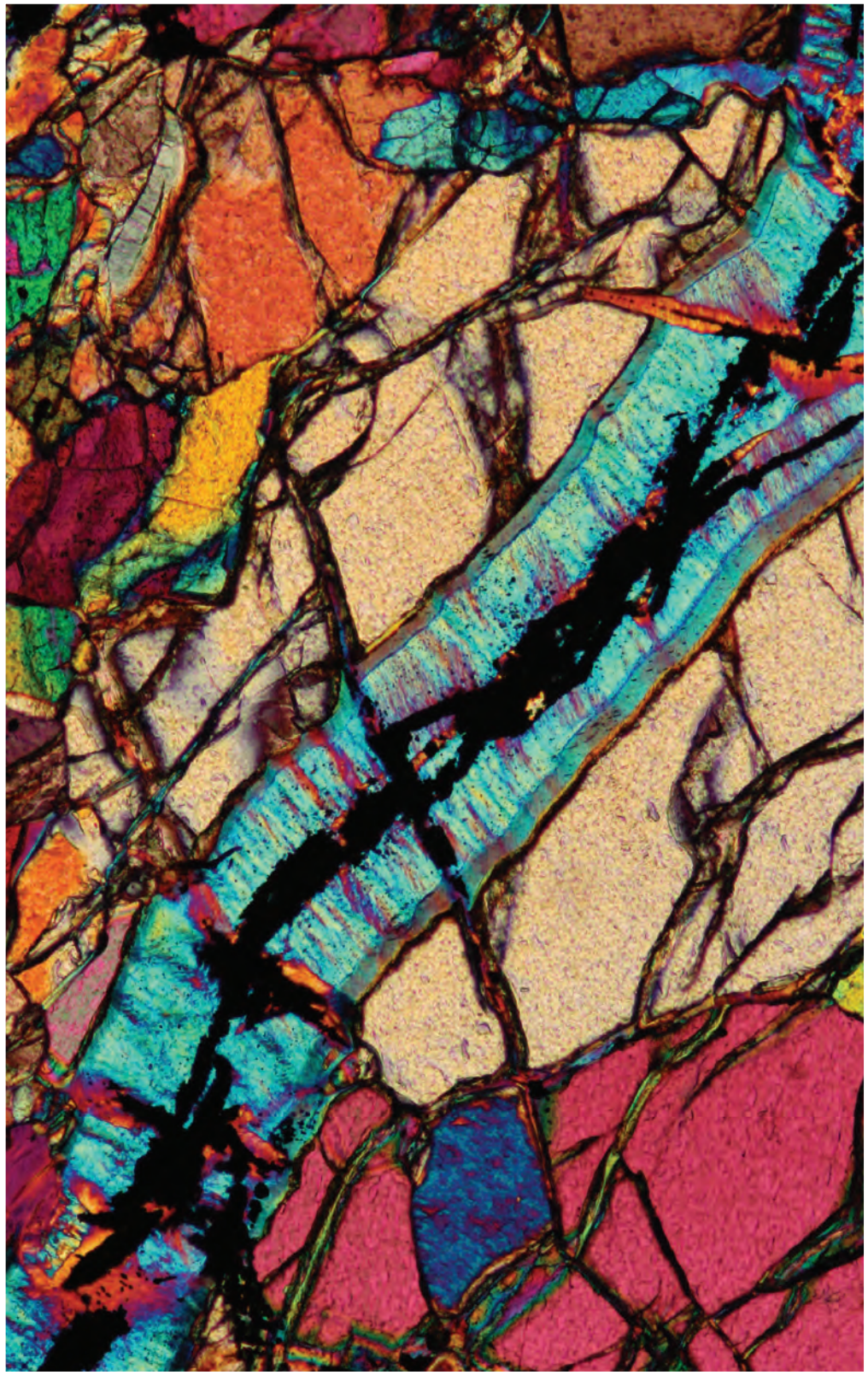


"Crazy lace" agate. Mexico. Width 1,8 mm.

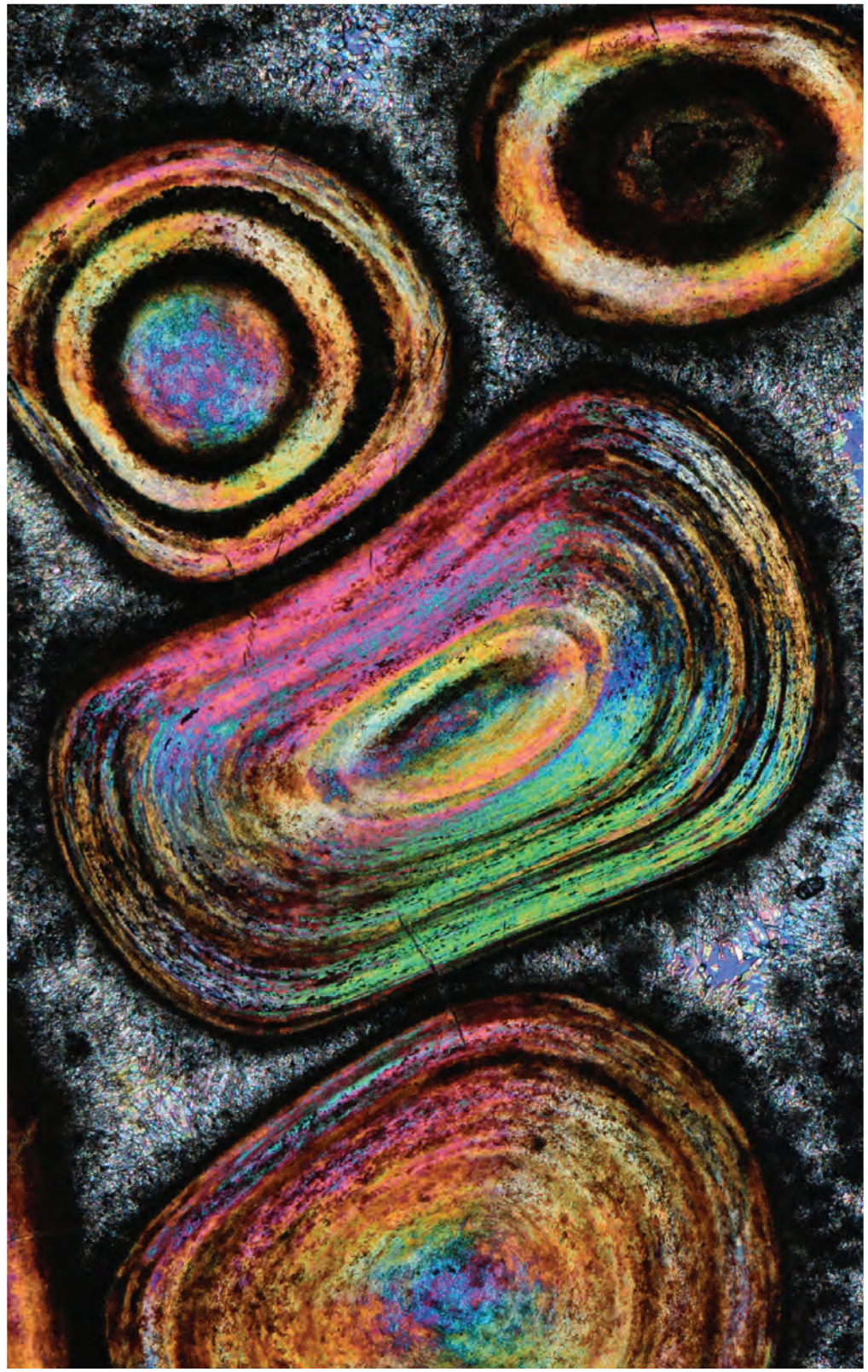


Charoite schist. Yakutia, Russia. Width 0,8 mm.

Microfossils in limestone. Garda lake, Italy. Width 3,6 mm.

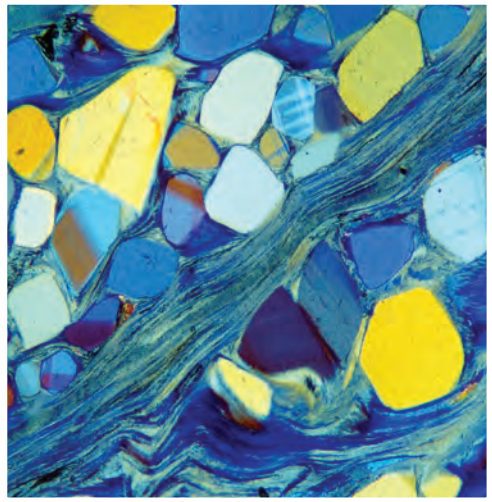


Serpentine veinlet in peridotite. Alpe Arami, Switzerland. Width 1,8 mm.

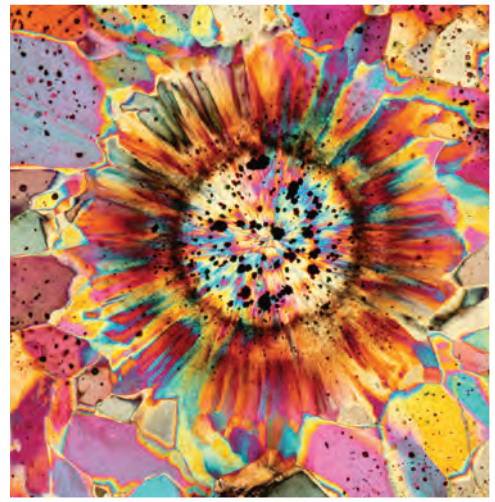


Ooids in Karlsbad sprudelstein. Czech Republic. Width 3,2 mm.

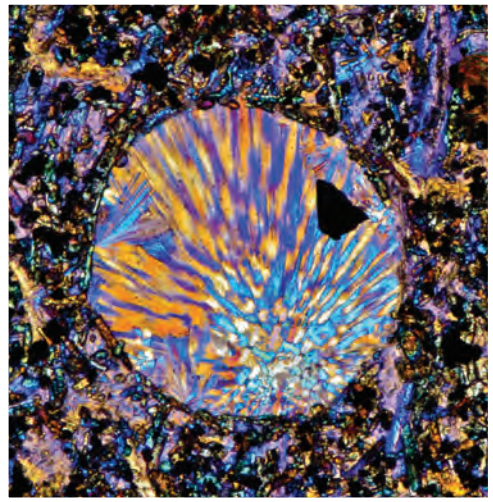
Olivine with spinifex texture. Gorgona, Colombia. Width 1,5 mm.



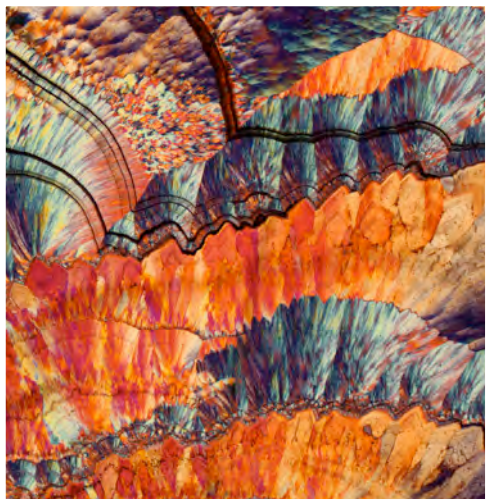
Charoite schist. Yakutia, Russia. Width 4 mm.



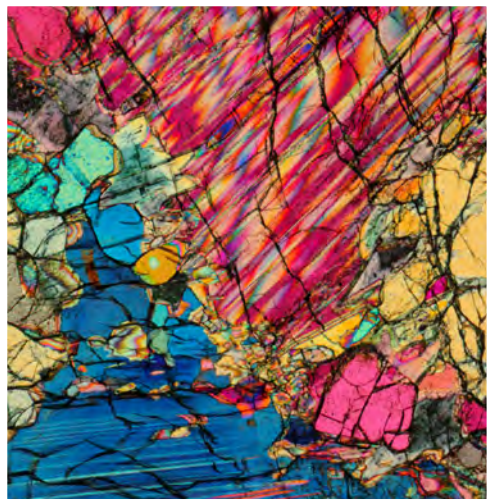
Spherulite in Ocean Jasper. Madagascar. Width 2 mm.



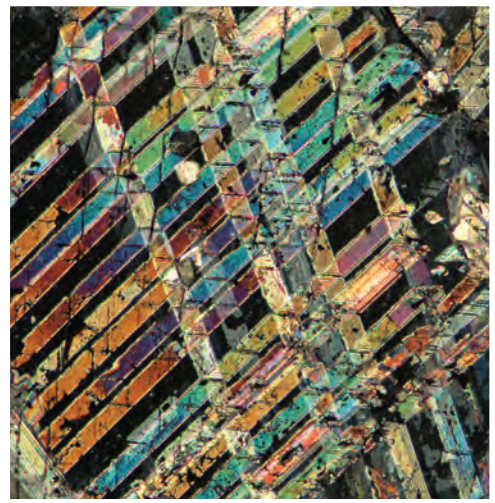
Vug filled with zeolite in basalt. Garda lake, Italy. Width 1,5 mm.



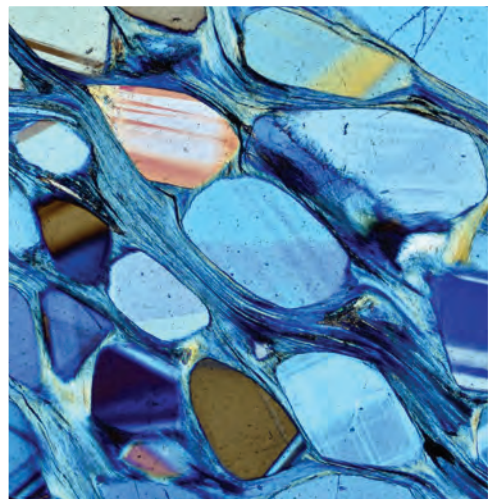
Agate. Brazil. Width 3,6 mm.



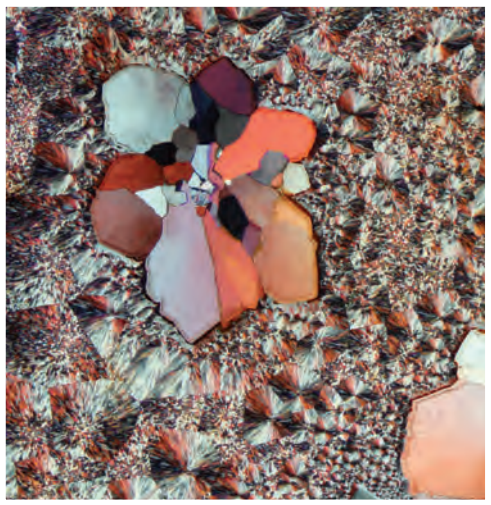
Pyroxene in ultramafite. Cerro Almirez, Spain. Width 1,7 mm.



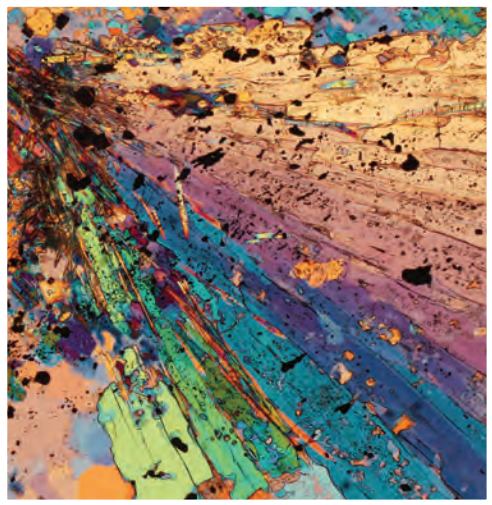
Twinned calcite. Dolomites, Italy. Width 2 mm.



Charoite schist. Yakutia, Russia. Width 4 mm.

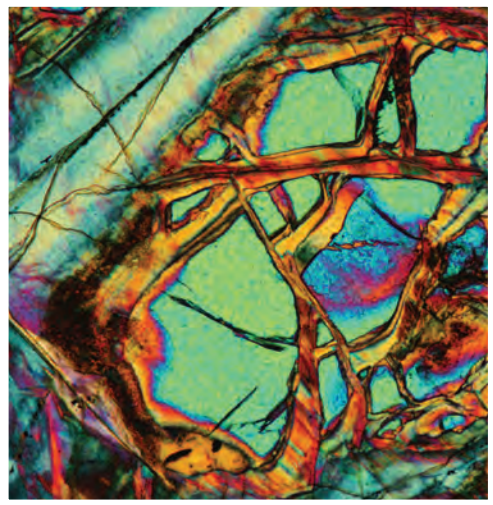


Quartz rosette in Ocean Jasper. Madagascar. Width 3,7 mm.

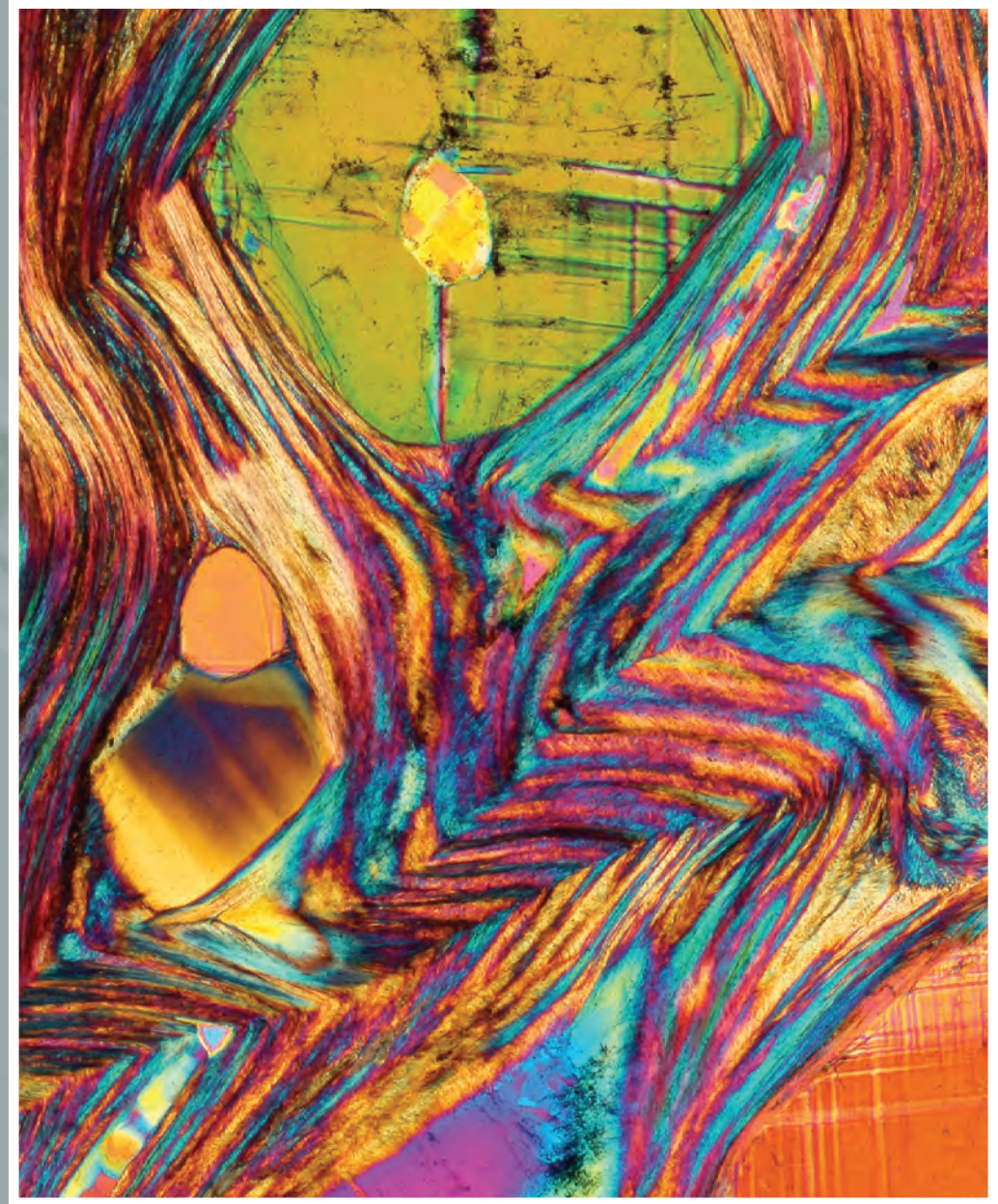


Andalusite with radiating texture. Lipari, Italy. Width 1,8 mm.

Graphite and alkali feldspars in granulite. Kerala, India. Width 3,6 mm.



Olivine and serpentine in ultramafite. Ronda, Spain. Width 1,7 mm.



Charoite schist. Yakutia, Russia. Width 5,4 mm.

Bernardo Cesare

Bernardo Cesare, FRMS, FRPS, is Professor at the Department of Geosciences, University of Padova, Italy. He studies metamorphic rocks and the origin of granitic magmas. He is Editor of the *Journal of Metamorphic Geology*. His photographs of rocks and other materials under the polarising microscope are renowned internationally.

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