

→ W.H. Hewitt

Schroeter, Tom EMPR:EX

889481

From: Schroeter, Tom EMPR:EX
Sent: Thu, November 2, 2006 12:34 PM
To: 'Robin Day'
Cc: Grieve, Dave A EMPR:EX
Subject: RE: Emailing: 060844 robinday, 060844 robinday blocks, 060844 robinday sections, 060884-01, 060884-02, 060884-03, 060884-04, 060884-05

Thanks very much, Robin - great photos. Look forward to looking more closely at info.

Tom

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Geological Survey Branch
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From: Robin Day [mailto:robinday@shaw.ca]
Sent: Thu, November 2, 2006 11:57 AM
To: Schroeter, Tom EMPR:EX
Cc: Grieve, Dave A EMPR:EX
Subject: Emailing: 060844 robinday, 060844 robinday blocks, 060844 robinday sections, 060884-01, 060884-02, 060884-03, 060884-04, 060884-05

Tom and Dave,

As promised, here is the Kaslo petrology. The massive sulphide sample has to be due to secondary, not primary, magmatic processes because no known magmatic sulphide deposits contain this much pentlandite (~55%).

cheers,
Robin

The message is ready to be sent with the following file or link attachments:
060844 robinday
060844 robinday blocks
060844 robinday sections

2006-11-02

060884-01
060884-02
060884-03
060884-04
060884-05

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Report 060844 for

Robin Day,
13416 – 103 Ave,
Edmonton, AB, T5N 0S4

October 2006

Samples: RR-16, RR-19, (RR-20)

Note: No section could be made from the small sample of RR-20 submitted.
A second piece of this sample will be submitted and reported on later.

Summary:

Sample RR-16 is of harzbergite peridotite consisting of olivine (altered completely to pale green antigorite and minor to abundant disseminated magnetite) and lesser orthopyroxene (altered to pale yellowish green bastite serpentine with magnetite disseminated or concentrated along margins of grains). A vein is of antigorite that is free of magnetite.

Sample RR-19 is mainly a massive sulphide dominated by pentlandite with lesser magnetite and pyrrhotite. Towards one end of the section are abundant lenses and patches of chlorite-(talc) and much less abundant ones of host rock serpentinite and of carbonate intergrown with sulphide patches and lenses. Pyrrhotite forms intimate intergrowths with pentlandite in a few patches and forms wispy selvages along pentlandite grain borders. Minor bornite and trace chalcopyrite occur in seams along pentlandite grain borders. Pyrite forms scattered anhedral grains. A few patches are of serpentinite consisting of antigorite and magnetite (after olivine).

Photographic Notes:

The scanned sections show the gross textural features of the sections; these features are seen much better on the digital image than on the printed image. Sample numbers are shown in or near the top left of the photos and photo numbers at or near the lower left. The letter in the lower right-hand corner indicates the lighting conditions: P = plane light, X = plane light in crossed nicols, R = reflected light, RP = reflected light and plane light, RX = reflected light (uncrossed nicols) and transmitted light in crossed nicols. Locations of digital photographs (by photo number) are shown on the scanned sections. Descriptions of individual photographs are given at the end of the report.

John G. Payne, Ph.D., P.Geol.
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email: jgpayne@telus.net

Sample RR-16

Harzburgite Peridotite

Alteration: Serpentine (Antigorite, Bastite)-Magnetite

Vein: Antigorite

The sample is of harzburgite peridotite consisting of olivine (altered completely to pale green antigorite and minor to abundant disseminated magnetite) and lesser orthopyroxene (altered to pale yellowish green bastite serpentine with magnetite disseminated or concentrated along margins of grains). A vein is of antigorite that is free of magnetite.

mineral	percentage	main grain size range (mm)
olivine	78-80%	0.5-1.5
orthopyroxene	15-17	0.7-2
magnetite	2- 3	0.02-0.05
pyrite	trace	0.02-0.03
vein		
antigorite	3- 4	0.05-0.2

Olivine forms equant, anhedral grains that were altered completely to unoriented intergrowths of antigorite and wispy patches and trains of magnetite. Some olivine grains contain much more abundant magnetite than others.

Orthopyroxene forms subhedral equant to prismatic grains that were altered completely to serpentine with a bastite texture. In one grain, the bastite texture was warped moderately. In some grains, magnetite forms abundant disseminated inclusions. In others, magnetite is concentrated in a rim along the margin of the grains and is relatively absent in the interior.

Magnetite forms anhedral grains and patches of grains interstitial to olivine and orthopyroxene; some of this may represent original chromite (altered to magnetite) or may represent magnetite formed by the release of iron from olivine and orthopyroxene during serpentinization.

Pyrite forms a few anhedral grains.

A vein up to 1 mm wide is of antigorite in which many of the grains are oriented subperpendicular to the length of the vein. It is conspicuously free of magnetite.

Sample RR-19**Massive Sulphide: Pentlandite-Pyrrhotite-Magnetite-Chlorite-Carbonate
Host Rock: Serpentinite**

The sample is mainly a massive sulphide dominated by pentlandite with lesser magnetite and pyrrhotite. Towards one end of the section are abundant lenses and patches of chlorite-(talc) and much less abundant ones of host rock serpentinite (antigorite with minor magnetite) and of carbonate intergrown with sulphide patches and lenses. Pyrrhotite forms intimate intergrowths with pentlandite in a few patches and forms wispy selvages along pentlandite grain borders. Minor bornite and trace chalcopyrite occur in seams along pentlandite grain borders. Pyrite forms scattered anhedral grains.

mineral	percentage	main grain size range (mm)
pentlandite	50-55%	0.15-0.3
chlorite	17-20	0.1-1.7
magnetite	15-17	0.05-0.3
pyrrhotite	5- 7	0.02-0.2
antigorite	3- 4	0.02-0.1
calcite	1- 2	0.3-2
talc	0.3	0.05-0.1
bornite	0.1	0.02-0.05
pyrite	minor	0.02-0.05 (a few up to 0.1 mm)
chalcopyrite	trace	0.02-0.04

Pentlandite forms anhedral, equant grains that are intergrown coarsely with magnetite; grain borders between the two commonly are curved.

Several patches and lency zones up to 0.5 mm across and 2 mm long consist of intimate intergrowths of pyrrhotite and pentlandite in variable amounts. Near many of these patches and less commonly elsewhere in the rock, pyrrhotite forms wispy replacement stringers and seams along fractures and grain borders in pentlandite. Pyrrhotite contains a network of irregular fractures along which it was altered to iron oxides.

Magnetite forms anhedral, equant grains and clusters of grains that are intergrown coarsely with sulphide patches. Some grains contain 2-5% inclusions (0.02-0.03 mm) of pentlandite.

Bornite and minor chalcopyrite form irregular lenses interstitial to pentlandite and in part associated with pyrrhotite.

Pyrite forms scattered anhedral grains mainly included in pentlandite.

Interstitial patches and lenses up to a few mm across are mainly of pale greyish green chlorite with either brown or anomalous blue birefringence colours. In a few patches, minor to moderately abundant antigorite is intergrown with chlorite. Some chlorite patches contain wispy lenses of magnetite. Several chlorite patches contain minor flakes of talc.

Calcite forms a few interstitial patches up to 2 mm across; some of these consist of single grains with minor to moderately abundant inclusions of pentlandite and magnetite.

A few subrounded to lency patches up to 3 mm in size are of olivine that was altered completely to antigorite with disseminated grains and trains of magnetite.

List of Photographs

Photo	Sample	Description
01	RR-16	to the left: orthopyroxene altered to serpentine with a bastite texture and minor disseminated magnetite; in the centre: veinlike zone of magnetite along the mineral contact; to the right: olivine altered to unoriented antigorite and disseminated patches and seams of magnetite.
02	RR-16	olivine (altered completely to unoriented antigorite with very variable content of magnetite in disseminated grains and patches; cut by vein of antigorite that is free of magnetite.
03	RR-19	massive sulphide: pentlandite with lesser magnetite; wispy seams and minor patches of pyrrhotite in pentlandite; one irregular veinlike zone of bornite and much less chalcopyrite; one patch of antigorite and a few patches of carbonate.
04	RR-19	coarser pentlandite grains and finer, intimate intergrowths of pentlandite and pyrrhotite that grade into wispy seams of pyrrhotite along fractures and grain borders of pentlandite; gangue is chlorite and minor carbonate.
05	RR-19	interstitial patch of chlorite with minor talc and wispy seams of magnetite with minor pentlandite; the coarser opaque patches at the right of the photo are of pentlandite.

RR-19

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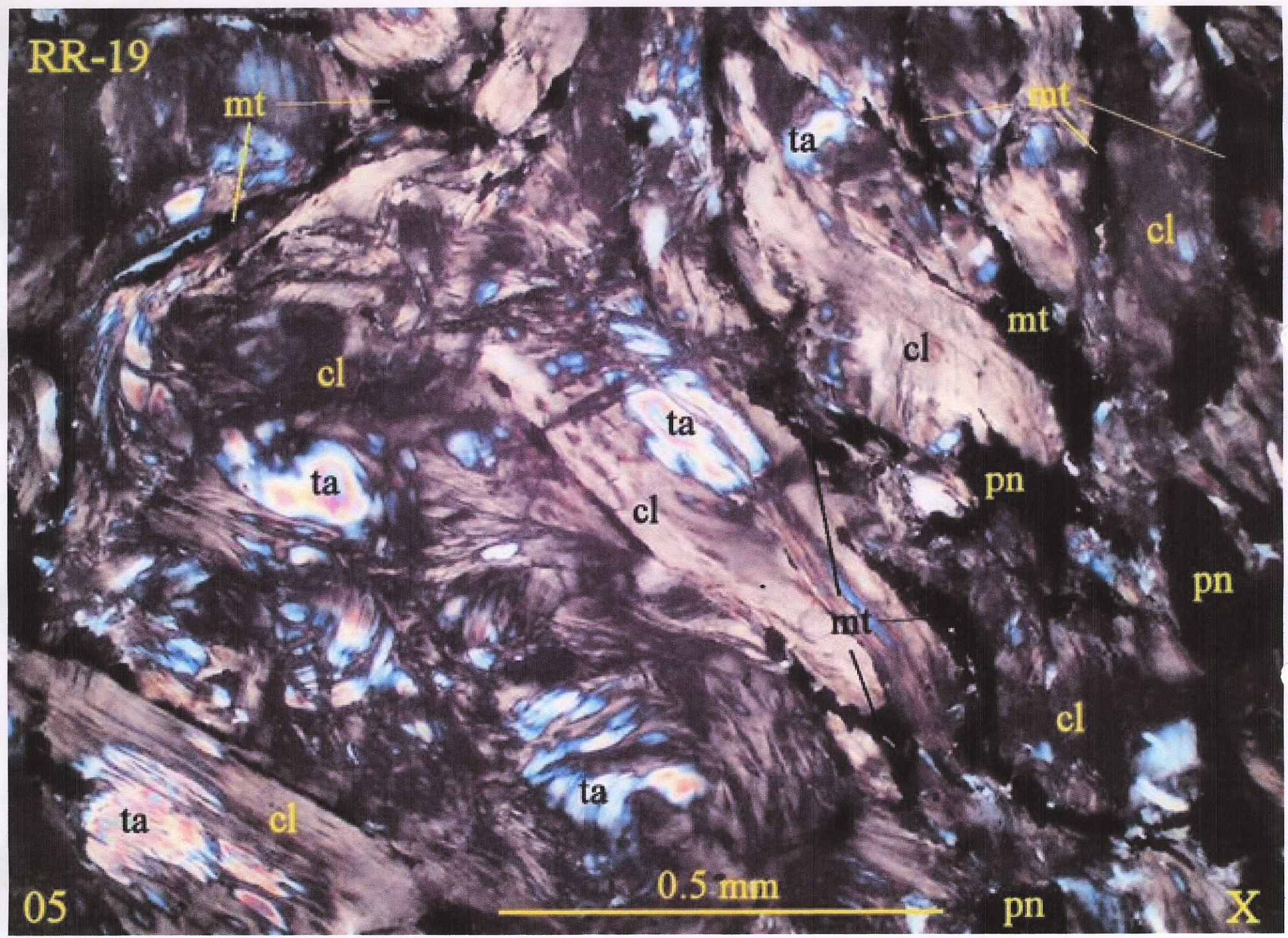
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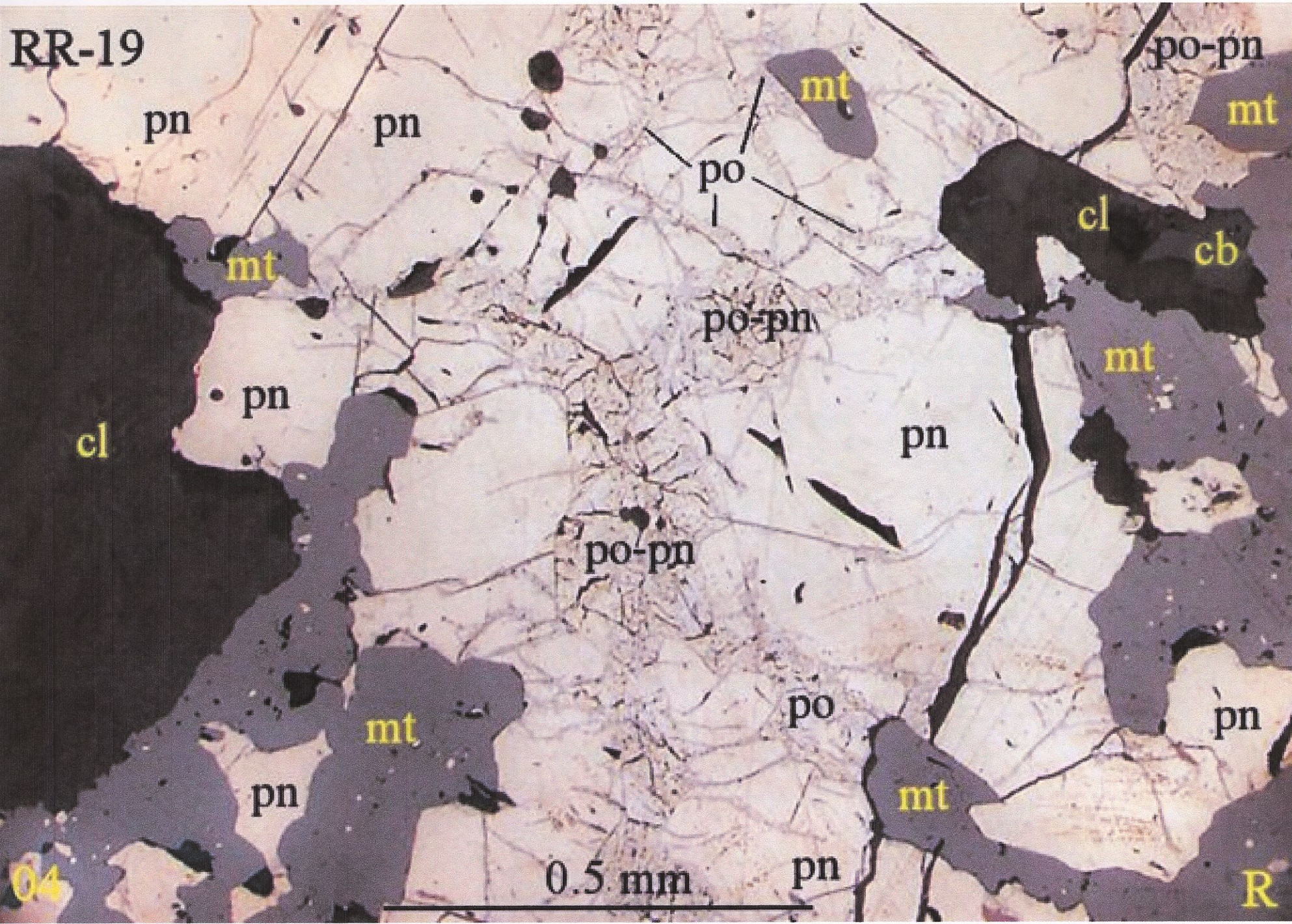
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RR-19



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RR-19

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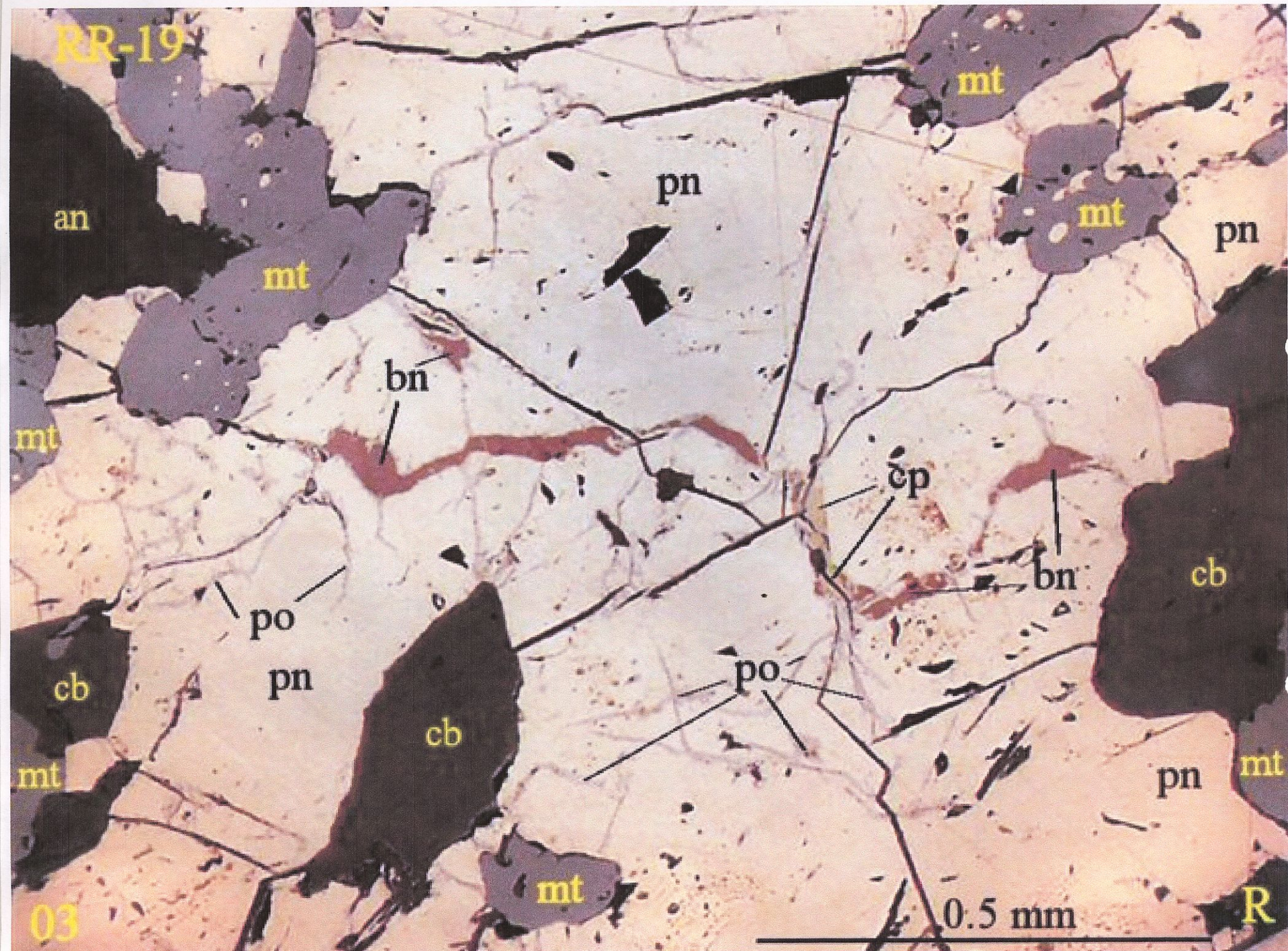
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RR-16

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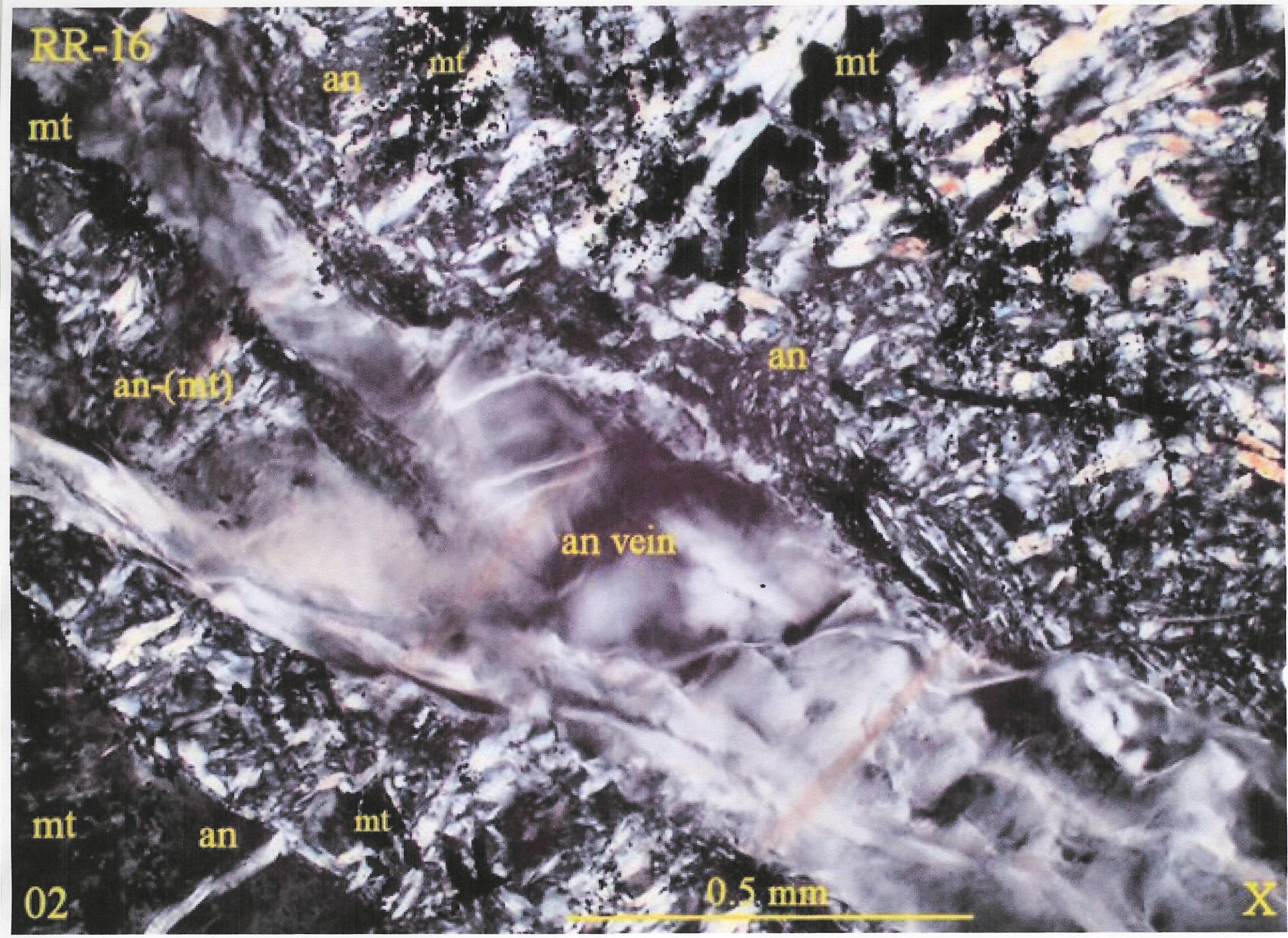
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RR-16

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olivine

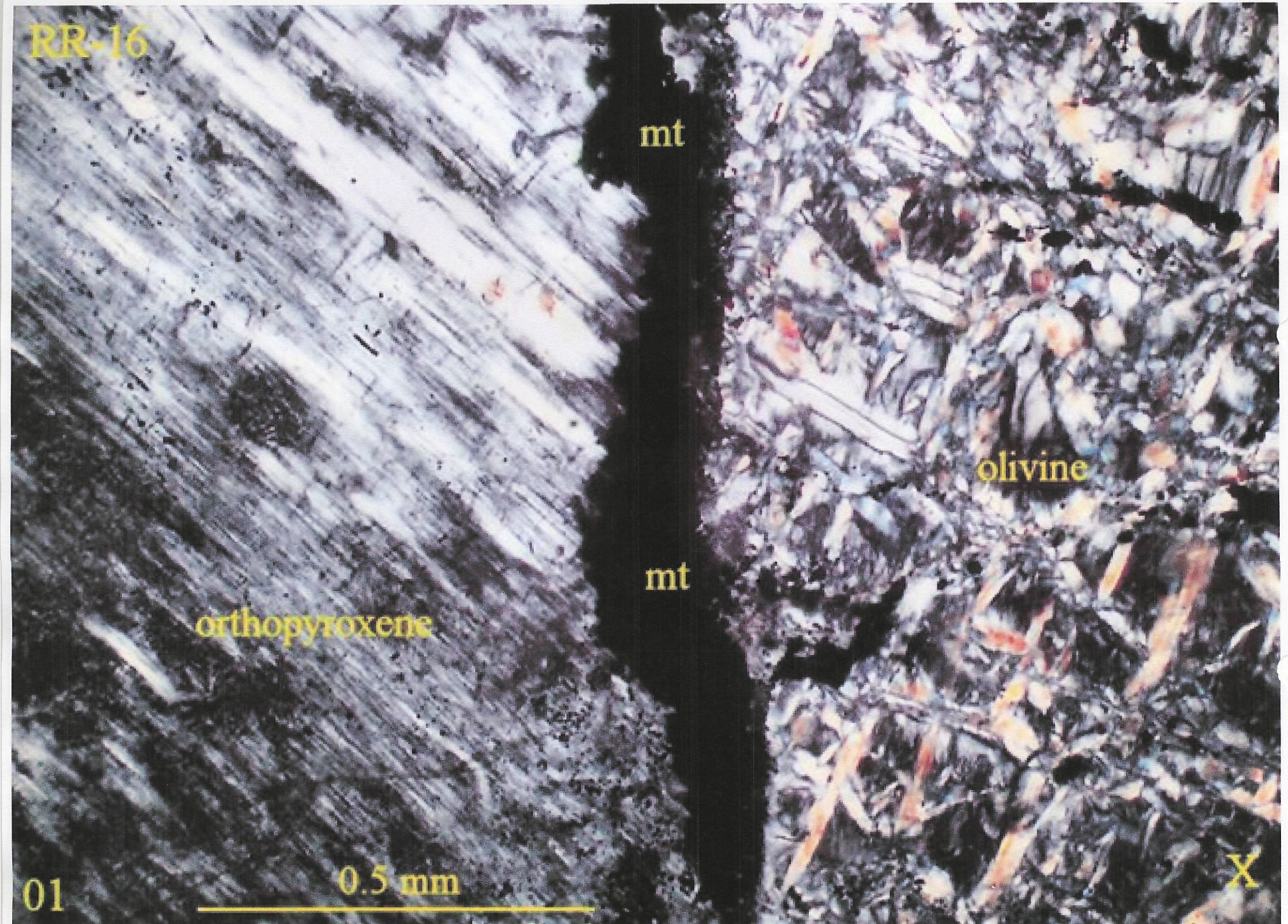
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orthopyroxene

01

0.5 mm

X

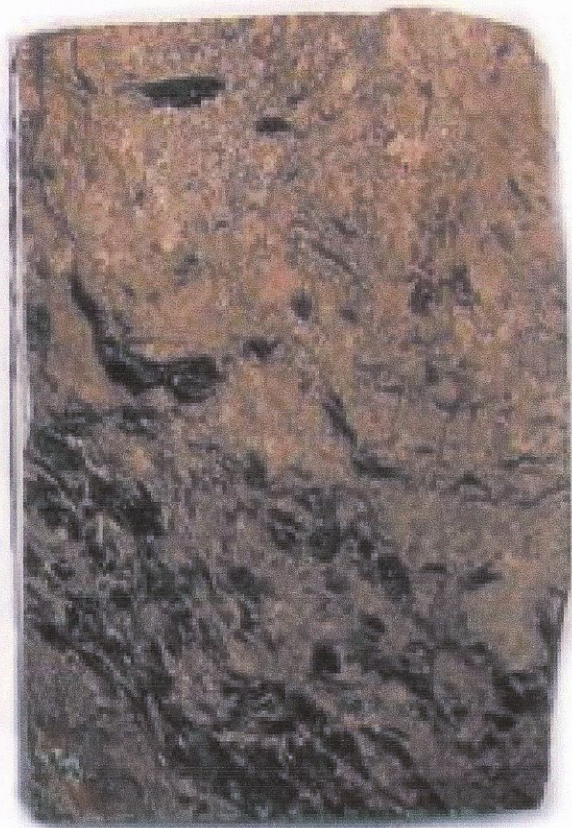


060844 robin day blocks

RR-16



RR-19



060844 Robin Day sections

