

Minerals of Lead Mines Clough Anglezarke, Lancashire

Figure numbers shown on these 3D images relate to the associated
article in Journal of The Russell Society, Volume 25, 2022

View through Red-Cyan spectacles with the red filter to the left eye
and from a distance of 40cm (16 inches)

Fig. 3

Cerussite $\text{Pb}(\text{CO}_3)$ and
allophane $(\text{Al}_2\text{O}_3)(\text{SiO}_2)_{1.3-2} \cdot 2.5-3(\text{H}_2\text{O})$

Fluorescence in long-wave UV light, cerussite
fluorescing yellow and allophane fluorescing
bright pale blue.

Anglezarke area SD 6300 1683, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)12.
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss Luminar 25 mm objective lens on 140 mm bellows
extension, with Convoy S2+ UV (LW) torch.

Left + right stacks of 72 and 72 30-micrometre steps at 6 degrees via Stackshot rail, with
Luminar at fully open aperture, combined in CombineZM and rendered in Stereophotomaker.

1 mm

Field height 3.92 mm

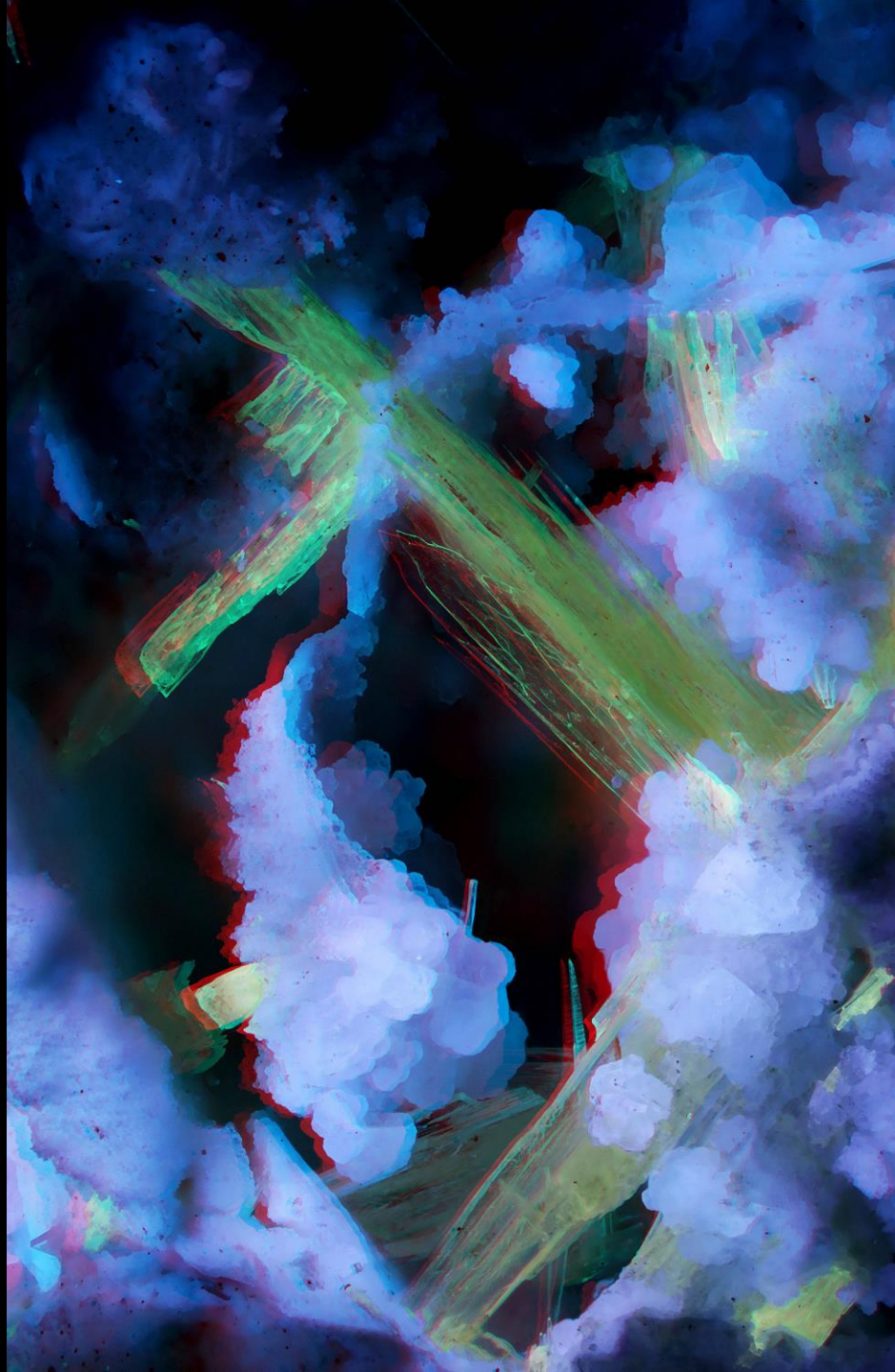
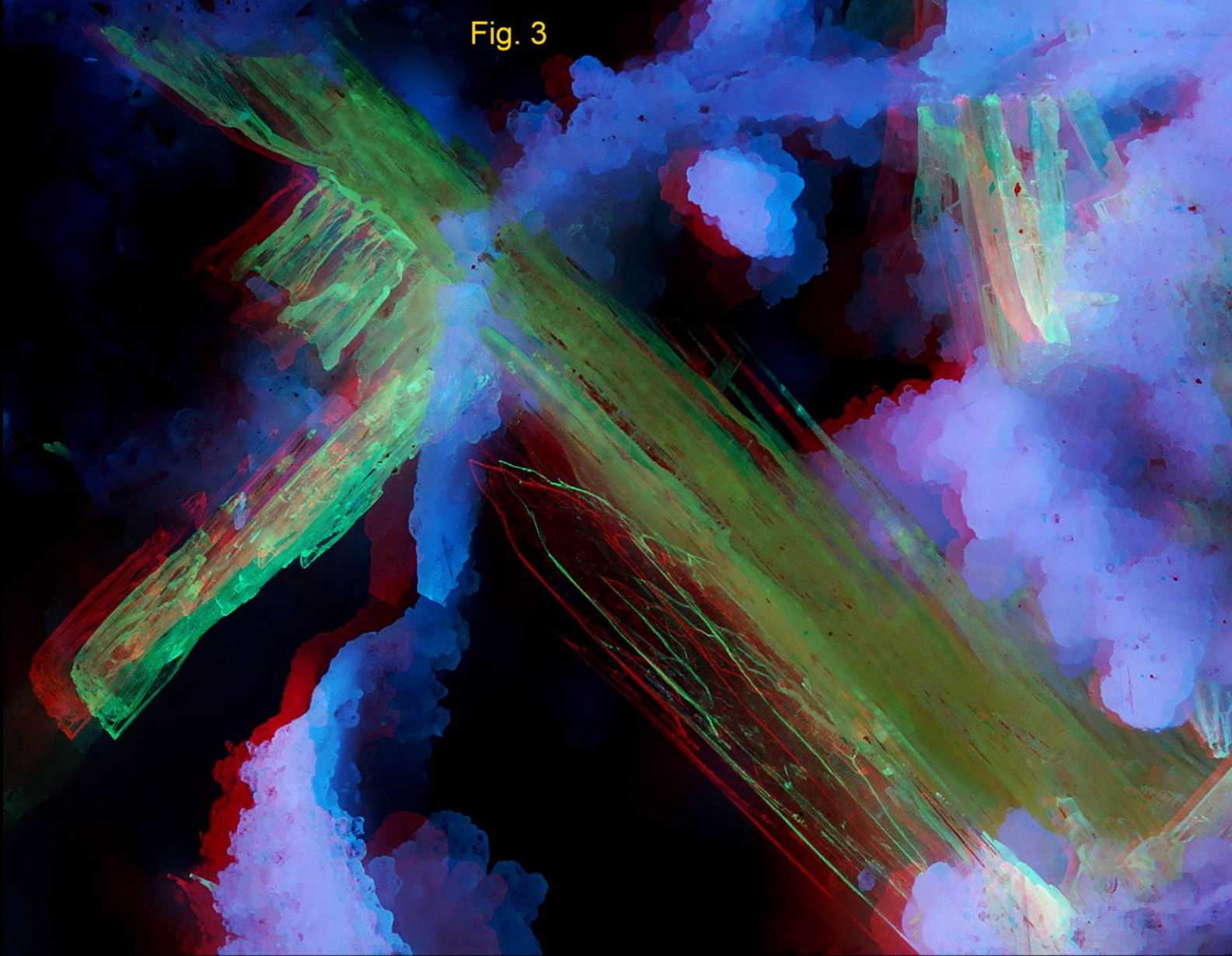


Fig. 3



0.1 mm 1 mm **Cerussite $Pb(CO_3)$ and allophane $(Al_2O_3)(SiO_2)_{1.3-2-2.5-3}(H_2O)$** Field width 2.12 mm.
Fluorescence in long-wave UV light, cerussite fluorescing yellow and allophane fluorescing bright pale blue.

Anglezarke area SD 6300 1683, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)12. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 140mm bellows extension, with Convoy S2+ UV (LW) torch.
Left + right stacks of 72 and 72 30-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

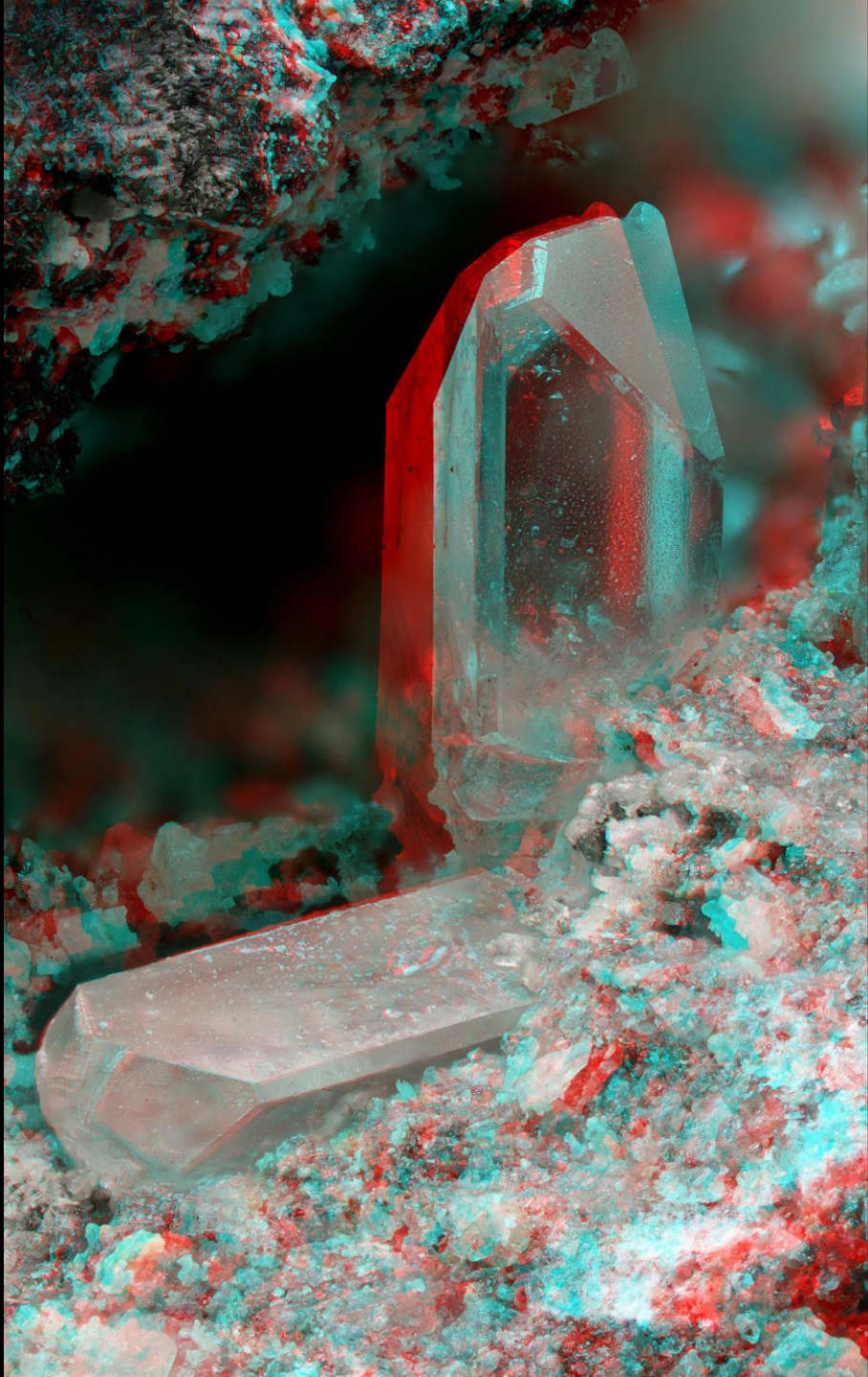


Fig. 5

Anglesite $\text{Pb}(\text{SO}_4)$

Transparent blocky crystals in a cavity surrounding a partly oxidised mass of galena.

Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: found by Harry Critchley and in David Green collection, No. AZ039.
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss Luminar 25 mm lens on 175 mm bellows extension.

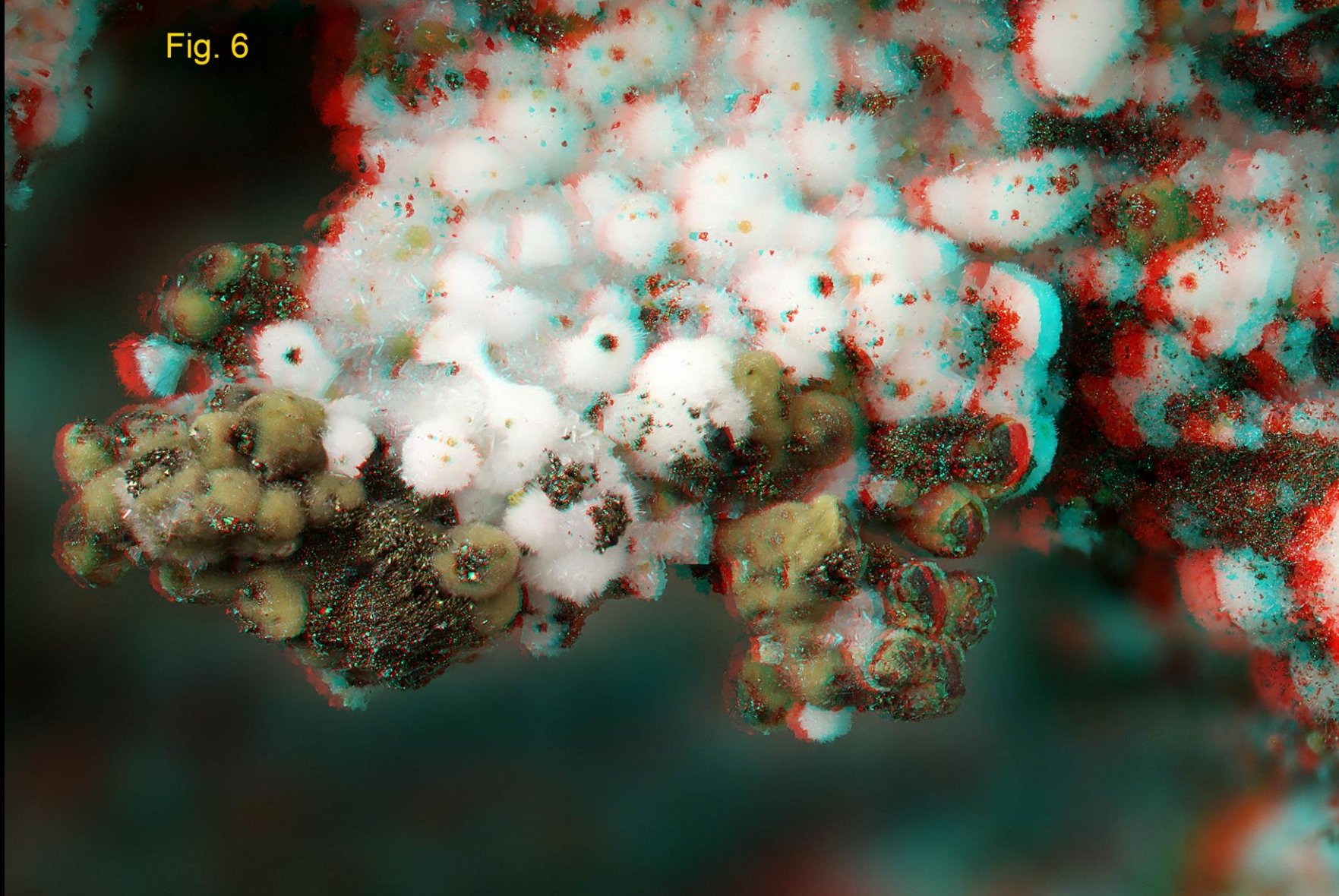
Left + right stacks of 104 and 142 20-micrometre steps at 6 degrees via Stackshot rail,
with Luminar at fully open aperture, combined in CombineZM.

1 mm

Field height 3.62 mm.

3D image for viewing on computer screens and for printing.

Fig. 6



0.1 mm

1 mm

Aragonite $\text{Ca}(\text{CO}_3)$

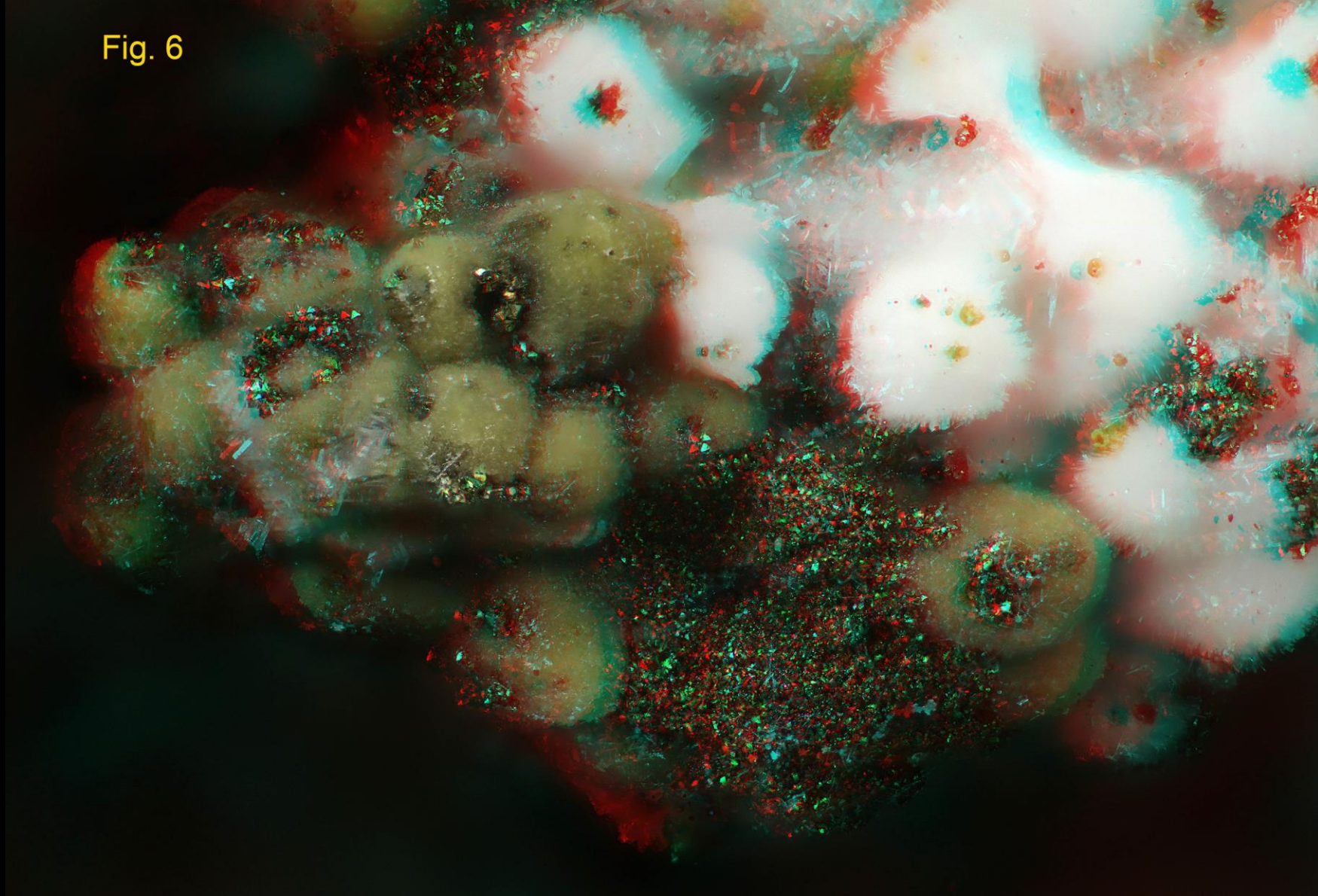
Field width 2.63 mm.

Radiating spherulites and bow-ties of acicular crystals in a cavity lined with minute diamond-shaped baryte crystals in massive witherite. Slightly oxidised sphalerite is overgrown by an unidentified brown coating and the whole assemblage is scattered with late-stage secondary marcasite. There are unfortunately remnants of mould present.

Specimen: the late Keith Snell collection No: AZ005. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination. Left + right stacks of 145 and 128 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig. 6



0.1 mm

Aragonite $\text{Ca}(\text{CO}_3)$

Field width 1.16 mm.

Radiating spherulites and bow-ties of acicular crystals in a cavity lined with minute diamond-shaped baryte crystals in massive witherite. Slightly oxidised sphalerite is overgrown by an unidentified brown coating and the whole assemblage is scattered with late-stage secondary marcasite. There are unfortunately remnants of mould present.

Specimen: the late Keith Snell collection No: AZ005. Photography: John Chapman.

Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.
Left + right stacks of 117 and 92 5-micrometre steps at 4 degrees via Stackshot rail, combined in CombineZM and rendered in Stereophotomaker.



Fig. 8

Baryte BaSO_4

Sheaf-like groups of iron stained platy crystals.

Anglezark area SD 630 164, near Chorley, Lancashire.

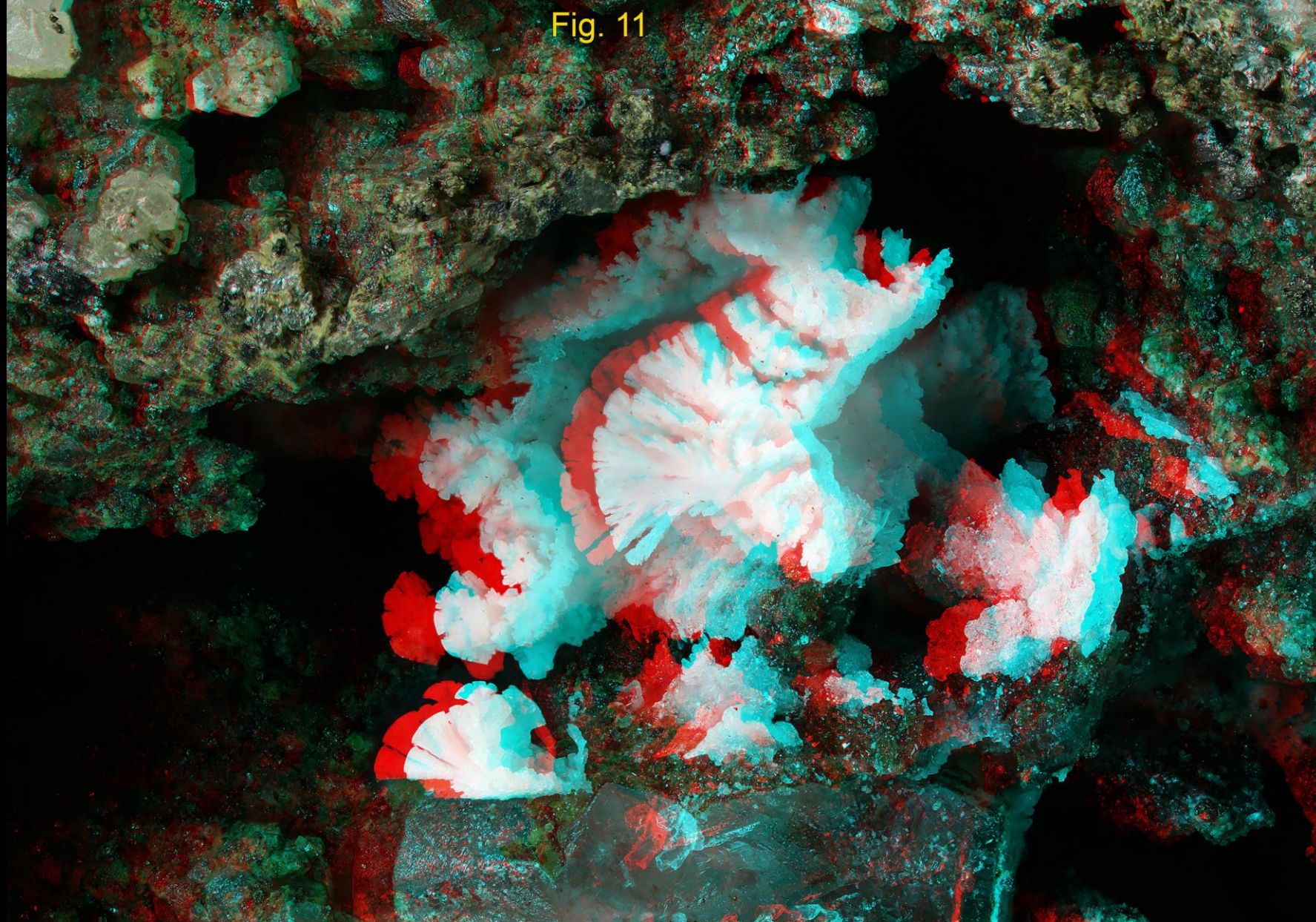
Specimen: the late Keith Snell collection, No. AZ4 (David Green).
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss Luminar 63 mm objective lens,
with Schott fibre optic illumination.
Left + right stacks of 67 and 65 50-micrometre steps at 7 degrees.

1 mm

Field height 11.1 mm

Fig. 11



1 mm

Baryte $\text{Ba}(\text{SO}_4)$

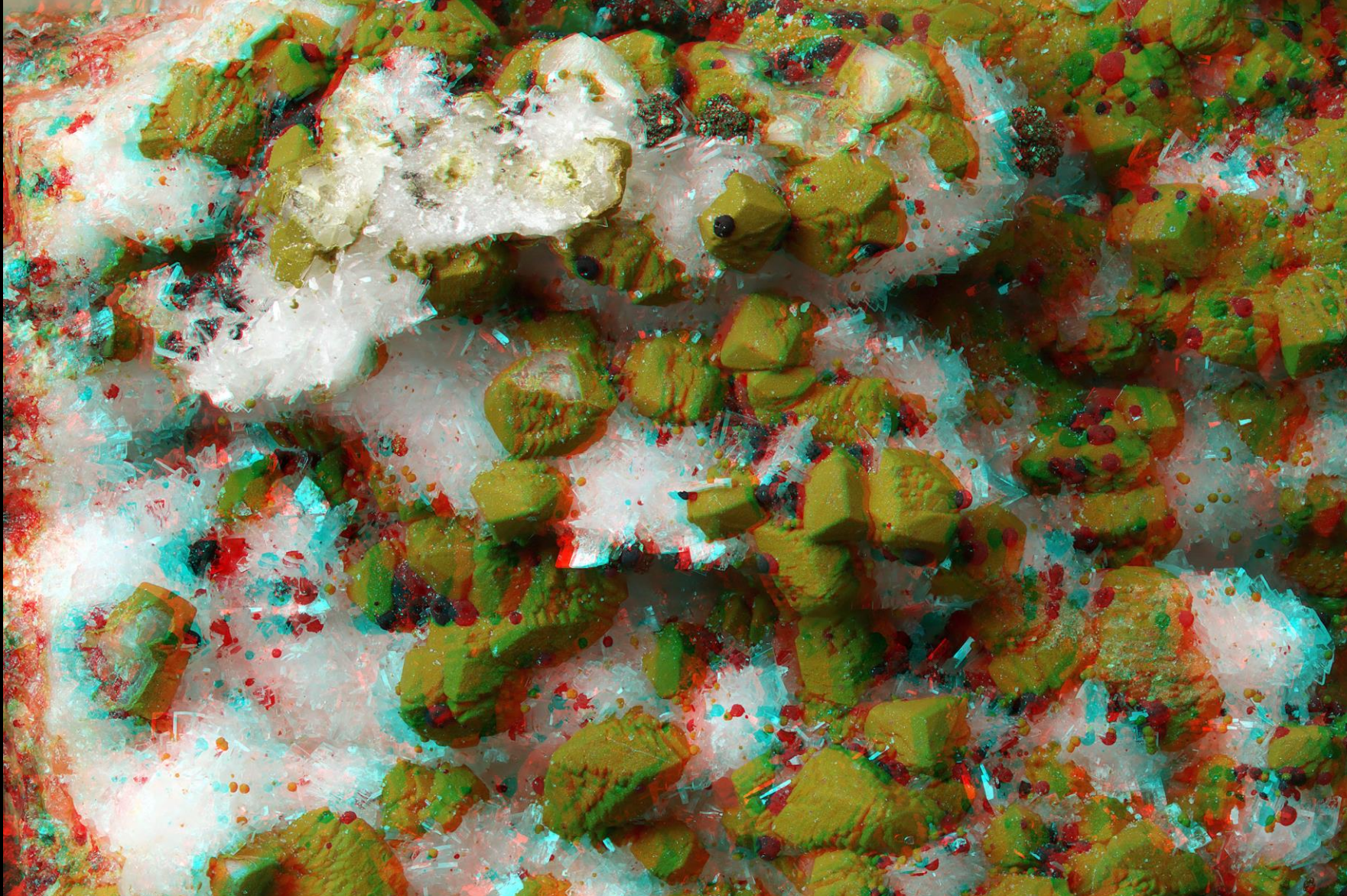
Field width 3.40 mm

Unusual coralloid formation (confirmed by EDS) in witherite. Anglezark area SD 630 164, nr Chorley, Lancashire.

Specimen: the late Keith Snell collection, No. AZ2. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 140 and 158 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.



Blocky prismatic calcite with shallow rhombohedral terminations on drusy diamond-shaped baryte. The calcite has a preferential overgrowth of an unidentified brown iron oxyhydroxide, probably zinc-bearing goethite, a black spherulitic barium manganese oxide and rare clusters of supergene marcasite
1 mm Anglezark area SD 630 164, near Chorley, Lancashire. Field width 4.10 mm
Specimen: the late Keith Snell collection, No. AZ010. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 150 mm bellows extension, with Schott fibre optic illumination. Left + right stacks of 104 and 100 20-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig. 12



Blocky prismatic calcite with shallow rhombohedral terminations on drusy diamond-shaped baryte. The calcite has a preferential overgrowth of an unidentified brown iron oxyhydroxide, probably zinc-bearing goethite, a black spherulitic barium manganese oxide and rare clusters of supergene marcasite

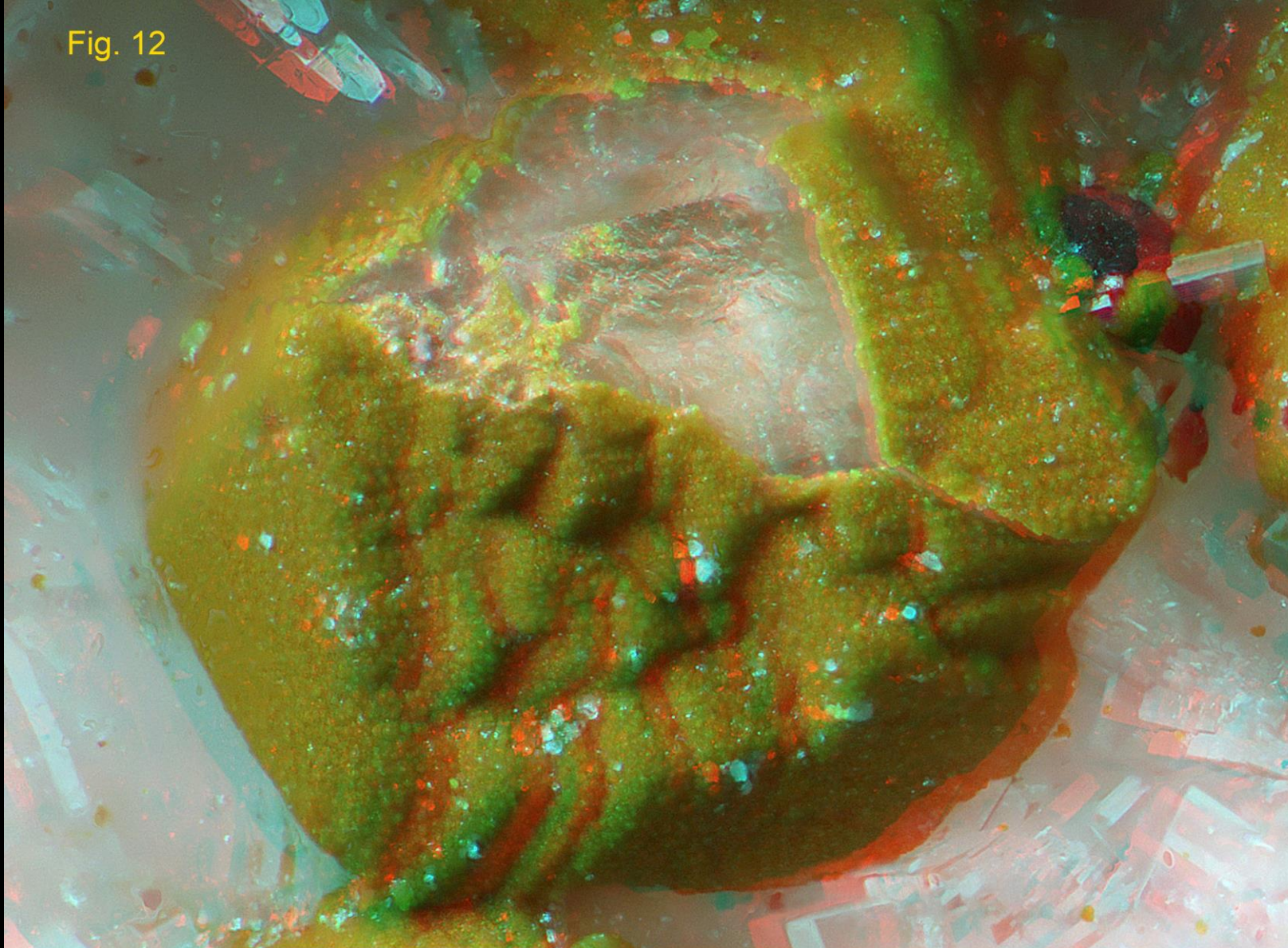
0.1 mm Anglezark area SD 630 164, near Chorley, Lancashire. Field width 1.20 mm.

Specimen: the late Keith Snell collection, No. AZ010. Photography: John Chapman.

Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 165 and 153 4-micrometre steps at 6 degrees via Stackshot rail, combined in CombineZM and rendered in Stereophotomaker.

Fig. 12



Blocky prismatic calcite with shallow rhombohedral terminations on drusy diamond-shaped baryte. The calcite has a preferential overgrowth of an unidentified brown iron oxyhydroxide, probably zinc-bearing goethite, a black spherulitic barium manganese oxide and rare clusters of supergene marcasite
0.1 mm Anglezark area SD 630 164, near Chorley, Lancashire. Field width 0.465 mm.

Specimen: the late Keith Snell collection, No. AZ010. Photography: John Chapman.

Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.
Left + right stacks of 165 and 153 4-micrometre steps at 6 degrees via Stackshot rail, combined in CombineZM and rendered in Stereophotomaker.

Fig. 13

Cerussite $\text{Pb}(\text{CO}_3)$ and
allophane $(\text{Al}_2\text{O}_3)(\text{SiO}_2)_{1.3-2} \cdot 2.5-3(\text{H}_2\text{O})$

Lath-like and needle-shaped pale brown cerussite
in pale green-blue glassy copper- and lead-rich
allophane.

Anglezarke area SD 6300 1683, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)12.
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss Luminar 25 mm objective lens on 140 mm bellows
extension, with Schott fibre optic illumination.

Left + right stacks of 127 and 123 20-micrometre steps at 6 degrees via Stackshot rail,
with Luminar at fully open aperture, combined in CombineZM.

1mm

Field height 3.57 mm.

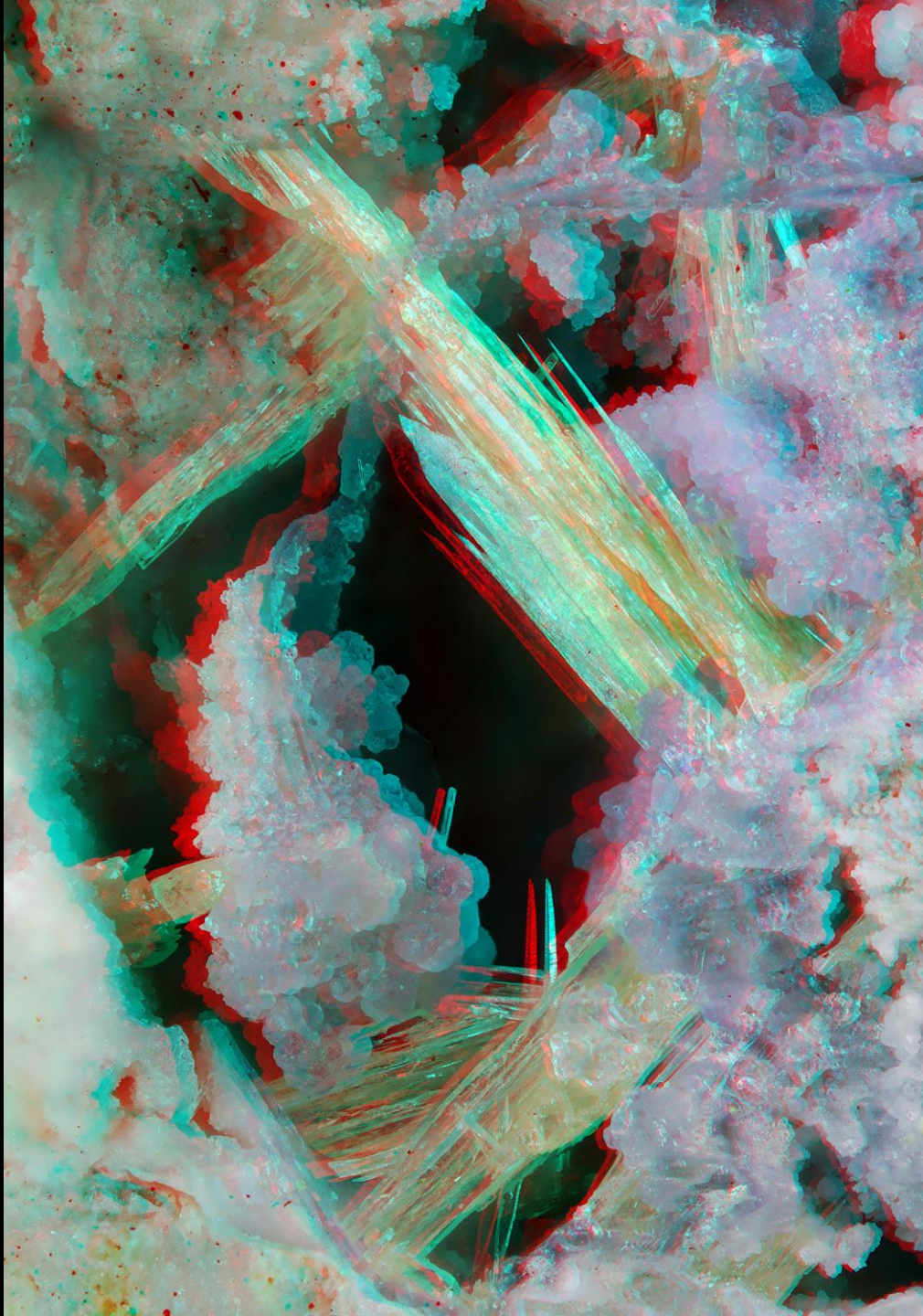
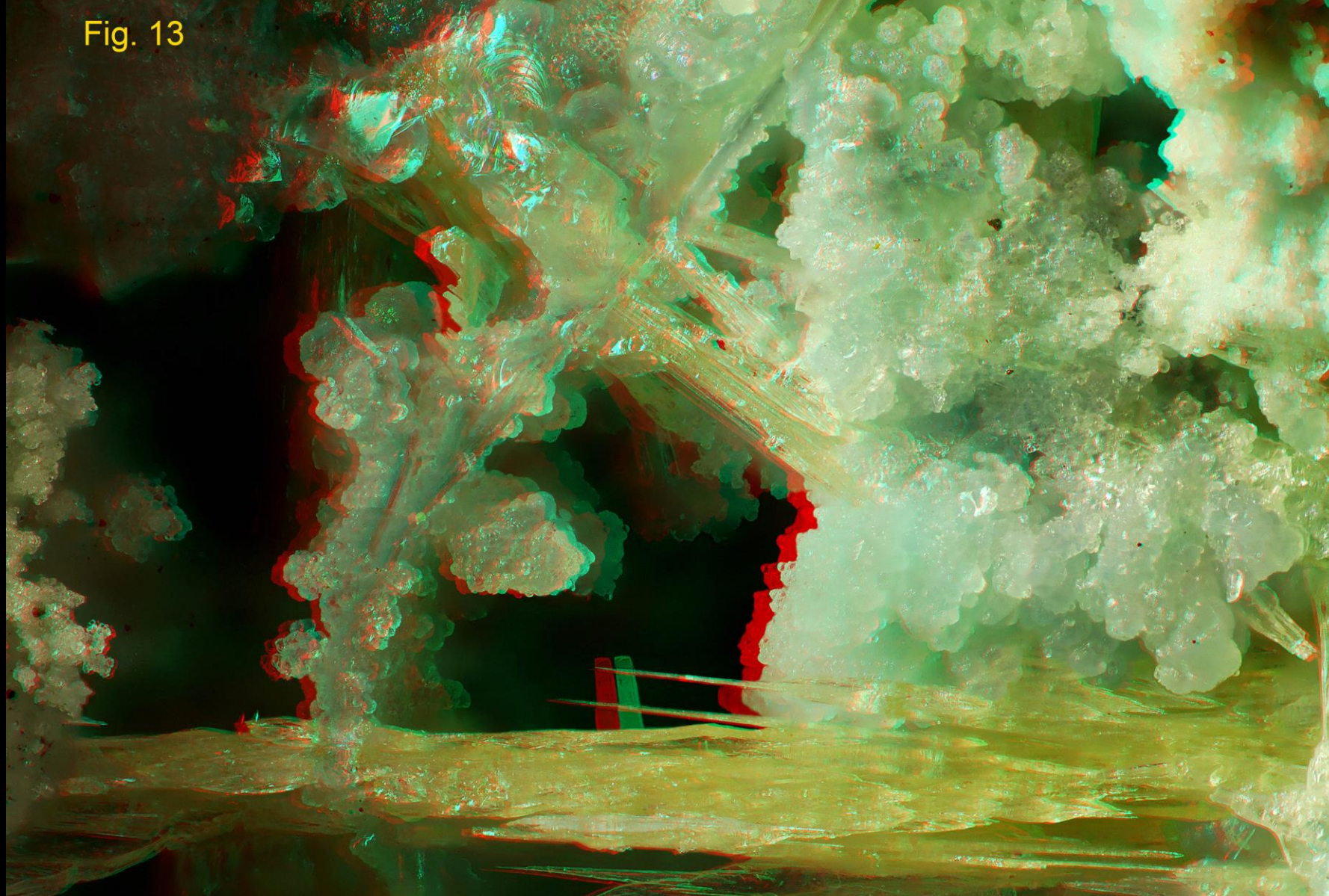


Fig. 13



0.1 mm 1 mm **Allophane, 'ideal' formula:** $\text{Al}_2\text{O}_3(\text{SiO}_2)_{1.3-2.0} \cdot 2.5-3.0\text{H}_2\text{O}$. Field width 2.15 mm.
Pale blue-green glassy ball-shaped amorphous formations, possibly around microbial filaments, on yellow-brown cerussite needle groups. Anglezarke area, SD 630 164, near Chorley, Lancashire. No. AZ(HC)12
Specimen: Harry Critchley collection. Photography: John Chapman.
Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 16 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination, stacks of 107 and 123 8-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig. 13

Allophane

'ideal' formula: $\text{Al}_2\text{O}_3(\text{SiO}_2)_{1.3-2.0} \cdot 2.5-3.0\text{H}_2\text{O}$.

Pale blue-green glassy ball-shaped amorphous formations
on yellow-brown cerussite needle groups.

Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)12.

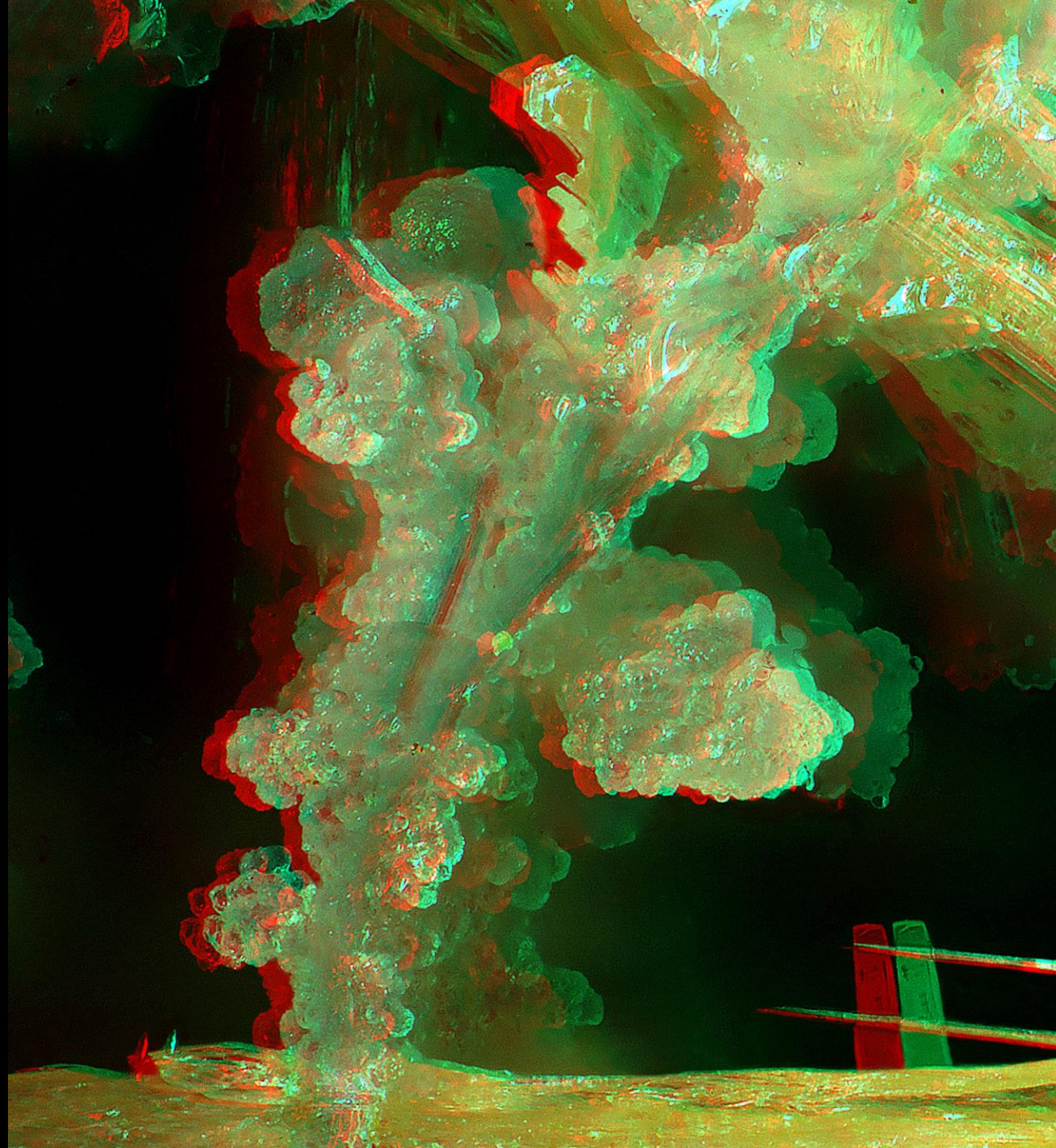
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 16 mm objective lens
on 175mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 107 and 123 8-micrometre steps at 6 degrees via Stackshot rail,
with Luminar at fully open aperture, combined in CombineZM.

0.1 mm

Field height 0.922 mm.



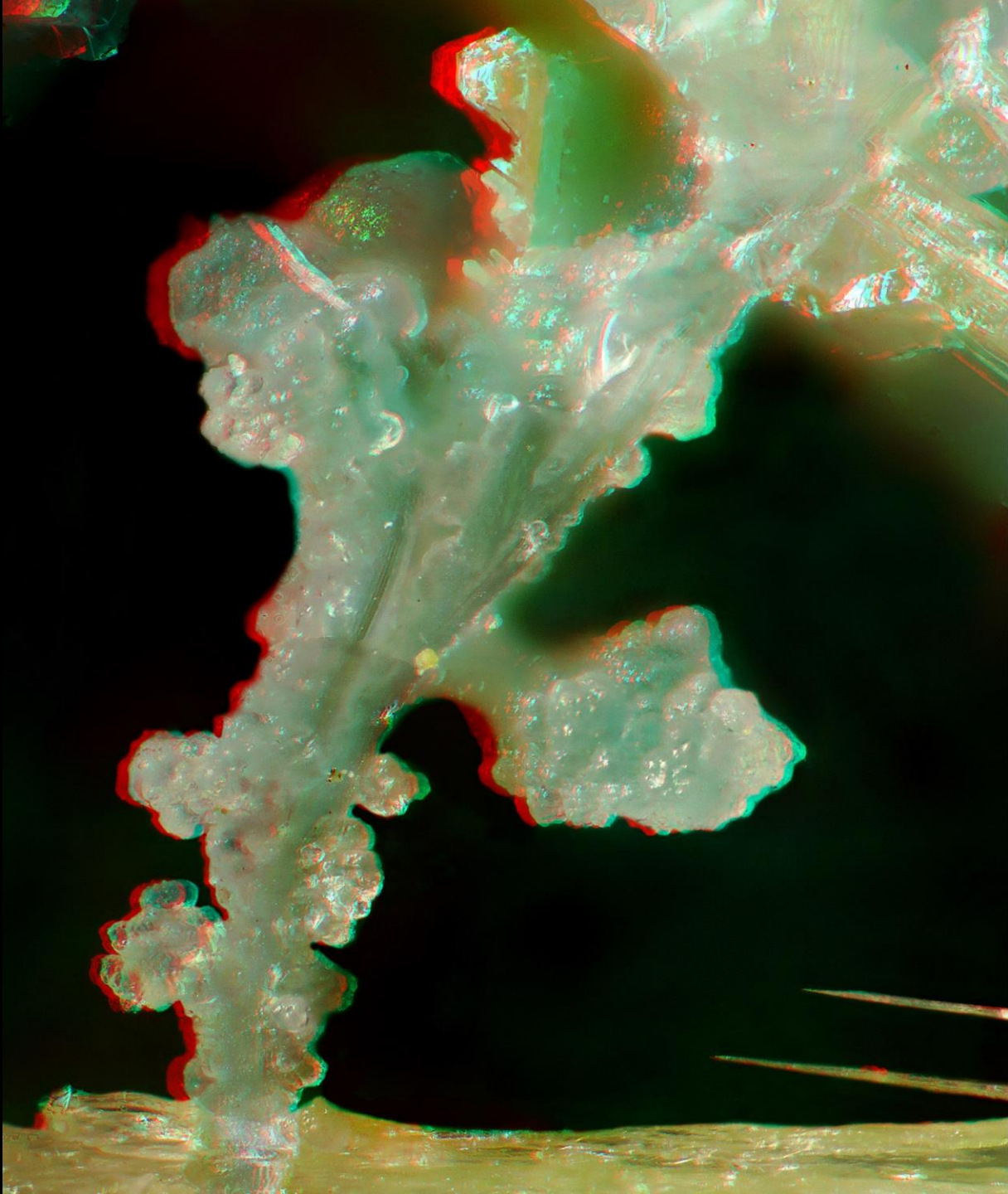


Fig. 13

Allophane

'ideal' formula: $\text{Al}_2\text{O}_3(\text{SiO}_2)_{1.3-2.0} \cdot 2.5-3.0\text{H}_2\text{O}$.

Pale blue-green glassy ball-shaped amorphous formations, possibly around microbial filaments on yellow-brown cerussite needle groups.

Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)12.
Photography: John Chapman.

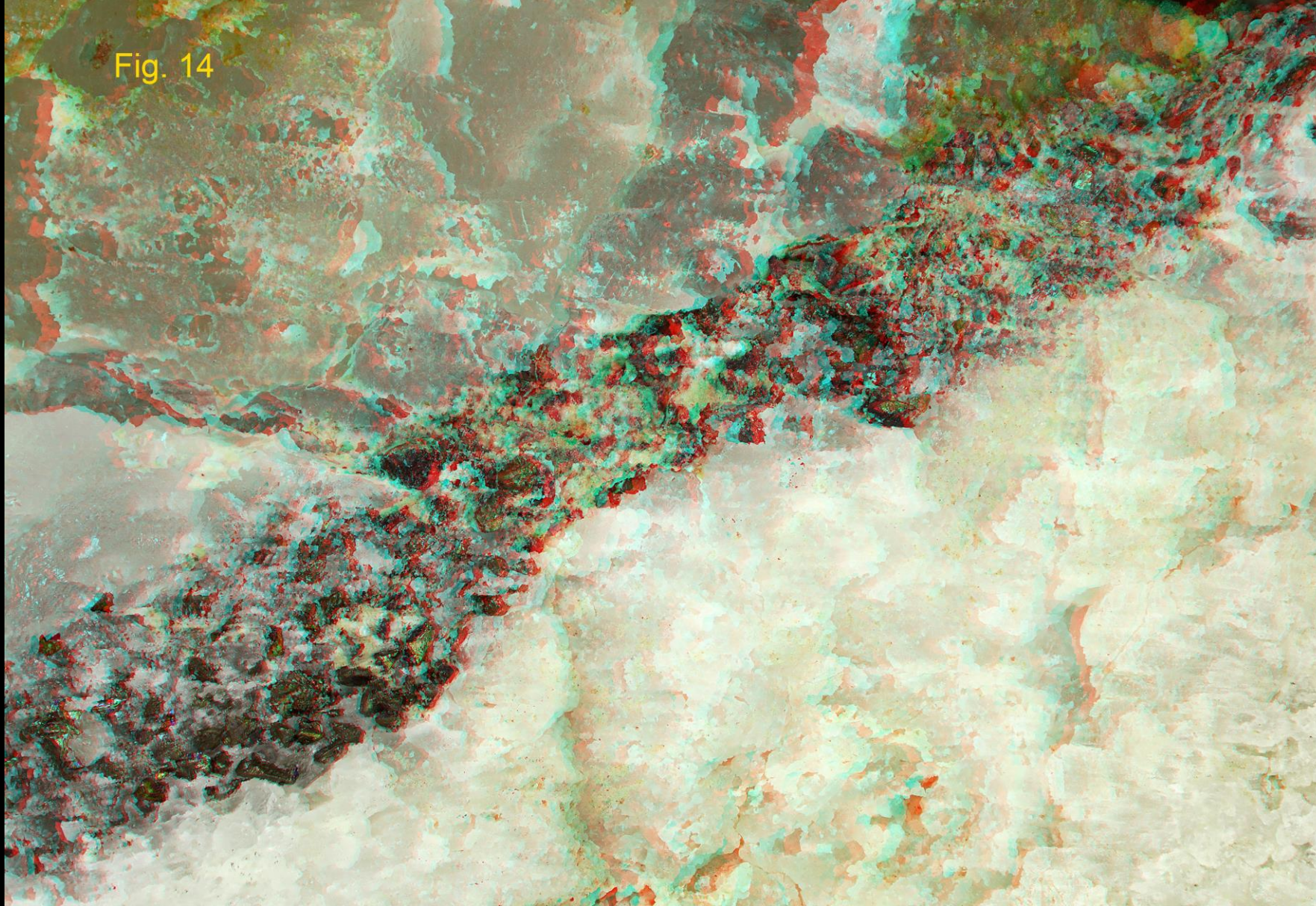
Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 74 and 115 4-micrometre steps at 6 degrees via Stackshot rail, combined in CombineZM and rendered in Stereophotomaker.

0.1 mm

Field height 0.849 mm.

Fig. 14



Fracture infill consisting of idiomorphic or sphenoidal chalcopyrite and witherite in massive white witherite. In some areas the chalcopyrite has altered to produce tiny spherulitic malachite aggregates up to about 0.2 mm.

Anglezark area SD 630 164, near Chorley, Lancashire.

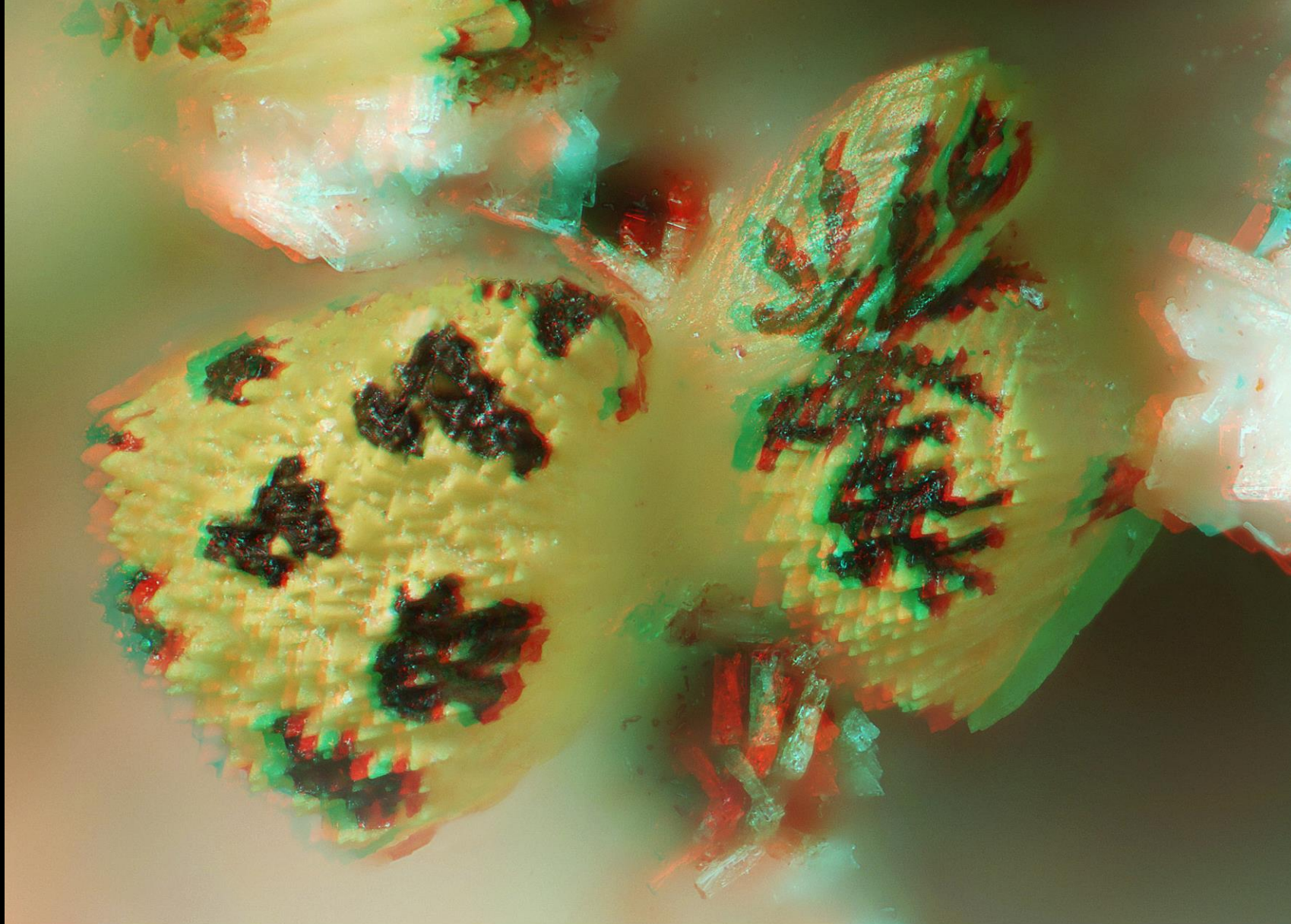
Field width 12.2 mm

1 mm

Specimen: the late Keith Snell collection, No. B126. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 85 and 73 50-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.



0.1 mm

Smithsonite $Zn(CO_3)$

Field width 0.882 mm

Pale yellow-brown subparallel groups with dendritic iron oxyhydroxides.

Fig. 15

Anglezark area SD 630 164, near Chorley, Lancashire.

Specimen: the late Keith Snell collection. Photography: John Chapman.

Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 79 and 98 4-micrometre steps at 6 degrees via Stackshot rail, combined in CombineZM and rendered in Stereophotomaker..

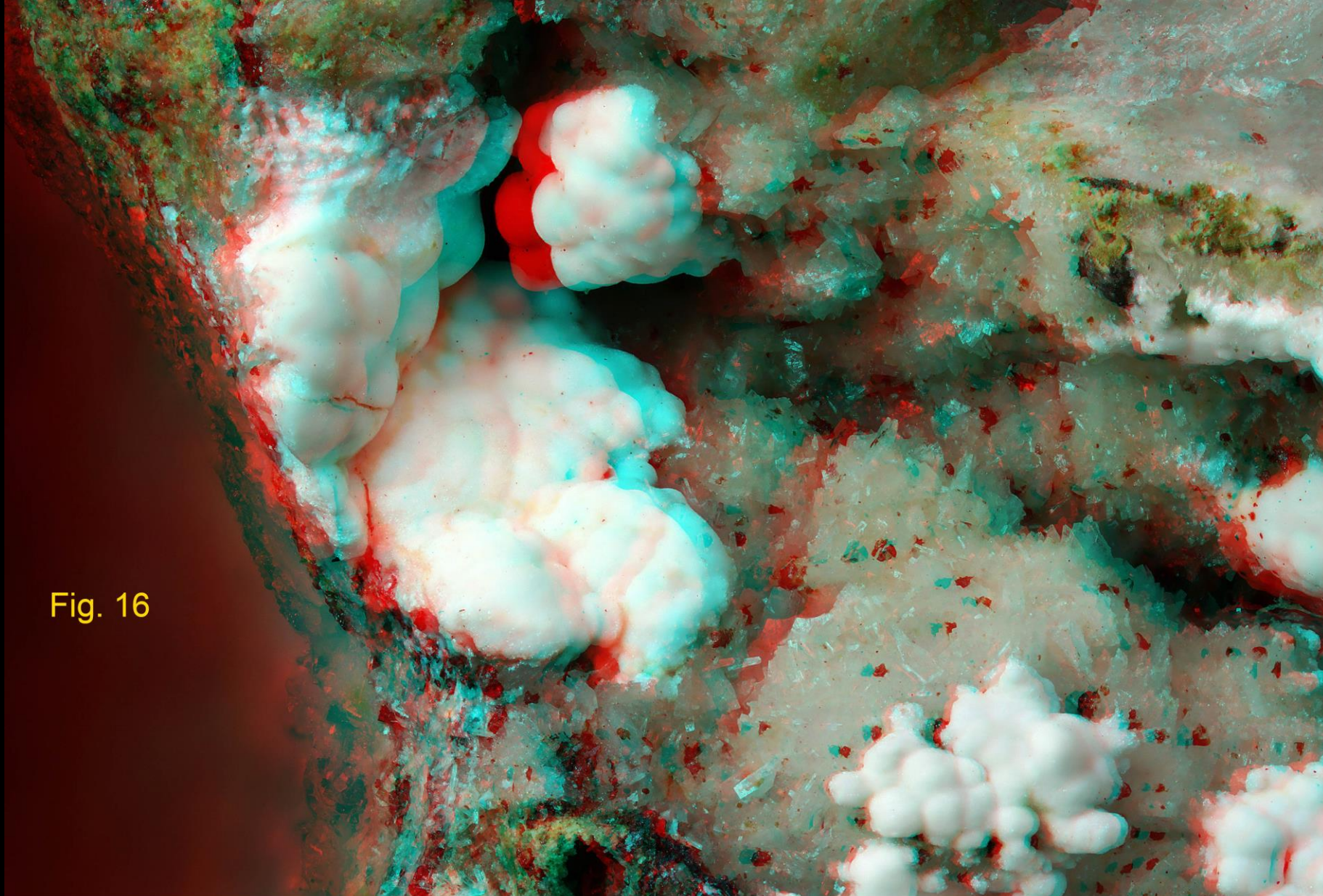


Fig. 16

1 mm

Hydrozincite $\text{Zn}_5(\text{CO}_3)_2(\text{OH})_6$

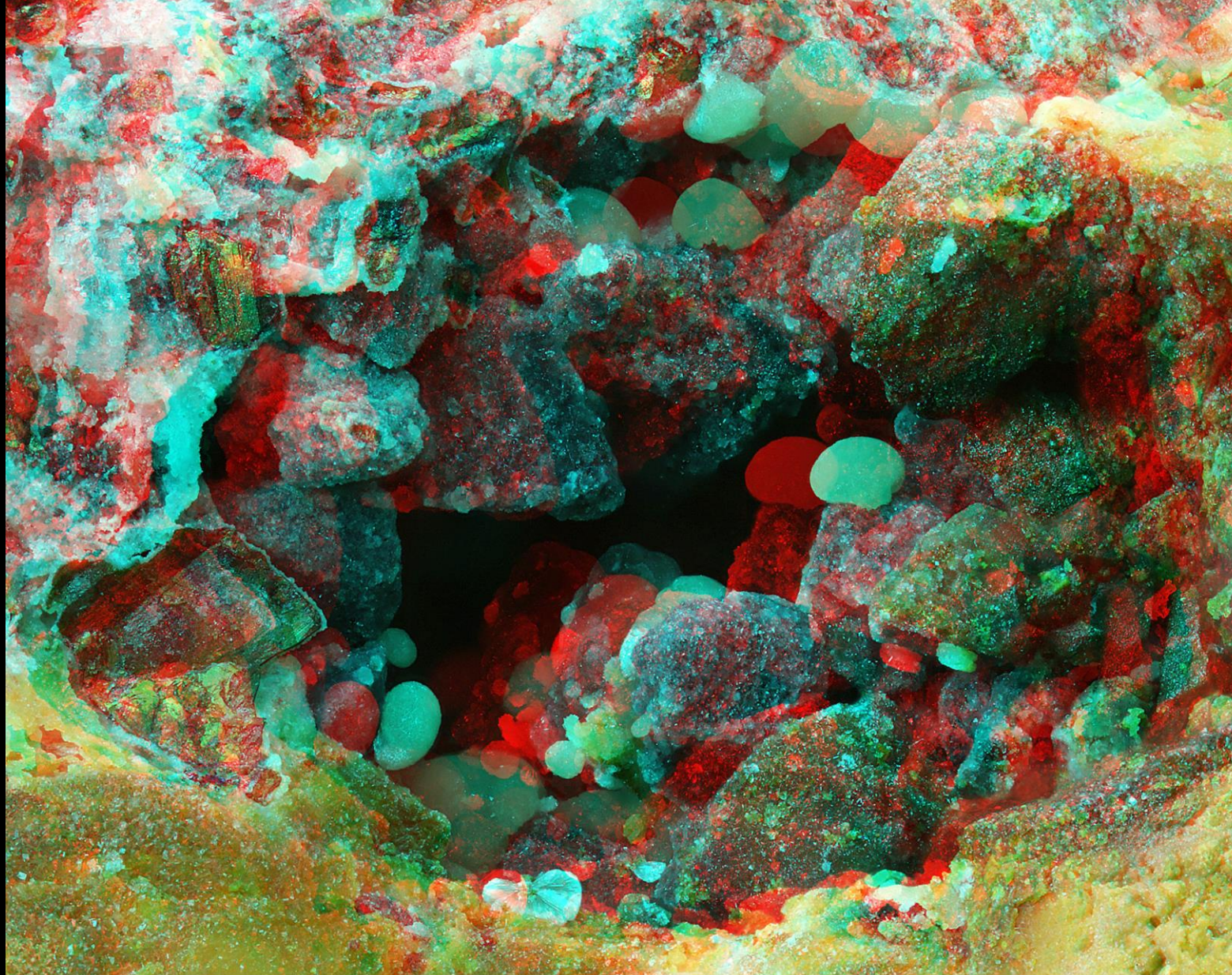
Field width 3.65 mm

Recent white botryoidal crusts overgrowing thin tabular baryte Anglezark area SD 630 164, near Chorley, Lancs.

Specimen: The late Keith Snell collection No. AZ7. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 118 and 117 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.



1 mm

Malachite $\text{Cu}_2(\text{CO}_3)(\text{OH})_2$

Field width 2.18 mm

Vivid green spheroidal on crudely sphenoidal chalcopyrite overgrown by minutely drusy baryte.

Fig. 14

Anglezark area SD 630 164, near Chorley, Lancashire.

Specimen: the late Keith Snell collection, No. B126. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 120 and 104 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

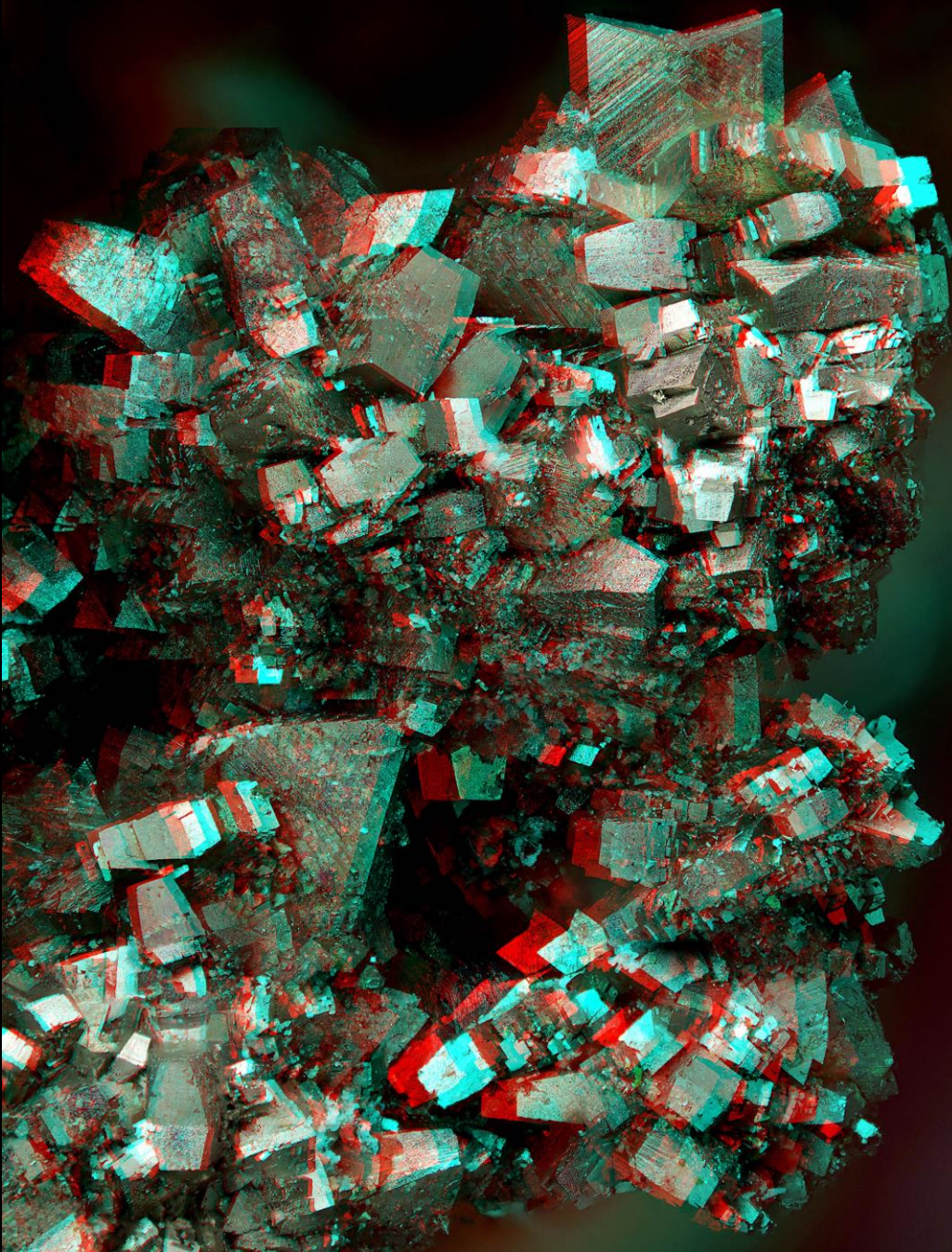


Fig. 19

Marcasite FeS_2

Well formed crystals with characteristic cyclic twinning leached from enclosing carbonate.

Anglezarke area SD 630 164, near Chorley,
Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)14.

Photography: John Chapman.

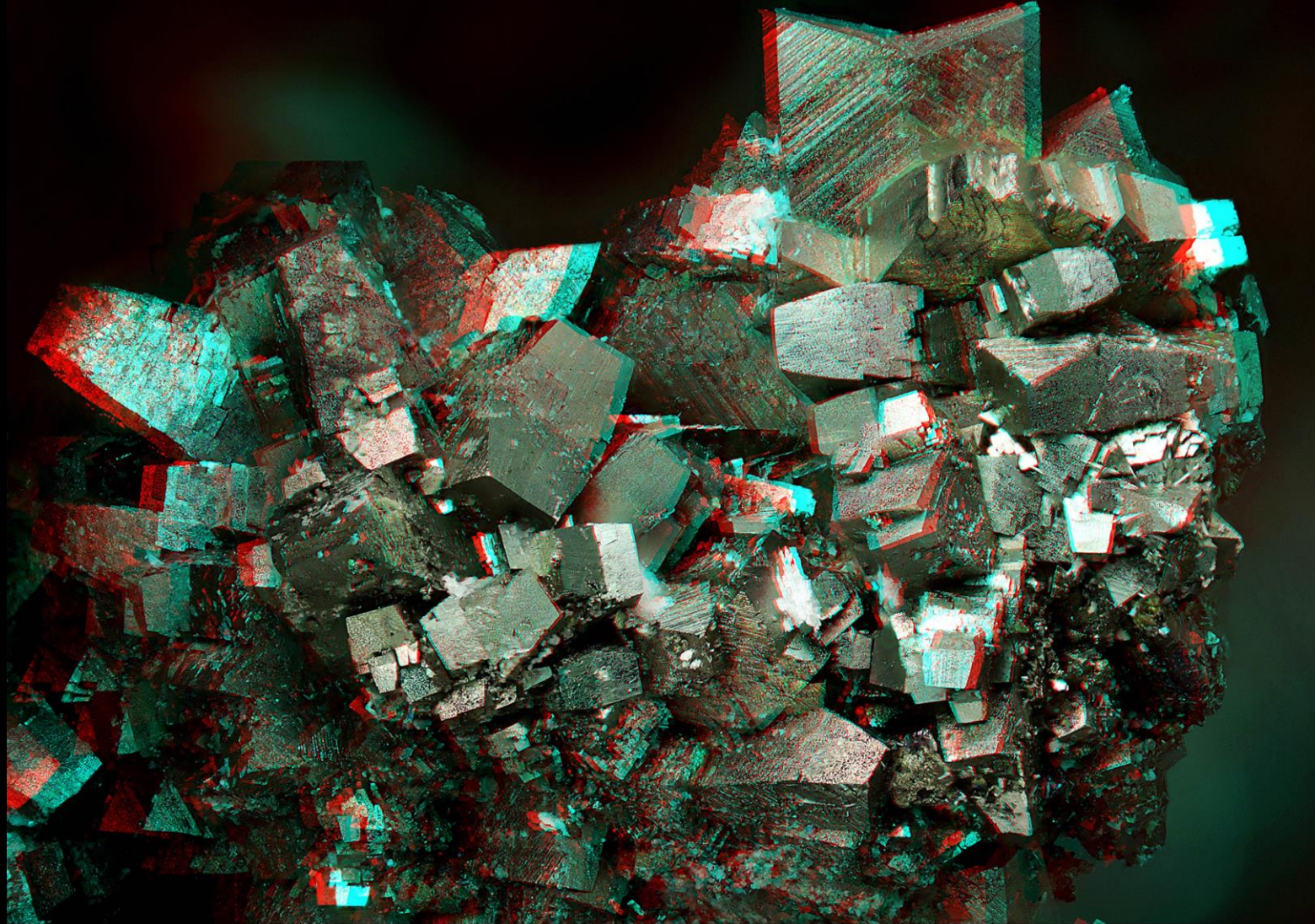
Canon EOS 5DSr camera with Carl Zeiss Luminar 40 mm objective lens on 120 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 116 and 94 40-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

1 mm

Field height 7.71 mm.

Fig. 19



1 mm

Marcasite FeS₂

Field width 5.68 mm.

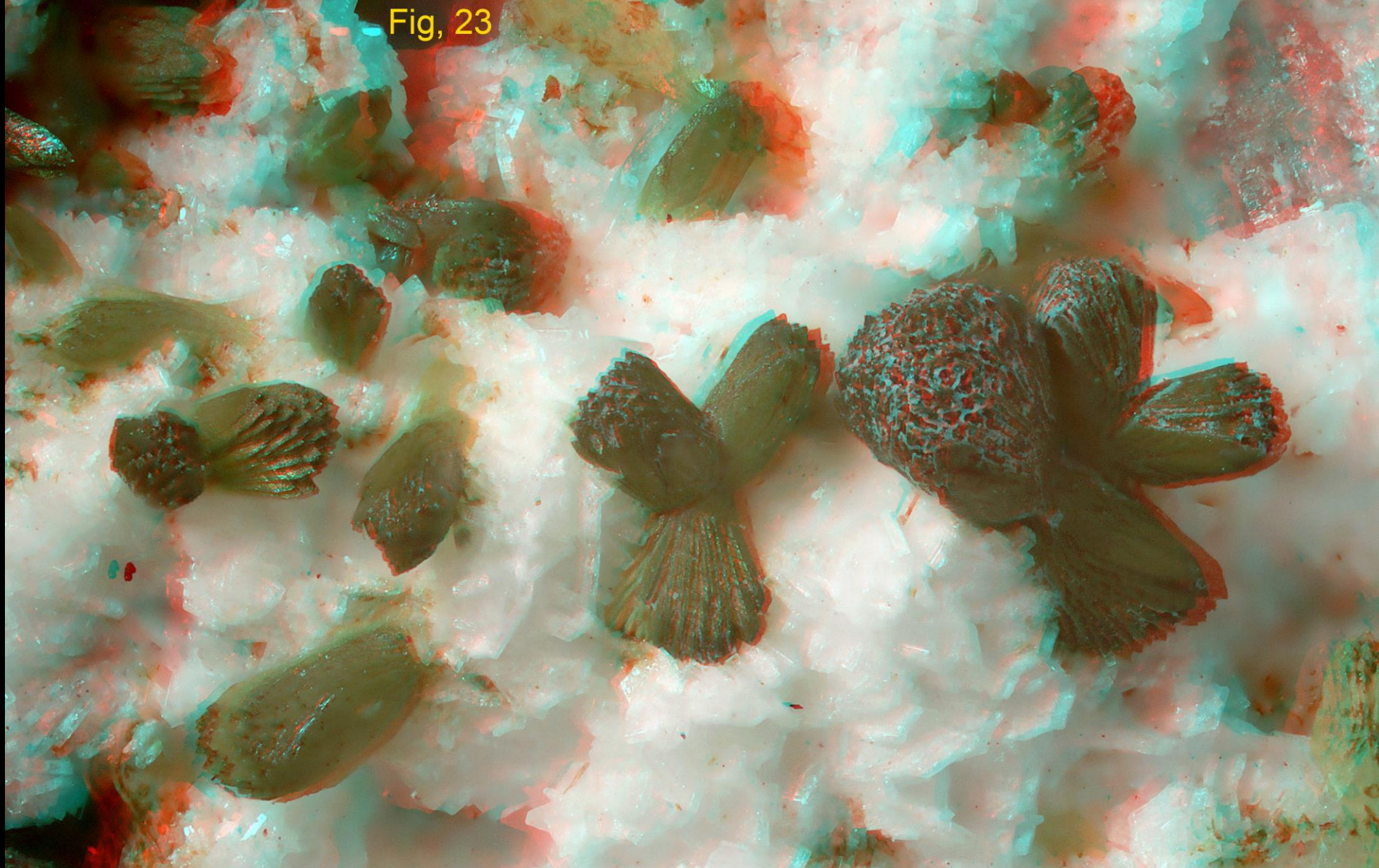
Well formed crystals with characteristic cyclic twinning leached from enclosing carbonate.

Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)14. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 40 mm objective lens on 120 mm bellows extension, with Schott fibre optic illumination.
Left + right stacks of 116 and 94 40-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig, 23



1 mm

Smithsonite $Zn(CO_3)$

Field width 2.25 mm

Subparallel aggregates of sharply pointed rhombohedra in baryte. Anglezark area SD 630 164, nr Chorley, Lancs.

Specimen: the late Keith Snell collection, No. AZ012. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 223 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 91 and 82 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig. 24

Smithsonite $Zn(CO_3)$

Pale yellow-brown subparallel clusters tending toward asymmetrical bow ties on baryte.

Anglezark area SD 630 164, near Chorley, Lancs.

Specimen: the late Keith Snell collection, No. AZ018.
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss Luminar 25 mm objective lens on 223 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 62 and 66 15-micrometre steps at 6 degrees, with Luminar at fully open aperture, combined in CombineZM.

1 mm

0.1 mm

Field height 1.74 mm

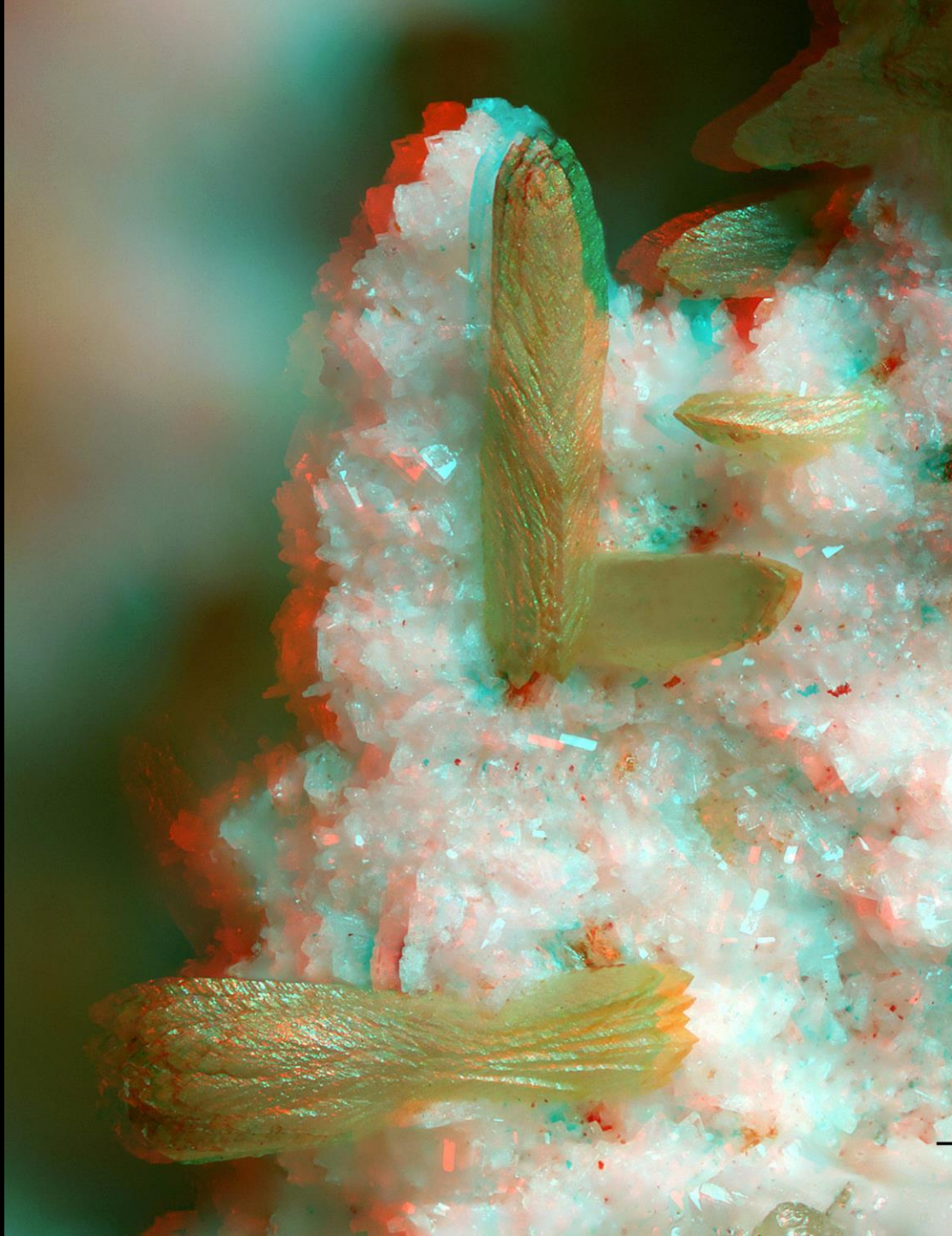
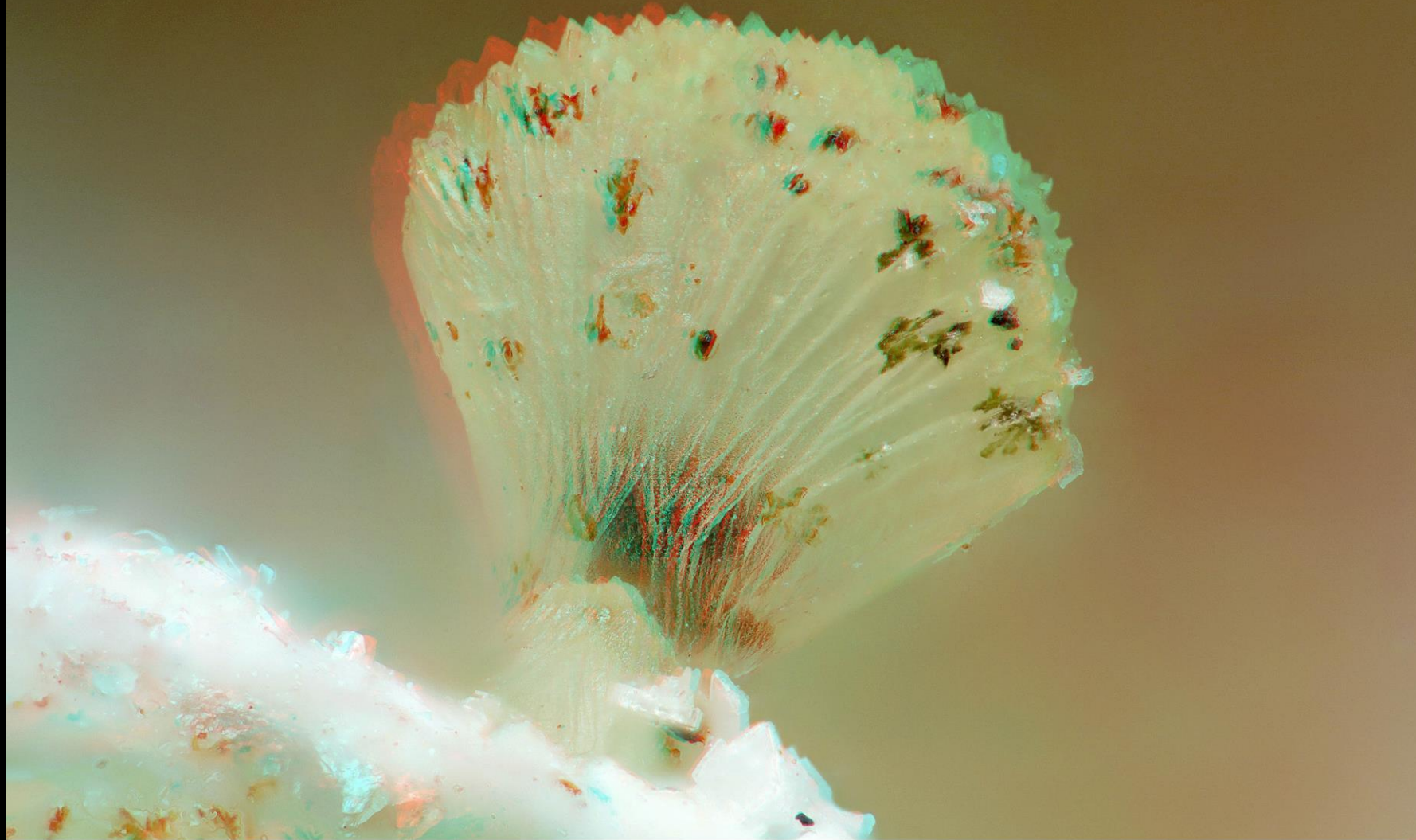


Fig. 25



0.1 mm

Smithsonite $Zn(CO_3)$

Field width 1.20 mm

Pale yellow-brown subparallel groups with dendritic iron oxyhydroxides.

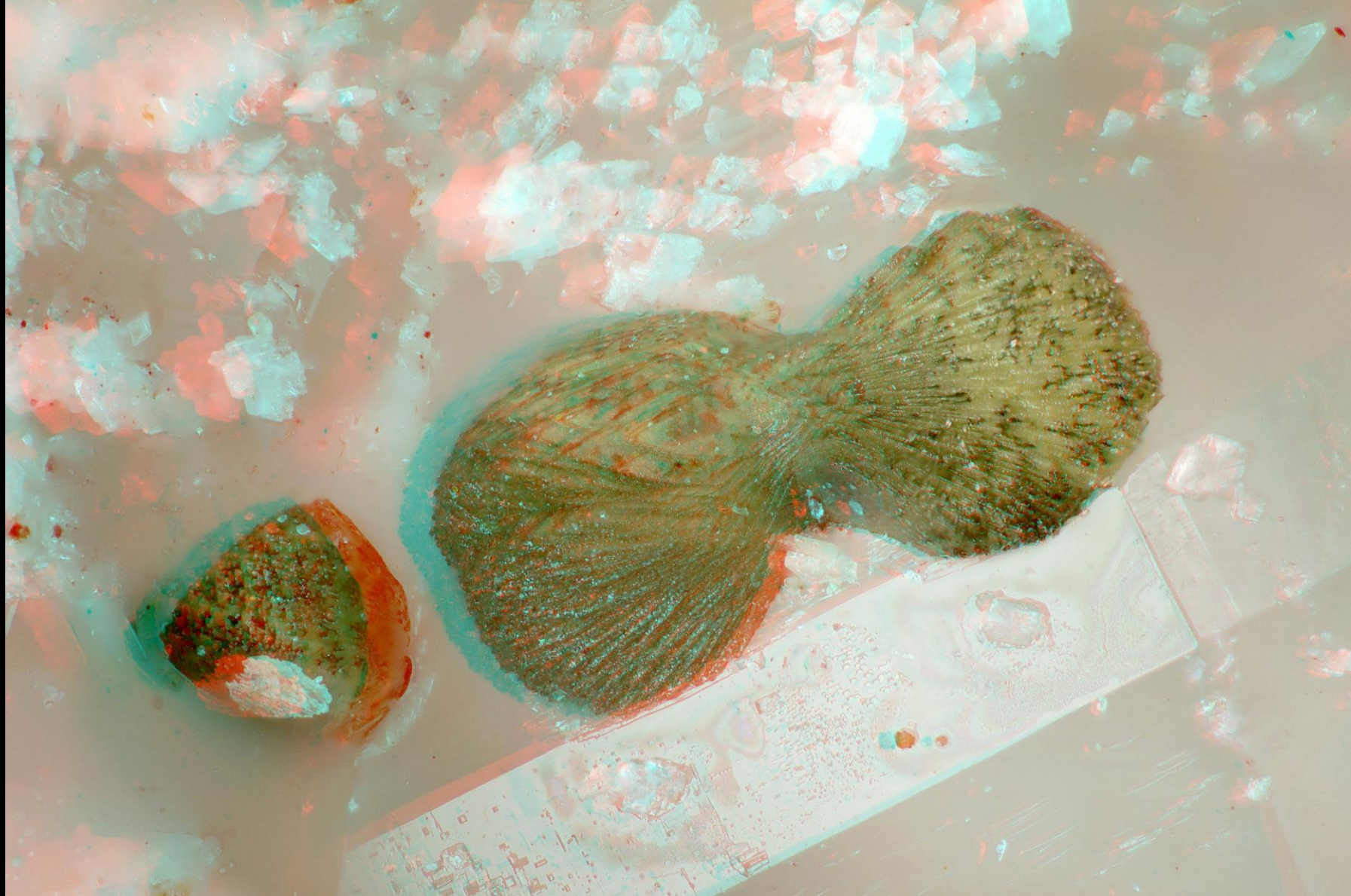
Anglezark area SD 630 164, near Chorley, Lancashire.

No. AZ018

Specimen: the late Keith Snell collection. Photography: John Chapman.

Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 156 and 155 4-micrometre steps at degrees via Stackshot rail, combined in CombineZM and rendered in Stereophotomaker.



0.1 mm

Smithsonite $\text{Zn}(\text{CO}_3)$

Field width 1.215 mm.

Asymmetrical bow tie group of pale brown subparallel crystals on baryte.

Fig. 26

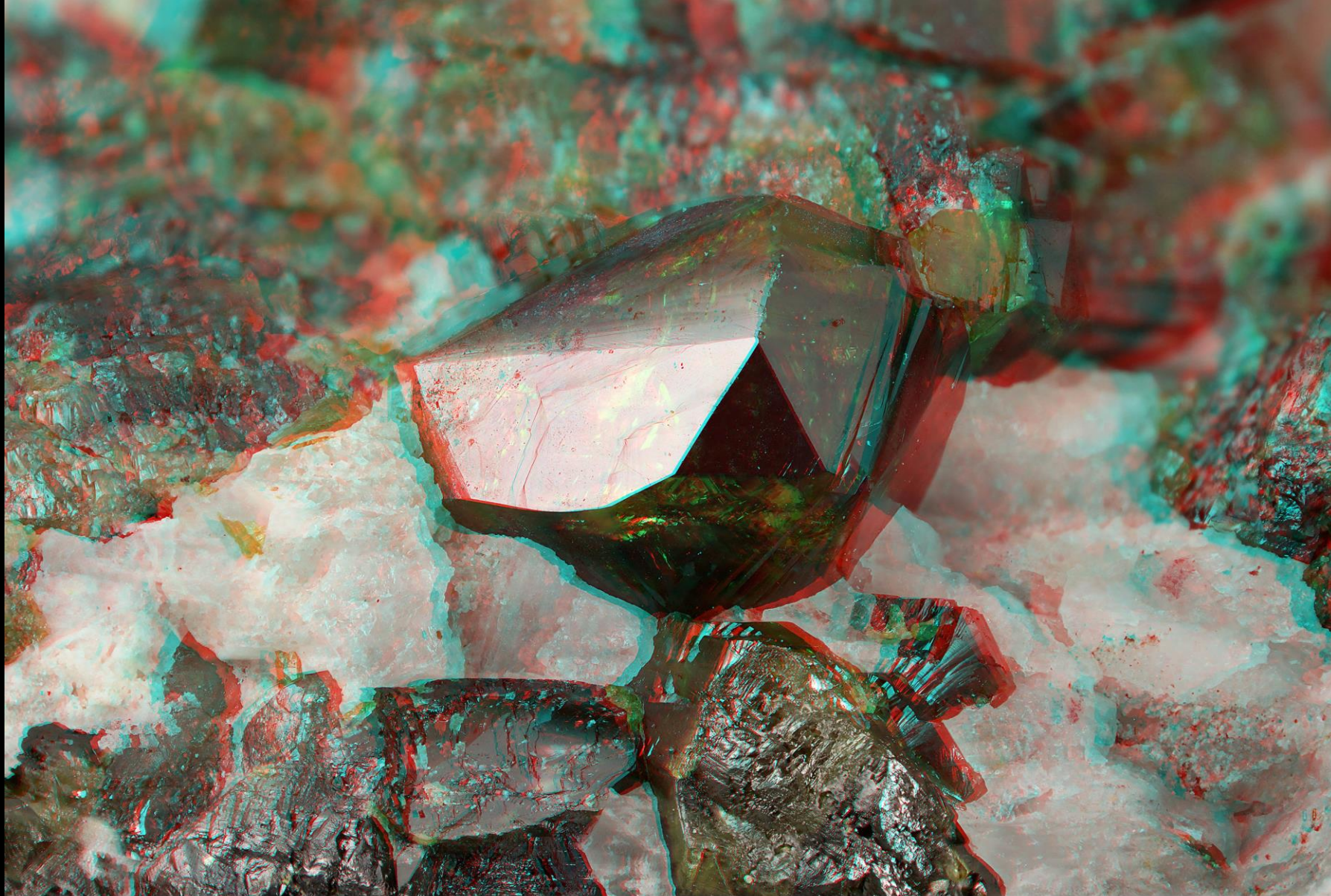
Anglezark area SD 630 164, near Chorley, Lancashire.

No. AZ018

Specimen: the late Keith Snell collection. Photography: John Chapman.

Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 142 and 159 4-micrometre steps at 6 degrees via Stackshot rail, combined in Combine ZM and rendered in Stereophotomaker.



1 mm

Sphalerite ZnS

Field width 12.2 mm

Dark grey-brown to orange and honey yellow idiomorphic crystals and botryoidal formations in a witherite matrix.

Fig. 27

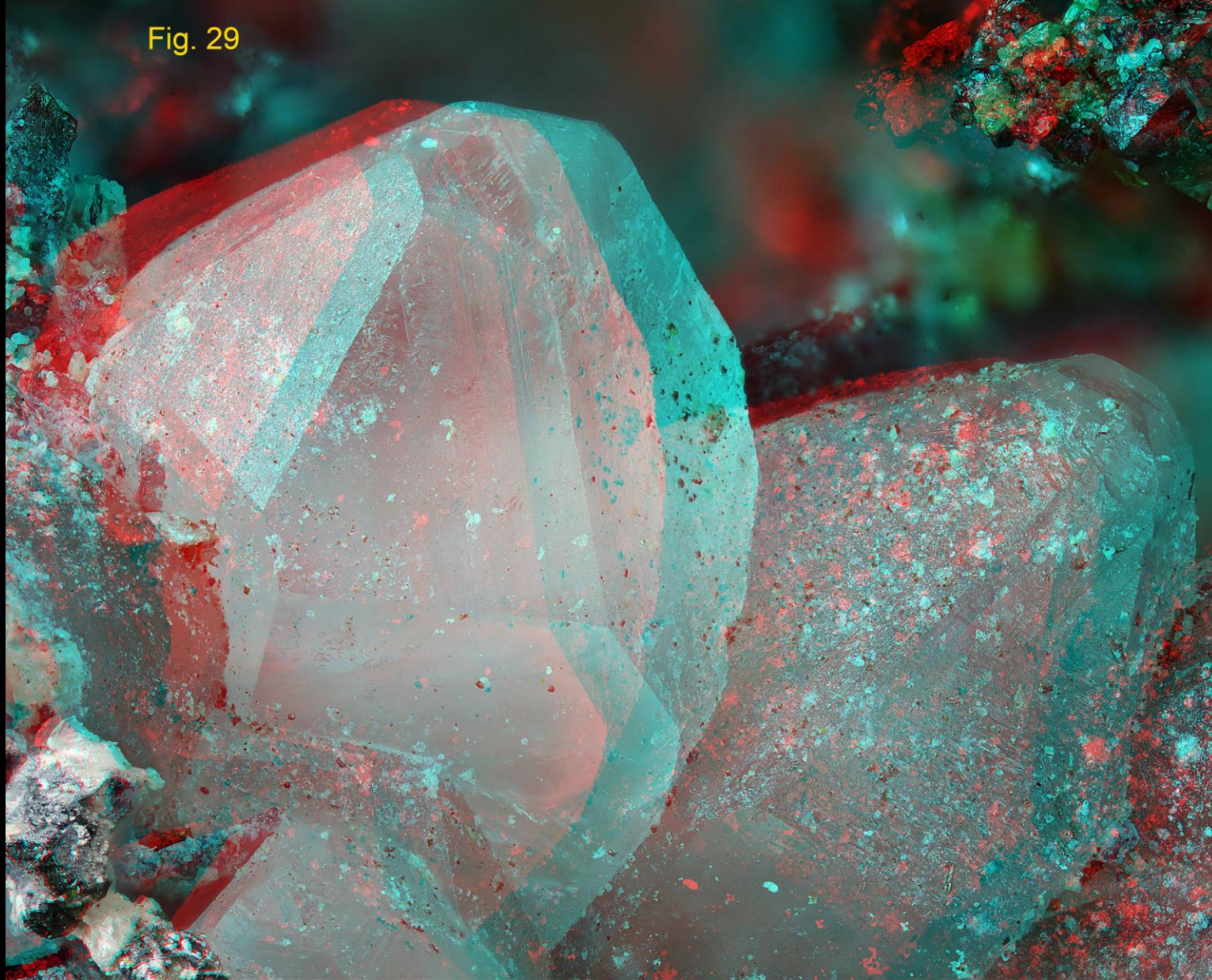
Anglezark area SD 630 164, near Chorley, Lancashire.

Specimen: the late Keith Snell collection, No. B261. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 64 and 53 50-micrometre steps at 6 degrees, with Luminar at fully open aperture, combined in CombineZM.

Fig. 29



1 mm

Witherite $\text{Ba}(\text{CO}_3)$

Field width 2.785 mm

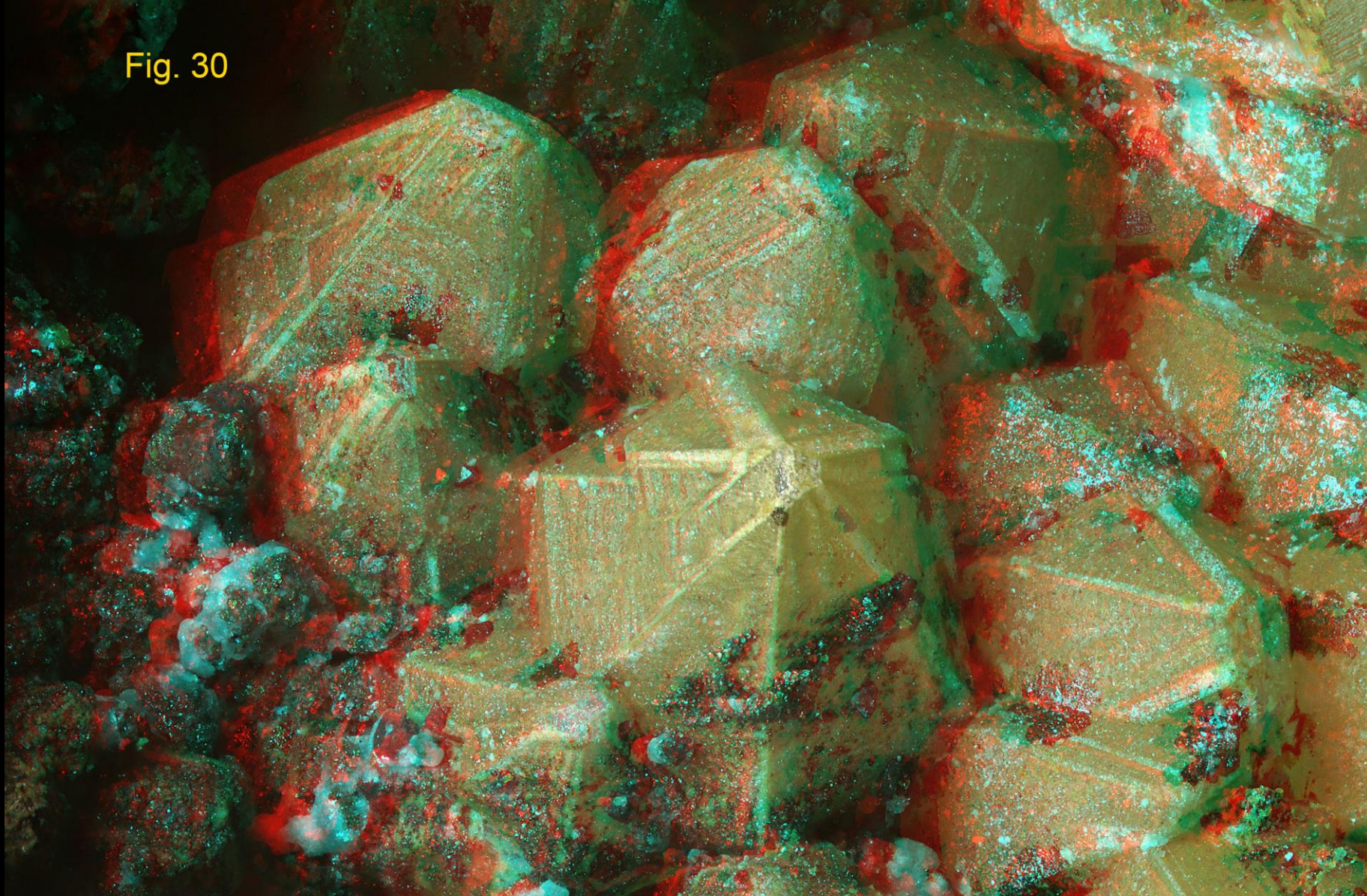
Prismatic crystals with pyramid terminations, possibly an unusual form of twinning, with adherent material.

Anglezark area SD 630 164, near Chorley, Lancashire.

Specimen: the late Keith Snell collection. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination. Left + right stacks of 134 and 129 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig. 30



1 mm

Witherite $\text{Ba}(\text{CO}_3)$

Field width 2.78 mm.

Pseudo-hexagonal crystals overgrown by yellow-brown iron oxyhydroxide, with marcasite and aurichalcite.

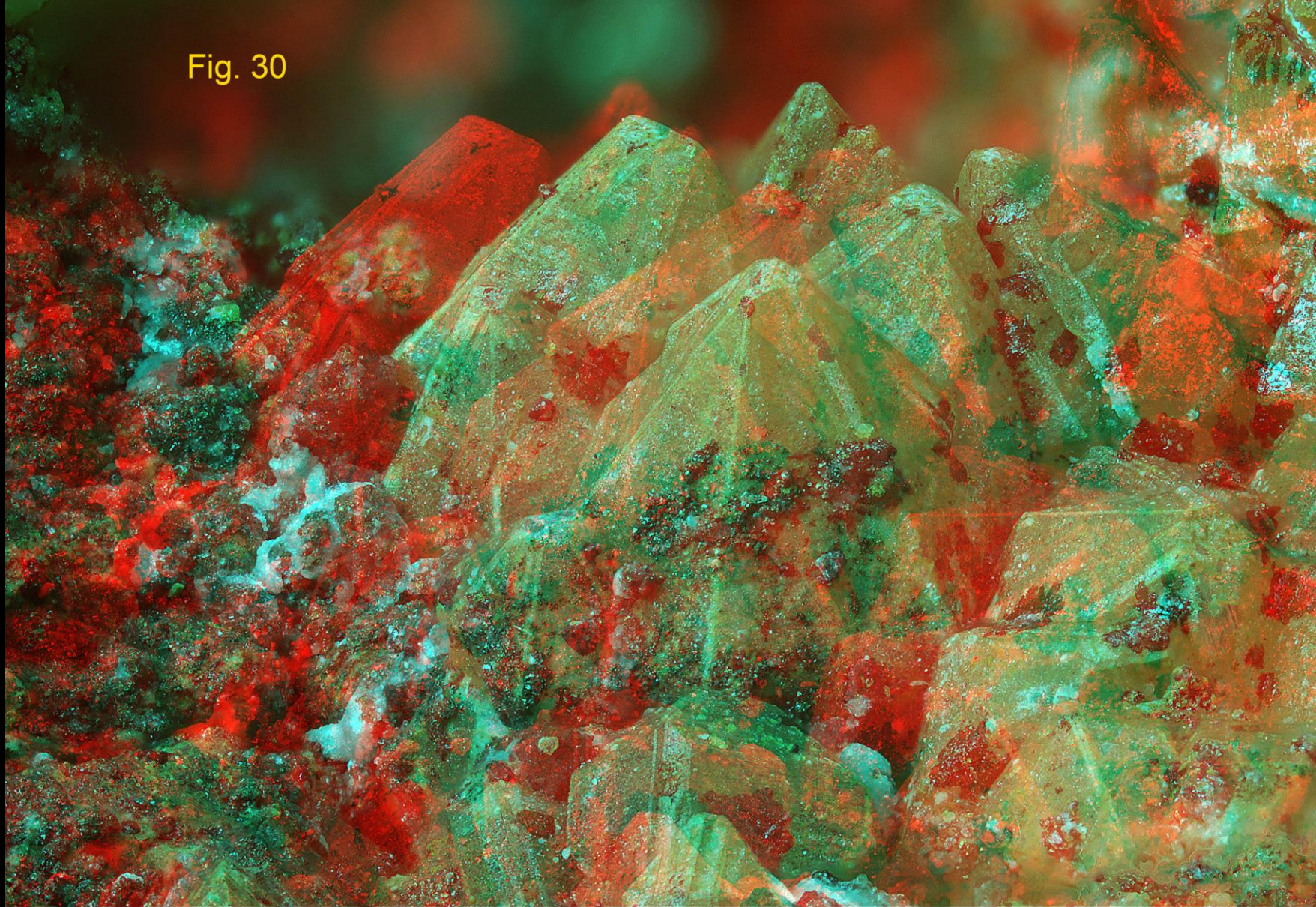
Anglezark area SD 630 164, near Chorley, Lancashire.

Specimen: the late Keith Snell collection, No. AZ022. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 223 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 120 and 133 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig. 30



1 mm

Witherite Ba(CO₃)

Field width 2.59 mm.

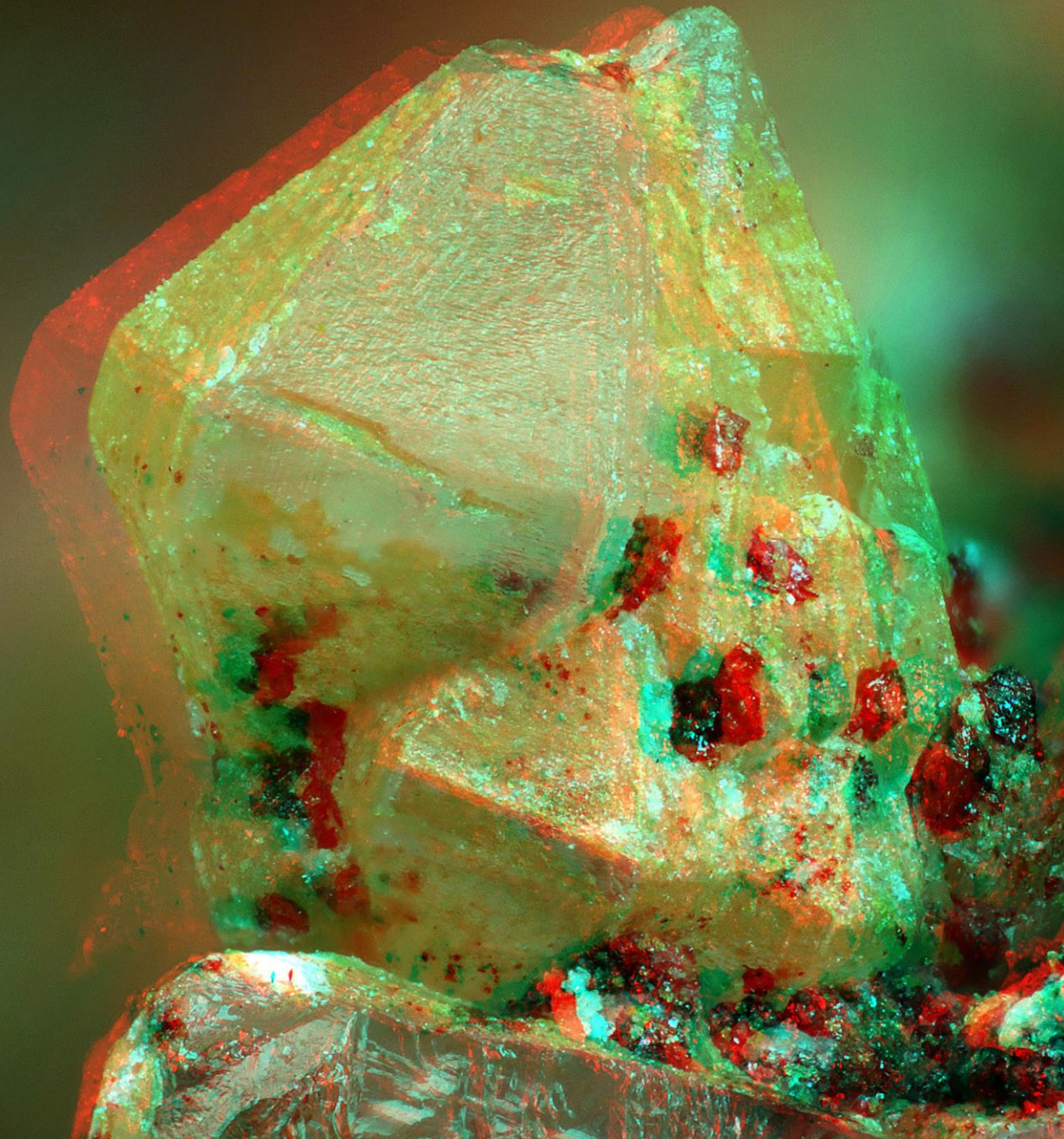
Pseudo-hexagonal crystals overgrown by yellow-brown iron oxyhydroxide, with marcasite and aurichalcite.

Anglezark area SD 630 164, near Chorley, Lancashire.

Specimen: the late Keith Snell collection, No. AZ022. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 223 mm bellows extension, with Schott fibre optic illumination. Left + right stacks of 189 and 201 15-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

Fig. 30



Witherite $\text{Ba}(\text{CO}_3)$

Crystal group with double terminations overgrown by yellow-brown iron oxyhydroxide, with marcasite and aurichalcite.

Anglezark area SD 630 164,
near Chorley, Lancashire.

Specimen: the late Keith Snell collection.
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany)
Luminar 16 mm objective lens on 175 mm bellows extension,
with Schott fibre optic illumination.

Left + right stacks of 85 and 98 10-micrometre steps at 6 degrees via
Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

0.1 mm

Field height 1.25 mm.

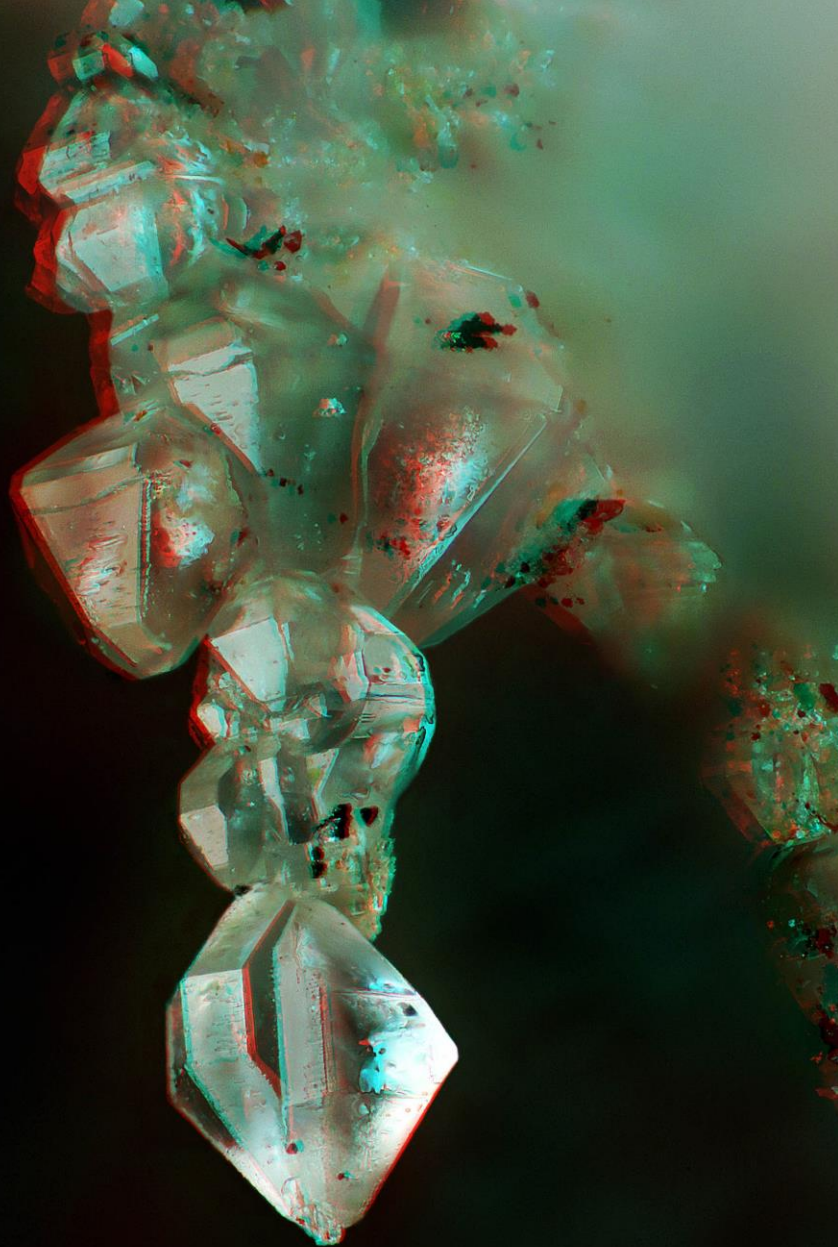


Fig. 31

Witherite $\text{Ba}(\text{CO}_3)$

Lustrous transparent pseudo-hexagonal crystals with prominent pyramid and small prism faces in stalagmitic formation.

Anglezarke area SD 6300 1683, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)02.

Photography: John Chapman.

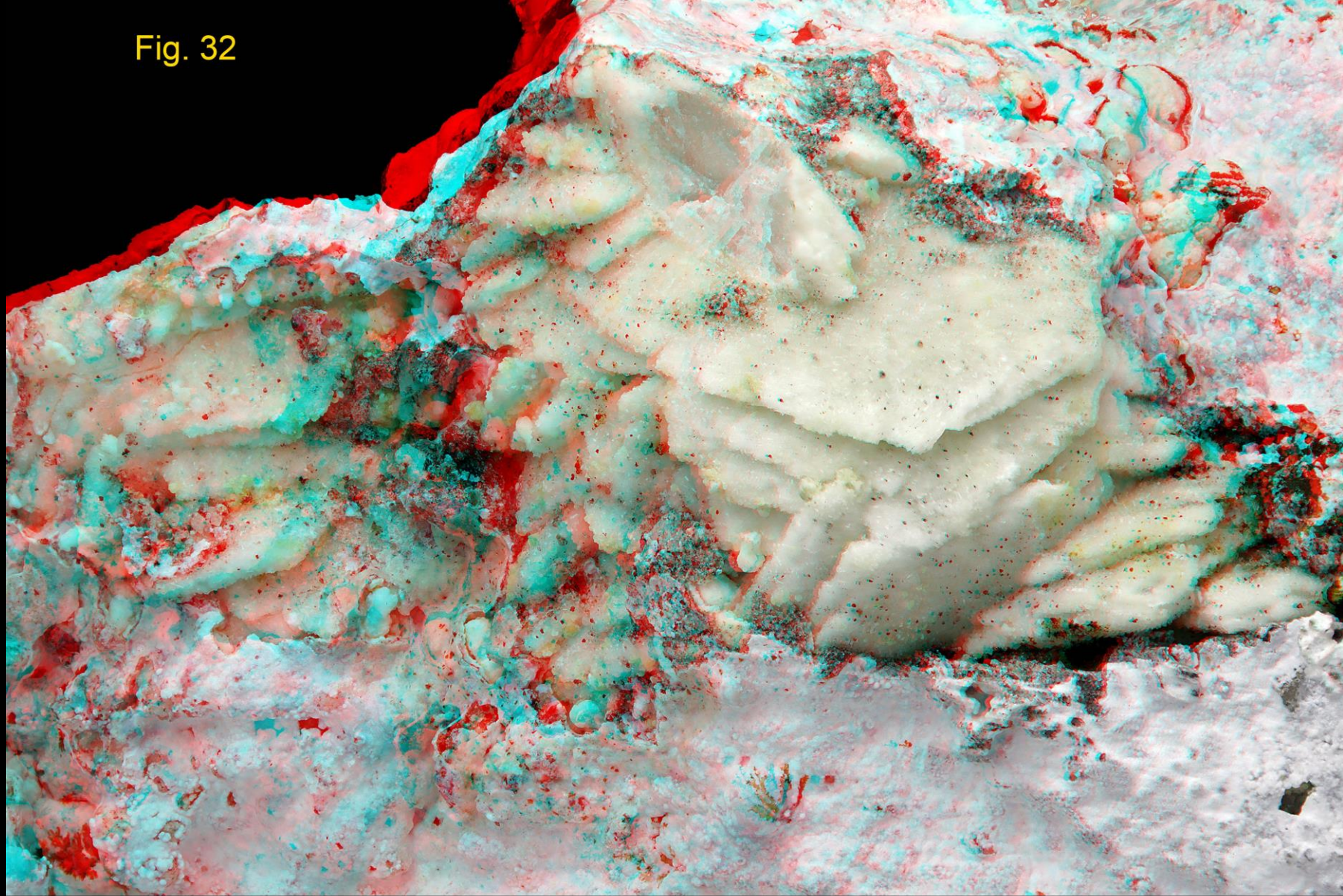
Canon EOS 5DSr camera with Leica 140x/0.40 objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 78 and 73 4-micrometre steps at 6 degrees via Stackshot rail, combined in CombineZM and rendered in Stereophotomaker.

0.1 mm

Field height 0.874 mm.

Fig. 32



1 mm

Witherite Ba(CO₃)

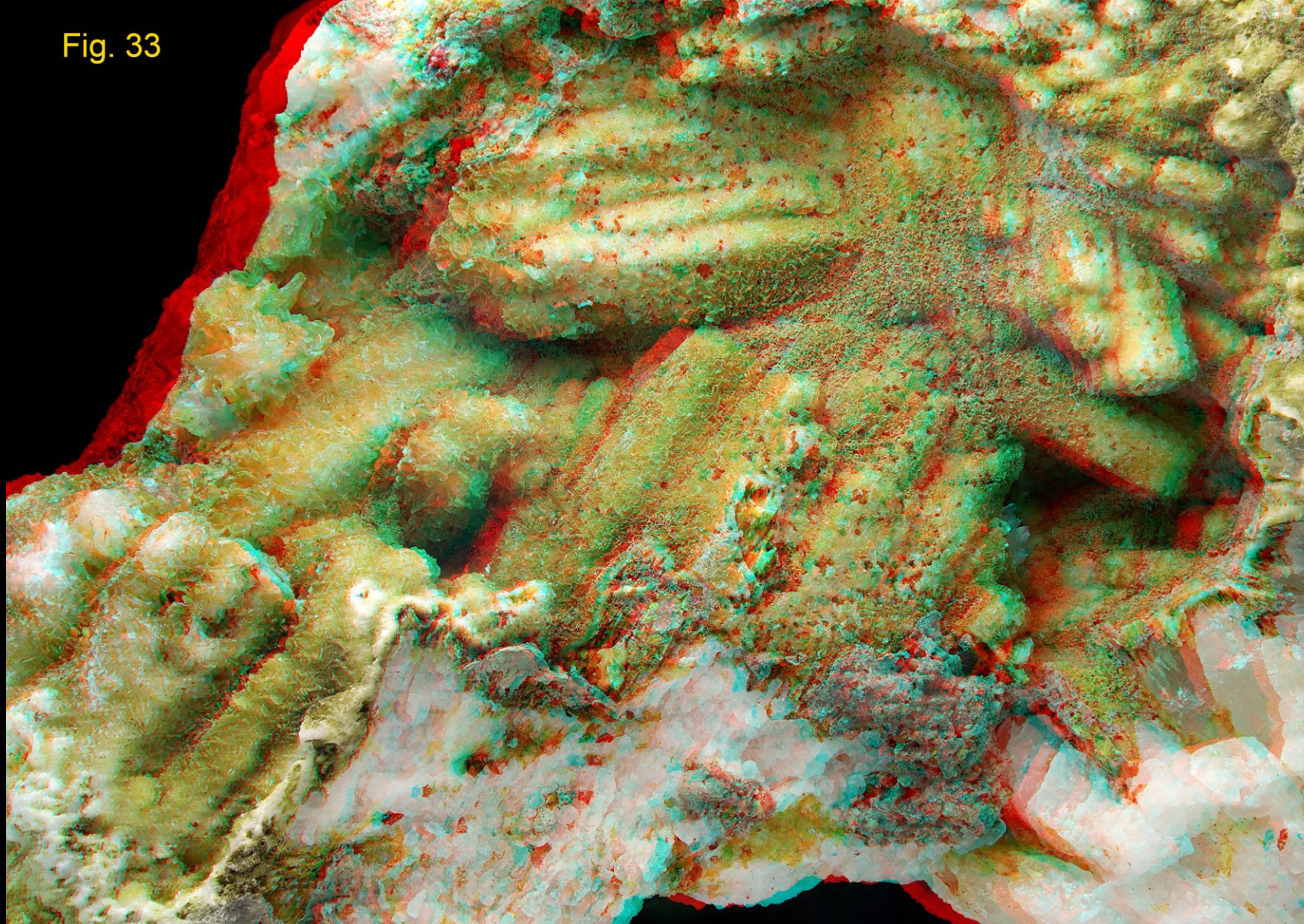
Field width 16.6 mm

Platy pseudo-hexagonal crystals partly pseudomorphed by drusy baryte on the outside of a block of massive coated with hydrozincite. Anglezarke area SD 6300 1683, near Chorley, Lancashire.

Specimen: found by Harry Critchley and in David Green collection, No. AZ075. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 110 mm bellows extension, with Schott fibre optic illumination. Left + right stacks of 128 and 141 70-micrometre steps at 6 degrees via Stackshot rail, with Luminar at aperture 1.5, combined in CombineZM.

Fig. 33



10 mm

Witherite $\text{Ba}(\text{CO}_3)$

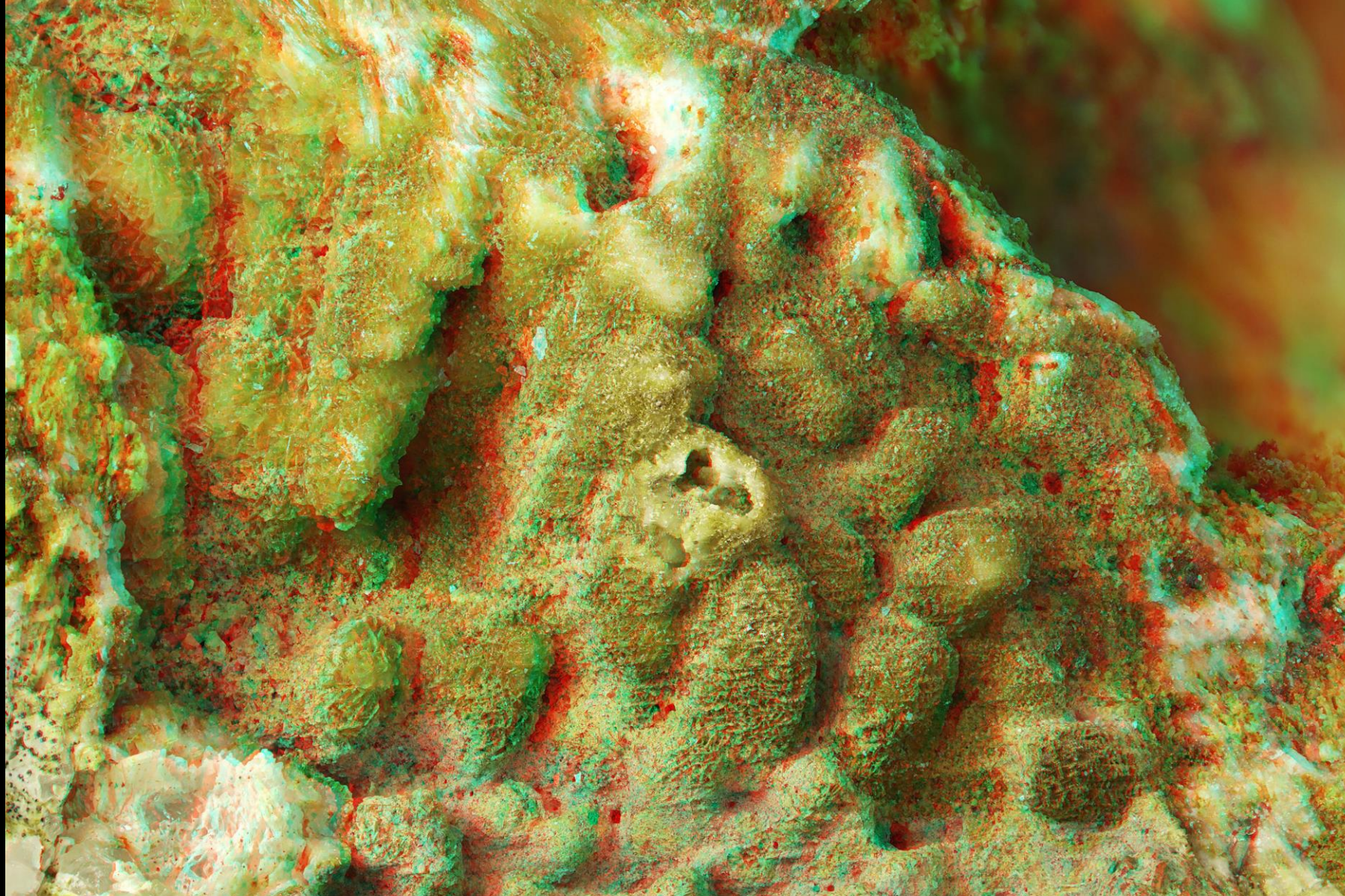
Field width 31.7 mm.

Prismatic columnar pseudo-hexagonal pseudomorphs with coating of iron-stained drusy baryte, the underlying witherite revealed in the broken section at bottom right. Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: David Green collection, No. AZ076. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 40 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 90 and 92 200-micrometre steps at 6 degrees via Stackshot rail, with Luminar at aperture 2, combined in CombineZM.



1 mm

Witherite Ba(CO₃)

Field width 13.2 mm.

Prismatic columnar pseudo-hexagonal pseudomorphs with coating of iron-stained drusy baryte.

Fig. 33

Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: David Green collection, No. AZ076. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 140 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 99 and 109 50-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM.

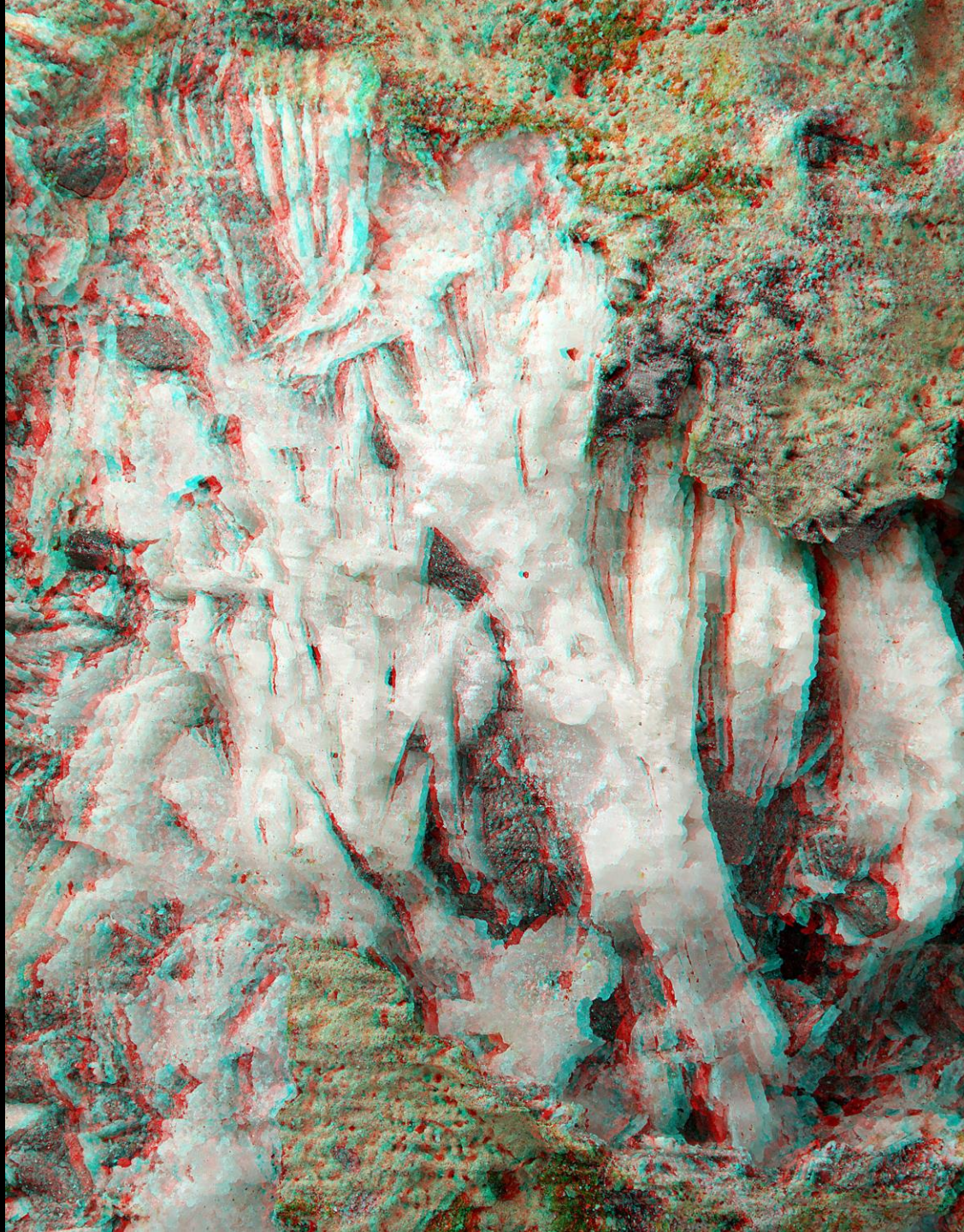


Fig. 34

Witherite $\text{Ba}(\text{CO}_3)$

Rather granular witherite replacing bladed baryte, preserving its original morphology.

Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: David Green collection, No. AZ030.

Photography: John Chapman.

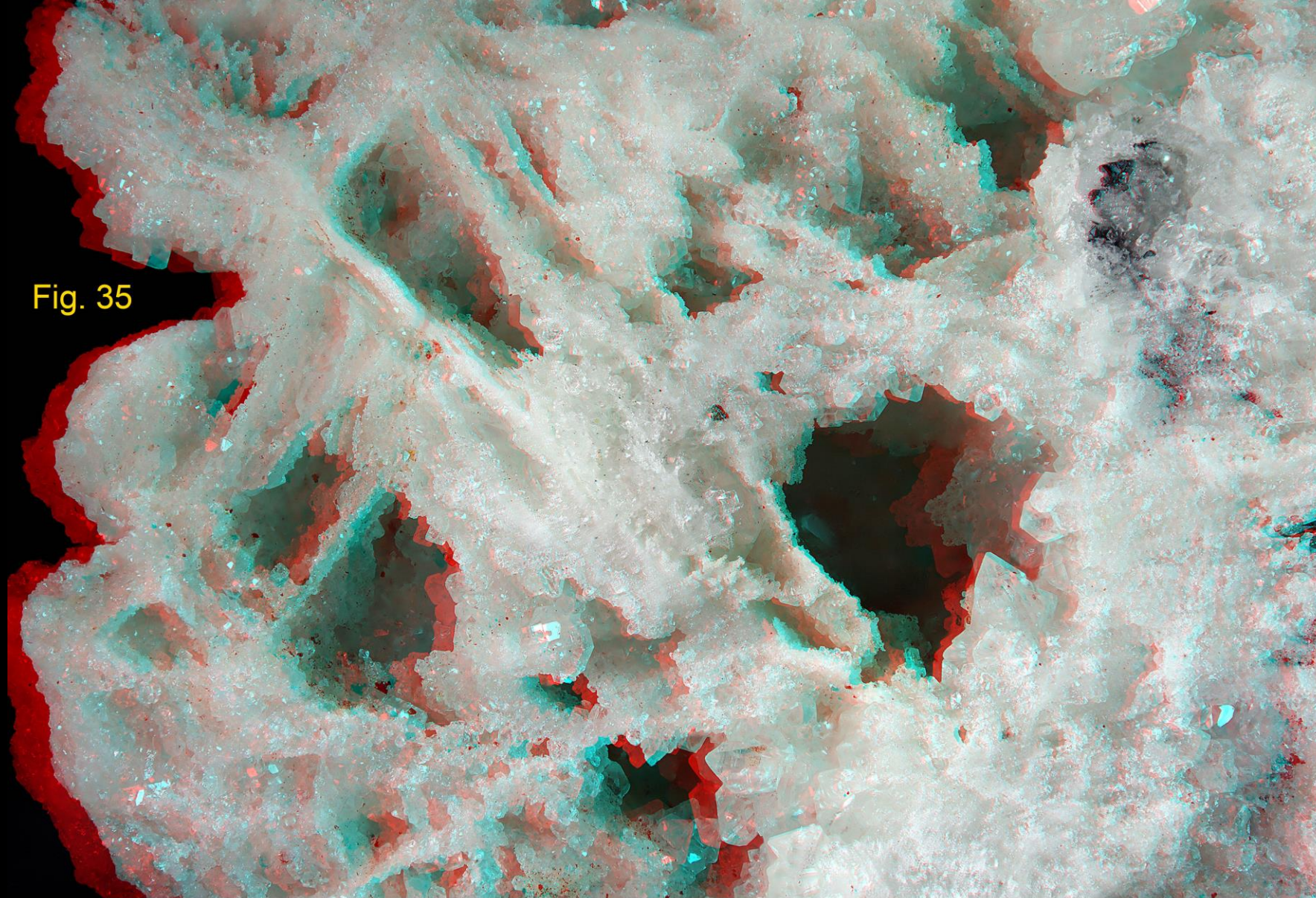
Canon EOS 5DSr camera with Carl Zeiss Luminar 63 mm objective lens on 100 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 71 and 69 80-micrometre steps at 6 degrees via Stackshot rail, with Luminar at aperture 1.5, combined in CombineZM.

1 mm

Field height 15.5 mm.

Fig. 35



1 mm

Witherite $\text{Ba}(\text{CO}_3)$

Field width 26.1 mm.

Lamellar formations possibly indicating positions of former baryte blades with cavities lined with colourless pyramidal crystals. Anglezarke area SD 630 164, near Chorley, Lancashire.

No. AZ(HC)02

Specimen: Harry Critchley collection. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 60 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 89 and 108 100-micrometre steps at 6 degrees via Stackshot rail, with Luminar at aperture 2, combined in CombineZM.

Fig. 35

Witherite $\text{Ba}(\text{CO}_3)$

Lamellar formations of almost pure witherite containing polyhedral cavities lined with drusy bipyramidal crystals divided by 'curtains', possibly representing positions of former baryte crystals.

Anglezarke area SD 630 164, near Chorley, Lancs.

Specimen: Harry Critchley collection, No. AZ(HC)02.

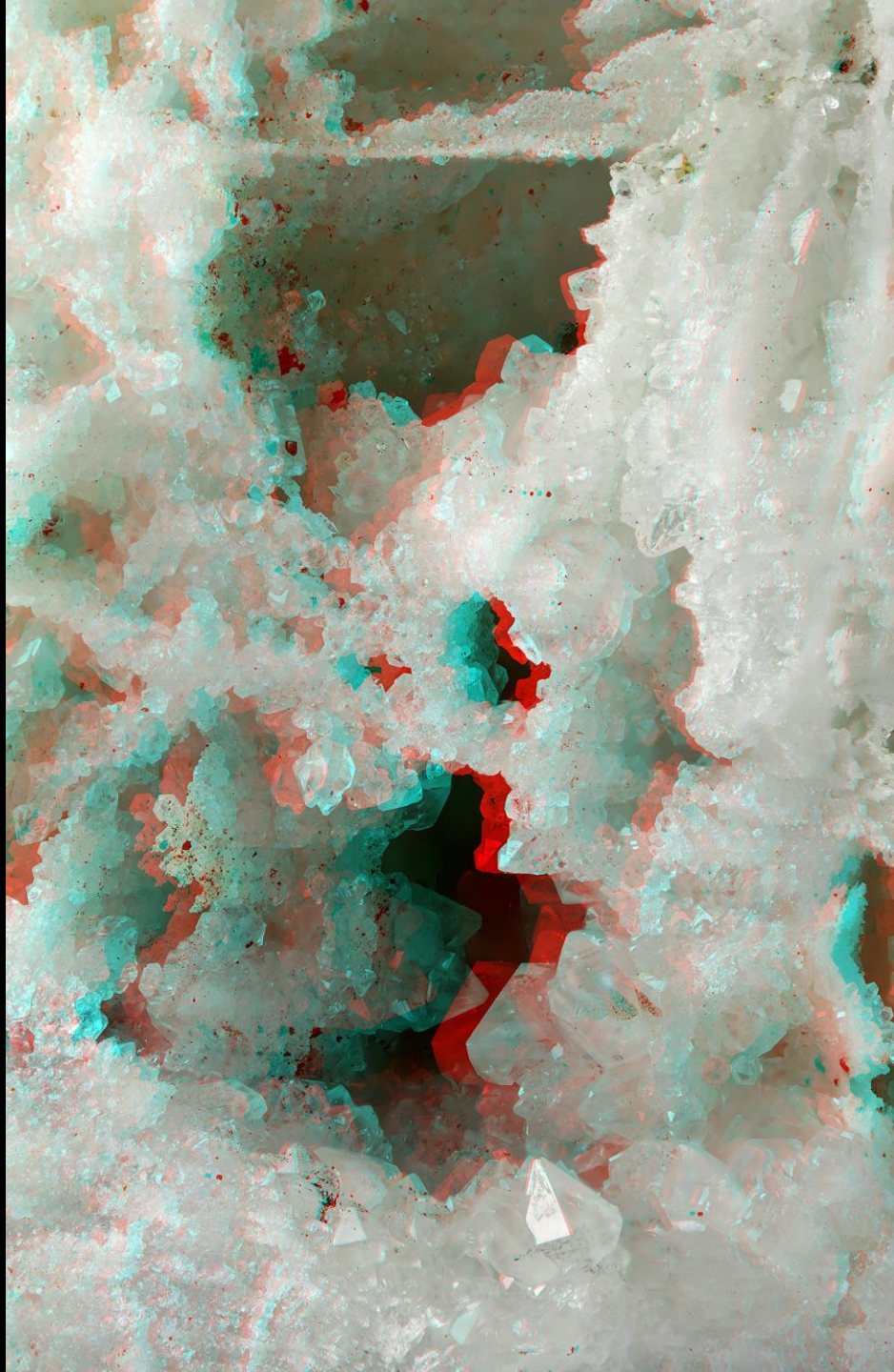
Photography: John Chapman.

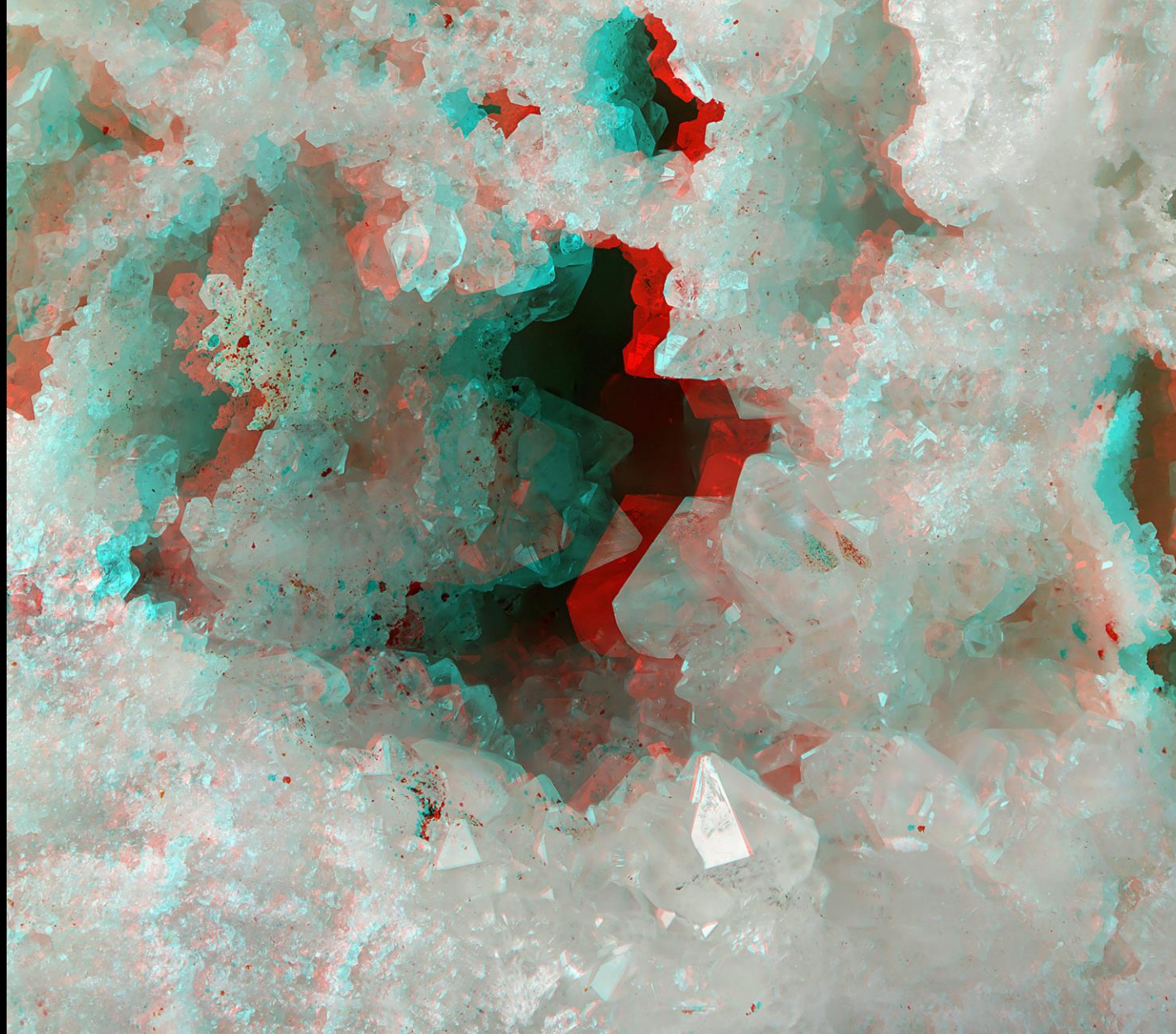
Canon EOS 5DSr camera with Carl Zeiss Luminar 63 mm objective lens on 140 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 71 and 75 100-micrometre steps at 6 degrees via Stackshot rail, with Luminar at aperture 1.5, combined in CombineZM.

1 mm

Field height 13.4 mm.





1 mm

Fig. 35

Witherite $Ba(CO_3)$

Field width 8.68 mm.

Almost pure witherite containing cavities lined with dusy bipyramidal crystals divided by 'curtains' which may represent positions of former thin baryte crystals. Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: Harry Critchley collection, No. AZ(HC)02. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 140 mm bellows extension, with Schott fibre optic illumination. Left + middle stacks of 71 and 89 100-micrometre steps at 4 degrees via Stackshot rail, with Luminar at aperture 1.5, combined in CombineZM.

Fig. 35

Witherite $\text{Ba}(\text{CO}_3)$

Unaltered lustrous colourless transparent
pseudo-hexagonal pyramids with short prisms.

Anglezarke area SD 630 164, near Chorley, Lancashire.

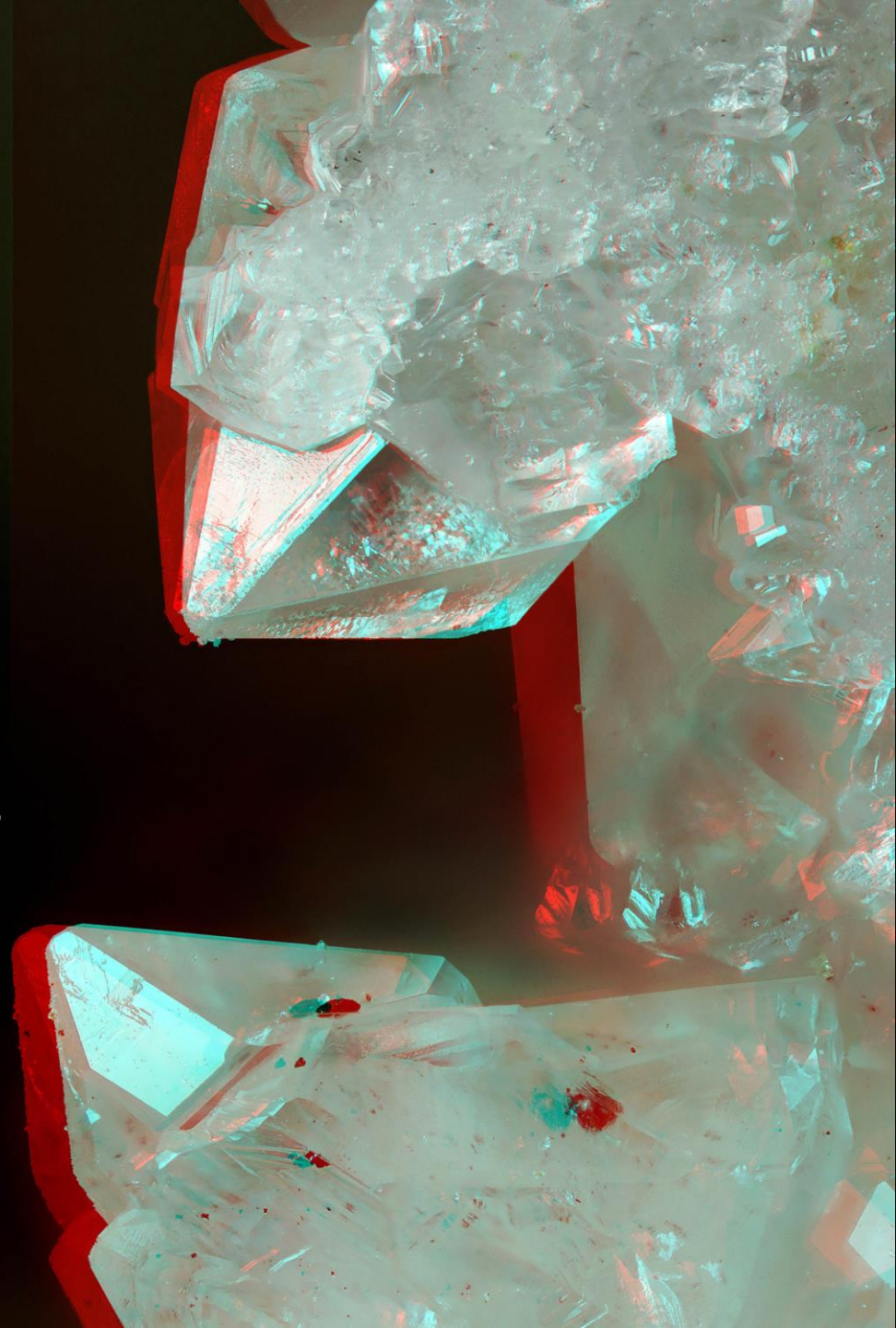
Specimen: Harry Critchley collection. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss Luminar 25 mm objective lens on
175mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 111 and 108 20-micrometre steps at 6 degrees via Stackshot rail,
with Luminar at fully open aperture, combined in CombineZM.

1 mm

Field height 2.68 mm.



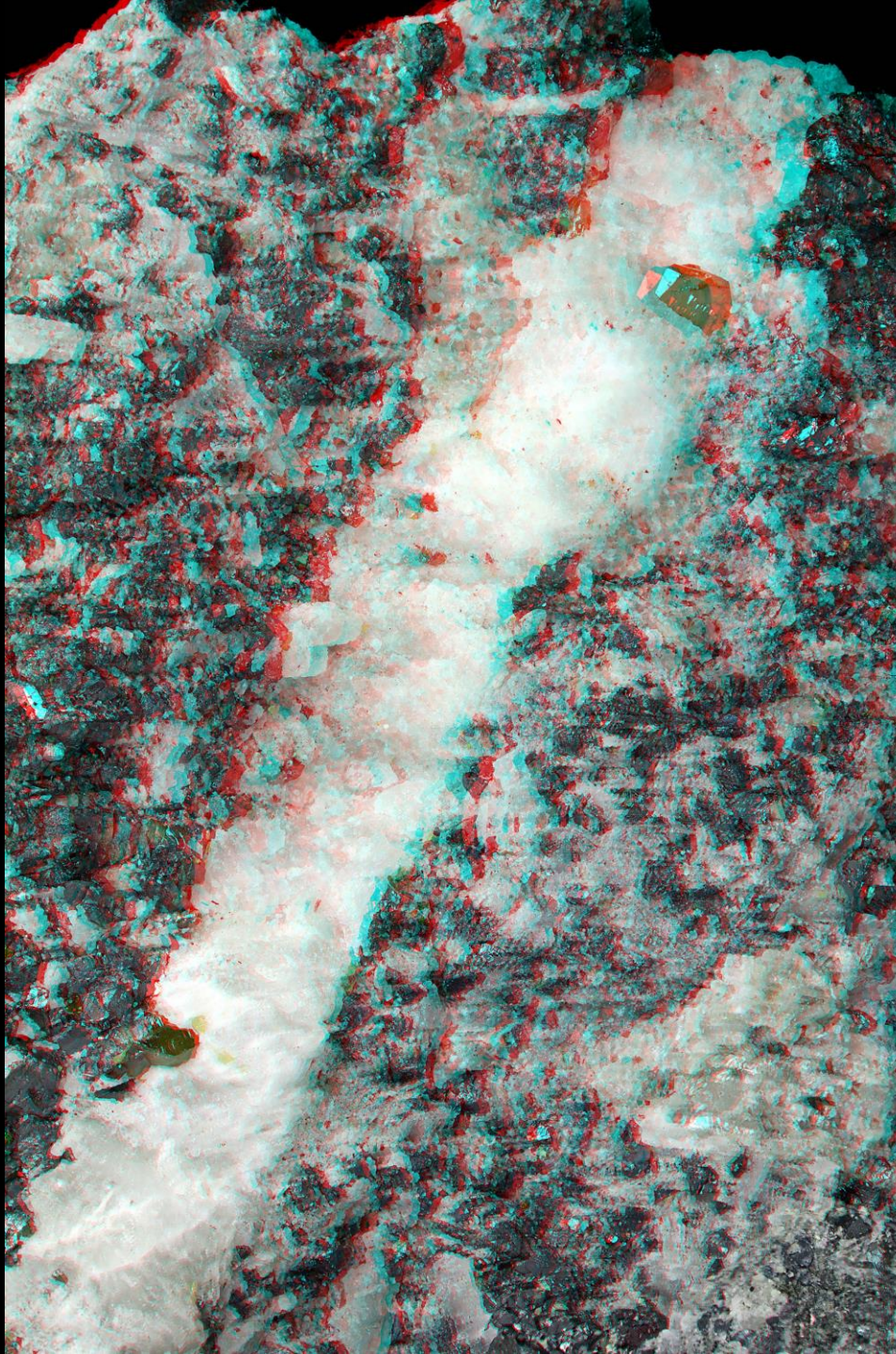


Fig. 36

Witherite $\text{Ba}(\text{CO}_3)$

A vein of rather granular witherite with pale brown sphalerite cutting through an earlier clast in which witherite and dark sphalerite replace baryte.

Anglezarke area SD 630 164, near Chorley, Lancashire.

Specimen: David Green collection, No. AZ033.

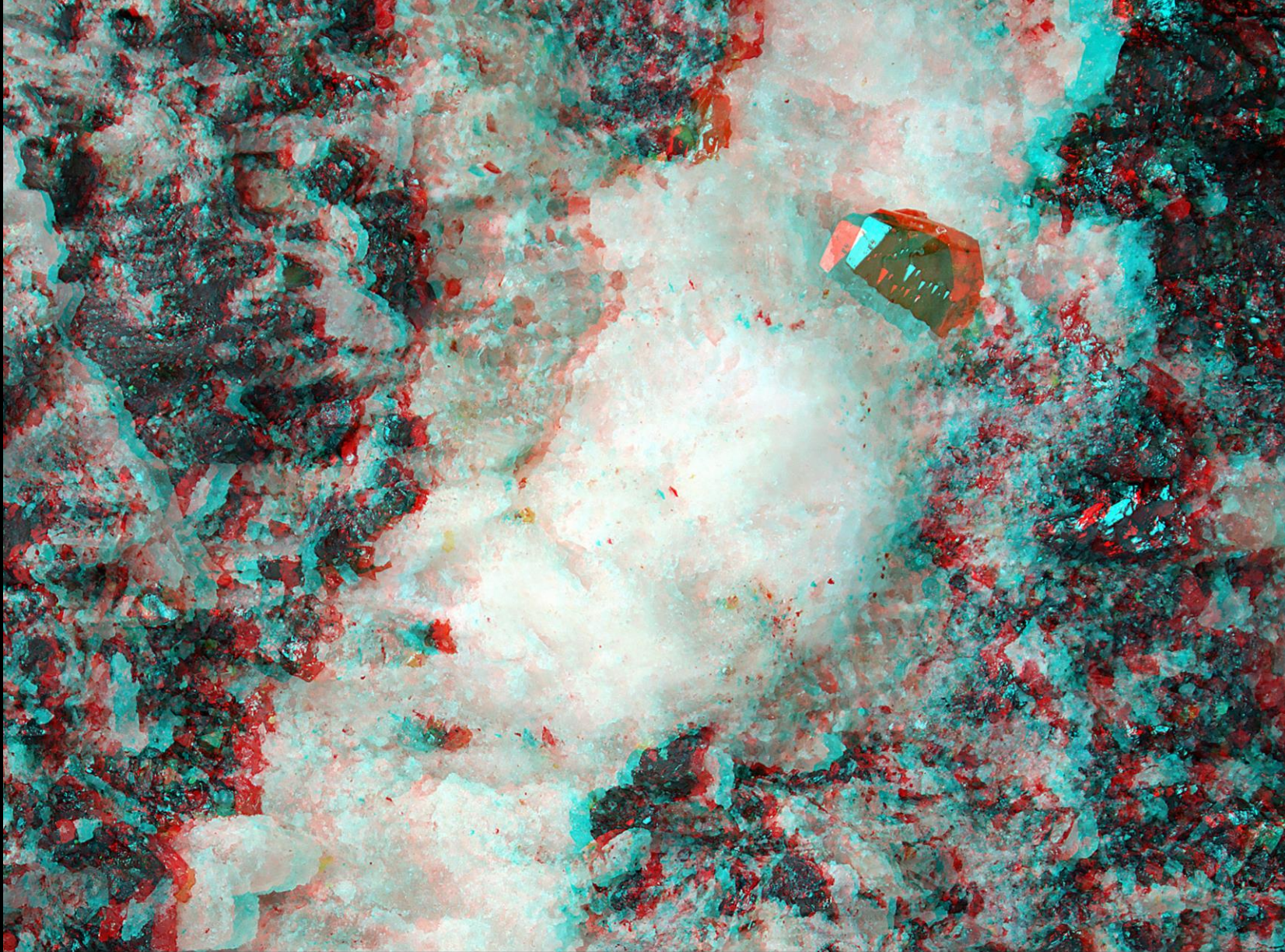
Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss Luminar 63 mm objective lens on 150 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 98 and 89 50-micrometre steps at 6 degrees via Stackshot rail, with Luminar at aperture 1.5, combined in CombineZM and rendered in Stereophotomaker.

1 mm

Field height 12.7 mm.



1 mm

Fig. 36

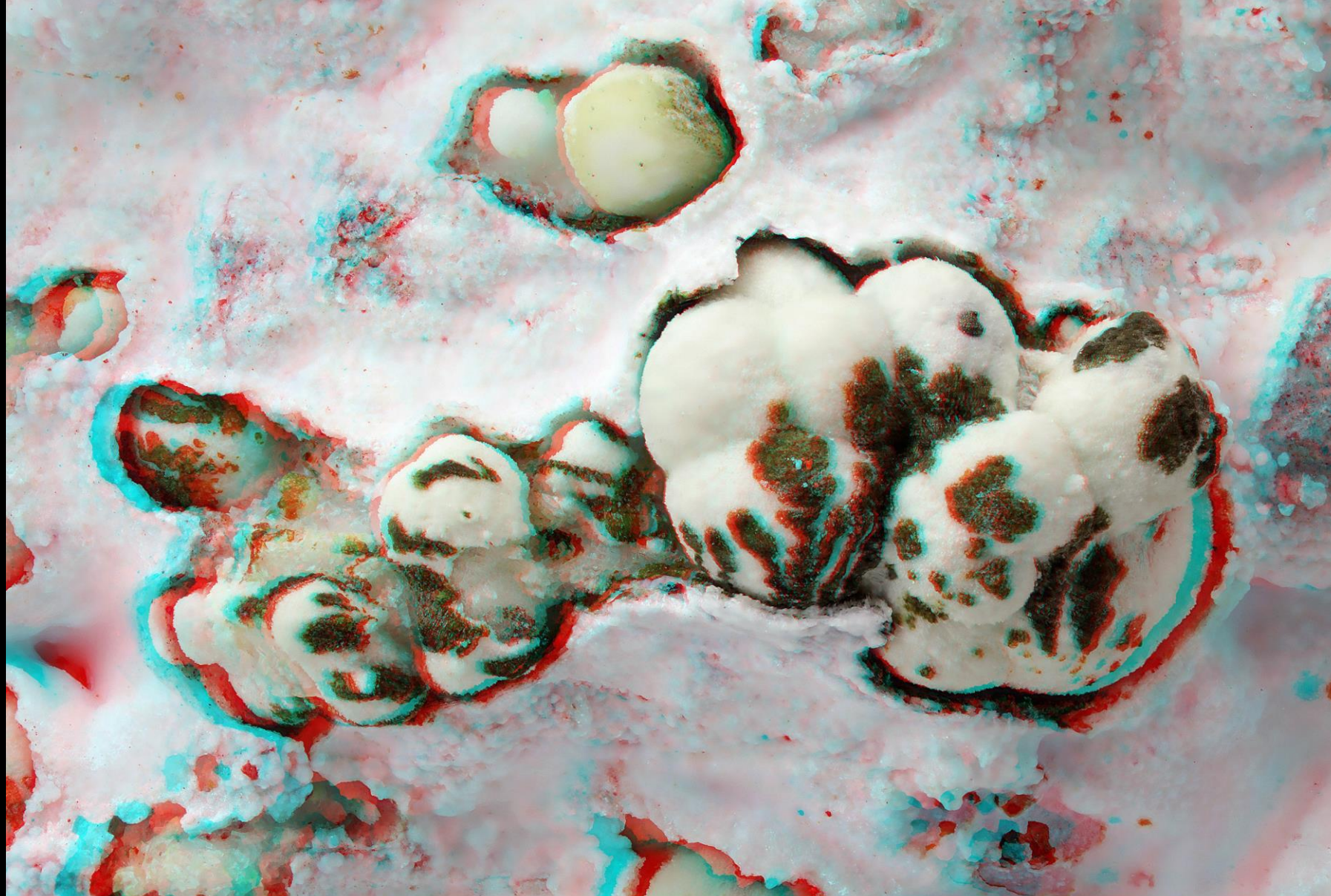
Witherite Ba(CO₃)

Field width 6.70 mm

A vein of rather granular witherite with pale yellow-brown sphalerite cutting through an earlier clast in which witherite and dark sphalerite replace baryte. Anglezarke area SD 630164, near Chorley, Lancashire.

Specimen: David Green collection, No. AZ033. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 63 mm objective lens on 150 mm bellows extension, with Schott fibre optic illumination. Left + right stacks of 98 and 89 50-micrometre steps at 6 degrees via Stackshot rail, with Luminar at aperture 1.5, combined in CombineZM.



1 mm

Smithsonite $Zn(CO_3)$

Field width 3.60 mm.

Spherulites with dendritic iron oxyhydroxides overgrown by hydrozincite that avoids deposition on the smithsonite.

Fig. 41

Anglezarke area SD. 6300 1683, near Chorley, Lancashire.

Specimen: found by Harry Critchley and in David Green collection, No. AZ075. Photography: John Chapman.

Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination.

Left + right stacks of 79 and 91 20-micrometre steps at 6 degrees via Stackshot rail, with Luminar at fully open aperture, combined in CombineZM