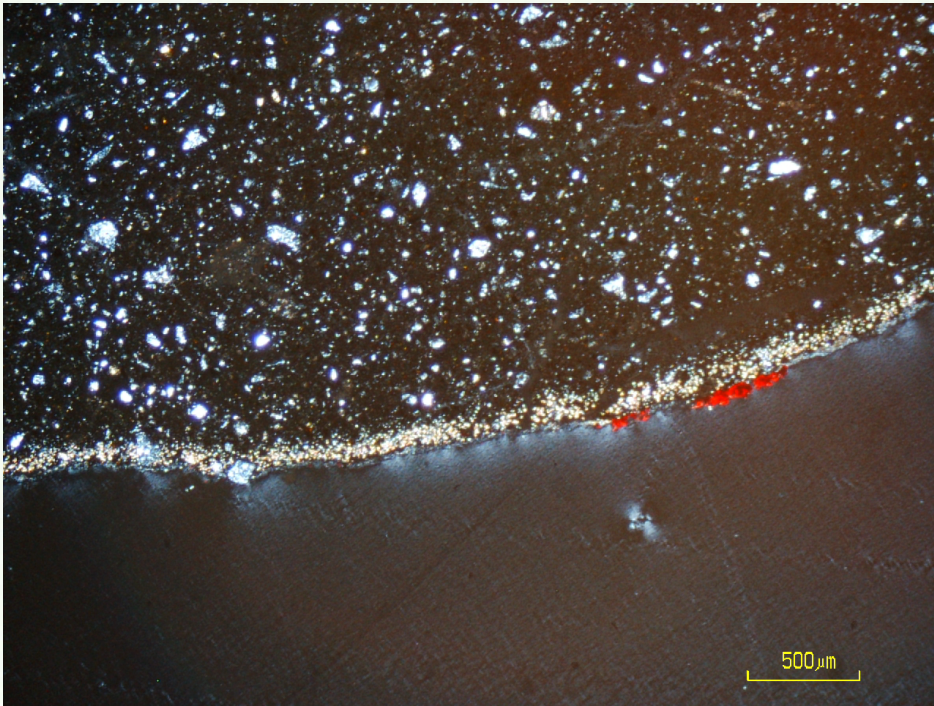


## Observation Sheet (SEM / Microscope)

Observer: C. Regalla



Date: 5/12/18

(dd/mm/yy)

Site: C0002

Hole: Q

Core: --

Section: --

Interval: --

Misc # (SMW): 32

2 slides

Image file name: C2Q0032\_cement.jpg

Sediment type: Cement

Object: Brown  
Cement with  
(caliche) veins

## Comments:

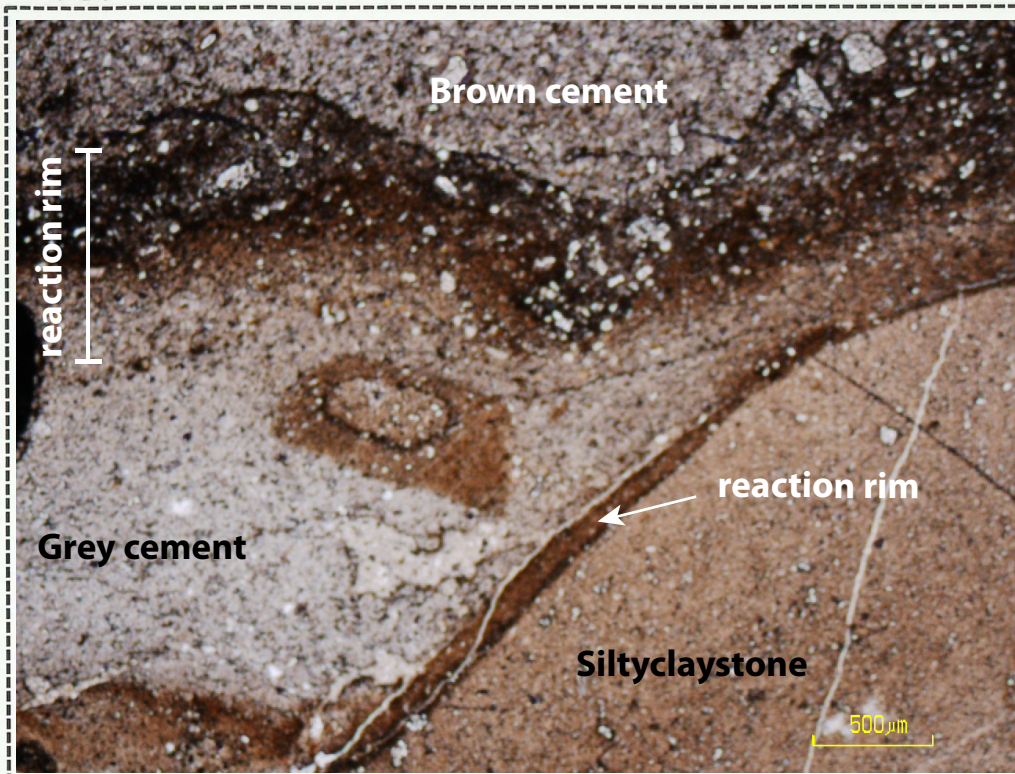
Slide 1: This section is cracked across possibly vein. Weblike structure but filled with 1st order grey birefringent material (could be a different swirl of cement)

Slide 2 of 2: Center polished away in places. No veins visible. Edges of cement have concentrations of fine grained, 2nd order birefringent mineral + bright red material. Composition unknown.

## Observation Sheet (SEM / Microscope)

Observer:

PPL



Date: Dec 5 2018

(dd/mm/yy)

Site: C0002

Hole: Q

Core: --

Section: --

Interval: --

Misc # (SMW):

032

Object:

Reaction rim between  
grey + brown  
cement.

Image file name: C2Q0032 - cement\_reaction\_rim - jpg

Sediment type: Cement

## Comments:

Clast contains grey + brown cement.

Silty claystone wall rock fragment in grey cement.

(XPL) Grey cement has a higher concentration of quartz grains than brown cement. Brown cement has more clay + dark groundmass than grey cement, (looks matrix supported)

Reaction rim between grey + brown cement shows gradation from light brown quartz rich material to dark brown matrix supported cement, into background brown cement.

Reaction Rim between grey cement + silty claystone looks like there is a higher concentration of clays than rest of siltstone. Rim has dark brown outer layer + thin almost black inner layer

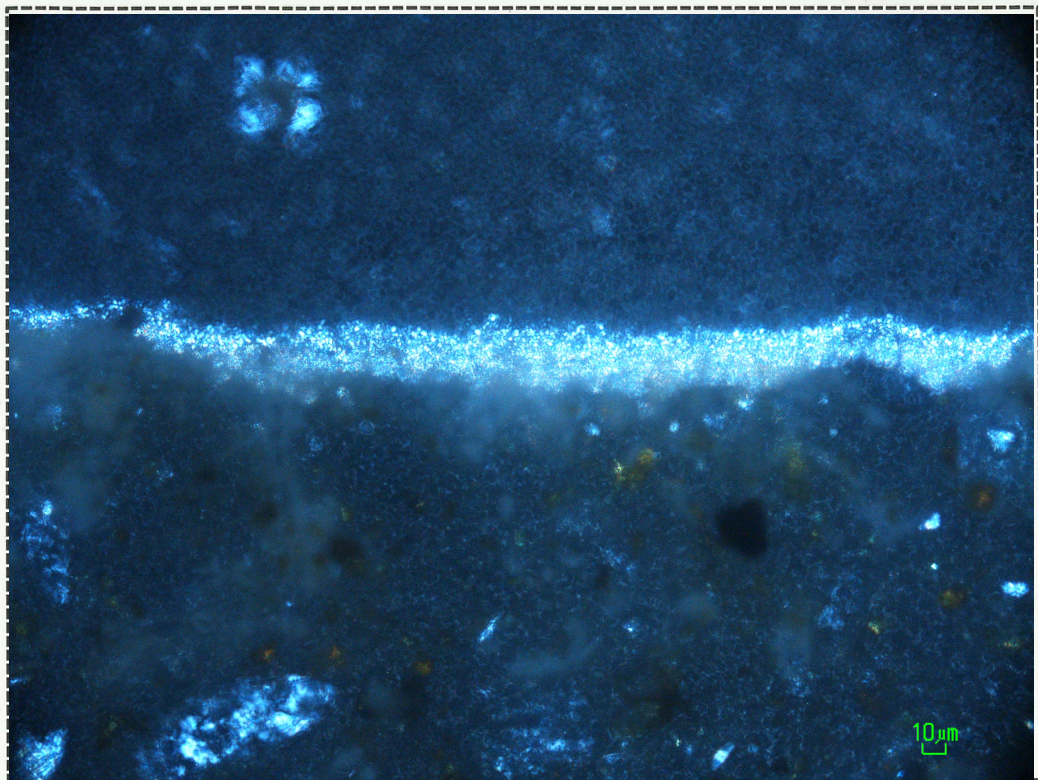
Possibly due to fluid leeching? migrating reaction front?

Observation Sheet (SEM / Microscope)

Observer:

XPL

Christine Regalla



Date: Dec 5 2018

(dd/mm/yy)

Site: C0002

Hole: Q

Core: --

Section: --

Interval: --

Misc # (SMW):

032 Cement

Image file name: C2Q0032\_Cement - calcite vein + IPG

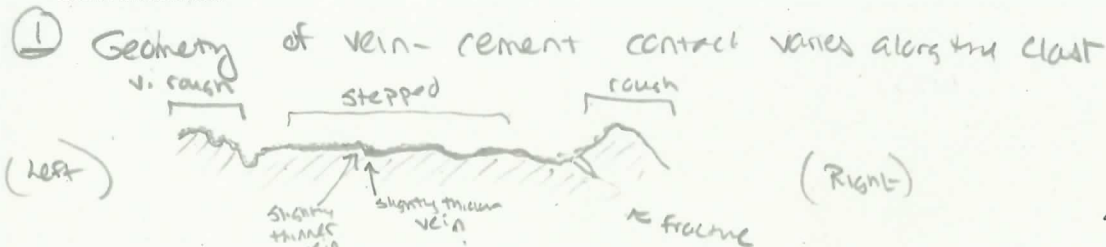
Sediment type: Cement (from C0027 casing)

Comments:

Object:

Calcite vein in cement

- veins in middle of section are polished away
- one vein on edge of cutting remains



- rough contacts may be open fracture walls
- stepped region might be indicative of a small amount of shear
- if there was any shear along this contact, perhaps there is top to right shear, with opening on rough fracture on left + compression (+ fracturing) on rough portion to right
- or, it is all just an opening fracture with no shear

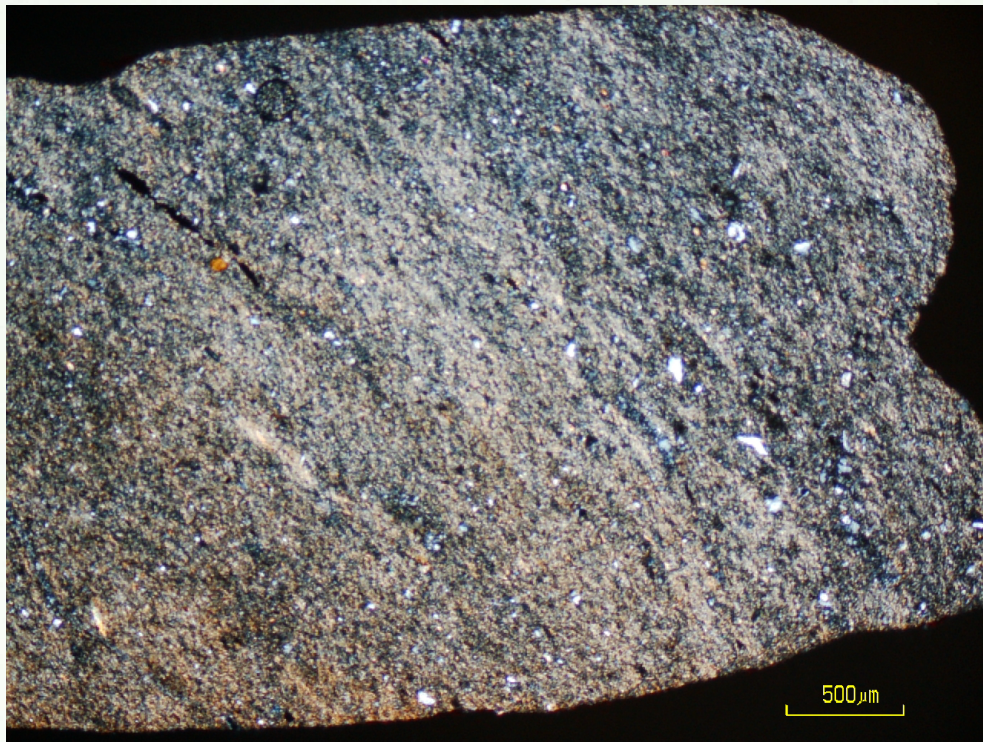
② Internal vein characteristics

- very very small crystals; smallest crystals occur at cement contact + become slightly larger away from contact.
- ↑ possibly, two layers?  $\left. \begin{matrix} \text{coarser} \\ \text{v. fine} \end{matrix} \right\}$
- no obvious preferred orientation of crystal long axes
- indicative of numerous nucleation points + very rapid growth

## Observation Sheet (SEM / Microscope)

XPL

Observer: C. Regalla



Date: 8/12/18

(dd/mm/yy)

Site: C0002

Hole: Q

Core: --

Section: --

Interval: --

Misc # (SMW): 466

Image file name: C2Q466\_undeformed\_siltyclaystone.jpg

Sediment type: Silty Claystone.

Comments:

Representative undeformed silty claystone  
(sections oriented approximately perpendicular to bedding)

Clay alignment defines layering of bedding.

Bedding ~~off~~ is not oriented parallel to cutting edge  
but is oblique to it.

One cutting fragment has clay minerals aligned  
at a slight angle ~ 20-30° counter clockwise  
to bedding contact.

Object:

Bedding in  
Silty claystone.  
"Background"  
undeformed  
sample

## Observation Sheet (SEM / Microscope)

XPL

Observer: C. Regalla



Date: 08/12/18

(dd/mm/yy)

Site: C0002

Hole: Q

Core: --

Section: --

Interval: --

Misc # (SMW):

305

Object: Calcite veins

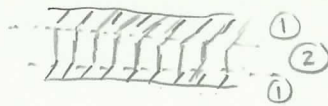
Image file name: C200305 - calcite - merged - panorama.jpg

Sediment type: Siltstone w/ cross-cutting calcite veins

Comments:

Multiple generations of mutually crosscutting calcite veins with fibrous, crack-seal texture.

Large veins that trend east-west in field of view are multi-generational have apparent right-lateral S-shaped steps



Vertical ~ North-South smaller veins both offset the larger E-W veins + truncate (are crosscut by) the E-W veins.

Oblique NW-SE veins (in field of view) consistently truncate against E-W veins

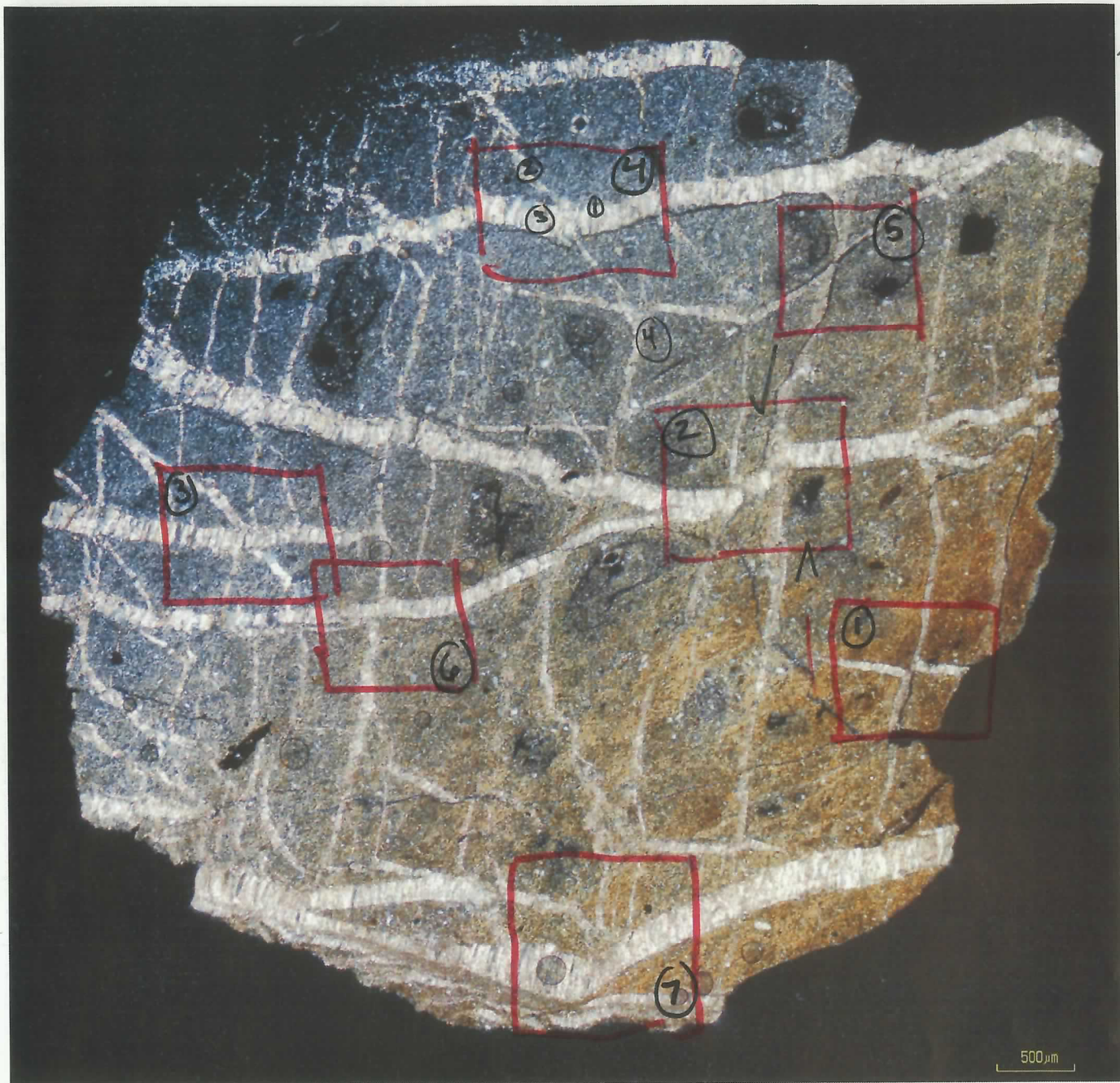
one Oblique NE-SW vein appears to offset a vertical vein

Transition from quartz rich to clay rich material likely represents bedding. Can see sub parallel clay alignment sub parallel to bedding.

C2Q0305

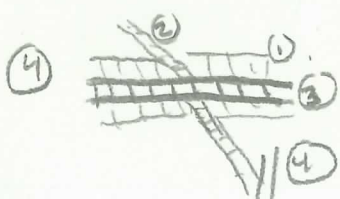
Thin Section

- ⑤ NE-SW vein offsets vert vein. This same vert vein offsets horiz vein in Zoom 2  
C2Q0305-Zoom 5
- ⑥ E-W lg vein has 2 generations of crack seal. N-S vein truncates + turns into E-W ven. Looks RL offset. Second N-S ven truncates at E-W  
C2Q0305-Zoom 6
- ⑦ N-S vertical veins truncate against NW-SE ven + against big NE-SW ven. Multiple generation crack seal ven w/ wall rock enclave.  
C2Q0305-Zoom 7



Bedding ?

- ① Vein vein (crack+seal) offsets subhoriz vein (1 crack seal) C2Q0305-Zoom 1
- ② Vein vein on right x'ized over horiz vein. Vert vein of left, unclear xcut rel  
2 subz C2Q0305-Zoom 2
- ③ Vert vein + NW-SE vein cross cut by big horizontal vein. Middle vein has 2 generations of crack seal w/ small amt of RL shear C2Q0305-Zoom 3



looks like ① 1st horiz vein formed, then offset by NW-SE ② then all x-cut by middle horiz vein ③ - looks like vein ② truncates on vein ④