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Plate 2.38

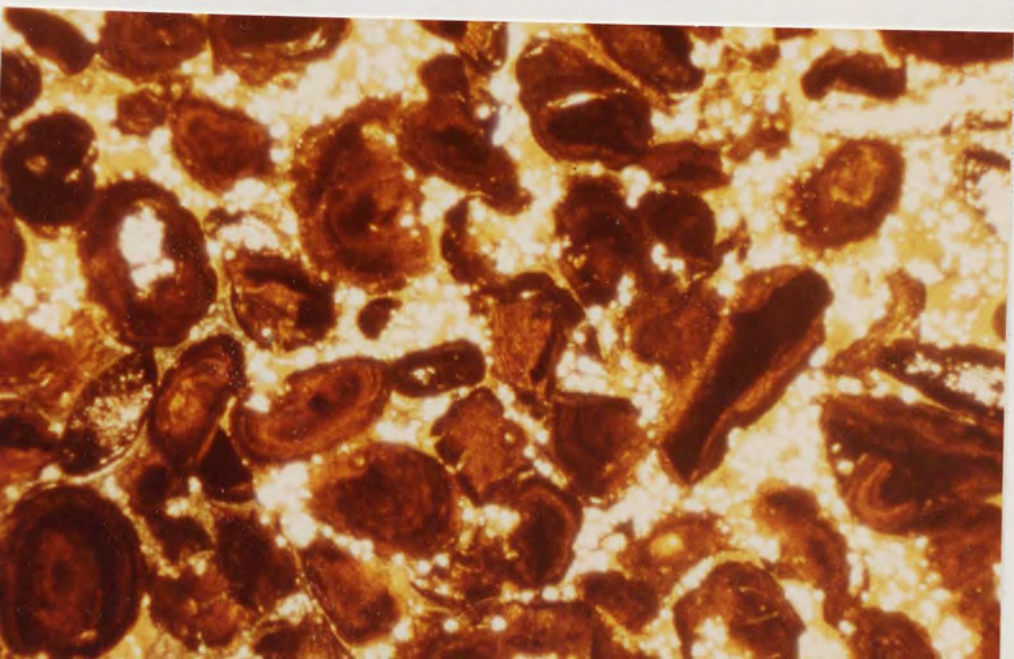
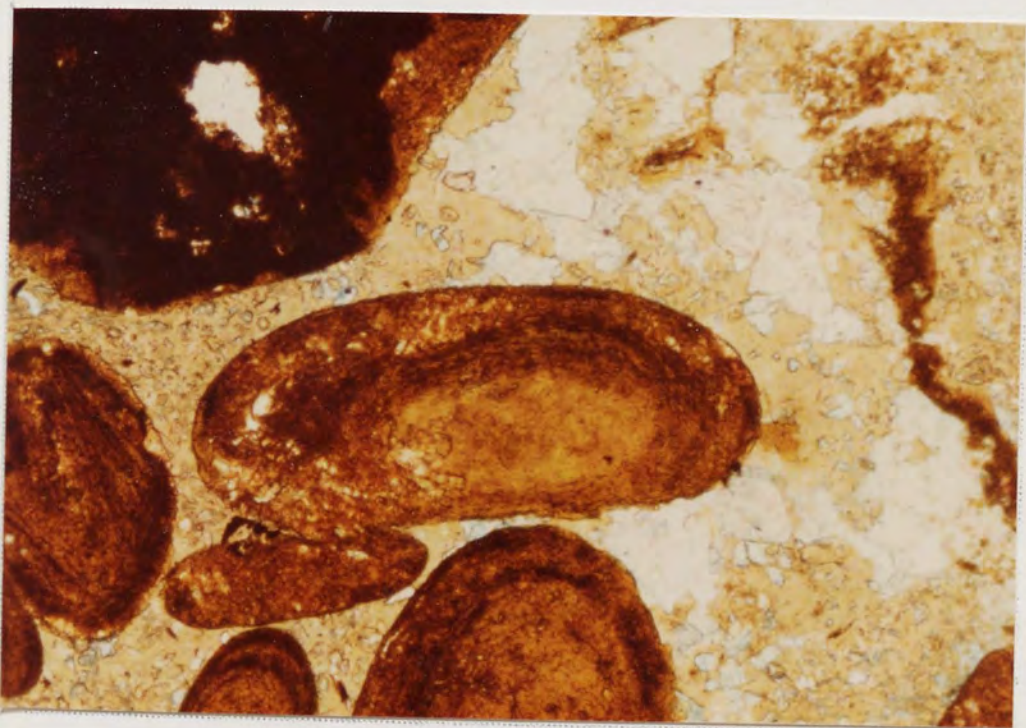
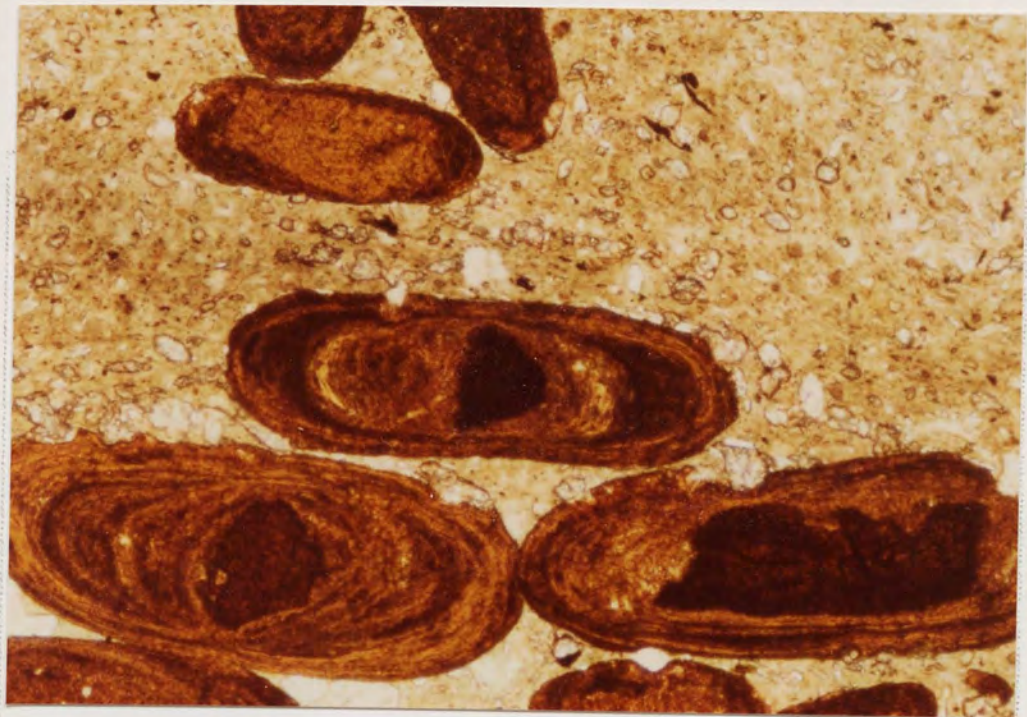
Hooked goethite ooids are common. The hooks often form the site of siderite precipitation which modifies their original form. Stained section, PPL, x125.

Plate 2.39

Occasional linkages between hooked goethite ooids result in the formation of chain ooids. Stained section, PPL, x125.

Plate 2.40

The precipitation of siderite (white) develops ragged ooid margins and further distorts chain goethite ooids. Stained section, PPL, x31.25.



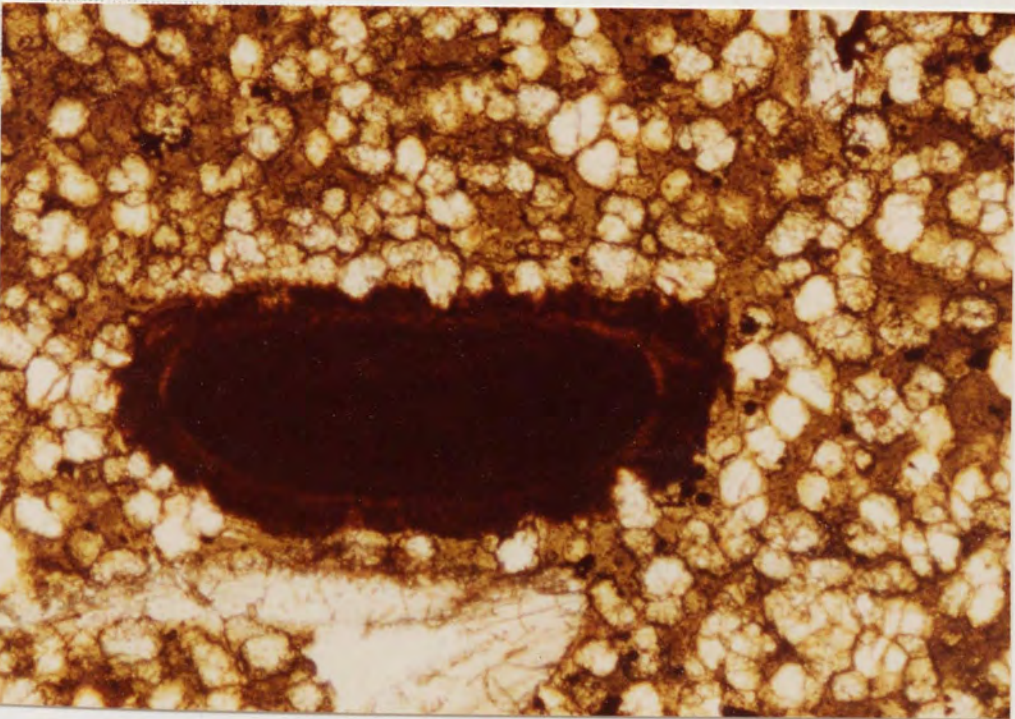
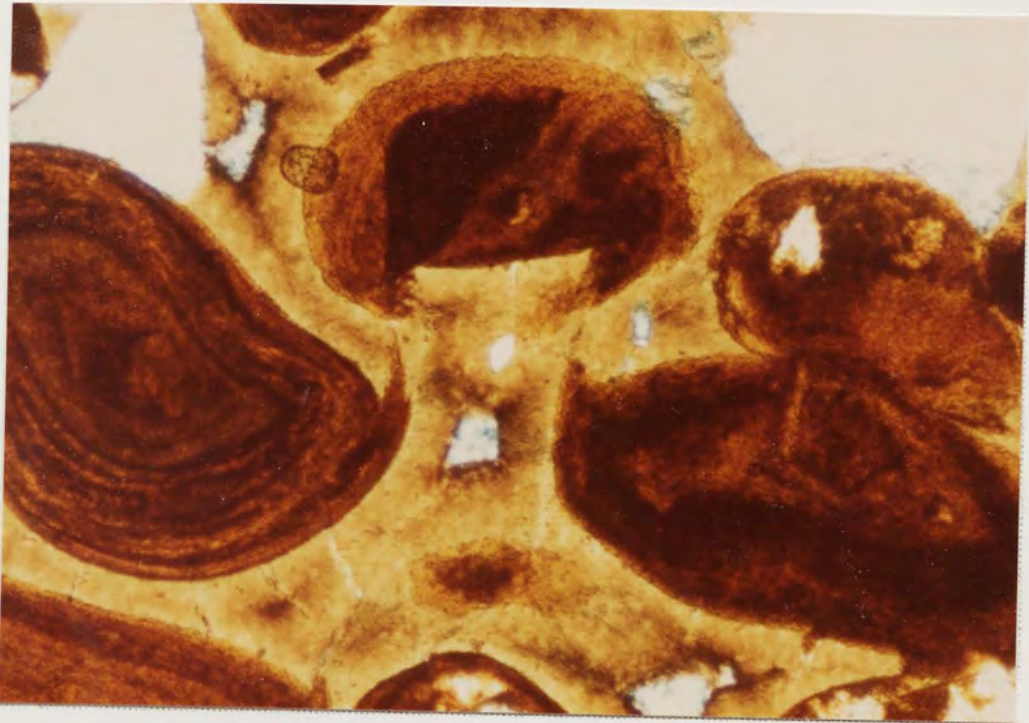
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Plate 2.41

The hooks of hooked ooids are sometimes found to be connected by thin black lines in the surrounding chamosite cement. Stained section, PPL, x125.

Plate 2.42

The distortion of ooid envelopes by the precipitation of marginal siderite. Stain section, PPL, x125.

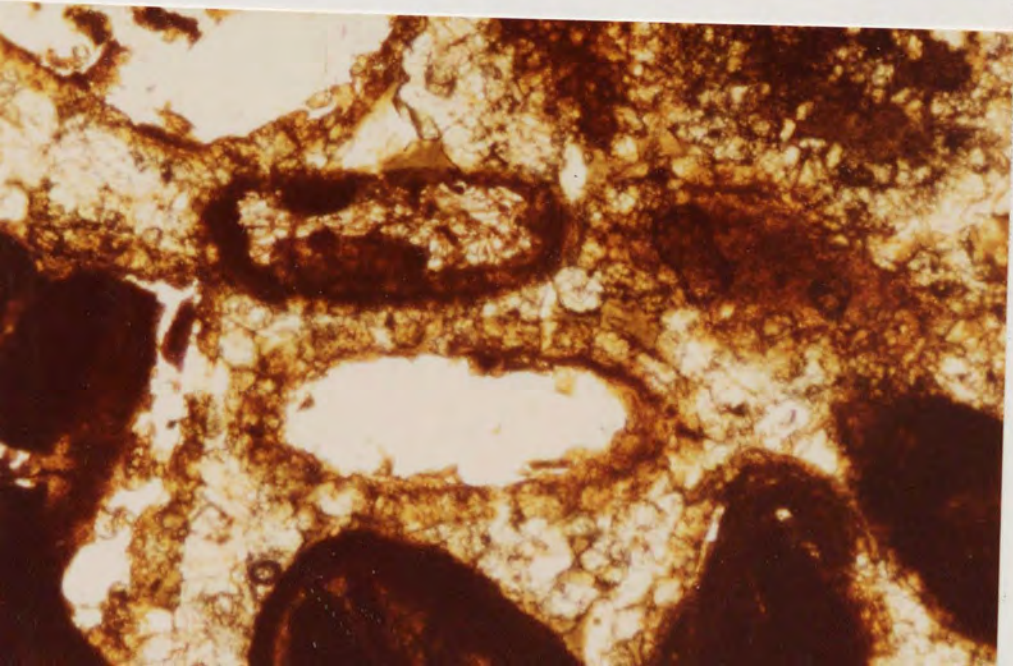
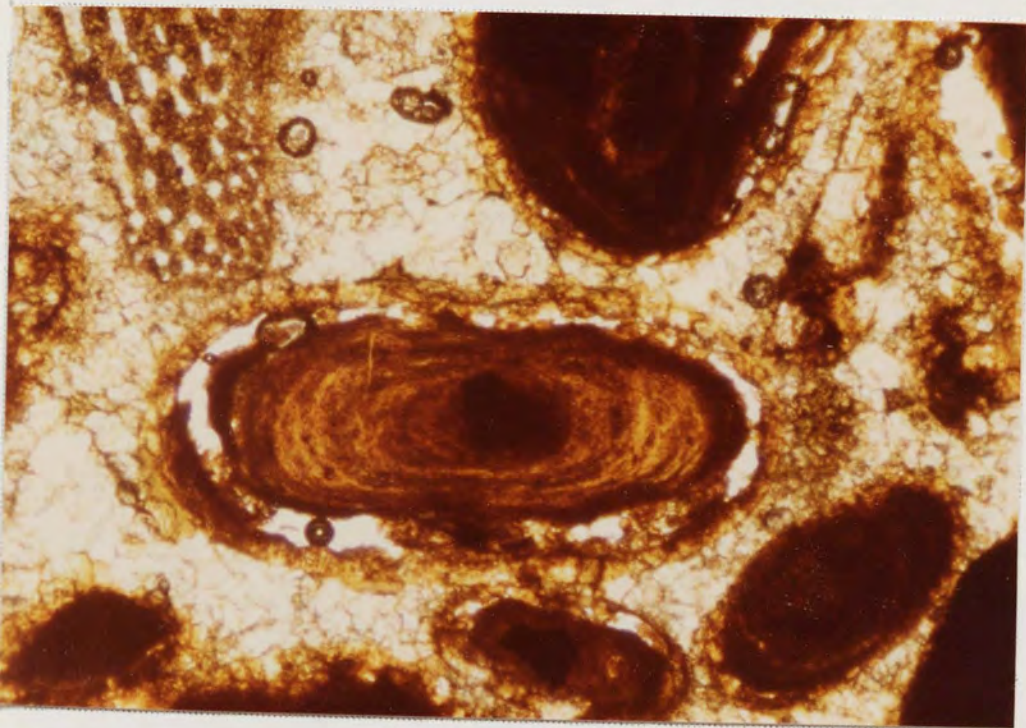
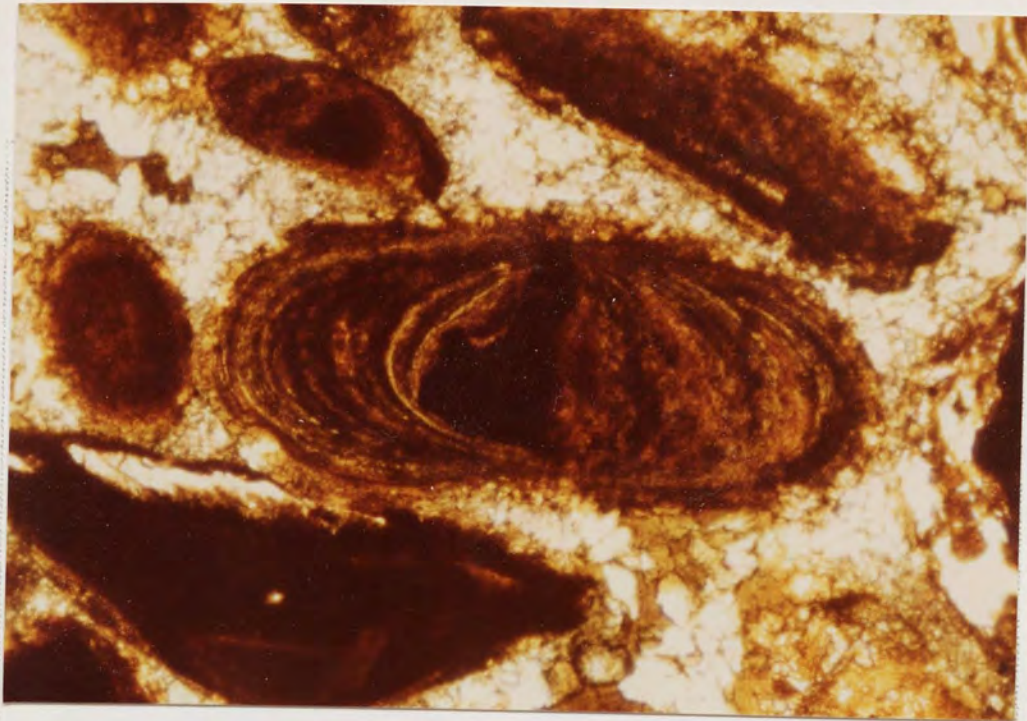


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Plate 2.43a Siderite anhedral replace the outer portion of ooid envelopes. Ghost ring contacts and goethite slivers occur in the replacive siderite. Stained section, PPL, x125.

Plate 2.43b Since the replacive siderite anhedral do not exhibit euhedral terminations within the ooid mould ooid dissolution post-dates the replacement. Stained section, PPL, x125.

Plate 2.43c Complete ooid dissolution leaves an ooid mould lined by siderite anhedral exhibiting ghost ring contacts and goethite slivers. Stained section, PPL, x125.



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Plate 2.44

The cement consists of authigenic chamosite, equant anhedral and trains of siderite. Stained section, PPL, x125.

Plate 2.45

Pore infills comprise an early pore-lining siderite (white) generation and a later infill of dark green authigenic chamosite. Stained section, PPL, x125.



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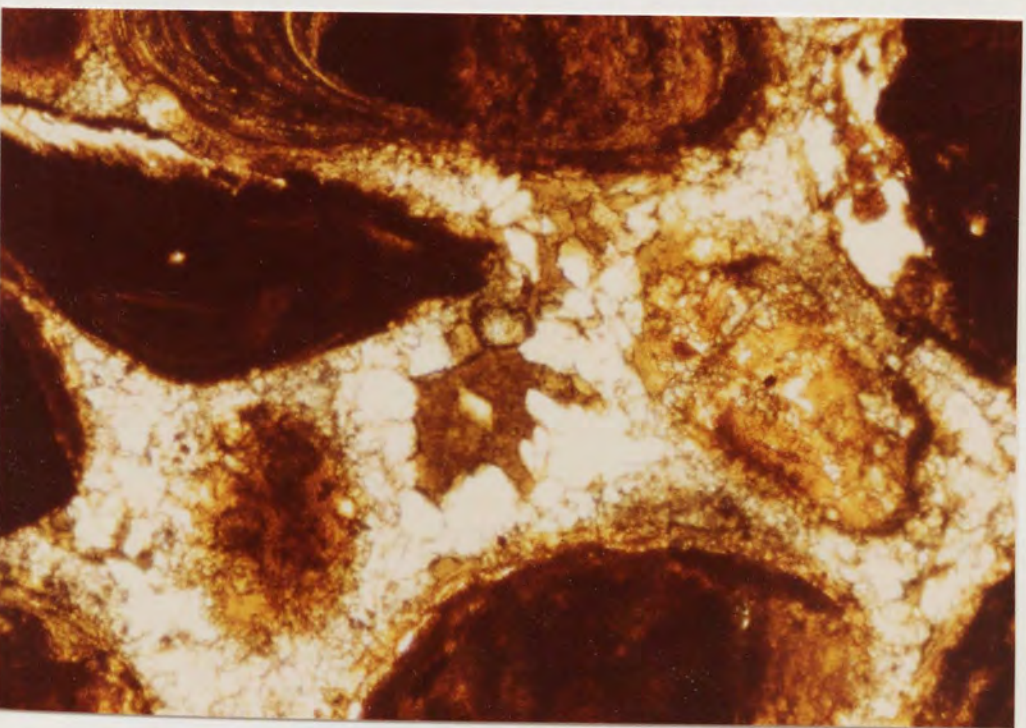
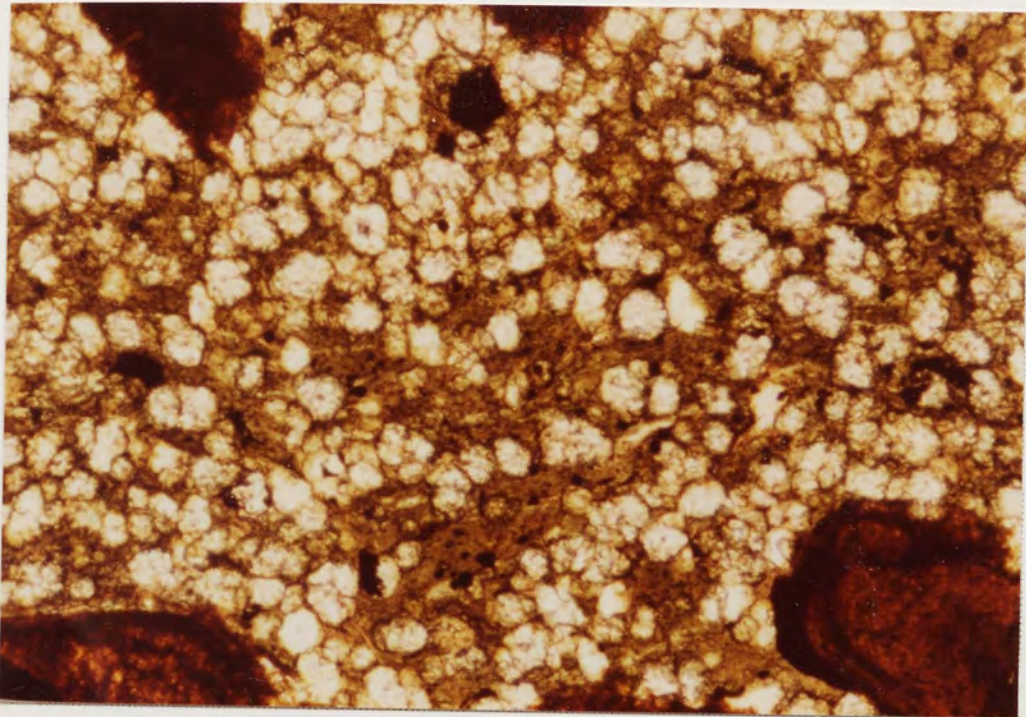


Plate 2.46a      Sideritic chamositic limonite oolite. Stained  
section, PPL, x31.25.

Plate 2.46b      Sideritic calcitic chamositic limonite oolite. Stained  
section, PPL, x31.25.

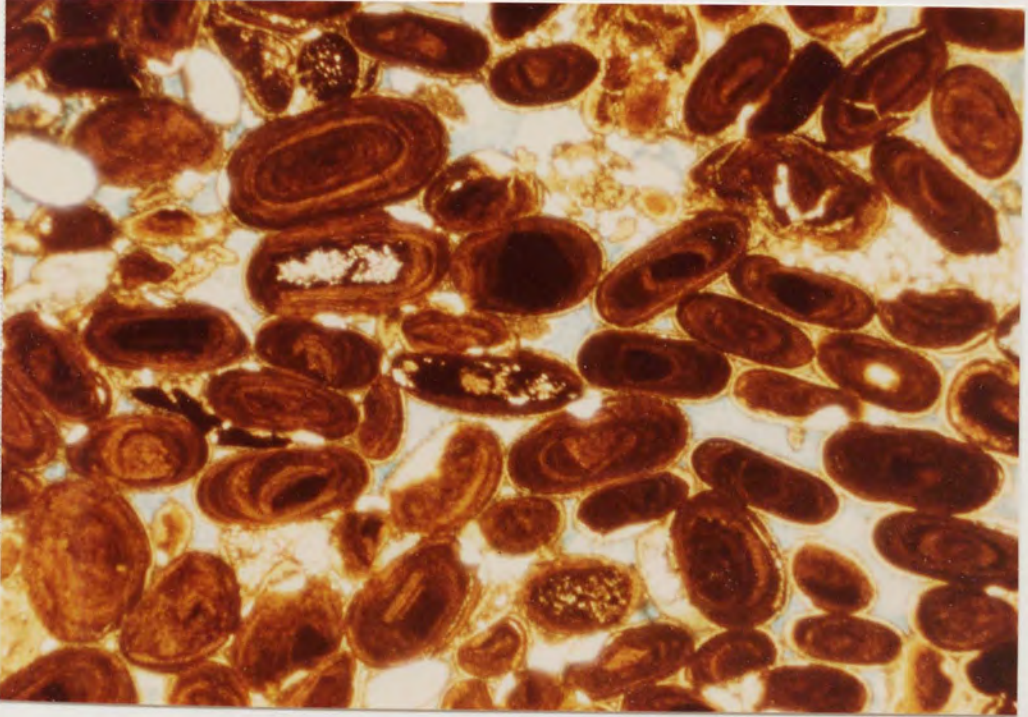
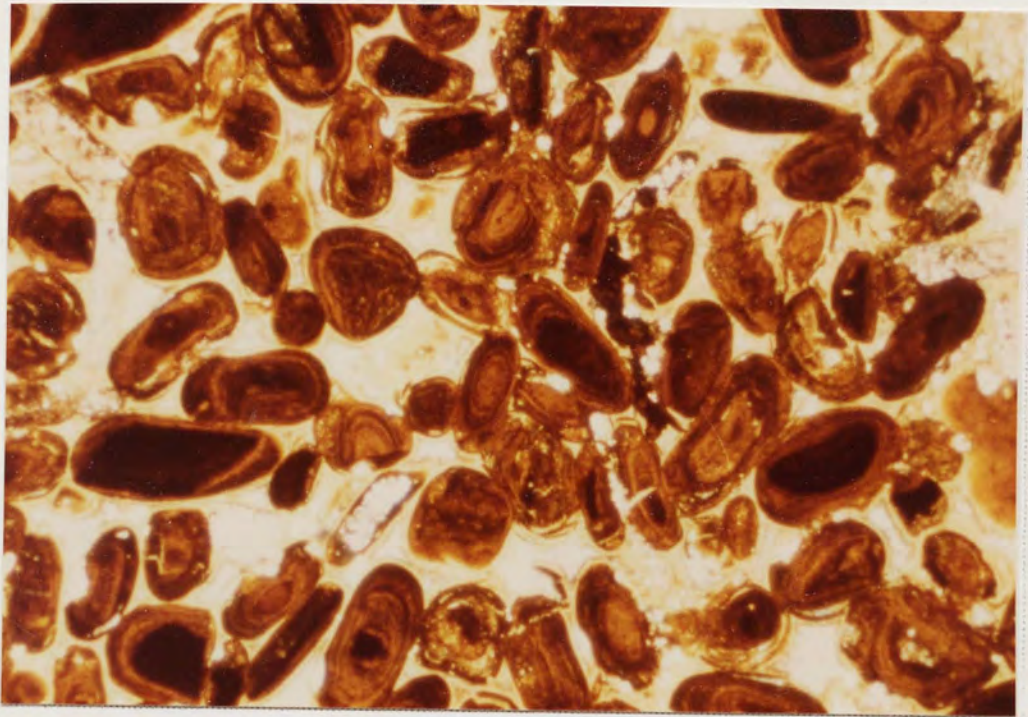


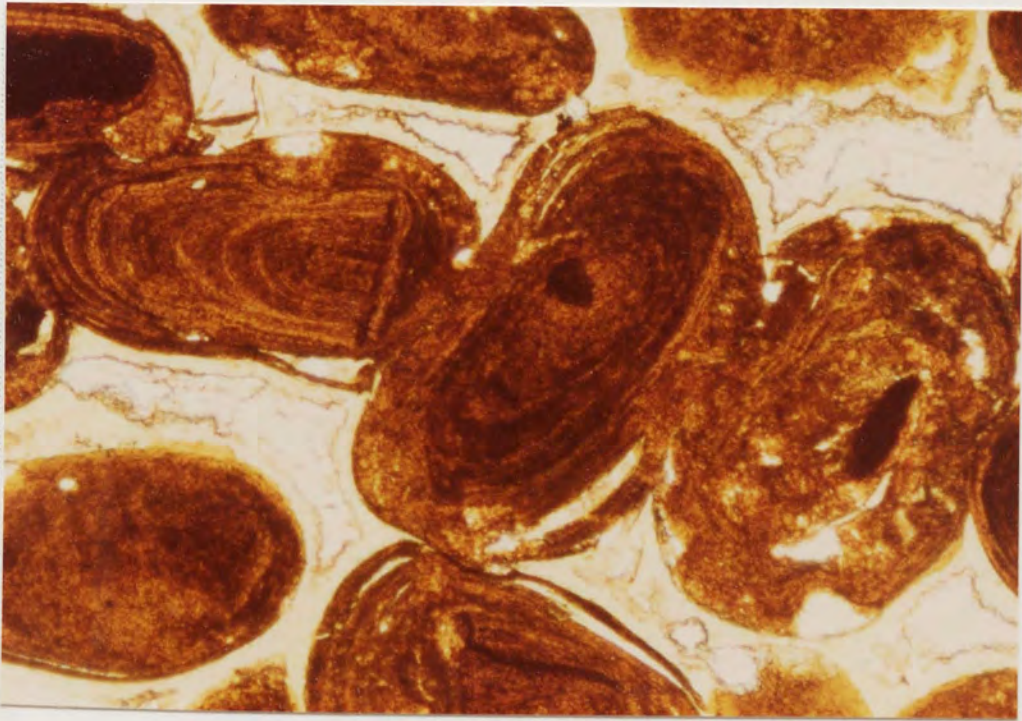
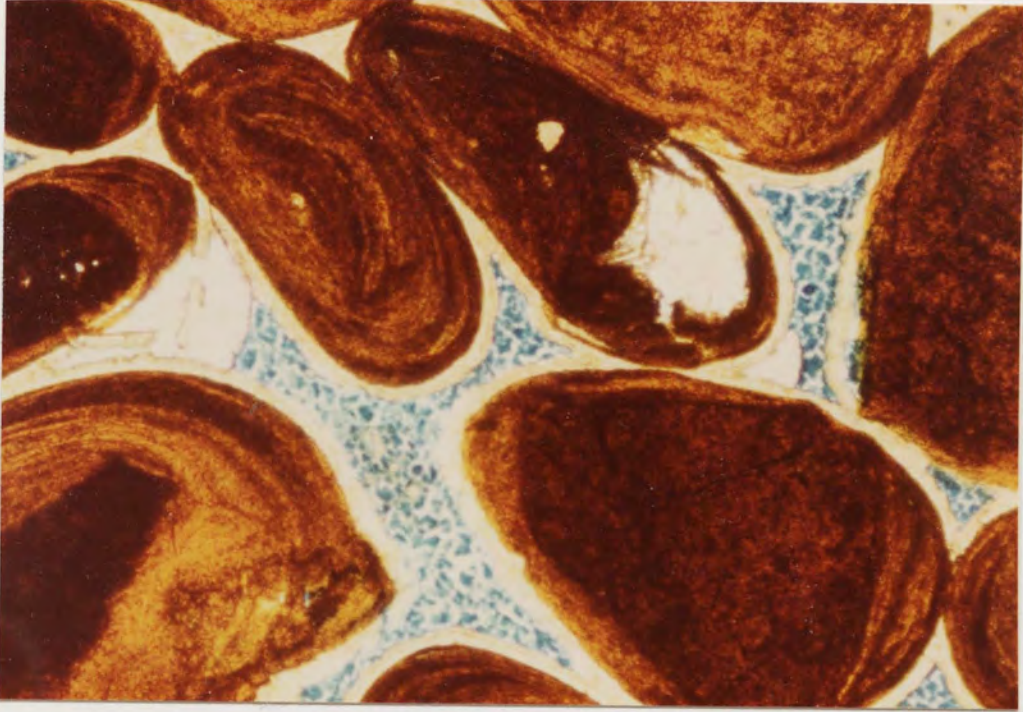
PLATE 10, FIGURE 1  
MAGNIFICATION 1000X  
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Plate 2.47a

Following the precipitation of authigenic chamosite as an isopachous pore-lining siderite precipitates as a further pore-lining. The remaining porosity is infilled by ferroan calcite. Stained section, PPL, x125.

Plate 2.47b

Siderite may totally infill the porosity remaining after chamosite precipitation. Stained section, PPL, x125.



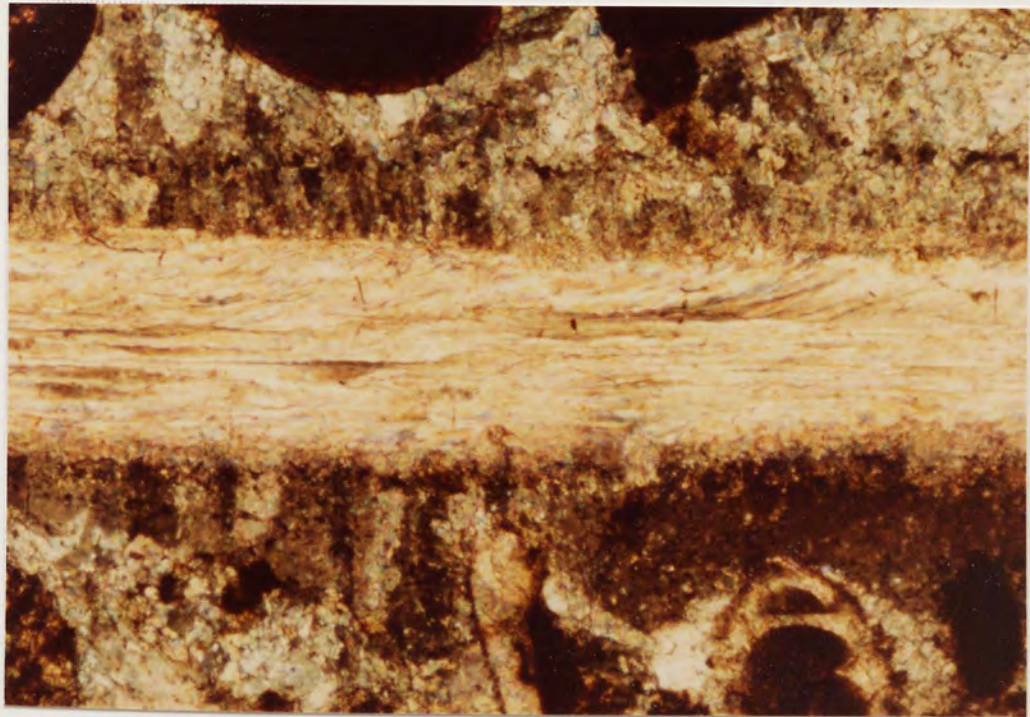
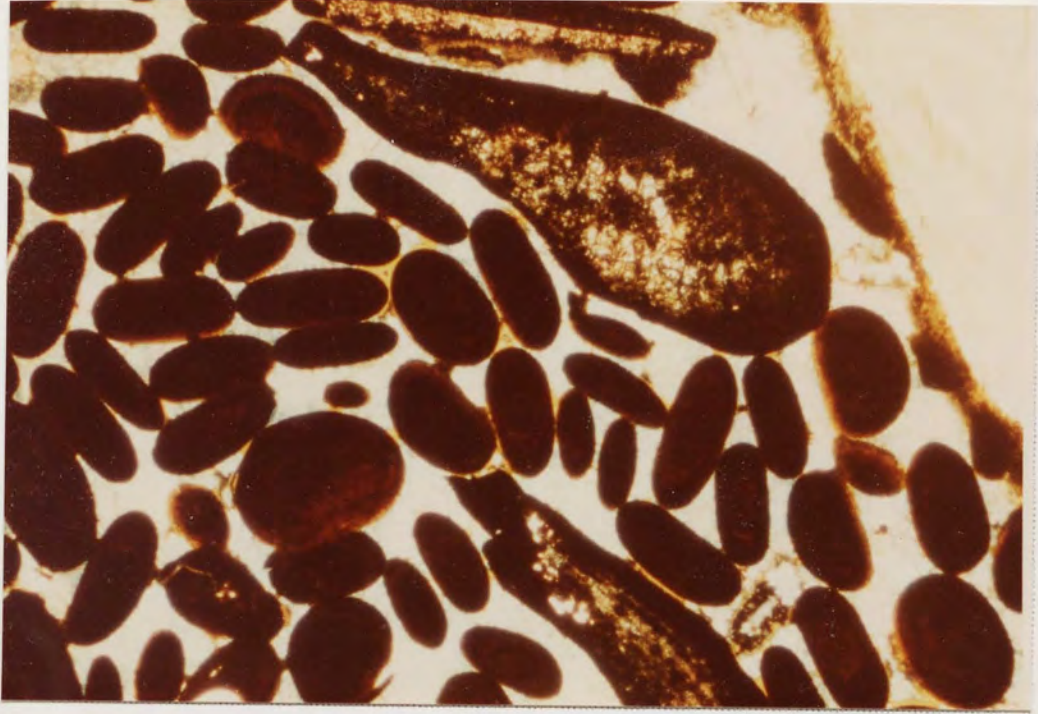
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Plate 2.48

Calcitic limonite oolite. Allochemical components comprise goethite ooids and shell fragments. Authigenic chamosite (yellow green) precipitates as an initial cement generation. The final cement is ferroan calcite (light blue). Stained section, PPL, x31.25.

Plate 2.49

Non-ferroan calcite (pink) shell fragments exhibit an early radial-fibrous cement generation of either high-magnesian calcite or aragonite. This has subsequently been replaced by ferroan calcite. Stained section, XP, x125.



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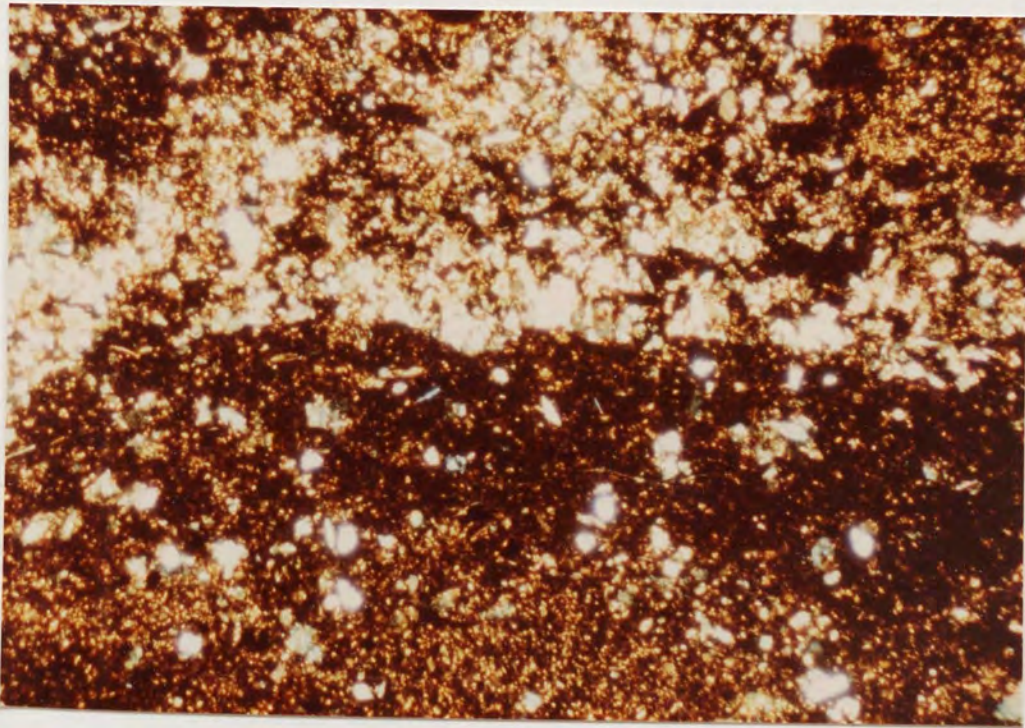
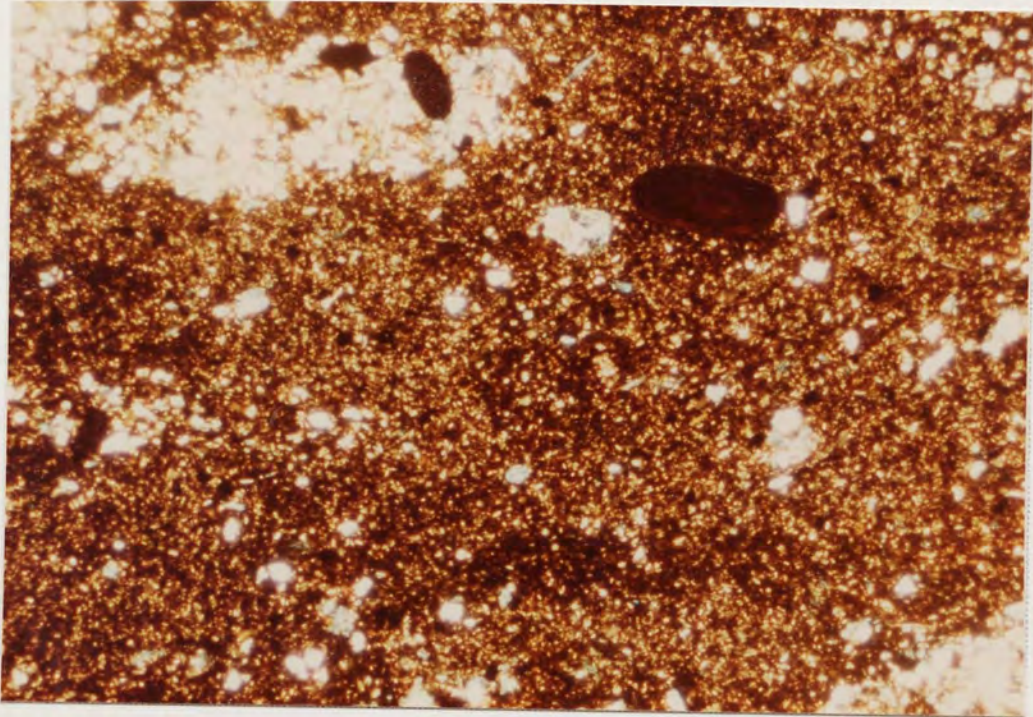
Plate 2.50

Red chamosite mudstone. The allochemical components comprise, commonly, quartz (large, white, low relief) grains and occasional ooids. The matrix comprises dark red brown chamosite and small, eye-shaped, cream-coloured siderite grains. Stained section, PPL, x31.25.

Plate 2.51a

Caliche takes the form of lenses of prismatic ferroan calcite parallel to bedding in which the prism long axes are perpendicular to bedding. Stained section, PPL, x31.25.





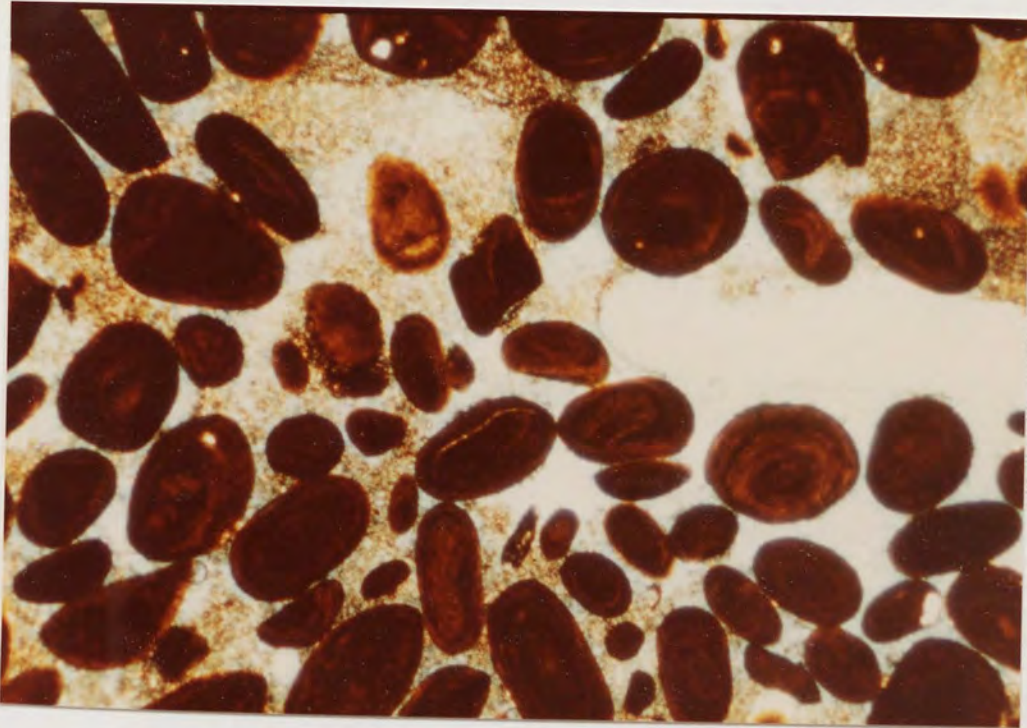
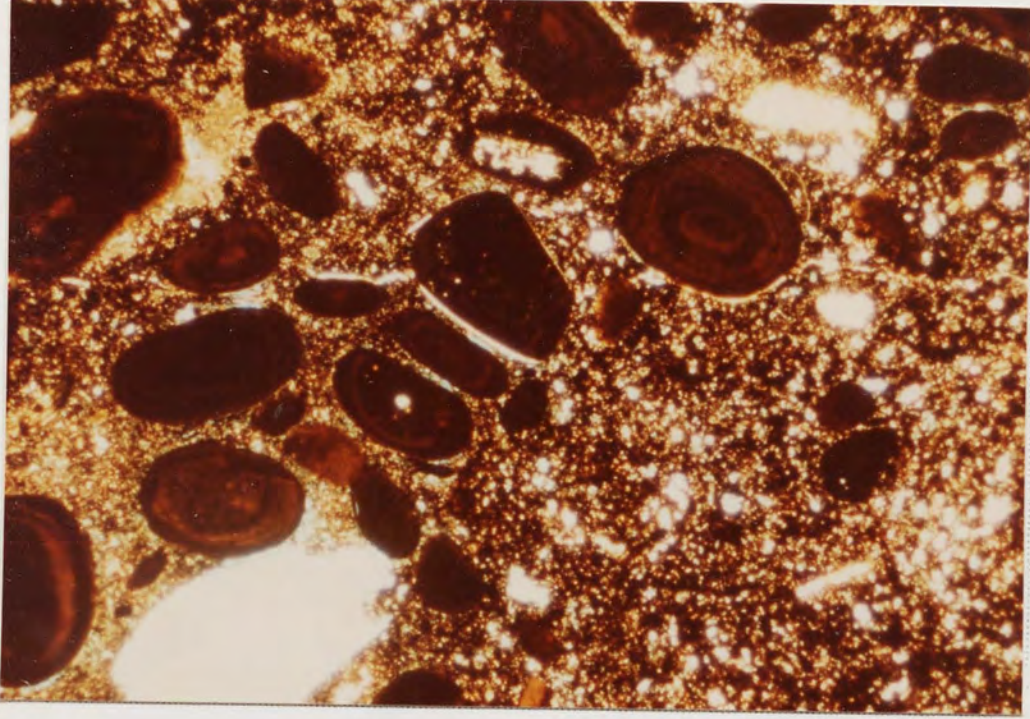
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Plate 2.52

Red chamositic limonite oolite. Note the dark brown chamosite mud. White low relief grains are quartz. Stained section, PPL, x50.

Plate 2.53

Red calcitic limonite oolite. Goethite ooids are set in a cement of ferroan calcite (light blue), eye-shaped siderite crystals (cream) and fine-grained red-brown goethite. The goethite gives the cement its pink colouration in hand specimen. Stained section, PPL, x31.25.



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Plate 2.54

Ferroan calcite (blue) occurs at the contacts between ooids and has meniscus-shaped grain boundaries. Note the eye-shaped siderite (white) and interstitial red-brown goethite.



CHAPTER 3

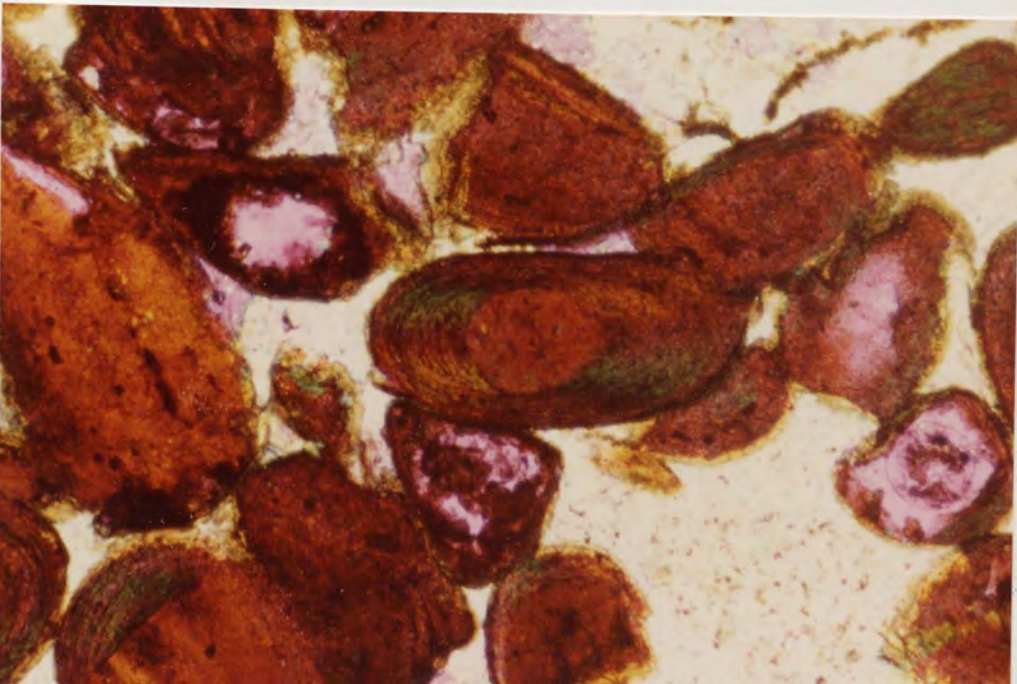
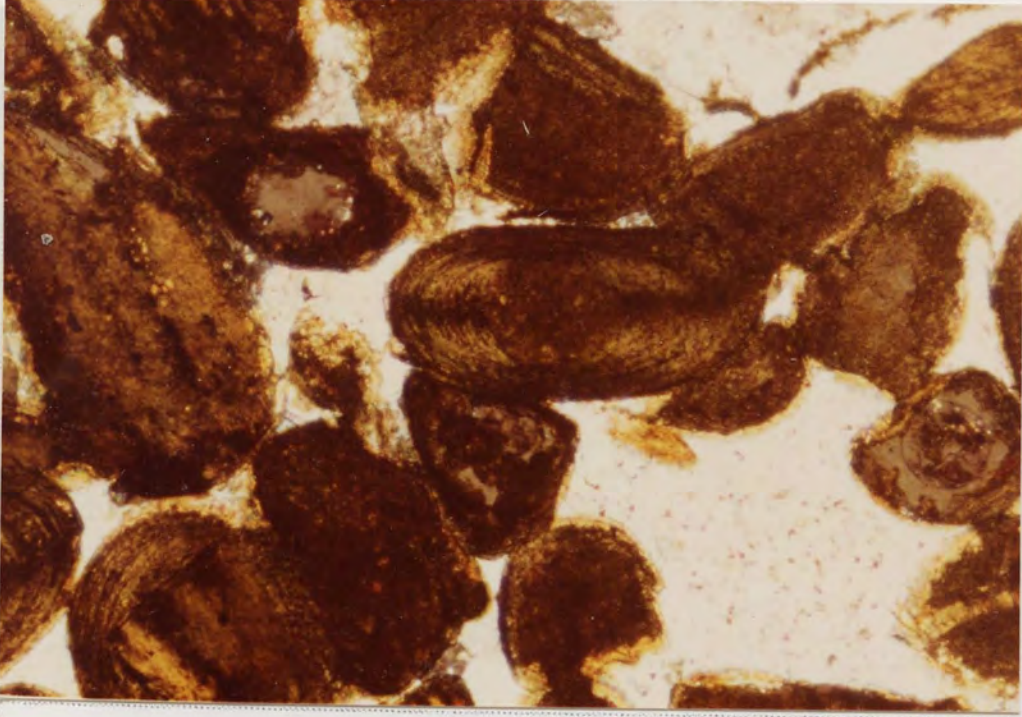
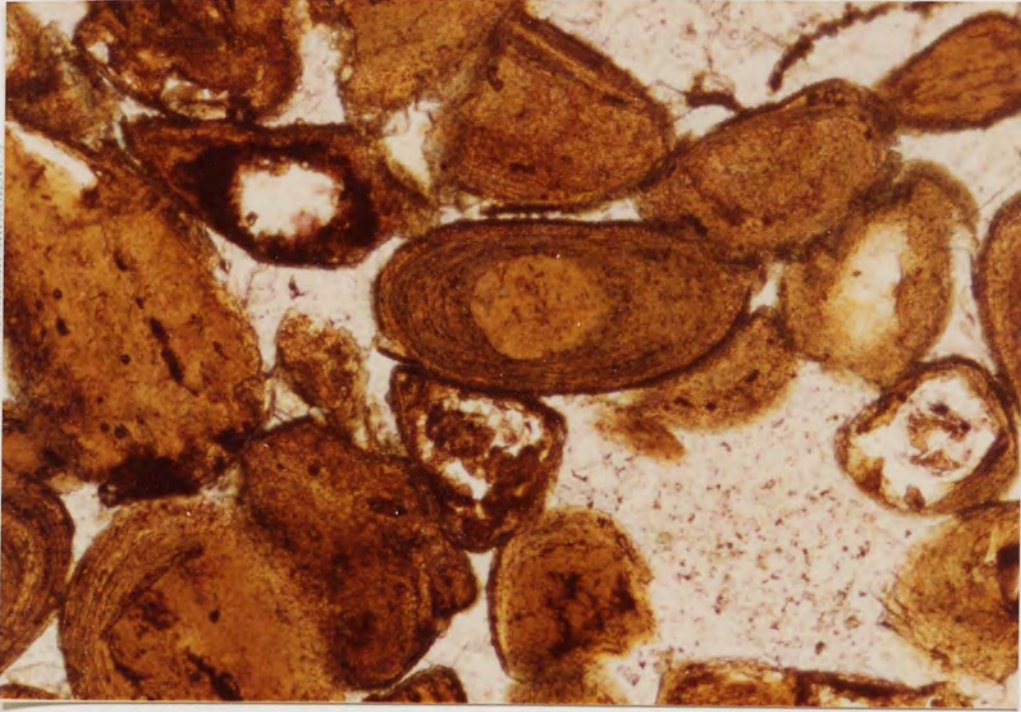
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Plate 3.1      Chamosite ooid. Stained section, PPL, x125.

Plate 3.2a      Between crossed polars chamosite ooids show a pseudo-  
uniaxial extinction cross. Stained section, XP, x125.

Plate 3.2b      Insertion of a mica plate indicates a positive optic  
sign for the extinction cross. Stained section, XP,  
slow direction NW-SE, x125.



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Plate 3.3a      Slightly rounded square brown chamosite core book.  
Note that the cleavage traces are sub-parallel to  
the ooid long axis. Stained section, PPL, x500.

Plate 3.3b      Slightly rounded rectangular brown chamosite core book.  
Note the niches at either end of the cleavage traces which  
are sub-parallel to the ooid long axis. Stained section,  
PPL, x200.

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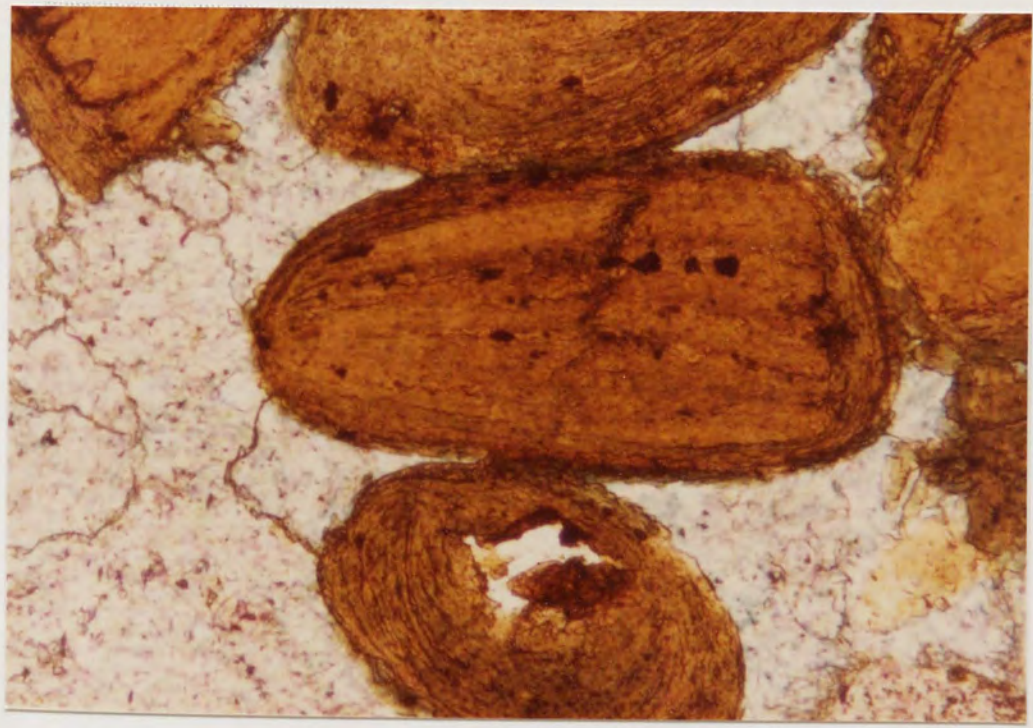
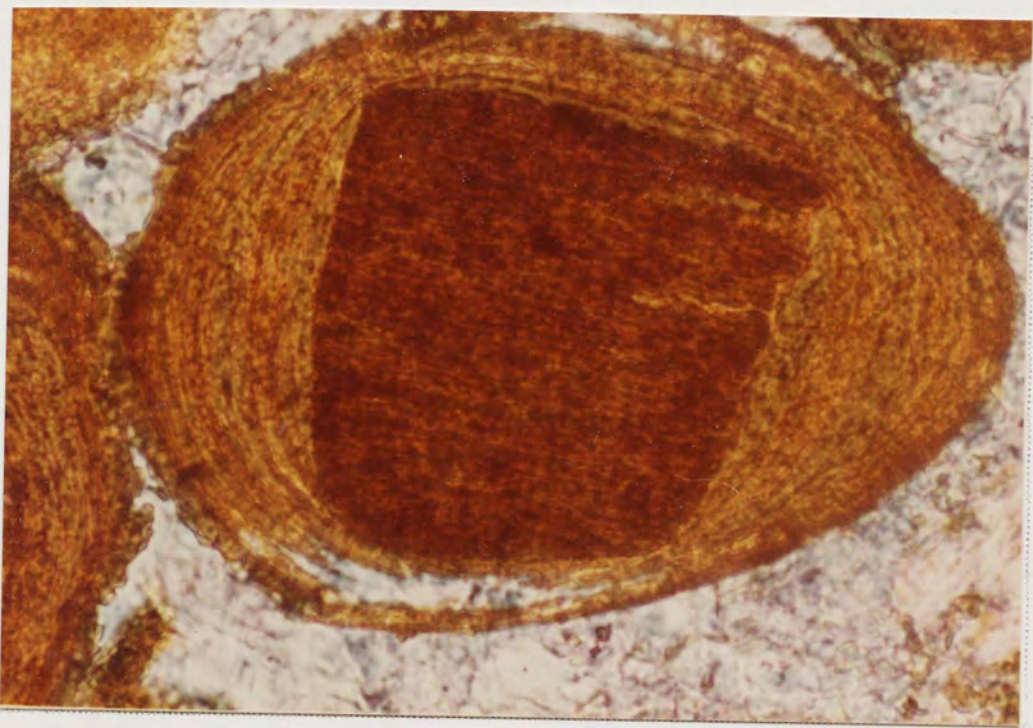
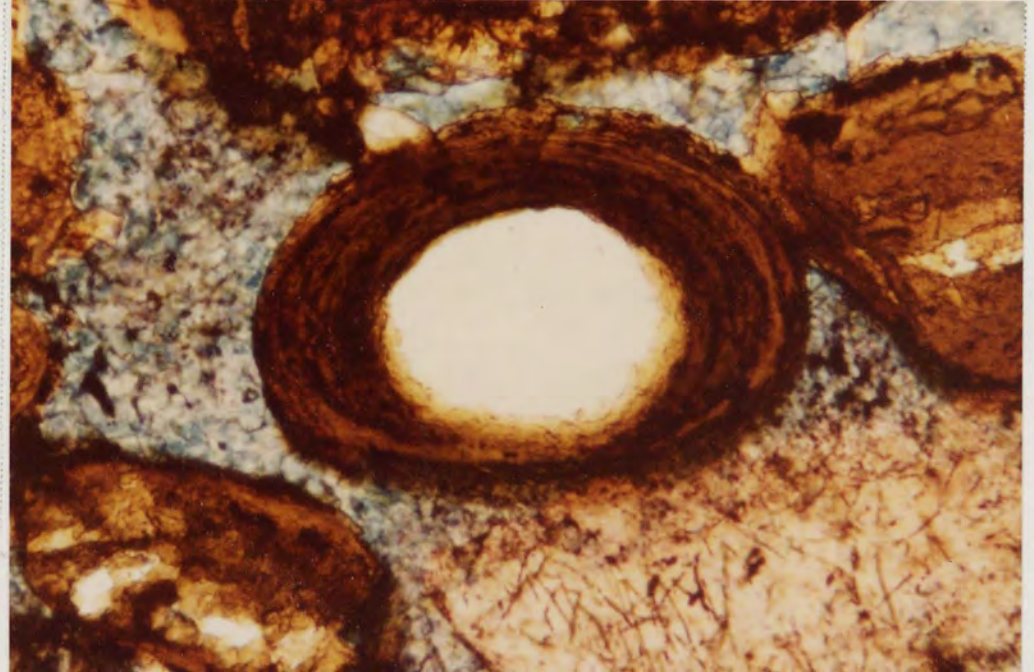
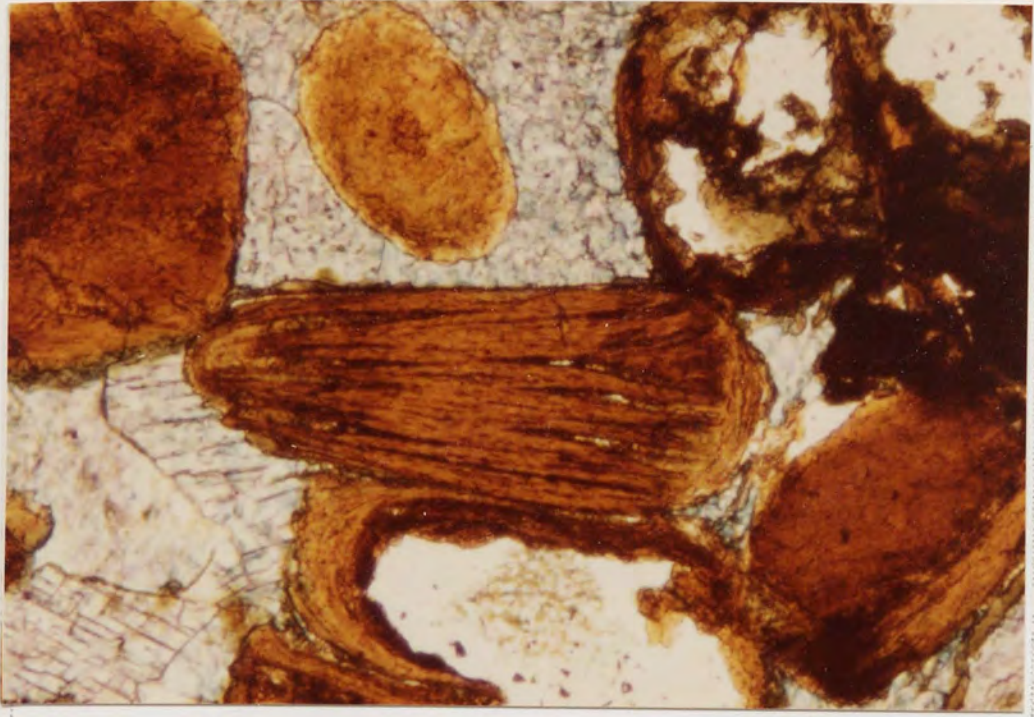


Plate 3.4a      Core books often show extremely well developed  
niches at either ends of the cleavage traces.  
Stained section, PPL, x200.

Plate 3.4b      Occasional core books are oriented with the (001)  
cleavage perpendicular to the ooid long axis. Stained  
section, PPL, x200.

Plate 3.5      In many cases black rings and filamentous inclusions  
occur in ooid envelopes. Stained section, PPL, x160.



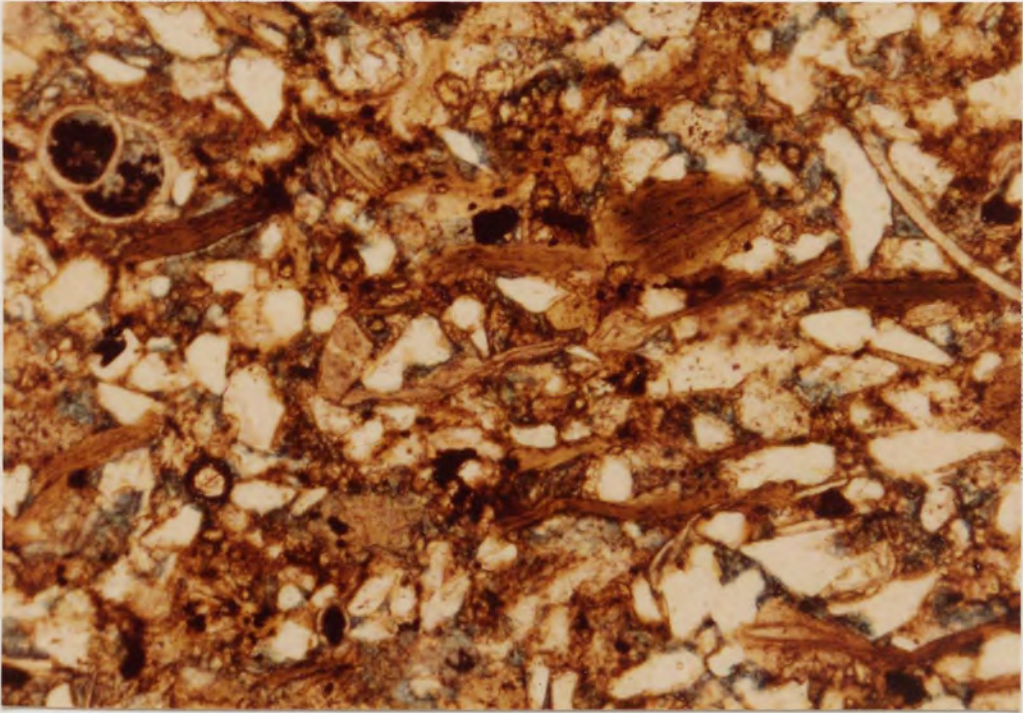
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Plate 3.6

The sandrock facies of the Marlstone Rock-bed is characterised by sub-rounded and sub-angular quartz grains (white, low relief), chamosite books and areas of authigenic chamosite (green), muscovite and biotite flakes (white and dark brown) cemented by ferroan calcite (blue). Stained section, PPL, x31.25.

Plate 3.7

Chamosite books (green and olive green). Note the structureless chamosite which merges imperceptibly into a central area with cleavage traces (top right). Stained section, PPL, x125.

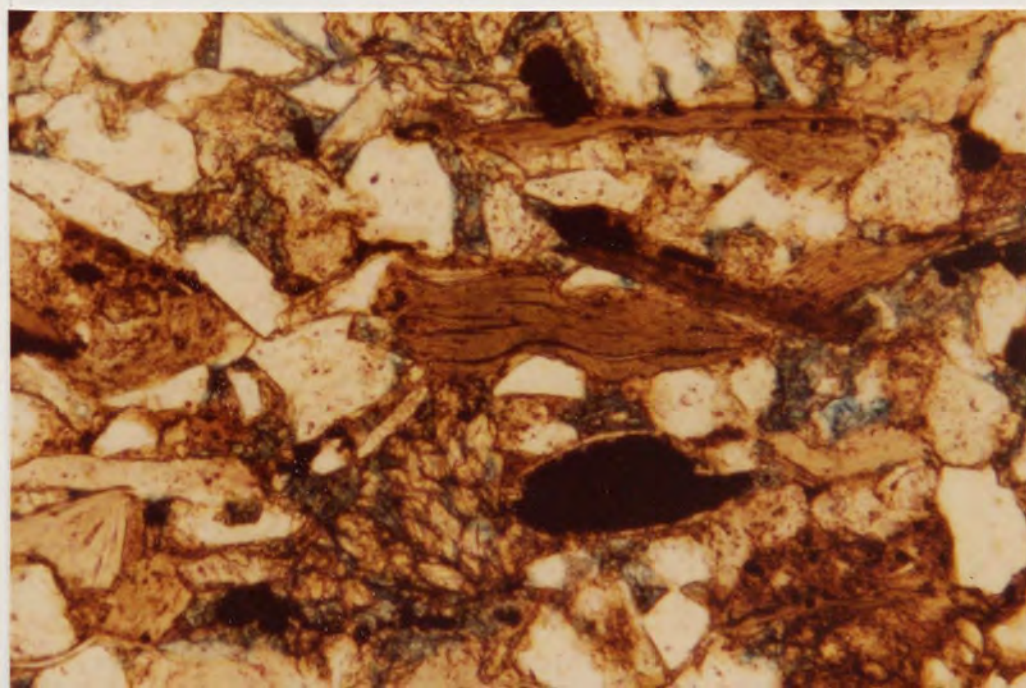
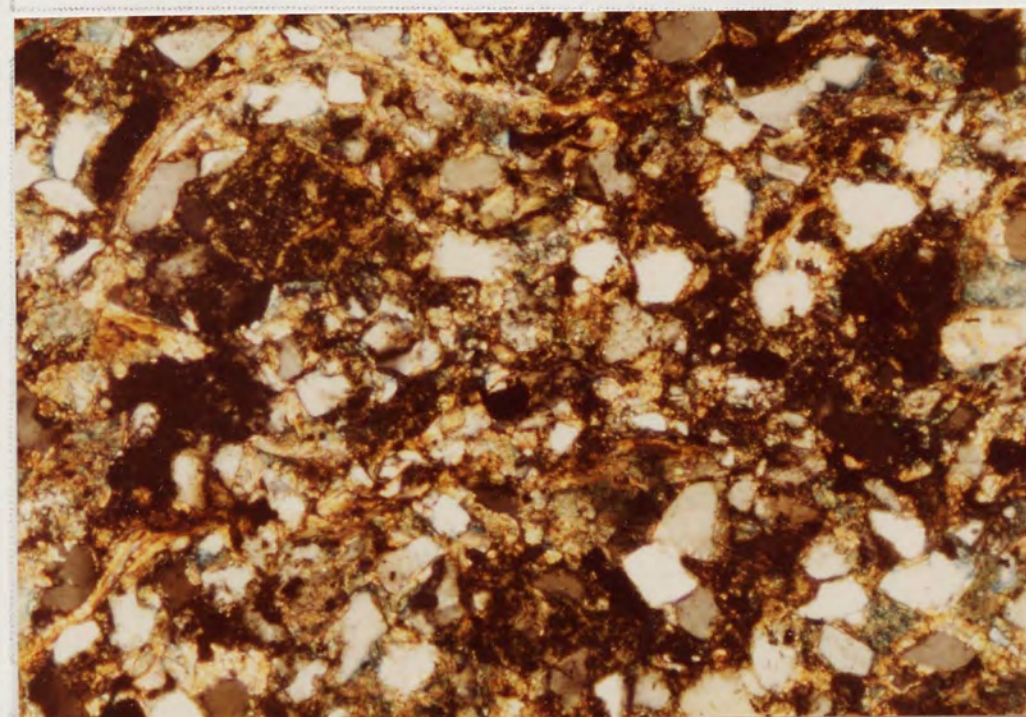
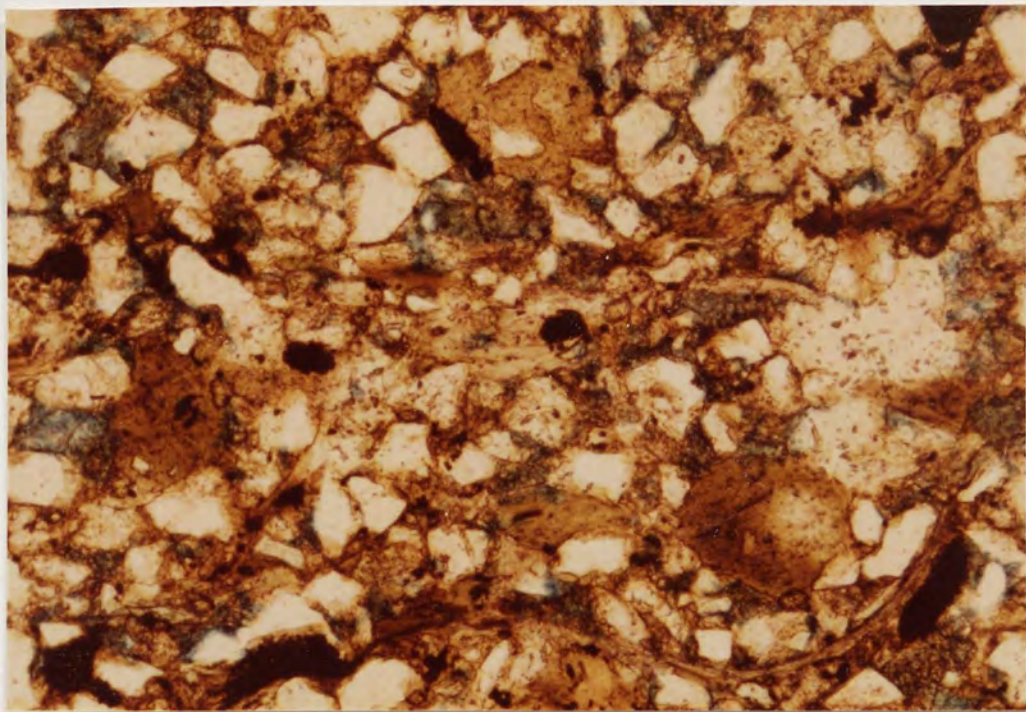


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Plate 3.8a      Patches of authigenic chamosite (olive green) surround quartz grains. Stained section, PPL, x125.

Plate 3.8b      As for Plate 3.8a. XP, x125.

Plate 3.9      The growth of chamosite books is controlled by pre-existing grains. Individual cleavage flakes terminate against quartz grains. Stained section, PPL, x200.



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Plate 3.10 Chamositic chamosite oolite. Stained section,  
PPL, x31.25.

Plate 3.11 Typical chamosite ooid. The core is formed by an  
ooid fragment. All ooids tend to exhibit some sign  
of diagenetic alteration. Stained sections, PPL,  
x125.

Plate 3.12 Replacement of the outer two or three envelope rings by  
siderite anhedra is a common feature. Ghost ring contacts  
are often seen within the siderite. Stained section,  
PPL, x125.



Plate 3.13      The formation of oomoulds generally leaves the  
outer few envelope rings unaffected. Stained  
section, PPL, x200.

Plate 3.14      The process of dissolution to form oomoulds may  
leave core books unaffected. Stained section, PPL,  
x200.

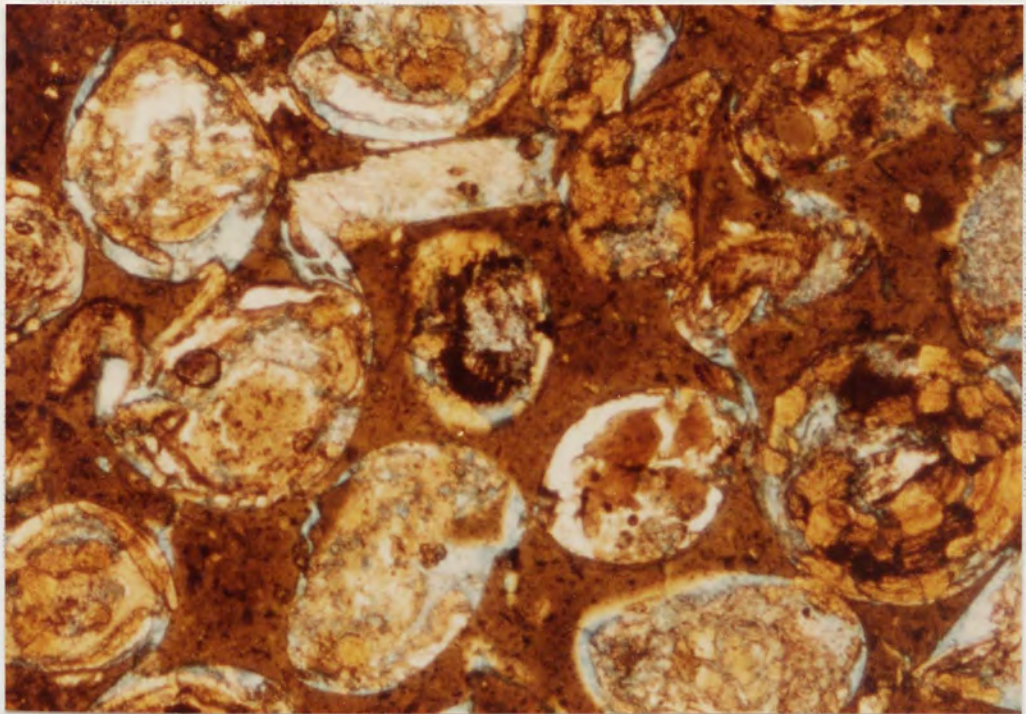
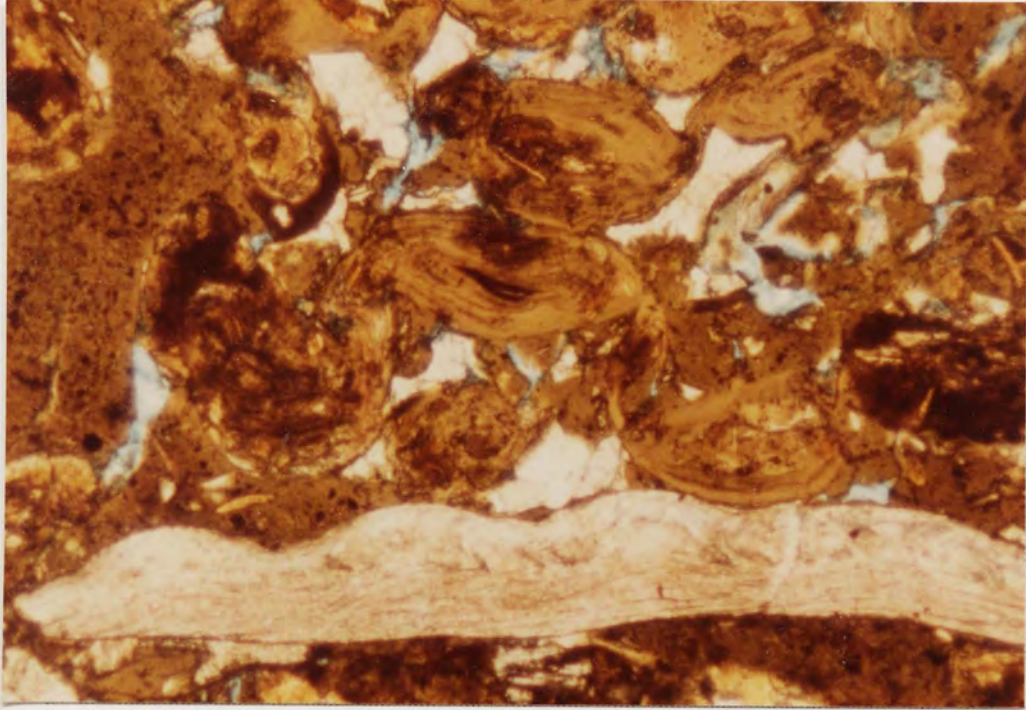


Plate 3.15

The collapse of ooimoulds due to loading may result in the formation of chain flame ooids. Stained section, PPL, x50.

Plate 3.16

Textures suggestive of the mechanical failure of the chamosite mud matrix and its movement into ooimoulds are represented by chain ooids of this type. Chain ooids genesis by linkages between ooid envelopes and subsequent movement cannot account for the occurrence of a shell fragment in this texture. Stained section, PPL, x50.



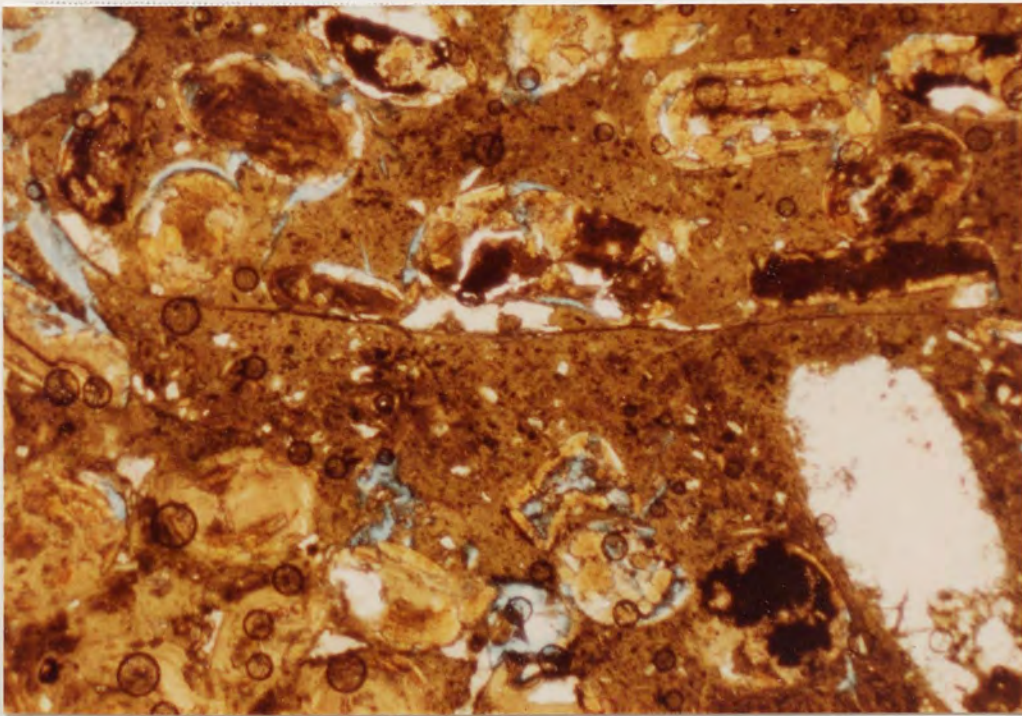
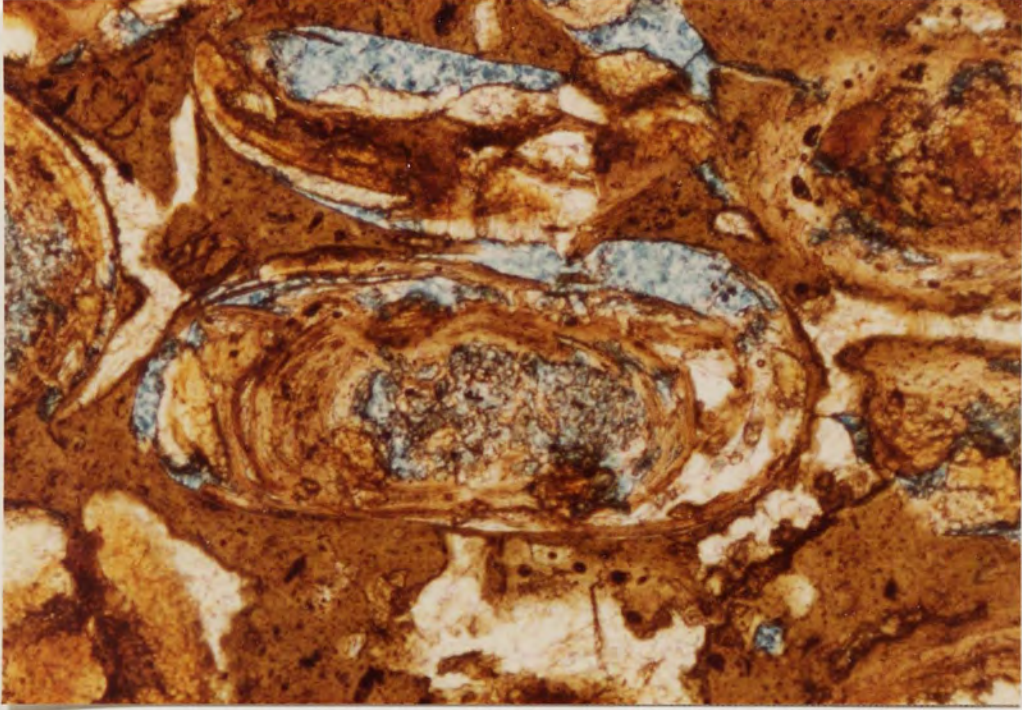
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Plate 3.17

Marginal infilling by ferroan calcite (blue) of the spaces created by chain ooid formation. A central area containing irregular chamosite flakes represents replacement by ferroan calcite. Stained section, PPL, x125.

Plate 3.18

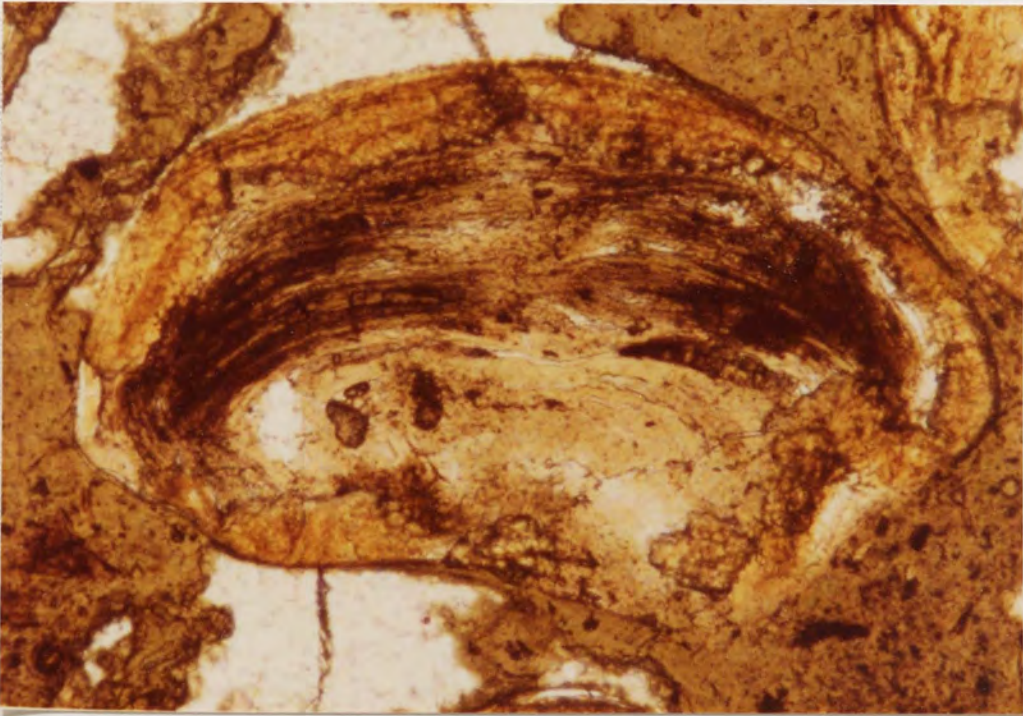
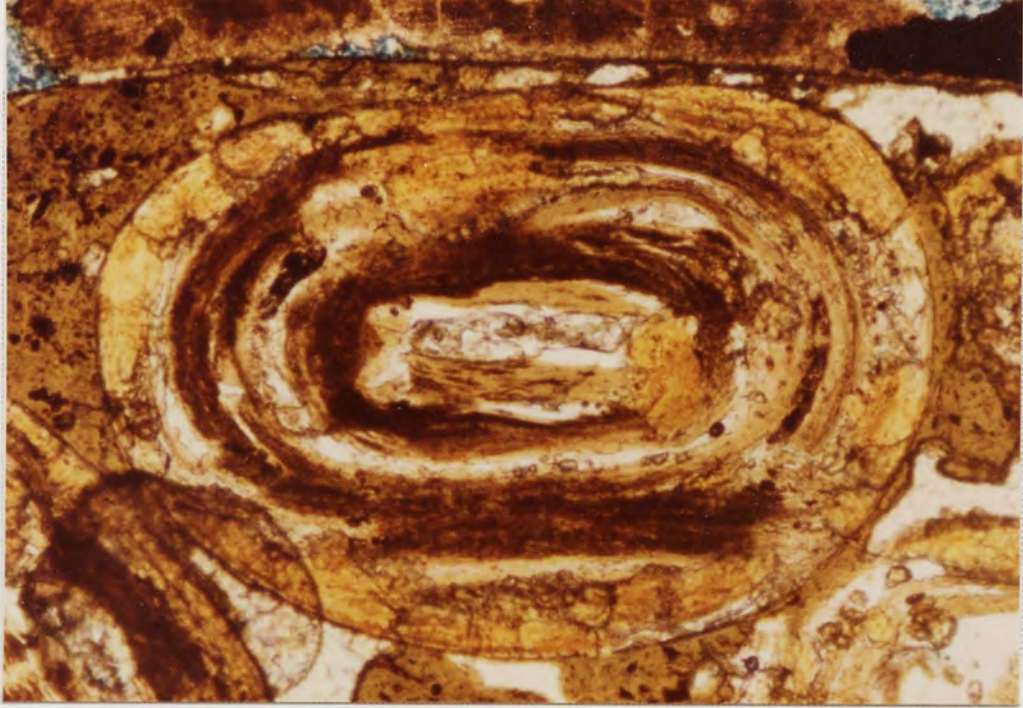
Black fractures cross cut the chamosite mud matrix and can be seen to correspond to a relative displacement of the mud on either side (left-hand end of line). Stained section, PPL, x31.25.



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LONDON, 1911, VOL. 31, PLATE 1, FIG. 1



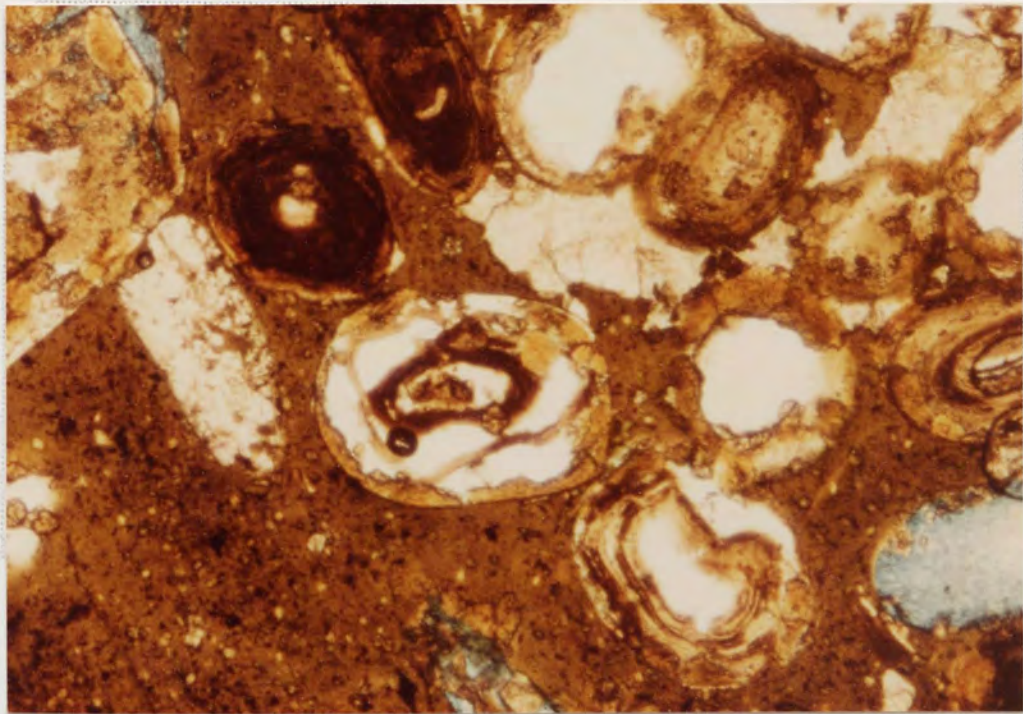
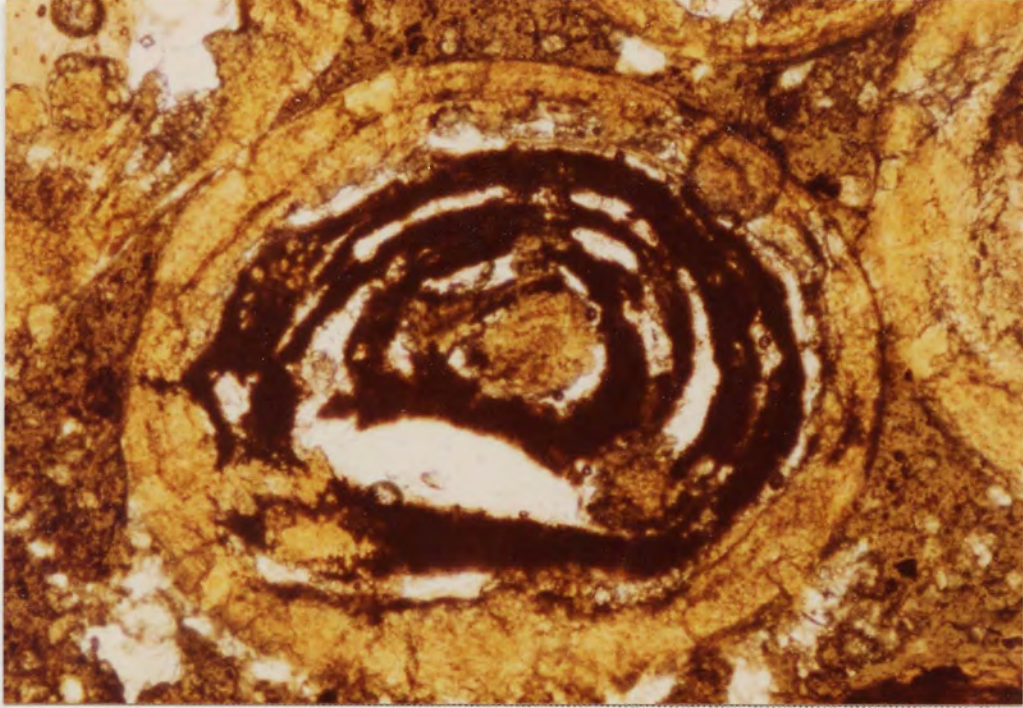
Plate 3.19a      Black to dark brown bands occur in ooid envelopes and are concordant to the envelope ring structure. Stained sections, PPL, x125.



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Plate 3.19b

The processes leading to chamosite dissolution and oolite formation have no apparent effect on the black and dark brown envelope bands. Stained section, PPL, x125, x50.



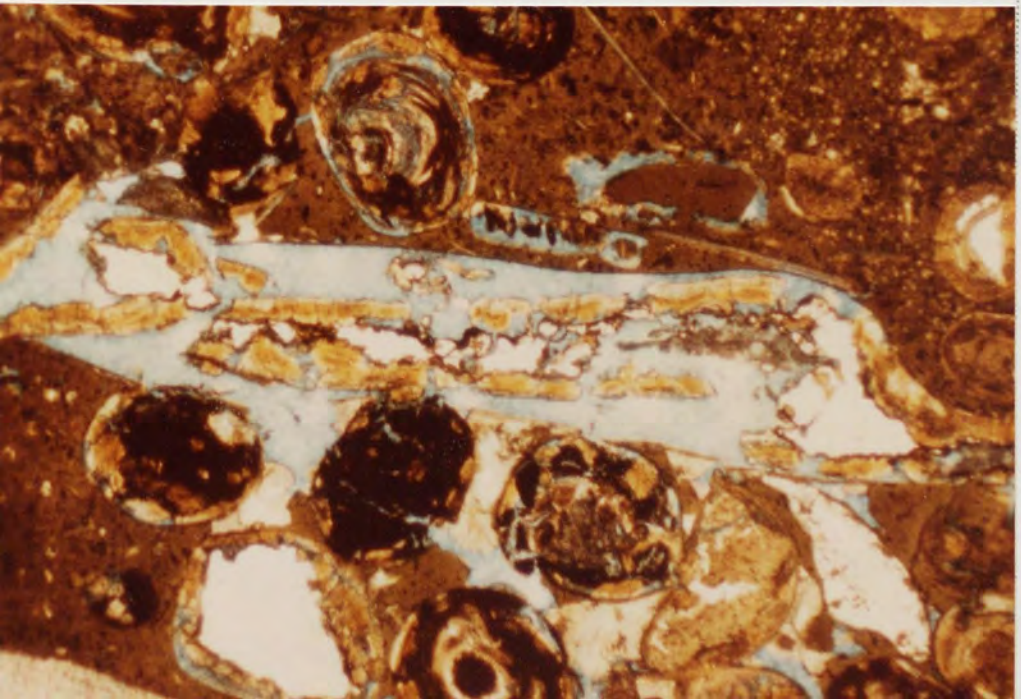
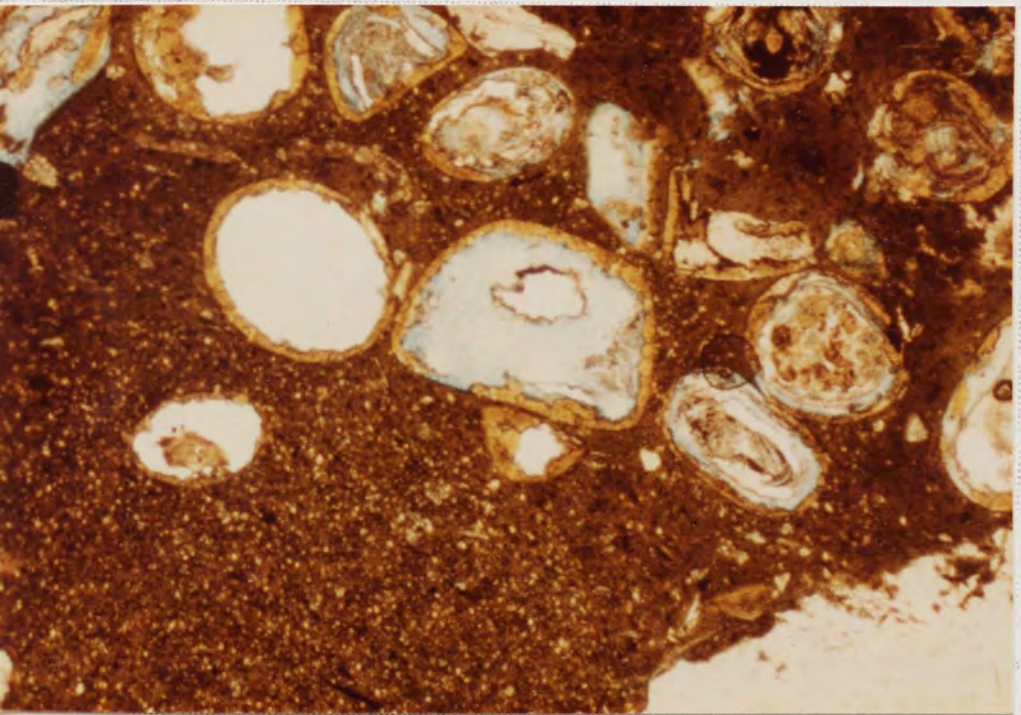
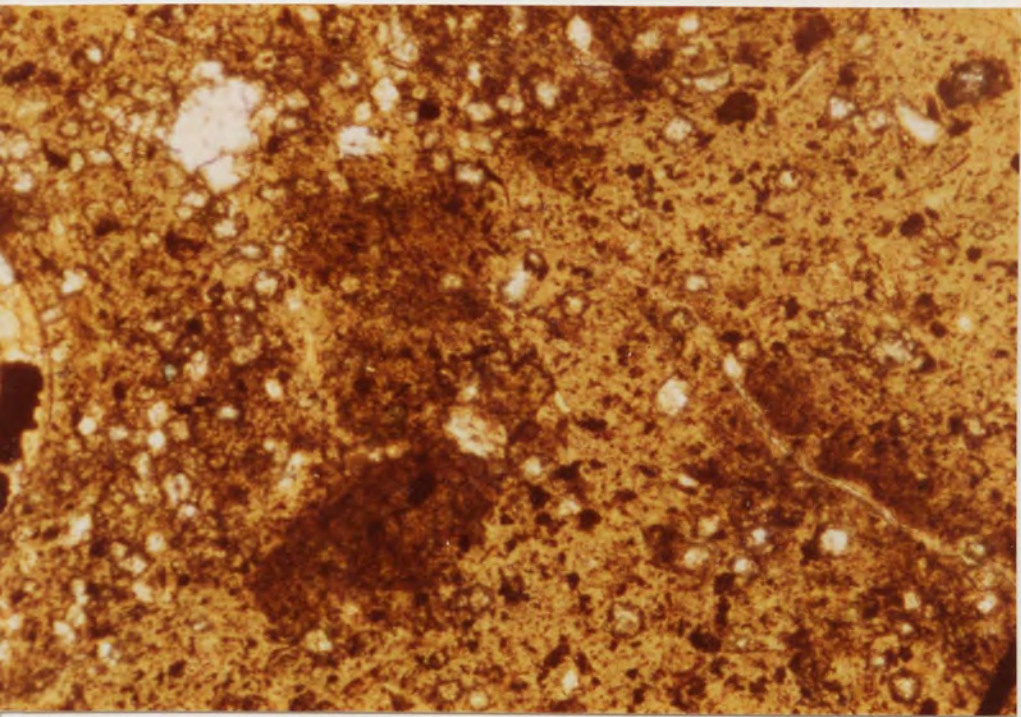
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Plate 3.20

The chamosite mud interstitial to the ooids contains many small siderite anhedra (white) and black filamentous inclusions. Stained section, PPL, x125.

Plate 3.21

Originally aragonite shell fragments have undergone dissolution. The secondary porosity thus created was lined by siderite (white, iron stained). The remaining porosity was infilled by ferroan calcite (blue). In some cases the siderite lining failed at this time. Stained sections, PPL, x31.25.

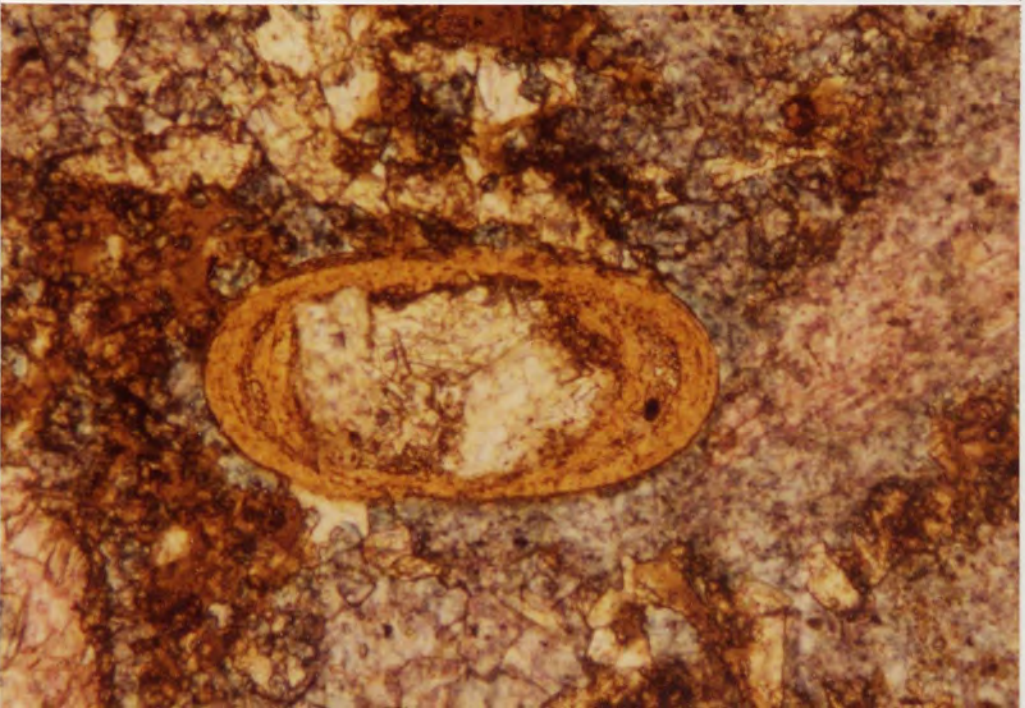
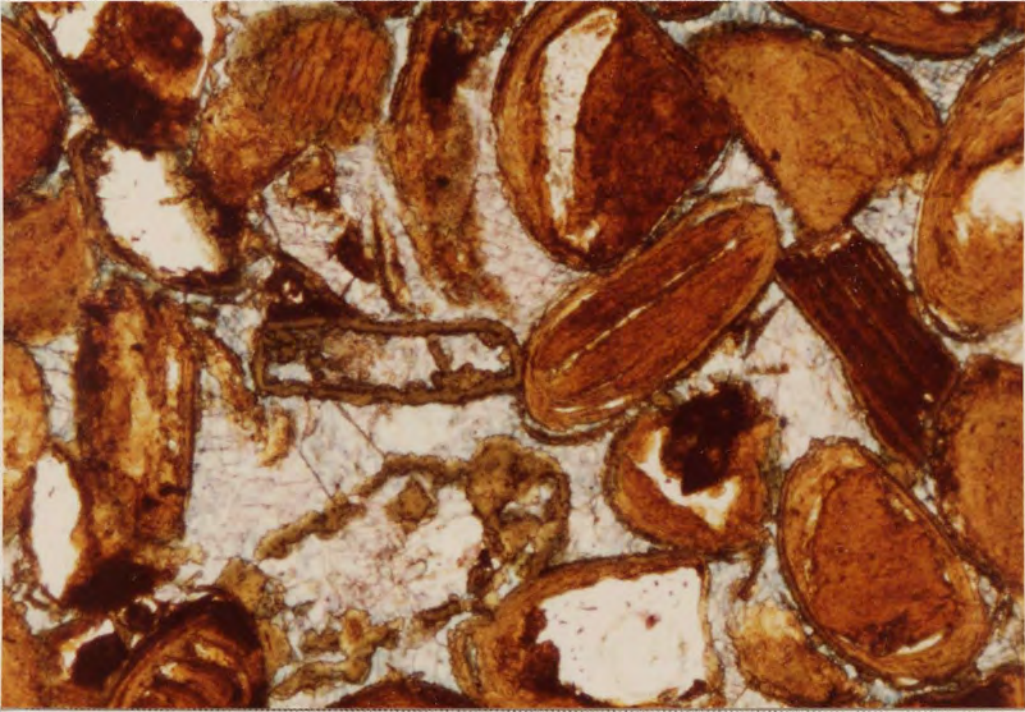
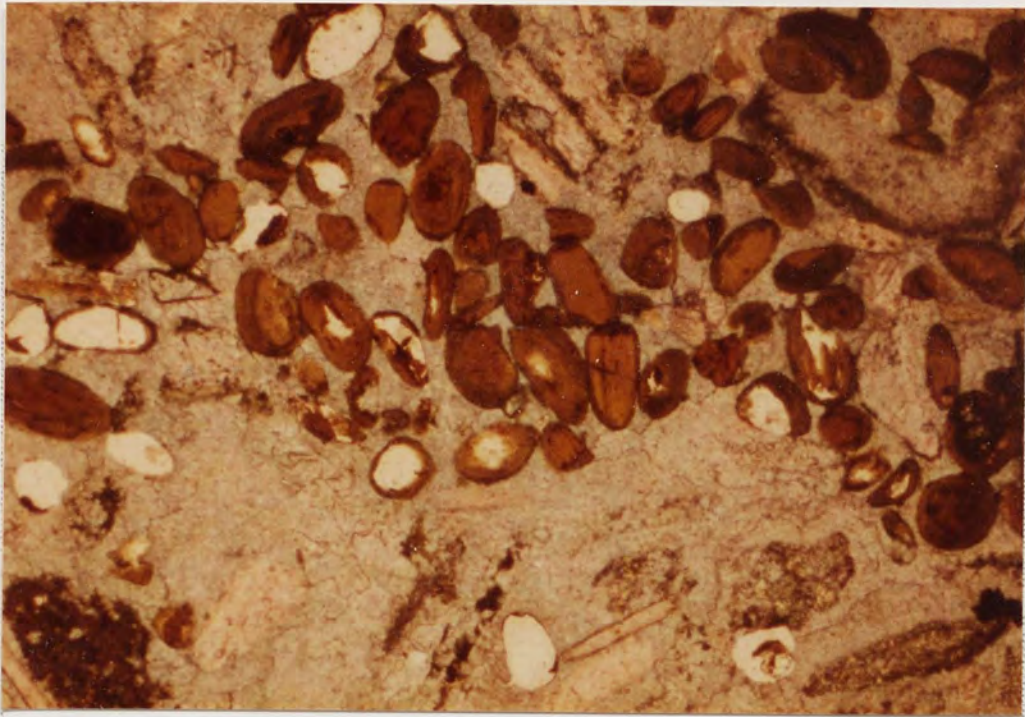


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Plate 3.22      Calcitic chamosite oolite. Stained section, PPL, x31.25

Plate 3.23      Authigenic chamosite (grass green) occurs as an  
isopachous pore lining coat to ooids and originally  
aragonite shell fragments. Stained section, PPL, x125.

Plate 3.24      Ooimoulds are rare. Those that are present may be  
infilled by siderite. Stained section, PPL, x200.

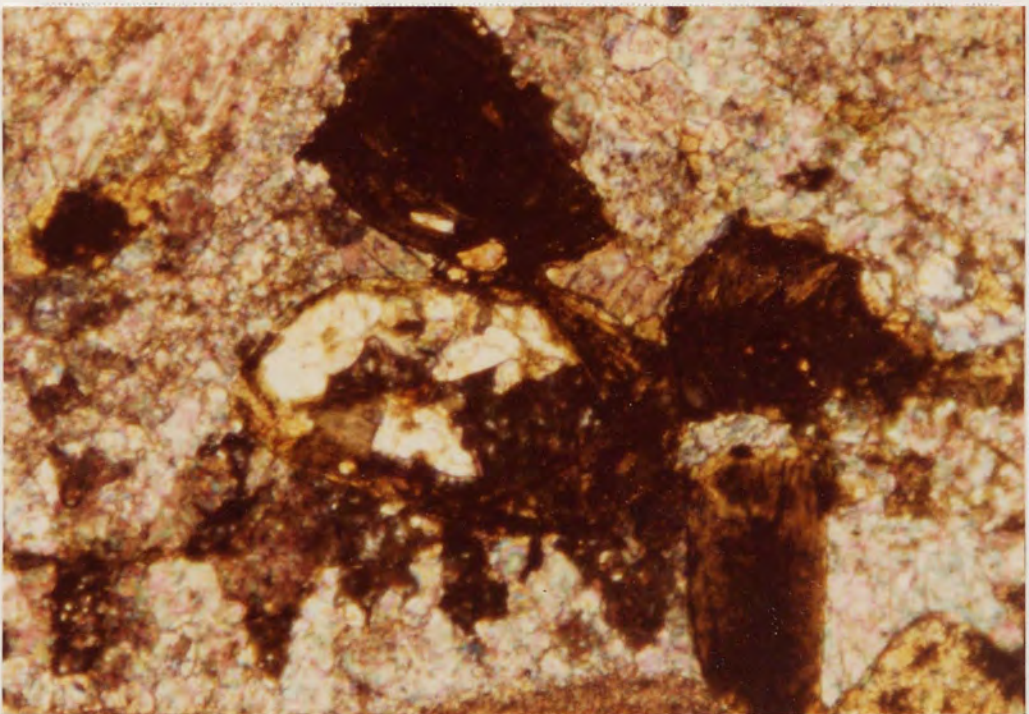
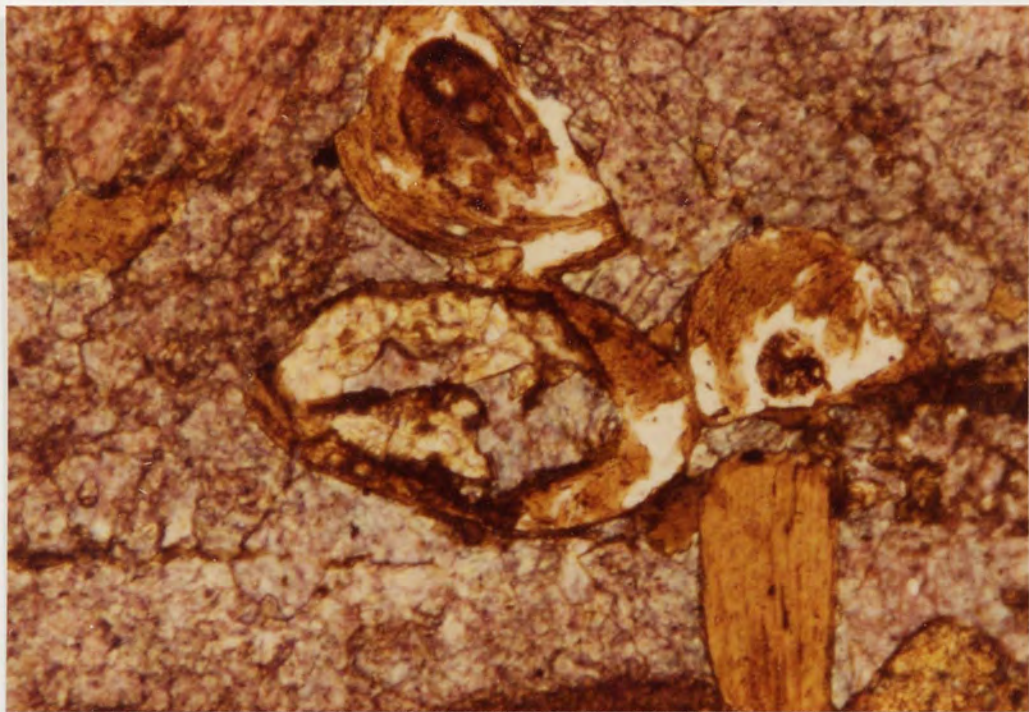


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Plate 3.25a In addition to siderite, ferroan calcite (blue) may also occur as an oomould infilling generation. This post-dates the siderite and is often the same generation as the final ferroan calcite cement (blue). Stained section, PPL, x160.

Plate 3.25b As for Plate 3.25a. Optical continuity between ferroan calcite oomould infill and surrounding cement. XP, x160.



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Plate 3.26      Ferroan calcite (blue) replacing envelope rings.  
Stained section, PPL, x200.

Plate 3.27      Ferroan calcite (blue) replacing core book cleavage  
flakes. Stained section, PPL, x200.

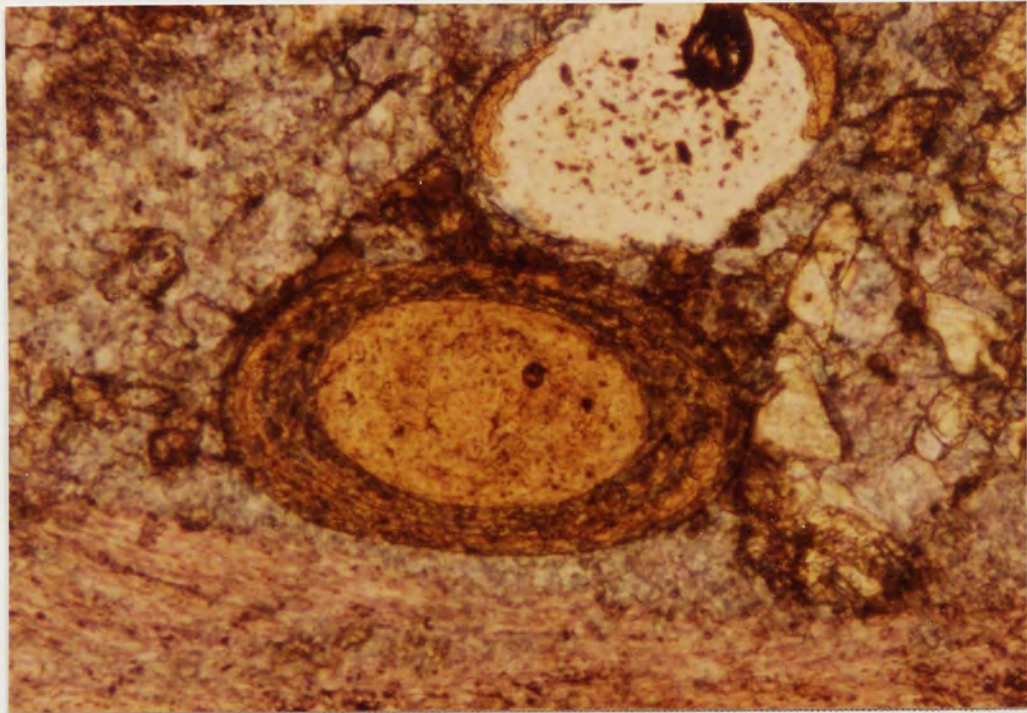


Plate 3.28

Chamosite mud intraclasts. Originally aragonite shell fragments are replaced by ferroan calcite (blue). In some cases a siderite (white) lining to these pores formed prior to the ferroan calcite infill. Stained section, PPL, x50.

Plate 3.29

Siderite (white, high relief) occurs as rhombs and subhedra rooted on the authigenic chamosite (green) surrounds to originally aragonite shell fragments. Stained section, PPL, x200.

