

GEYSERS • SEM

SEM ANALYSIS

PROJECT: Hulen Geysers
 DATE: 3/20/92
 SAMPLE ID'S: A- _____
 B- 31 } (8534.5)
 C- _____ } Core #31
 D- 131 } (8534.5)

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|------|--|--------------|
| 03100 | X31 | Low mag. featuring minerals lining vident/Vug Note tabular Xf's - probable actinolite and lg. ^{Epidote} actinolite Xf in center. | |
| 03101 | X77 | Slightly higher magnification of 03100 highlighting ferroxenite w/ Epidote (not actinolite) Ca Al Fe Silica | |
| 03102 | X80 | Low mag. of epidote Xf. habit - Note intergrown tabular Xf's. | |
| 03103 | X80 | 03102 Reshot - focus problems - filament | |
| 03104 | X320 | Intergrown epidote Xf's | |
| 03105 | X800 | Secondary epidote (small Xf's) on larger ones Higher mag. of 03104. | |
| 03106 | X80 | Epidote Xf. habit | |
| 03107 | X160 | Slightly higher mag. of 03106 highlighting Xf. habit. | |
| 03108 | X310 | Intergrown epidote form micropore morphology - contribute to lg. surface area within vug. | |
| 03109 | X330 | More epidote featuring Xf. morphology - characteristic tabular appearance | |
| 03110 | X810 | Quartz on epidote? | |
| 03111 | X320 | Vident perimeter - edge of concentration of epidote & quartz Xf's. | |
| 03112 | X870 | Twinned micro-epidote Xf's. | |

SEM ANALYSIS

PROJECT: Hulen - Geysers

DATE: 3/20/92

SAMPLE ID'S: A-

B- 031

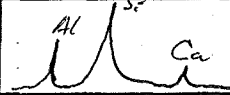

C- Core 31 } 852A.5

D- 131

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|---|--------------------------|
| 13113 | X80 | Quartz & probable epidote → | Si, Al, Ca with minor Fe |
| 13114 | X150 | Epidote and quartz | |
| 13115 | X450 | Small epidote X'ts forming lg quartz, shown in 13114 | |
| 13116 | X1.5K | Epidote forming between terminated quartz X't-ends shown in 13114 | |
| 13117 | X150 | Epidote X't. habit - tabular X'ts - lamellar vug interior. | |
| 13118 | X1.5K | Micro-crystal of quartz forming on lg. epidote X'ts. | |
| 13119 | X300 | Low mag. of 13118 features the relative sizes of the quartz & epidote. | |
| 13120 | X320 | Quartz & epidote - No other minerals observed. | |
| 13121 | X150 | Epidote & lg. quartz X'ts. | |
| 13122 | X160 | Twinned quartz w/ Epidote | |
| 13123 | X150 | Probable ferroaxinite w/ epidote & quartz | |
| 13124 | X62 | Epidote & ferroaxinite | |
| 13125 | X330 | Doubly terminated quartz X't shown in center of photomicrograph. | |

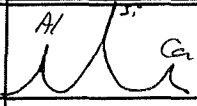
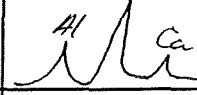

SEM ANALYSIS

PROJECT: Hulen
 DATE: 5/14/91
 SAMPLE ID'S: A- #36
 B- #35
 C- _____
 D- _____

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|--|---|
| 03600 | X150 | Bladed calcite dominates sample matrix - appearing to control the pore morphology. | |
| 03601 | X77 | Low mag. of typical sample fabric dominated by bladed calcite Xf's. | |
| 03602 | X770 | Two distinct Xf morphologies within pores - the bladed Xf's are calcite - the others consist of | Ca-Al-Si. Note dissolution. |
| 03603 | X150 | Bladed Bladed calcite w/ the presence of a distinctly different mineral comprise the matrix. | |
| 03604 | X760 | Higher mag. of unidentified mineral in center portion of photomicrograph Al $\frac{2}{3}$ Si Ca $\frac{1}{2}$ Al |  |
| 03605 | X770 | Note probable cleavage? of calcite blades in center portion of photomicrograph. | |
| 03606 | X1.5K | Higher mag. of previous photomicrographs. Note intergrown calcite Xf's which control pore morphology. | |
| 03607 | X760 | Med. mag. of bladed calcite - Note the presence of quartz? (other unidentified mineral) | |
| 03608 | X1.5K | Silica dominated mineral? lacking Al & Ca possibly quartz. | |
| 03609 | X1.5K | Calcite blades w/ quartz Xf's in-filling pore. | |
| 03610 | X300 | Low mag. featuring bladed calcite w/ Ca-Al-silicate in-filling pore in center | |
| 03611 | X1.5K | Ca-Al-silicate in center of photomicrograph (Higher mag. of 03610). | |
| 03612 | X3.0K | Higher mag. of 03611 - Note "packed" surface suggesting dissolution of the Ca-Al-silicate |  |

SEM ANALYSIS

PROJECT: Hulen
 DATE: 5/14/91
 SAMPLE ID'S: A- #36
 B- #35
 C- #37
 D- _____

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|--|---|
| 03613 | X310 | Bladed calcite w/ lg. Ca-Al-silicate in center of photomicrograph. |  |
| 03614 | X310 | Typical sample fabric - rows of bladed calcite w/ lg. Ca-Al-silicate minerals inbetween the blades. | Si |
| 03615 | X770 | Intersecting blades of calcite (cross-cross pattern) with smaller Ca-Al-silicate filling pore. |  |
| 3616 | X320 | lg. pore dominated by calcite Xfts. | |
| 03617 | X1.6K | Higher mag. within pore shown previously. Small Xfts dominated by Si & Ca possibly some Al. | Calcite dominates the pore perimeter. |
| 03518 | X170 | Coarser Xftine specimen - lg. blades of calcite dominate. | |
| 03519 | X170 | Bladed calcite morphology. | |
| 03520 | X320 | Calcite dominated matrix w/ some fibrous material. | |
| 03521 | X800 | Slightly higher mag. of the fibers - appear similar to actinolite fibers observed in previously. | Unable to detect elemental composition |
| 03522 | X1.6K | Moderate mag. of curved-bladed the objects - could not get a kever reading - possibly sericite. | |
| 03723 | X160 | Fibrous actinolite w/ epidote & quartz | Si Fe |
| 03724 | X81 | Low mag. of fibrous actinolite, quartz and epidote. Fibers (actinolite) → |  |
| 03725 | X600 | Fibrous actinolite & quartz. | |

SEM ANALYSIS

PROJECT: Hulen-Geysers
 DATE: 3/26/92
 SAMPLE ID'S: A- 37 - 037 (8536.7)
 B- 45 - 045 (8539.0)
 C- 37 - 137
 D- 37 - 237

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|------|--|------------------------------|
| 03700 | X73 | Typical mineral assemblages for core 37 within viallet cavity. | |
| 03701 | X740 | Higher mag. within smaller pore shown in lower left portion of 03700 - Quartz w/epidote | |
| 03702 | X82 | Low mag. of quartz and epidote Xlts bridging pore gap. | |
| 03703 | X300 | Quartz and Epidote Xlts. | |
| 04504 | X73 | Typical mineral assemblage of core 45 within viallet cavity. | |
| 04505 | X140 | Twinned/intergrown epidote Xlts on side of lge. quartz | |
| 04506 | X74 | Epidote w/ probable ferroaxinite on right portion of photomicrograph. Note occurrence of | cubic Xlts in center portion |
| 04507 | X300 | Intergrown epidote Xlts - Note tabular Xlt habit. | |
| 04508 | X300 | Epidote Xlts. | |
| 04509 | X140 | Epidote, quartz and partially dissolved mineral - Calcium Aluminum silicate | Si > Al = Ca |
| 04510 | X300 | Higher mag. of corroded Ca-Al silicate | |
| 04511 | X490 | Slightly higher mag. of 04510 highlighting Xlt morphology of corroded Ca-Al silicate. | |
| 04512 | X130 | Ferroaxinite in foreground w/ cubic/blocky appearing Ca-Al silicate & epidote | |
| 04513 | X570 | Higher mag. of Ca-Al silicate & epidote | |

SEM ANALYSIS

PROJECT: Hulen - Geysers
 DATE: 3/26/92
 SAMPLE ID'S: A- 37 - 037 (8534.5)
 B- 45 - 045 (8539.0)
 C- 37 - 137
 D- 37 - 237

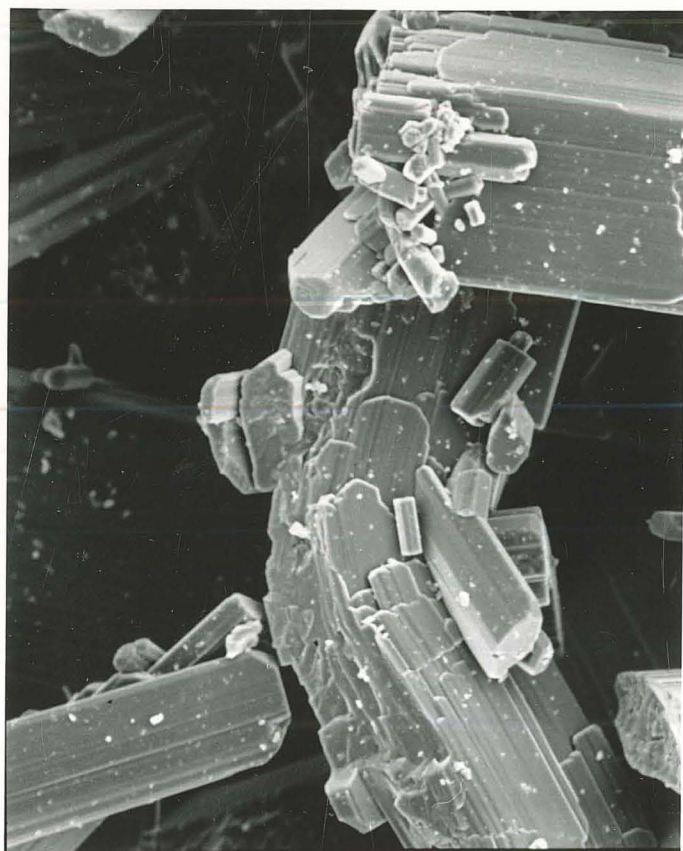
| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|------|---|--------------|
| 13714 | X30 | Typical mineral assemblages within viallet cavity. | |
| 13715 | X220 | Quartz exhibiting concoidal fracturing w/ 1 st unidentified mineral in upper portion of photomicrograph. | |
| 13716 | X130 | Quartz dominated viallet | |
| 13717 | X360 | Microcrystal of quartz on larger quartz Xlt. Charging areas around Xlts is probably drilling mud. | |
| 13718 | X180 | Predominantly quartz deposited w/ less common epidote. | |
| 13719 | X300 | Quartz w/ drilling mud. | |
| 23720 | X31 | Low mag. feature - quartz & ferroaxinite | |
| 23721 | X91 | Quartz Xlt. | |
| 23722 | X110 | Quartz Xlt w/ fracture & possible ferroaxinite in upper left portion of photomicrograph | |
| 23723 | X320 | Quartz w/ probable epidote | |
| 23724 | X290 | Quartz Xlt and drilling mud. | |
| 23725 | X290 | Quartz adjacent to ferroaxinite - w/ probable drilling mud around larger Xlts | |



03101 20KV 500U



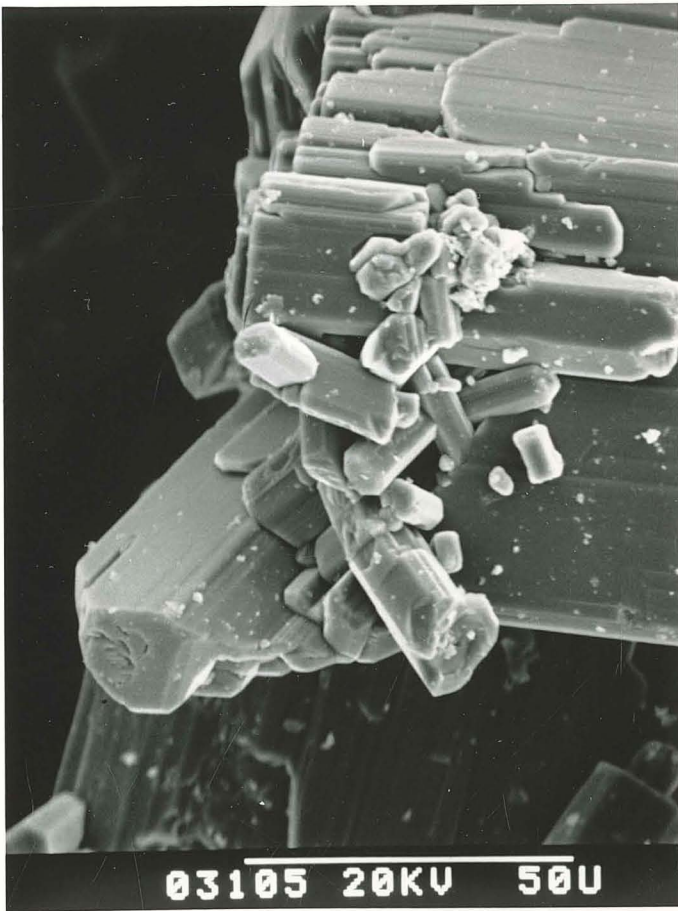
03100 20KV 500U



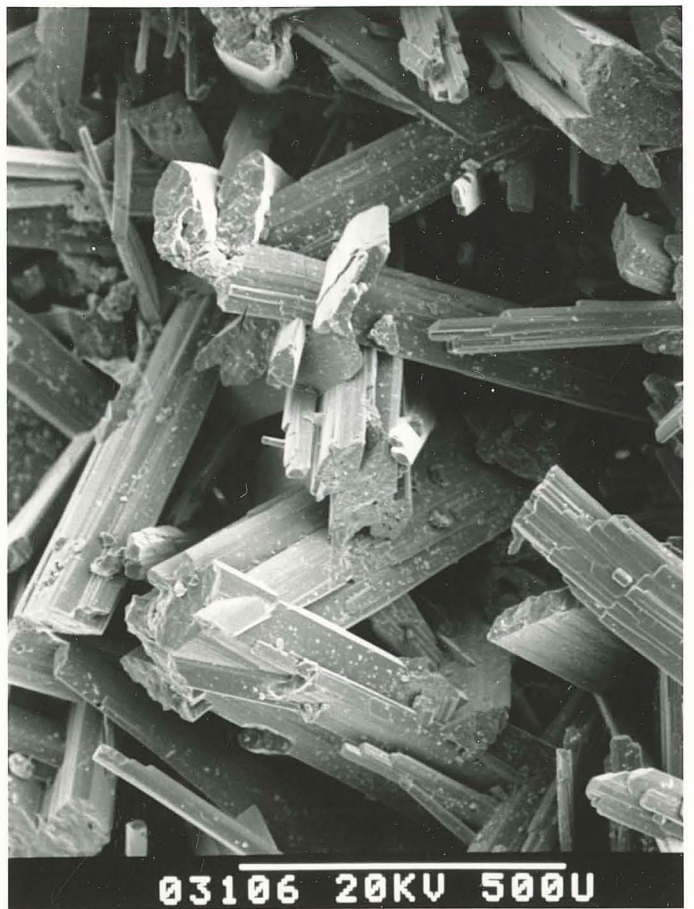
03104 20KV 50U



03103 20KV 500U



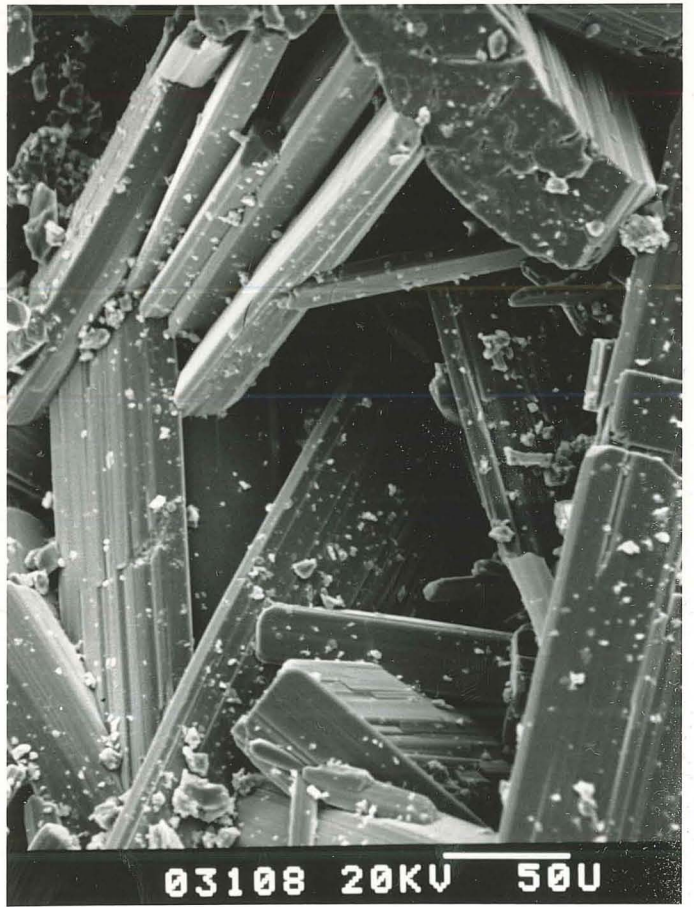
03105 20KV 50U



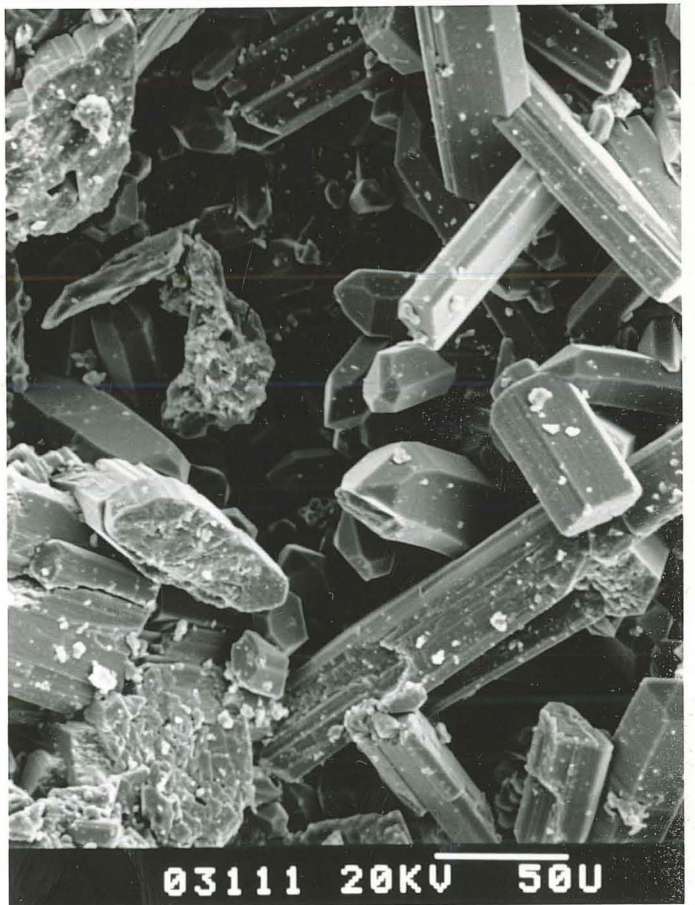
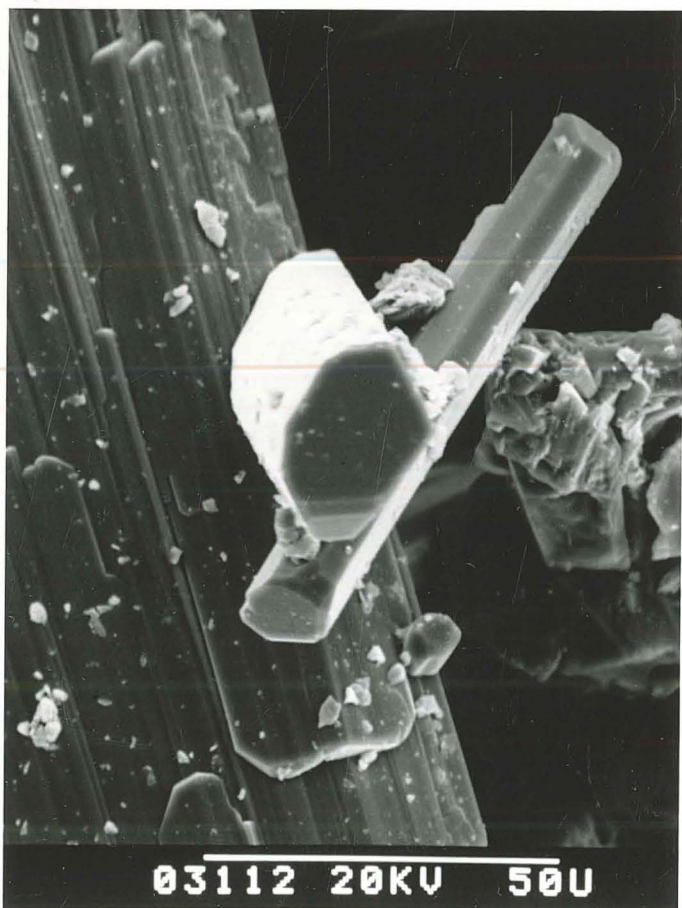
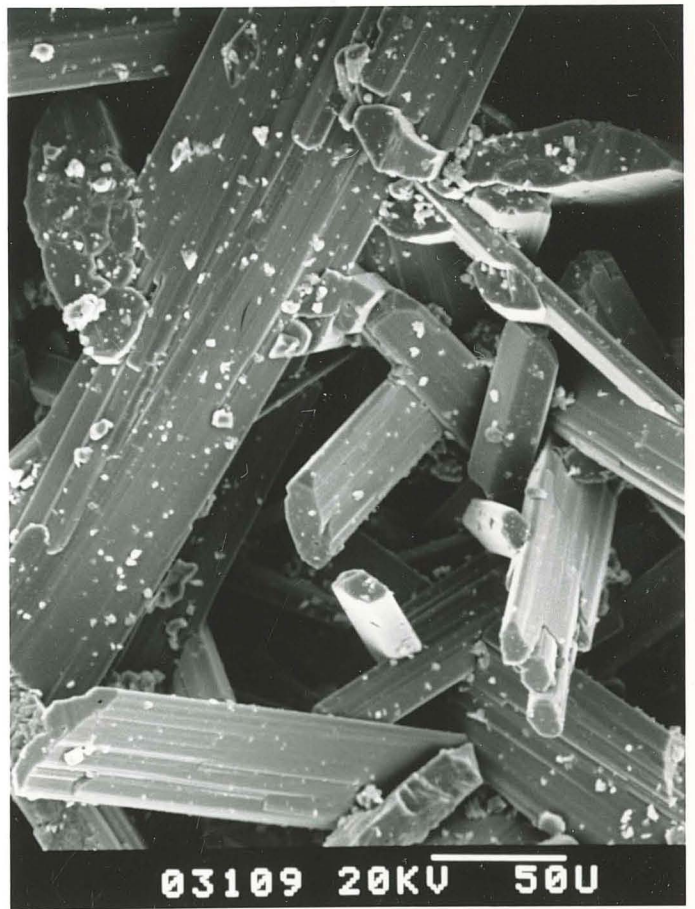
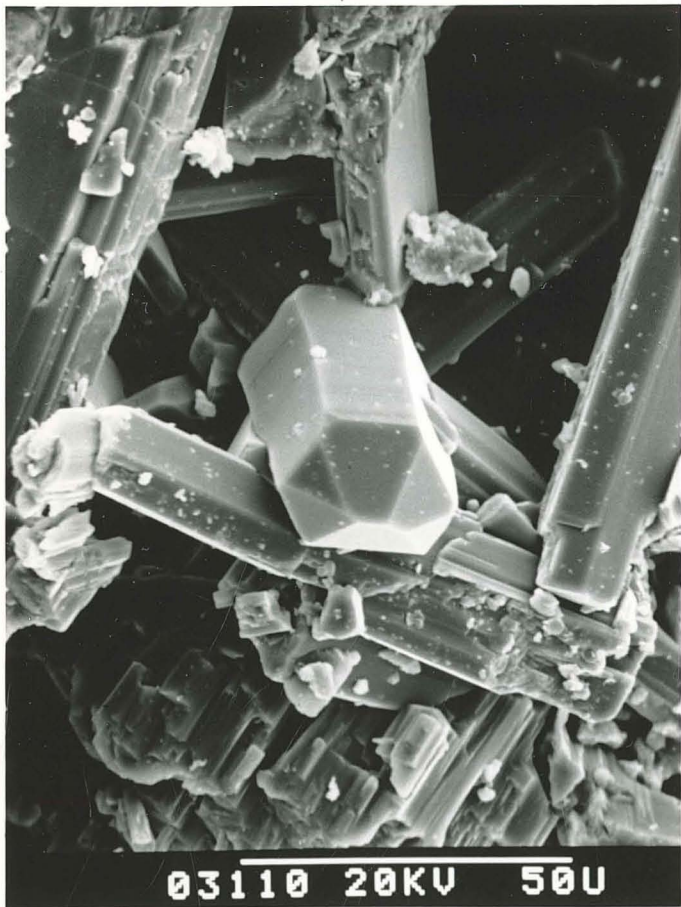
03106 20KV 50U

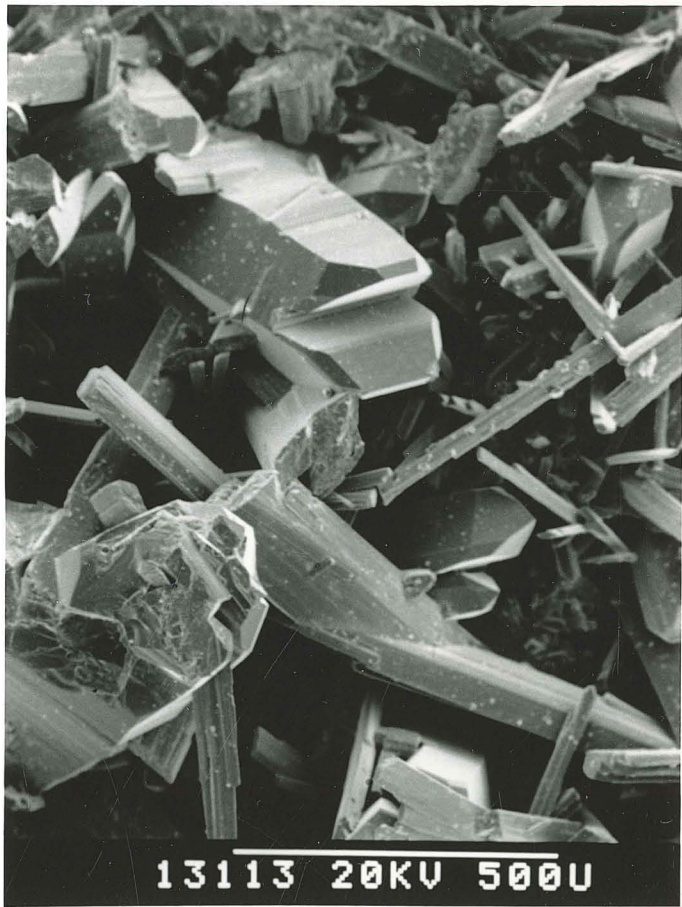


03107 20KV 50U



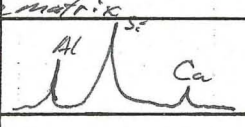

03108 20KV 50U





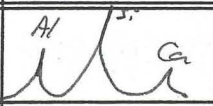
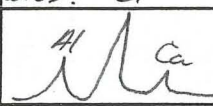
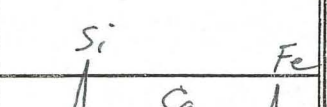
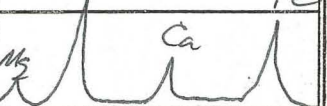
SEM ANALYSIS

PROJECT: Hulen
DATE: 5/14/91
SAMPLE ID'S: A- #36
 B- #35
 C- _____
 D- _____

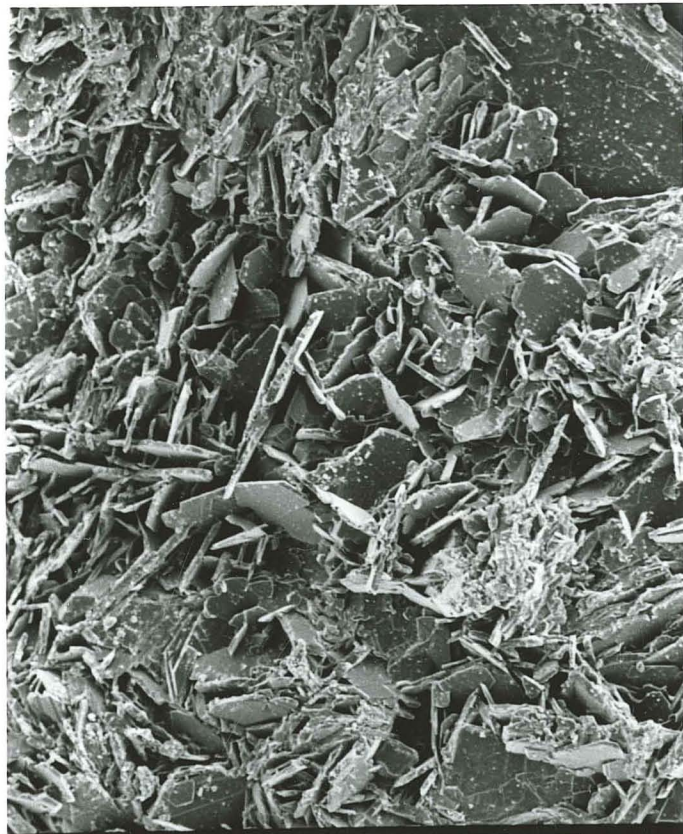
| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|---|---|
| 03600 | X150 | Bladed calcite dominates sample matrix - appearing to control the pore morphology. | |
| 03601 | X77 | Low mag. of typical sample fabric dominated by bladed calcite Xf's. | |
| 03602 | X770 | Two distinct x/f morphologies within pores - The bladed Xf's are calcite - The others consist of | Ca-Al f's: Note dissolution. |
| 03603 | X150 | Bladed Bladed calcite w/ the presence of a distinctly different mineral comprise the matrix. | |
| 03604 | X760 | Higher mag. of unidentified mineral in center portion of photomicrograph $Al \frac{2}{3} Si \quad Ca \frac{1}{2} Al$ |  |
| 03605 | X770 | Note probable cleavage? of calcite blades in center portion of photomicrograph. | |
| 03606 | X1.5K | Higher mag. of previous photomicrograph. Note intergrown calcite Xf's which control pore morphology. | |
| 03607 | X760 | Mod. mag. of bladed calcite - Note the presence of quartz? & other unidentified mineral. | |
| 03608 | X1.5K | Silica dominated mineral? lacking Al & Ca possibly quartz. | |
| 03609 | X1.5K | Calcite blades w/ quartz Xf's in-filling pore. | |
| 03610 | X300 | Low mag. featuring bladed calcite w/ Ca-Al-silicate in-filling pore in center. | |
| 03611 | X1.5K | Ca-Al-silicate in center of photomicrograph (Higher mag. of 03610). | |
| 03612 | X3.0K | Higher mag. of 03611 - Note "pocked" surface suggesting dissolution of the Ca-Al-silicate. |  |

SEM ANALYSIS

PROJECT: Hulen
DATE: 5/14/91
SAMPLE ID'S: A- #36
 B- #35
 C- #37
 D- _____

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|---|---|
| 03613 | X310 | Bladed calcite w/ lg. Ca-Al-silicate in center of photomicrograph. |  |
| 03614 | X310 | Typical sample fabric - rows of bladed calcite w/ lg. Ca-Al-silicate minerals in between the blades. Si | |
| 03615 | X770 | Intersecting blades of calcite (cross-cross pattern) with smaller Ca-Al-silicate infilling pore - |  |
| 3616 | X320 | lg. pore dominated by calcite Xfts. | |
| 03617 | X1.6K | Higher mag. within pore shown previously. small Xfts dominated by Si & Ca possibly some Al | Calcite dominates the pore perimeter. |
| 03518 | X170 | Coarser Xftine specimen - lg. blades of calcite dominate. | |
| 03519 | X170 | Bladed calcite morphology. | |
| 03520 | X320 | Calcite dominated matrix w/ some fibrous material. | |
| 03521 | X800 | Slightly higher mag. of the fibers - appear similar to actinolite fibers observed in previously | Unable to detect elemental composition |
| 03522 | X1.6K | Moderate mag. of curved-bladed the objects - could not get a kever reading - possibly sericite | |
| 03723 | X160 | Fibrous actinolite w/ epidote & quartz |  |
| 03724 | X81 | low mag. of fibrous actinolite, quartz and epidote. Fibers (actinolite) → |  |
| 03725 | X600 | Fibrous actinolite & quartz. | |

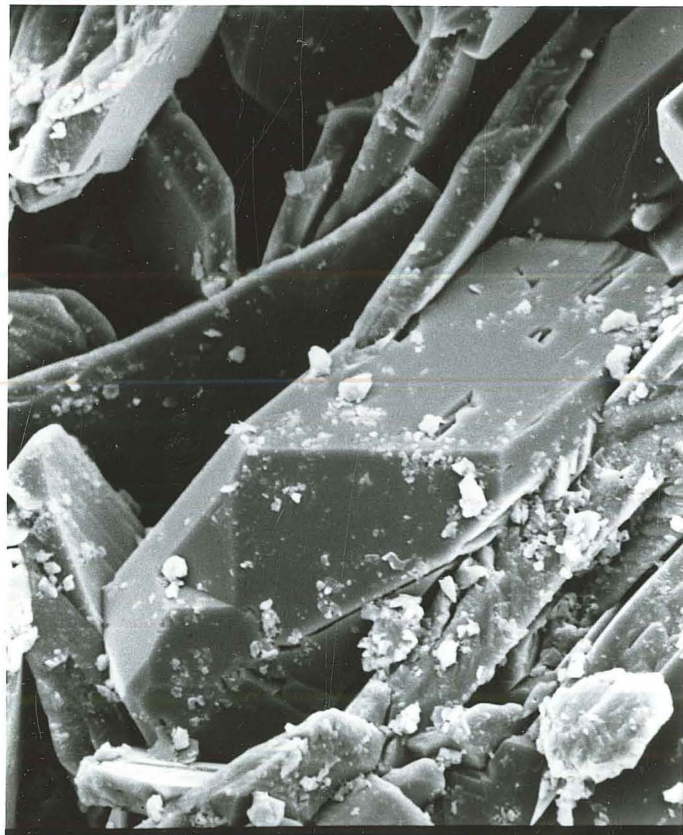
New
 →
 sample



03601 20KV 500U



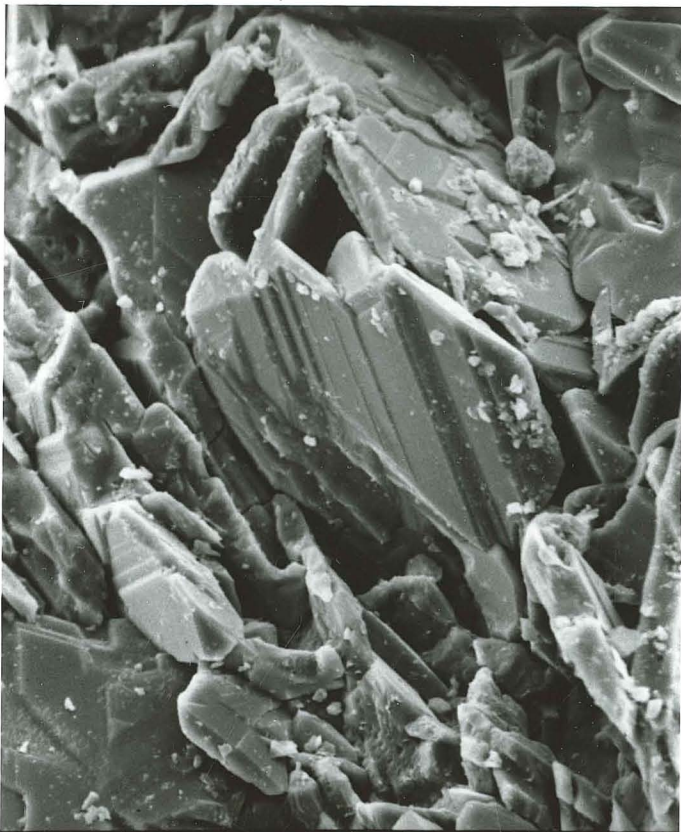
03600 20KV 50U



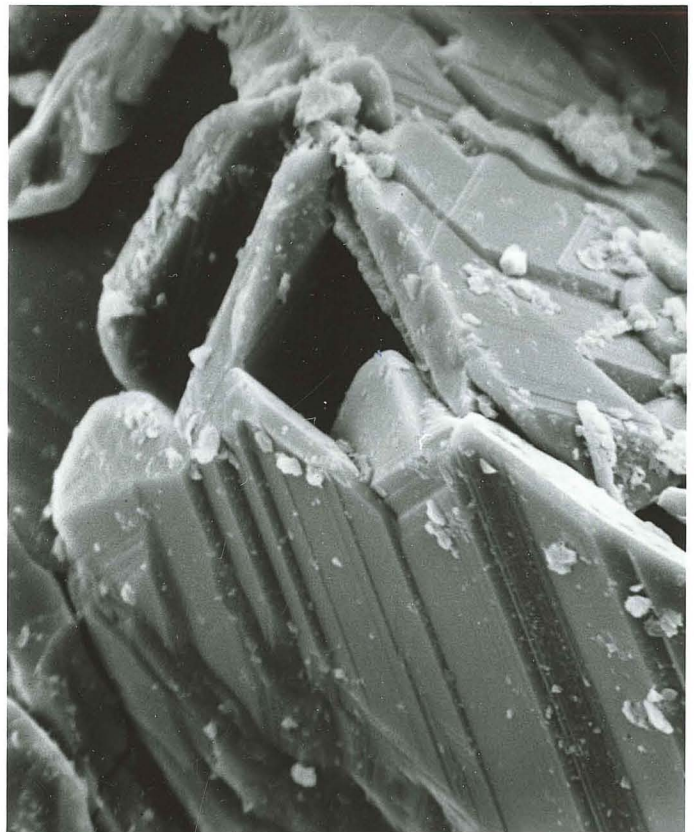
03604 20KV 50U



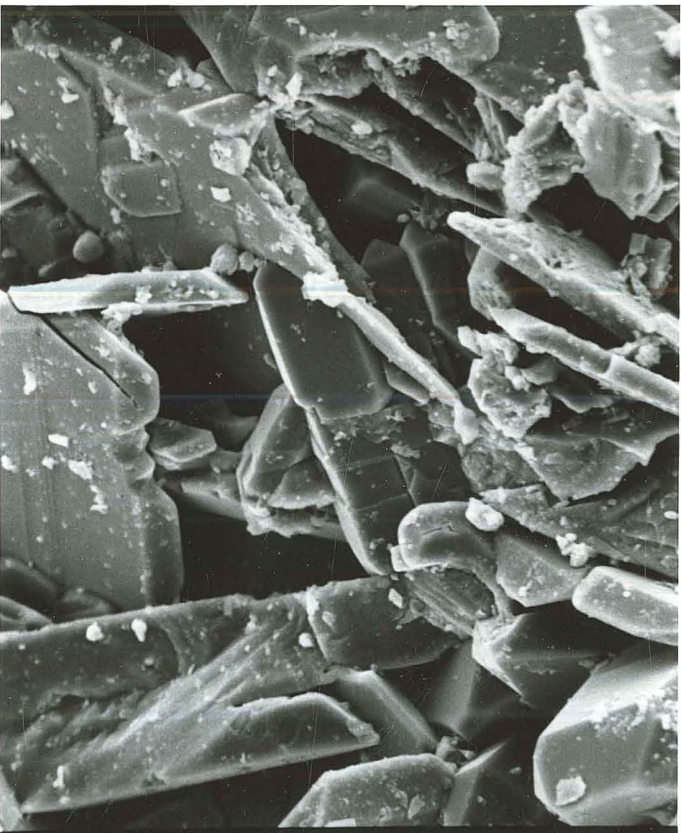
03603 20KV 50U



03605 20KV 50U



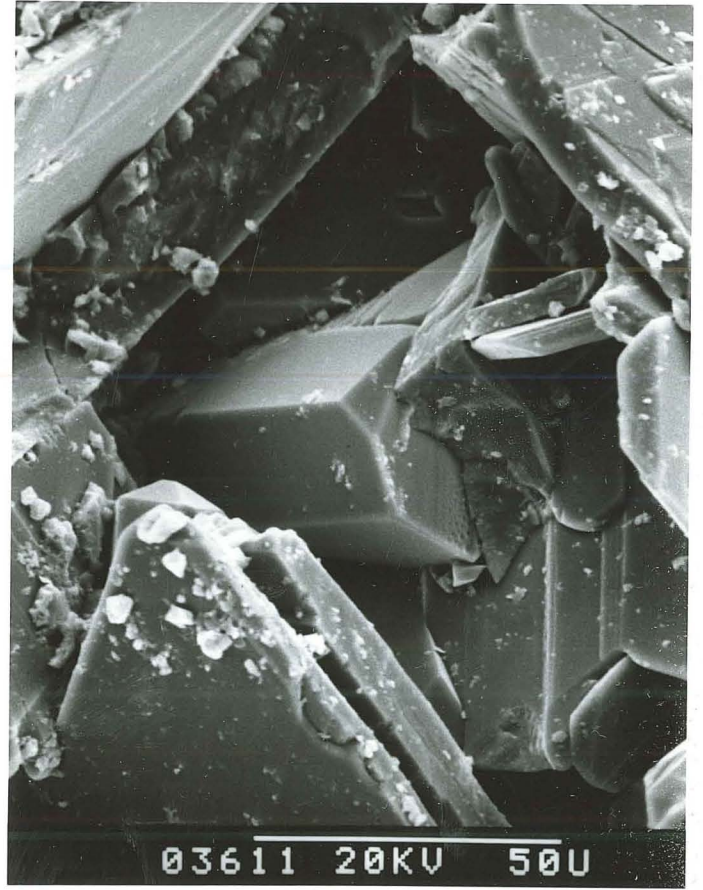
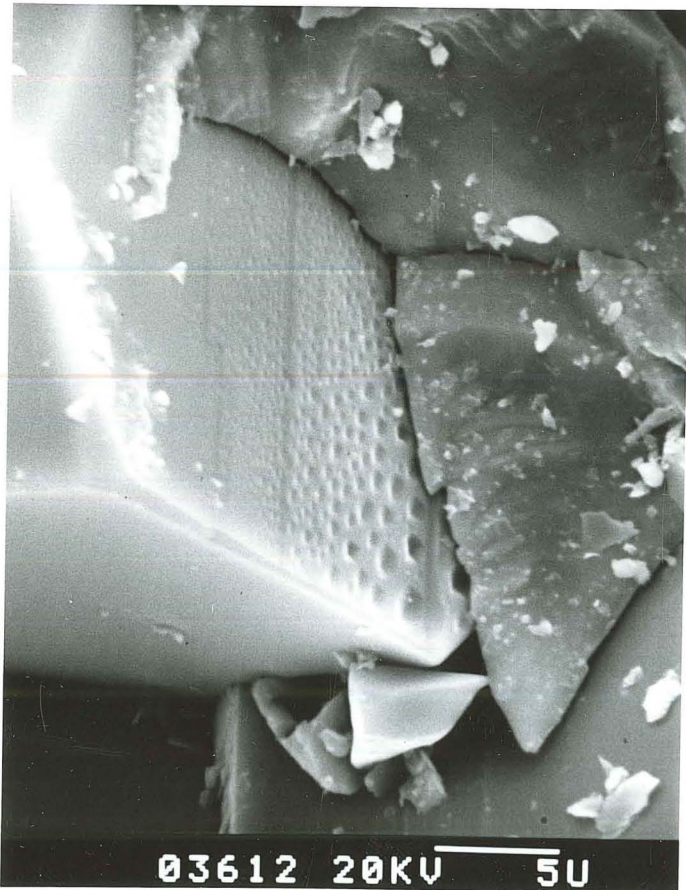
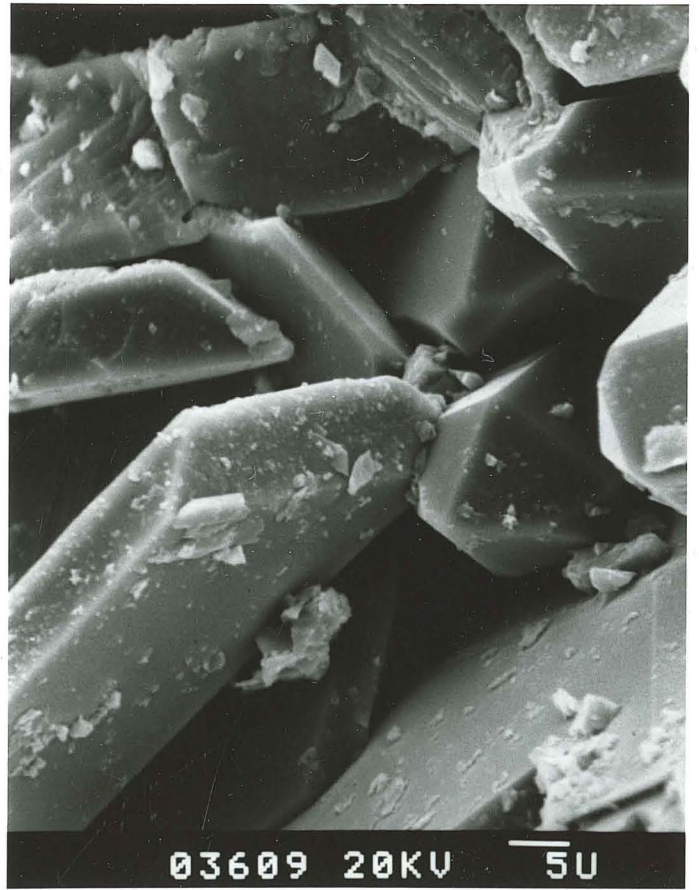
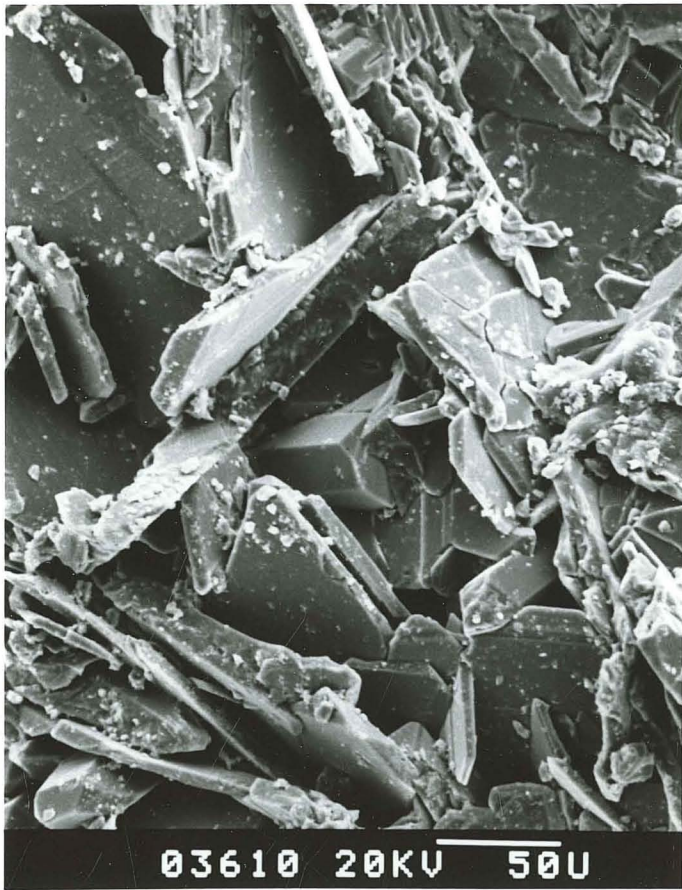
03606 20KV 5U

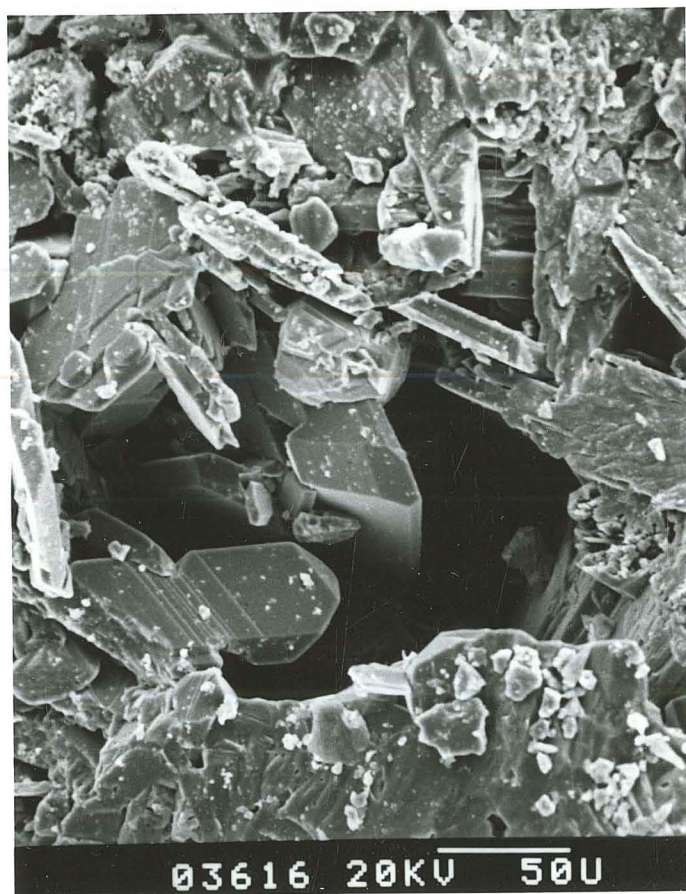
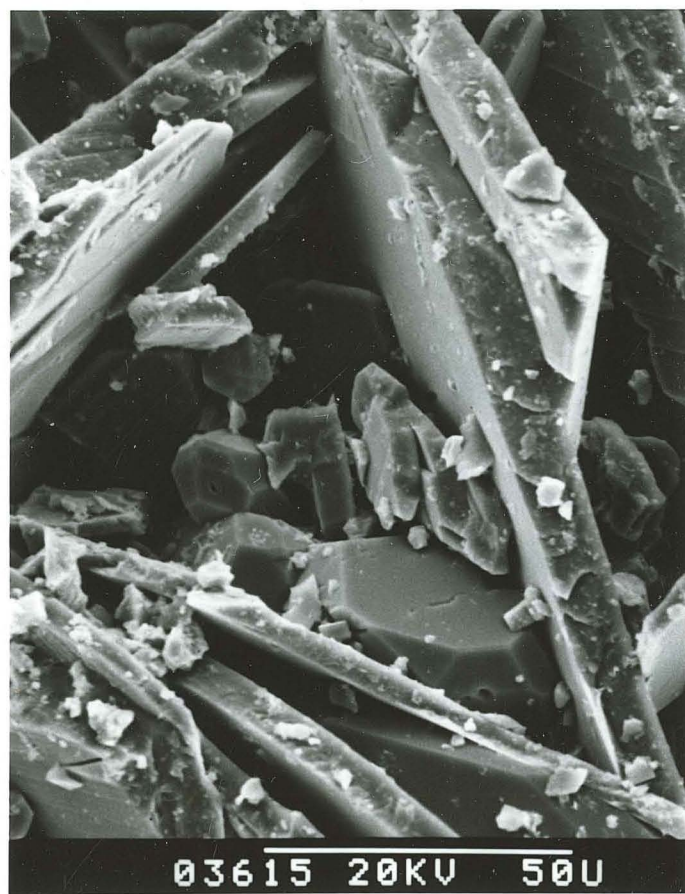
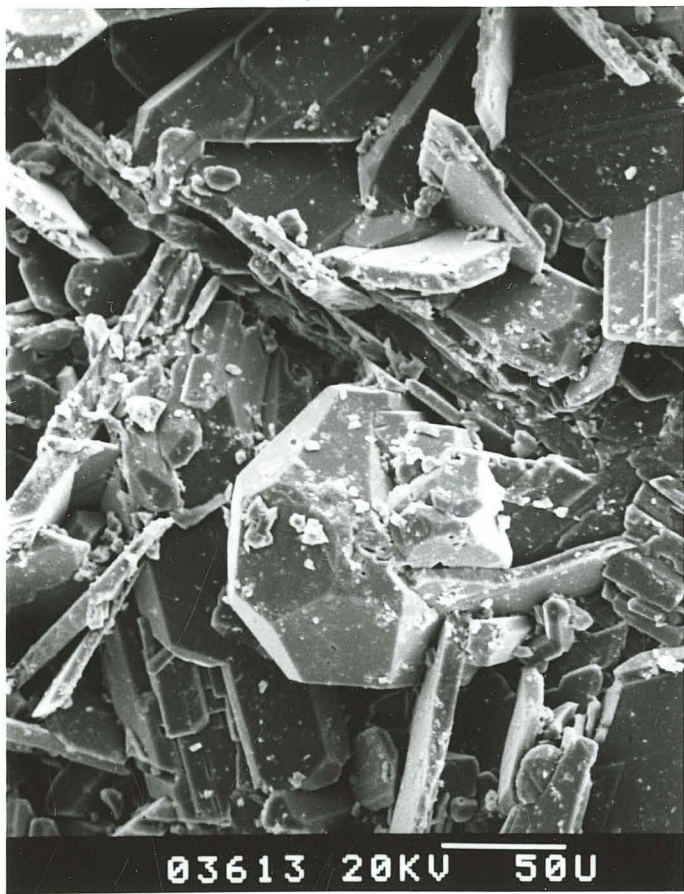


03607 20KV 50U



03608 20KV 5U





SEM ANALYSIS

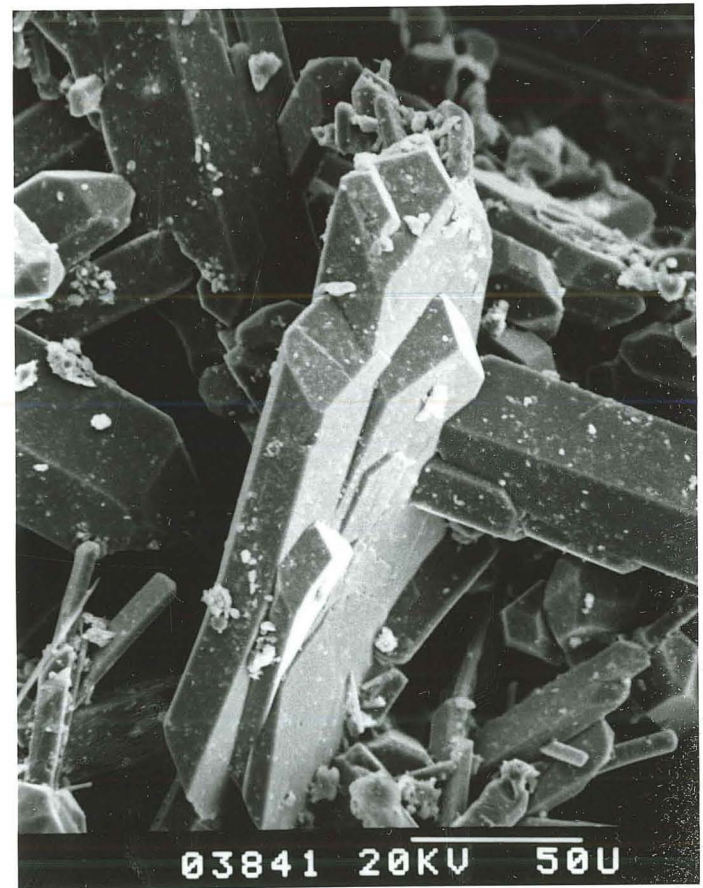
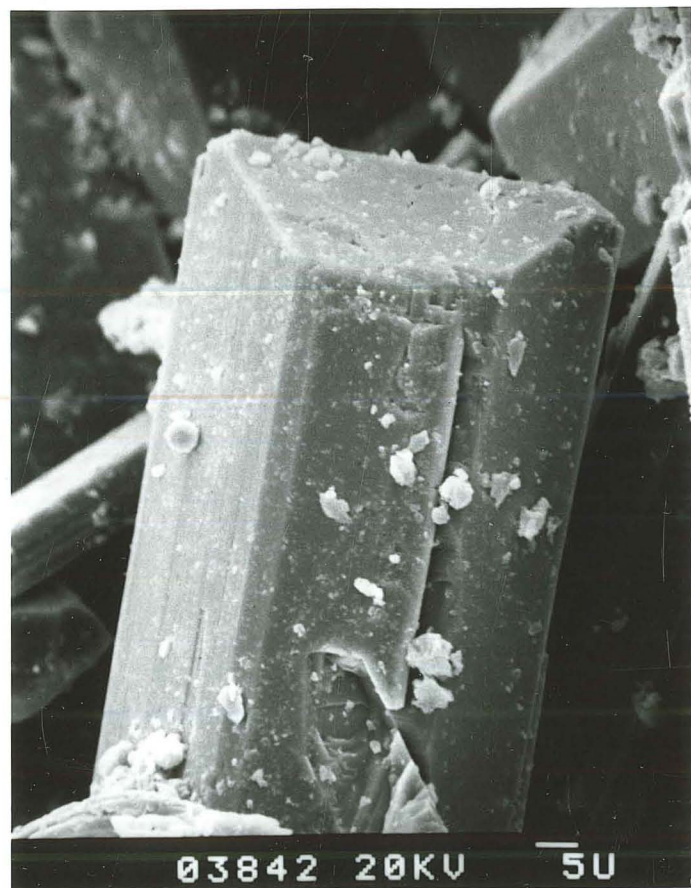
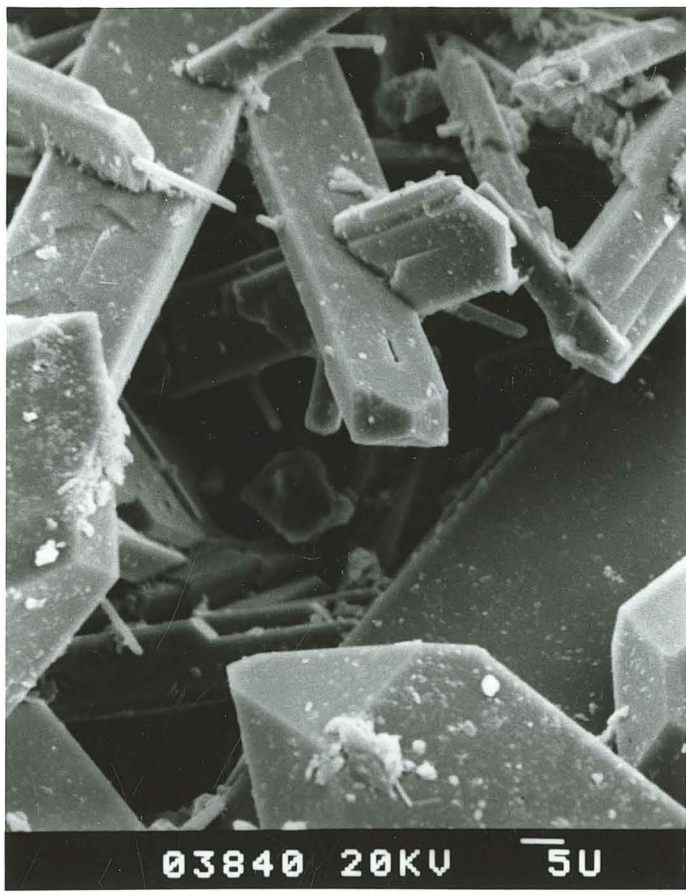
PROJECT: Hulens
DATE: 5/14/91
SAMPLE ID'S: A- 37
 B- 38
 C- 39
 D- _____

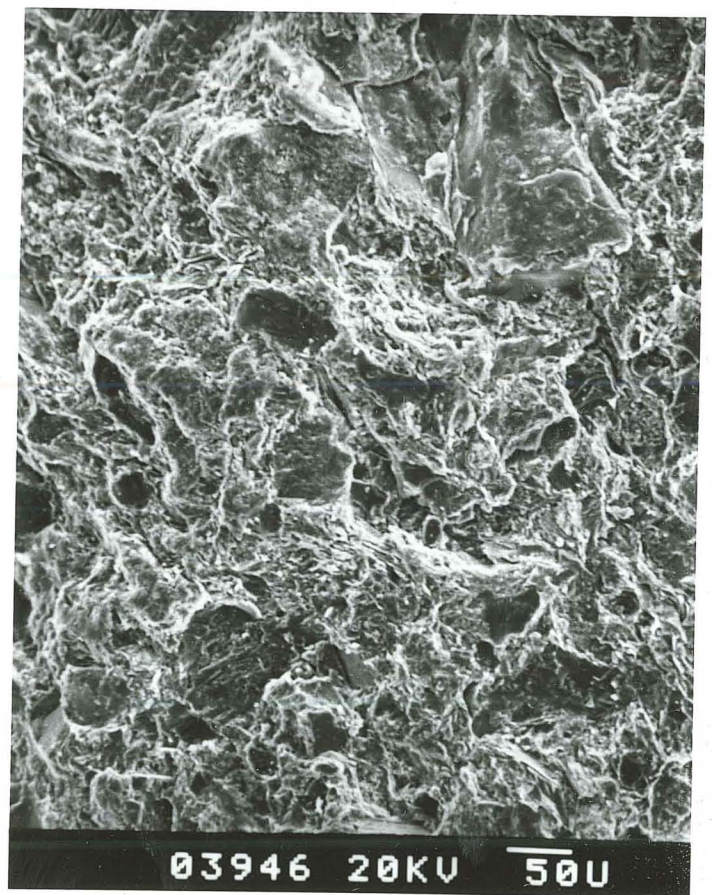
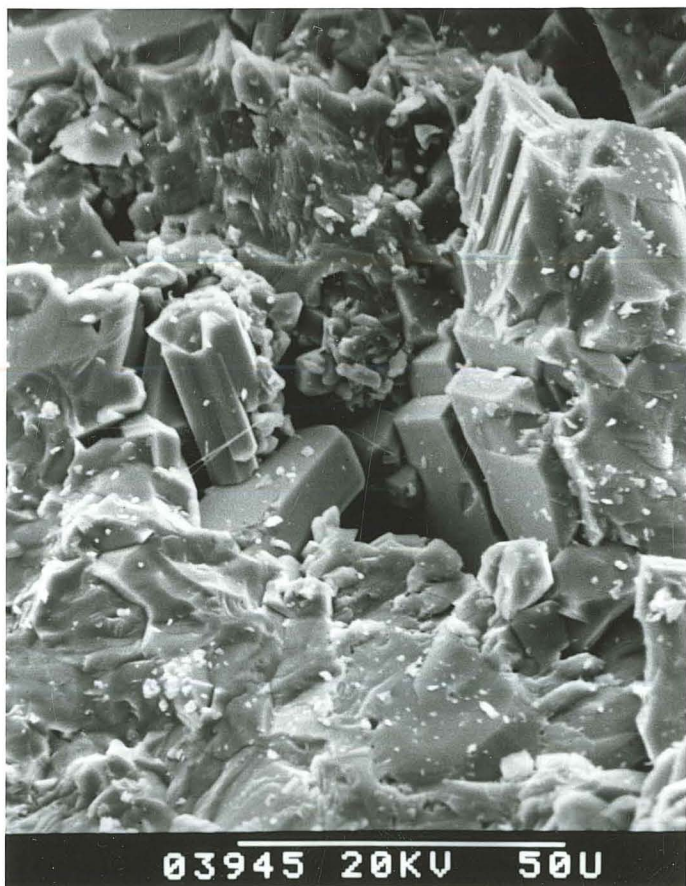
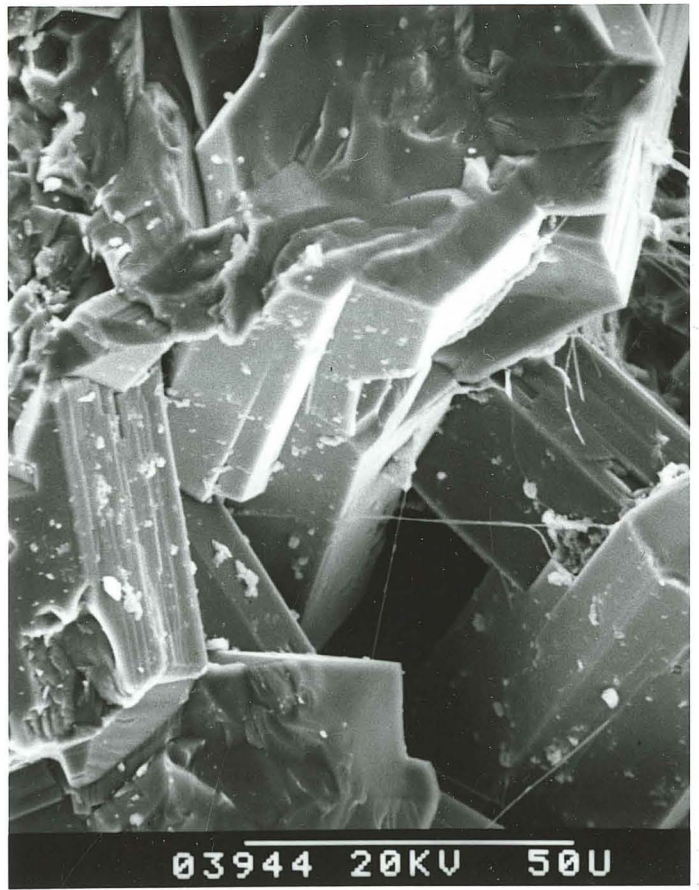
| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-----------------------|-------|--|------------------|
| 03839 | X160 | Possible quartz replacement of calcite?? (blades) to form these linear features. | |
| 03840 | X1.0K | Twinned Epidote - quartz & possible actinolite fiber (broken) | |
| 03841 | X420 | Penetration twinned? Epidote. | S: |
| 3842 | X1.0K | Probable Epidote Xft. → | Al Ca Fe |
| New → sample 03943 | X310 | Quartz - Epidote & possible actinolite fibers dominate within Vug-Vienlet | |
| 03944 | X810 | Edge of vienlet - Epidote (massive) dominates - Note the minor occurrence of fibers | |
| 03945 | X810 | Outside the vienlet - Feldspars & Quartz dominate - Possibly "Halo" area. | K-spar |
| 03946 | X160 | Typical matrix outside vienlet area | S: |
| 03947 | X1.6K | "Halo area" (similar vicinity as 03945) adjacent to the vienlet K-spar?? | Al K Ca Fe |
| 03948 | X320 | Back towards the Vug-Vienlet - (g.) epidote & quartz Xft's dominate. | |
| 03949 | X1.5K | "Halo area" again appears to be dominated by a K-spar? similar kevox signature as 03947 | Fe also detected |
| 03950 | X300 | Matrix area - note web like Mica → Biotite?? | Al K Fe |
| 03951 | X780 | Back within the Vug-vienlet - Dominated by epidote. | |

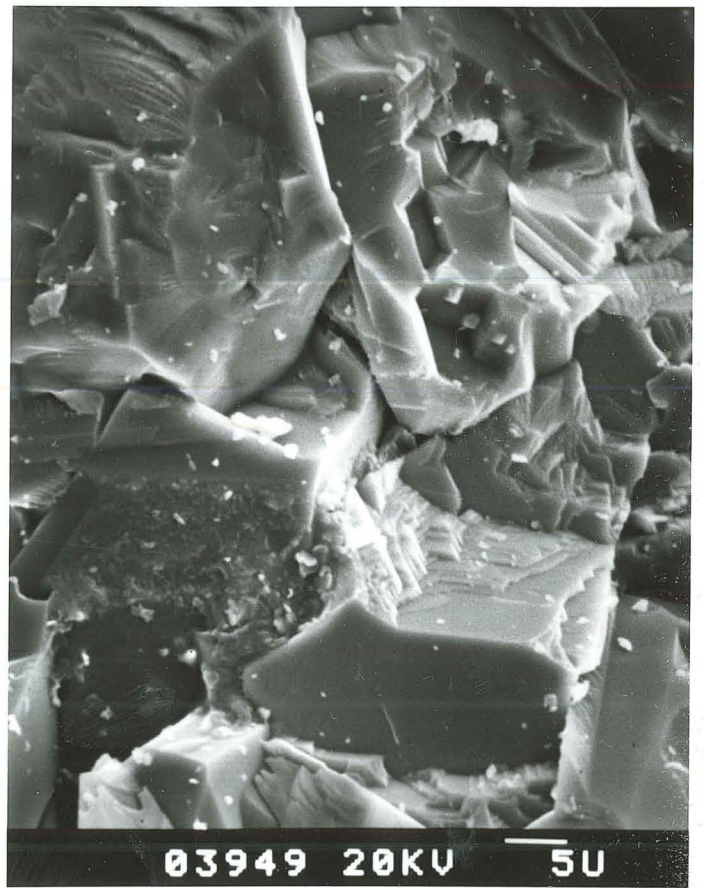
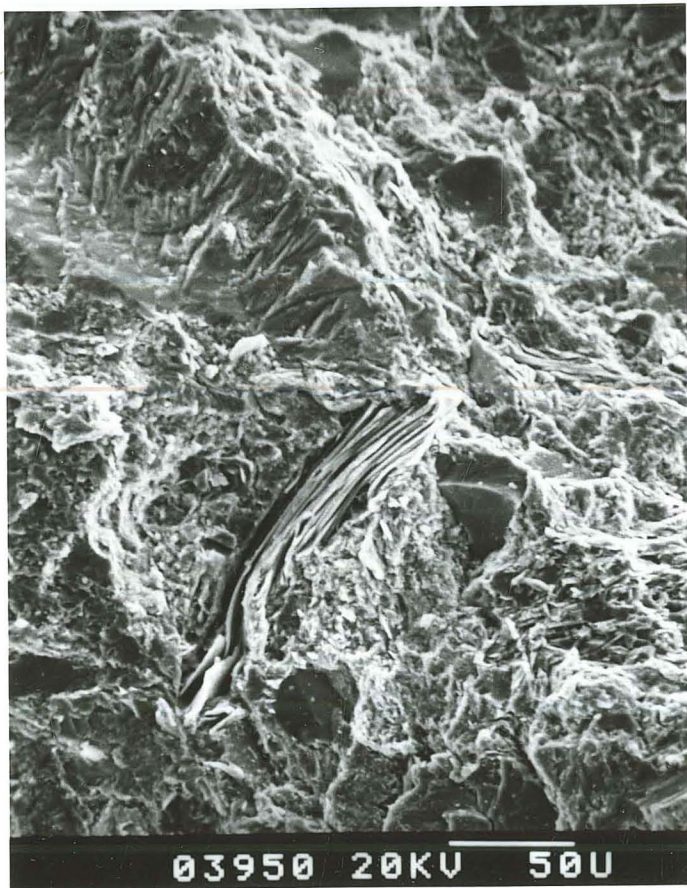
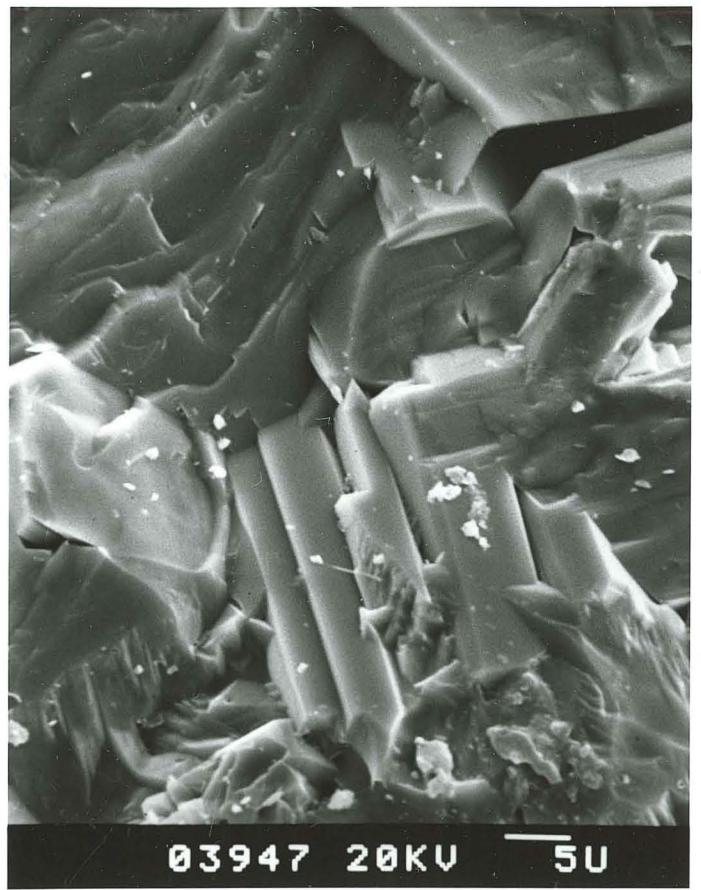
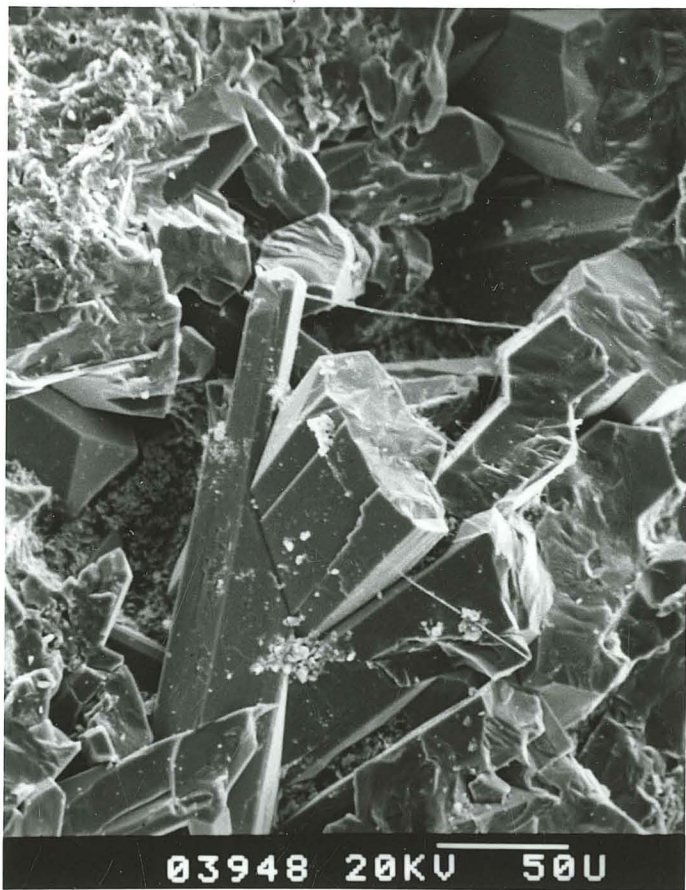
SEM ANALYSIS

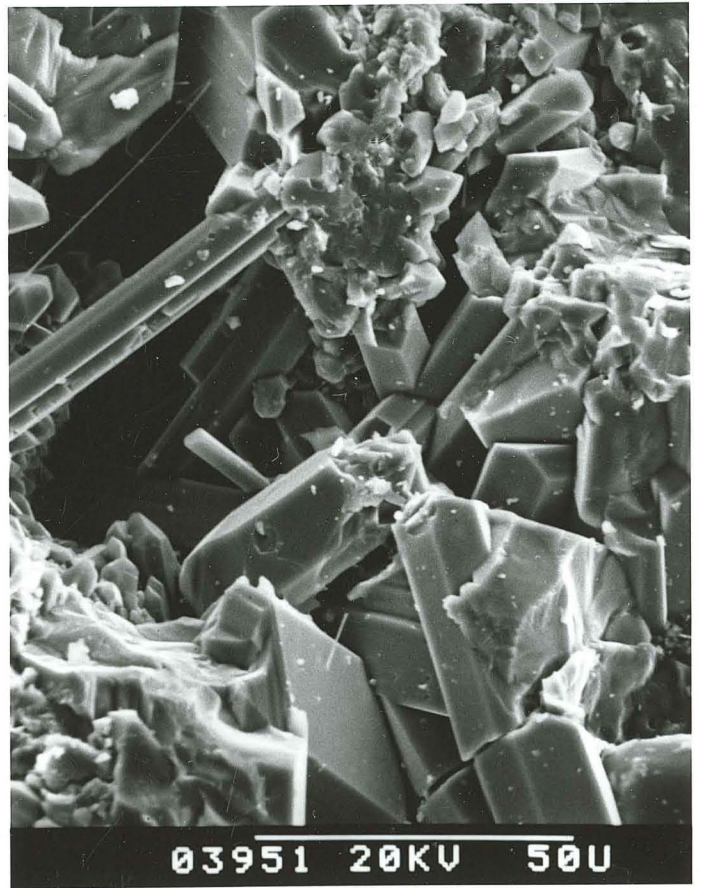
PROJECT: Hulen
DATE: 5/14/71
SAMPLE ID'S: A- 37
 B- 38
 C- 39
 D- _____

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|------|--|-----------------------|
| 03726 | X81 | More fibrous actinolite w/ quartz & epidote | |
| 03727 | X82 | Fe - sulfide detected - Not very spectacular - No copper? in this portion of sample | |
| 03728 | X480 | Quartz dominated matrix w/ fibers interconnecting in pore | |
| 03729 | X750 | Fe - Sulfide w/ minor occurrence of fibrous actinolite? | |
| 03730 | X750 | Fe - Sulfide - Note possible striations? with minor occurrence of fibrous actinolite. | Again no Cu detected. |
| 03731 | X180 | Area dominated by fibrous actinolite. Quartz Xf's also present. | |
| 03732 | X230 | Predominantly quartz & fibrous actinolite | |
| 03733 | X230 | Fibrous actinolite around epidote? Mg not detected on mineral in middle portion of photomicrograph | |
| 03734 | X470 | End of epidote which appears either broken or dissolved - Not real obvious which one | |
| 03735 | X160 | Fe Circular morphology of fibrous actinolite. | |
| 03736 | X190 | Fe - sulfide (by Xf in left hand portion of photomicrograph) w/ quartz & fibrous actinolite | |
| 03737 | X160 | Low mag. of quartz w/ possible coarse crystalline actinolite. | |
| 03738 | X160 | Well formed euhedral quartz Xf's. | |









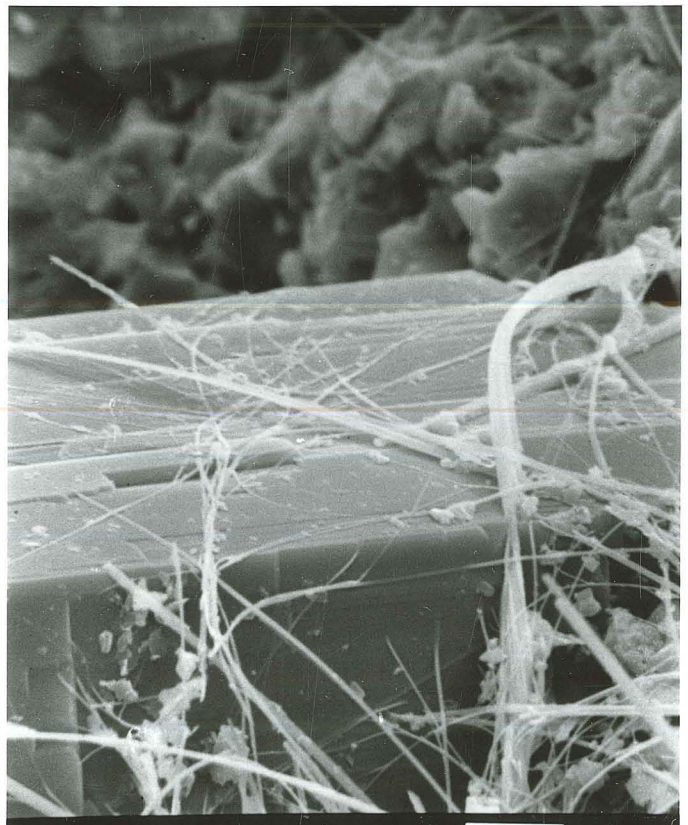
NW GEYSERS
WELL PRATI STATE 12 CORE
6259 - 6263'



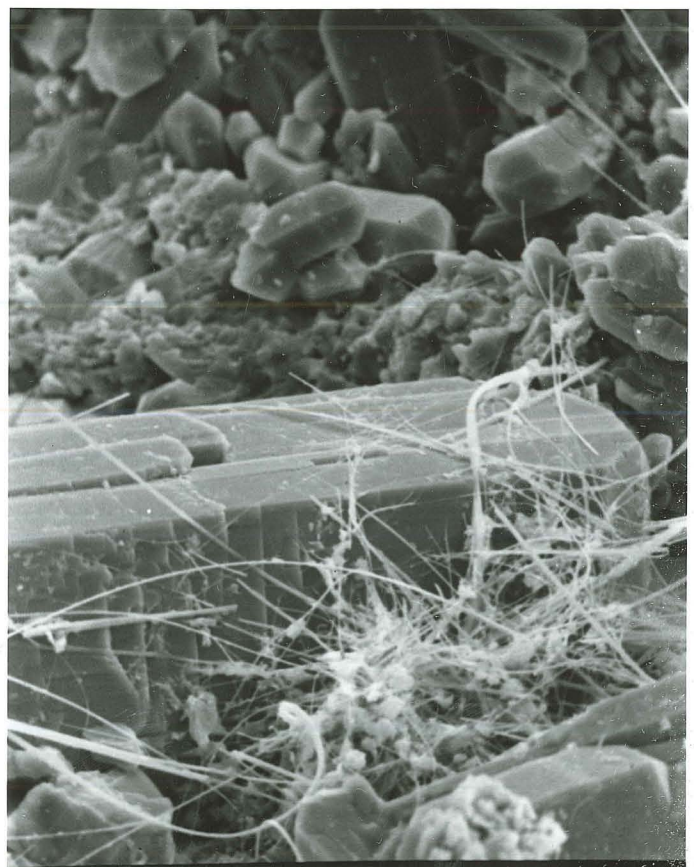
02017 20KV 5U



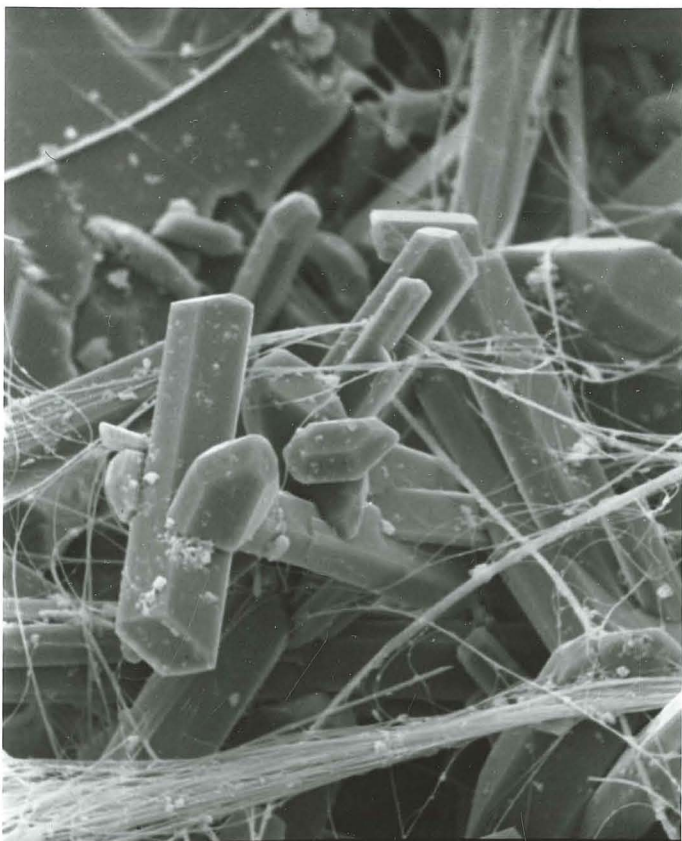
02016 20KV 5U



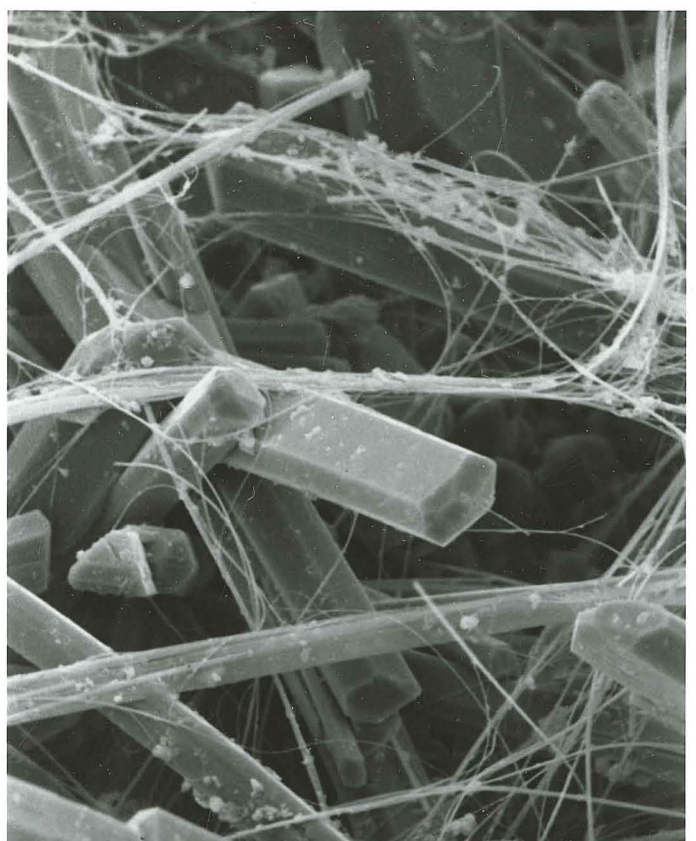
02019 20KV 5U



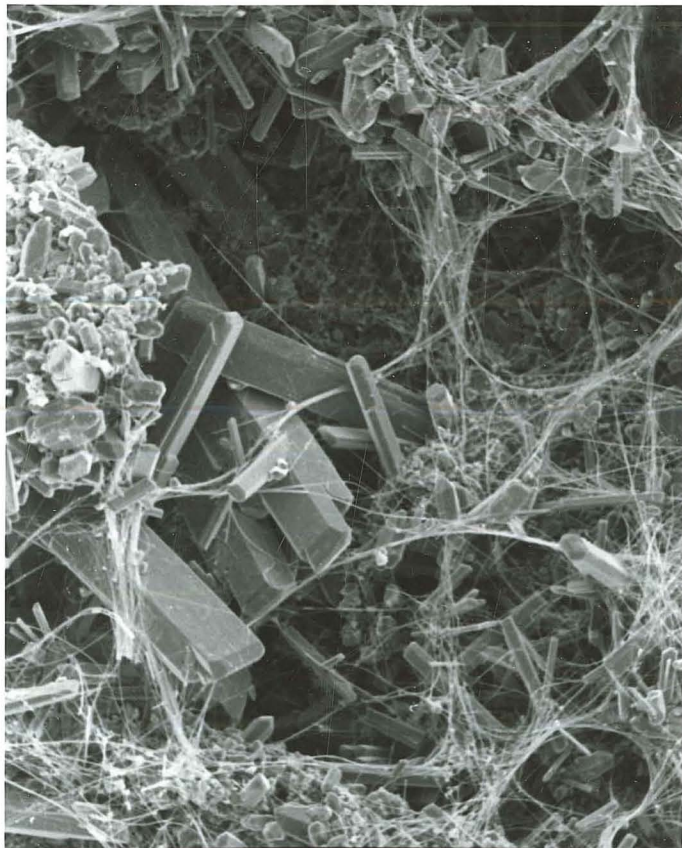
02018 20KV 5U



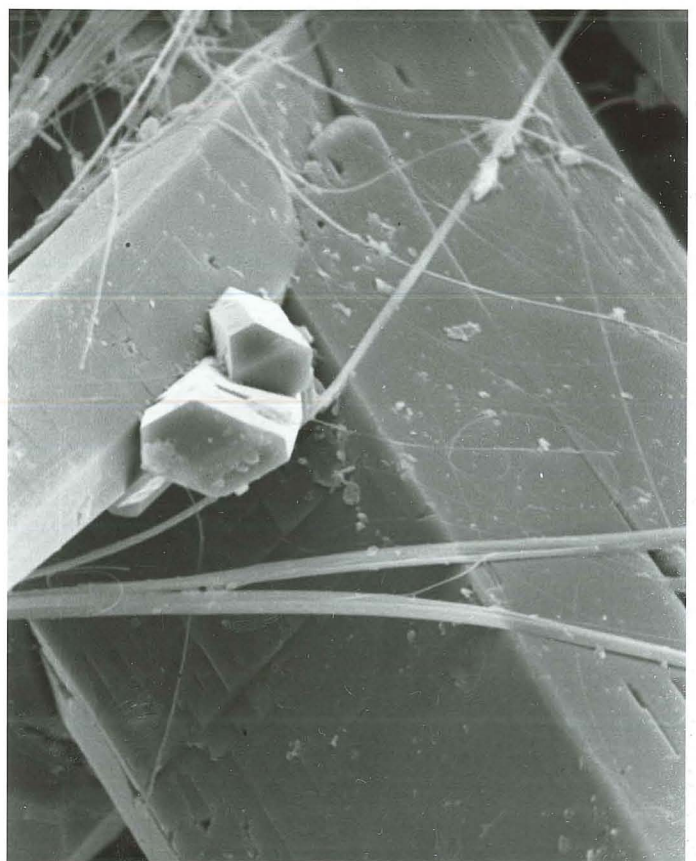
02020 20KV 50U



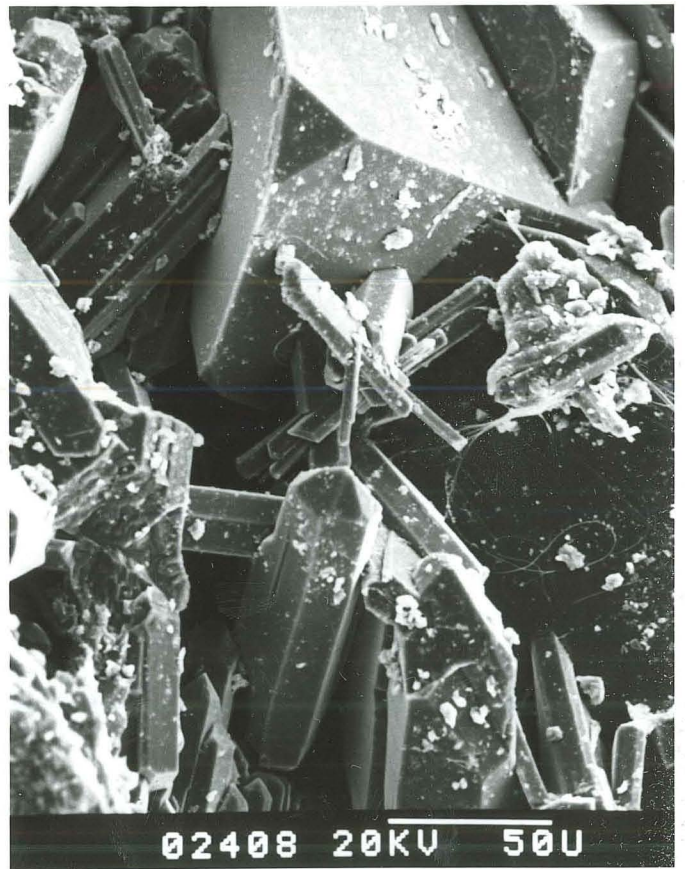
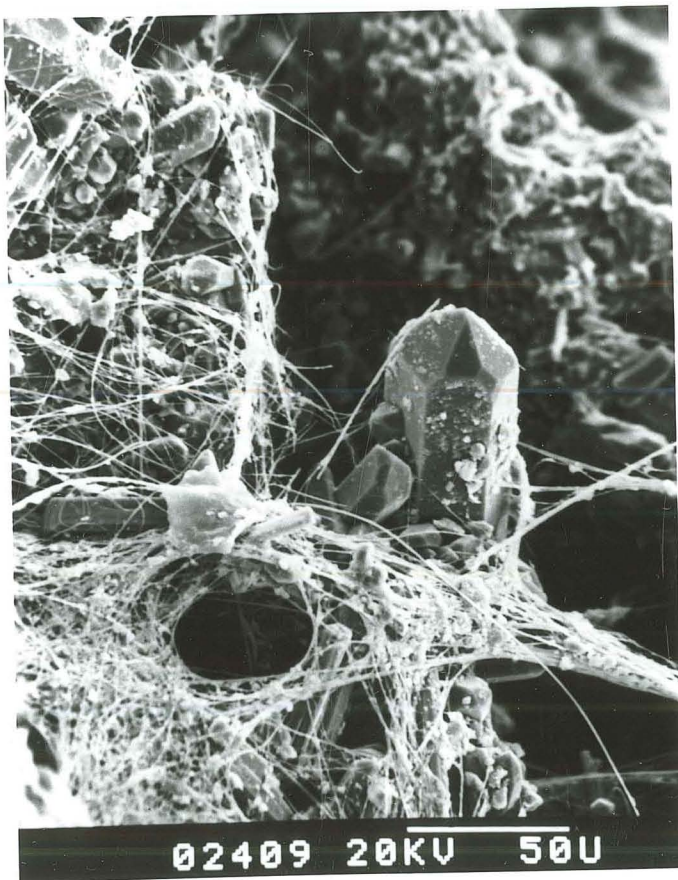
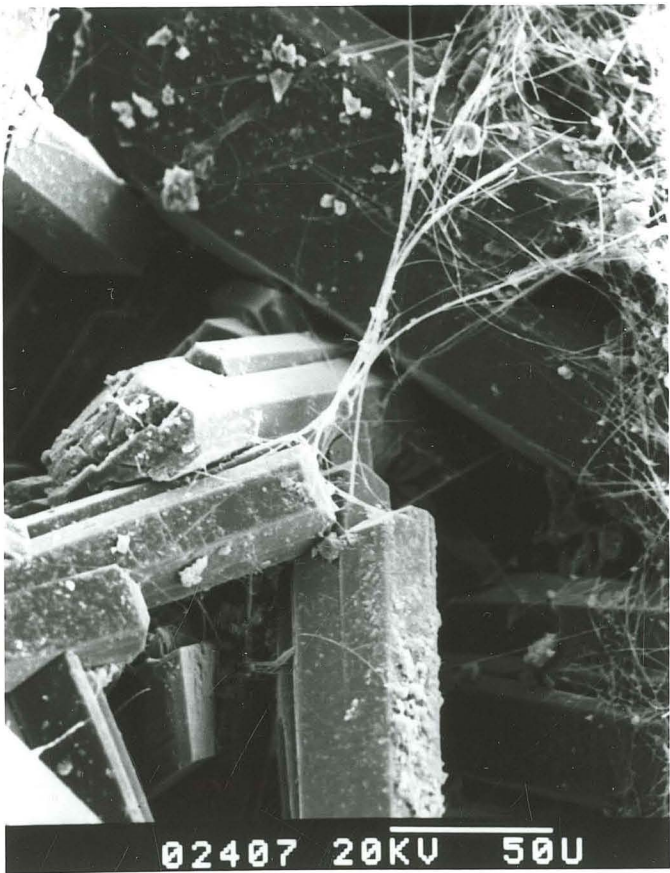
02021 20KV 50U

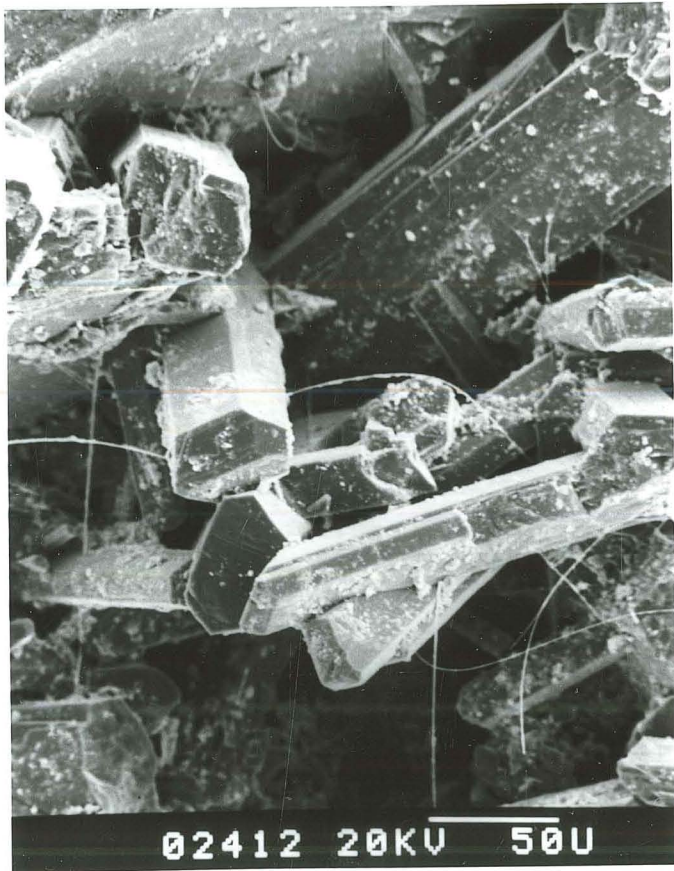
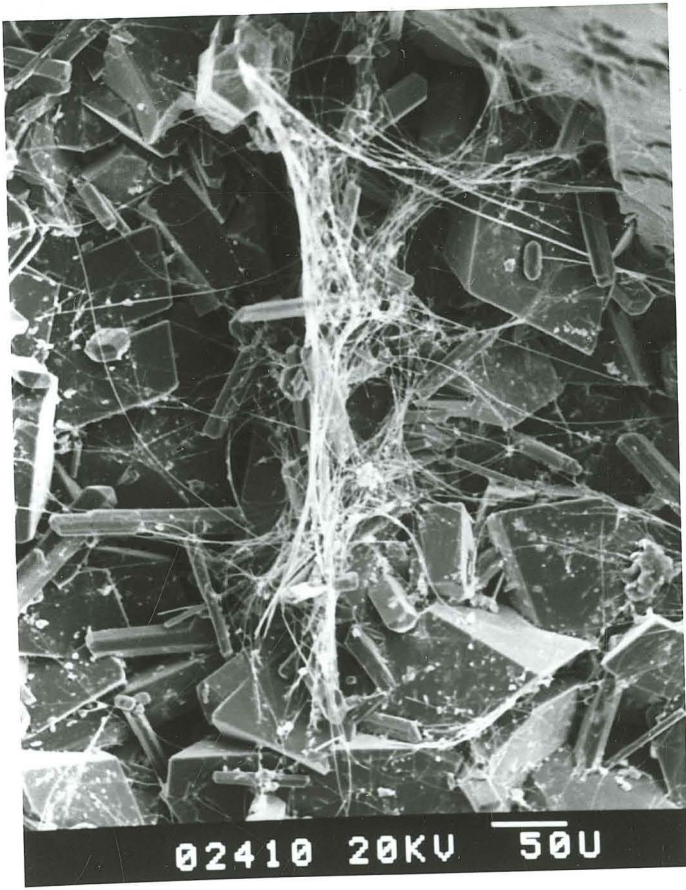


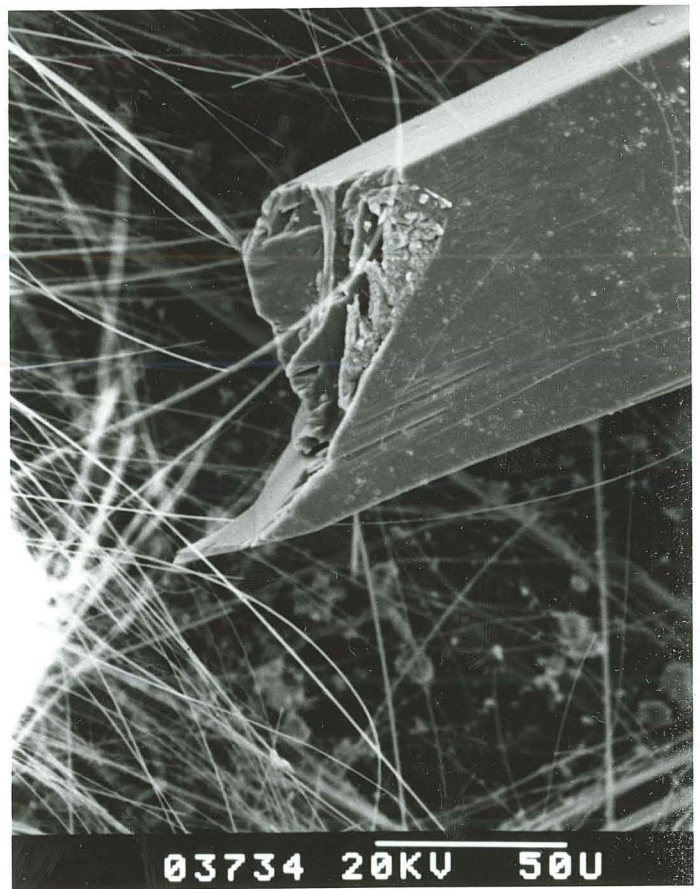
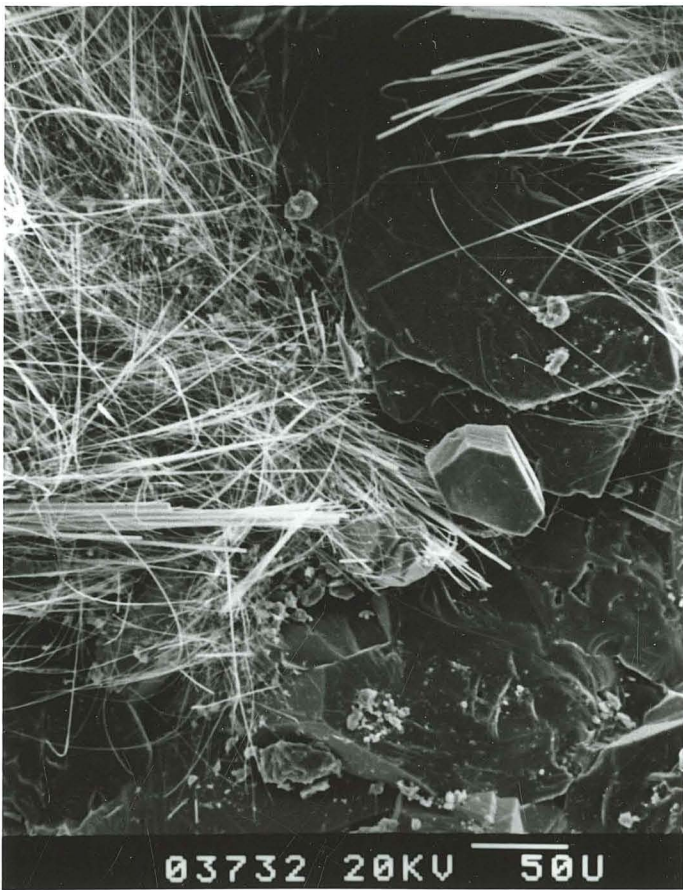
02022 20KV 50U



02023 20KV 5U



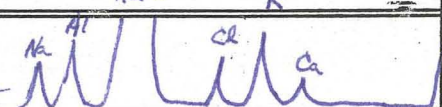

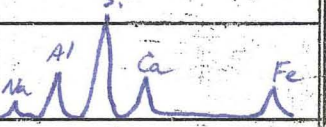




SEM ANALYSIS

GEYSERS
 WELL OF 27A-2;
 CORE 10, 38B.2,
 (00100-00212)

PROJECT: Hulen - Scale - Salt - Hydro-Alterative Mineralization
DATE: 12/28/90
SAMPLE ID'S: A- 001 - (F)
 B- 002 - (D)
 C- 003 - (E)
 D- 004 - (A)

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|---|---|
| 00100 | X1.5K | Fibrous mineral? Maybe some type of chloride but contains several cations. |  |
| 00101 | X7.8K | High mag. of previous photomicrograph Obtain a better X-Ray Spect. pattern |  |
| 00102 | X7.8K | Different area of sample - a similar fibrous mineral/material is depicted. | initial indications minor Al & Si? |
| 00103 | X150 | Low mag. of the typical sample fabric with numerous fractures. Matrix appears very fine-grained & extremely low porosity. | Dark areas are unidentifiable inclusions. |
| 00104 | X790 | Slightly higher mag. of fractures shown in (00103) Note fibrous mineral/material within the fracture & extension into the general vicinity around the fractures. | |
| 00105 | X3.1K | Edge of fracture shown in 00104 - Shit?! lost image during picture scan. Morphology of fibrous mineral/material shown. | |
| 00106 | X1.5K | Fibrous mineral/material on fracture edge. Similar Kevex reading as 00101 | Microscope not functioning >3k times |
| 00207 | X320 | Low mag. of massive appearing (lg. X1k) pyrothite Kevex detection FeS | |
| 00208 | X1.6K | There appears to be some kind of coating Material in center of photomicrograph maybe a silicate |  |
| 00209 | X160 | The pyrothite appears to be coated w/ a (area adjacent) different substance. low mag. of 00208 - photo botched lost image. | |
| 00210 | X1.6K | Higher mag. of previous photomicrograph. Coating is dominated by Si. Kevex Si > Al > Ca | |
| 00211 | X800 | Amorphous spherical objects coat lg. pyrothite X1k | |
| 00212 | X1.6K | Higher mag. of 00211 features the amorphous coating. These objects are approximately 1 to 2 microns in length. They're laminated by Si. | |

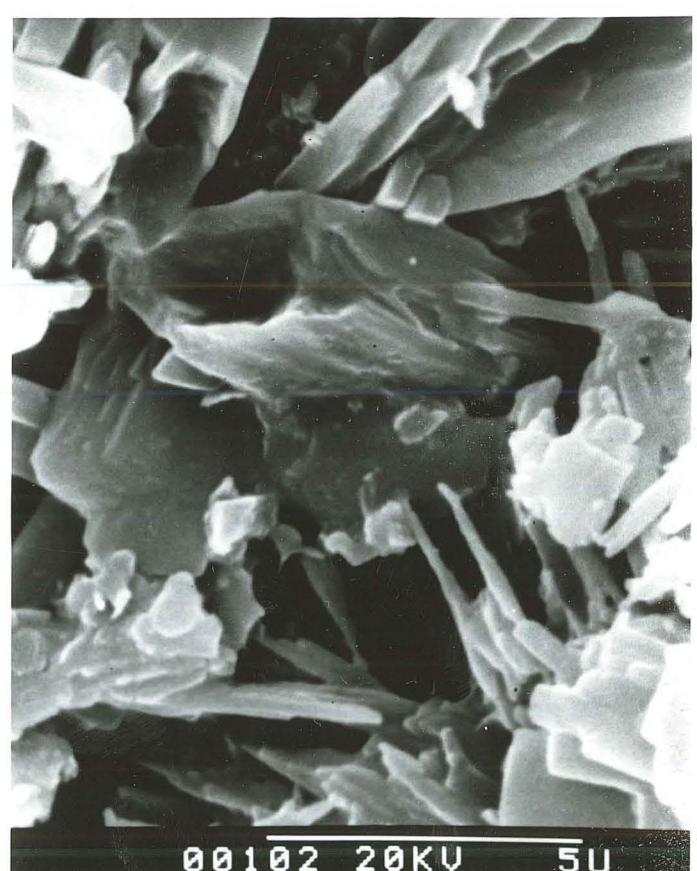
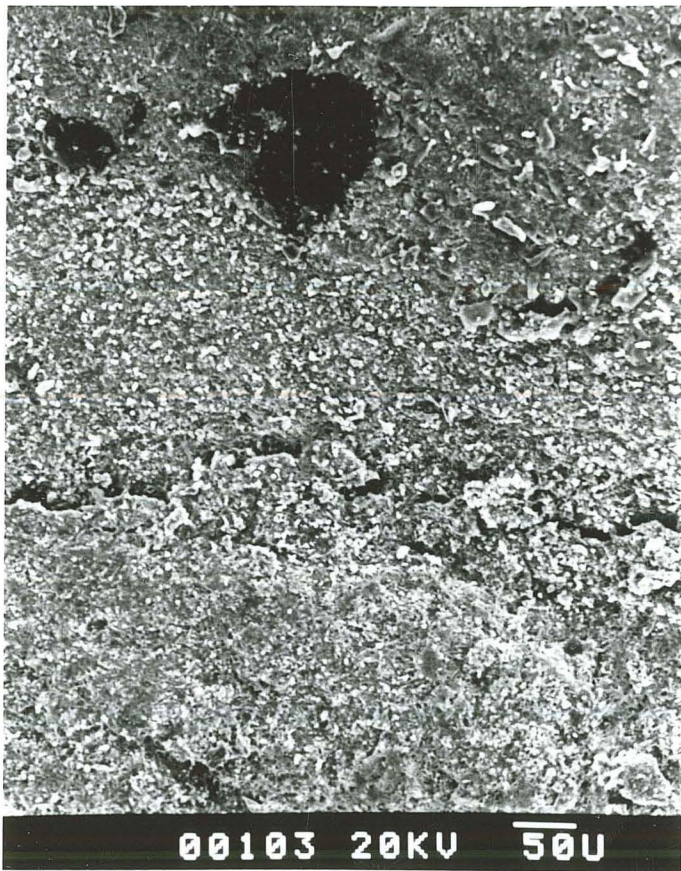
SEM ANALYSIS

GEYSERS
WELL OF 27A-2
CORE 10,383.2'
(00213 - 00314)

PROJECT: Helen - Scale - Salt - Hydrothermal Mineralization
 DATE: 12/28/90
 SAMPLE ID'S: A- 001 - (F)
 B- 002 - (D)
 C- 003 - (E)
 D- 004 - (A)

WELL GPC-30
5021.5'
(0419 - 0425)

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|--|---------------------------|
| 00213 | X1.6K | Honeycomb structure is dominated by Si Morphology similar to smectitic clay - Blocky Xf's probably quartz | |
| 00314 | X320 | Low mag. of typical sample fabric. Xf's around pores of matrix dominated by Cu-Fe-S (Chalcopyrite) | |
| 00315 | X470 | Chalcopyrite Xf's lining perimeter of (w/ K-spar) pore space - Kevers detection poor | |
| 00316 | X1.9K | Higher mag. of 00315 featuring probable K-spar (twined - coffin shaped Xf's) Kevers detection poor | |
| 00317 | X440 | Low mag. of lg. - massive appearing Xf's of pyrite/chalcopyrite around pore | |
| 00318 | X2.7K | Small Xf's. of K-spar line pore shown in 00317. Note well developed euhedral Xf's. | |
| 00419 | X210 | Low mag. of sericite/muscovite | |
| 00420 | X210 | sericite/muscovite Flower-shaped Xf habit | |
| 00421 | X430 | Slightly higher mag. of muscovite morphology on epidote? | |
| 00422 | X210 | Matrix dominated by sericite/muscovite Pore morphology is controlled by intergrown sericite/muscovite Xf's. | <u>last part of image</u> |
| 00423 | X210 | Sample texture is deprected - small quartz Xf's are visible w/ the sericite/muscovite | |
| 00424 | X1.2K | Moderate mag. highlighting a pore. Euhedral Xf's are predominantly quartz. | |
| 00425 | X2.2K | Microcrystalline quartz - Note morphology apparent penetration twins & terminations. | |

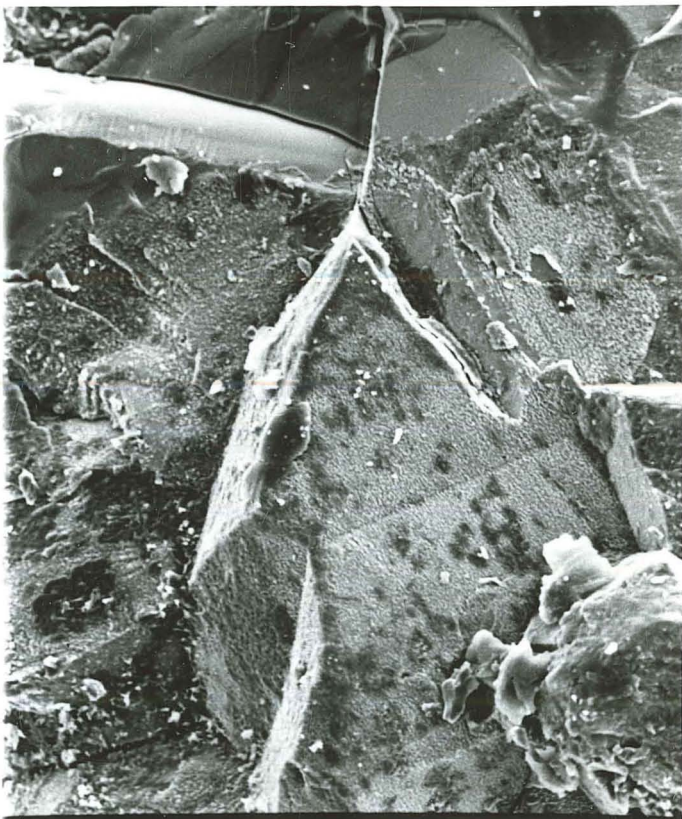




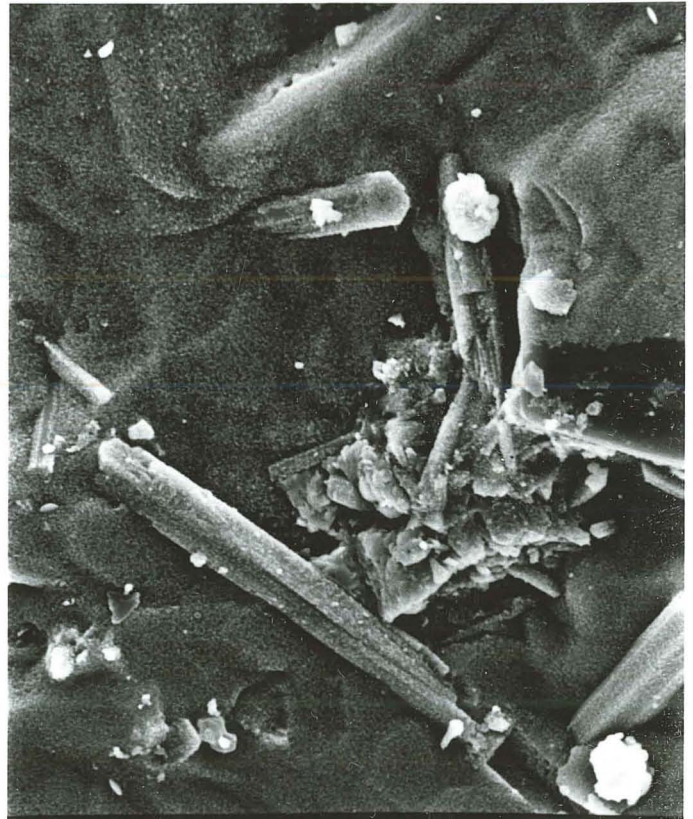
00104 20KV 50U



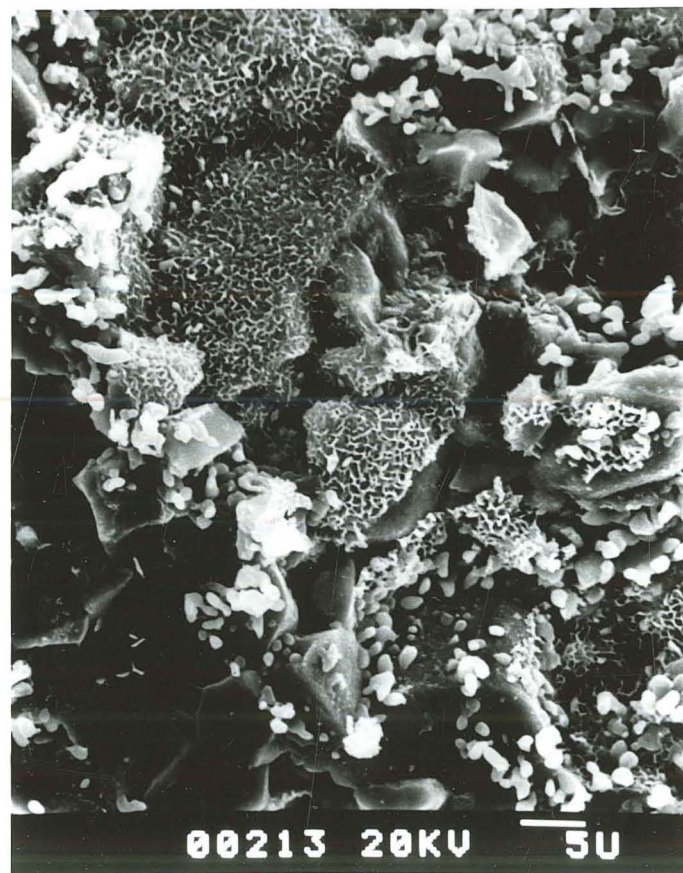
00106 20KV 5U

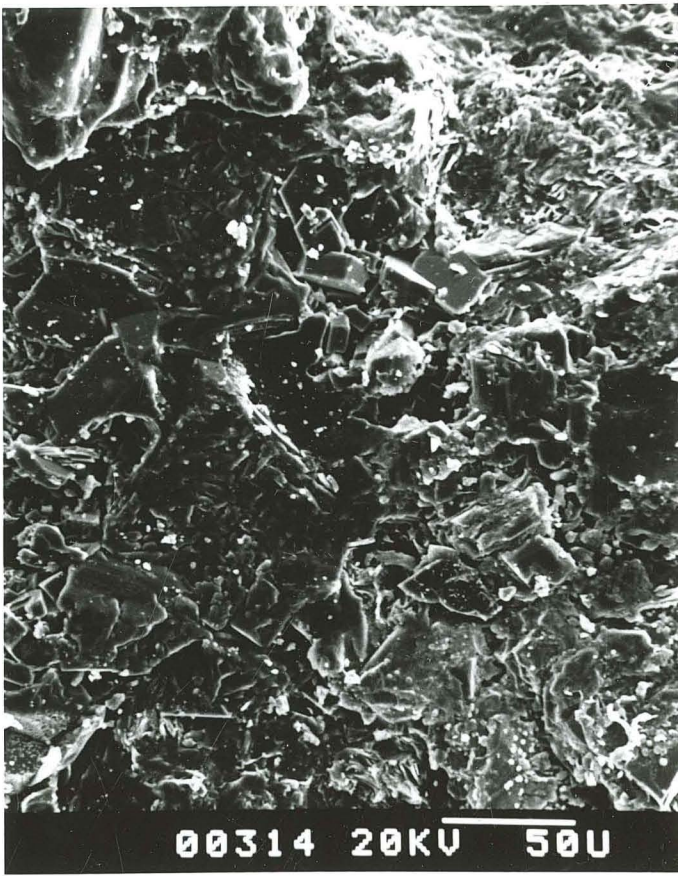


00207 20KV 50U



00208 20KV 5U

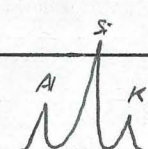


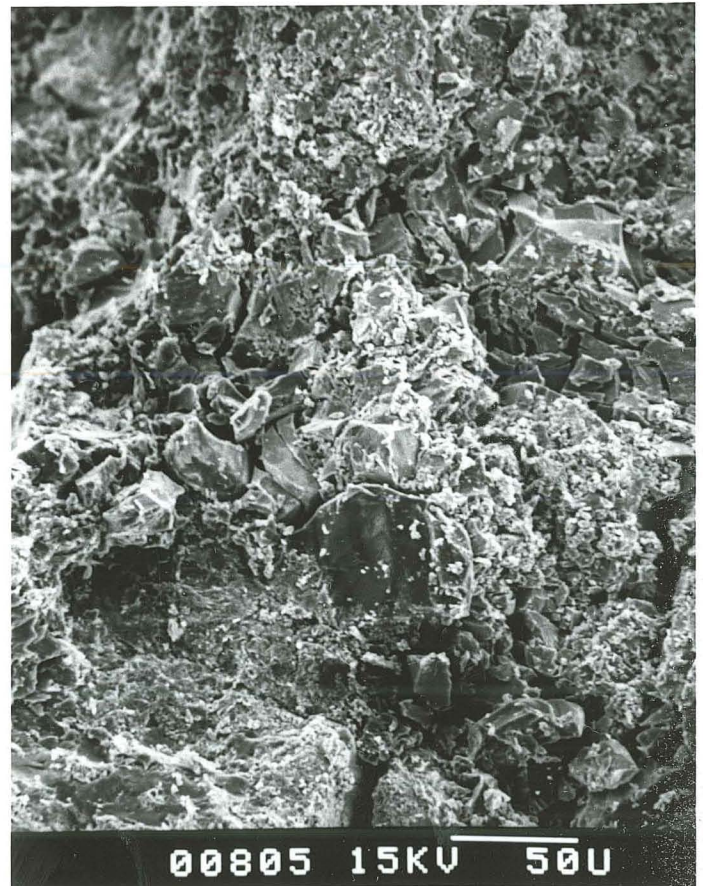
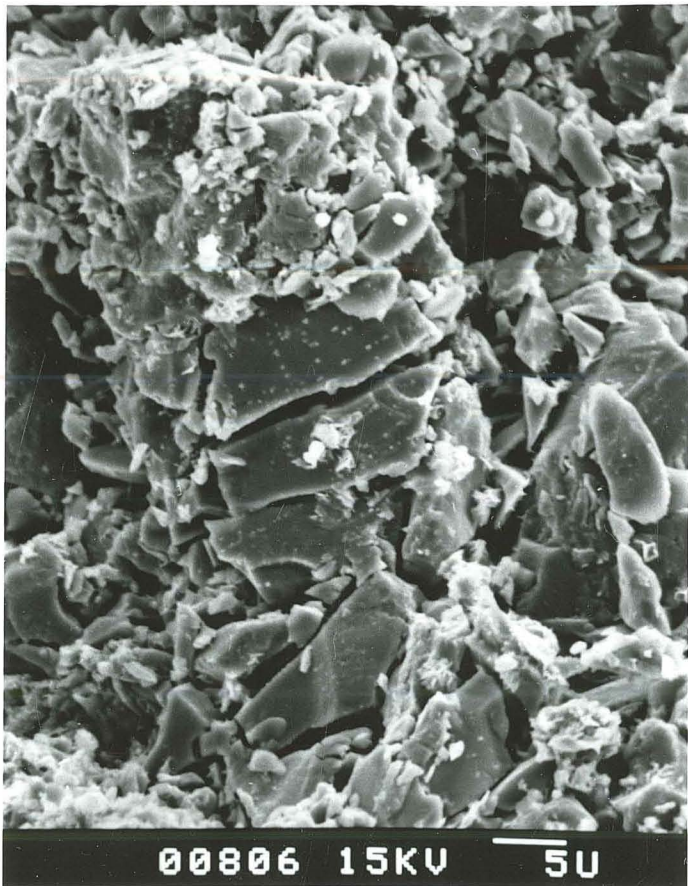
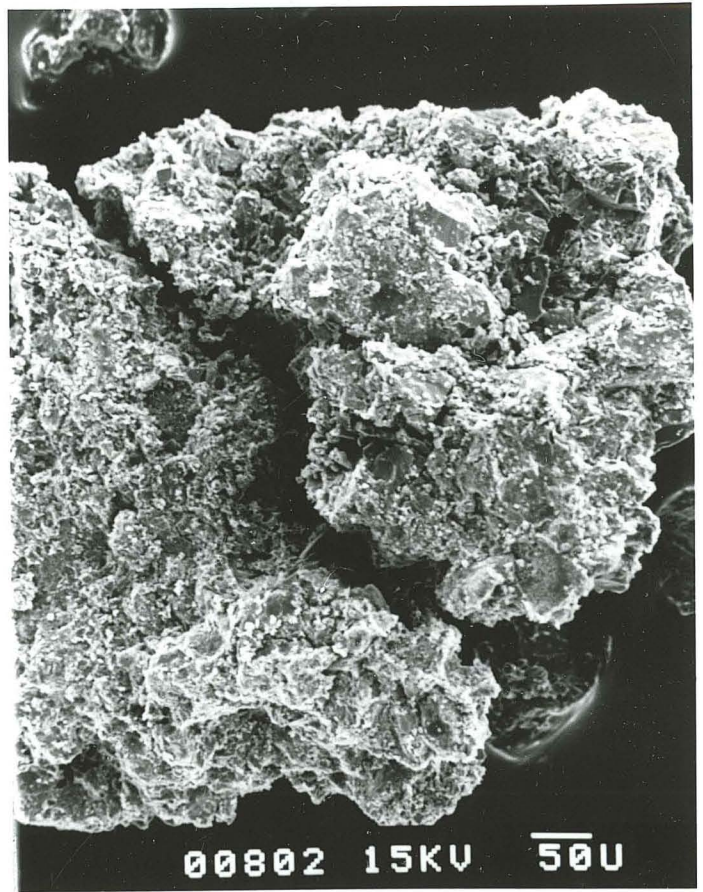
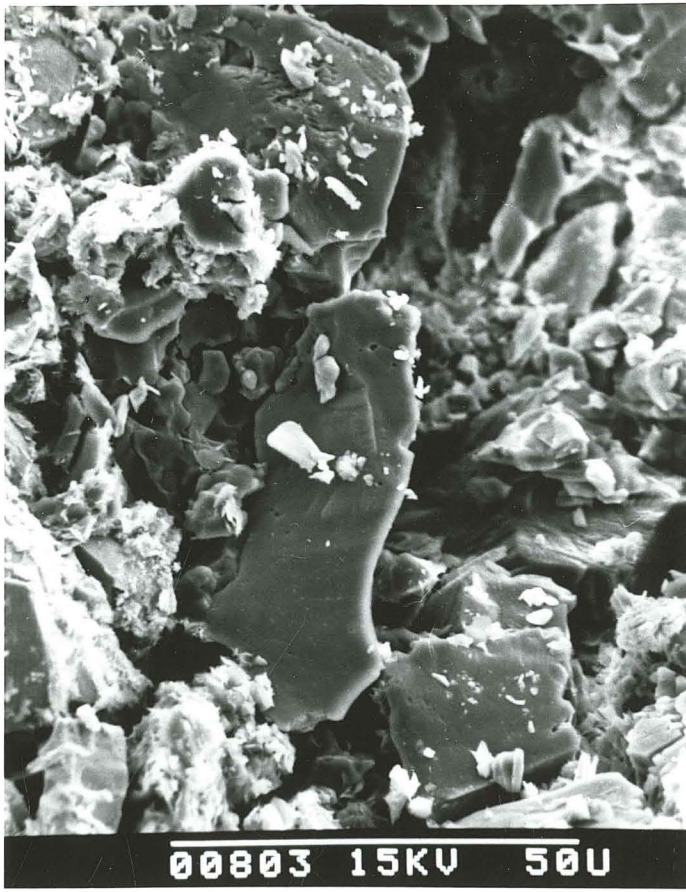


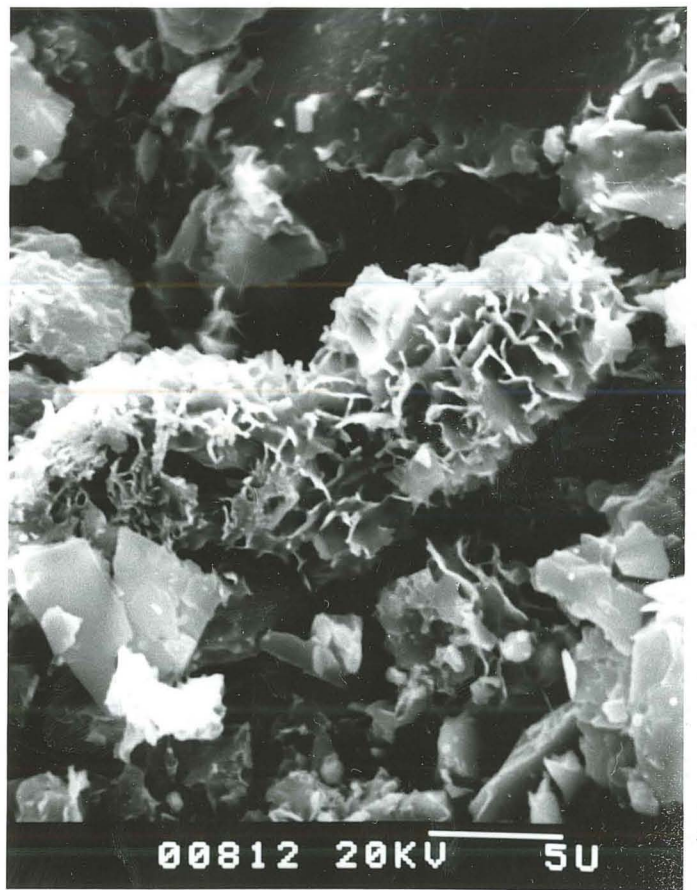
SEM ANALYSIS

GEYSERS
OF 27A-2
10,383.2'
(CORE)

PROJECT: Halen - Scale & Virelet Material
 DATE: 1/5/91
 SAMPLE ID'S: A- 005 (H)
 B- 006 (I)
 C- 007 (G)
 D- 008 (C)

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|---|---|
| 00802 | X140 | Low mag. of particle from virelet. Particle is mainly Si w/ less common Fe | |
| 00803 | X990 | Slightly higher mag. of particle surface shown in 00802 - Si dominate. (Si:O ₂ ?) | |
| 00804 | X150 | Surface texture of another particle/grain. | |
| 00805 | X300 | Low mag. of typical fracture surface of matrix material. Specimen appears to have been crushed. | |
| 00806 | X1.7K | Fractured FeS (pyrrhotite) within matrix shown previously. | |
| 00807 | X3.1K | Webby material (probable clay) has formed on Fe-S - last image | |
| 00808 | X820 | Lg. Fe-S mineral (pyrrhotite). Note fractures in matrix material & within grain | |
| 00809 | X3.3K | More web-like material on FeS. Webby-honeycomb material is dominated by Si & Al - probable clay - screwed photo | |
| 00811 | X2.9K | Web-like material - Probable clay. | |
| 00812 | X3.2K | Honey-comb features consist of Si-Al & K suggesting a mixed layer illite/smectite |  |
| 00813 | X1.6K | Area within pore - Terrible photomicrograph. some clay features were observed on FeS | |
| | | | |





01224-01230

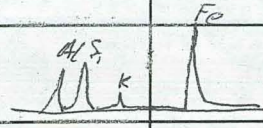
01000-01006 01107-01123
WELL GDC-30, 5021.5

SEM ANALYSIS

(THE GEYSERS)

PROJECT: Hulen
DATE: 2/1/91
SAMPLE ID'S: A- Sample B # 10
B- Sample A # 11
C- Sample D # 12
D- Sample F # 13

01331-01336
WELL OF 27A-2
10, 983.2

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|---|--------------|
| 01000 | X33 | Low mag. of platy minerals with a large pore space. Kevex indicates ^{Could be} Possibly Ferroaxinite Actinolite | Si - Ca - Fe |
| 01001 | X31 | Low mag within large pore - sericite is visible | or Epidote |
| 01002 | X160 | Another low mag. featuring mineralized pores. Probable SiO ₂ with mica? | |
| 01003 | X380 | Slightly higher mag. of previous photomicrograph. Quantity of mica appear to line pores. | |
| 01004 | X1.3K | Quantity intergrown into mica sheets? No signal for Kevex | |
| 01005 | X130 | Mica appears to be coated w/ a larger substance - probably drilled fluid. Looking down into pore space | |
| 01006 | X76 | Pore morphology in highly mineralized zone featuring mica & Actinolite Major Fe - Ca = Al | |
| 01107 | X81 | XH habit of mica w/ Ferroaxinite Kevex Major Si Al = Ca w/ Fe & Mn. | |
| 01108 | X140 | Slightly higher mag. of Ferroaxinite & mica XH boundaries of habit. | |
| 01109 | X160 | Within cavity dominated by mica/sericite note different XH habits - one form appears to have a morphology similar to kaolinite | |
| 01110 | X320 | Slightly higher mag. of previous photo. | |
| 01111 | X810 | Again slightly high mag. of 01110 Major Fe Peak's Kevex →  | |
| 01112 | X45 | Low mag. of large cavity dominated by mica w/ some large unidentified minerals - Kevex indicates Ferroaxinite | |

01113 | X220 | Mica on Ferroaxinite ← Kevex I.D. higher mag. of previous photomicrographs.

SEM ANALYSIS

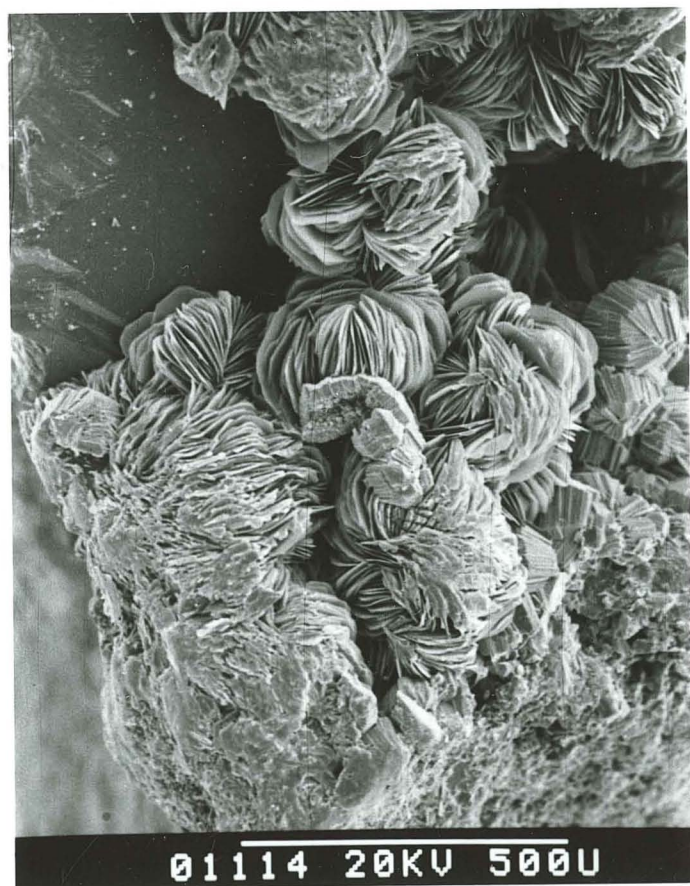
PROJECT: Helen
DATE: 2/1/91
SAMPLE ID'S: A- Sample B #10
 B- Sample A #11
 C- Sample D #12
 D- Sample F #13

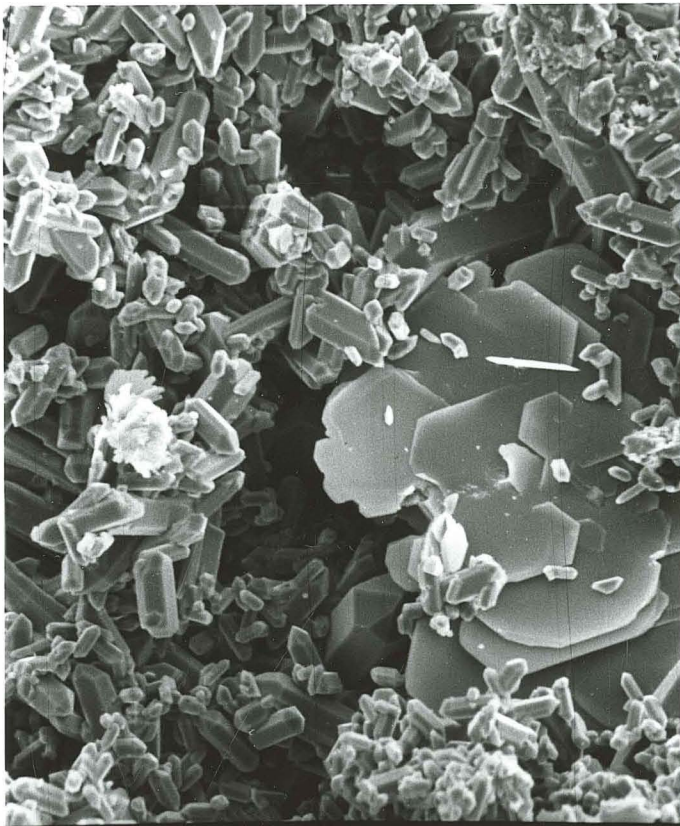
| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|--|--|
| 01114 | X81 | low mag. of a different cavity Dominated by mica & another euhedral mineral not identified here | |
| 01115 | X260 | Slightly higher mag. of previous photomicrograph It appears to be the Fe bearing mica observed in 01111 | (No Fe detected with Kevex must be some count) |
| 01116 | X410 | Shows mica "books" - Morphology of XH habit is depicted | |
| 01117 | X210 | Morphology & habit of muscovite/sericite is shown. | |
| 01118 | X320 | Quartz Quartz dominant area of the sample | |
| 01119 | X1.6K | XH habit of Quartz Quartz - several intergrown XHs - penetration twin etc. | |
| 01120 | X330 | low mag. of another side dominated area of sample - | |
| 01121 | X340 | Quartz & mica dominated area - Note pore morphology - | |
| 01122 | X440 | Epidote or actinolite is in foreground of ground ^{with} pore in background - also shown are mica XHs. | |
| 01123 | X570 | Unusual habit mica XH habit Note lineations appearing like fractures - adjacent to the mica | Note pore space |
| 01224 | X200 | Low mag. of sample that has been "peeled back" to expose unknown mineral - Note fractured texture. | |
| 01225 | X5.0K | High mag. within pore shows previously - appears to be lined by smectitic clay | |
| 01226 | X40 | Low mag. of the typical sample fabric Note lack of any significant porosity | |

SEM ANALYSIS

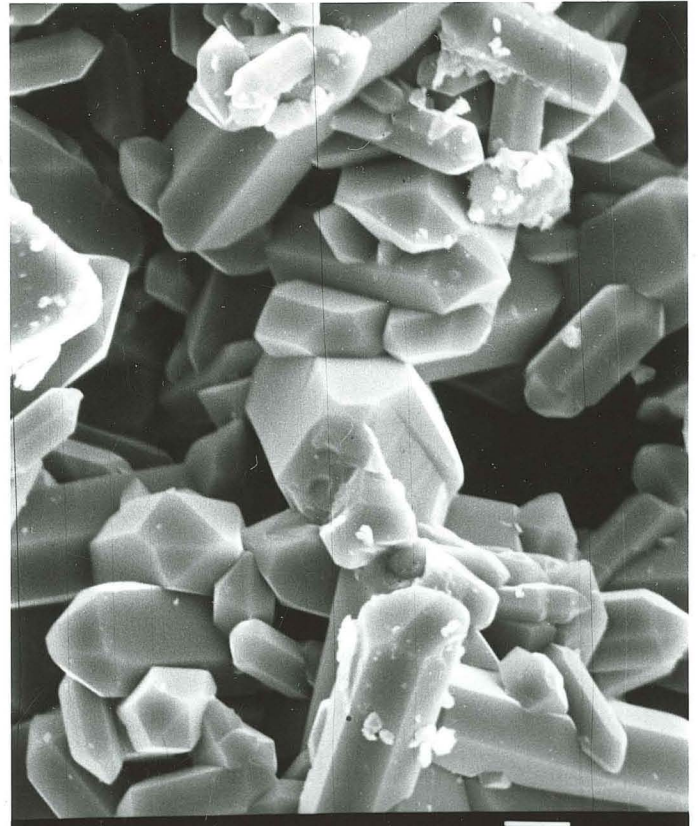
PROJECT: Hulen
 DATE: 2/1/91
 SAMPLE ID'S: A- Sample B #10
 B- Sample A #11
 C- Sample D #12
 D- Sample F #13

| PHOTO | MAG. | COMMENTS | EDX ANALYSIS |
|-------|-------|---|---|
| 01228 | X200 | Interstiti pore morphology - Anisophum Coater appears fractured - Keveex no would not | pick-up any signal After 3min preheat up Al & Cr, |
| 01229 | X1.0K | Probable smectitic clays within pore or lining the fracture surface | |
| 01230 | X380 | Low mag. of fragments XH - probable pyrophyllite - but not positive I.D. of Keveex | |
| 01331 | X150 | Low mag. of sample sample containing what appears to be a surficial coating of a fibrous mineral. | |
| 01332 | X790 | Mod. mag. of fibrous material Keveex - terrible signals | |
| 01333 | X1.5K | Higher mag. of fibrous material Again Keveex - terrible signal. | |
| 01334 | X1.5K | Another area of sample contains fibrous material Keveex | Al S? Na Si K Ca Fe |
| 01335 | X190 | Low mag. of fibrous mineral area - Note pore morphology associated w/ this phenomenon | |
| 01336 | X390 | Same area - again note pore morphology It appears outgassing? | |
| | | | |
| | | | |
| | | | |
| | | | |

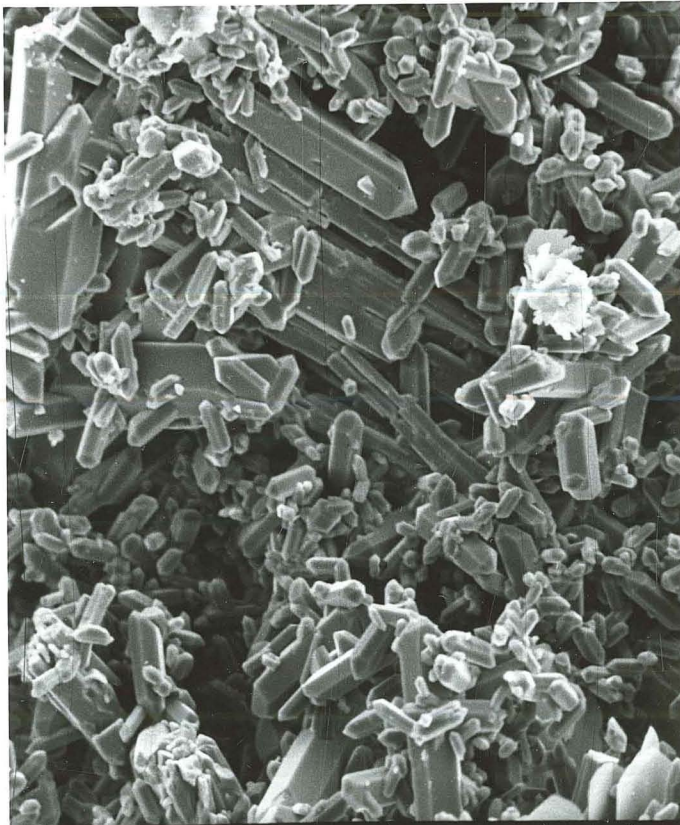




01118 20KV 50U



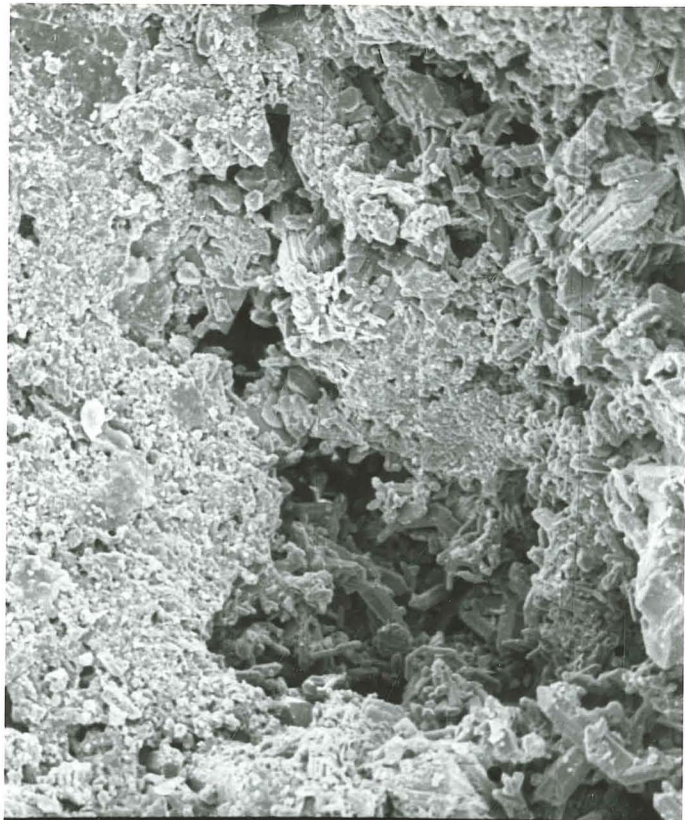
01119 20KV 50U



01120 20KV 50U



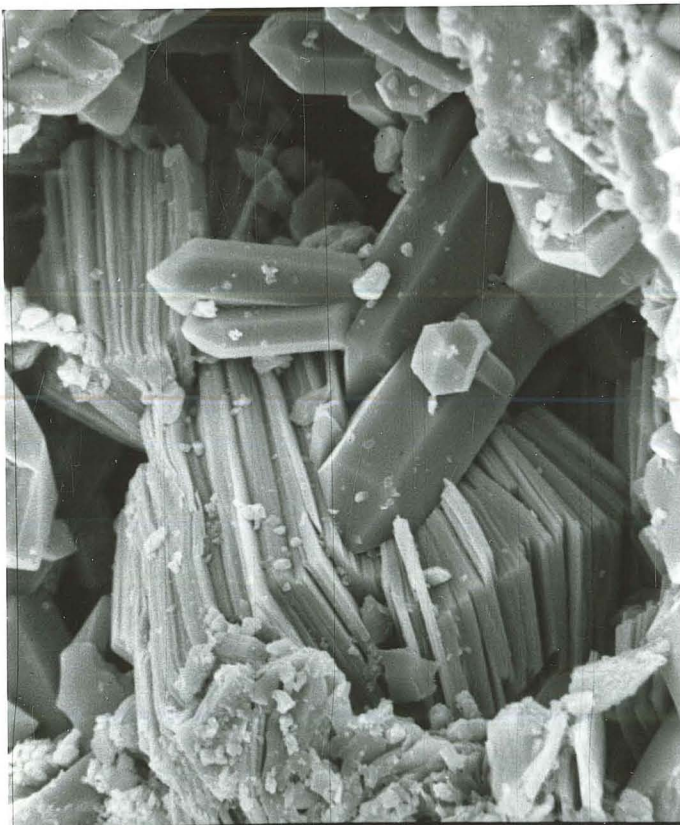
01121 20KV 50U



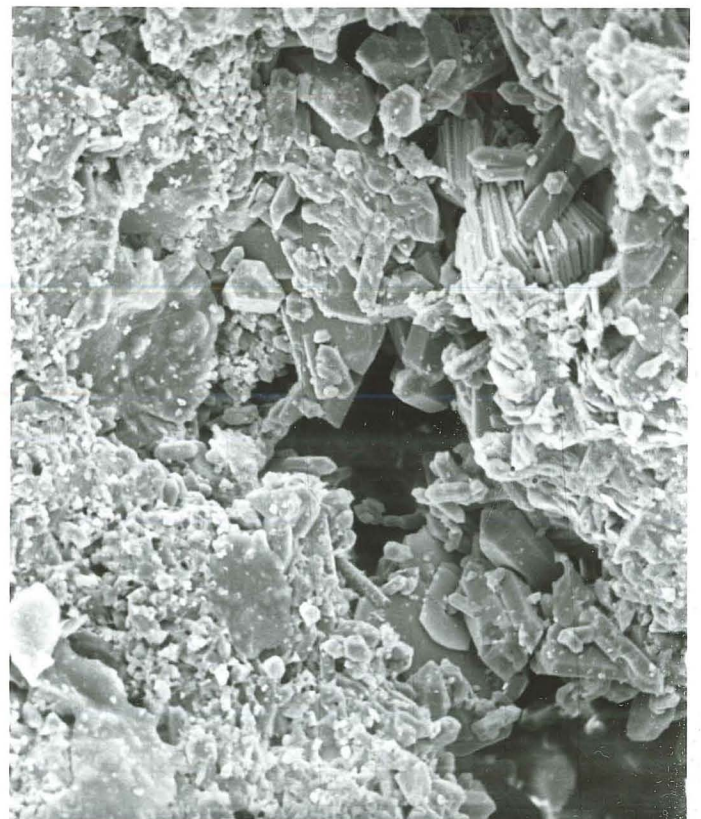
01002 20KV 50U



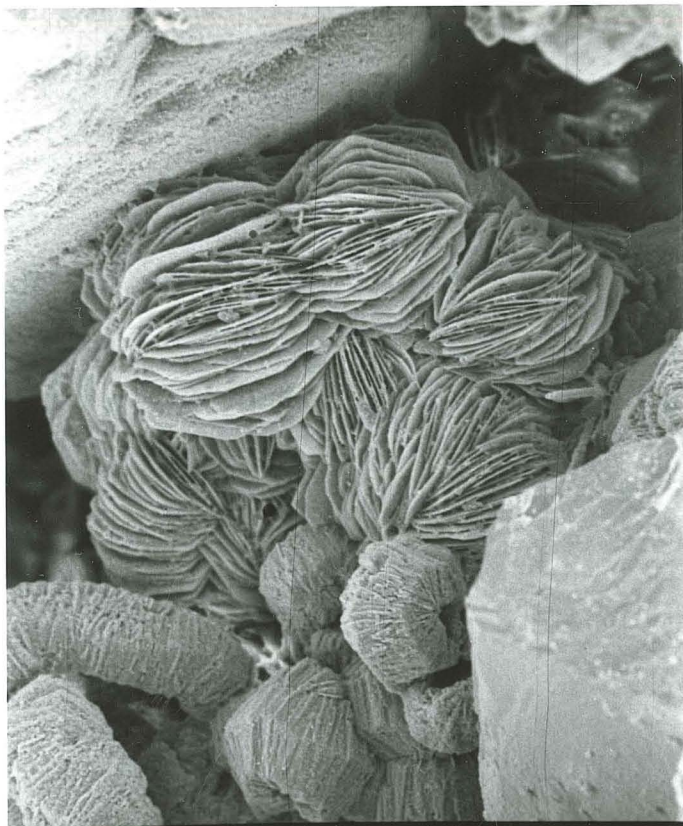
01000 20KV 500U



01004 20KV 5U



01003 20KV 50U



01005 20KV 50U



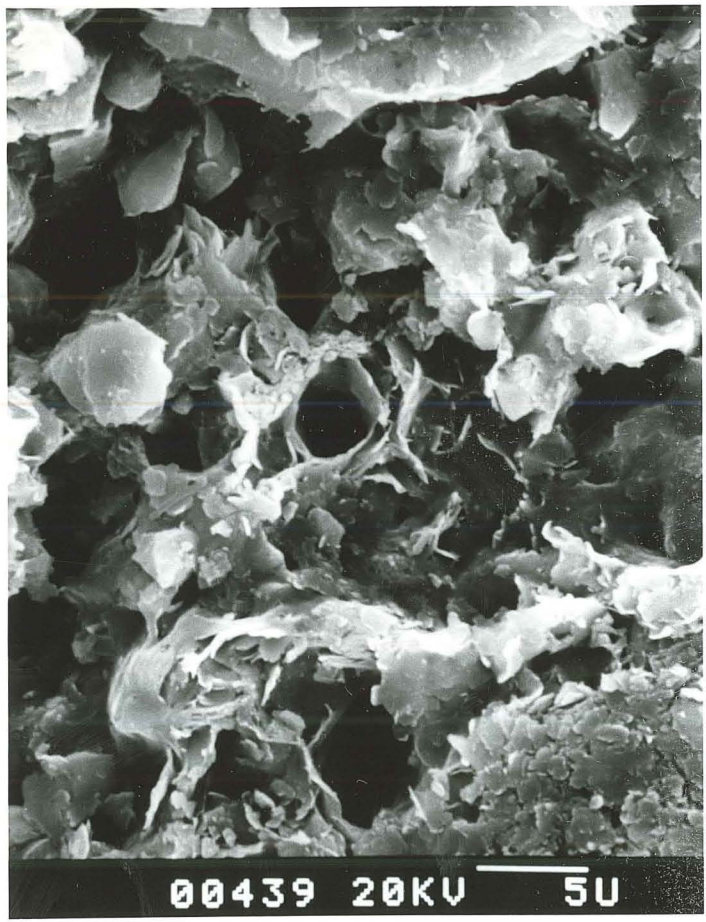
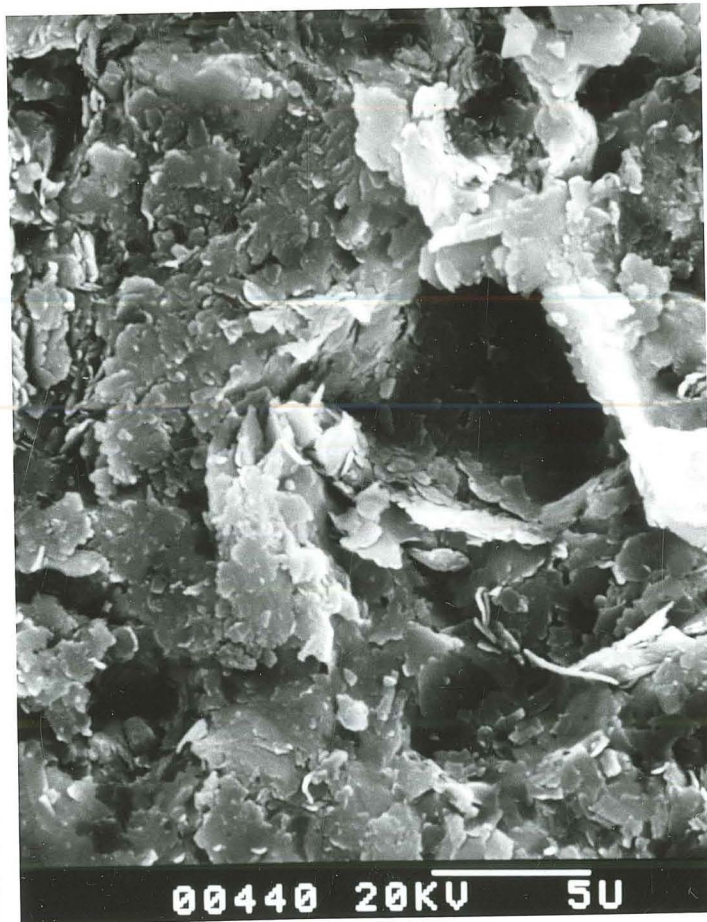
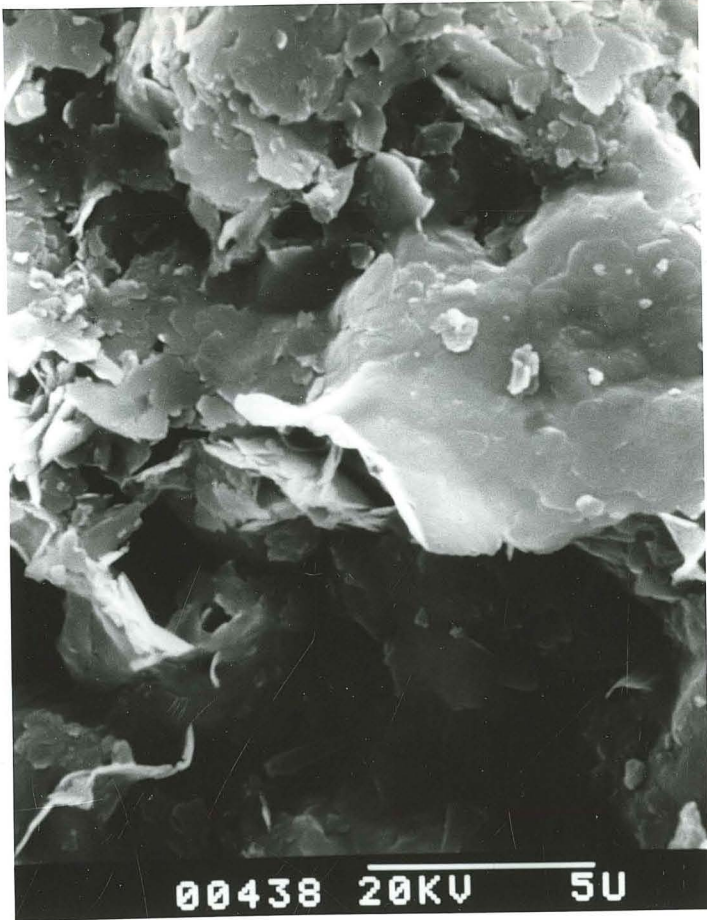
01107 20KV 500U

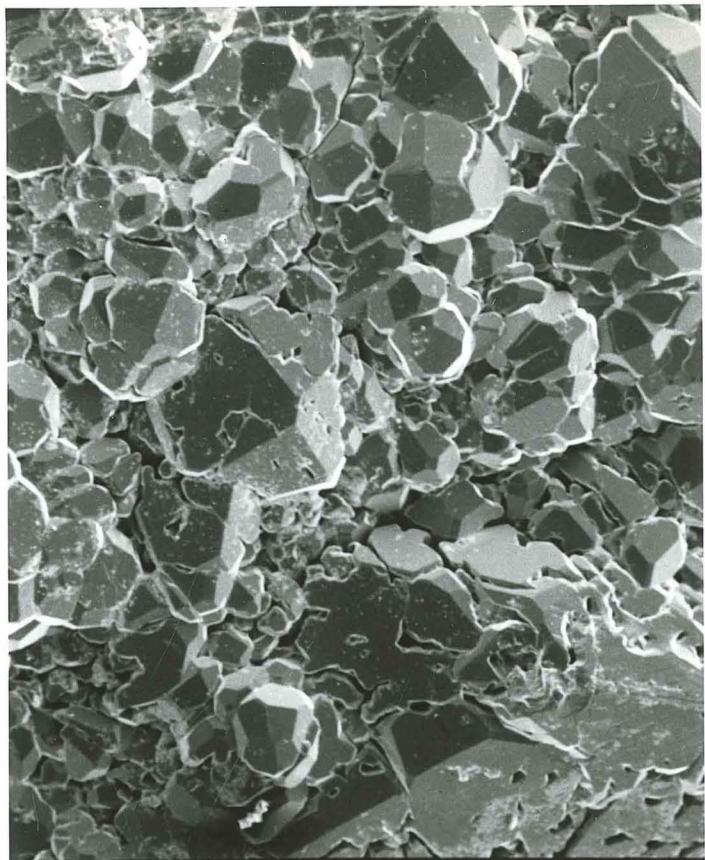


01107 20KV 500U

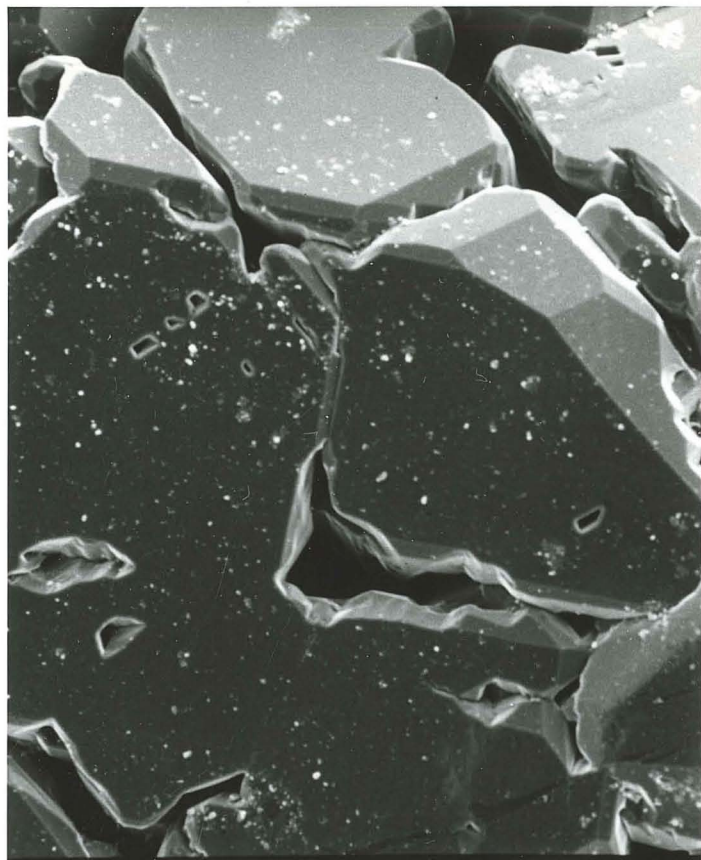


01109 20KV 50U

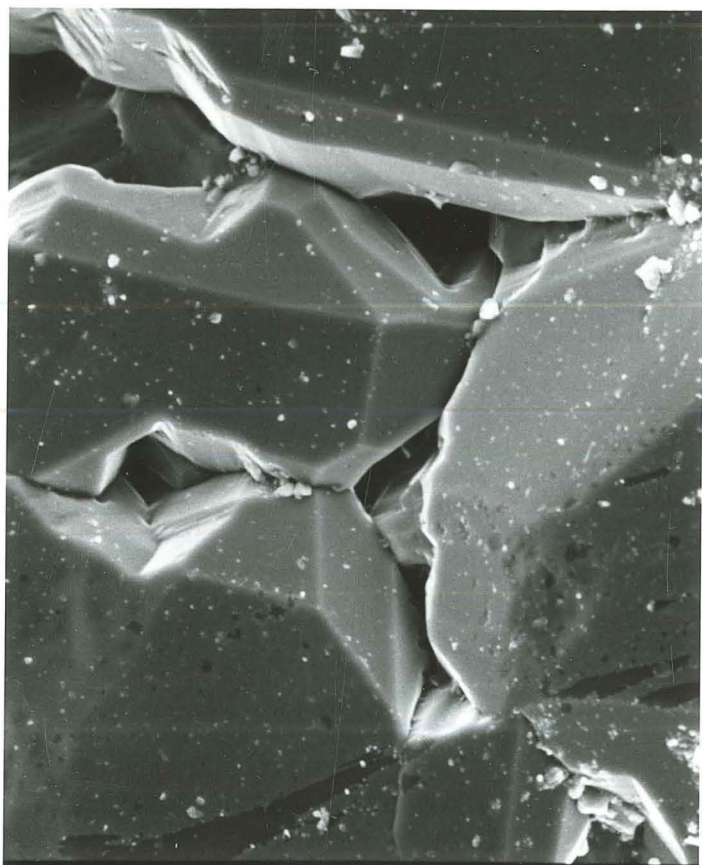




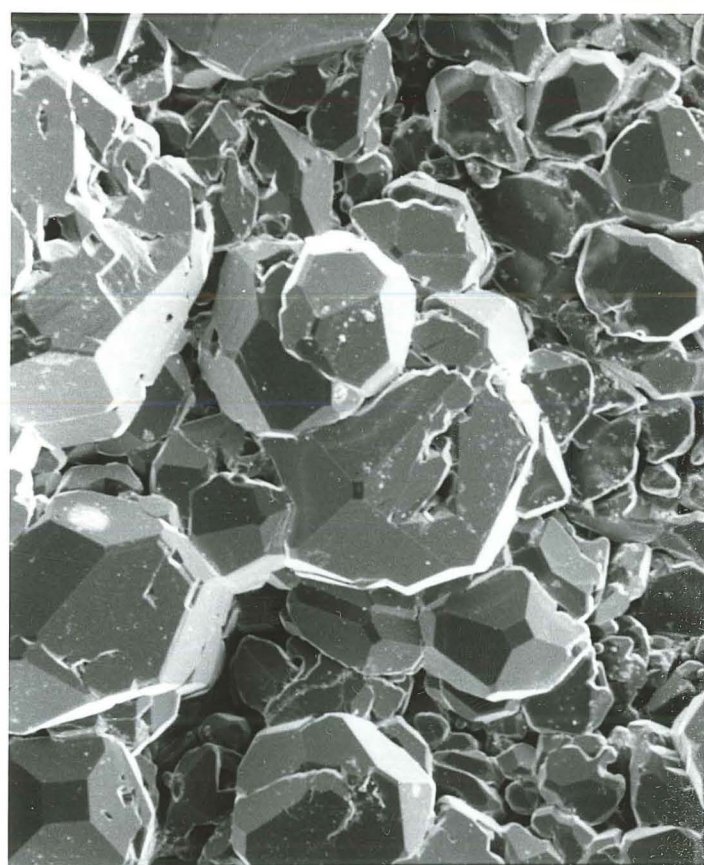
00541 20KV 500U



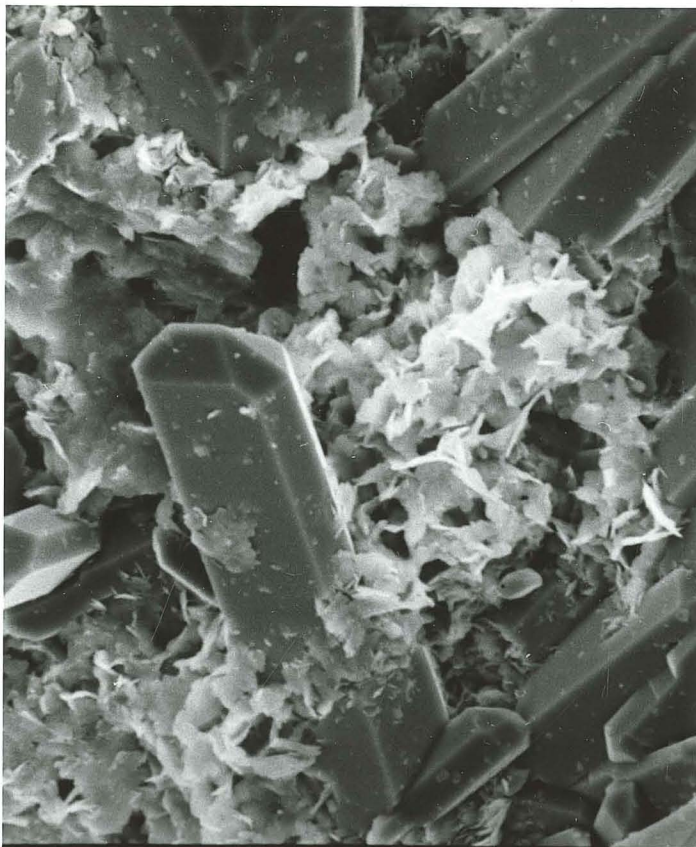
00542 20KV 50U



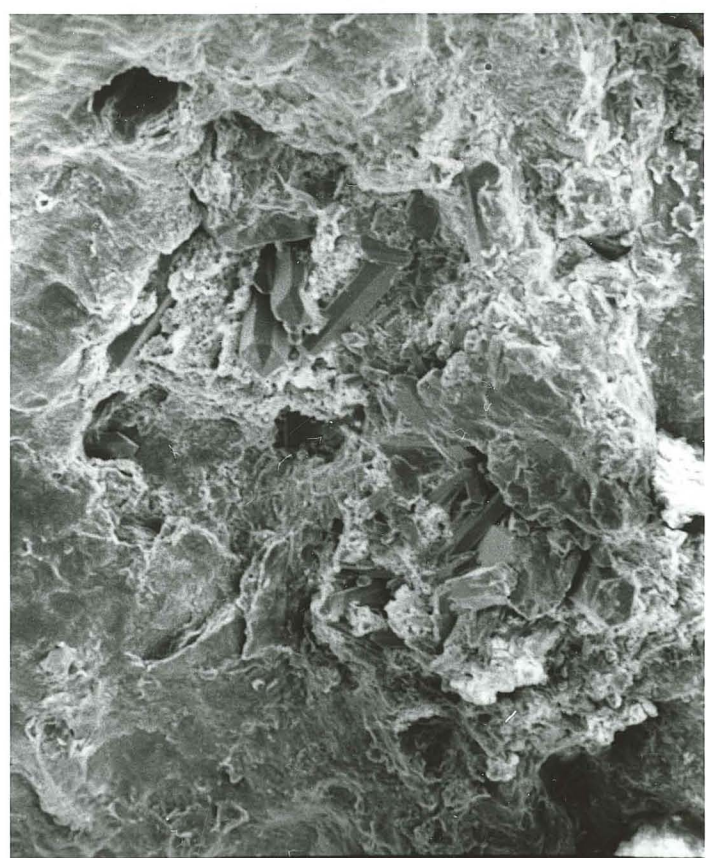
00543 20KV 50U



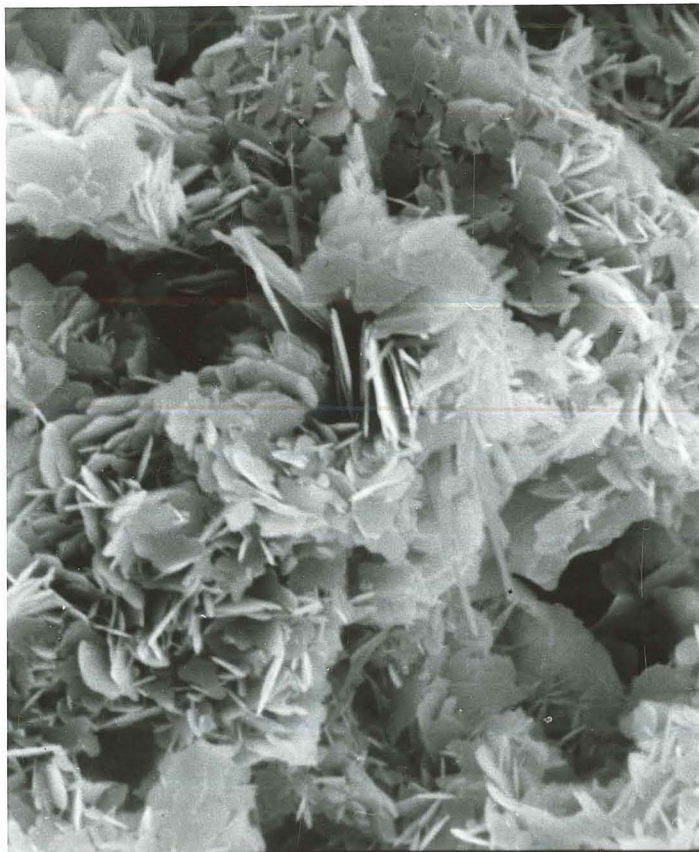
00544 20KV 500U



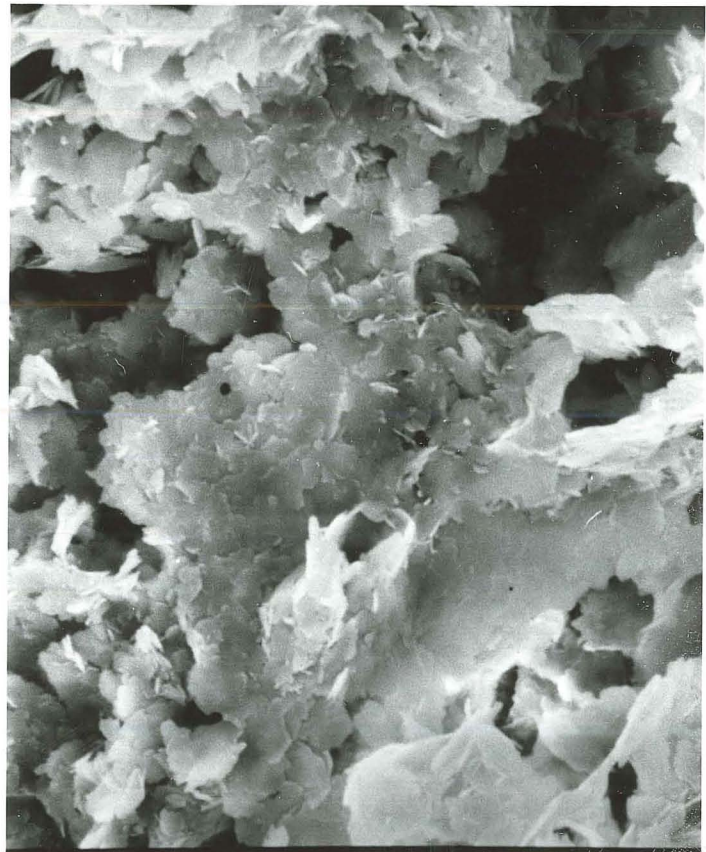
00315 20KV 50U



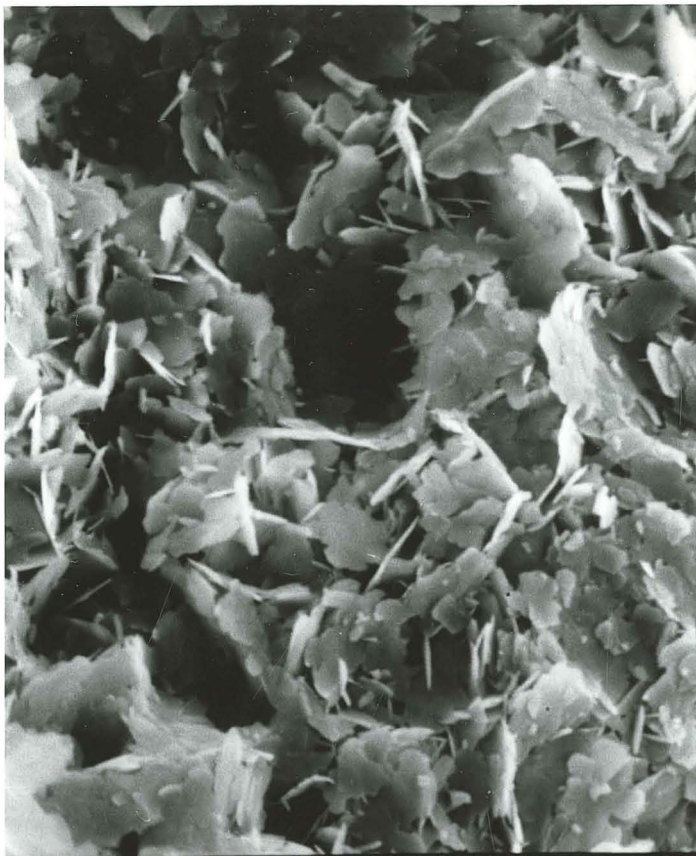
00314 20KV 500U



00317 20KV 5U



00316 20KV 5U



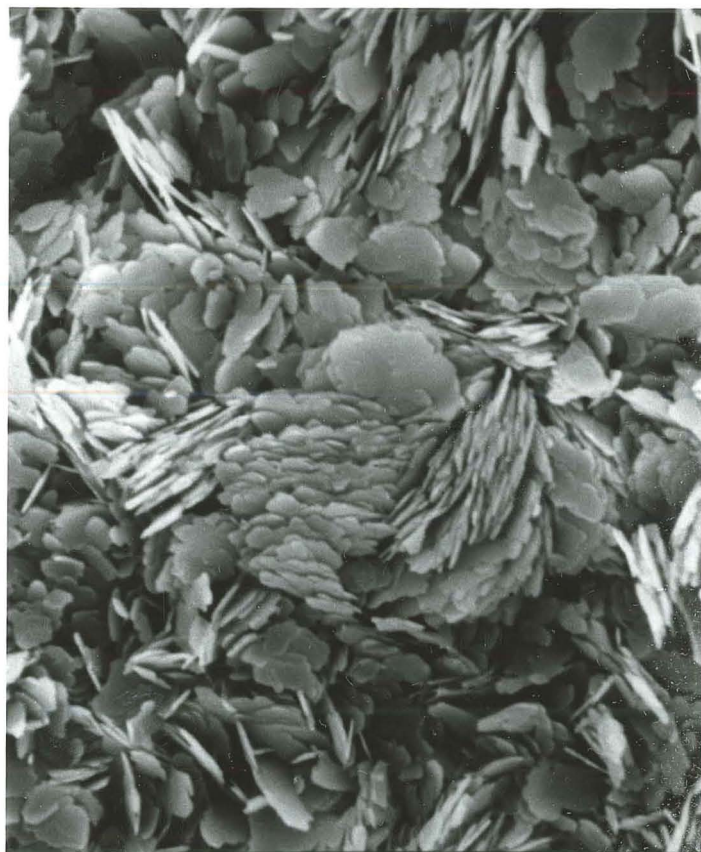
00318 20KV 5U



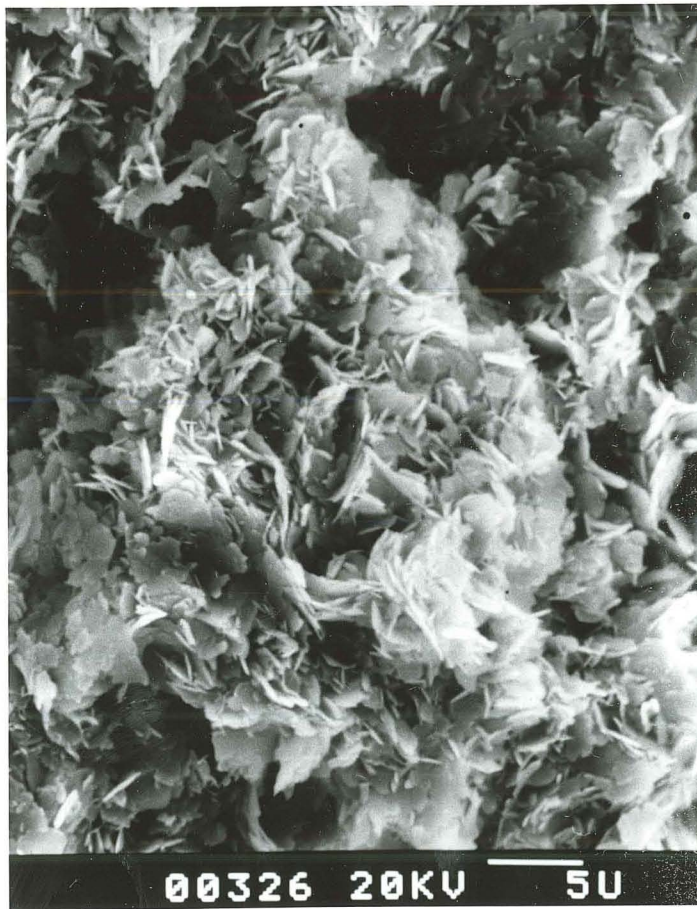
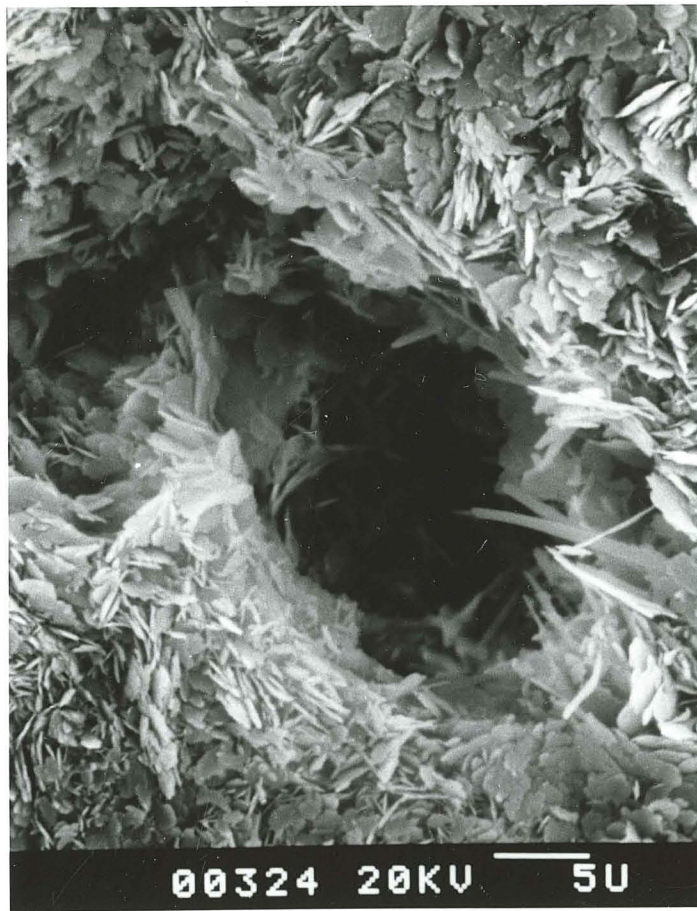
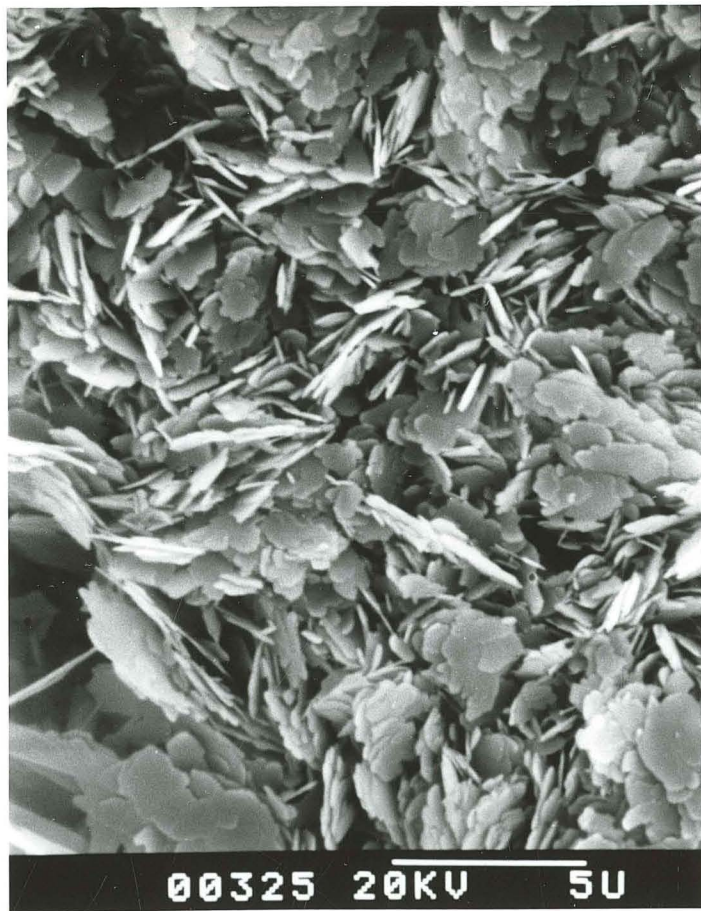
00321 20KV 5U

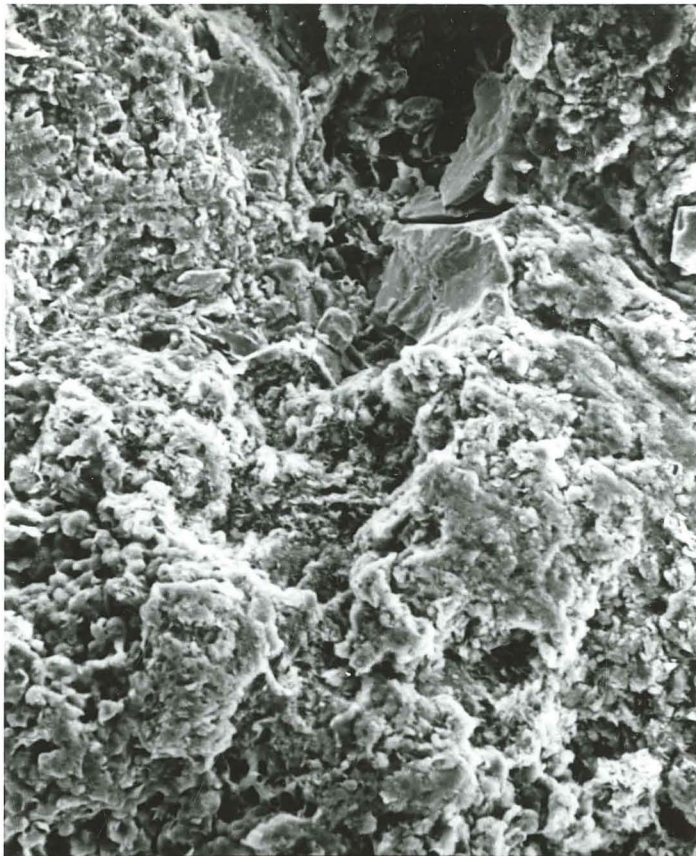


00322 20KV 5U

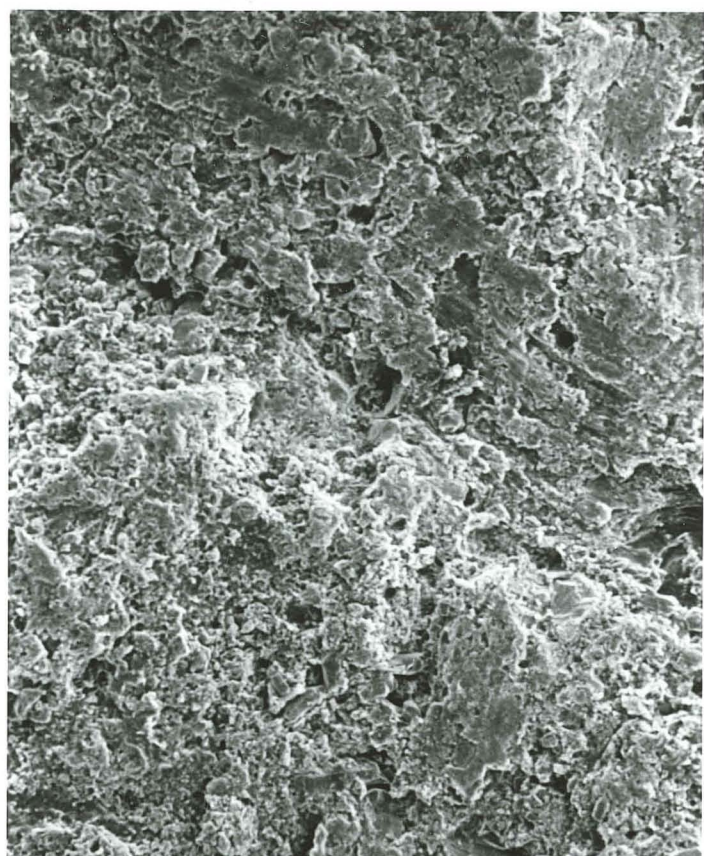


00323 20KV 5U





00430 20KV 50U



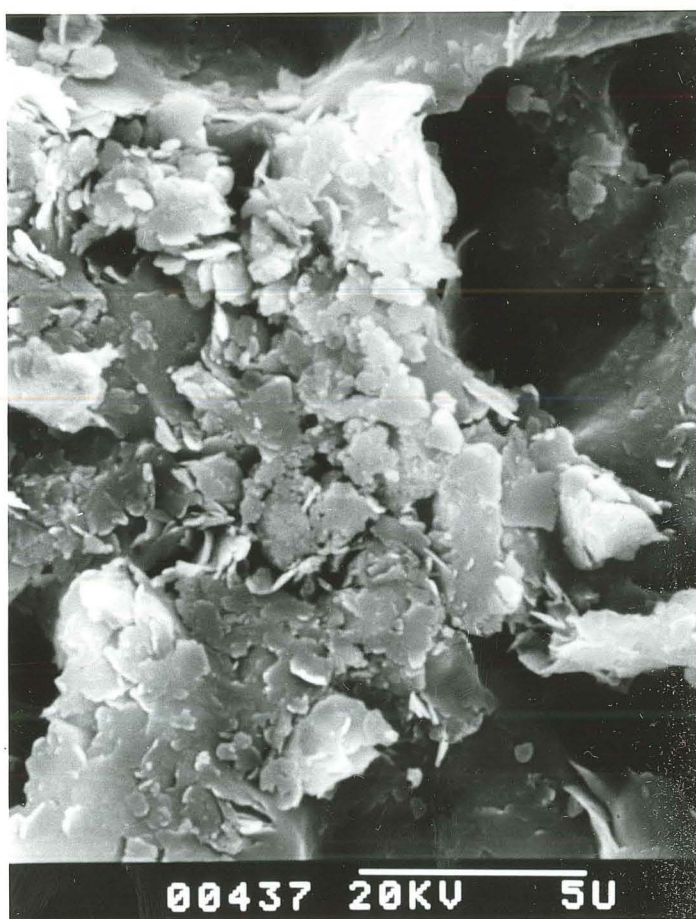
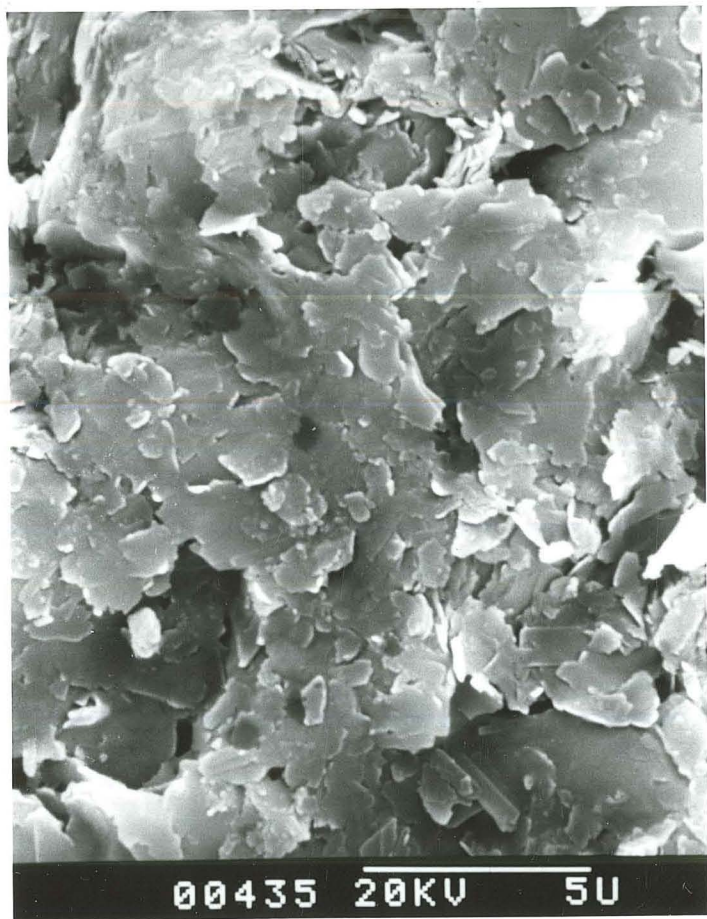
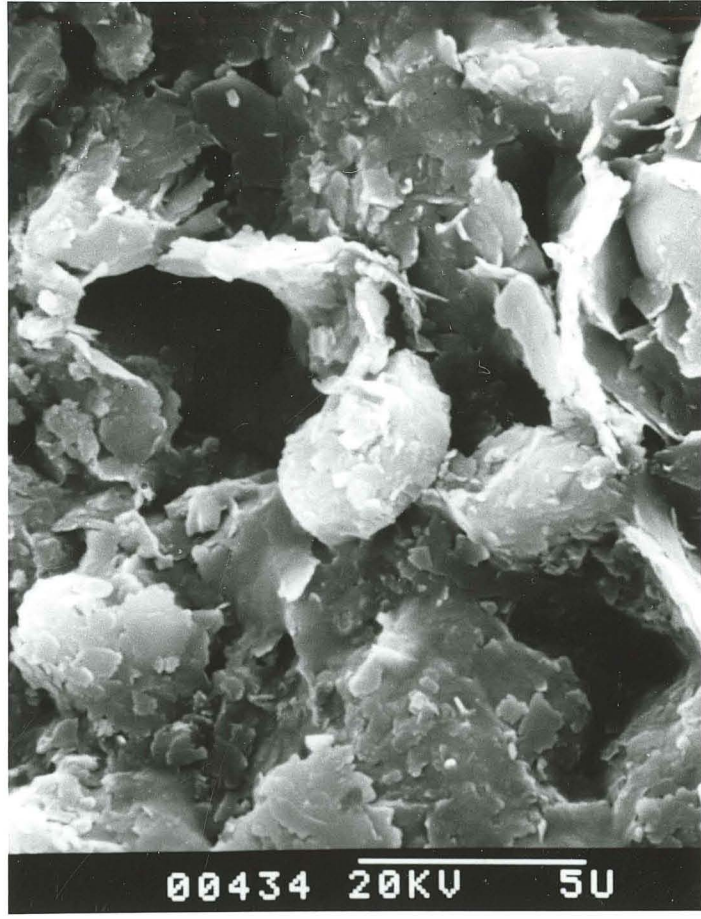
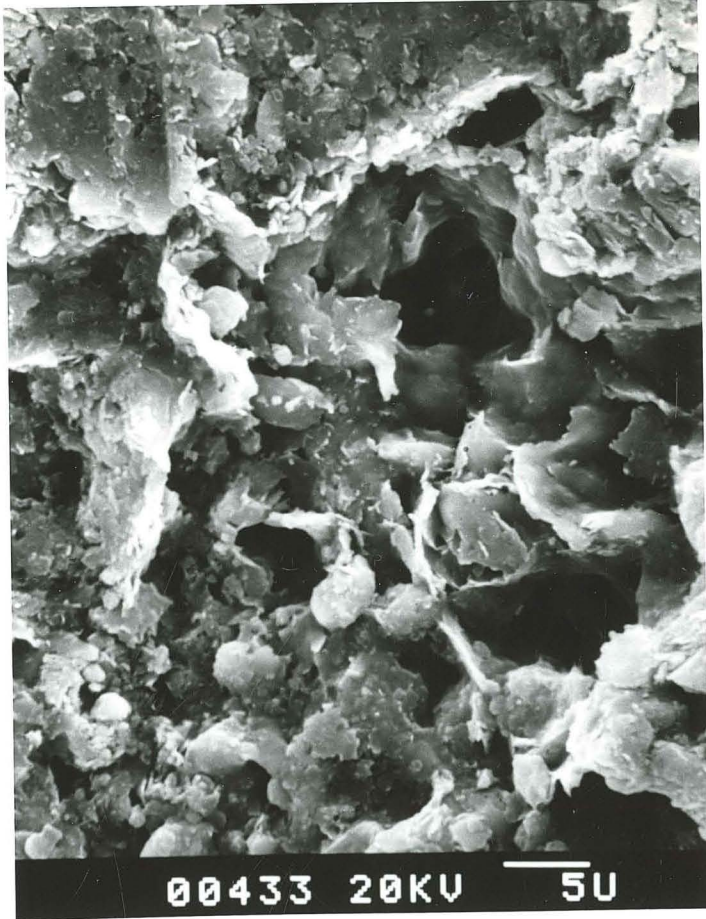
00429 20KV 500U

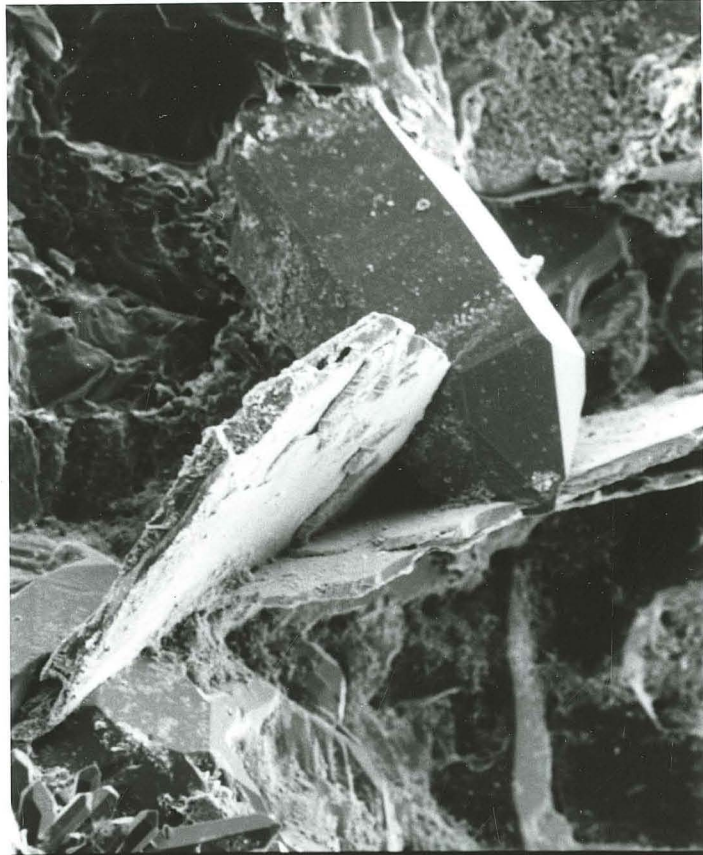


00432 20KV 5U



00431 20KV 5U

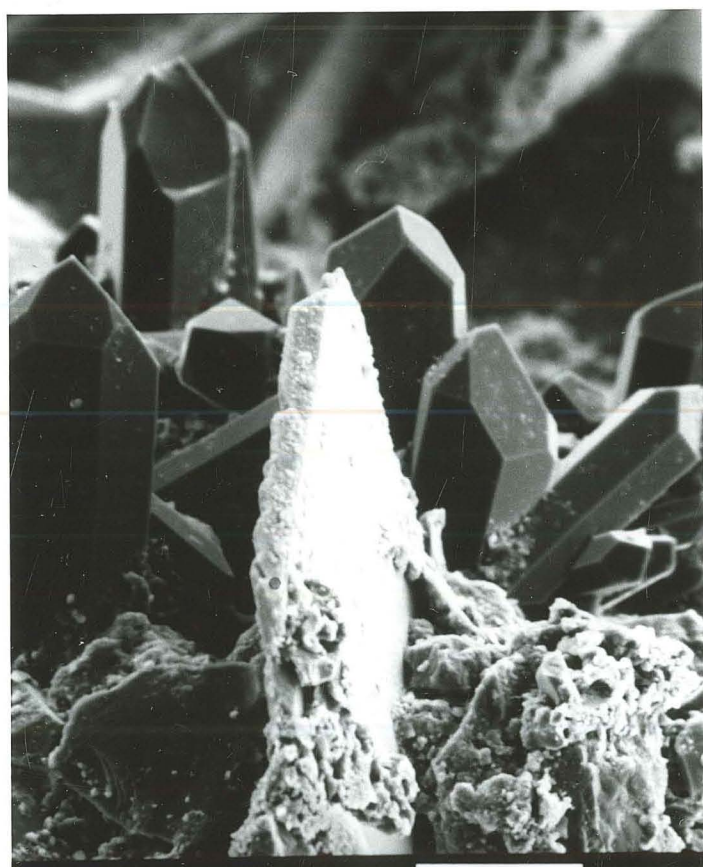




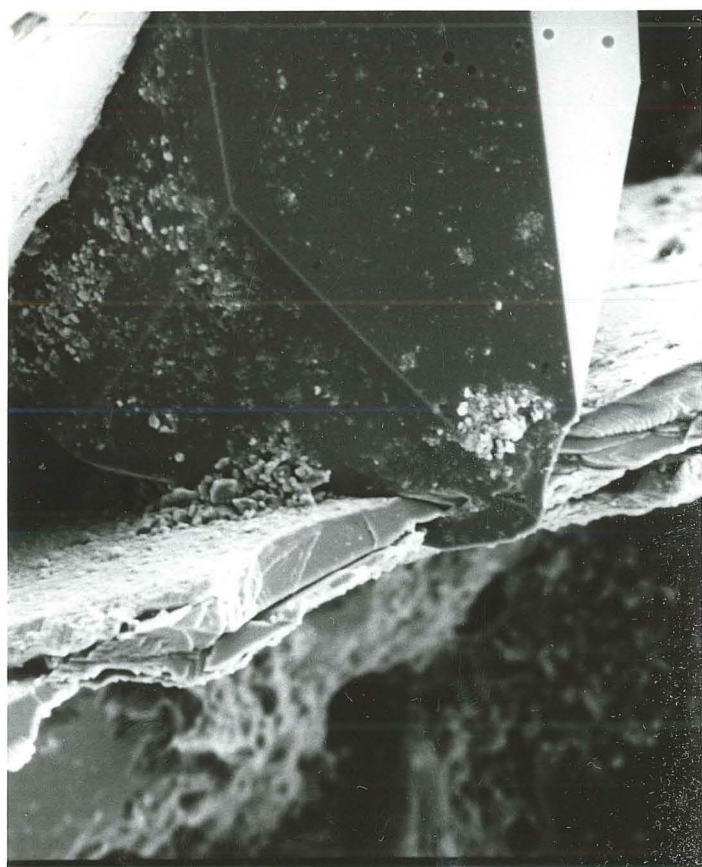
00646 20KV 500U



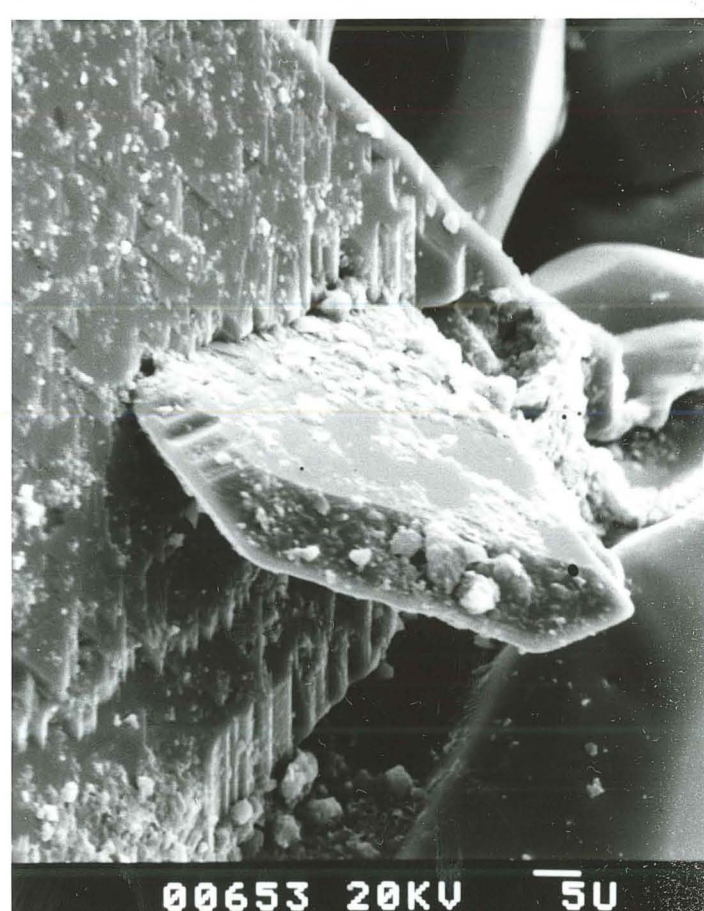
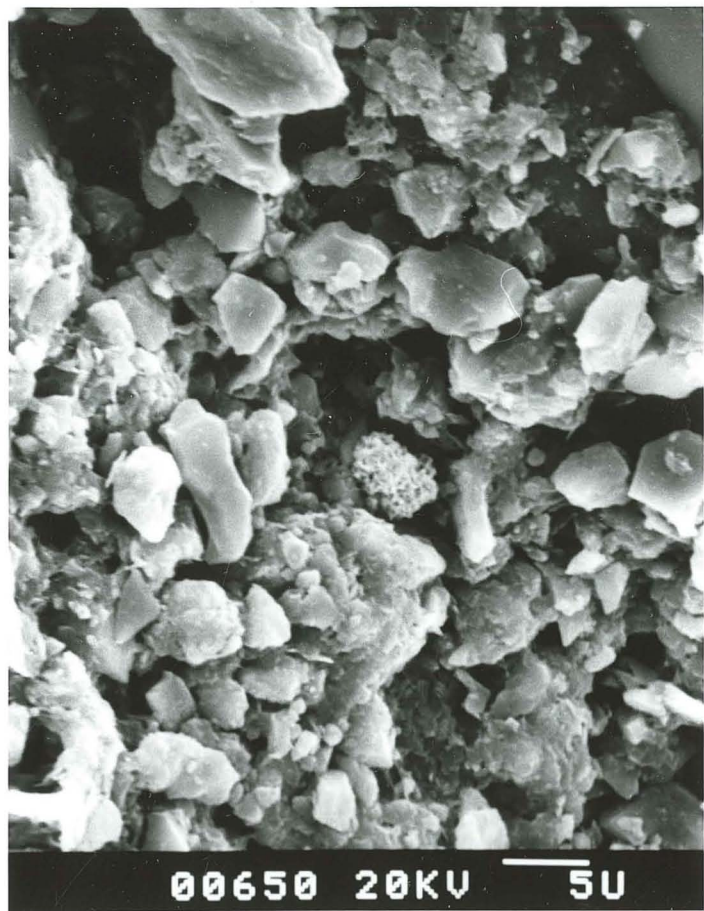
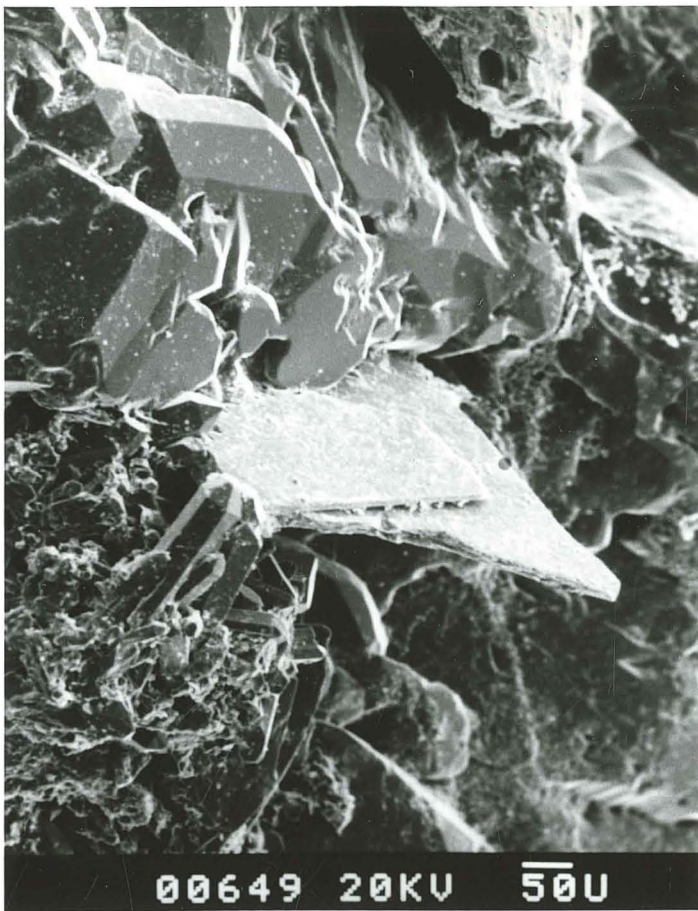
00645 20KV 500U

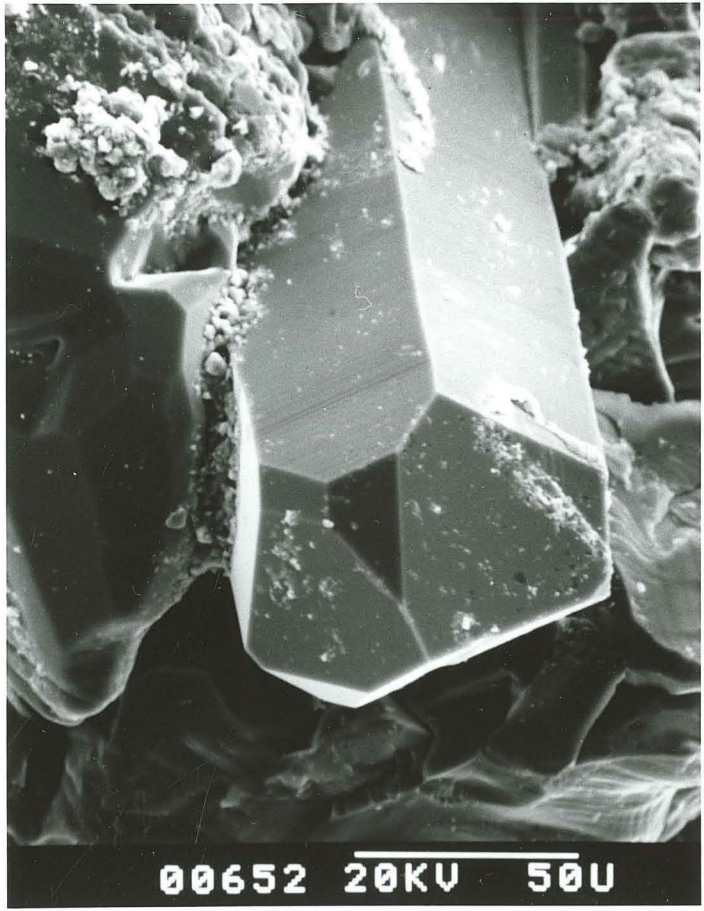


00648 20KV 50U



00647 20KV 50U





00652 20KV 50U