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Michigamme district II: [specimens 23711-23825]. No. 179 1895

Clements, J. Morgan (Julius Morgan), 1869-
[s.l.]: [s.n.], 1895

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U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

9-891

LAKE SUPERIOR DIVISION.

INSTRUCTIONS.

1. Ordinarily at least two pages of this book will be devoted to one section. On the left-hand page, place a map of as much of the section as has *actually been seen*. Denote rivers, lakes, marshes, etc., by the usual topographical signs. Denote the ledges of rock, when no structure is made out, by cross-hatching, making the cross-hatching cover as nearly as possible the areas occupied by the exposures. If the rock is a massive one, but still more or less plainly bedded, use the same sign with a dip arrow and number attached, showing the direction and amount of the dip. Denote a shaly or other very plainly bedded ledge by right parallel lines, and a ledge having a secondary structure by wavy parallel lines running in the direction of the strike, with dip arrow and number attached as before. The greatest care must be taken to avoid confusing slaty or schistose structure with bedding, and in all cases where there is the least doubt about the true bedding direction, indicate it by a query. To each exposure on the face of the map attach the number of the specimen representing it. In mapping the section count each of the spaces between the blue lines as 100 paces, and twenty of these spaces to one mile, or 2,000 paces. Usually the southeast corner will be placed at the bottom of the page, or at the first black line above the bottom of the page, and at the right-hand side. If, however, for any reason, it is desirable to show portions of an adjoining section, the southeast corner may be shifted up, or the map may be turned around and the north placed at the left-hand side of the page. The ruling of the left-hand pages is also arranged so that, if desirable, a larger or a smaller scale can be used, eight inches, two inches, one inch, or one-half inch to the mile. With the two-inch scale, the squares outlined in black represent sections, and those in red, quarter sections and "forties," while the space between the blue lines is 200 paces.

2. On the right-hand page place the notes descriptive of the exposures. Begin in each case with the number of the specimen, placing the number on the left-hand side of the red line, after which give in order on the right of the same red line the position of the ledges as reckoned in paces from the southeast corner of the section and the dip and strike when observable, the latter always being expressed from the north; for instance 4025, 250 N., 300 W., *Strike, N. 78° E., Dip 50° S.* Then follow with a full description of the ledge. When topographical maps are used for locations this paragraph applies only in part.

3. Collect a specimen from every ledge, or wherever there is a change of rock on any one ledge, taking care to get fresh material, unless for a special purpose the weathered surface is desired. In case of trips made on foot or in canoes, for long distances, neighboring ledges, unquestionably of one kind of rock, need not be specimened. The position and extent of the ledges not specimened should be marked on the map, with notes that each is of a rock identical with specimen so-and-so. Under the same conditions small-sized specimens, trimmed to a uniform size of 2 x 2½ x ¼ inches will be allowed; but in all other cases *large-sized specimens*, trimmed to a size of 3 x 4 x 1 inches, must be selected, in accordance with section 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. Specimens should not be placed together without protection in the collecting bag, as the fresh surfaces, important in determining the character of rocks, are thus destroyed. They should be damaged by no temporary mark, but the numbers should be at once marked in at least two places upon the inclosing paper or cloth bags. Specimens may be permanently marked in camp by painting the numbers upon them in white upon a black background, using Silver White and Ivory Black oil tubes for color, with turpentine as a diluent.

4. On the last twenty-five pages of the book give, as may seem desirable, a general account of the examination of the region mapped in the previous pages, correlation of observations, sketches, cross sections, etc.

5. Forward this note book as soon as filled as registered mail matter to C. R. Van Hise, U. S. Geologist, Madison, Wis.

179

✓

Michigan

District

II

1895-

J. Morgan Clements.

No. 23711-23764

23770-23810. 23825-

Legend

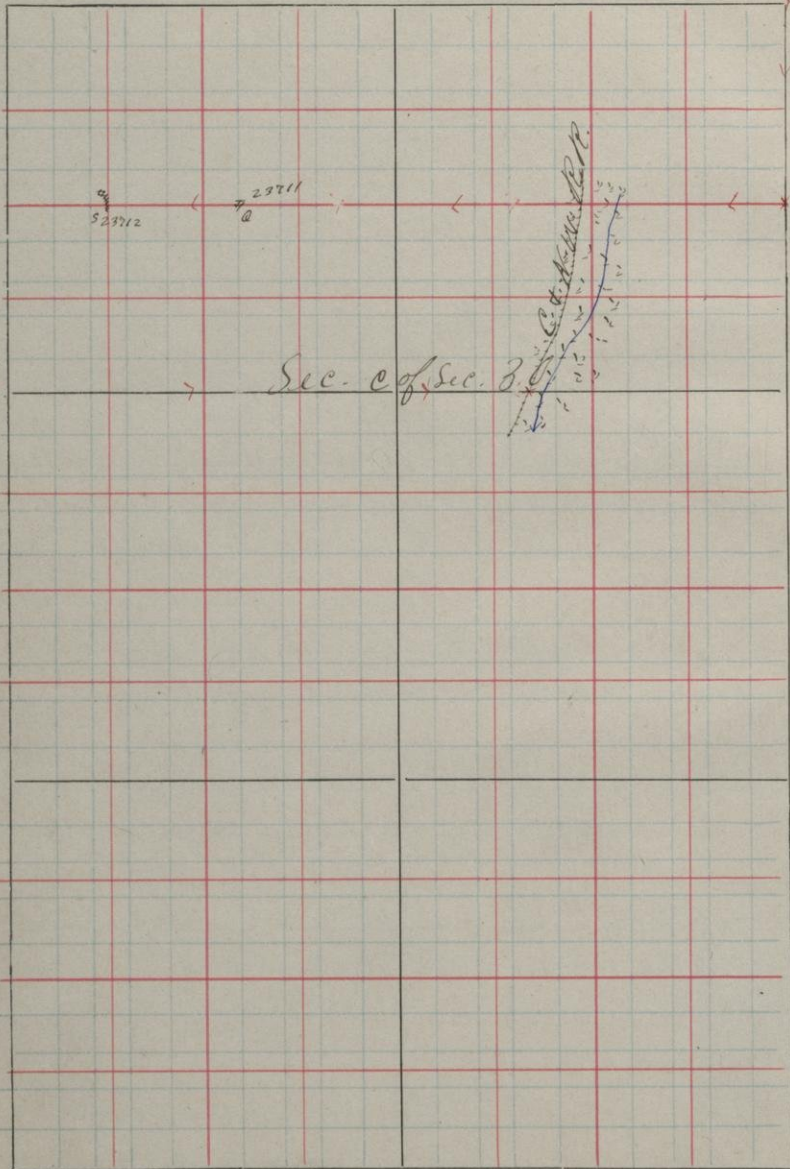
- Wagon Road.
- ++++ Rail Road
- Stream showing direction of flow.
- Y Lines over which and direction in which traverses were made
- Contour lines when present are 20 ft. apart.
- Scale 4 in = 1 mile except where otherwise specified.

See large map accompanying note books for map of western continuation of Felch Mt. trough and for Calumet, Becla & Hancock Mine trough!

Cor. S. 30

T. 42

R. 32



23711 N1500 W1426 SE Cor. Sec. 30-42-32

Small exposure under upturned tree
of a quartzite on W slope of hill.

23712 N1500 W1750 SE Cor. Sec. 30-42-32

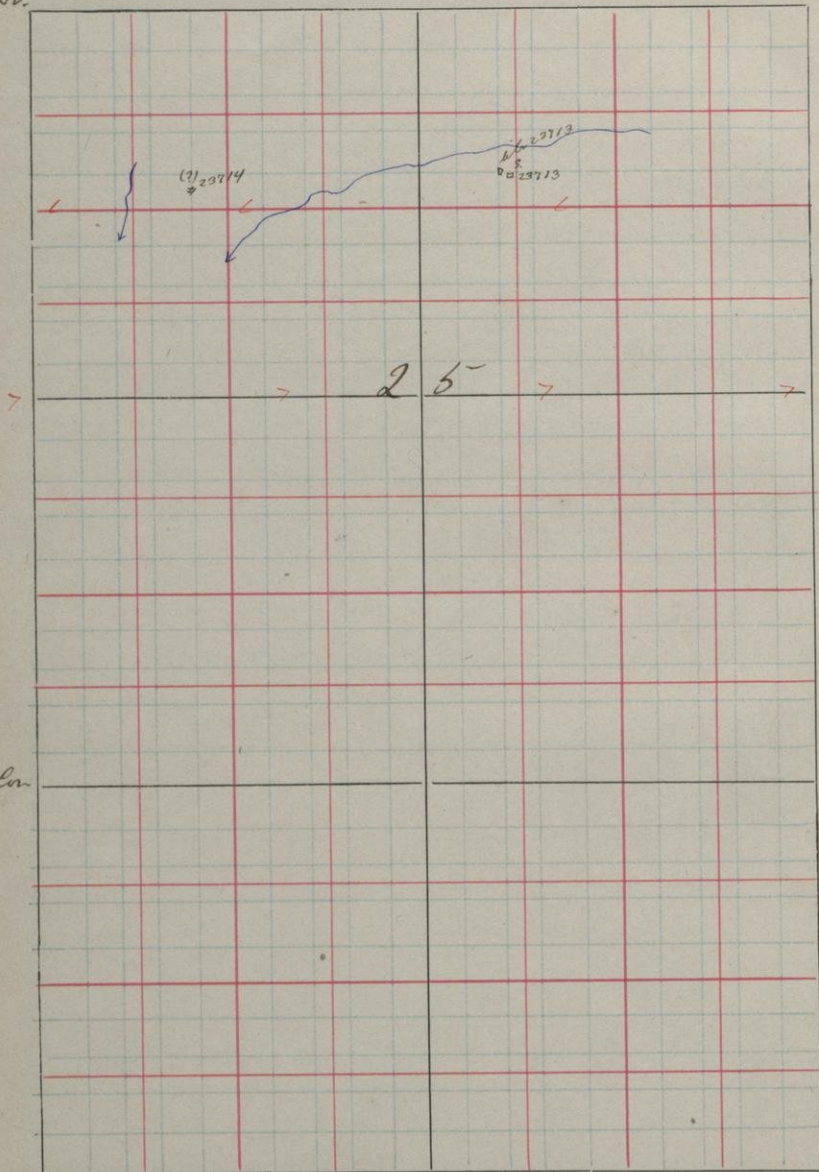
Small outcrop of black slate.

Strike of schistosity $N 10^{\circ} E$, dip 90° . This
may agree with bedding but can
find no evidence whatever of bedding.

10
S. 25 T. 42

R. 33

Cor.



23713 N1600 W 775 SE Cor. Sec. 25-42-33

Test pit with banded chert and slate on dump. See specimen.

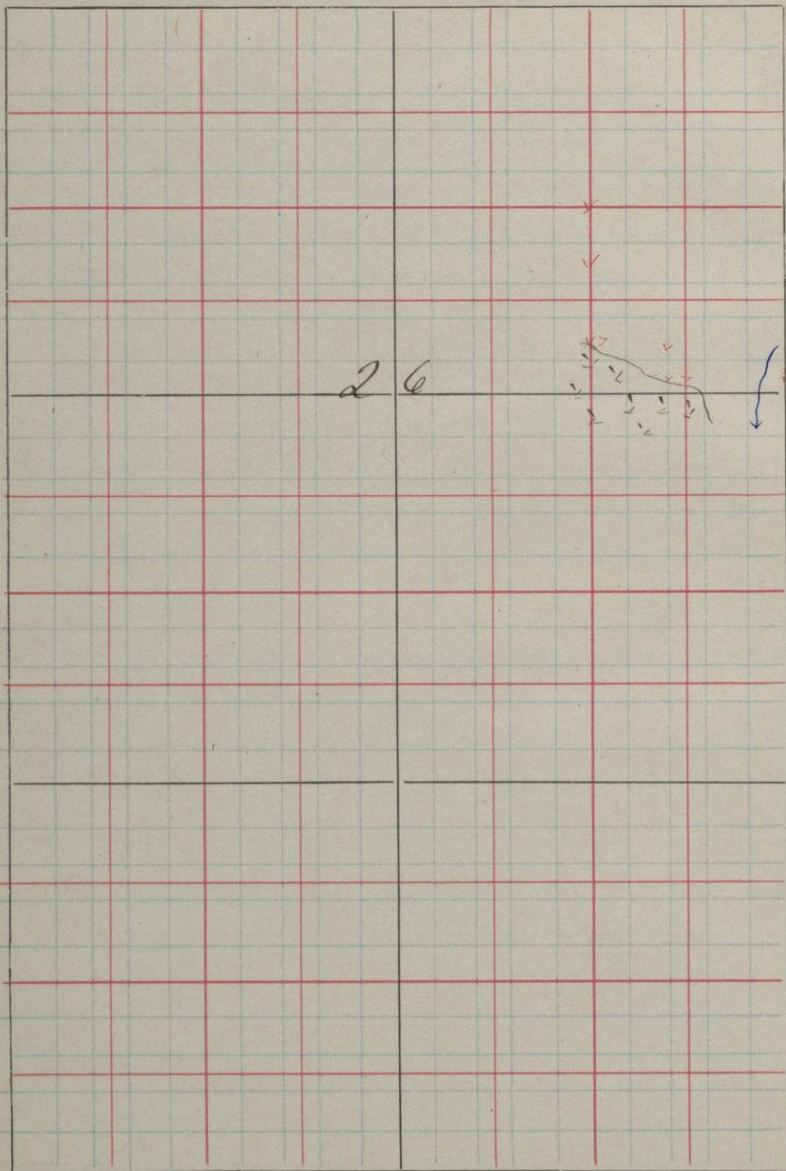
23714 N1560 W 1600 SE Cor. Sec. 25-42-33

Very small exposure of what seems to be a very pyritiferous graywacke or quartzite. Am. little doubtful of its being in situ.

Con S. 26 T. 42

R. 33

Con



Con

Con

4

23715- N1440 W 1010 SE Cor. Sec. 31-42-32
Small outcrop of rotten black slate.
Cleavage, which may possibly agree
with bedding, strikes $N 25^{\circ} W$, dips 90°

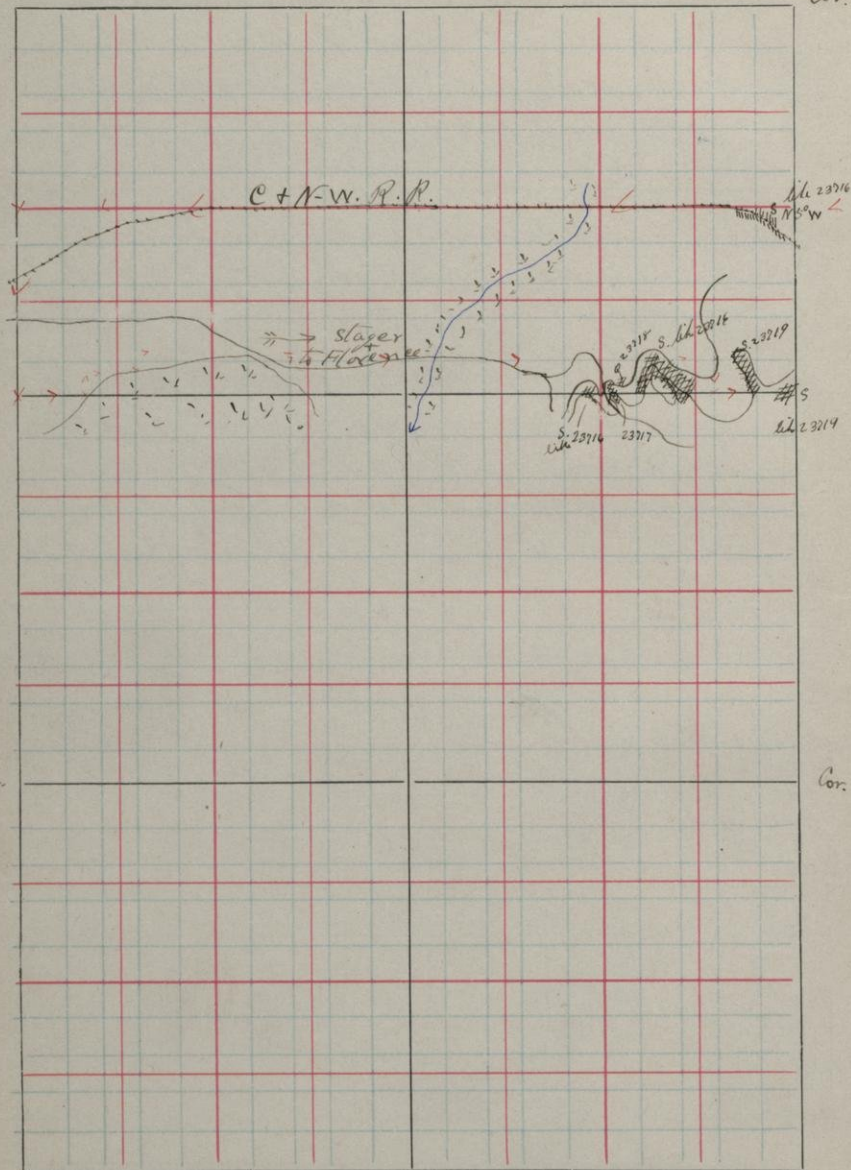
23716 N1250 W 1800 SE Cor. Sec. 31-42-32
Good exposure in R.R. cut of banded
ferruginous black slate and some
cherty bands. Strike $N 45^{\circ} W$, dip $85^{\circ} NE$.

like 23716 N750 W 1550 SE Cor. Sec. 31-42-32
Large exposure in R.R. cut of crumpled
ferruginous slate and quartzite bands. Strike $N 45^{\circ} W$,
dip $85^{\circ} NE$.

S. 36 T. 42

R. 33

Cor.

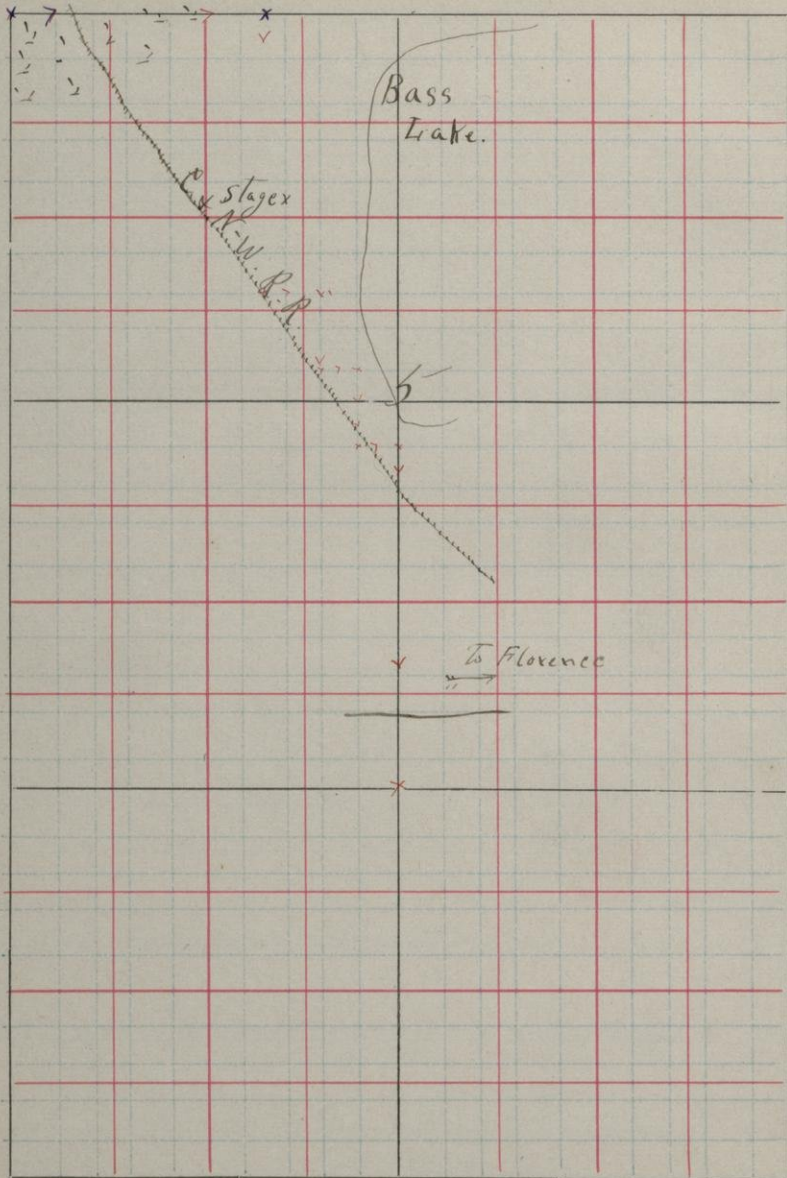


- Lk 23716 N 1450 W 50 SE Cor. Sec. 36-42-33
 Large exposure in R.R. cut of slate and
 quartzite like 23716. Here the rocks are
 very much crumpled so that it is
 impossible to get in one place E or another
 w. dip. Strike N 5° W.
- 23717 N 1000 W 475 SE Cor. Sec. 36-42-33
 W. slope of steep hill is covered
 with talus of rock like 23717 & 23716.
- 23718 N 1075 W 450 SE Cor. Sec. 36-42-33
 Small exposure of dense grey quartzite.
 Hills here have in general N + S trend.
- 23719 N 1090 W 180 SE Cor. Sec. 36-42-33
 Top of hill is covered with fragments of
 black slate & quartzite like specimen.
 Rock outcrops wherever their soil have been
 displaced by upturning of trees, etc.
 Slaty in these surface exposures is
 so badly broken up that it is
 impossible to get strike and dip.

Con. S. 5 T. 41

R. 32

Con.



Con.

Con.

23720 N1660 W1000 SE Cor. Sec. 8-41-32

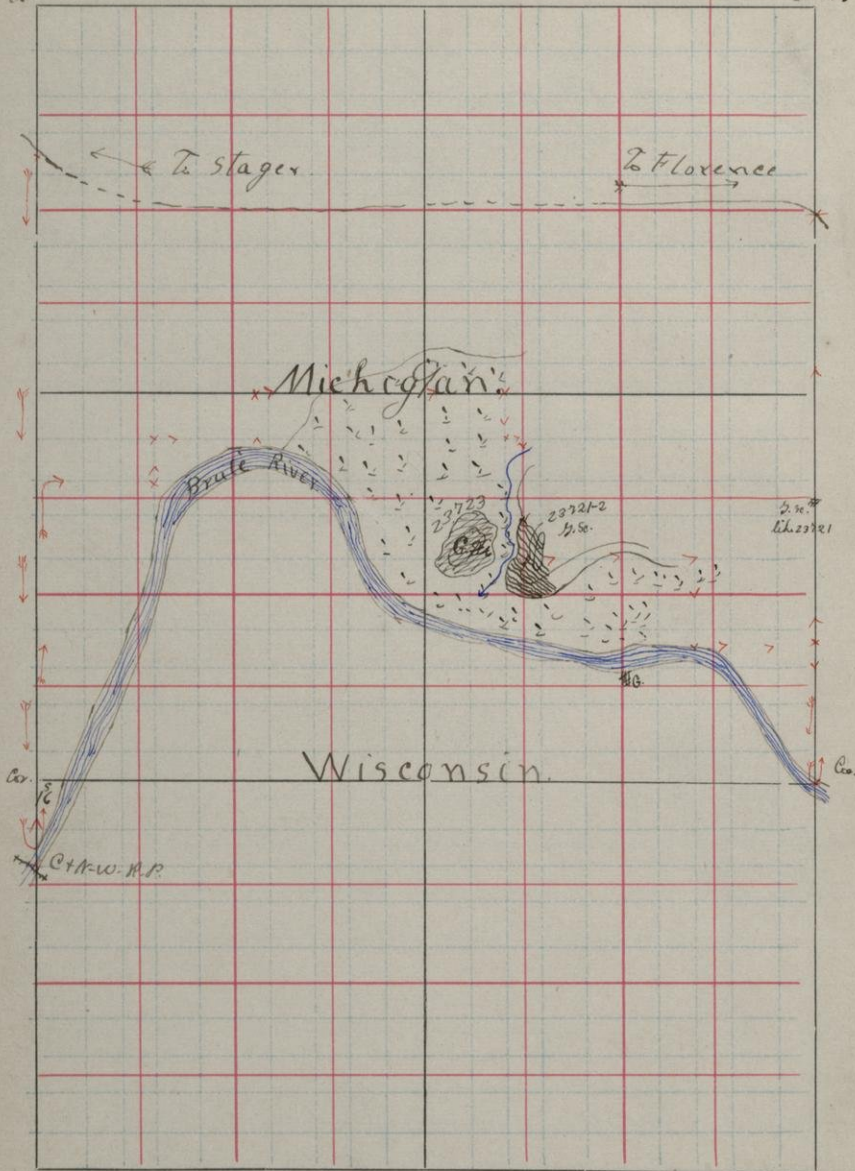
Large exposure in bed and bank of
Prairie river of black slate 23720 with
few thin quartzite bands. Strike of
this banding is $N45^{\circ}W$, dip $85^{\circ}NE$.
Cleavage of slate agrees with this
banding.

S. 9

T. 41

R. 32

Co.



23721-2 N 67° W 800 SE Cor. Sec. 9-41-32

Exposure at east edge of swamp
23721 of greenstone ²³⁷²¹ schist. Strike of
schistosity N 35° W, dip 20°.

Occurring in this schist is found
what appears to be a bed of
23722 greenstone tuff, ²³⁷²² the bed apparently
striking N 45° W and dipping
slightly SW as well as could be
told from the fragmentary exposure.
A portion of this outcrop appears
to me to be a spheroidally pitted
greenstone become very schistose.
It has in outcrop very much the
appearance of 23722 but the spheroids
are larger than the fragments in the tuff.

23723 N 65° W 950 SE Cor. Sec. 9-41-32

Just to W, across a narrow valley from
above mentioned ridge of schistose greenstone,
rises a knob of medium grained diabase.
Its relations to the schistose greenstone
can not be made out but I fancy
it cuts through the schist.

S. 21/22 T. 41

R. 14 E. Wis.

Michigan

Brule River

S. 2731

21 Wisconsin

22

0-747

Co

23731

N750 W1500 SE Cor. Sec. 22-41-14 E. Wis.

Ledge in river on Michigan side of
very fine rotten granish slate.

Cor

Cor

S.

28/27

T.

41

23730
23728

L.H. 23726

L.H. 23727

R.

L.H. 23724

L.H. 23725

L.H. 23724

L.H. 23724

14 E

W.

W.

W.

W.

W.

W.

W.

W.

W.

W.

W.

Cor

28

27

23728 N 57 5-W 25 SE Cor. Sec. 27-41-14 E Wis.
Exposure of dark gray (greenish rock.

23729-30 N 12 5-W 0 SE Cor. Sec. 27-41-14 E, Wis.
Large exposure of coarse granstone.
Creek runs along S. edge of it.
As we go to the N. the rock becomes
somewhat schistose. 23730 is a
specimen of this phase.

23724-5 N 1550 W 1650 SE Cor. Sec. 34-41-14 E, Wis.
 Knob about 75 feet long E-W by 50 N-S
 of 20 ft high of red coarse
 grained granite 23724 cut by
 narrow 8 in dykes of fine grained
 red granite 23725.

23726 N 660 W 0 SE Cor. Sec. 34-41-14 E Wis.
 Ledge in swamp, of grey granite
 cut by narrow 4 in dykes of coarse red
 granite. Specimen shows grey granite
 with part of the dyke granite.

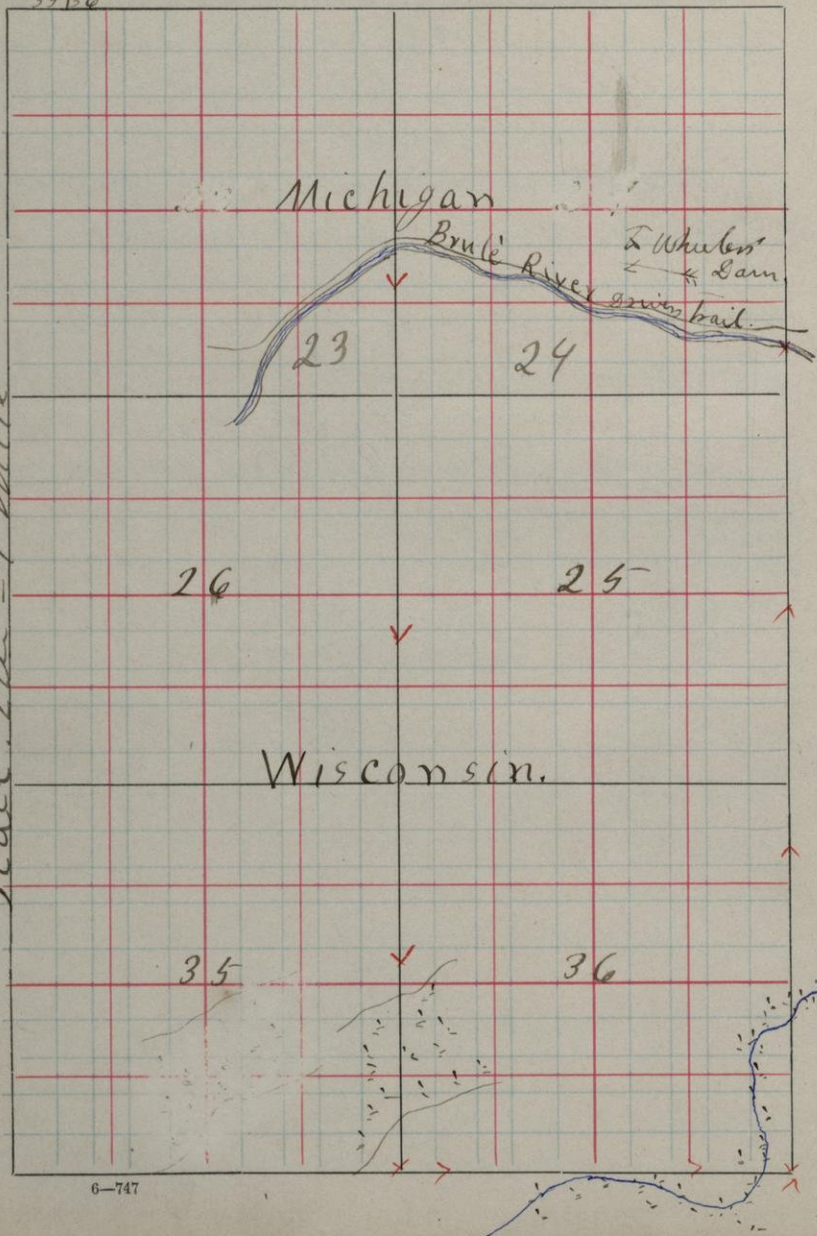
23727 N 1880 W 0 SE Cor. Sec. 34-41-14 E. Wis.
 Ledge of dark gran rock.

S. $\frac{23}{24}$
 $\frac{26}{25}$
 $\frac{34}{36}$

T. 41

R. 14 E. Wis.

Scale: 2 in. = 1 Mile



S. 30

T.

41

R. 15 E Wis.

30
ex.
23732
Bellevue River
Michigan.
Wisconsin.
23733
23734

23732 N 800 W 1000 SE Cor. Sec. 30-41-15 E. Wis.
 Exposure on S bank of Brule River of
 greenstone schist. Strike of schistosity
 N 45° W, dip 70° NE.

23733 N 550 W 1000 SE Cor Sec. 30-41-15 E Wis.
 Also on S bank of Brule occurs thin
 outcrop of very rotten greenstone
 tuff. It is now much impregnated
 with iron on surface.

The above ledges were located
 as we were moving down the
 river on rafts so that I am
 doubtful as to the absolute accuracy
 of the locations. Dr. Bayley worked
 the river near here and it is more
 than probable that he has already
 located and specimened these same
 ledges.

S. $\frac{24}{25}$

T. 41

R. 15 E W. 1/4

24

Cor.

Cor.

25
C of sec.

Cor.

Cor.

S. $\frac{19}{30}$

T. 41

R. 16 E. Wis.

22

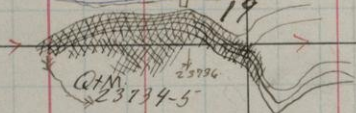
Michigan

Brule River

2007

19

Con. >



Con.

Wisconsin

30

Con.

Con.

23734-5 N40 W 1525 SE Cor. Sec. 19-41-16 E Wis.

Beginning of exposure of white quartzite and cream colored to pinkish quartzite limestone or perhaps better a calcareous quartzite. This exposure which began here continues on to the E outcropping in a high cliff, about 100 ft high, along N face of hill bordering the Brule River.

Near dam at

23736

N40 W 1280 SE Cor. Sec. 19-41-16 E Wis.

the quartzite becomes decidedly pinkish.

The quartzite must be very heavily bedded as it break up into immense boulders and I can find nowhere any sign of bedding.

S. $\frac{20}{29}$

T.

41

R. 16 E Wis.

Michigan.

Brule Rsv.

48 23799
23799-5 249237-5

20

7

6

← x

Wisconsin

> Co.

>

↑
x Co.

29

23737-8 N1125° W 775° SE Cor. Sec. 20-41-16 E Wis.
 Shaft, about 80 ft. to H₂O, on high
 south bank of Blue river with
 black slate 23737 and a greenish
 rock 23738 on dump.

23739 N1175° W 785° SE Cor. Sec. 20-41-16 E Wis.
 A small drift with hill side has
 here exposed some very fossil
 black slate. Strike seems to be N 75° W.
 Can't trust to the dip being correct
 on account of crumpling and
 dislocation of surface rock
 exposed. The strike given is of
 the cleavage. This may agree
 with the bedding but can find
 no evidence to prove that it does.

Scale: 2 in = 1 Mile

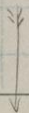
S. $\frac{2726}{3435136}$ 25

T. 41

R. 15 E. Min.

Lo River, Mich.

Lo River, Mich.



25

36

26

35

27

34

6000

0-747

0-747

To Mountain
Side

Scale: 2 in = 1 Mile

25

30

29

To Pine
Springs Wis.

31

32

R 15 E

R 16 E

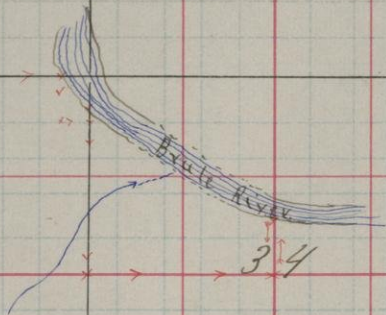
S. $\frac{25}{36} \frac{30}{31} \frac{29}{32}$ T. 41

R. $\frac{15}{16}$ E. Wis.

Scale: 2 in = 1 Mile.

28

Michigan.



33

34

35

Wisconsin.

S. 28
33 34 35

T.

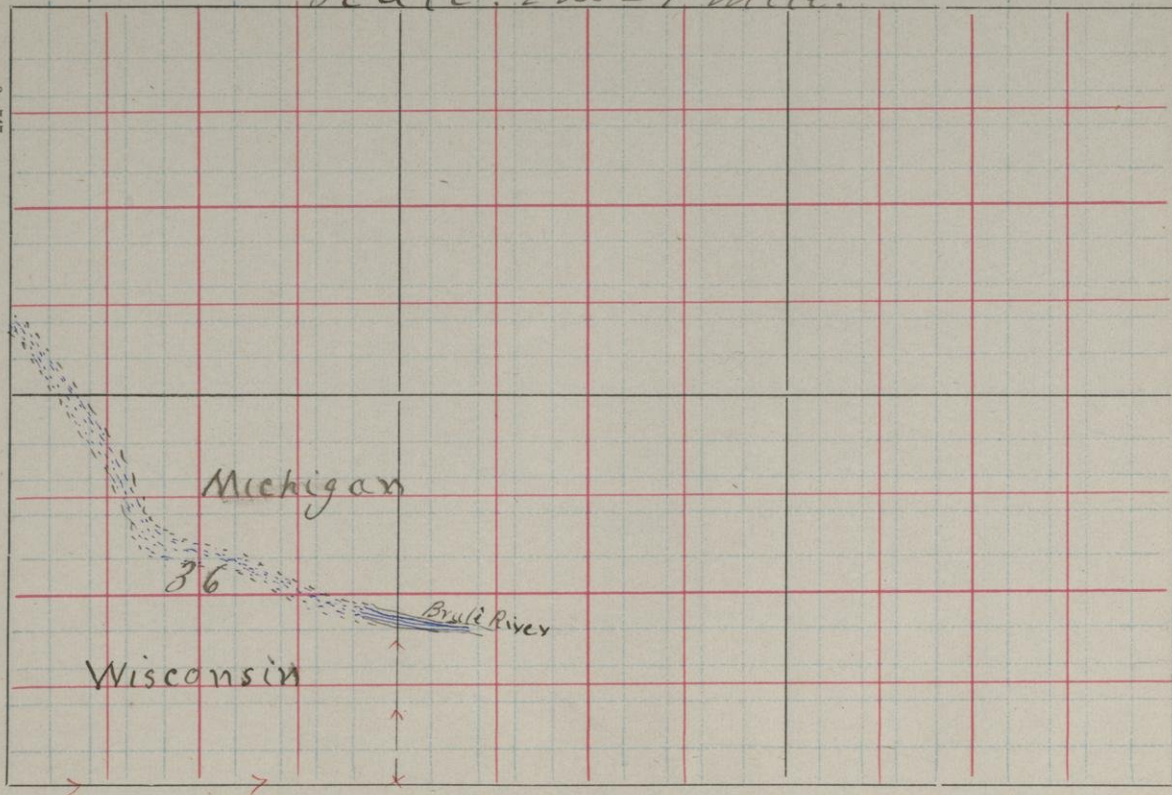
41

R.

16 E. Wis.

Scale: 2 in = 1 Mile.

6-747



S. 36

T. 41

R. 16 E. Wis.

S. $\frac{19}{30}$

T. 42

R. 31

Cor

19

Crystal Falls

Lk 23240

23743

Gr.

23742

Lk 23742

MNE

23241

23740

23741

23742

Lk

23742

23744

Lk 23742

23744

To Michigan Riv.

Clarence Campbell

Co.

30

Cor

Cor

23740 N10 W 800 SE Cor. Sec. 19-42-31.

Small exposure at edge of swamp of what appears to be a quartzite very rich in mica, in places almost a mica schist but with the schistosity not well developed.

Can neither get strike nor dip of schistosity or bedding.

23741 N20 W 650 SE Cor. Sec. 19-42-31

Exposure of rock showing bedded quartzite crinaceous, like 23740 and mica schist 23741

Strike N10 E, dip 80 E to 90°. Fine schist is foliated and schistosity seems to have same strike as beds but to dip about 45 E.

23742 N150 W 570 SE Cor. Sec. 19-42-31

Exposure of rather fine grained grey granite. To the N. of this point at

23743 N250 W 580 SE Cor. Sec. 19-42-31

we get eruptive contact between granite like 23742 and quartzite + mica schist 23743.

The granite penetrates the schist usually along bedding planes but also cuts across and includes blocks of the schist.

23744 N 1970 W 570 SE Cor. Sec. 30-42-31

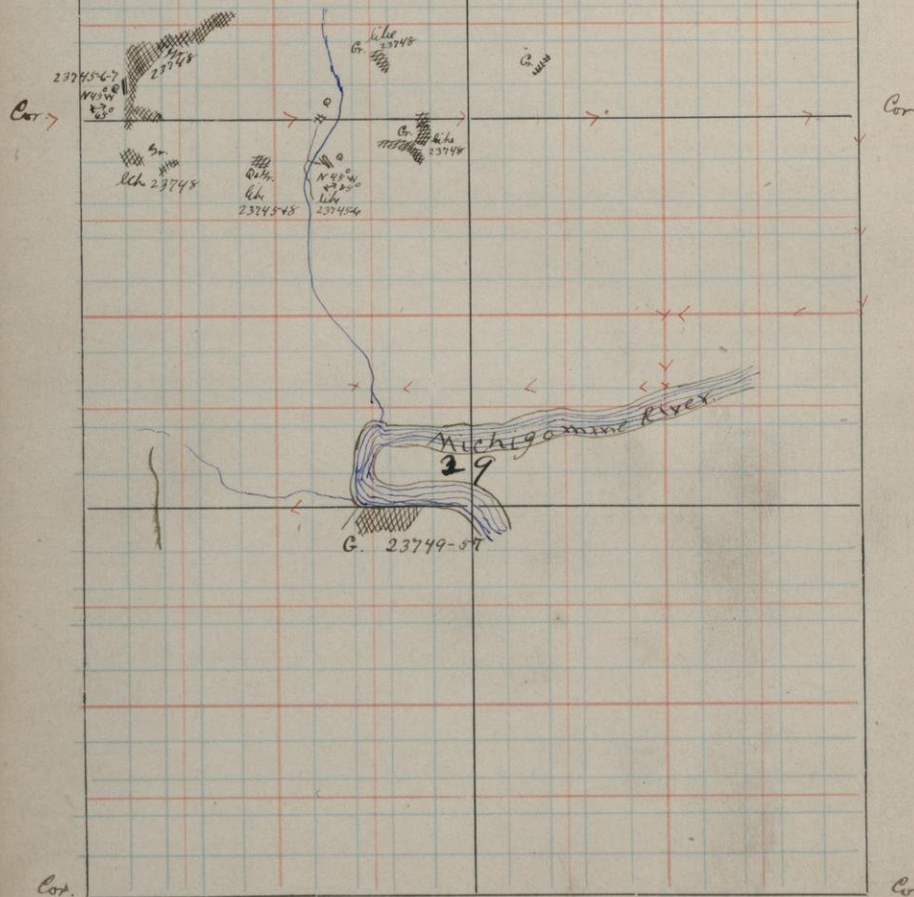
Exposure of quartzite and mica schist like 23743 and contact of granite 23742 with it. The schist is all broken up and injected with granite + cemented by it it forming a good eruptive Breccia 23744. Schist much crumpled. In one place shows small anticline at α with axis dipping 80° E. This is probably the result of the breaking up and twisting of beds by the granite at time of intrusion.

S. $\frac{20}{29}$

T. 42

20

R. 31



23745-67-8 N75°W 1900 SE Cor. Sec. 20-42-31

Here I find a quartzite ²³⁷⁴⁵ with strike N45°W, dip 65°E. The alternating bands of more or less micaceous material ~~in~~ between on weathered surface. At certain places we get bands of very micaceous material like 23746.

Following the quartzite on the E and in ~~eruptive~~ contact with it is a medium grained granite 23747 cutting and including fragments of the Q. 23748. The Q. + Gr. both seem to become micaceous along contact.

I think we are now getting nearer the centre of the granite eruptive area and the Q. above found may be only a very large inclusion. The Gr. also seems to be getting coarser in grain.

like 2374548 N1900 W 1585 SE Cor. Sec. 29-42-31

Quartzite like 23745 injected with + included in granite like 23748.

23747-50 N1000 W 1250 SE Cor. Sec. 29-42-31

51-2-3-4 Large knob exposed by river and showing
5-6-7 coarse grained grey (gabbro) granite 23749

S. $\frac{21}{28}$

T. 42

R. 31

21

Michigamme
River



28

246
This contains a number of
quartzite 23750 inclusions which
in places branch and apparently
include angular pieces of the granite
23748 and altogether have very
much the appearance of dykes.

Contact between the q. + gr. is shown
in 23751. The granite also includes pieces
which are undoubtedly quartzite 23752-3.

Another contact of granite (gabbro)
and quartzite is shown in 23754.
Work up the reaction rims, etc.

23755 seems to be certainly a dyke in
23749 which also cuts the quartzite.

Specimen shows contact. 23756 is also a
specimen from the dyke near the quartzite.
23757 divides as do the dykes and in manner
of occurrence seems to be an igneous rock
but still it appears to be a quartzite
inclusion.

Con. S. $\frac{22}{27}$ T. 42

R. 31



22

Y 10
S W

27

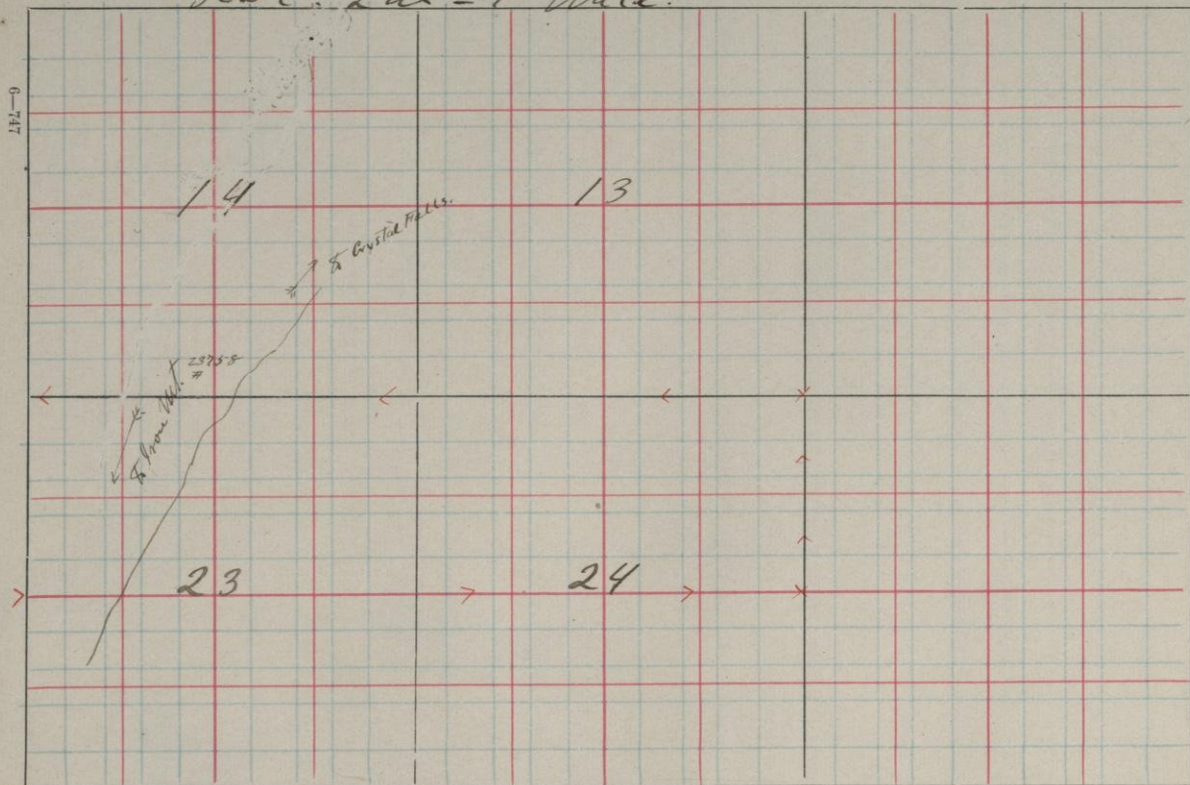
23759-62+2 N1990 W150 SE Cor. Sec. 22-42-31

Knob with rock exposed in places.
A medium grained grey granite 23759
predominate. In it are schlieren of
coarser material (in one place it
looks very much like a dyke). Specimen
23759 shows contact of the two kinds.
At west end of knob we find a
large mass of micaceous quartzite
23760 included in the granite. Between
the grey granite ^{monite} 23759 and the Q. 23760
there is found a narrow dyke, 18 inches
wide, of a lighter apparently more
acid granite 23761. It is younger
than the other granite and Q and seems
to have followed the line of weakness in the
rocks (= line of contact) when ejected.
At extreme west end, 23762 a very coarse
dark micaceous rock is found as dyke in
23759.

23763 N1500 W 900 SE Cor. Sec. 22-42-31

Small ledge of very basic coarse
grained rock exposed by the river
on its left = E. bank. Rock is very
badly altered and seems to be
worthly representative now.

Scale: 2 in = 1 Mile.



S
23/24

T. 42

R. 31

23258

N100 W1100 SE Cor. Sec. 14-42-31

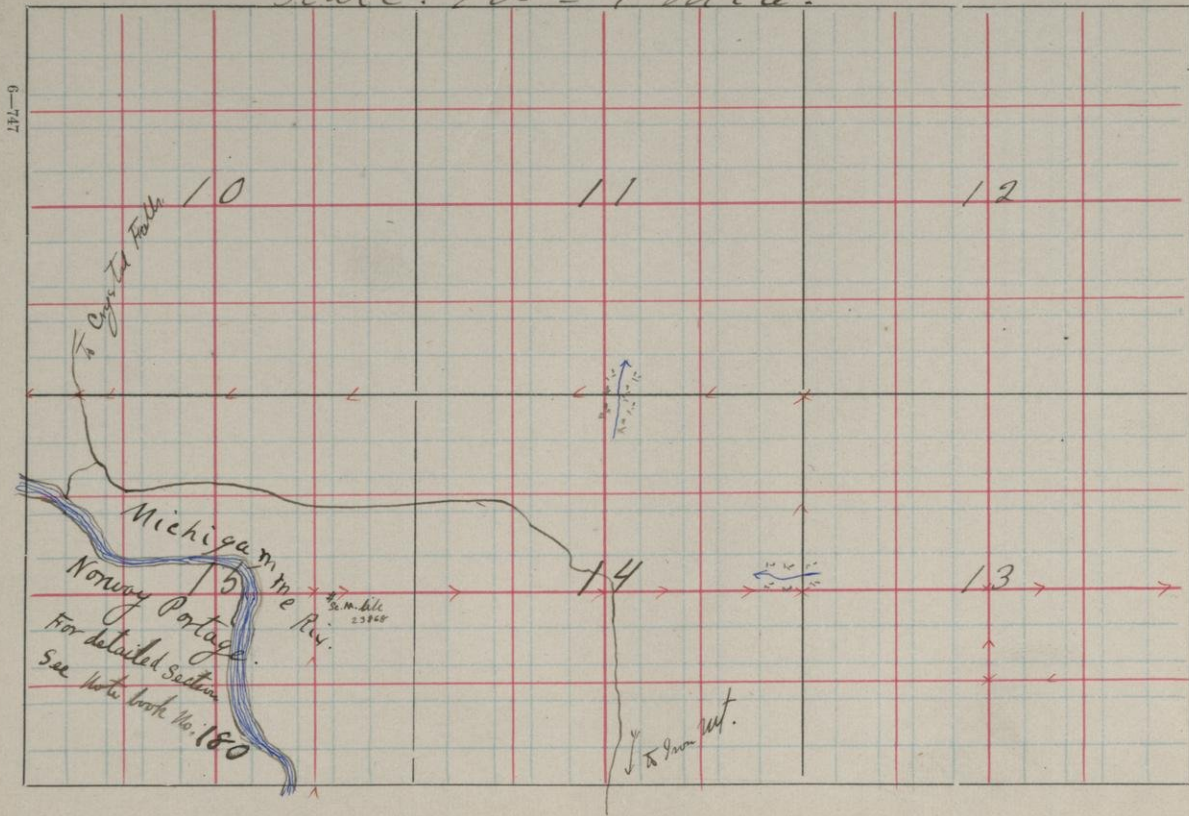
A very small exposure of grey quartzite.
Can not get strike or dip. Edge is so
small that am rather doubtful
about its being in situ.

Scale: 2 in = 1 Mile.

S. 10
15 14 13

T. 42

R. 31



Scale: 2 in = 1 Mile.

S. $\frac{9}{16}$

T. 42

R. 31

B.
23764
Michigan
River.

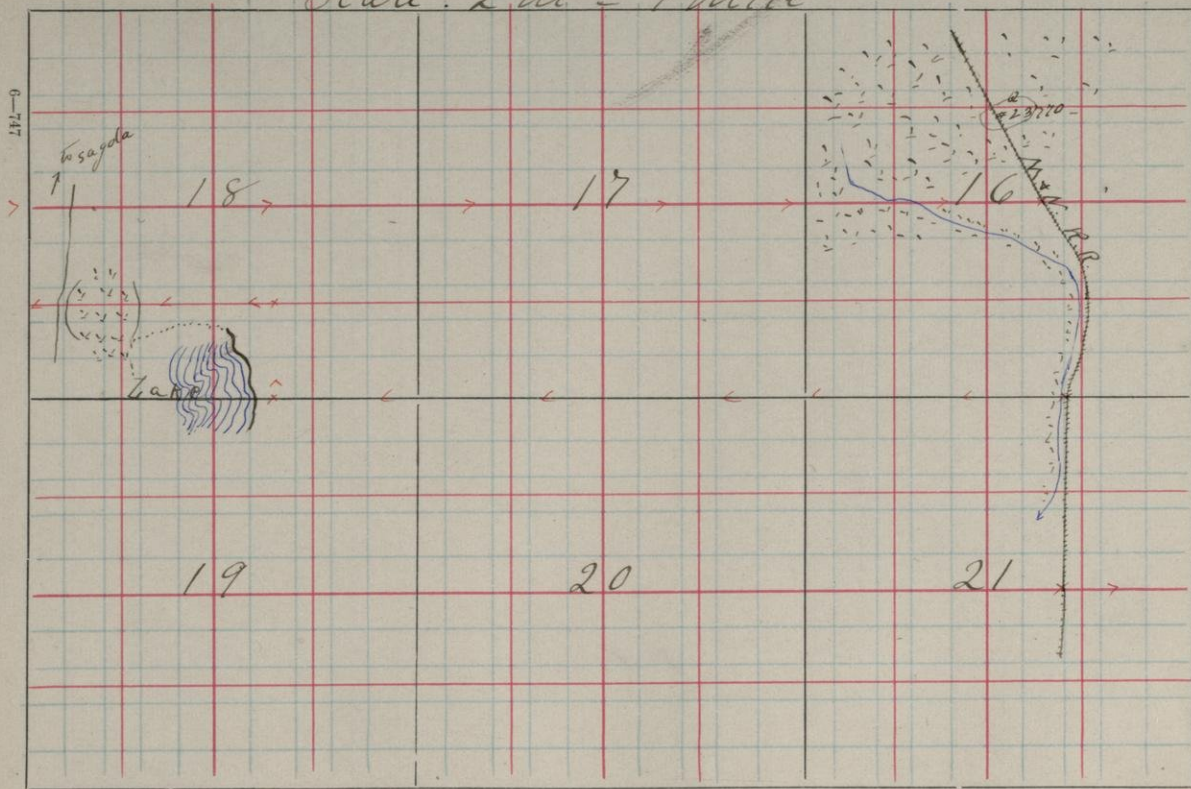
9

16

23264 N1630 W 50 SE Cor. Sec. 16-42-31

Exposure in left bank of
Michigan river of greenstone.
Forms also small rapids in
river.

Scale: 2 in = 1 Mile



S. 18/7/16
19/2/21

T. 42

F. 30

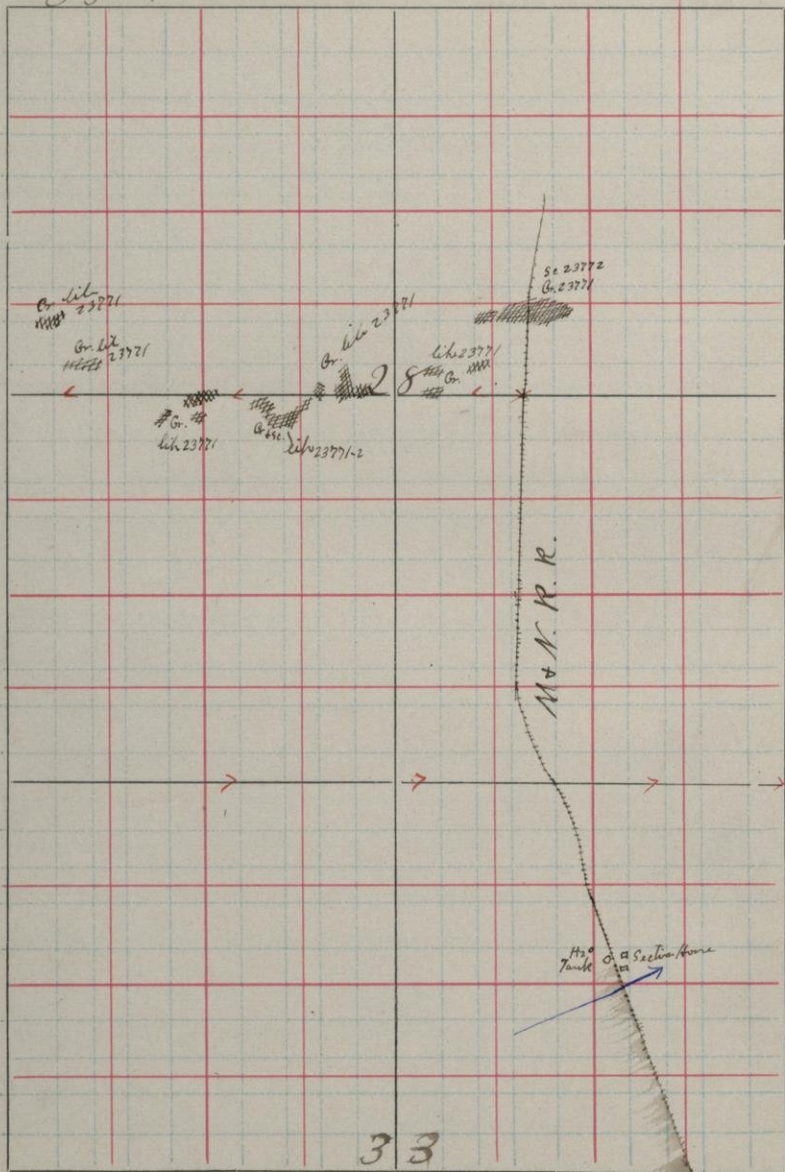
23770 N 1450 W 910 SE Cor. Sec. 16-42-30

Exposure in R.R. cut of greenish
calcareous quartzite or perhaps better
a quartzose limestone. Neither the
strike nor the dip can be determined.

Cor. S. $\frac{28}{33}$ T. 42

R. 30

Co.



33

23771-2 N 1210 W 670 SE Cor. Sec. 28-42-30

Exposure in R.R. cut of red granite

23771 - in some cases coarser grained than specimen - and a schist 23772.

The latter occurs in several large masses with the same general trend N 20° W. Schistosity strikes N 20° W and dips 80° S. Am not sure whether they are included masses of schist or are basic dykes in which has been developed through fissure the secondary structure, schistosity.

Cor. S. $\frac{29}{32}$

T. 42

R. 30.

Cor.

23771
Gr.

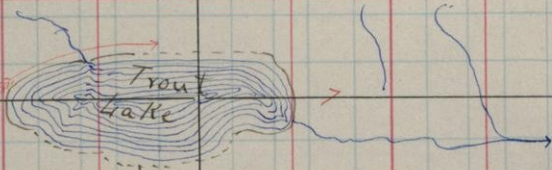
Gr.

Gr.

Gr.

29

Cor.



Cor.

32

Cor. S. $\frac{30}{31}$

T. 42

R. 30

Cor.

Cor.

Gr. 30	30
Lib. 23771	

Cor.

Cor.

31

S. $\frac{15}{22}$

T. 42

R. 30

15-

Cor.

Br.

like 29771

Cor.

22

Cor.

6-747

Cor.

S. $\frac{14}{23}$

T. 42

R. 30

14

Con.

B.L.
Br. 25971B.L.
Br. 25971

Con.

23

W.B. 25971
Sturgeon

B.L. 25971

Con.

Con.

S. $\frac{13}{24}$

T. 42

R. 30

13

W. Br. of Sturgeon.

Cor.

< Cor

lib
27723

23279

Gr. life

Gr. 188

2.4

Grav.

Cor.

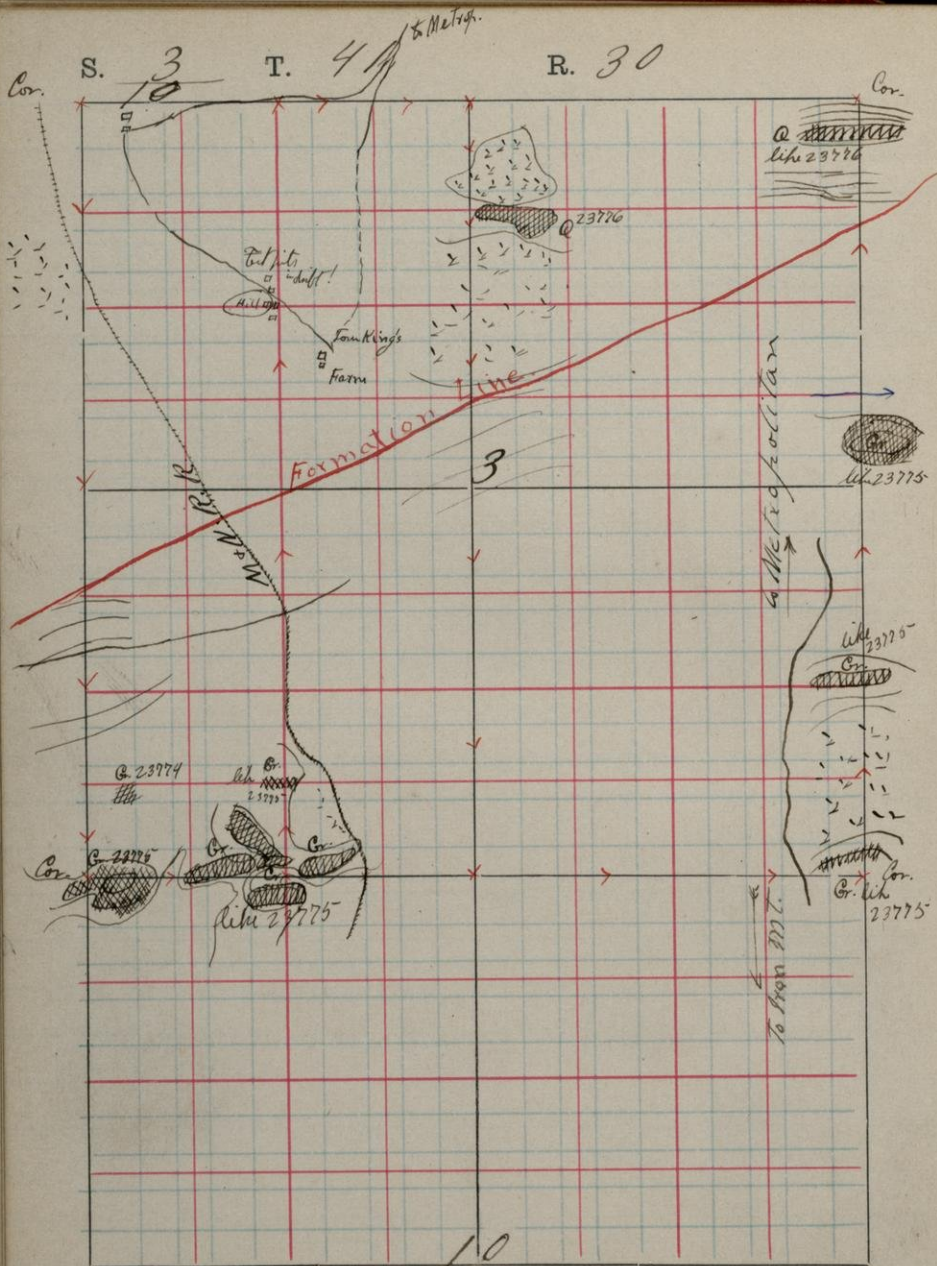
6—747

Con

23773

N1000 W1700 SE Cor. Sec. 24-42-30

Large cliff of rather peculiar
looking very acid granite with
great number of quartz veins
running through it.



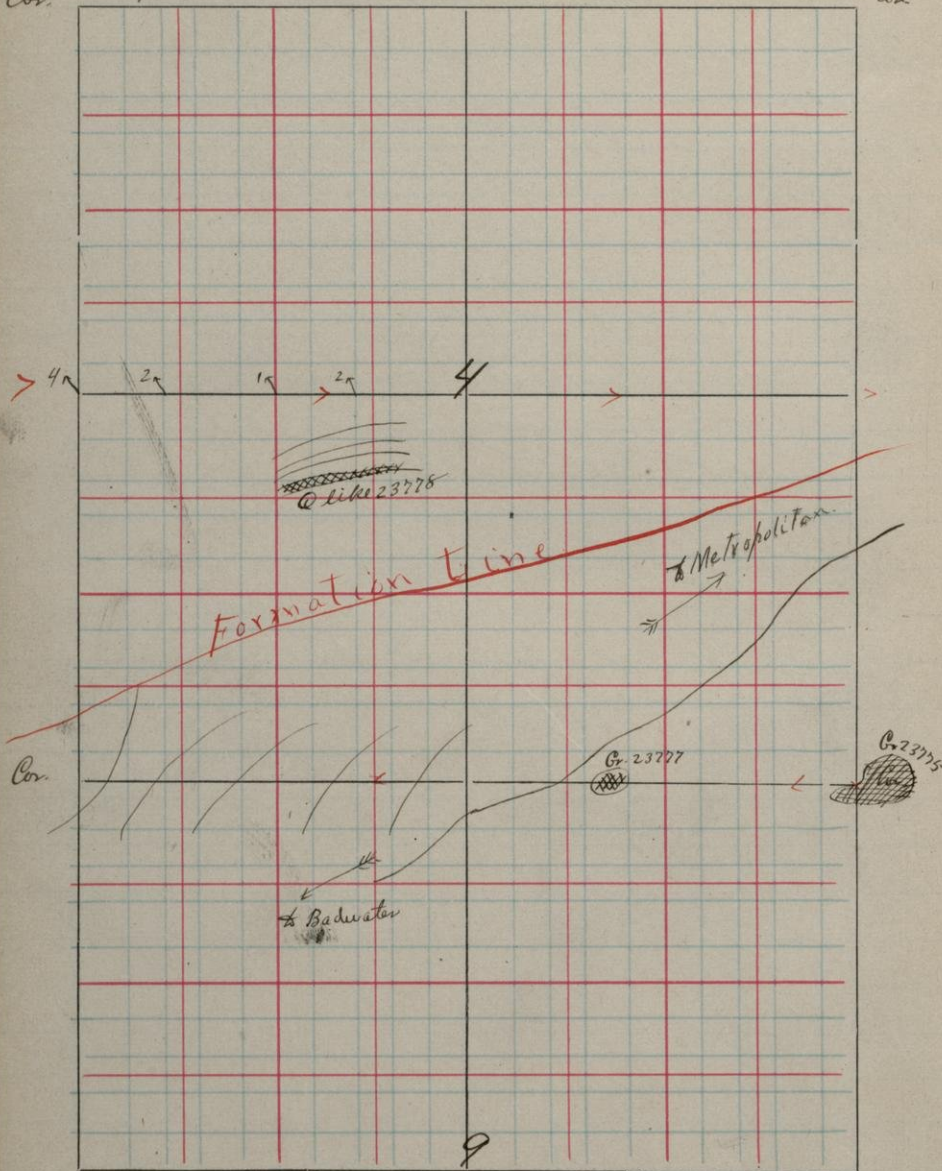
- 23774 N225° W 1940 SE Cor. Sec. 3-41-30
Exposure of granite like specimen.
- 23775 N0 W 1950 SE Cor. Sec. 3-41-30
Hill of granite.
- 23776 N175° W 900 SE Cor. Sec. 3-41-30
Very large bare hill of white quartzite.
Can not make out the bedding
but judge the strike to coincide
nearly with general trend of
exposure, that is, little S of W.
The dip is probably pretty nearly
vertical. Scurry is found at both
sides, to N + S, of the ledge.

Cor. S. $\frac{4}{9}$

T. 41

R. 30

Cor.



23777

N 0 W 620 SE Cor. Sec. 4-41-30

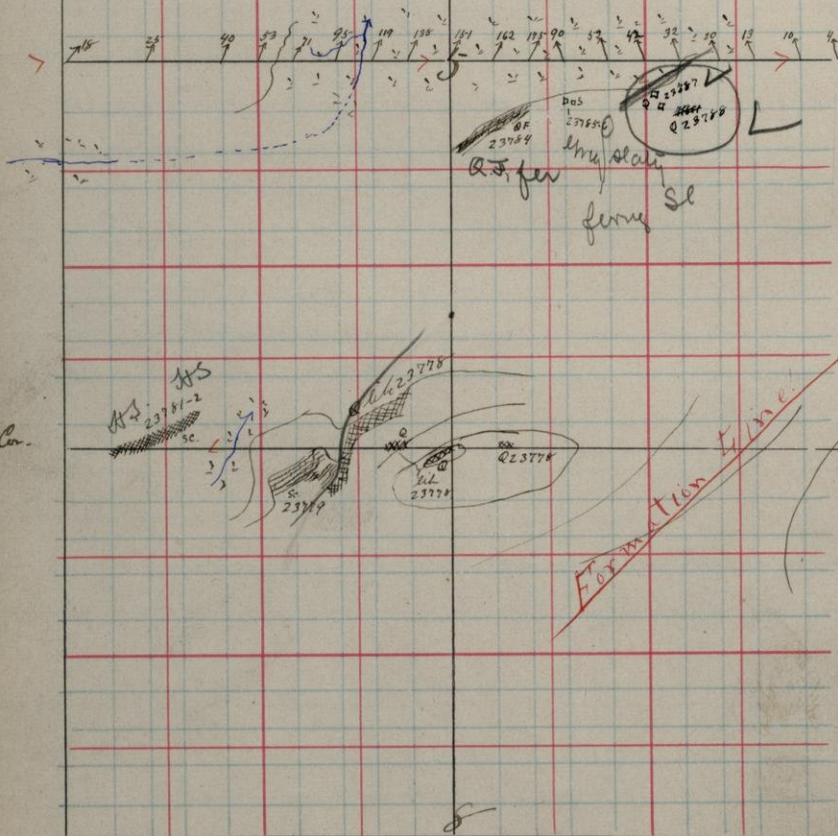
Exposure of granite.

S. $\frac{5}{8}$

T. 41

R. 30

Co.



23778 NO W 875 SE Cor. Sec. 5-41-30
 Ledge of white quartzite exposed on
 top of high hill covered with
 hardwood. Just like 23776 E of Roubidoux
 and believe it is the western con-
 tinuation of same. Strike and
 dip can not be observed.

23779 N1950 W1360 SE Cor. Sec. 8-41-30
 Cliff of actinolite(?) schist. Schistosity
 runs SW and trend of exposure agrees
 with it.

23780 N1950 W1830 SE Cor. Sec. 8-41-30
 Ledge of mica(?) schist about twenty feet
 from the quartzite like 23778. Strike of
 schistosity N-S dip 60° W(?) This was taken
 on edge of exposure when the rock was much
 broken and probably displaced so I do not
 consider it reliable. Trend of outcrop is
 SW. It seems to ~~be~~ grade into 23779 & W.
 of it and I think it is only a western
 phase of 23779.

23781-2 NO W1820 SE Cor. Sec. 5-41-30
 Our line reaches at above location
 a ledge 75 ft high, of rock like plain.

Cor.

S.

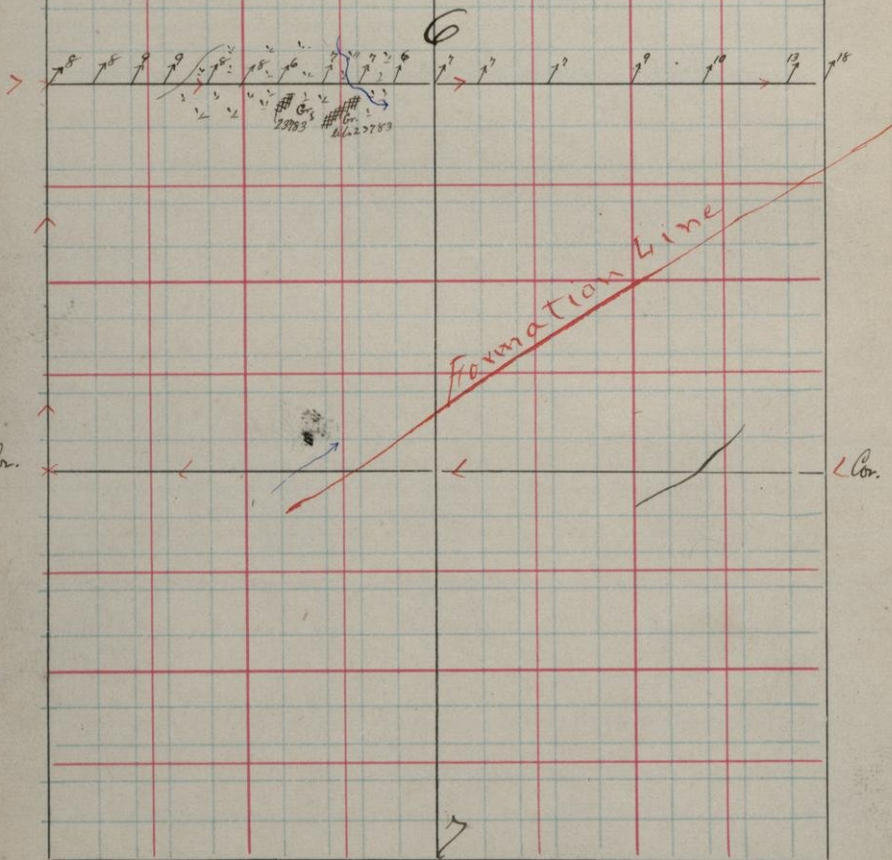
 $\frac{6}{7}$

T.

41

R. 30

Cor.



and extends in a NE-SW direction.
Trend of ridge agreeing with schistosity
of rock as well as I could determine.
23781 lies ~~on~~ E side of ridge and 23782
which forms most of hill to W.

23783 N960 W1400 SE Cor. Sec. 6-41-30
Ridge of granite exposed in swamp.

23784 N875 W860 SE Cor. Sec. 5-41-30
Along S edge of swamp then extends
ridge of ferruginous quartzite 23784, in
places almost a gaffer. Some little
iron ore is run in it in places.
Trend of hill NE-SW. Believe it shows very
clearly the strike and dip of beds. Covered
with moss & thin soil but so that can't get
strike and dip accurately.

23785-6 N925 W700 SE Cor. Sec. 6-41-30
⁺
Wh 23784 Here I find pits with slate like 23784 and
23785-6 on dump. Just north of these
pits the attraction is very large and
mud is drawn down so strongly that
it will hardly vibrate.
It looks to me as though 23785 was a fresh
specimen of 23781 and 23786 corresponds in ^{that}

the same way to 23782.

23787 N 95° W 48° SE Cor. Sec. 5-41-30

Int. feds in white tremolite bearing quartzite.

23788 N 90° W 43° SE Cor. Sec. 5-41-30

Very imperfect exposure along N. side of hill of calcareous quartzite.

Not well enough exposed to allow of determination of strike & dip.

Here and there a chert band is seen in it.

Cor.

S.

7

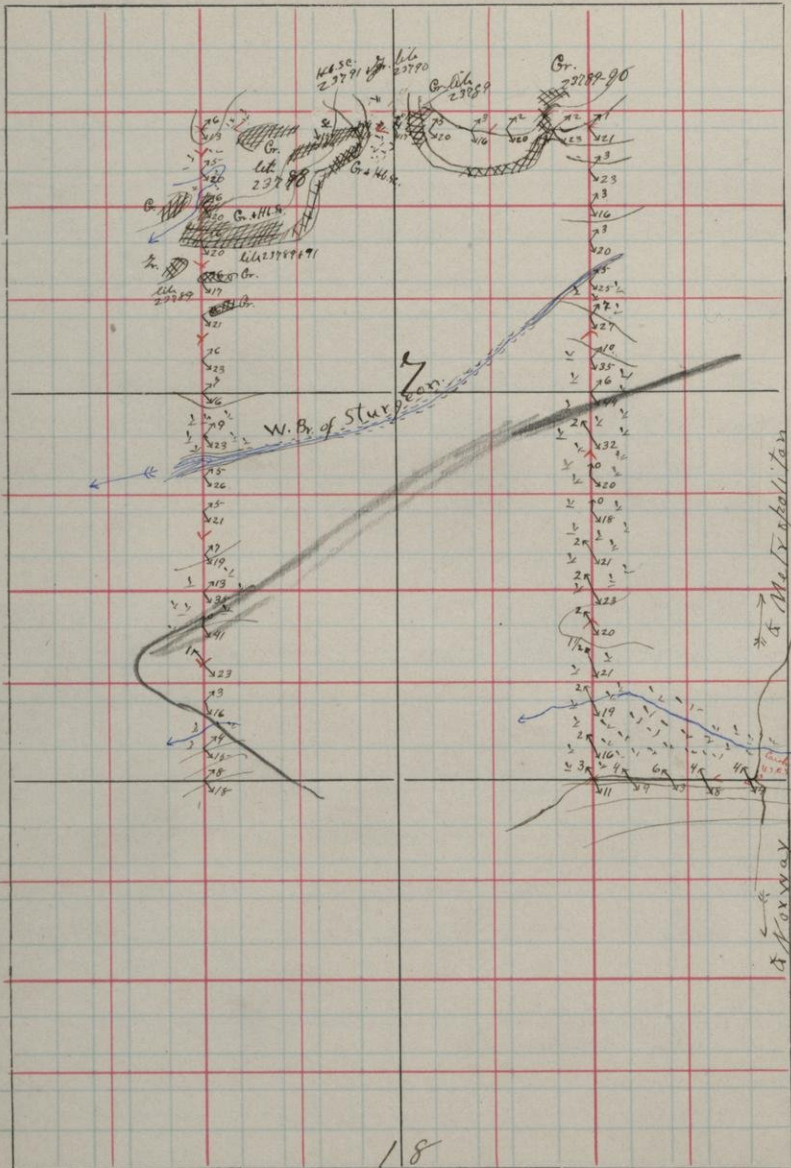
T.

41

R.

28

Cor.



Cor.

Cor.

18

23789-90 N 77.5° W 57.5° SE Cor. Sec. 7-41-28

Large exposure around S. face of hill
of somewhat gneissoid granite.
In this there was observed a mass
of rock like 23790. The weathering of
the chlorite gives the surface a
knobby character making it look
a good deal like a bed of conglom-
erate in which the pebbles are granite.

23791 N 60° W 115° SE Cor. Sec. 7-41-28

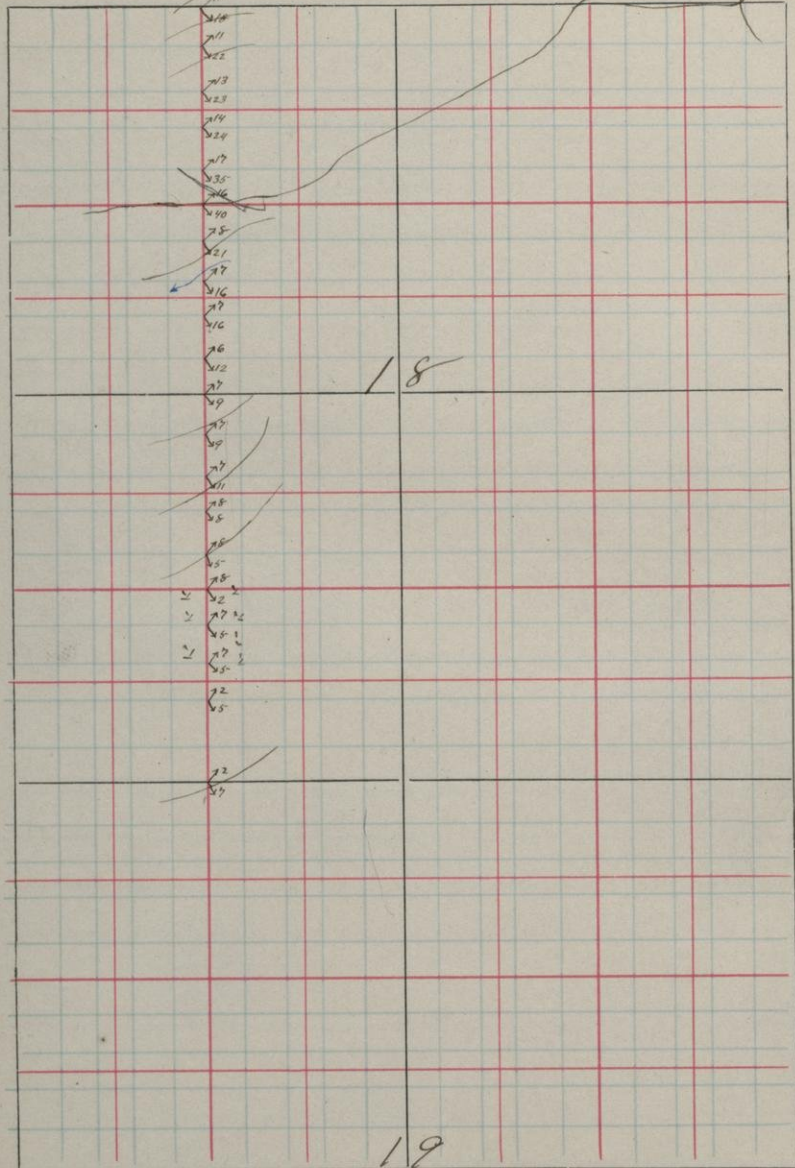
Mass of hornblende schist 23791
lying in granite like 23789.
Strike of schist mass is W 40° S.

Cor. S. 18

T. 41

R. 28

Cor.



Cor.

Cor.

23792

N 1430 W 15-00 SE Cor. Sec. 19-41-28

Low exposure of grey quartzite, more or less micaceous. The surface exposed does not show bedding.

To Metropolitan
Cor

6-747

Ω

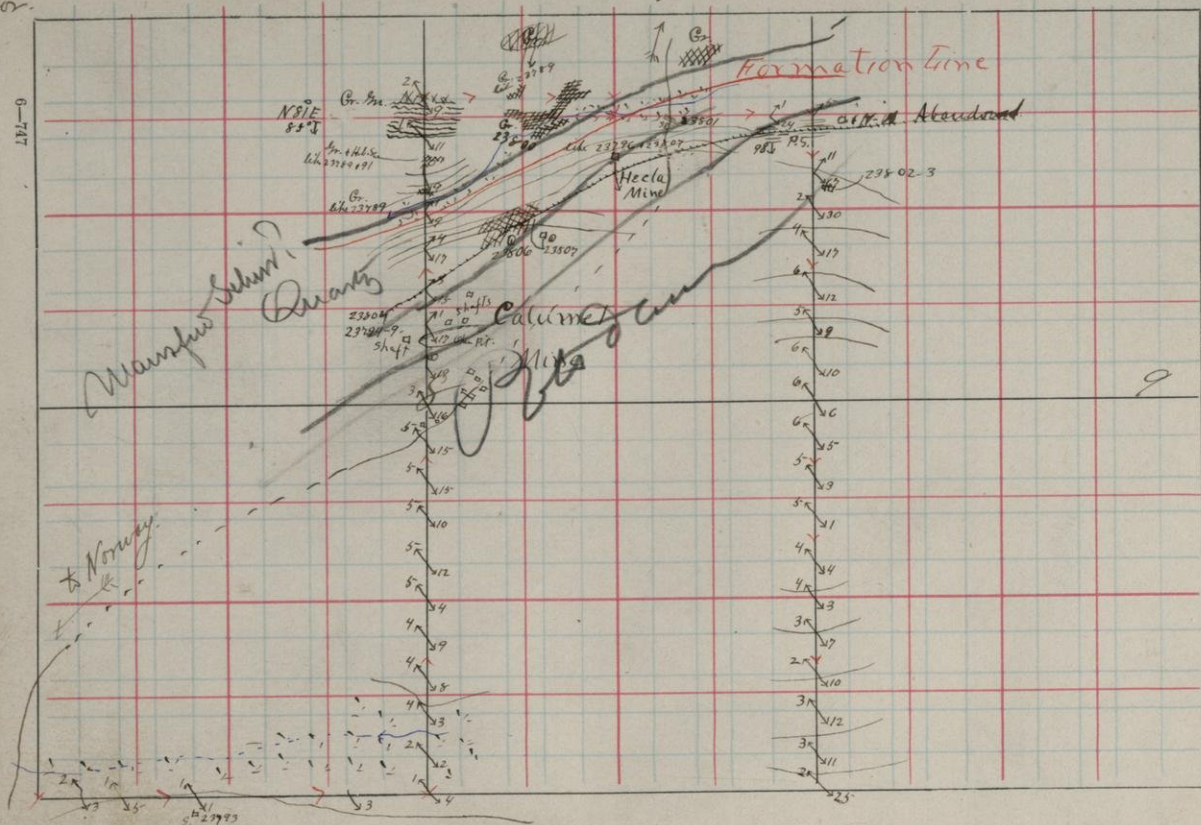
8/9

T.

44

R.

28



23793

N 1975-W 1600 SE Cor. Sec. 17-41-28

Test-shallow - with rock like specimen on dump.

23794-5-6-7- N 1140 W 850 SE Cor. Sec. 8-41-28

8-9

23805

Here there is seen the large open pit of the Calumet. It is now full of water.

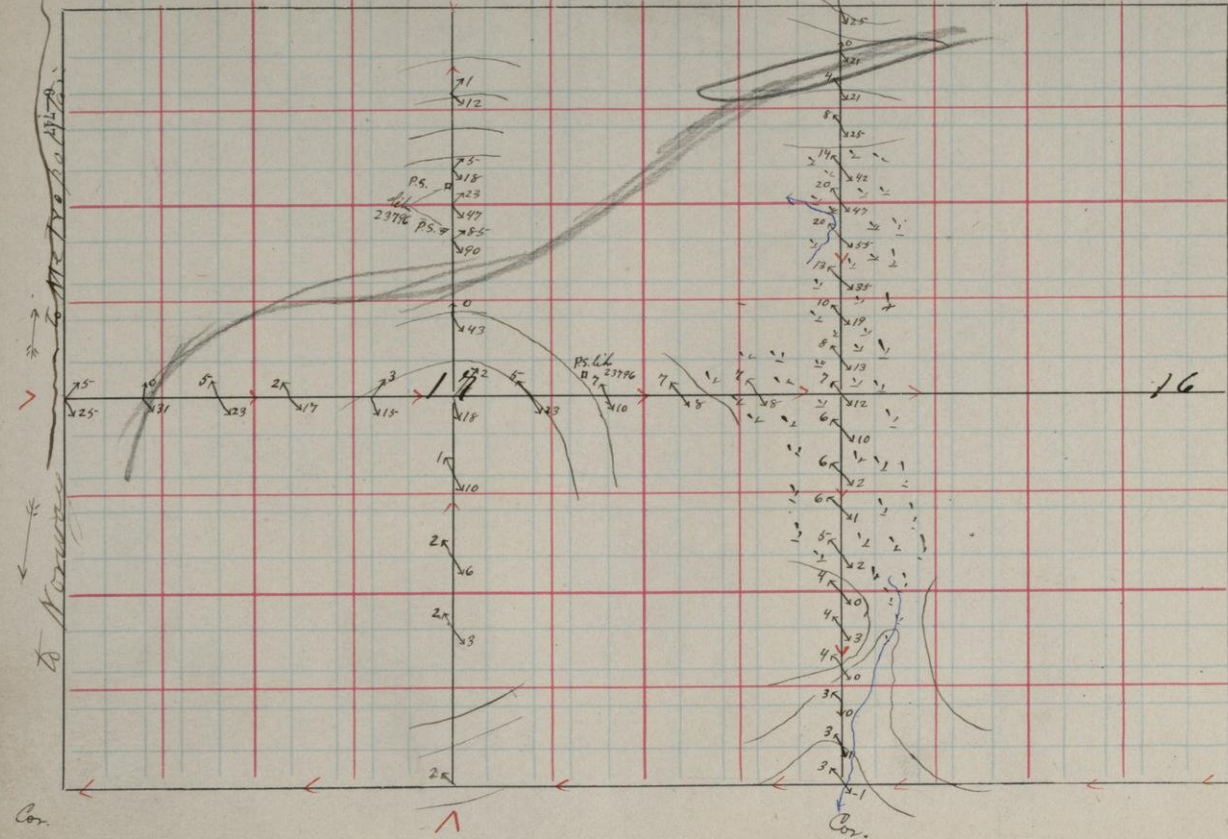
On the N side of pit some rock can be seen in situ. Then I find a ferruginous quartzite 23794 passing into a somewhat finer grained variety and striking N 80° E and with vertical dip as well as can be seen in side of pit.

Overlying this unconformably is a very thin layer of conglomerate 23793- followed by a light colored sandstone 23796- most probably of Potsdam age. This sandstone lies horizontally over the quartzite 23794.

Near this open pit there are several shafts with various kinds of rocks chiefly ferruginous slate and quartzite on dumps. 23797 is specimen of iron ore from shaft just west of open pit.

23798 is a quartzite and 23799 a mica schist from same shaft. 23805 according to Alex McKinnon, former mine boss, was struck 220 ft below surface. These are the chief

Cor.



Kind of rock run. Could not of course get relations as mines have been closed for about seven years.

23800 N1780 W680 SE Cor. Sec. 8-41-28

Low ledge of rock which is very much like the gne. 25 paces N, and yet is also somewhat like a quartzite. Probably it is granite.

23801 N1750 W360 SE Cor. Sec. 8-41-28

In Road from Waterbottom to Calumet Miss is exposed a rather olive green schist. Surface outcrop about 20 ft across N-S. Strike of strike of schistosity N45°W, dip 90°(?).

23802-3 N1575 W1980 SE Cor. Sec. 9-41-28

Two deep shafts with rock like 23802 & 3 on dumps.

23806 N1400 W880 SE Cor. Sec. 8-41-28

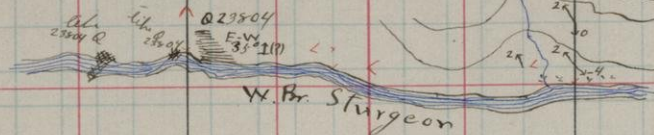
R.R. cut through ferruginous quartzite. The rock is so broken up that it is impossible to get dip or strike.

23807 N1460 W800 S E Cor. Sec. 8-41-28

The quartzite 23806 is followed SE by a mass of fairly good iron ore. Probably very ferruginous phase of 23806.

Cor.

6-747



2.0

21

S. 24/21 T. 41

R. 28

Cor.

Cor.

23804

N135°W 900 SE Cor. Sec 20-41-28

Exposure on N. bank of W. Br. of Sturgeon of micaceous quartzite 23804. It is very much like that collected yesterday about 1/4 mi. west of this point in Sec. 19. There seems to be an E-W strike and 34° N dip to the rock as taken in places where an obscure bedding is observed.

Cor.

Cor.

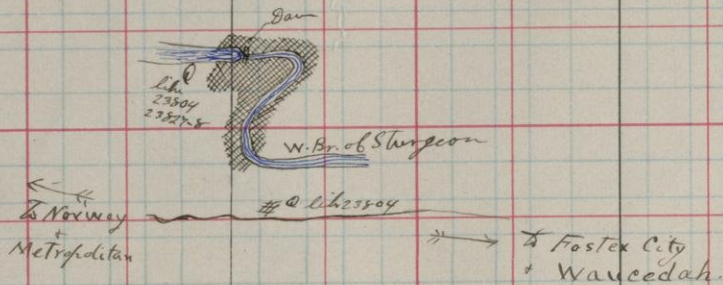
6-747

S. 21/22 T. 41

R. 25

22

21



Cor.

Cor.

Lk. 23804 + NG 50 W 940 SE Cor. Sec. 21-41-28

23827-8.

Large exposure at dam of quartzite

Lk. 23804 + 23827-8.

It is very much crumpled and
I can not get the strike or dip.

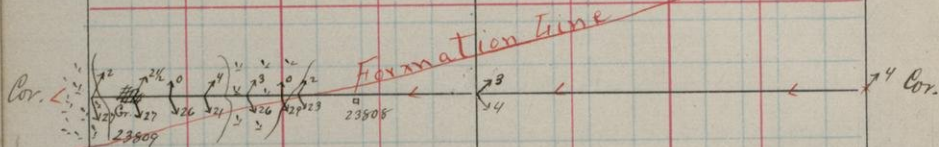
S.

14

T.

41

R. 29



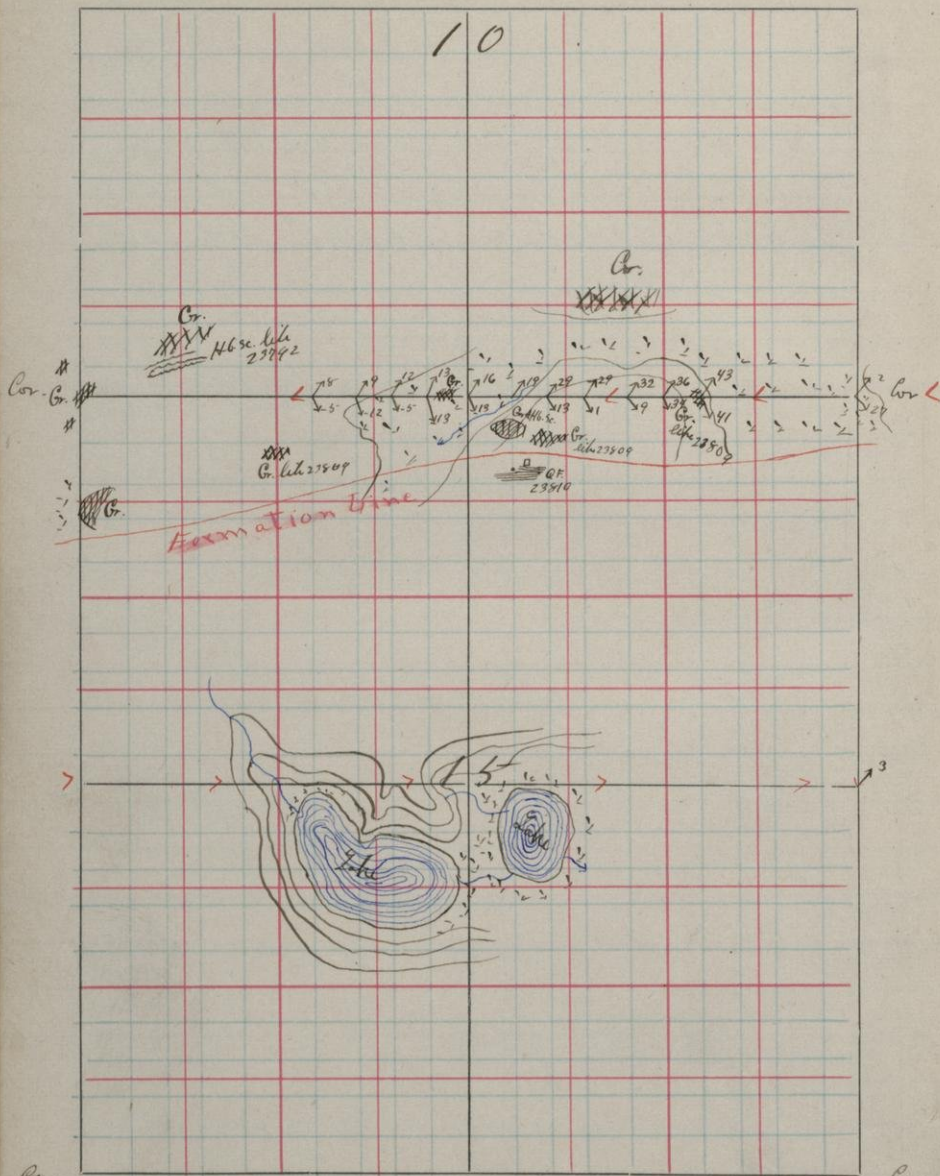
23808 N1980 W1310 SE Cor. Sec. 14-41-29
Test, now caved in, with rock like
specimen on dump.

23809 N0 W1890 SE Cor. Sec. 11-41-29
Large ledge of reddish granite.

S. $\frac{10}{15}$

T. 41

R. 29



23810

N 18° 30' W 875' SE Cor. Sec. 15-41-29

Deep shaft apparently all the way is same kind of ferruginous quartzite as specimen 23810.

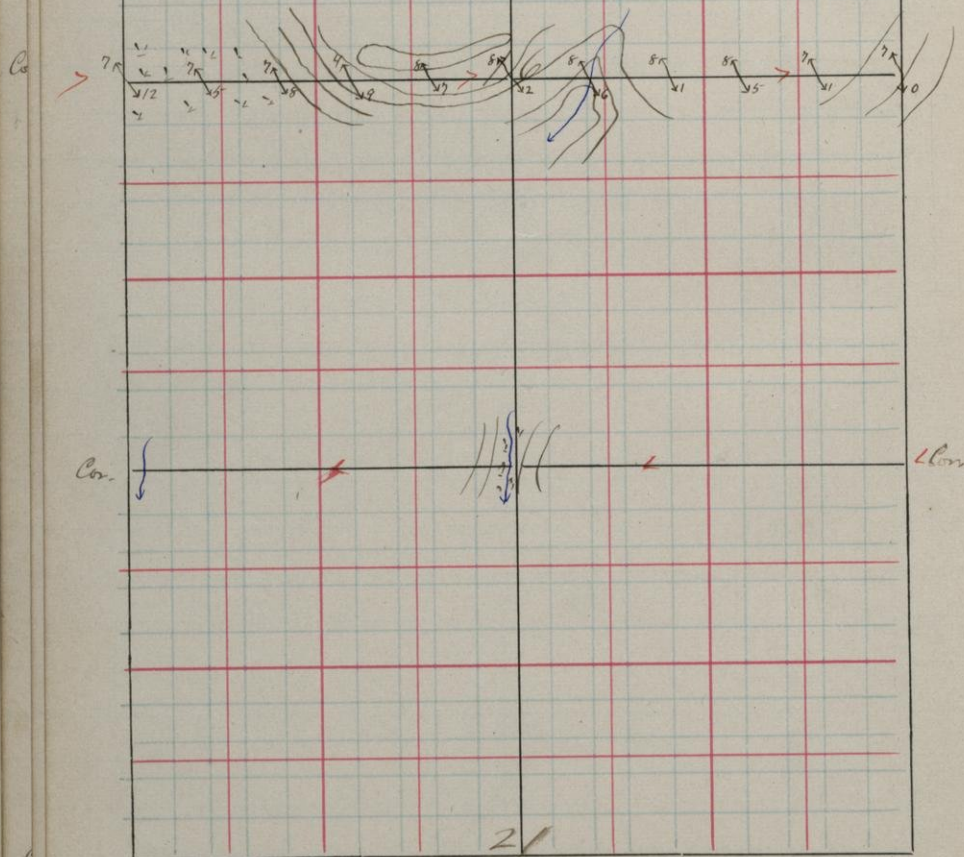
The ledge in which it is sunk extends in an E-W. direction and the chert bands strike N 80° E are are vertical. These chert bands may indicate the bedding.

23825- N 850 W 1900 SE Cor. Sec. 16-41-29
Knob of grey gneissoid granite.
The same kind of rock outcrops
in numerous small knobs to the
NW of this point.
Schistosity strikes NE, dips 60° NW.

Cor. S. $\frac{16}{21}$ T. 41

R. 28

Cor.

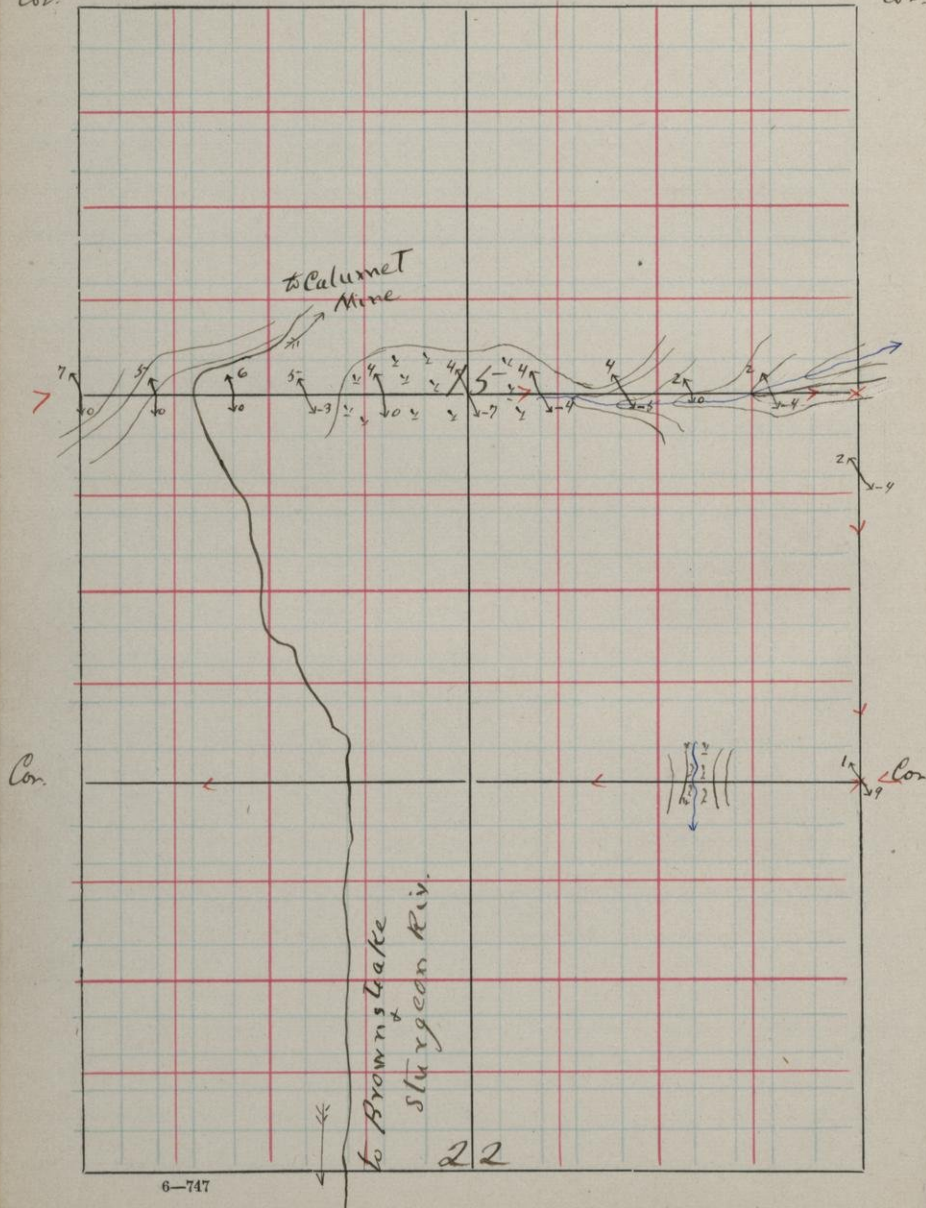


Cor. S. $\frac{15}{22}$ T. 41

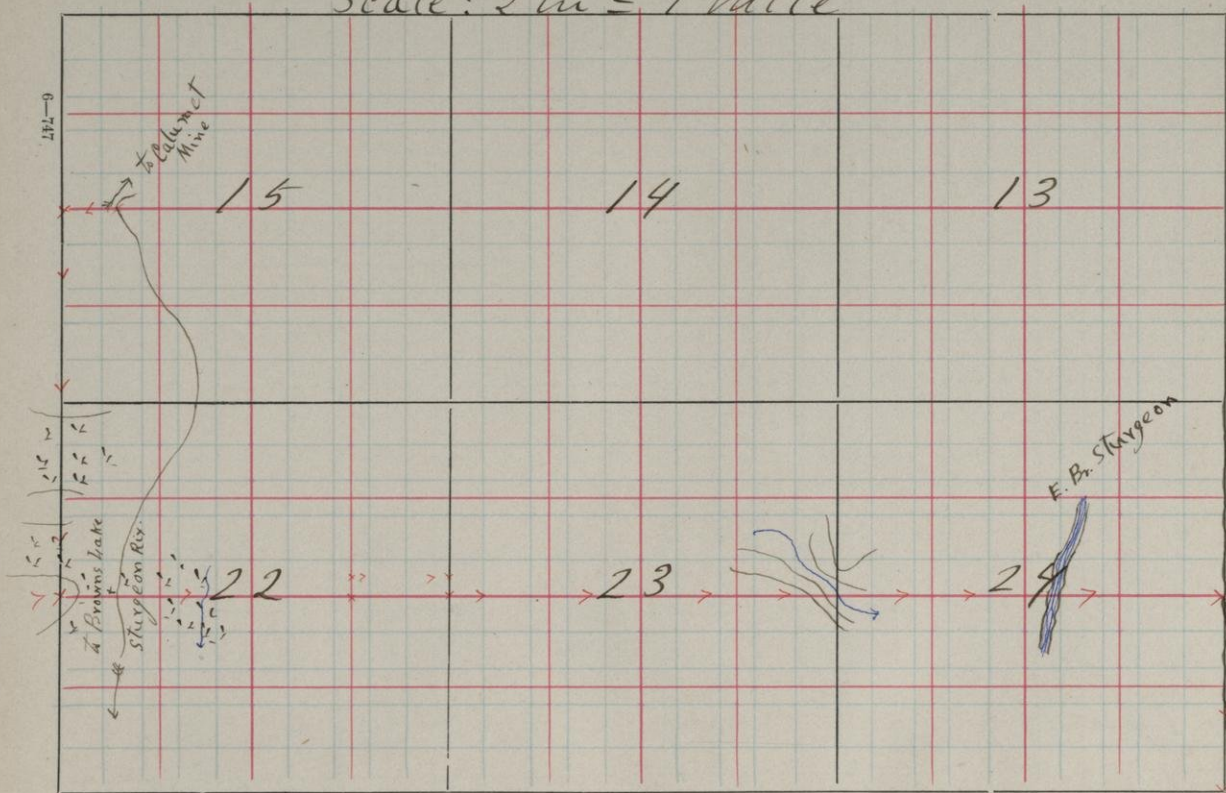
T. 41

R. 28

Cor.



Scale: 2 in = 1 Mile



S. 22 23 24

T. 41

R. 28

