

MINERAL SEPARATES

NOPAL 1

PHOTOGRAPHY

Photographer: Pgh

Microscope:

Type of photography:

Camera: Nikon

Date: 1/28/93

Film: Ektachrome 100

Photo No.	Sample No. and description	Obj.	FOV	Light
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	NOPI-ECP-19.0/5.0 - Opal crust			
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1. Shows 2 layers of opal. One that is massive ~~and~~ clear, and botryoidal and one that is thin, ~~and~~ milky with iron oxide inclusions
2. Another view of #1
3. Stalactitic texture of 2nd generation opal
4. Several samples of opal with uranophane inclusions (bright yellow)
5. Iron oxide substrate
6. 2nd generation opal,
7. Bulk rock with crust. Shows botryoidal texture of substrate
8. Stalactitic texture
9. Lower magnification of #8
10. ?

PHOTOGRAPHY

Photographer: *psk*

Microscope:

Type of photography:

Camera: *Nikon*

Date: *1/28/93*

Film: *Ektachrome 100*

Photo No.	Sample No. and description	Obj.	FOV	Light
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NOPI-ECP-37 SEP3

11. Shows substrate, uraniferous opal and
clean opal layering.

12. *NOPI-ECP-19/5 Nikon microscope*
Uranophane inclusion

10x 1.3mm XN

13. Another grain with Uranophane
inclusion

10x 1.3mm XN

14. Same as 13

10x 1.3mm PL

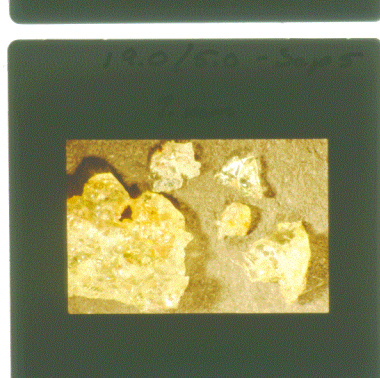
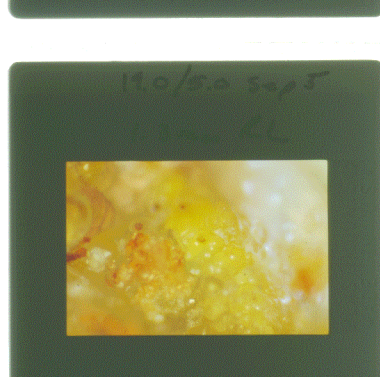
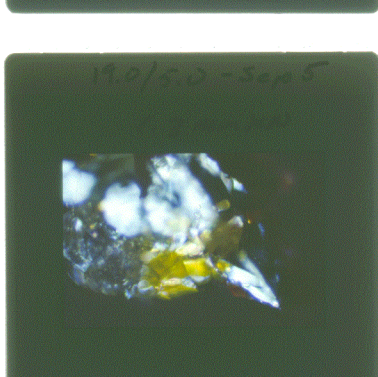
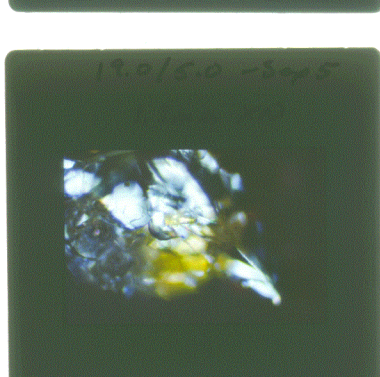
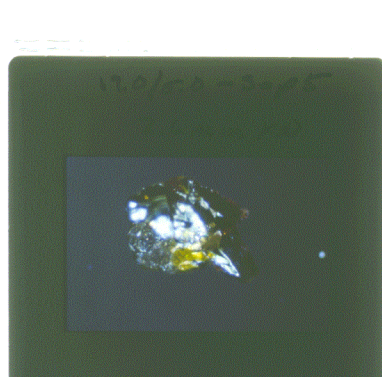
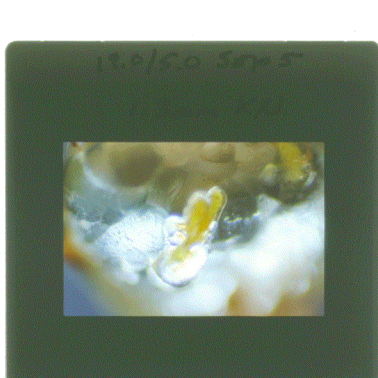
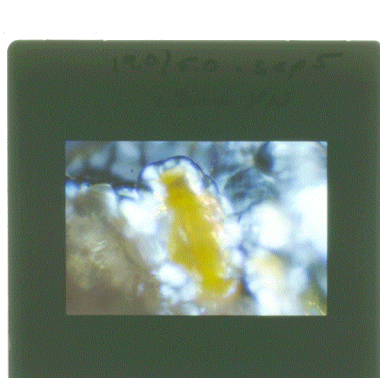
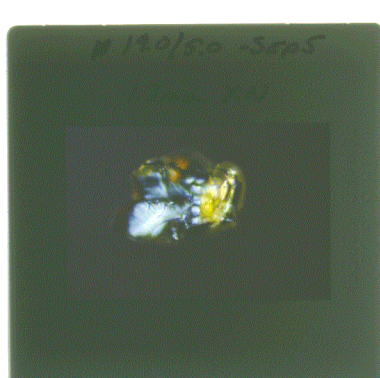
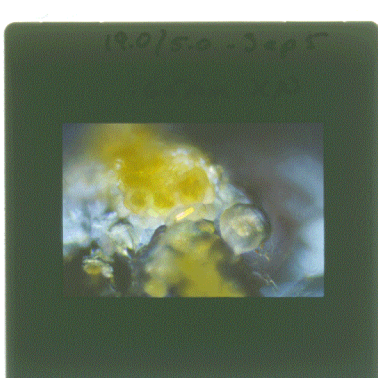
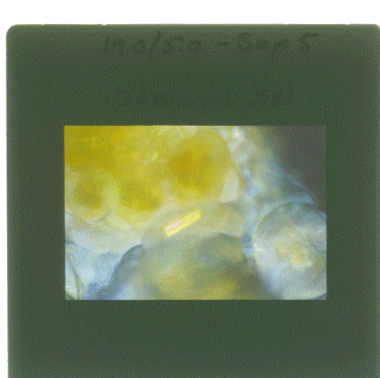
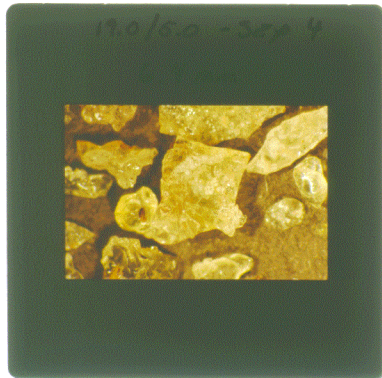
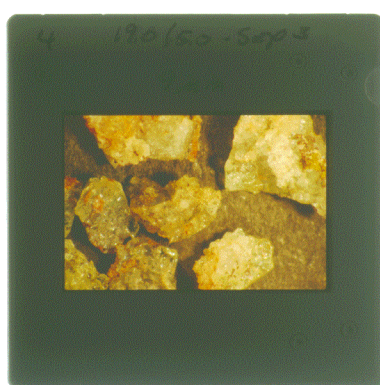
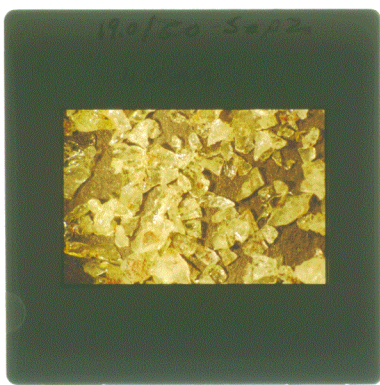
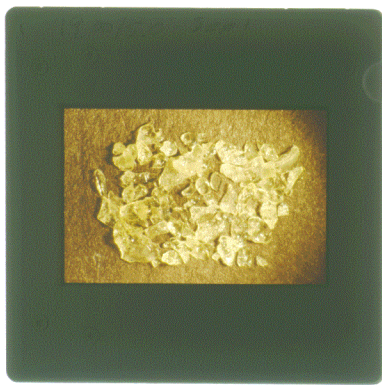
15. Close up of Stalactitic texture

10x 1.3mm PL

16. ~~Many~~ Uranophane inclusions in
opal on bulk rock

17. Same as 16 - low mag





PHOTOGRAPHY

Photographer: psl

Microscope: Nikon

Type of photography: Binocular

Camera: Nikon

Date: 2/18/93

Film: Ektachrome 100

Photo No.	Sample No. and description	Obj.	FOV	Light
1.)	19.00/5.0 - Sep 1 - Pure Opal	1.0X	11.0mm	
2)	19.0/5.0 - Sep 2 - Slightly Stained	1.0X	11.0mm	
3)	19.0/5.0 - Sep 3 - Fe inclusions	1.5X	~ 9.1mm	
4)	Repeat of 3 - brighter light	1.5	~ 9.1mm	
5)	Sep 4 - White inclusions	2.0X	= 6.4mm	
6)	Sep 5 - Uranophane inclusions - Petrographic scope	40X	.325mm	NX
7)	Same as 6	20X	.65mm	XN
8)	Sep 5 - another Uranophane inclusion clearly shows Uranophane inside the opal	10x	1.3mm	XN
9)	Sep 5 - Uranophane inclusion	10x	1.3mm	XN
10)	Same as 9 but focus on Uranophane inside opal	10x	1.3mm	XN
11)	Sep 5 - "	10x	1.3mm	XN
12)	Same grain as 11 - different area	10x	1.3mm	XN

PHOTOGRAPHY

Photographer: *pyk*

Microscope: *Nikon*

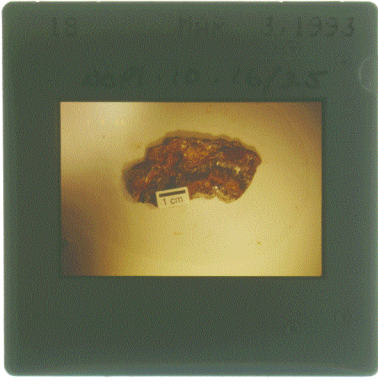
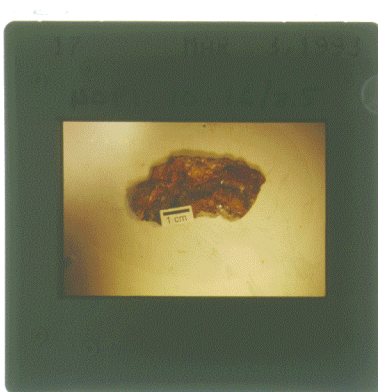
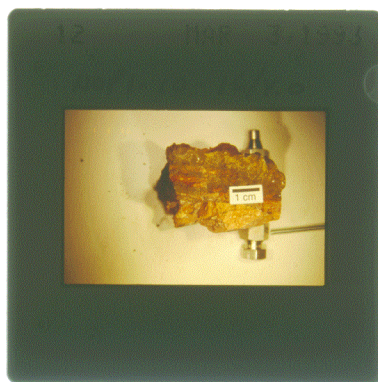
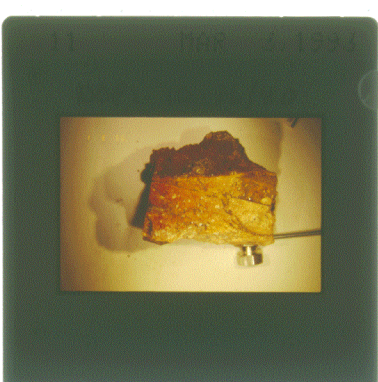
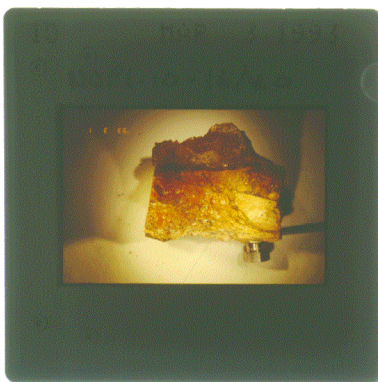
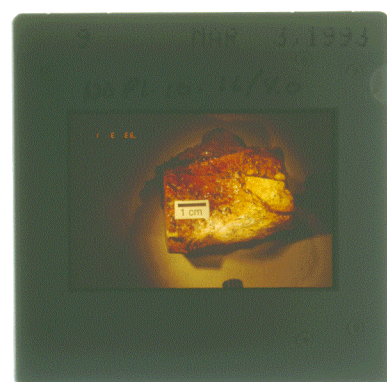
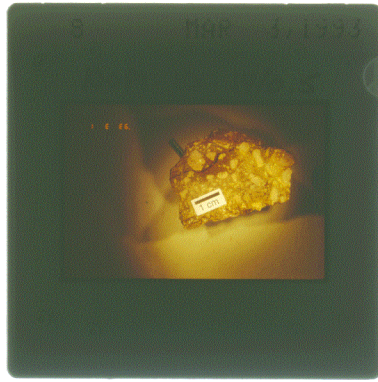
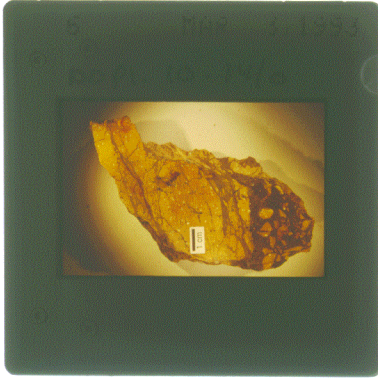
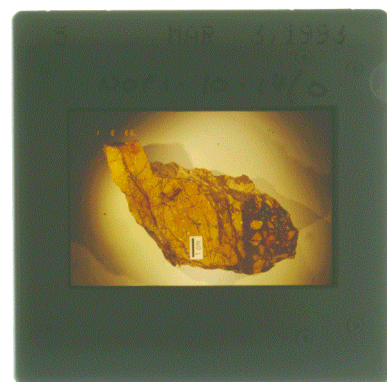
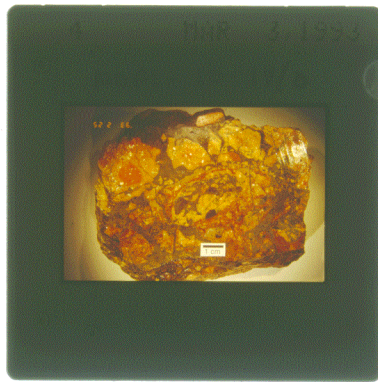
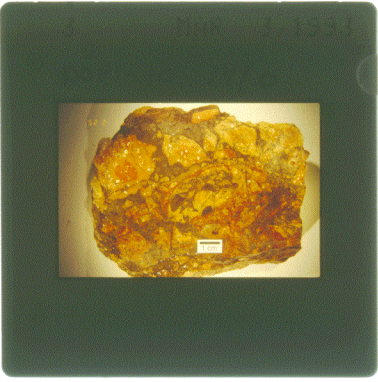
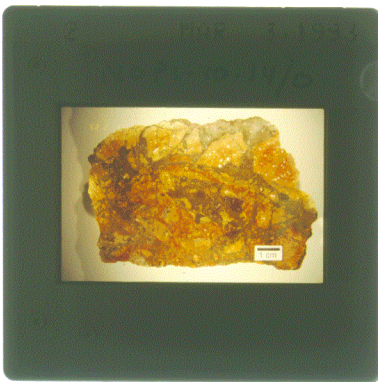
Type of photography: *Binscual*

Camera: *Nikon*

Date: *2/18/93*

Film: *Ektachrome*

Photo No.	Sample No. and description	Obj.	FOV	Light
13	Sep 5 -	5x	2.6mm	XN
14	Same as 13 - different focus	10x	1.3mm	XN
15	Same as 13 - different focus	10x	1.3mm	XN
16	Sep 5 - Shows uranophane inside opal	10x	1.3mm	RL
17	Sep 5 - binocular	?		
18	Sep 5 - another grouping of Uranophane inclusions		1.5x $\approx$ 9mm	
19	Sep 6 - lots of substrate	1x	11.0mm	
20	23.3/9.8 - T51 Uranophane filling fracture cutting an idiomite phenocryst	20x	0.65mm	XN
21	23.3/9.8 - T52 Uranophane filling fractures in gsf/feld matrix. Replaced felds.	10x	1.3mm	XN



PHOTOGRAPHY

Photographer: *gfp/psk*

Microscope: *ptt*

Type of photography: *Rock (hand specimen)*

Camera: *Nikon*

Date: *2/25/93*

Film: *100 Ektachrome*

Photo No.	Sample No. and description	Obj.	FOV	Light
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NOPI-10-14/0

- | | | | | |
|----------|--|----------------|--|--|
| <i>1</i> | <i>Calcite cemented breccia</i> | <i>no good</i> | | |
| <i>2</i> | <i>Calcite cemented breccia</i> | | | |
| <i>3</i> | <i>Calcite cemented</i> | <i>"</i> | | |
| <i>4</i> | <i>" "</i> | <i>" "</i> | | |
| <i>5</i> | <i>Calcite filled fractures in
tuff. Some calcite cemented
breccia</i> | | | |

6

NOPI-10-14/0.5

- | | | | | |
|----------|---|--|--|--|
| <i>7</i> | <i>calcite cemented breccia</i> | | | |
| <i>8</i> | <i>calcite cemented breccia
w/ fracture</i> | | | |

NOPI-10-16/4.0

- | | | | | |
|-----------|---|----------------|--|--|
| <i>9</i> | <i>Calcite Fracture</i> | <i>no good</i> | | |
| <i>10</i> | <i>"</i> | <i>no good</i> | | |
| <i>11</i> | <i>"</i> | <i>finally</i> | | |
| <i>12</i> | <i>shows extent of calcite
fillings</i> | <i>no good</i> | | |
| <i>13</i> | <i>"</i> | | | |

NOPI-10-19/2

- | | | | | |
|-----------|--------------------------------|--|--|--|
| <i>14</i> | <i>Calcite filled fracture</i> | | | |
|-----------|--------------------------------|--|--|--|

PHOTOGRAPHY

Photographer:

Microscope:

Type of photography:

Camera:

Date:

Film:

Photo No.	Sample No. and description	Obj.	FOV	Light
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NOP1. 20 - 26/1

15. Calcite filled fracture
cementing breccia

16

11

NOP1. 10 - 16/3.5

17 calcite / limonite
fracture

18.

11

NOP1. 10. 15/2

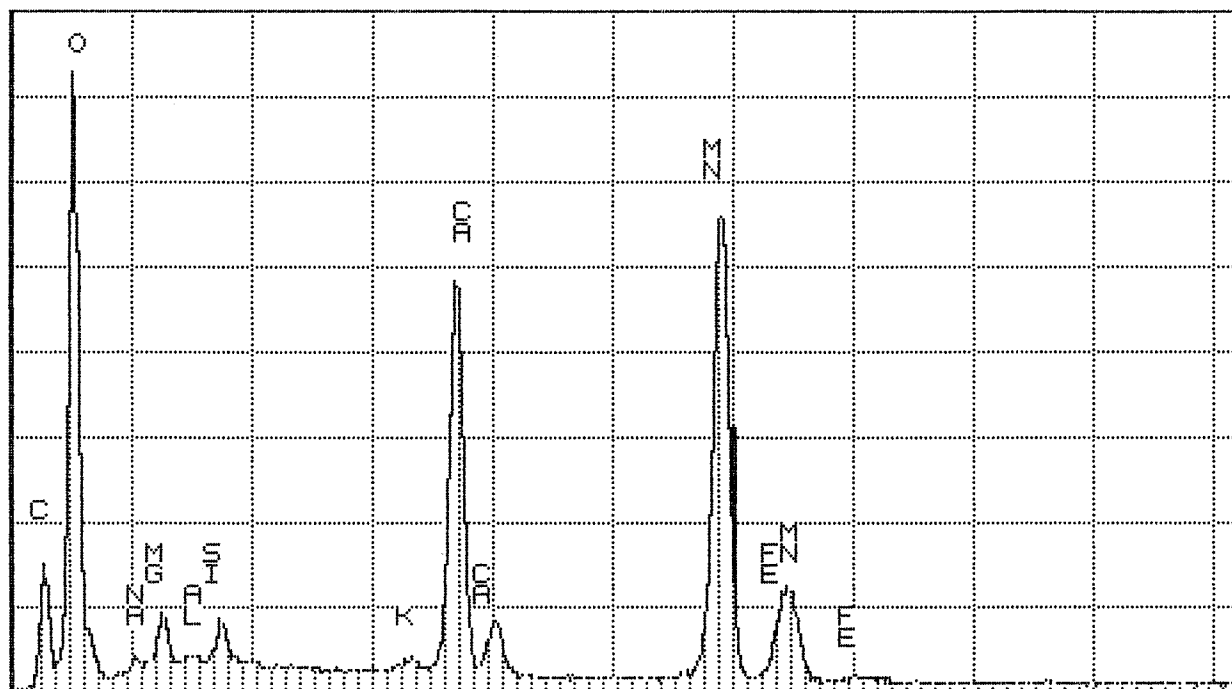
19. Same as 14

1.30
*E F

NORAN TN-5505

MON 21-JUN-93 09:53

Cursor: 0.000keV = 0



0.000

VFS = 2048 10.240

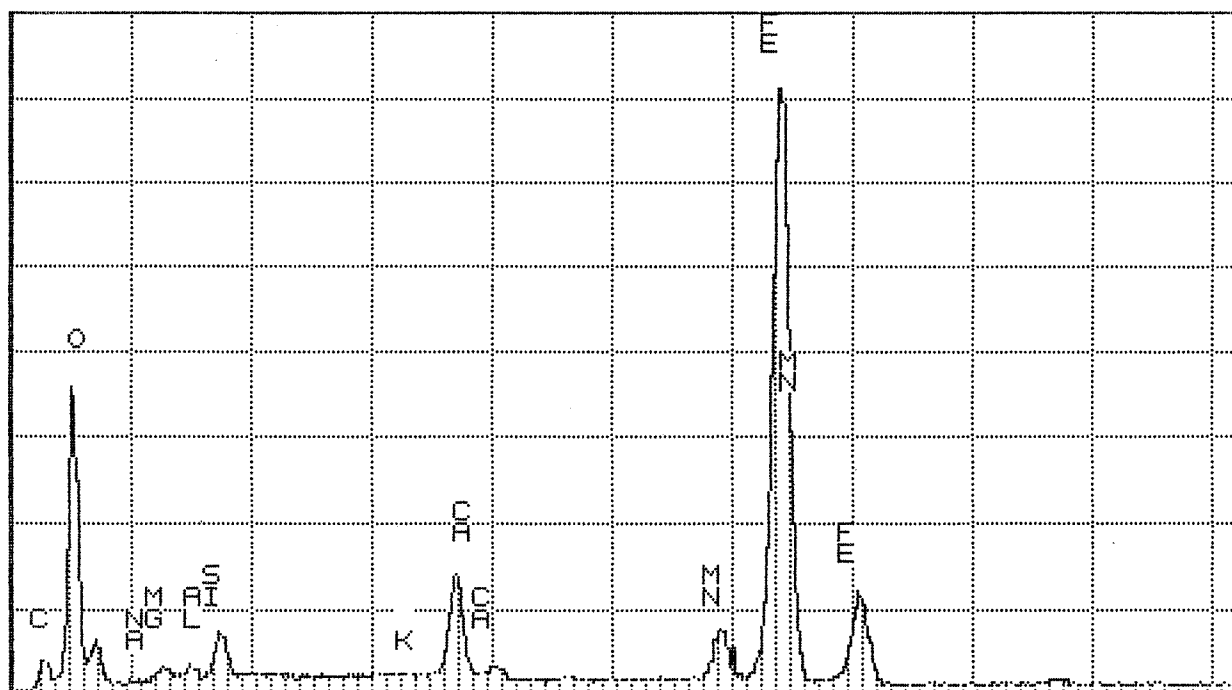
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NOPI-ECP-10-16

NORAN TN-5505

MON 21-JUN-93 10:18

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0.000

VFS = 2048 10.240

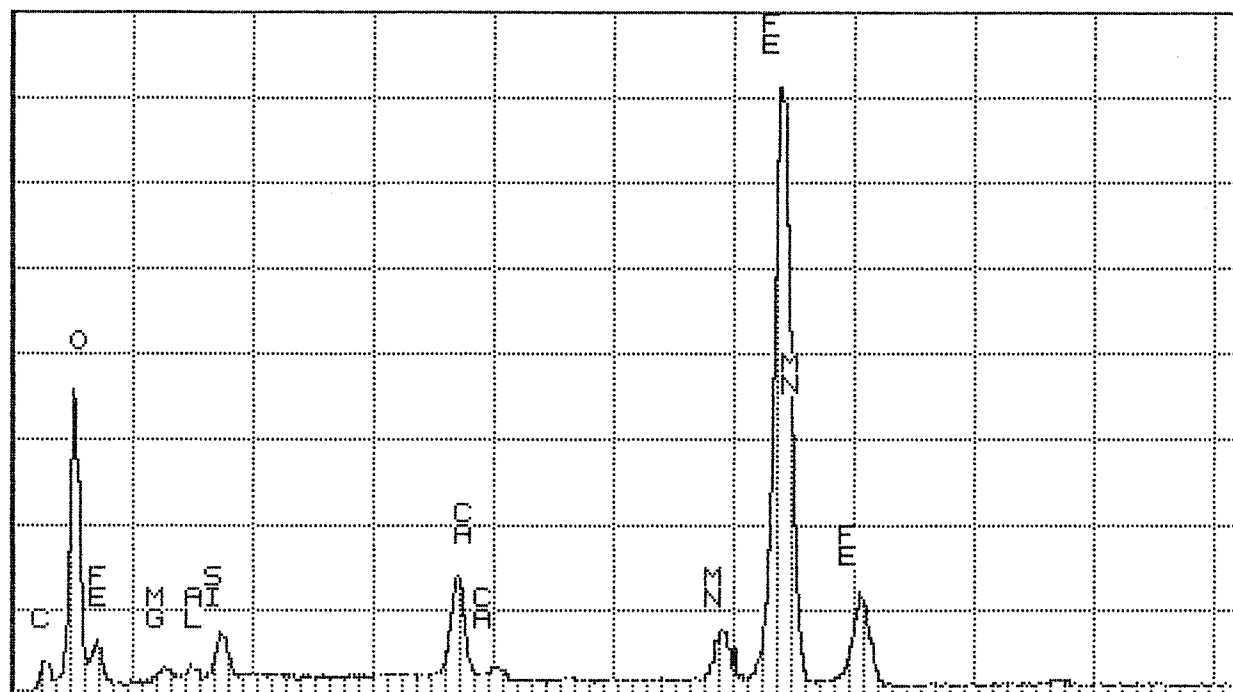
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NOPI-ECP-10-16

NORAN TN-5505

MON 21-JUN-93 10:21

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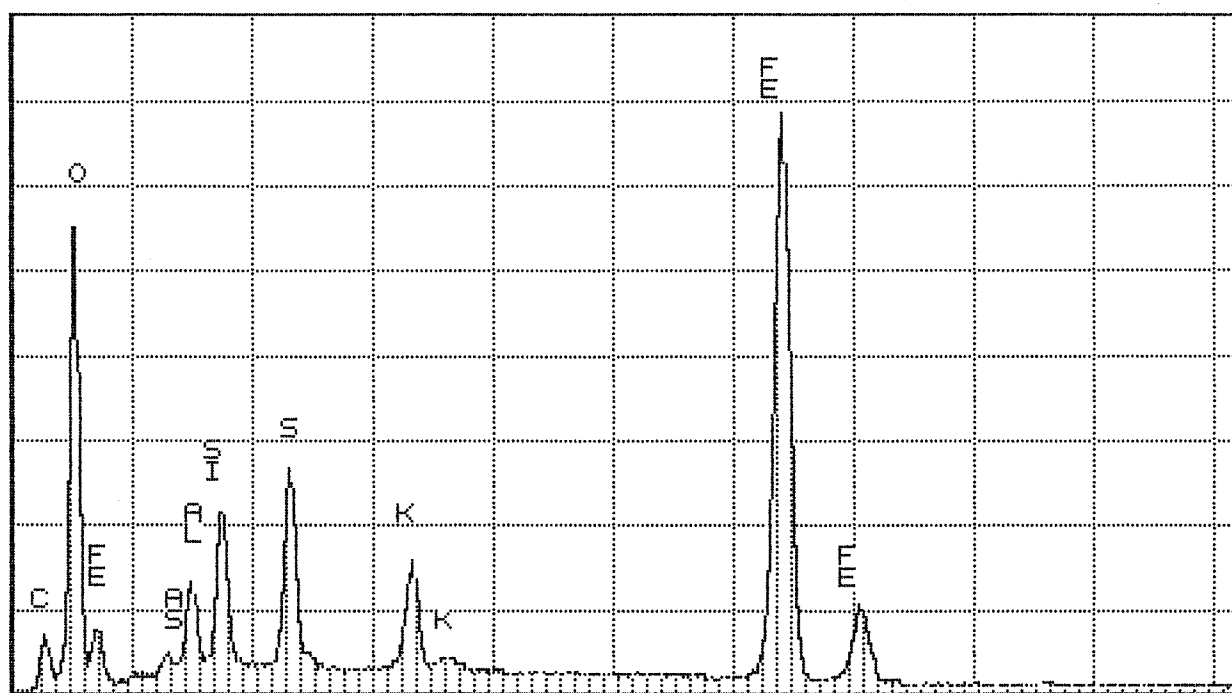
0.000

VFS = 2048 10.240

140

NOPI-ECP-10-16

Cursor: 0.000keV = 0



0.000

VFS = 2048 10.240

354

NOPI-ECP-12.22/13.55

*SQ/SQC-3B/80

SQ: SETUP DEFINITIONS

SQ: QUANTIFY

NOPI-ECP-12.22/13.55

Standardless Analysis
20.0 kV 40.0 Degrees

Chi-sqd = 6.75

Element	Rel. K-ratio	Net Counts
As-L	0.00919 +/- 0.00373	473 +/- 192
Al-K	0.02575 +/- 0.00243	2919 +/- 276
Si-K	0.04350 +/- 0.00194	5264 +/- 235
S-K	0.08727 +/- 0.00213	8833 +/- 216
K-K	0.05295 +/- 0.00221	4474 +/- 187
Fe-K	0.78135 +/- 0.00837	38845 +/- 322

ZAF Correction 20.00 kV 40.00 deg
No. of Iterations = 4

Element	K-ratio	Z	A	F	ZAF	Atom%	Wt%
As-L	0.008	1.086	2.172	0.998	2.354	1.17	1.90
Al-K	0.023	0.955	2.229	0.997	2.122	8.23	4.81
Si-K	0.038	0.927	1.855	0.996	1.713	10.79	6.56
S-K	0.077	0.933	1.419	0.995	1.318	14.58	10.12
K-K	0.047	0.967	1.172	0.984	1.115	6.14	5.19
Fe-K	0.687	1.027	1.012	0.999	1.039	59.09	71.42
Total=						100.00%	

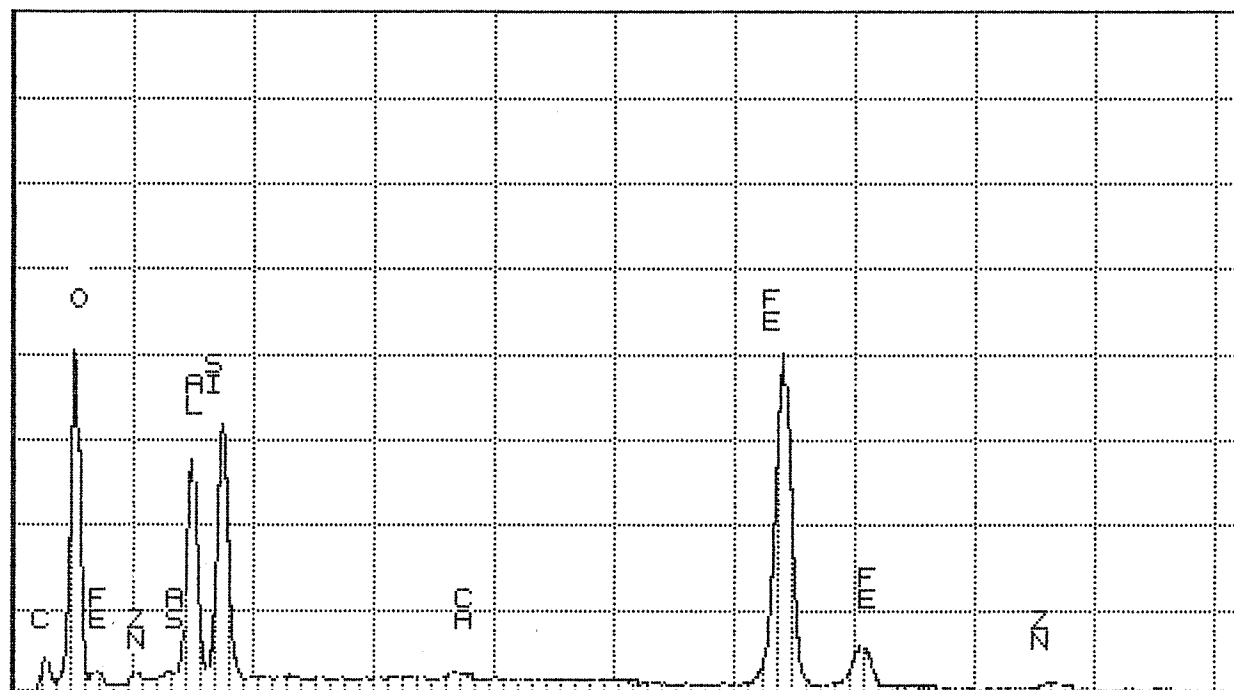
SUBTRACT

1.30
*E F

NORAN TN-5505

MON 21-JUN-93 12:56

Cursor: 0.000keV = 0



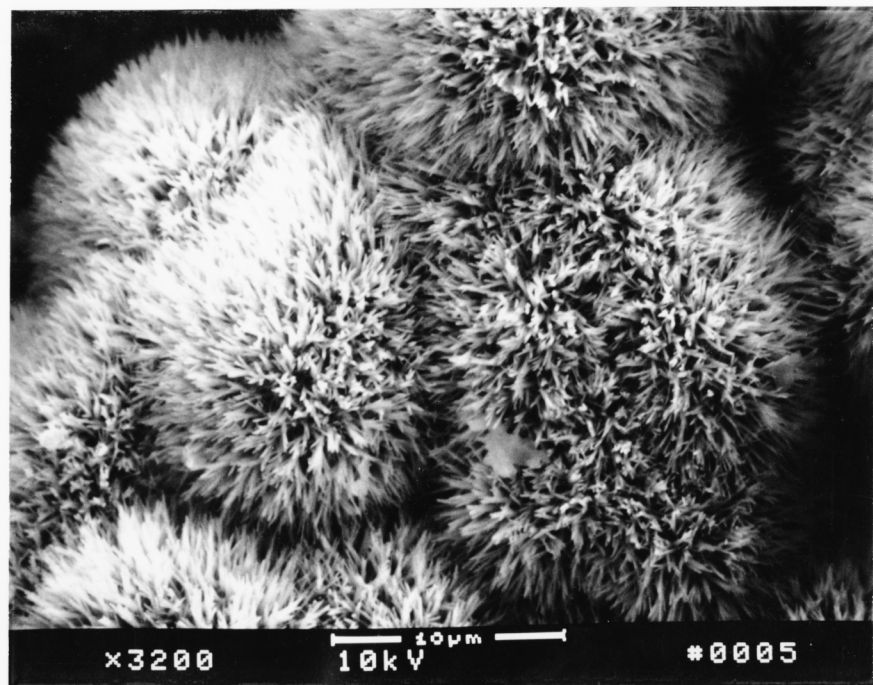
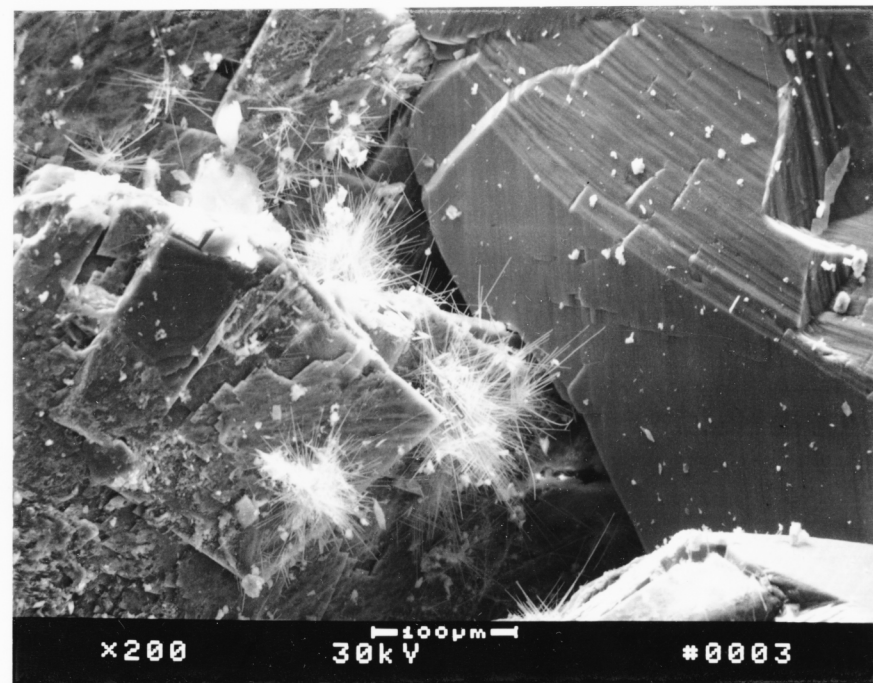
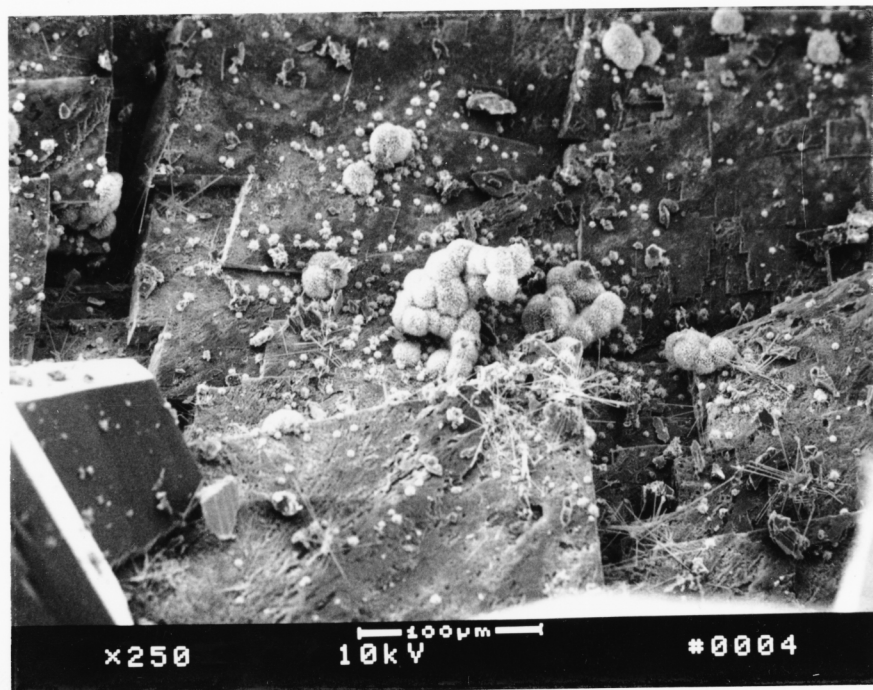
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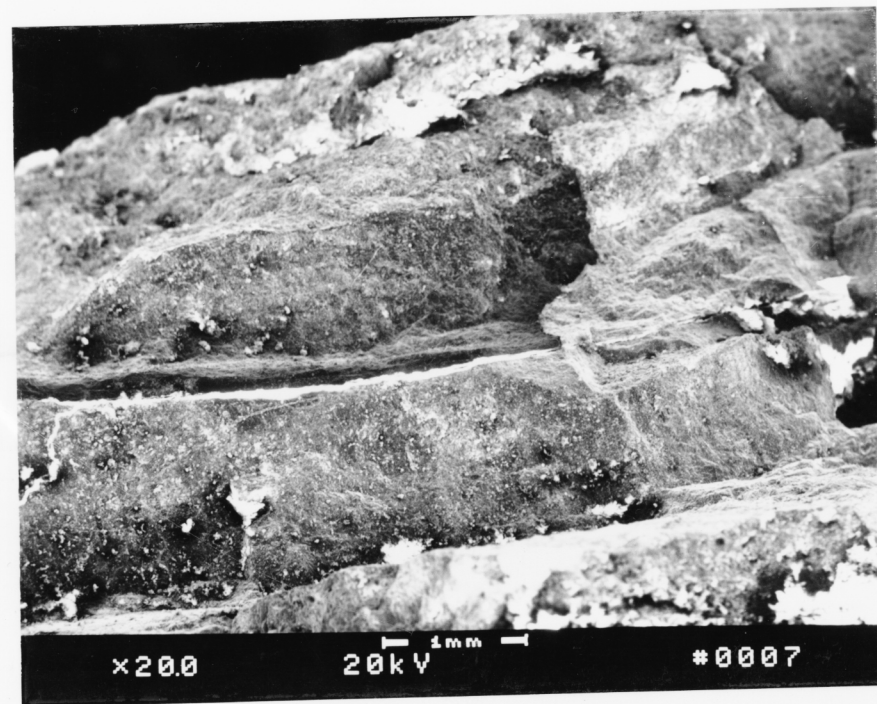
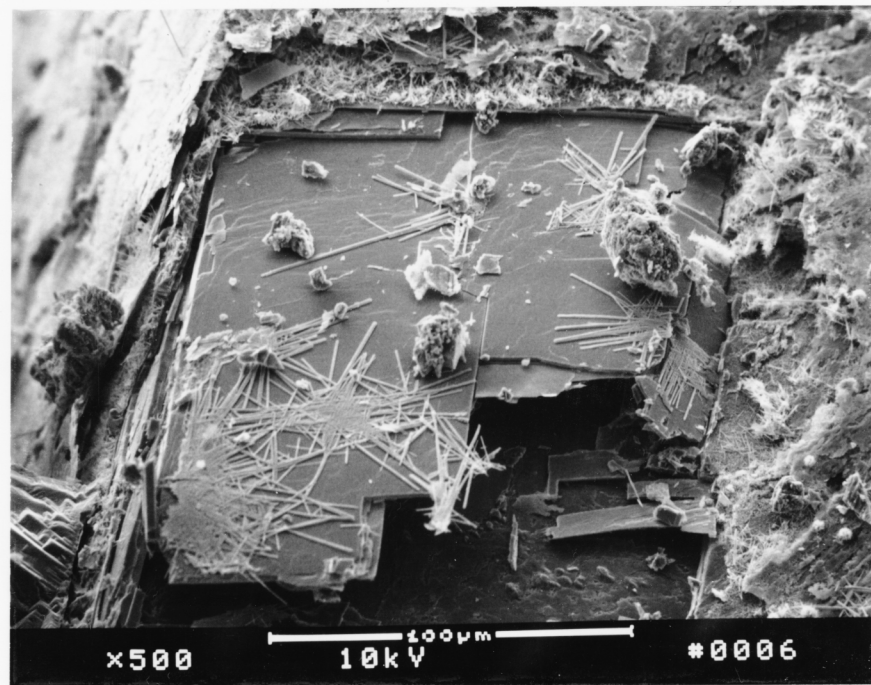
VFS = 8192 10.240

136

NOPI-ECP-3.78/13.70

20KEV





PHOTOGRAPHY

Photographer:

Microscope:

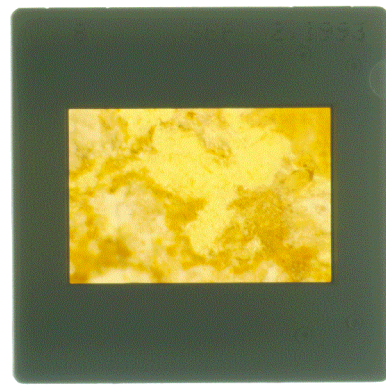
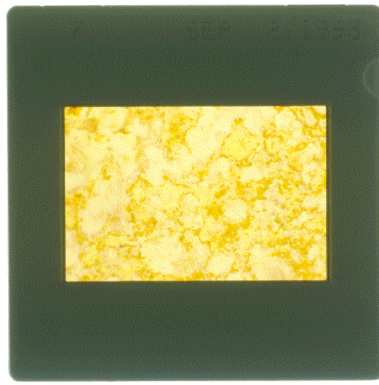
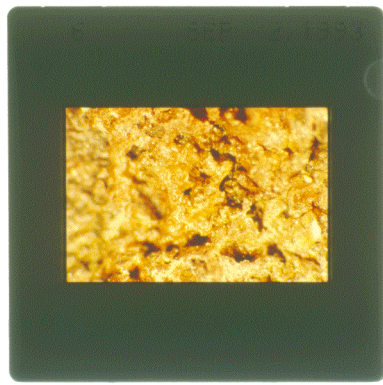
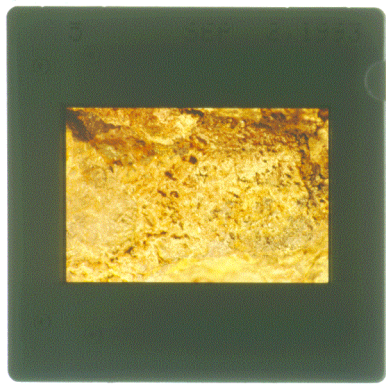
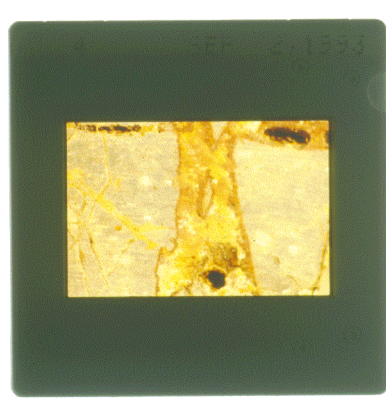
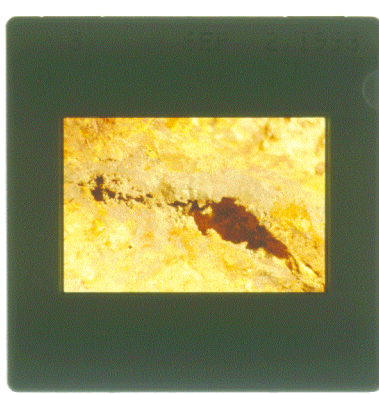
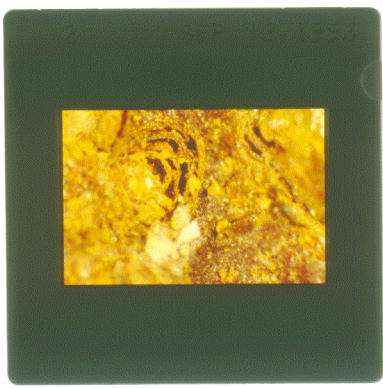
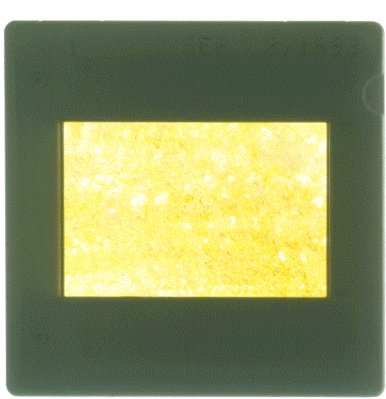
Type of photography:

Camera:

Date:

Film:

Photo No.	Sample No. and description	Obj.	FOV	Light
1	(793) 28.75/2.7 Iron oxide alteration.	1.0	11.0mm	
2.	Same as above			
3.	close up of above	6.3	2.0mm	
3.	⁽⁷⁹³⁾ 32.15/2.8 - Fracture	1.0	11.0mm	
4.	(793) 31.8/2.8/0 Fracture on cut surface	1.0	11.0mm	
5.	(793) 31.8/2.8/0 Iron oxide coating	1.0	11.0mm	
6.	close up	3.0x	4.2mm	
7.	(793) 27.0/2.6	1.0	11.0mm	
8.	close up			



PHOTOGRAPHY

Photographer: pgh

Microscope: —

Type of photography: 2mm slices

Camera: Minolta

Date: 5/19/93

Film: Ektar 100

Photo No.	Sample No. and description	Obj.	FOV	Light
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1	4.5/13.77 A cut 5 side 1			
2	" " " 5 " 2			
3	" " " 6 " 1			
4	" " " 6 " 2			

5 ~~4.2 3.2~~ - 11.2/14.7/1.5

6. 12.2/14.5/2.0

7. 7.4/36.0/2.0

8. 3.2/14.0/1.7

9 " "

10. (393) 11.6/30.0/1.7

11. (393) 5.2/35.7/1.0

12 " "

13 393 - 7.5/33.8

14 " "

3503

