Stange Mine Hole #1

0 - 5
Reddish brown subangular to well-rounded medium to coarse sand cont a few pebbles.

5 - 45
Brown fine, dirty sand, cont a few coarse sand grains

45 - 75
Very finely sandy yellow silt

75 - 80
Greenish-brown silty clay

80 - 90
Greenish-tan clayey silt

90 - 100
Greenish-brown compact silty clay

Stange Mine - Hole # 12

0 - 25
Dirty brown coarse sand containing a few small pebbles, becomes a little finer in lower part.

25 - 60
Fine light-brown sand.

60 - 100
Tan very finely sandy silt.

T.D.
Stange Mine - Hole # 2

0 - 5
Red sandy clay cont. a little Mn, fine

5 - 10
Red medium sand. A few chips of porous sandstone

10 - 15
Similar

15 - 35
V. finely silty yellow silt.

35 - 40
Similar

40 - 45
Tan finely sandy silty clay. A few pieces of psilomelane

45 - 50
Similar with many chips of psilomelane

50 - 55
Similar with a little chert

55 - 60
Similar clay

60 - 65
Yellow silty clay with a little Mols.

65 - 75
Dark Khaki clay cont. chips at psilomelane 55.

75 - 95
Khaki clay cont. chips & streaks of yellow & white clay.

95 - 100
Khaki clay cont. chips of laminated pink & white clay. T.D.

None of samples in this hole are calcareous.
Stange Mine – Hole # 3

0 - 5
Very dark brownish-gray subangular to subrounded sand cont. considerable Mn, dark.

5 - 10
Fine brown rounded sand cont. a little less Mn.

10 - 15
Fine dark brown sand grains sub-rounded.

15 - 20
Very fine light-brown sand cont. a few balls of yellow silt.

20 - 25
Fine to very fine light reddish brown sand.

25 - 30
Pinkish-brown, very finely sandy silt.

30 - 40
Pinkish-tan silt cont. a few small quartz pebbles (from above?)

DB
540

40 - 50
Grayish-brown silty clay  T.D.

Stange Mine – Hole # 14

0 - 5
Rich coffee-colored compact sandy clay – a few pebbles.

5 - 30
Yellow to brown finely sandy silt.

30 - 40
Tan to finely sandy silt.

DB
540

40 - 45
Mixture of tan and dark grayish-brown (khaki) silty clay.

45 - 50
Grayish brown silty clay  T.D.

Drilled sandstone 48’-50’
Stange Mine - Hole #4
Reddish-brown subangular to well-rounded fine sand. Very Trace Mn. silty.
Light brown very fine subrounded sand. Yellow + tan = finely silt.
Yellowish brown silty clay. This may still be Becraft, but it resembles Tonolomay except in color. T.D.

Stange Mine - Hole #15
Brown fine to very fine sand. Trace of Mn. A few chips of u.f. grained lightgray sandstone
Yellowish to tan very finely sandy silt.
Brownish gray silty clay that looks like Tonolomay. (M's labeled?) May be same as 545-550 in #4
Greenish yellow finely sandy silt.
Grayish brown silty clay. T.D.

Stange Mine - Hole #19
Subrounded. Fine to very fine tan sand. Mn. 1 piece of quartzite and a piece of feldspar and white clay tinted.
Similar sand containing a few lumps of yellow sandy silt.
Yellow to tan very finely sandy silt. T.D.
Stange Mine  Hole No. 5

0-5’ Fine to very fine light reddish-brown subangular quartz sand containing a few grains of pyroclasts.

5'-10' Same as preceding. Color is of course that of coating on quartz grains.

10'-15' Khaki + light reddish brown silty clay containing a little sand. A few flakes of white kaolin-like clay.

15'-20' Silty clayey very fine-grained silt sand. Does not look like Beekmantown. Some red stain.

20'-25' Similar, but slightly more v.f. sand.

25'-30' Light reddish tan v.f. sandy clayey silt, yellow silt.

30'-35' Similar. A chip of clay that is decalcified limestone.

35'-40' Same as preceding.

40'-45' Similar but darker brown. Contains a little black and dark brown clay that effervesces slightly.

45'-50' Brown clay
**Samples**  W.H.  

**DATE**  April 12, 1941

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<tr>
<th>Depth Range</th>
<th>Description</th>
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<tbody>
<tr>
<td>0 - 5'</td>
<td>No sample</td>
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<tr>
<td>5' - 10'</td>
<td>Light reddish brown fine to coarse subangular earthy sand, No. Mn.</td>
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<td>10' - 15'</td>
<td>Fine to coarse, sub-angular, quartz sand, yellow to buff, some silt.</td>
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<td>15' - 20'</td>
<td>Buff to reddish earthy rounded to subangular quartz sand containing a few chaledonal quartz crystals, a little Mn stain.</td>
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<td>20' - 25'</td>
<td>Yellowish brown earthy sand-rounded to subangular. Several pieces of non-calcareous quartzite, containing a few small pebbles up to 1/16&quot; in size.</td>
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<td>25' - 30'</td>
<td>Fine to medium, yellowish-brown to orange, loose quartz sand containing a few pieces of compact, tightly cemented sandstone - prob. quartzite</td>
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<tr>
<td>30' - 35'</td>
<td>Light brown loose sub-rounded fine sand containing chips of quartzite &amp; very porous white fine-grained sandstone</td>
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<td>35' - 40'</td>
<td>Same as preceding.</td>
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</table>
Stange Mine  Hole # 7 cont.

40' - 43'
Same as preceding. A few chips of red clayey sand like gravel filling in open cut. Inner drilling shows above.

45' - 50'
Same as preceding. A few large chips of cemented light gray very porous sandstone, and one small ball of light brown clay.

50' - 55'
Friable porous, predominantly fine to very fine-grained, clean quartz sandstone. A few pieces of quartzite. Bulk of sample consists of reddish brown, earthy fine to very fine sand. A little Mn stain.

55' - 60'
Similar, but containing many pieces of bright red, earthy fine to very fine soft sandstone.

60' - 65'
A combination of preceding two samples.

65' - 70'
Yellow + buff, silty clay containing white streaks. One fragment of disintegrated chert (?) (This may be Toluaway ?)
Stange # 7 (cont.)

70'–75'
Finely sandy and silty yellow clay containing some white kaolin-like material. Somewhat plastic when wet. Not calcareous.

75'–80'
Same as preceding.

80'–85'
Silty, clayey, very fine-grained sand plastic when wet.

85'–90'
Gray to buff, very finely sandy, silty clay. One piece of psilomelane, possibly from above. Not calcareous.

90'–95' DB
Light olivaceous or dark Khaki silty clay—very characteristic clay residuum after limestone. Widely scattered silt grains.

95'–100'
Same as preceding. Not calcareous.

100'–105' Same as preceding.

105'–110' Same as preceding.

110'–115'
Slightly greenish, grayish Khaki clay containing scattered subrounded quartz grains and a few fragments of white clay. Not calcareous. Like preceding, except that color is a little grayer.
Stange Hole #7 (cont.)
Like preceding, but contains a few small balls of brick-red clay
like the gouge in large open cut. Large lumps of Khaki clay are
dusted with red clay.

115-120
Same as preceding. One fragment
of bedded clay resembles decalcified
chip of Cedar Creek Fm.1.5.

120-125
Same as preceding without the
red dust.

125-130
Same as preceding with a little red
stain (Shaly Is according to Moon)

130-135
Slightly darker Khaki clay like preceding
containing pellets & chips of dark greenish-
gray clay made up from the zone in which weathering has removed
all lime. This zone is the transition
zone between entirely weathered
and fresh Is.

135-140
Like preceding.

140-145
Like preceding but contains
large calcareous clay.
Stange #7 (cont.)

150-153 Dark Khaki clay, containing a little red clay. Clay very calcareous & contains chips of dark greenish-gray limestone. Total Depth.

4/15/41

Stange Mine - Hole #16

Db
9-20 Fine light brown subrounded sand.
20-35 Very finely sandy light tan silt.
35-50 Similar, but contains clay chips of white & yellow clay. 45-50 Drilled like SS.
50'-55' Very fine subrounded yellow sand. T.D.

Stange Mine - Hole #13

5-15 Reddish-brown very slightly clayey fine tu. very fine sand cont. a little MnO.
15-25 Light brown v.f. sdy silt.
25-35 Similar, but contains chips of v.f. grained bayers white SS.
35-40 Very finely sdy silt - pinkish tan
40-50 Khaki or grayish-brown clay containing chips of contorted laminated clay. Not calcareous T.D.
Stange Mine - Hole #9

6 - 10 Dark-brown fine to medium sand containing a few small pebbles.
10 - 15 Light-brown silty very fine sand.
15 - 25 Yellow v. finely sandy silt. (Color change)
25 - 30 Brownish gray silty, very finely sandy clay. Looks like Tonoloway, may be same bed as 10-15 in Hole #20.
30 - 40 Brownish-yellow silt.
40 - 45 Mostly brownish yellow silty clay, but contains chips of brownish-gray clay. Contact is probably in this interval.
45 - 50 Olive-drab silty clay - Ti.12.

Stange Mine - Hole #8

2 - 10 Dirty coarse sand containing pebbles of sandstone.
10 - 50 Fine brown sand containing a few pebbles of sandstone from above.

All upper Db.
Stange Mine - Hole #10
Fine sand impregnated and in part replaced by pyrolusite. Samples are brownish black to bluish black. A few chips of soft white sandstone impregnated with Mo. Atom broken quartz pebbles.

0-20
Yellow very finely sandy silt. Some contains considerable clay binder. T.D. 35'-40' clay

20-30
All Db.

Stange Mine - Hole #21
Light brown clayey silt containing scattered sand grains & a little Mn.

0-5

5-20
Light tan silt cont. scattered sand grains

20-30
Similar, but saw some quartzite chips. T.D.

Stange Mine - Hole #24
Fine sandy loam cont. considerable Mn.

0-5
Finely sandy silt cont. some Mn and clay.

5-10
Buff silt.

10-20
Similar silt that contains a few chips of Khaki (grayish brown) clay. Contact may be in this interval.
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<th>Depth (ft)</th>
<th>Description</th>
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<tbody>
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<td>0 - 10</td>
<td>Fine brown, sub-rounded sand cont. considerable Mn.</td>
</tr>
<tr>
<td>10 - 25</td>
<td>Brownish-yellow silt cont. a little Mn.</td>
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<tr>
<td>25 - 40</td>
<td>Light buff silt, containing chips of gray clay. No, Mn.</td>
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<tr>
<td>40 - 45</td>
<td>A mixture of yellow silt, brown clay &amp; grains of red clay.</td>
</tr>
<tr>
<td>45 - 50</td>
<td>Grayish brown clay cont. chips of yellow silt. T.D.</td>
</tr>
<tr>
<td>50 - 60</td>
<td>Grayish-brown clay T.D.</td>
</tr>
<tr>
<td>60 - 75</td>
<td>Moon points Buckfat at 50', where color change was noticeable.</td>
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</tbody>
</table>
Stange Mine — Hole # 18
5 - 9
Red clay containing fine to coarse angular quartz grains.

10 - 15
Similar.

17 - 25
Reddish-brown silty fine to coarse sand containing a few well-rounded quartz pebbles up to 1/4" long.

25 - 50
Reddish-brown fine subangular sand containing rounded pebbles of white sandstone and quartzite. One fragment of oss (25-30) is 1 1/2 inches long. T.D.

upper
All Db

Stange Mine — Hole # 20
5 - 10
Tan finely sandy silt.

10 - 15
Gray silty clay. Looks like Tomaloway clay, but is undertam by silt.

15 - 20
Tan silt containing a little Mn.

20 - 25
Yellowish-brown finely sandy silt.

25 - 50
Grayish-Brown silty clay contains a few chips of purple, and white, and yellow clay. Not calcareous. T.D.
Stange Mine - Hole # 22

0-5
Buft sand containing some quartz gravel and a little Mn.

5'-10'
Dark buff very fine sand.

10'-30'
Dark yellow or tan very finely sandy silt.

30'-50'
Yellow to tan very finely sandy silt.

50'-55'
Grayish brown very finely sandy clay. One piece of pulverulent chalk.

55-60
Brown silty clay containing chips of yellow silty clay.

Stange Mine - Hole # 27

0-5
Brown silty medium to fine sand.

5'-10'
Similar. A few chips of the porous fine sandstone.

10'-15'
Similar. Trace Mn.

15-20'
Similar with chips of sandstone. In general, more silty.

20-25
Mostly light brown silt.

25'-30'
Light brown silt. Grains are angular.
Stange Mine

0 - 5
Fine powdery silt (brown) containing some Mn.

5' - 10'
Dark tan powdery silt.
Similar. Same red (burnt?)

10' - 15' DB
Similar - A little clay binder.
Similar - contains a little v.f. sand.
Pour all DB

15' - 20' DB

20' - 25' DB

25' - 30' DB
Very finely sandy silty clay TD.

Stange Mine - Hole #25

0 - 15
Reddish-brown fine sand. A few 1/8" pebbles

15' - 25' Similar, but in general a little finer

25' - 50 Yellow very finely sandy, slightly clayey silt.

50' - 60' Similar, but contains some psilomelane

60' - 65' Similar, but contains a few clay chips that may be Tomoloway

DB

65' - 75 Brown sandy clay

T.D.
Stange Mine

Hole # 26

0-5' Fine Khaki silty clay.

5-10' Yellowish-Brown silt containing scattered lumps of MnO₂ and many scattered sand grains.

10'-15' Similar.

15'-20' Fine to course yellow quartz sand and a little quartzite gravel in Silt, No. MnO₂.

20'-25' Similar.

25'-30' Similar, but contains a little Mn.

30'-35' Khaki silty clay.

35'-40' Similar, containing chips of limestone, T.D.
Stange Mine - Hole #28

0'-5'  Dark reddish brown, finely sandy clay containing numerous grains of Mn O₂

5'-10' Same as preceding - less sand.

10'-15' Clay like preceding but very little sand + Mn O₂

15'-20' Khaki-colored silty clay containing few limonite nodules. Plastic when wet.

20'-25' Light tan silty clay, containing a little red stain

25'-30' Grayish tan silty clay containing fine quartz grains and many specks of white clay. One piece of pyrite (from above?)

30'-35' Clay similar to above.

35'-40' Very fine quartz sand in a matrix of clay like above (color change)

40'-45' Khaki silty clay containing a few chips of white + of pink, tightly cemented, very fine-grained sandstone or quartzite

45'-50' Khaki silty clay containing contorted streaks of yellow + of dark greenish gray clay. A few pellets of white kaolin-like clay
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<th>Sample</th>
<th>Description</th>
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<td>30'-55'</td>
<td>Khaki silty clay, slightly darker than above. Not calc. Some red stain.</td>
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<td>55'-60'</td>
<td>Same as last sample. No red stain.</td>
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<td>60'-65'</td>
<td>Same as preceding.</td>
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<td>65'-70'</td>
<td>Same as preceding.</td>
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<tr>
<td>75'-80'</td>
<td>Same as preceding.</td>
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<tr>
<td>80'-85'</td>
<td>Khaki clay containing chips of calcified ls &amp; one angular pebble of limonite containing a psilomelane core. Much red stain.</td>
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<tr>
<td>85'-90'</td>
<td>Khaki silty clay with red stain.</td>
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<td>90'-95'</td>
<td>Same as preceding sample.</td>
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<td>95'-100</td>
<td>Same as preceding. All these samples contain hard scattered grains that look like psilomelane - prob from above.</td>
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<tr>
<td>100-105</td>
<td>Similar - Not calc.</td>
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</table>
| 105'-108 | Similar but contains small calc. streaks. Washed - Made up of chips of greenish gray ls. - T.D.
NAME  Samples with Mn  DATE  4/14/41

Stange Mine - Hole # 30

0-5  Coffee-colored loamy medium sand

5-10  Khaki Fine sand containing many grains of MnO₂.

10'-15'  Similar but less MnO₂.

15'-30 (3)  All Khaki fine sand containing a little MnO₂.

30'-35'  Light tan very fine silty sand, No MnO₂.

35'-40'  Similar

40'-45'  Similar, but contains a few fragments of the very porous fine sandstone.

45'-50

50'-55'  Similar matrix containing flakes of dark greenish brown clay

Moore thanks all Bocraft.
NAME: Monroe-Sampson

DATE: 4/14/41

Stange Mine Hole #31

0'-5' No sample

5'-10' Dark reddish-brown fine to medium sand

10'-15' Brick red sand containing pebbles up to \( \frac{1}{8} \)" long

15'-20' Similar sand with pebbles up to \( \frac{1}{4} \)" long. Pebbles are mostly quartz.

20'-25' Light reddish-brown fine to coarse well-rounded quartz sand.

25'-30' Light reddish-brown brick red medium sand containing a few pebbles.

30'-35' Similar - A few chips of porous medium-grained sandstone

35'-40' Light brick red medium silty sand.

40'-45' Similar

45'-50' Light brown medium sand - a few chips of clay. T.D.
Stange Mine Hole #32

0'-5' Brick red loose fine to medium sand.

5'-10' Similar sand containing considerable MnO₂ grains and many small pebbles.

10'-15' Similar sand containing MnO₂ and some pink & white clay.

15'-20' Red clay containing grains of white & yellow clay and scattered quartz & manganese grains.

20'-25' Light salmon silty clay containing many grains of white clay and chert fragments. A little medium sand.

30'-35' Fine to coarse sand containing a few pebbles of quartzite - a little chert from above.

35'-40' Similar.

40'-45' Essentially more homogeneous red sand

45'-50' Fine to medium dusty red sand. T. D.
Stange Mine - Hole #33

0-10 Red silty clay containing grains of pink and white chert and a little Mn. fine to

10-30 Reddish brown coarse sand and fine gravel containing chips of hard sandstone

30-50 Reddish brown fine sand, lighter color in lower part.

Stange Mine - Hole #34

0-5 Tan coarse sandstone and fine pebbly conglomerate

5-30 Similar but brownish-tan; becomes redder downward in section.

30-65 Fine gray sand containing a few small quartz pebbles. Trace Mn. Chips of
fine-grained sandstone

65-78 Grayish- and yellowish tan fine sandy silt containing in lower part a few chips of very fine-grained sandstone

Top of yellow silt at 67' (Moan)

Poor sample from 75-78
Stange Mine-Hole # 35

0 - 5
Brownish-Han course sand & fine gravel
Fine light reddish-brown fine sand
containing a few coarse grains

5 - 20
Fine light reddish-brown fine sand
containing a few coarse grains

20 - 50
Fine dark gray fine sand
containing a little Alum. A few chips of hard sandstone

50 - 55
Yellowish finely sandy silt

55 - 64
Light cream-colored very finely sandy silt containing chips of very
fine-grained sandstone. T.D.
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