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Menominee Iron Range: [specimens 23260-23362]. No. 176 1895

Weidman, Samuel, 1870-1945
[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 ¾ 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.

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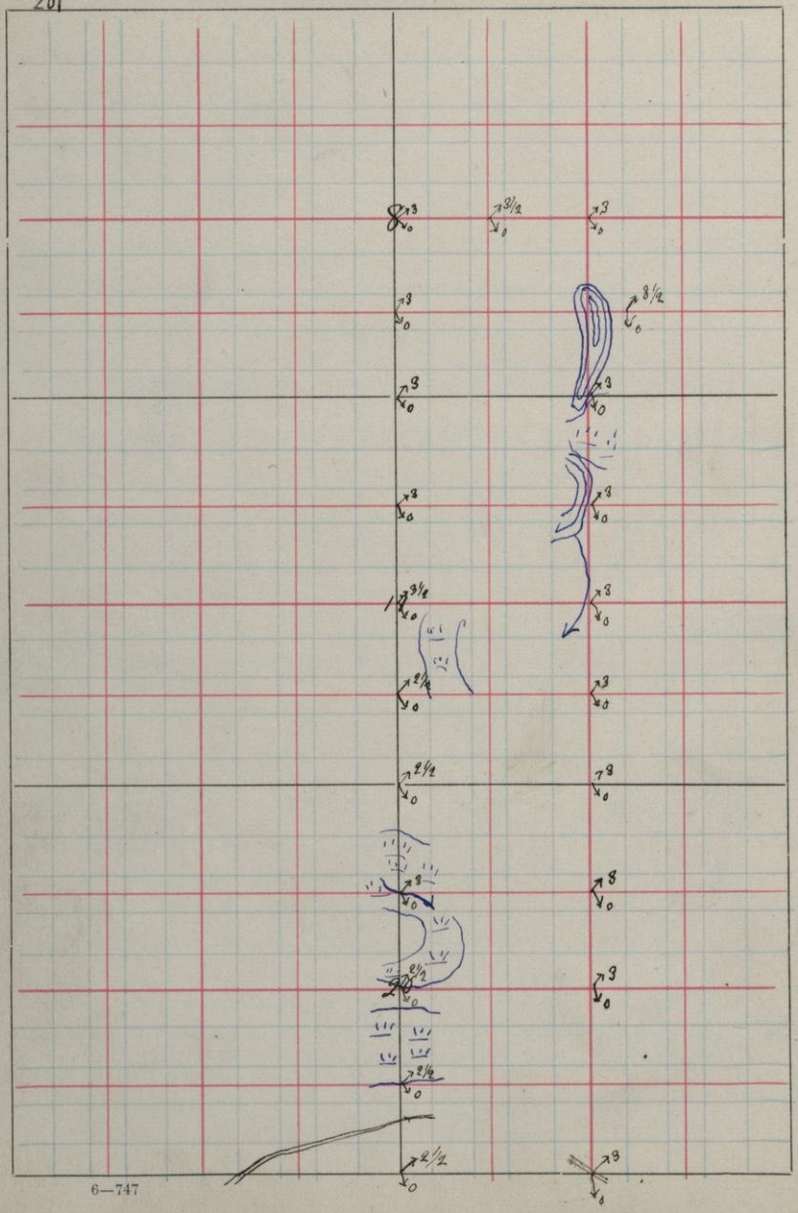
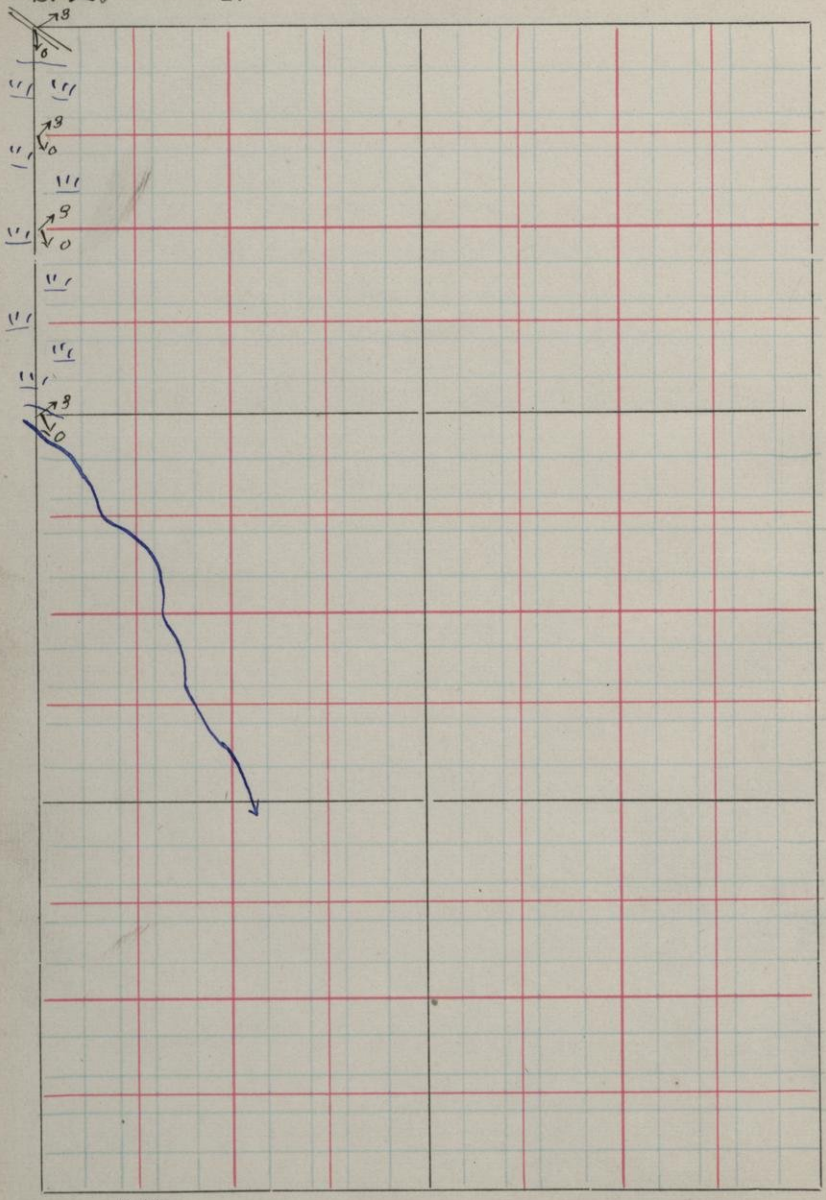
S. 8/17/20 T. 42 R. 33



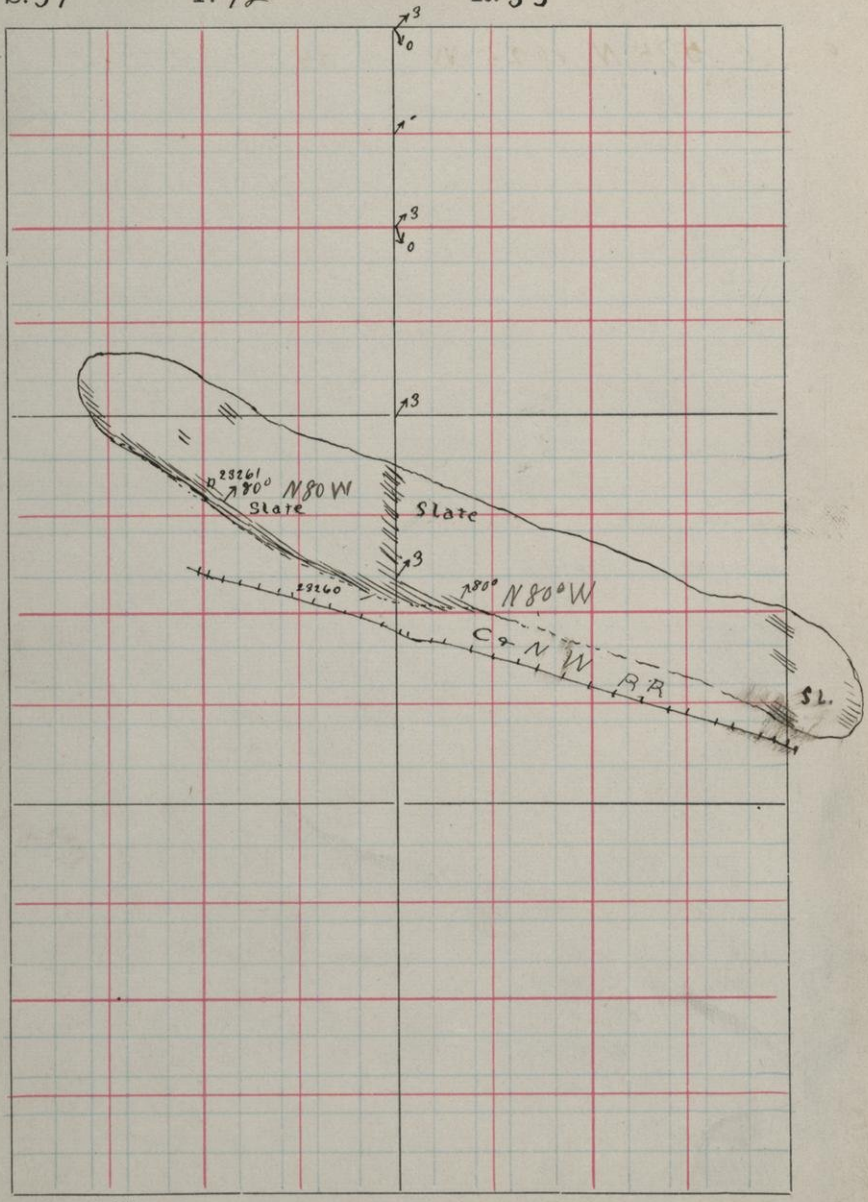
6—747

S. 28 T. 42 R. 88



6—747

S. 34 T. 42 R. 33

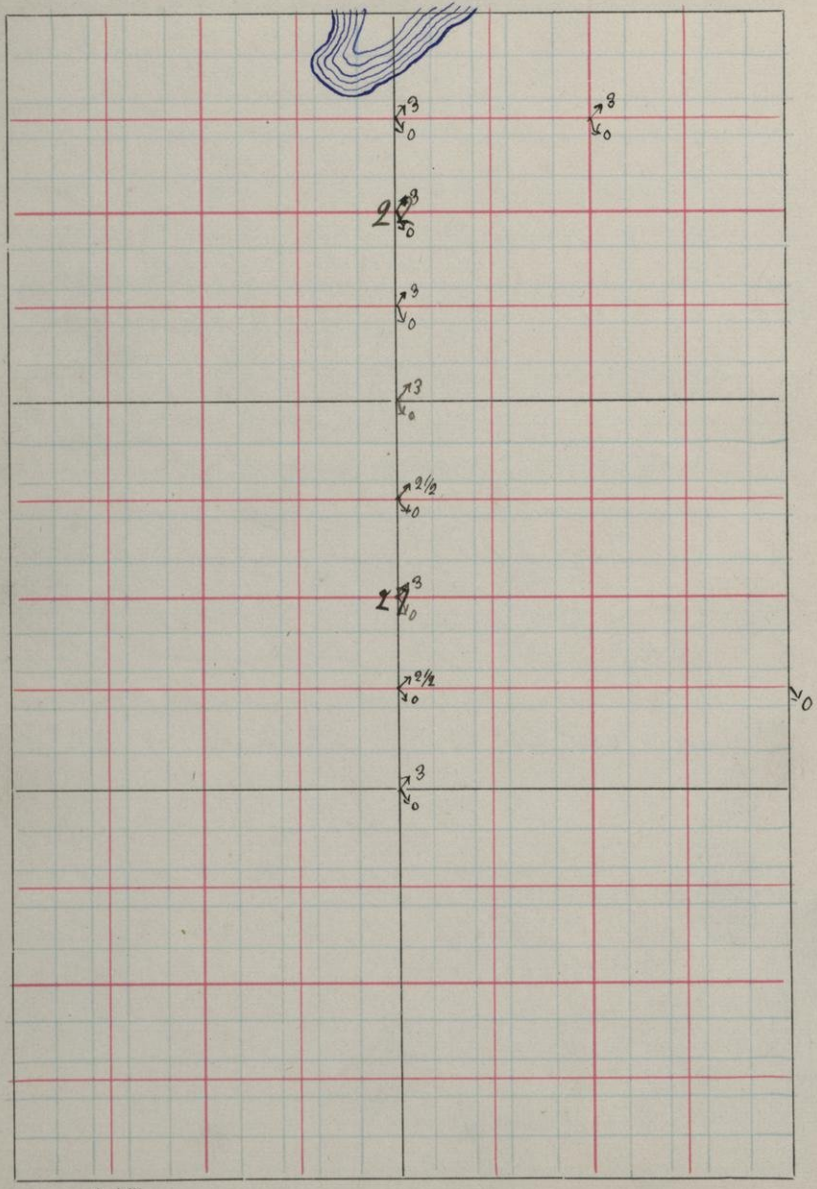


23260 575 N 1025 W 34-42-33
Ledge of slate somewhat ferruginious and not cherty
Strike N 80 W. The slate outcrops along the brow of a long ridge.

23261 800 N 1440 W 34-42-33
Specimen of banded cherty slate taken from the mouth of test pit. The greater part of the material about the pit seems to be like specimen. A good deal of it is a much fractured slate. In this pit the Dip is clearly made out, and is 80° N.E. Strike N 80° W

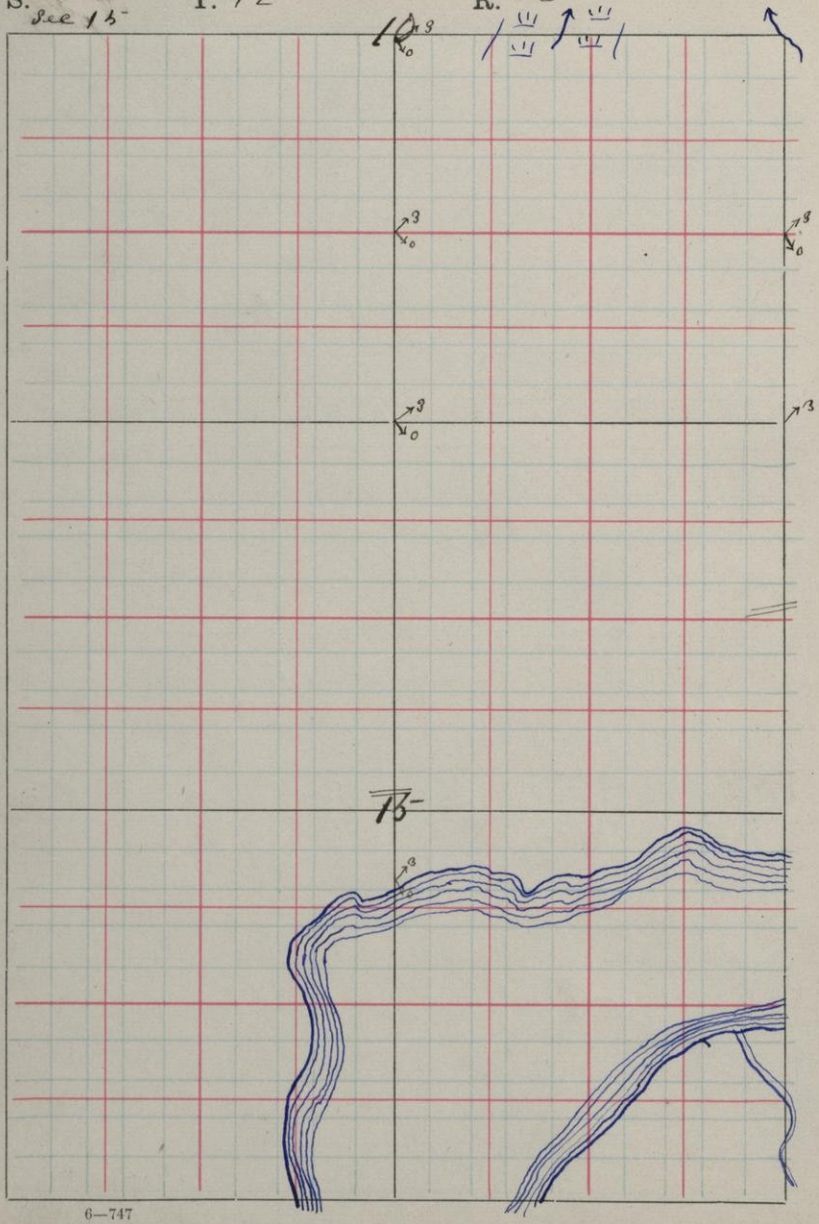
The strike and dip given is thought to be the true strike and dip of bedding; that is, that the bedding and cleavage is the same

S. 27 & 22 T. 42 R. 33



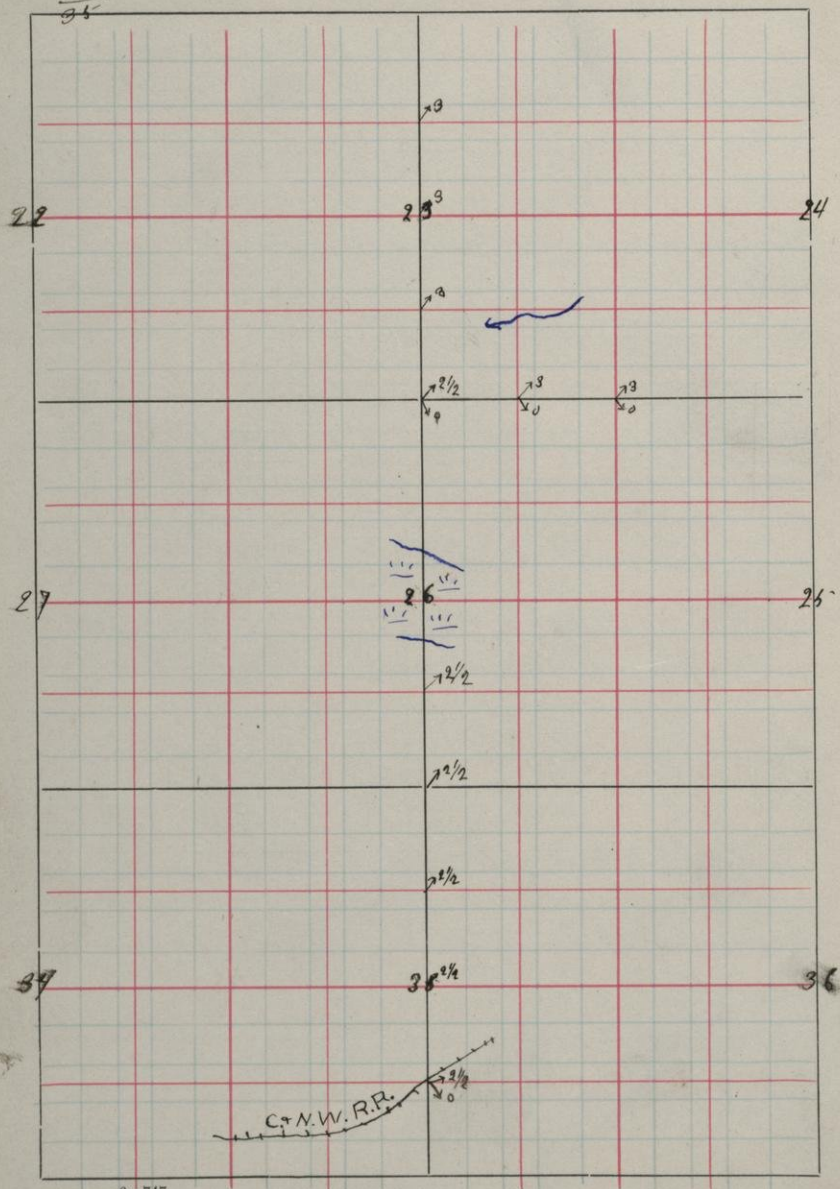
6—747

S. S/2 of 10 and See 15 T. 42 R. 33



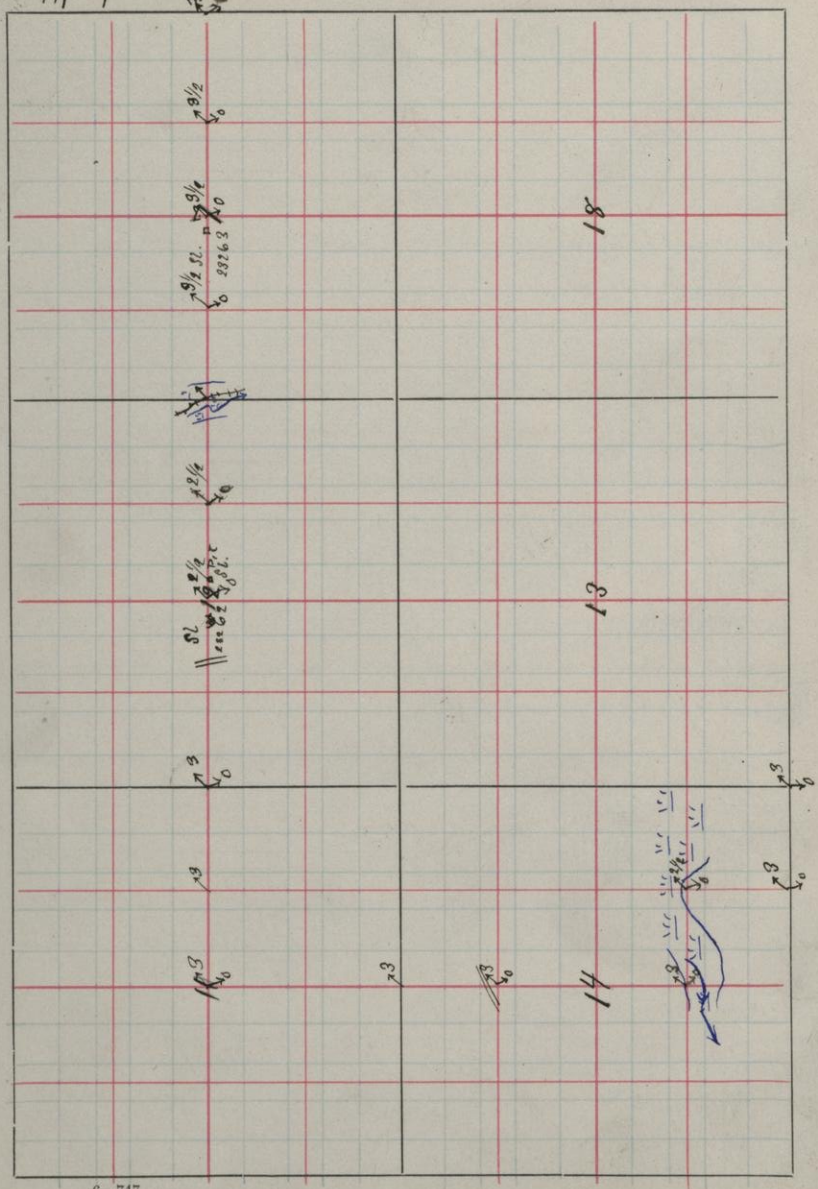
6—747

S. 23/26/35 T. 42 R. 33



6—747

S. 11/14 | 12 | 7 T. 42 R. 33/32



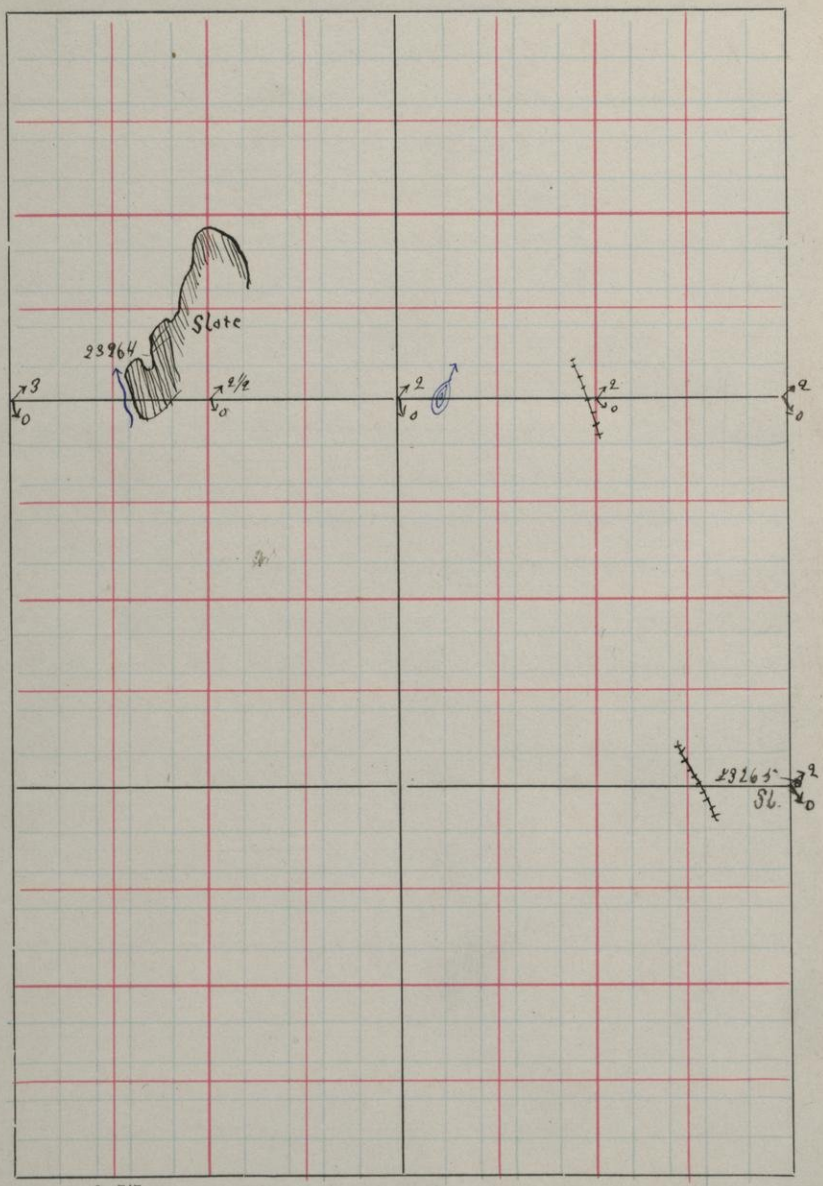
6—747

23262 1000 N 1125 W 12-42-33
This place looks as though there had been some test pitting done, fragments of quartz slate are scattered about a little knoll.

at 1000 N 912 and 950 W are test pits in jaspery slate
And also at 875 and 900 W 1000 N are similar test pits in slate formation

23263 1000 N 1100 W 7-42-32
Test pit on top of ridge in black cherty slate,

S. 8 T. 42 R. 32

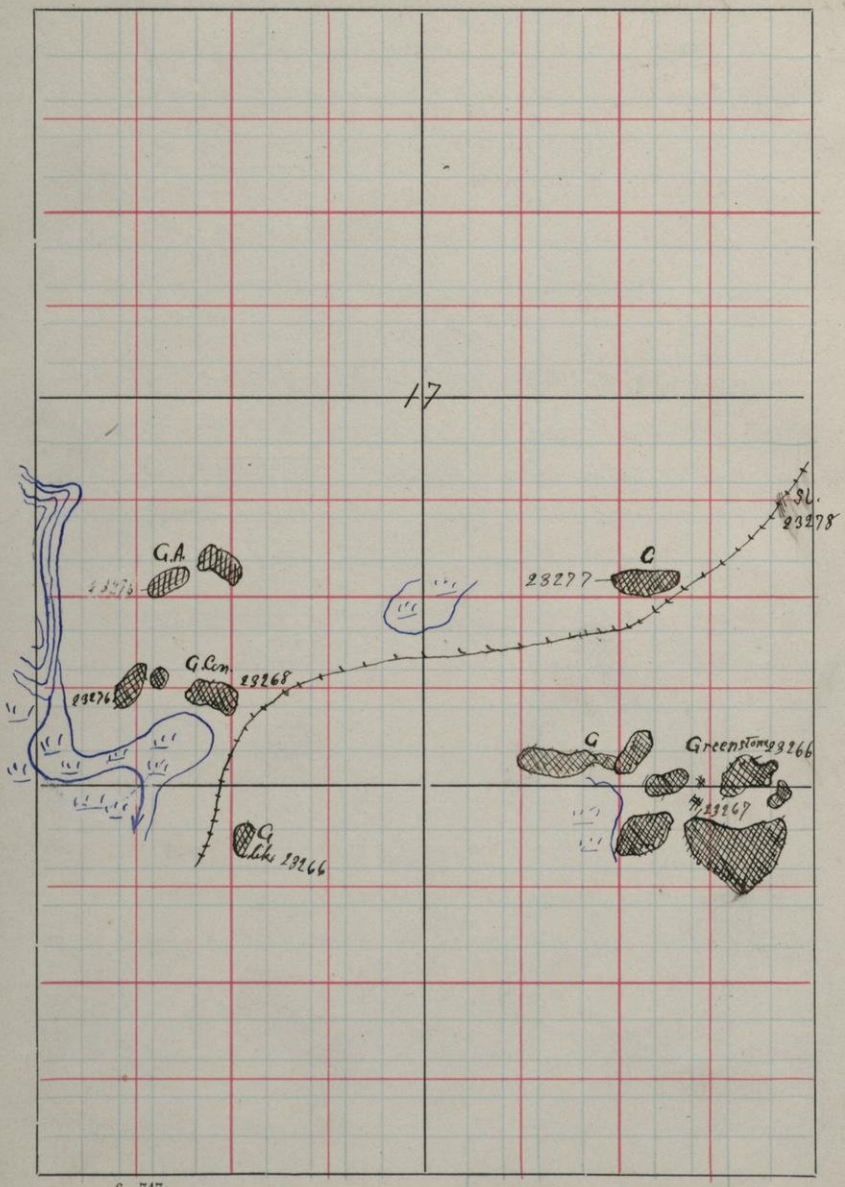


6—747

23264 1165 N 1650 W 8-42-32
Large ledge of black slate, not much cherty material in it. Strike of Schistosity N10W
Dip is about vertical

23265 About 20 paces E of where the S.E. corner of Sec 8-42-32 is thought to be, Specimen is from test pit about 25 feet deep, in sand plain. Rock is a cherty slate.

S. 17 T. 42 R. 32



6—747

23266 70 N 150 W 17 – 42 – 32
Ledge of fine grained and amygdaloidal greenstone, much squeezed and stretched in places.

23267 1910 N 300 W – 20 – 42 – 32
Schistose greenstone, some large anterop.

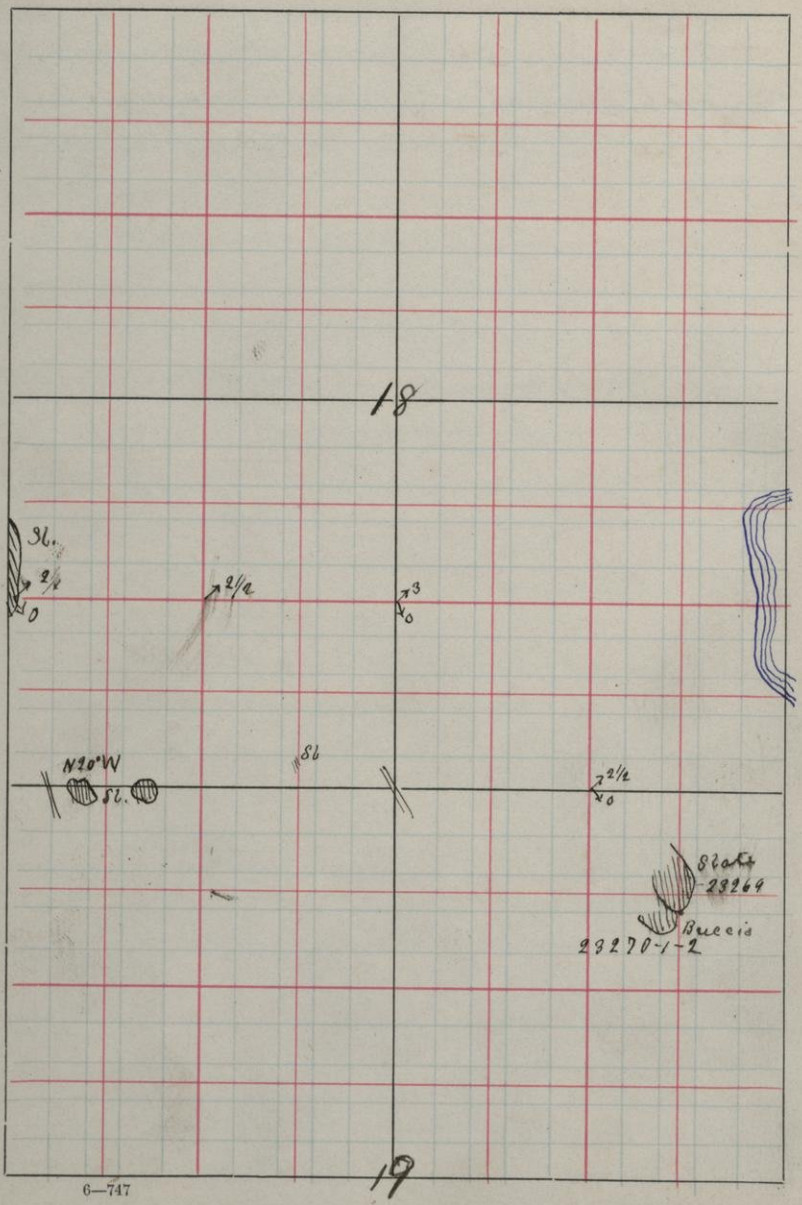
At 25 N 675 W 17 – 42 – 32 is an anterop of greenstone conglomerate having a strike slightly W of N. Strike of the schistosity in other places in this vicinity is slightly W of N.

23268. 200 N 1500 W 17 – 42 – 32.
Ledge of greenstone conglomerate, quite fine and quite coarse also. Strike of schistosity slightly W of N

23276 250 N 1740 W 17 – 42 – 32
Ledge of greenstone containing what seems to be fragments of black rock like specimen

23277 550 N 575 W 17 – 42 – 32
Ledge of fine grained greenstone in places schistose and in places conglomeratic and also amygdaloidal.

S. 18 T. 42 R. 32



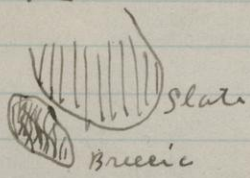
6—747

23278 720 N 20 W 17-42-32. Ledge of black slate on R.R. Strike of schistosity N20°W Dip 90

X 23269 1750 N 478 W 19-42-32
Ledge of soft black slate.
Strike of schistosity slightly W of N
Dip about vertical

23270+71 1700 N 540 W 19-42-32
Ledge of cherty slate conglomerate or breccia. Outcrop contains angular fragments of (greenstone?) or slate up to 1 foot in diameter as well as very small fragments

23272 1760 N 540 W 19-42-32
Going N from above coarse formation like 23270-71 and towards the slate like 23269 is found a finer conglomerate or breccia 23272.

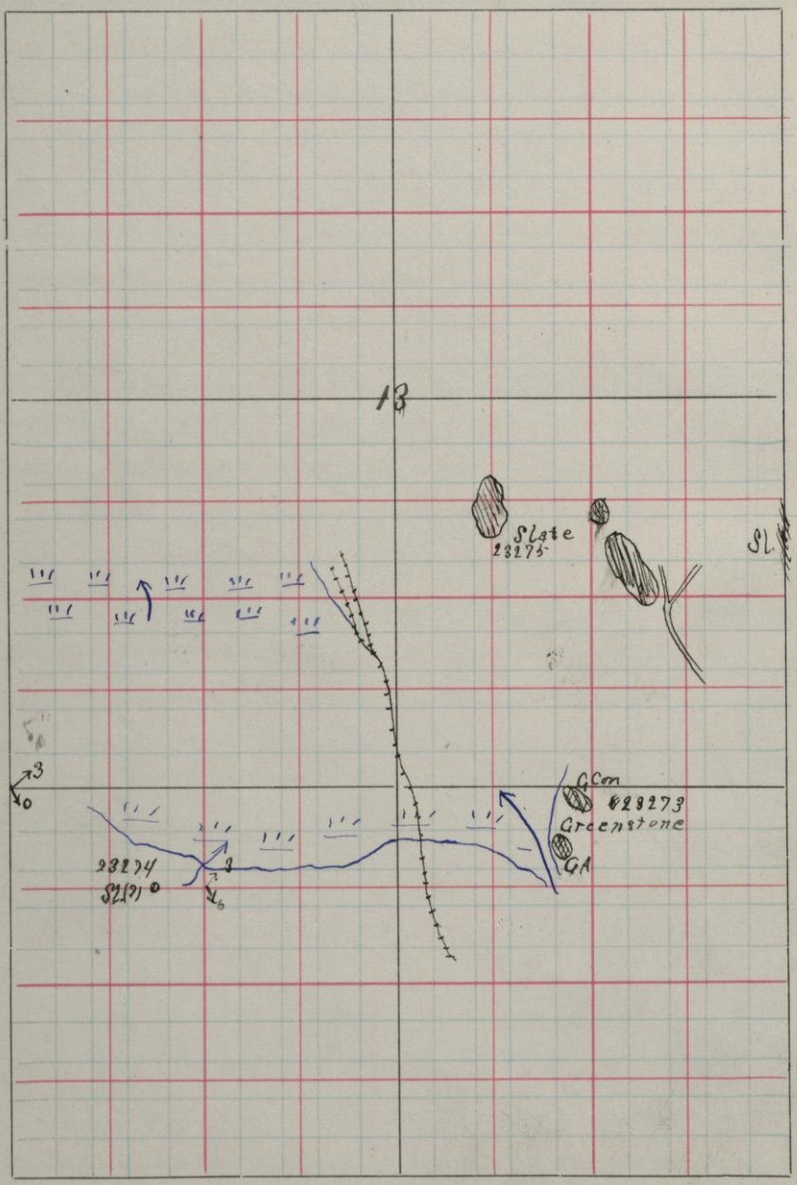


Strike of schistosity formation slightly W of N Dip 90°

This place was visited by Profs. Van Hise and Bayley who considered it a brecciated slate.

RB

S. 13 T. 42 R. 33



6—747

~~222~~

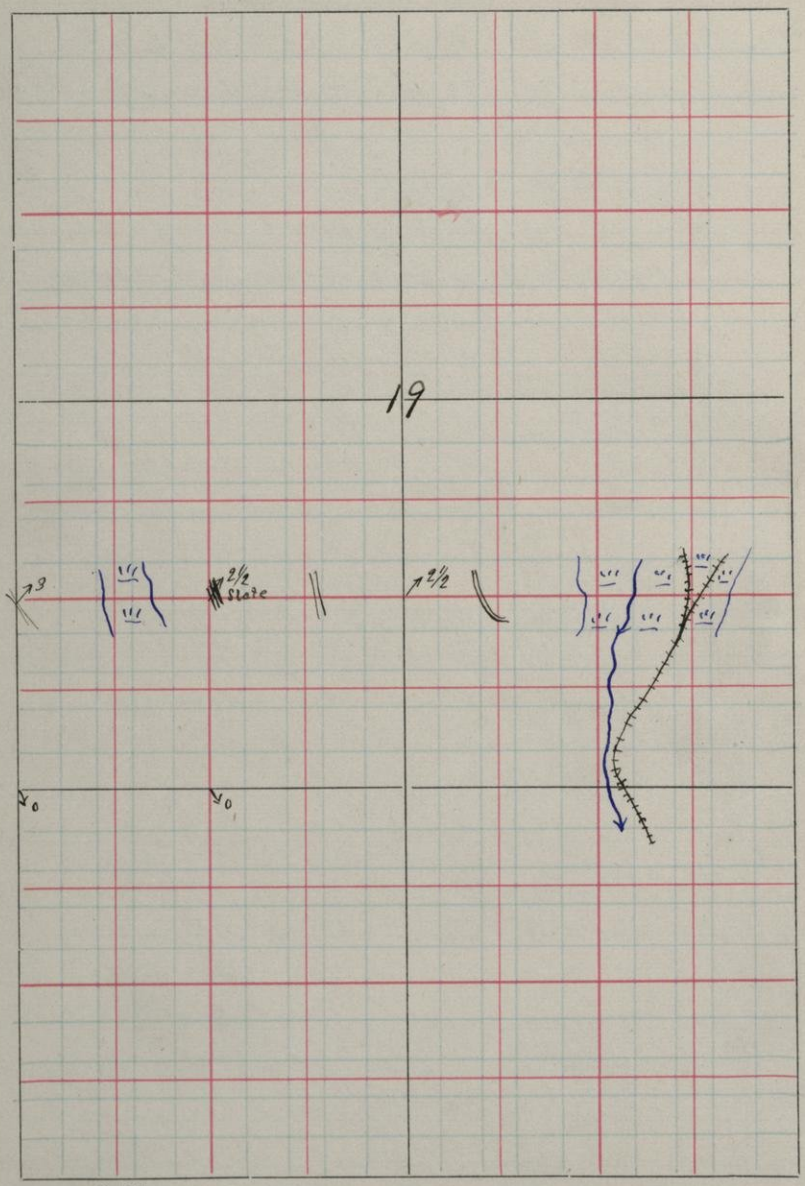
23273 1980 N 450 W 24 – 42 – 33
Ledge of greenstone conglomerate.

195·0 N 5·85 W 24 – 42 – 33
Ledge of fine grained amygdaloidal greenstone mingled with which is greenstone conglomerate like 23273

23274 175·0 N 1610 W 24 – 42 – 33
Specimen taken from mouth of old pit. It looks much like a quartzitic slate but it may be a greenstone.

23275 680 N 760 W 13 – 42 – 33.
Ledge of soft black slate.
Strike of schistosity N 20 W Dip 75° W.
But the true dip and strike of the bedding as banding as shown in specimen is –
Strike N 45° E Dip 45° N.W.
The bedding or banding is very much folded and curved so that can be certain as to general Dip and strike. but am certain that bedding and schistosity do not agree.

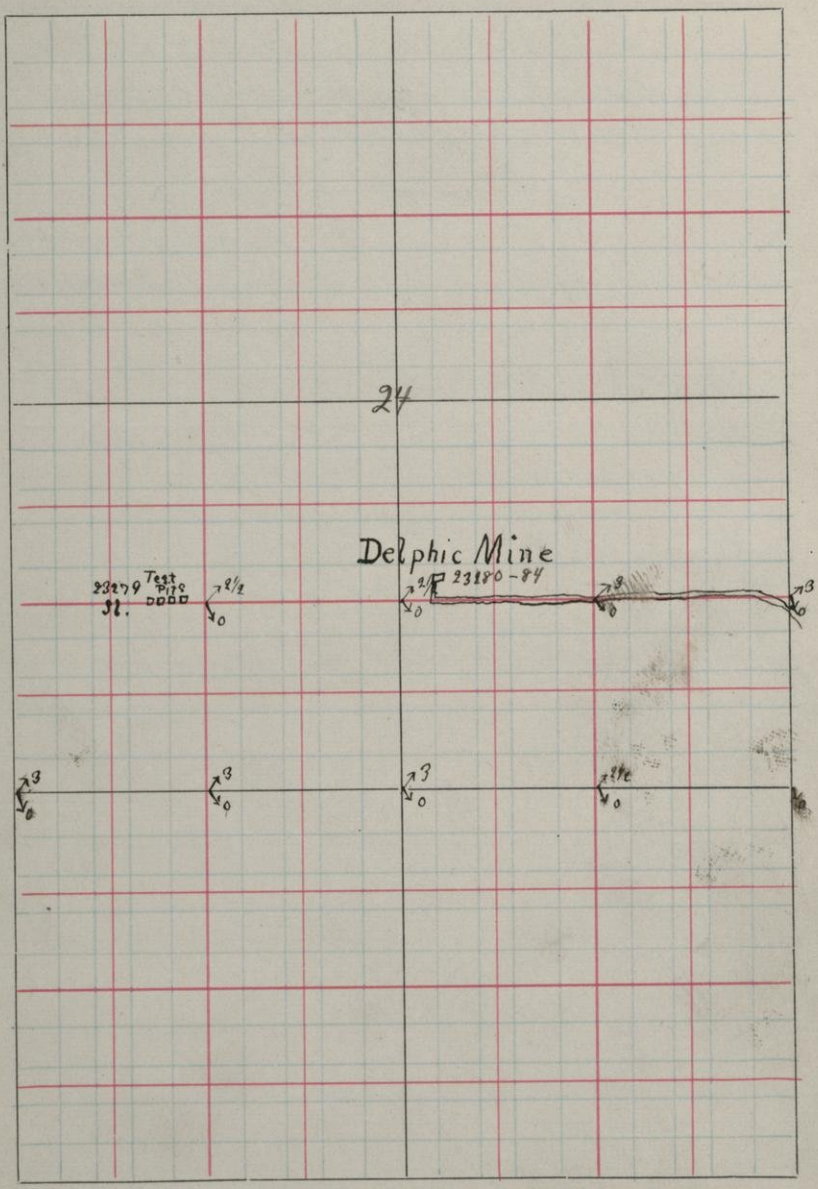
S. 19 T. 42 R. 32



6—747

500 N 1480 W 19 - 42 - 32
Ledge of black shaly slate
Strike of schistosity N 10° W Dip 90°

S. 24 T. 42 R. 33



23279 500 N 1630 W 24-42-33
Test pit in cherty slate.
Four pits along here in a row.

Delphic Mine

23280 550 N 900 W 24-42-33 (Delphic Mine)
Specimen of black soft shaly slate which is a fair specimen of the greater part of the material about the excavation

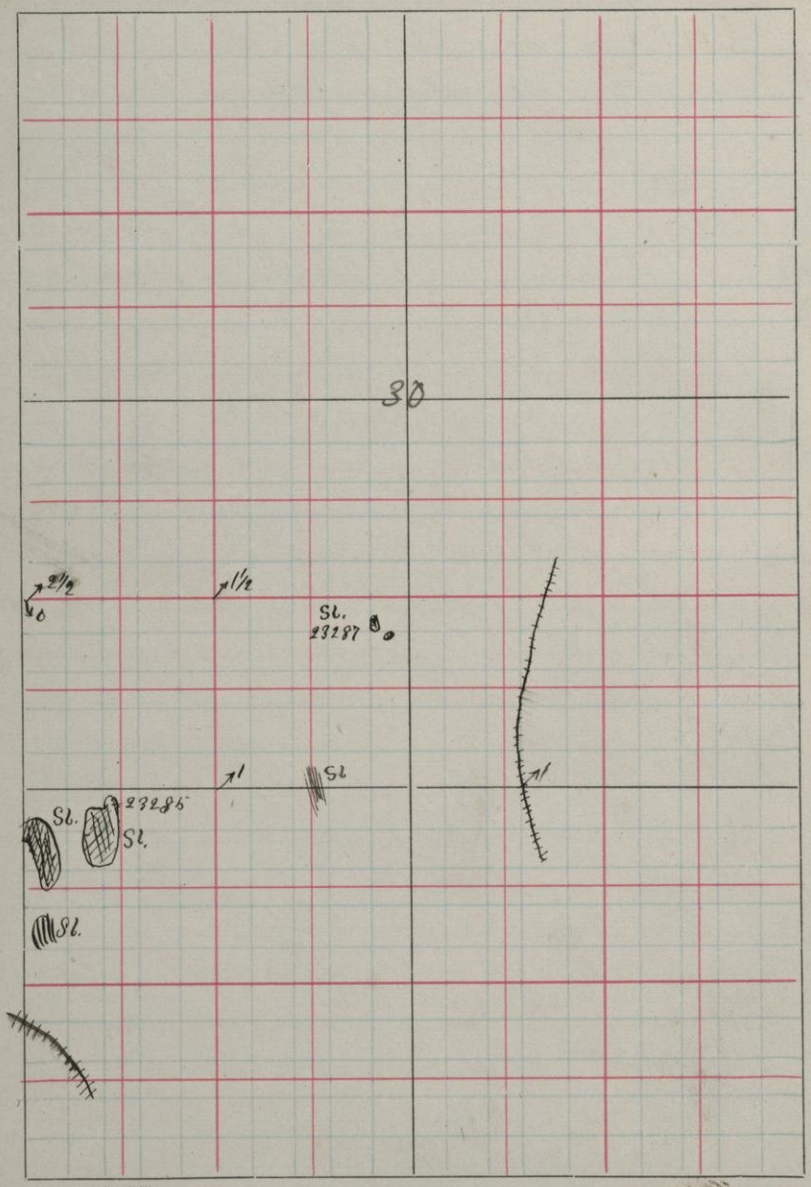
23281 (Delphic Mine) Specimen containing iron sulphide (iron pyrite) The odor of sulphur is easily detected about the dump heap.

23282 (Delphic Mine) Specimens containing considerable iron.

23283 (Delphic Mine) Specimen showing jasper and iron pyrite.

23284 (Delphic Mine) Specimen of schistose slate containing much iron pyrite.
This mines apparently has never yielded any ore. There is a large amount of worthless material about the excavation.
Strike and Dip of the slate could not be seen. But the rock is very much shattered & fractured.

S. 30 T. 42 R. 32

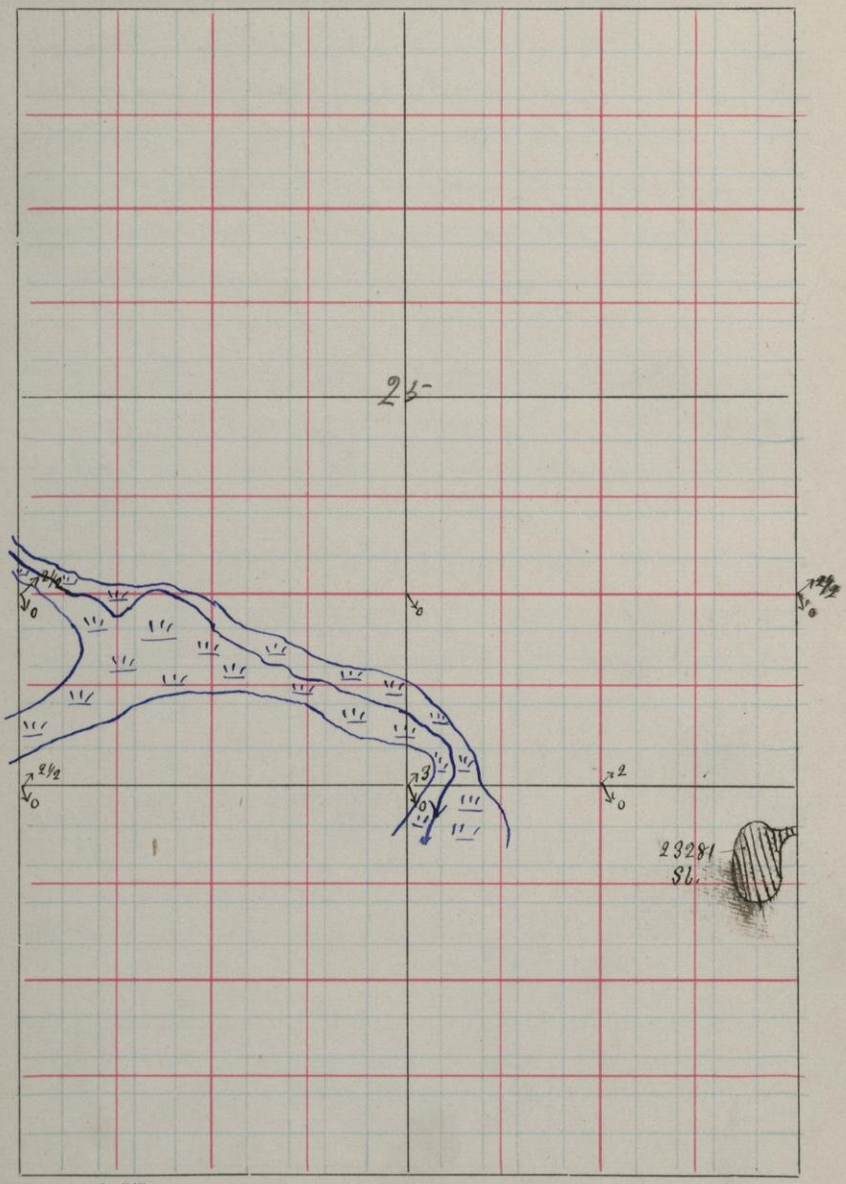


ON 900 W 30 – 42 – 32
On summit of ridge, fine slate fragments about roots of an old upturned tree; no doubt but what there is slate in situ beneath.

23285 1950 N 1775 W 31 – 42 – 32
Ledge of cherty slate.

23287 420 N 1080 W 30 – 42 – 32
Outcrop of carbonaceous shaly slate.

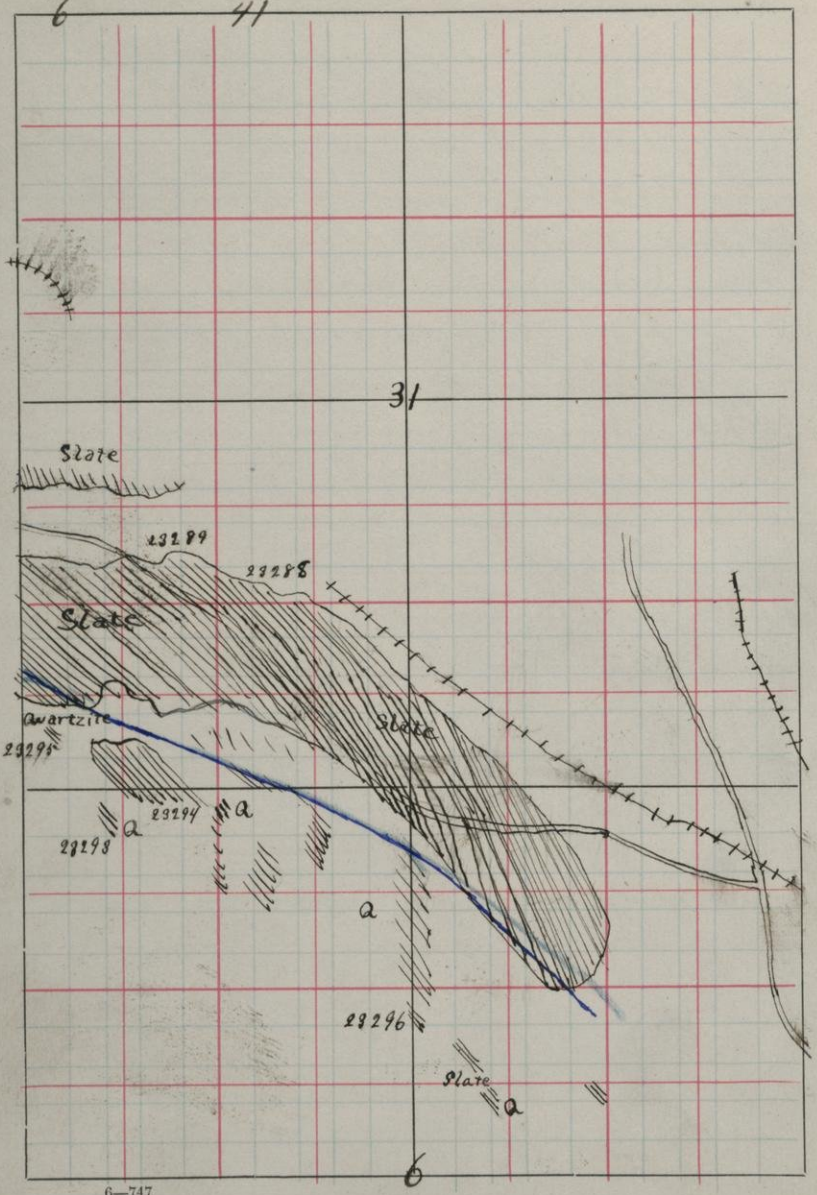
S. 25 T. 42 R. 33



6—747

28286 1825 N 150 W 36 — 42 — 33
Specimen of jaspery slate on large hill. Strike N 10° W
Dip is vertical. This seems to be bedding as indicated by the bands of jaspes.

S. 31/6 T. 42/41 R. 32



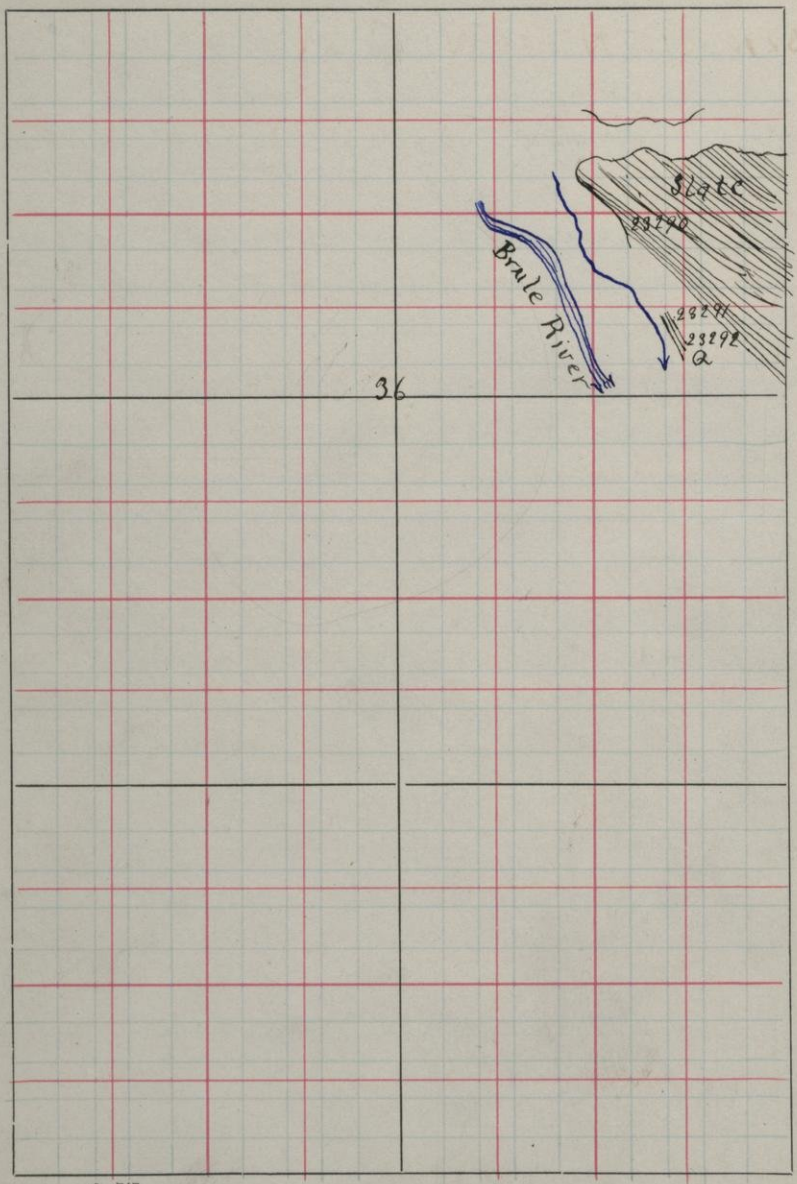
6—747

23288 500 N 1400 W 31-42-32
Specimen from the large ridge of slate, a cherty slate.
Strike N 45° W Dip Vertical.

23289 530 N 1660 W 31-42-32
Specimen of jaspery slate showing crumpling. Strike N 50° W Dip 90°
At 265 N 1730 W 31-42-32 the strike is still more to the W. N. 60° W.

23293 1970 N 1825 W 6-41-32
Specimen is a very coarse quartzite. At this place is a ledge of massive quartzite about 45 feet thick, (across the strike). Strike is N 50° W. Dip 90°. This is the true bedding as indicated by thin seams of coarse quartzite like specimen. The rest of the rock is like specimen 23291 + 2. Thin seams of quartzite schist due to ~~the~~ pressure run along the strike. Fracturing and faulting has taken place

S. 36 T. 42 R. 33



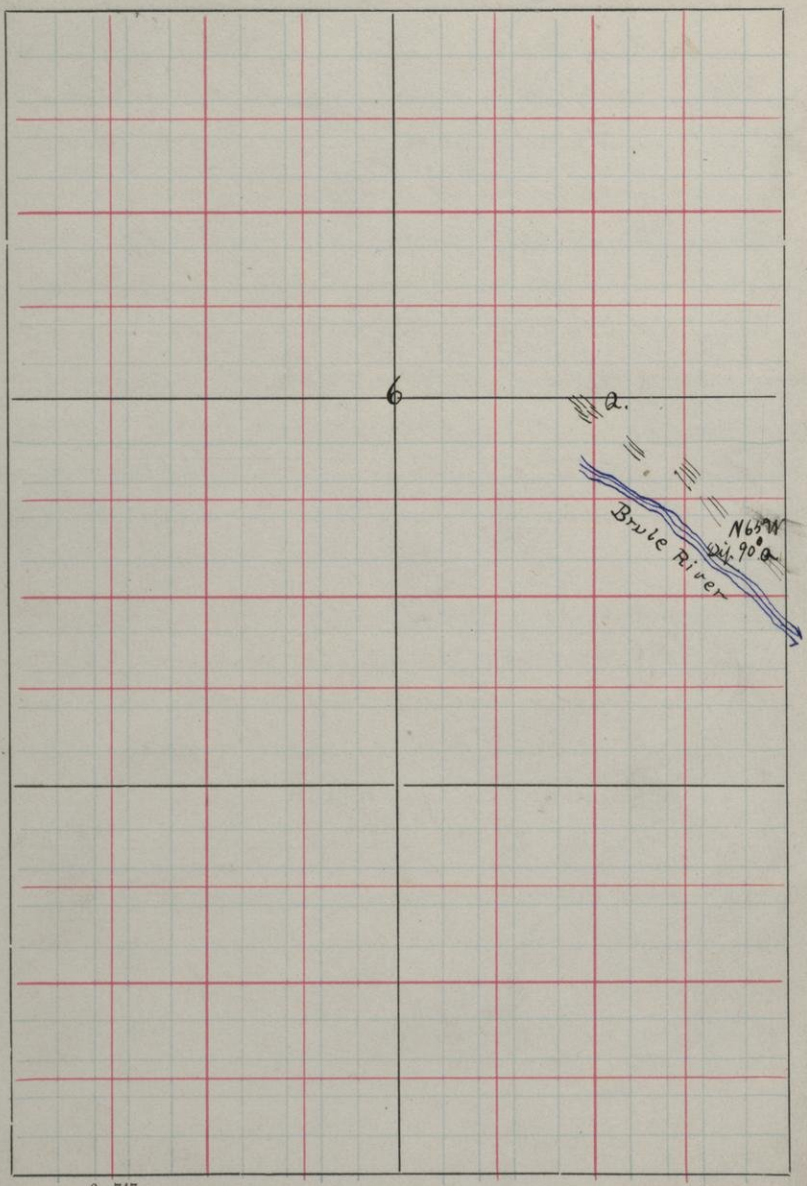
6—747

23290 510 N 300 W 36-42-33
Outcropping at edge of bluff
Banded slate. Strike N 65° W
Dip 75° NE

23291 125 N 275 W 36-42-33
Ledge of black ferruginious
massive quartzite. Strike and
dip of bedding agrees with
that of the slates to the
north.

23292 125 N 275 W 36-42-33
Schistose quartzite. The bed
of quartzite at this place
shows a thickness of at
least 30 feet.

S. 6 T. 41 R. 32



6—747

23294 25 N 1710 W Sec 31 – 42 – 32
Ledge of quartzite schist (ferruginious and black) The quartzite in massive beds is seen in numerous ledges to the S.W. of this and no doubt grades into this. Strike N 65° W. 100 paces north of this is another large exposure showing beds of massive and schistose quartzite.

23295 175 N 195 0 W 31 – 42 – 32
Ledge of jasper slate interbedded with thin seams of quartzite as shown by the three specimens numbered 23295;

23296 1300 N 1000 W 6 – 41 – 32
Ledge of slate and quartzite. This is a small ledge and immediately to the north and south of it is quartzite again.

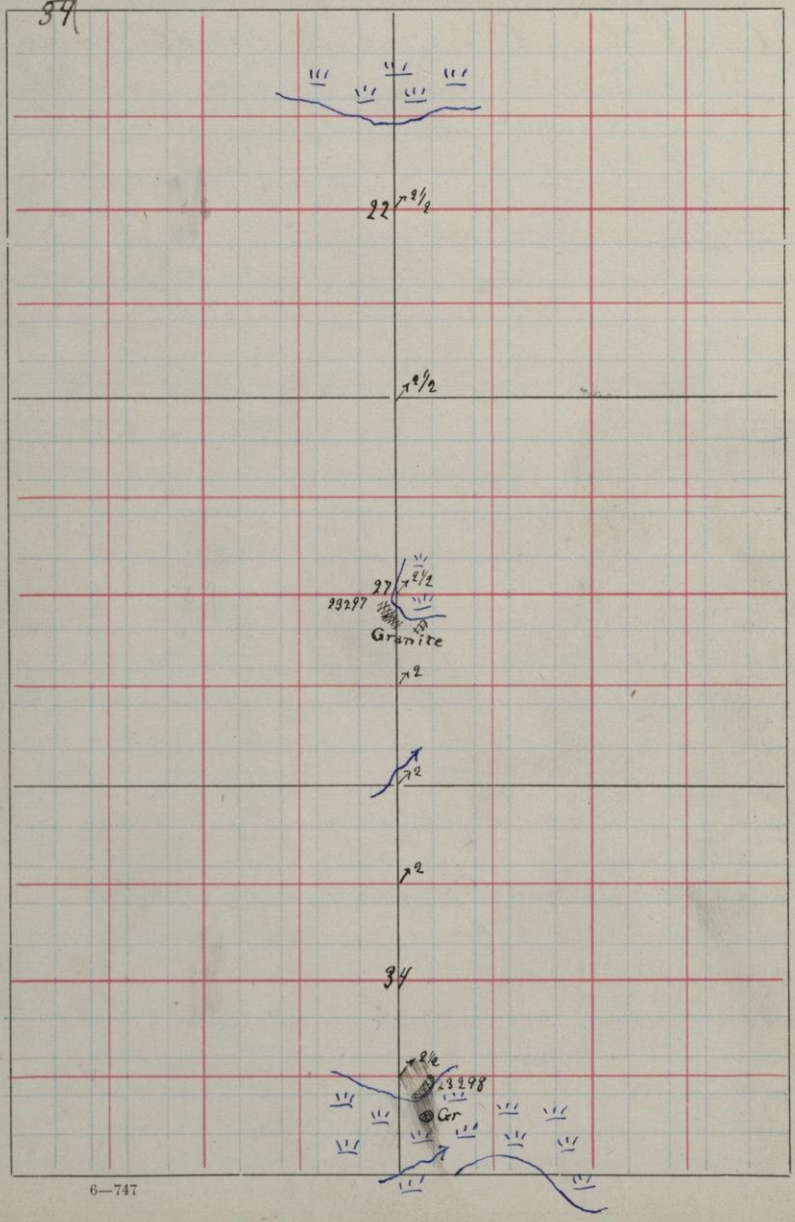
Further S.E. along the Brule as far east at least as 150 in sec 5 – 41 – 32 several ledges of massive ferruginious quartzite was seen.

Clements says he finds no quartzite along the N and S. 1/4 line near ~~in~~ the river in Sec 5.
The ledges along the river near the west side of Sec 5 strike N-65°-70°W

In this whole area of quartzite the strike varies from N 45°W near the slate area to N 65°-70°W further S.E. near Brule in Sec 5.
The dip is usually vertical sometimes apparently N. as well as S. passing from the one to the other in either direction across the strike.
The quartzite is usually in massive beds although a ~~very~~ large percentage of it is more or less schistose. The massive beds are often as thick as two feet and usually enclose between them a thin layer of very fine quartzite schist indicating excessive adjustment in these narrow ~~beds~~ seams. The transition of the quartzite in this area into the jaspery slates to the N.E.

is gradual. To the north of the blue line on the plat it is mostly slates and almost wholly slate to the N E. To the south of the line is the quartzite with here and there narrow beds of cherty slate

S. 22/27/34 T. 41 R. 14 W.

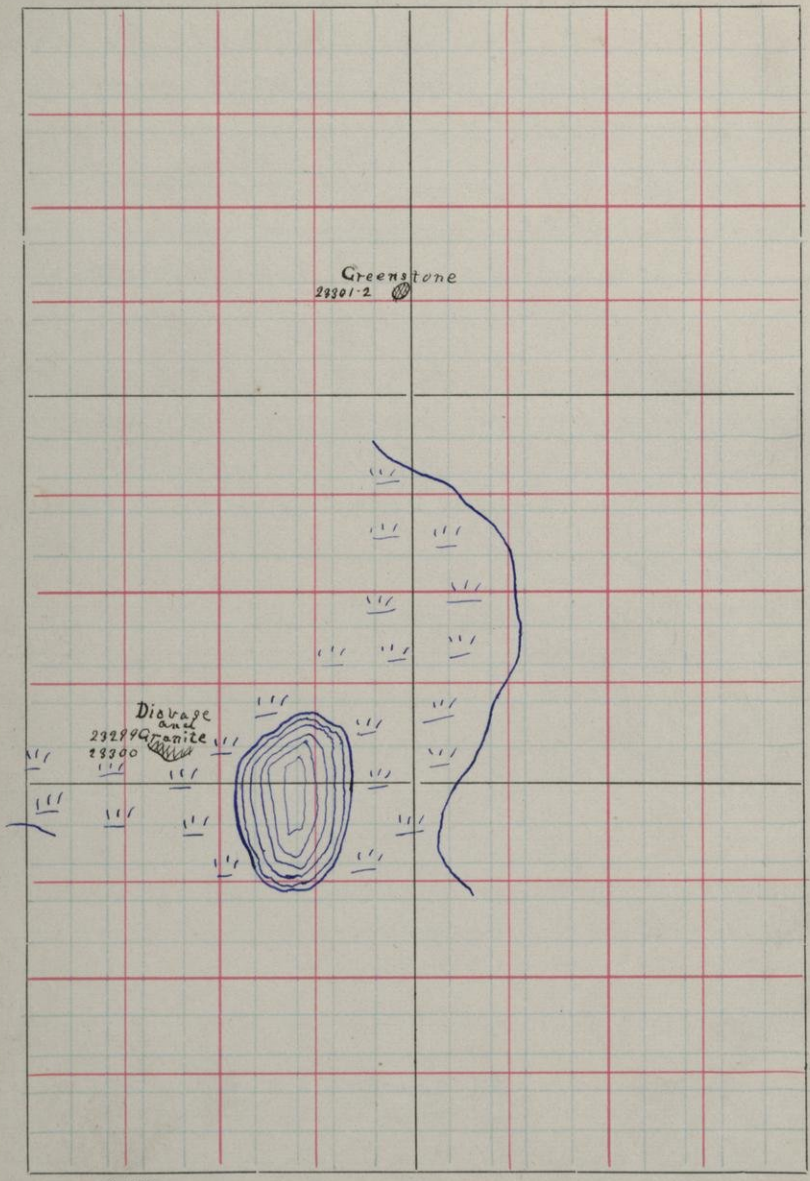


6—747

23297 940 N 1040 W 27-41-14 W 12
Outcrop of pink coarse massive granite at edge of swamp

23298 400 N 865 W 34-41-14
Ledge of coarse granite.

S. 35 T. 41 R. 14



6—747

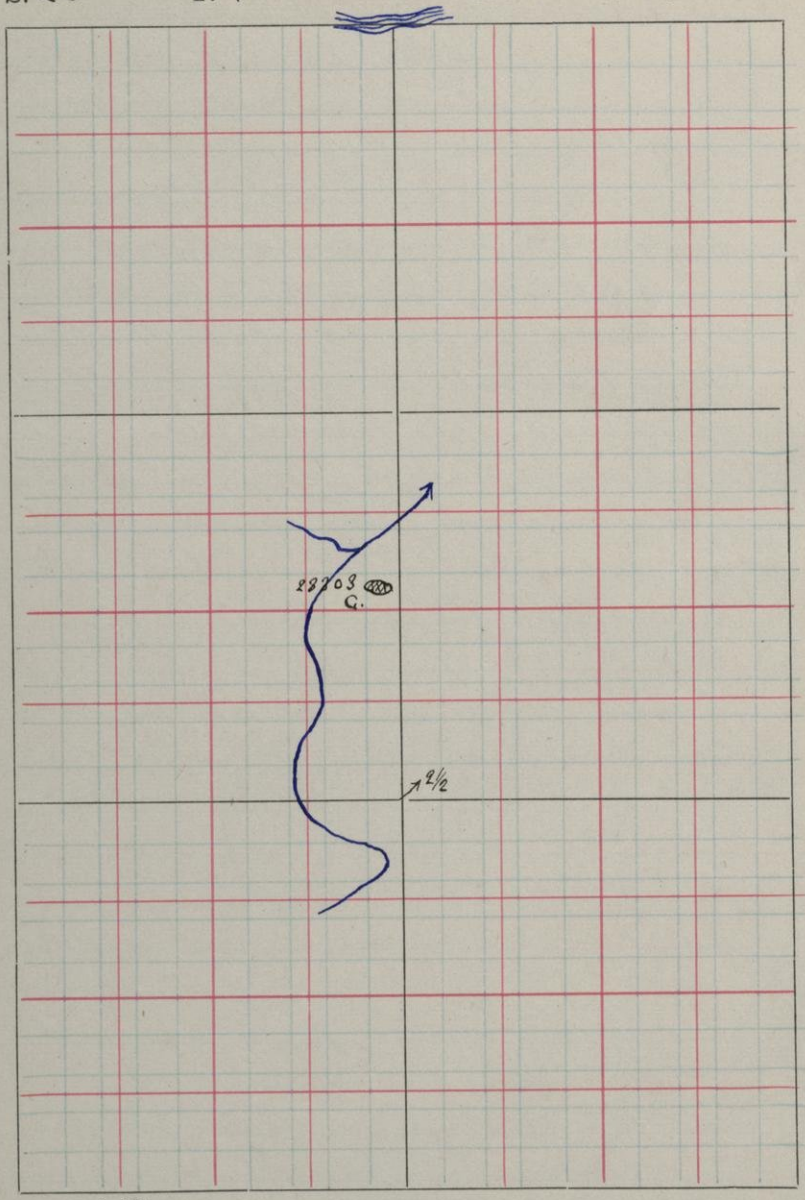
23299 40 N 165·0 W 35 - 41 - 14
Ledge of rather coarse greenstone or diabase which is cut by many small veins of granite like that to the west. Specimen shows contact of granite with the diabase.

23300 40 N 165·0 W 35 - 41 - 14
Specimen showing granite vein and diabase. Diabase is stretched in places. The granite seems to tail out and it lies in patches and veins in the diabase. Am not certain which is the cutting rock but it may be the granite.

23301 1835 N 1020 W 35-41 - 14
Small ledge of greenstone formation composed of two kinds. 23301 is the finer grained and shows fluxion structure and is amygdaloidal

23302 Same location. Specimen is of the coarser grained kind and looks much like 23299. Specimen contains fragments of the finer grained. It is difficult to tell which is the older but no fragments of the coarse grained was seen in the finer grained rock.

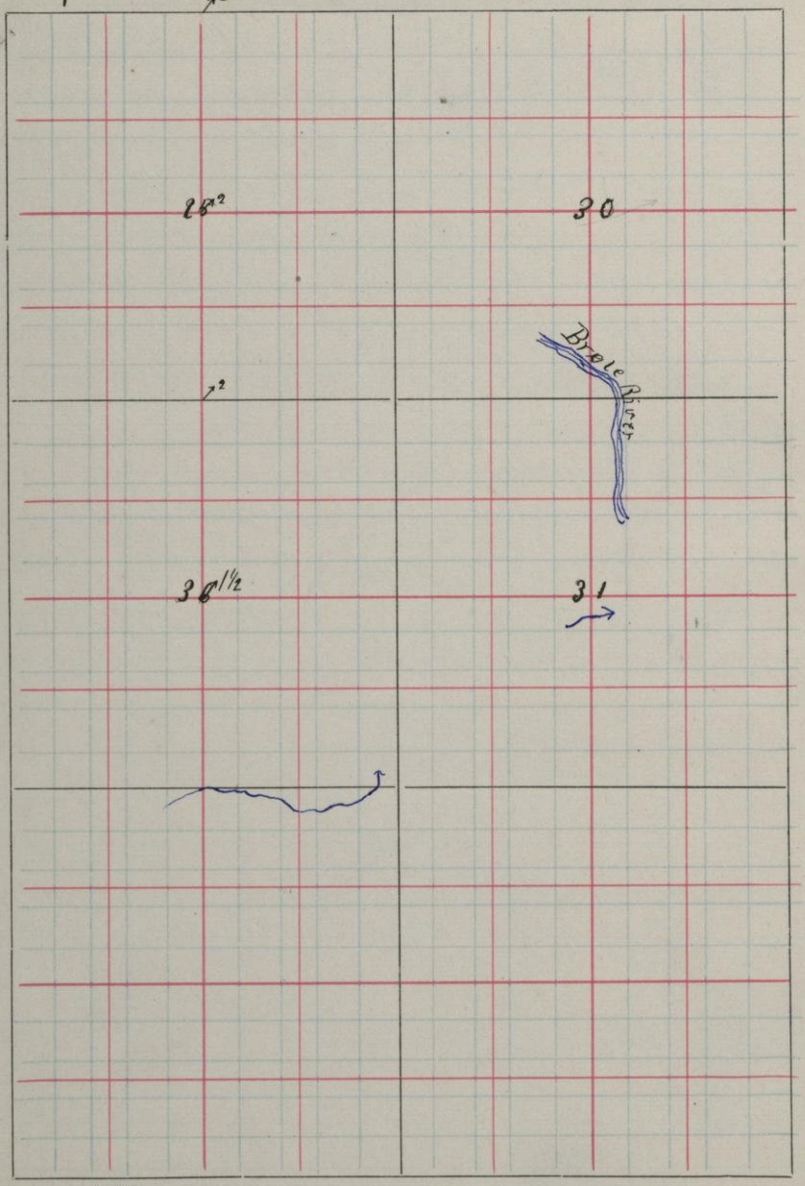
S. 26 T. 41 R. 14 E Wis



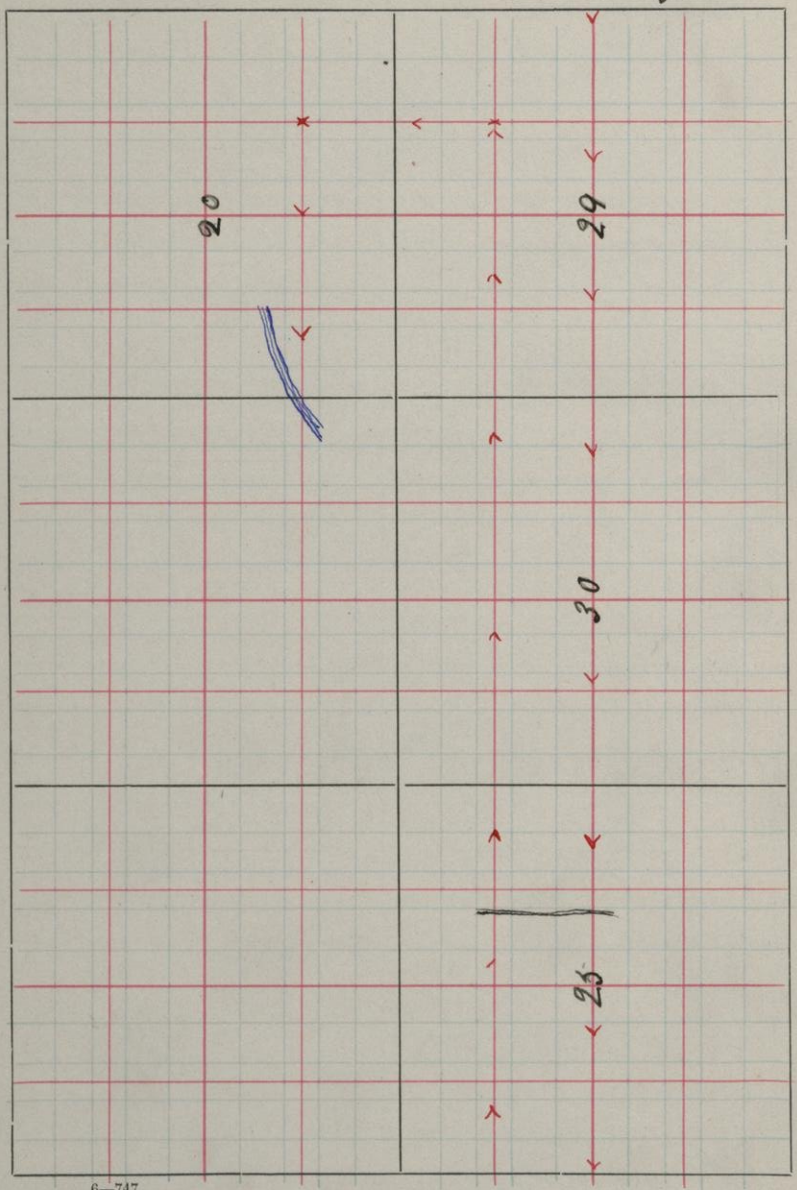
6—747

23303 560 N 1020 W 26-41-14
Ledge of fine grained massive amygdaloidal greenstone, much like 23301.

S. 25 | 30 / 36 | 31 T. 41 R. ~~14~~ | 15

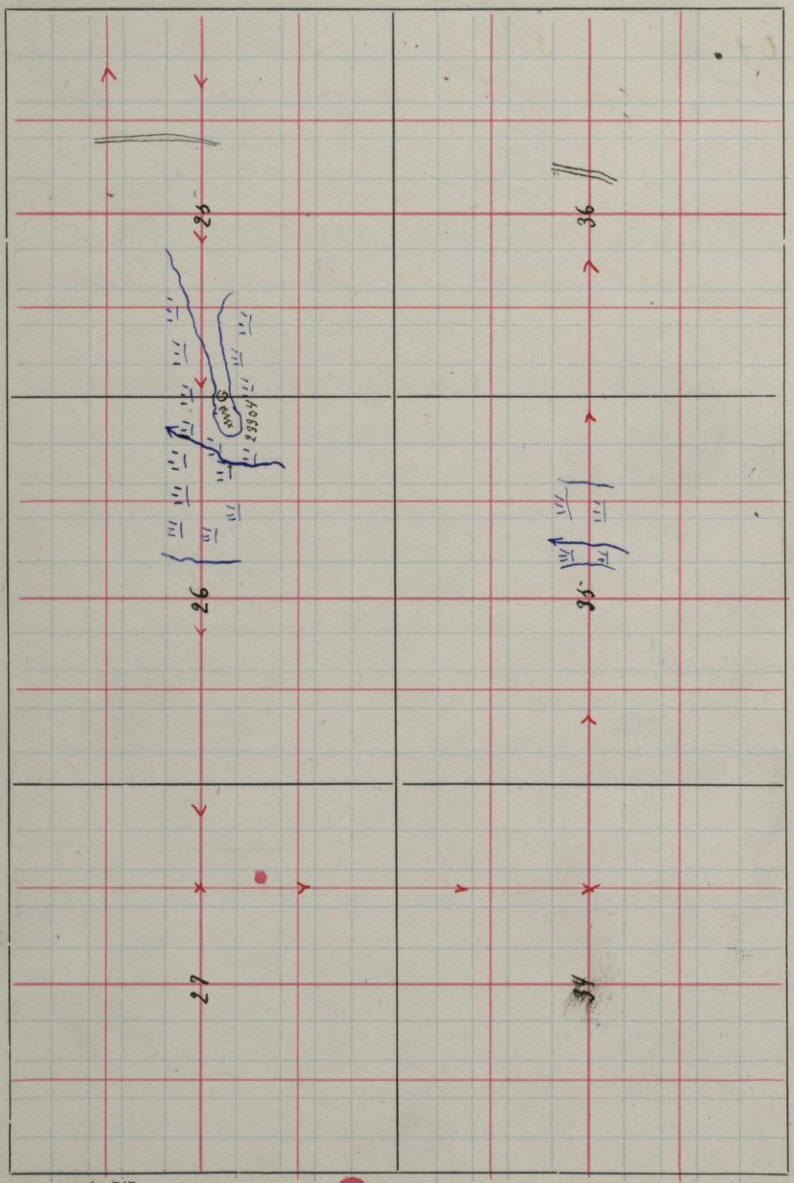


S. T. 41 R. 15+16 Wis



6—747

S. 27 | 26 | 25 / 34 | 35 | 36 T. 41 R. 15

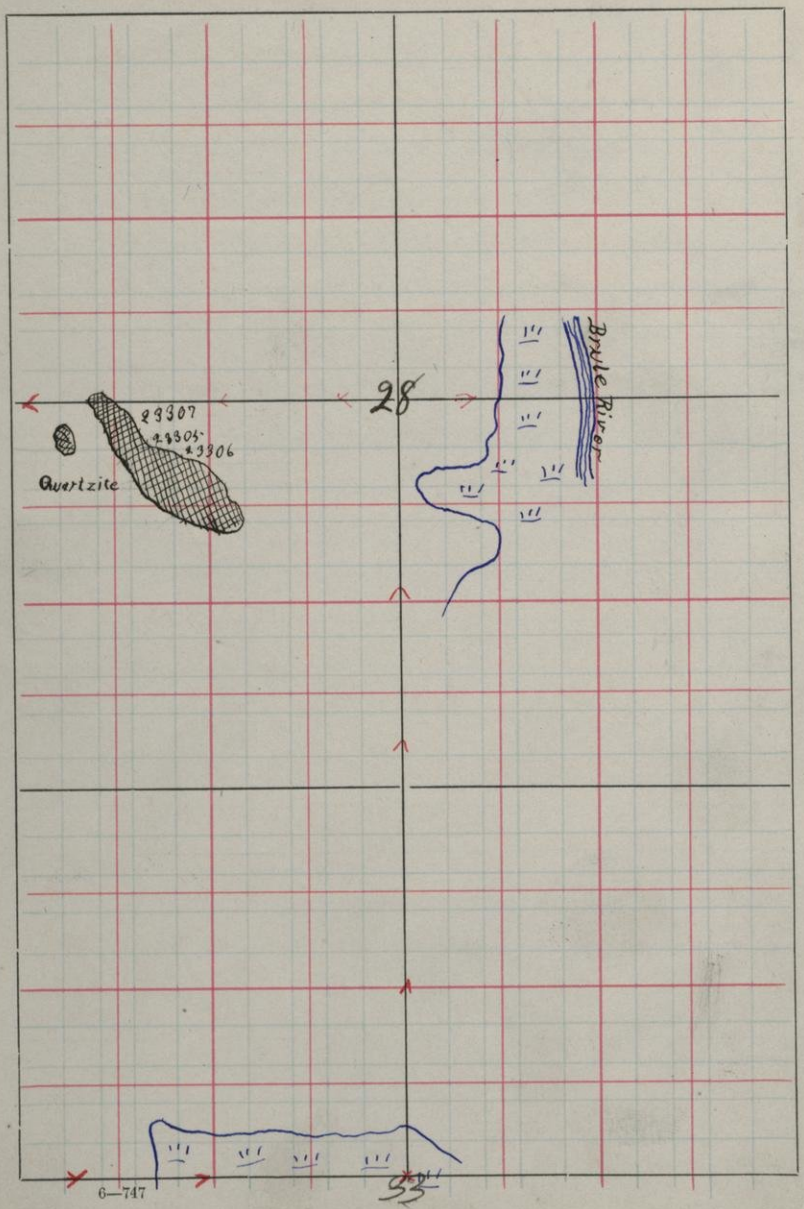


6—747

23304 900 N 85 W 26 – 41 – 15

Ledge of reddish greenstone. Its redness is probably due to the weathering of calcite for it is filled with veins of calcite and also of quartz. On weathered surface it is grey with black spots.

S. 28 T. 41 R. 16 E Wis



6—747

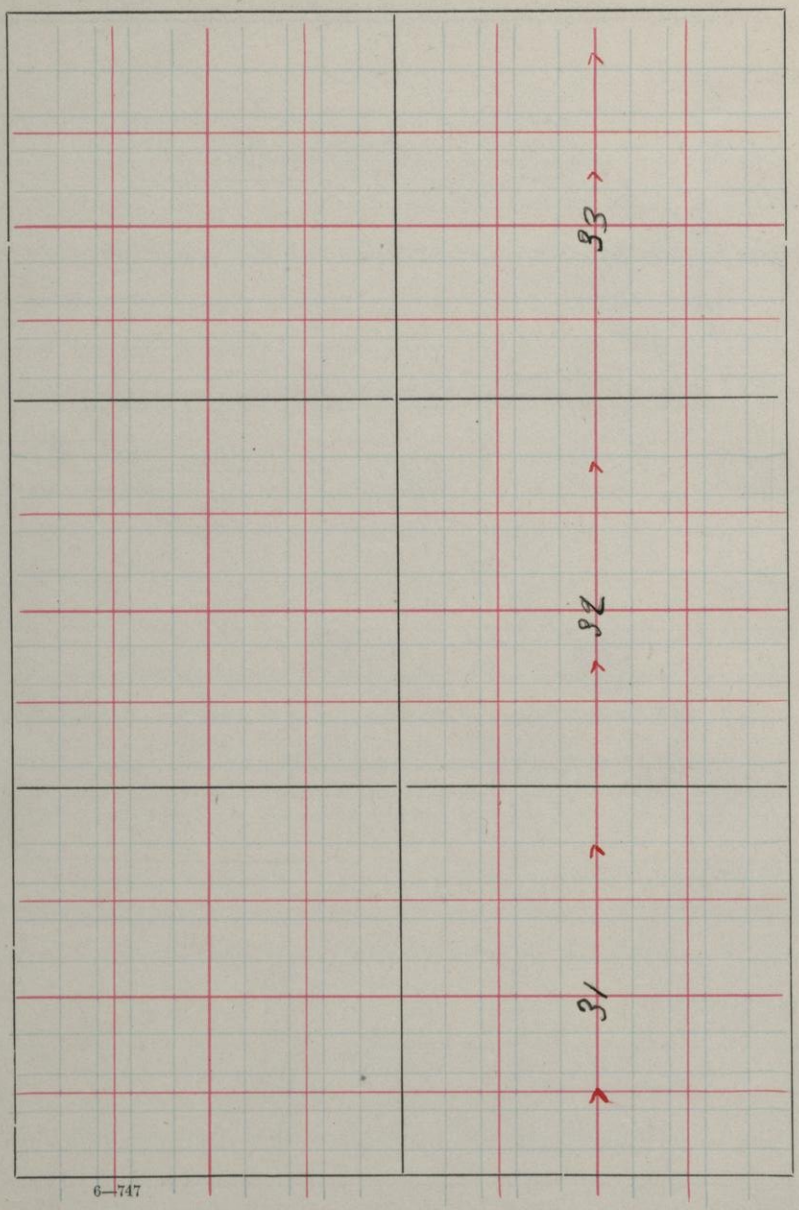
53

28305 900 N 1600 W 28-41-16
Large ledge of pink quartzite, in place conglomerate.

28306 875 N 1550 W 28-41-16
Specimen of dolomite or dolomitic quartzite in same ledge

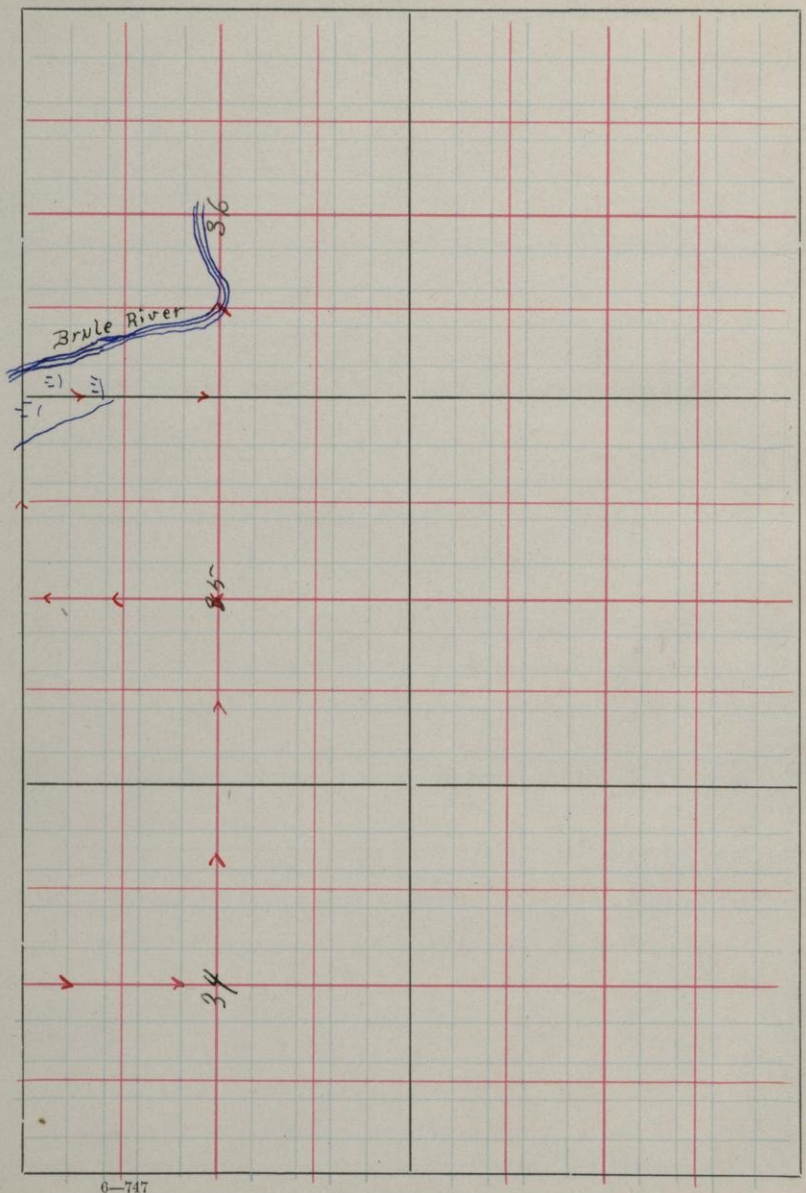
28307 925 N 1620 W 28-41-16
Specimen of quartzite conglomerate.
This quartzite ridge extends in a NW and SE direction with vertical walls on NE side and covered with drift or other material on the SW side. The pink quartzite 28305 and the conglomerate 28307 are very similar to the quartzite near the Brule River, in Range 35 on the Michigan side. But the dolomitic phase is new at this place. The Dolomite forms the South east 1/2 of the ridge and the quartzite and conglomerate is found only on the NW end. No bedding structure could be made out. The rock is much shattered.

S. 31-32-33 T. 41 R. 16



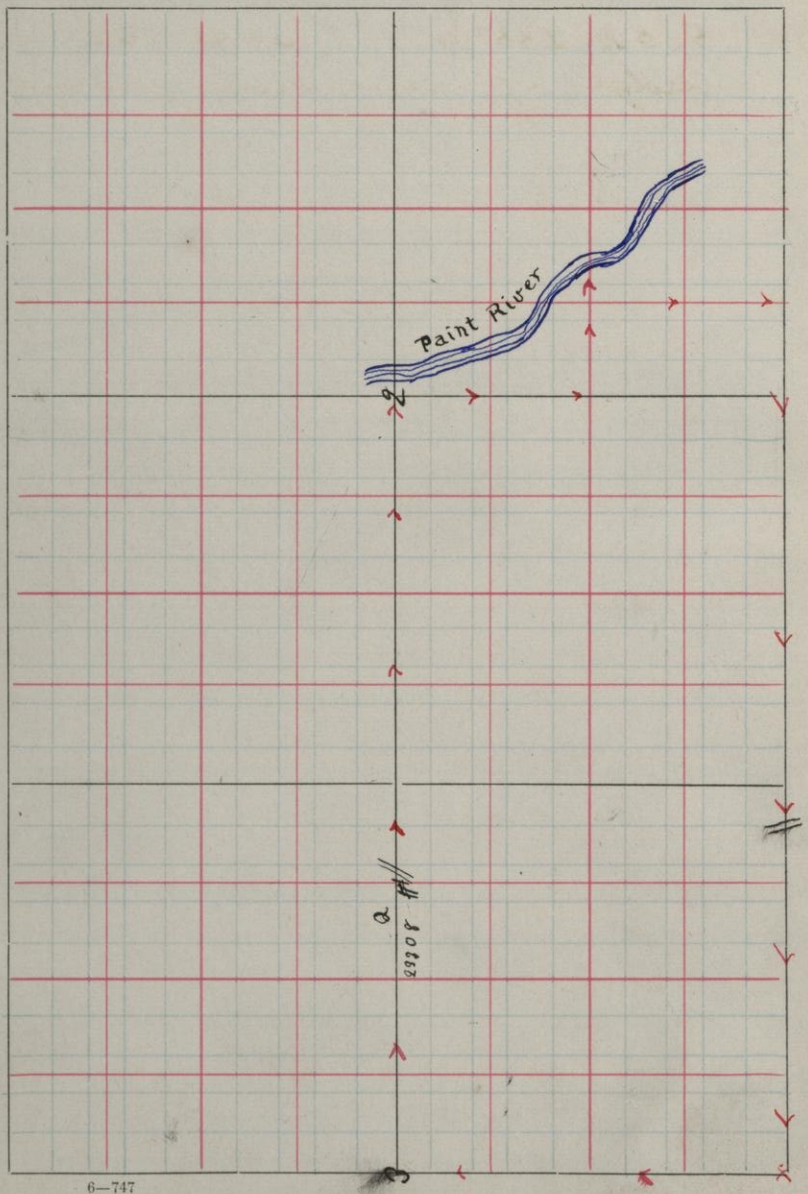
6—747

S. 34, 33, 36 T. 41 R. 16 E. W is



6—747

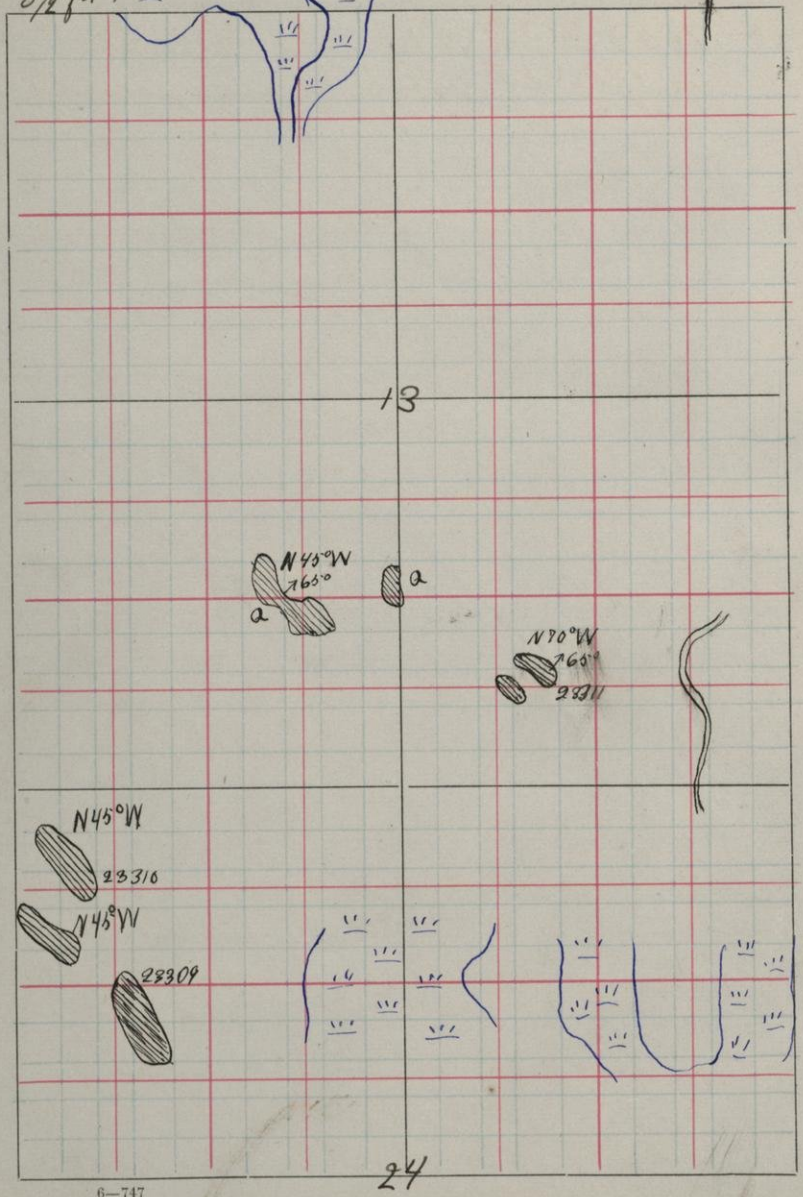
S. 3.72 T. 41 R. 32



6—747

28808 965 N 235 W 3-41-32
Ledge of micaceous quartzite.

S. 13 and S½ of S. 24 T. 42 R. 32 Mich



6—747

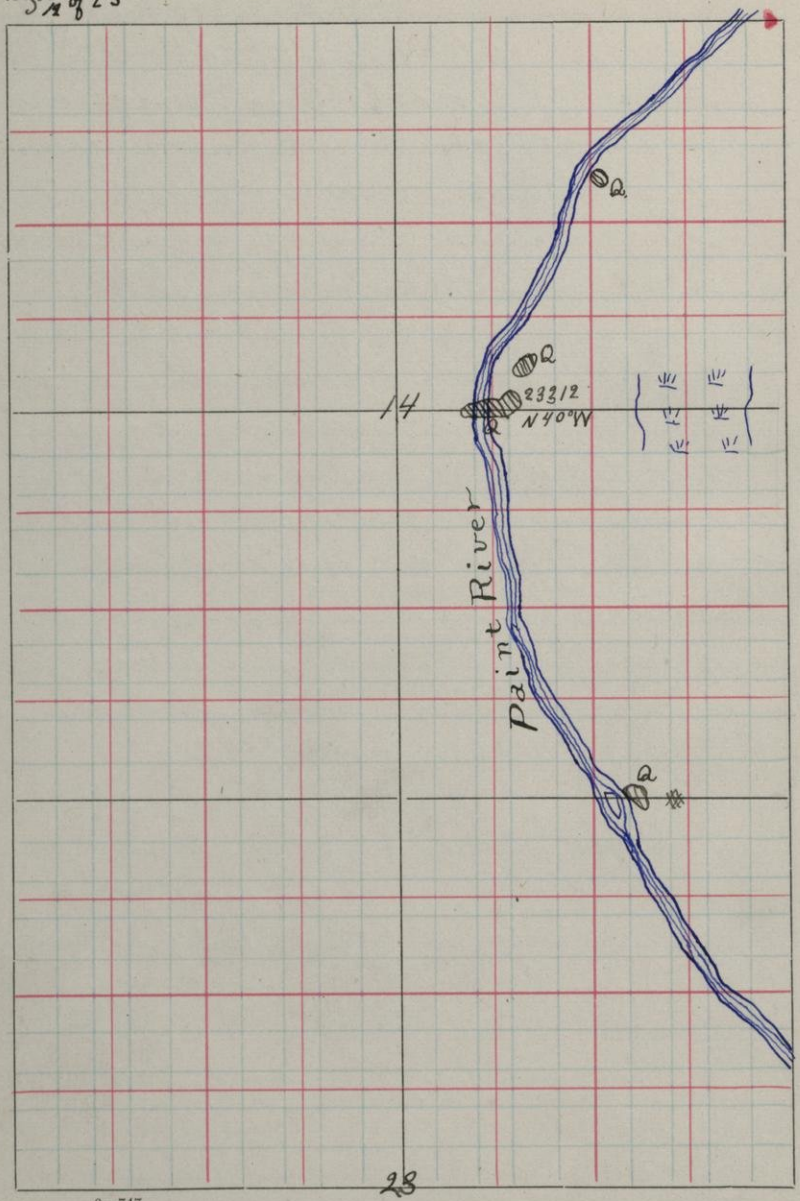
23309 1500 N 680 W 24-42-32
Ledge of dark grey micaceous quartzite. There is a system of fracturing running N 40° E, Dip of fractured planes about vertical and a little to the S.E

23310 1750 N 1720 W 24-42-32
Ledge of quartzite like the above but in this bedding can be made out as shown by banding of 23310. Strike of bedding N 45° W Dip about vertical as near as could be made out. Same fracturing as shown in the other ledge.

23311 230 N 580 W 13-42-32
Ledge of quartzite coarse grained like 23309 and one half of ledge very fine grained and shaly like 23311 which has undergone much crumpling Strike N 70° W Dip 65° NE

Ledges at 1000 and 1200 W on 500 N are like the other quartzite ledges, being coarse and fine grained the latter very much crumpled

S. 14 and S½ of 23 T. 42 R. 82

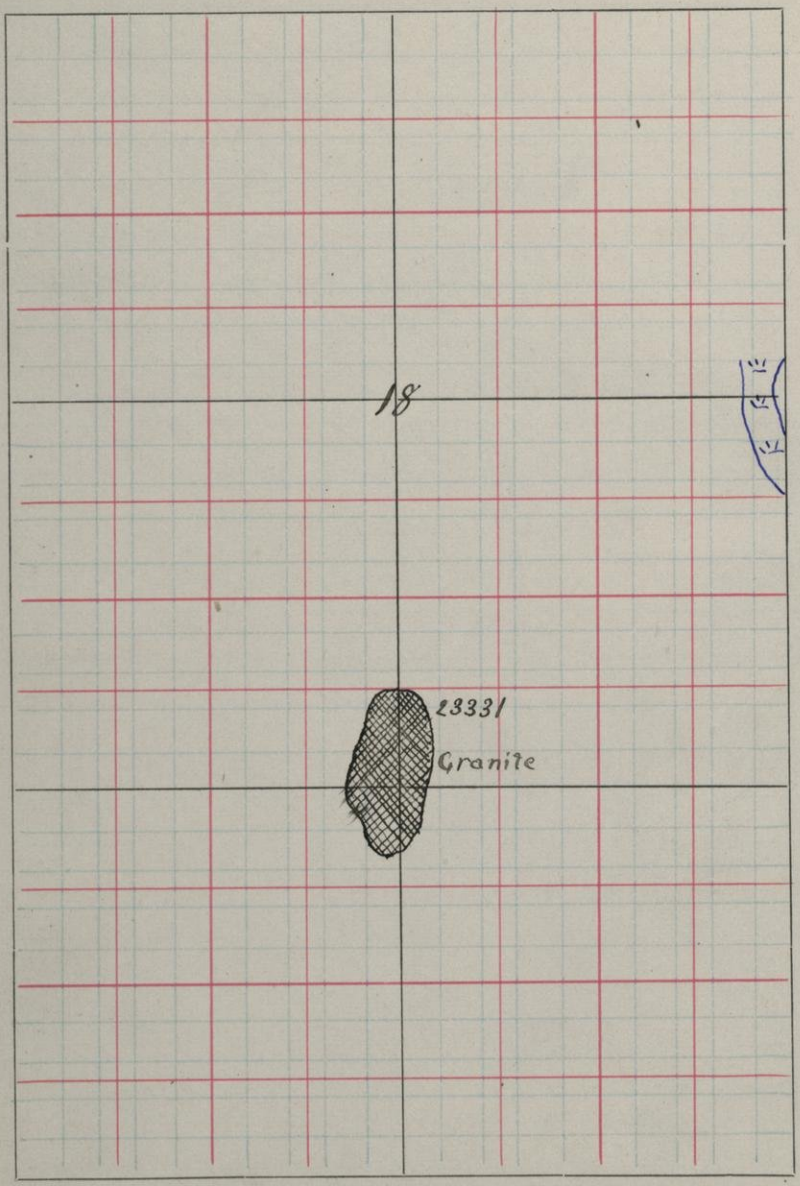


6—747

23312 1000 N 730 W 14-42-32

Ledge of quartzite extending across the Paint River at the dam. This quartzite appears to have a great deal of chlorite and iron oxide in it. Weathers to a bright red. Strike N 40° W
This place was visited by Van Hise and Bayley in July

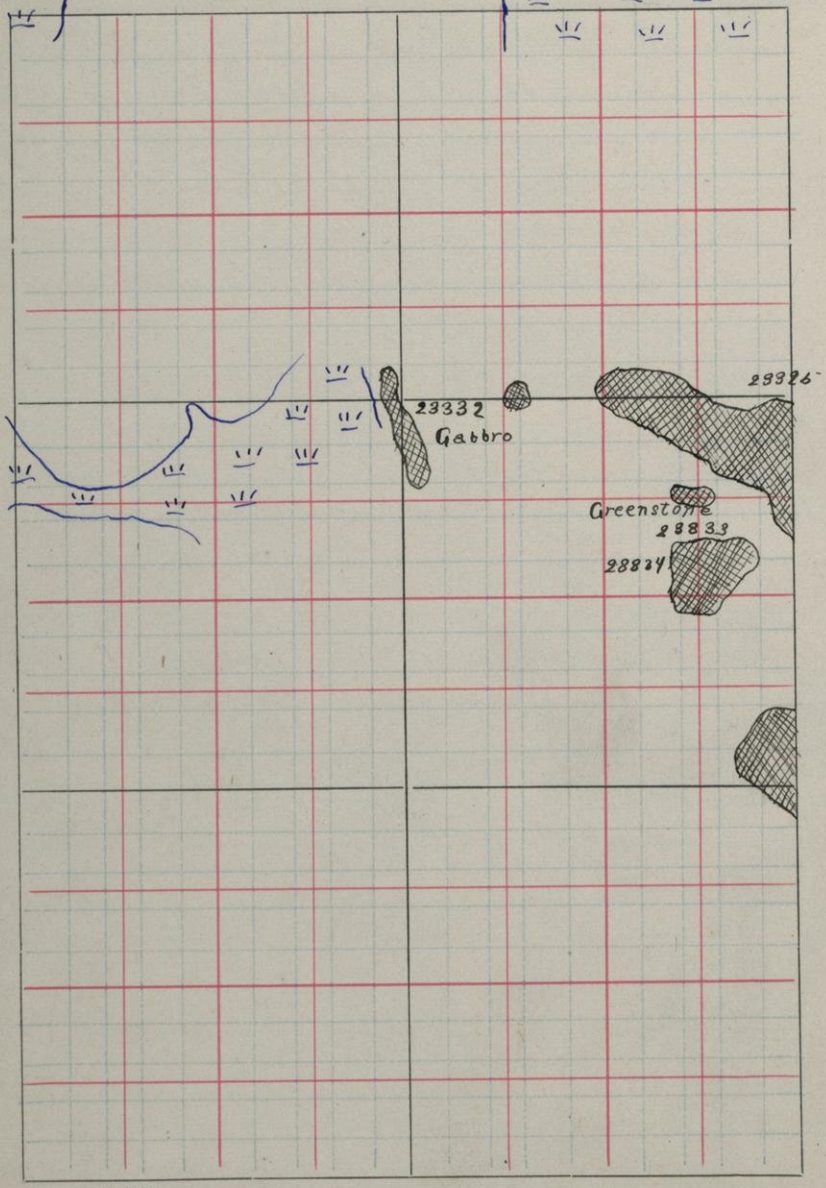
S. 18 T. 42 R. 31



6—747

23331 200 N 1000 W 18-42-31
Large knot of greyish fine grained granite, with small flakes of mica. Ledge essentially like specimen.

S. 17 T. 42 R. 31



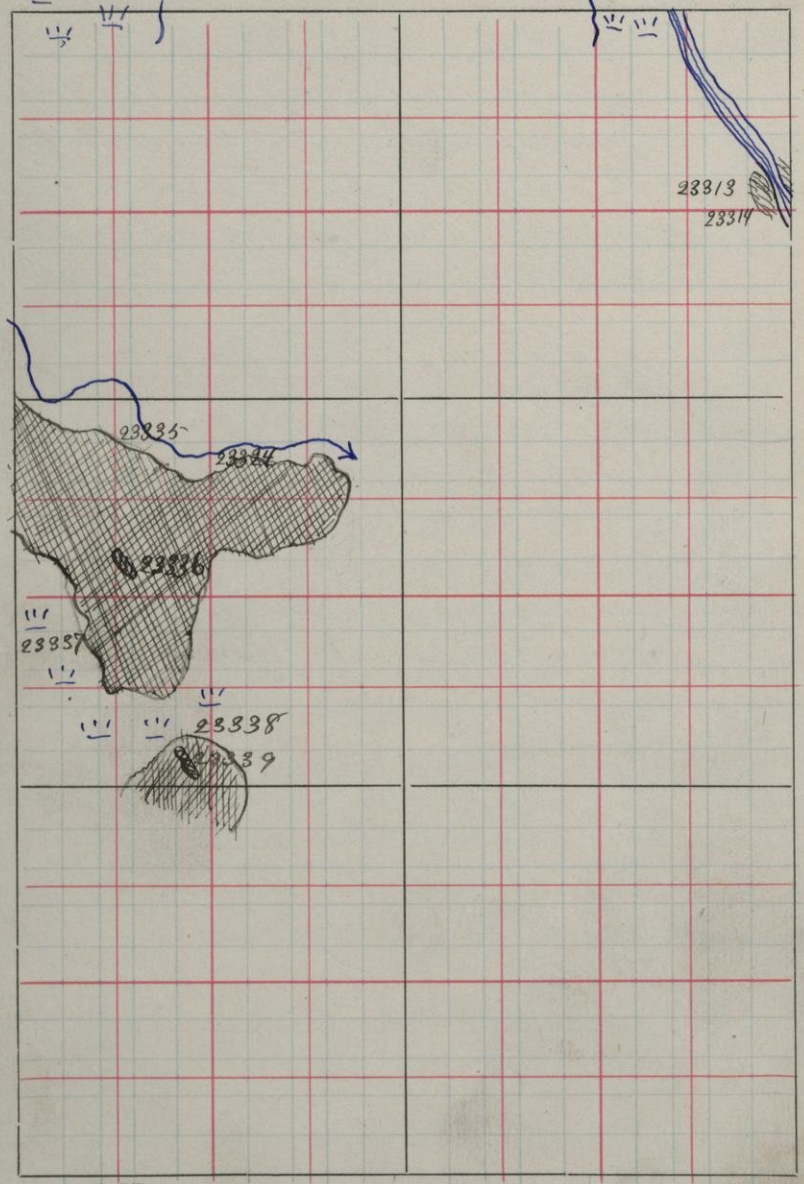
23325 975 N 75 W 17-42-31
The large ledge at this place is principally like specimen which contains a large quantity of hornblende. A gabbro or coarse diabase.

23332 975 N 1030 W 17-42-31
Ledge of gabbro. Its easternmost extension in this area.

23333 650 N 250 W 17-42-31
This large knob is made up of fine grained greenstone (gabbro?) like specimen. Do not think it quartzite, - looks more like an eruptive. Average strike of schistosity N 55° W. Dip about 90°

23334 From same ledge as 23333. The specimen looks like a breccia or conglomerate. In places the rock is crumpled across the strike.

S. 16 T. 42 R. 31



6—747

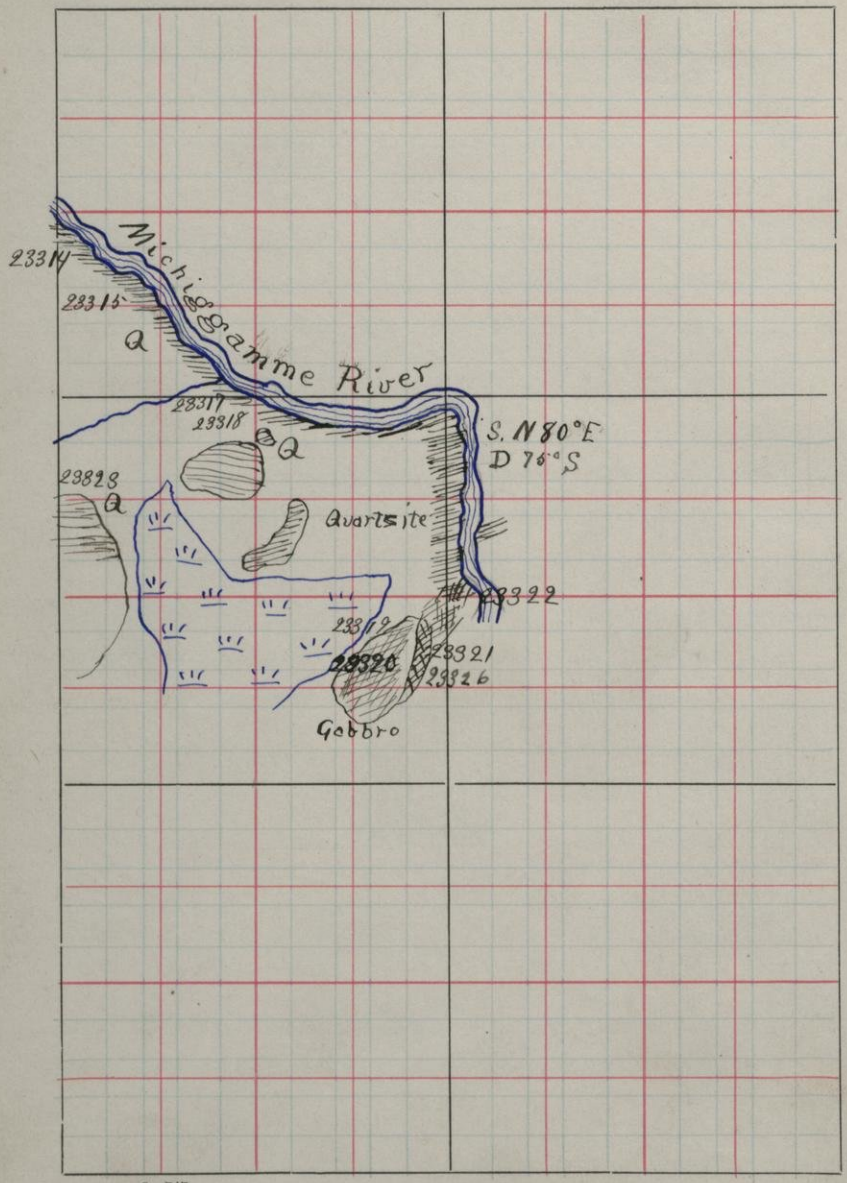
23313 15·00 N 0 W 16-42-31
Ledge of fine grained micaceous quartzite, much squeezed and crumpled. 23313 is fairly coarse

23314 15·00 N 0 W 16-42-31
Schistose variety, very micaceous and chloritic. There are a few squeezed veins of chert-like quartz in the schists. Strike of the schistosity which may be or may not be bedding N80°W Dip about vertical.

23324 770 N 15·00 W 16-42-31
The ledge at this place contains quite a large quantity of hornblende Gabbro? But further south the large outcrop is a finer grained greenstone. Strike of schistosity ~~N~~ slightly N of W with a dip about 90° sometimes to the S but usually to the north.

23335 85·0 N 1800 W 16-42-31
The rock at this place is intermediate in texture between 23332 and 23333. Near this place what was taken to be greenstone bombs were found

S. 15 T. 42 R. 31


Michigamme River
23314
23315
Q
23317
23318
Q
S. N 80° E
D 76° S
23323
Q
Quartzite
23322
23319
23321
23320
23326
Gabbro

23315 1400 N 1980 W 15-42-31
Continuation of the ledge of mica schists on the river. These fine schists alternate with the coarser quartzite schists but there is a predominance of the mica schists

23316 1300 N 175.0 W 15-42-31
Specimen is from a narrow strip of pyriteferous and cherty rock. Opposite 135.0 N 175.0 W there is a working test pit known as Dickie's Exploration. Now down to a depth of 5.5 feet.

23317 1000 N 1500 W 15-42-31
The rock after alternating from that like 23315 and 23313 passes into a more massive variety like 23317. The specimen looks like a gabbro and if it is it must be an intrusion parallel to the schists or bedding. Strike of schistosity here is little South of West.

23318 1000 N 1485 W 15-42-31
This is finer grained than 23317 and contains more quartz.

23319 475 N 1200 W See 15-42-31
Ledge of gabbro. Specimen is fine grained.

23820 450 N 1200 W 15-42-31
The greater part of the ledge is coarse gabbro like specimen

23321 400 N 1025 W 15-42-31
A dyke of granite at the east end of the above ledge. This dyke is three or four feet in thickness and cuts across the gabbro in a slightly E of N direction

23322 500 N 875 W 15-42-31
Ledge of rock much like granite yet much like 28820. This ledge is on the river bank and seems to be connected with the ledge which contains 23319-20-21 but no relations could be made out.

Going north from this place along the river the rock occurs in high and rugged exposures It is wholly the sedimentary formation, alternating quartzite and mica schist. Strike of schistosity or

bedding at 750 N 950 W is
N 80° E Dip 70° S.

28823 1750 N 2000 W 15 - 42 - 31
The northern part of this
large ledge is like specimen
a fine grained micaceous
quartzite.

28326 425 N 1050 W 15 - 42 - 31
From the dyke of granite in
the gabbro showing contact
between the two.

Specimens number 28332 to 28341
were gathered one forenoon with the
idea of working out in a more
satisfactory manner the relations
of the rock in this locality, in
sections 16 and 17 and northern part
of 21 and 20. Nos 28332-35 have
already been described and located.

28336. 600 N 1700 W 16 - 42 - 31
At this place a dyke of coarse gabbro
cuts the finer grained rock like
-35 and -33.

23337 400 N 1700 W 16-42-31
The ledge at this place is like specimen, fine grained and schistose The planes of the schistosity curve about but have a general strike of N 70° W

23338 150 N 1650 W 16-42-31
The large high ledge at this place is much like -37. Strike is N 70° W Dip somewhat to the north.

23339 100 N 1600 W 16-42-31
At this place a dyke cuts the rock, running parallel to the strike of schistosity or bedding This dyke is 5 or 6 feet in thickness in places. In places the dyke shows a zone of alteration minerals with the dyke rock sometimes on both side of zone and sometimes the country rock on one side

About 500 paces west of this dyke of diabase there is another similar dyke also running parallel to

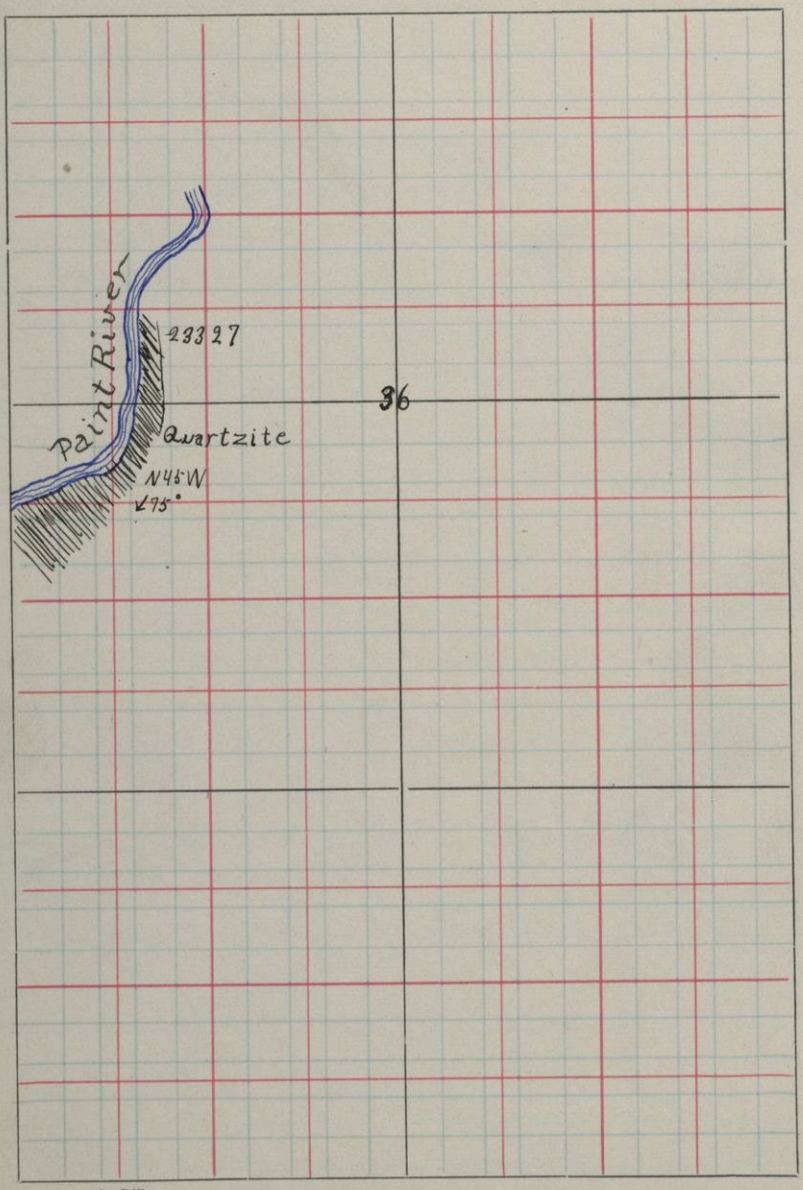
the schistosity. There is also near this a dyke of granite which cuts very close in places to the greenstone dyke. The granite dyke cuts across the schistosity but the greenstone dyke runs parallel to the schistosity

It appears to me that the granite dyke is the youngest rock and that it cuts both the schists and the other dyke

23340 Specimen from the granite dyke. About 200 W of SE cor of 17-42-31

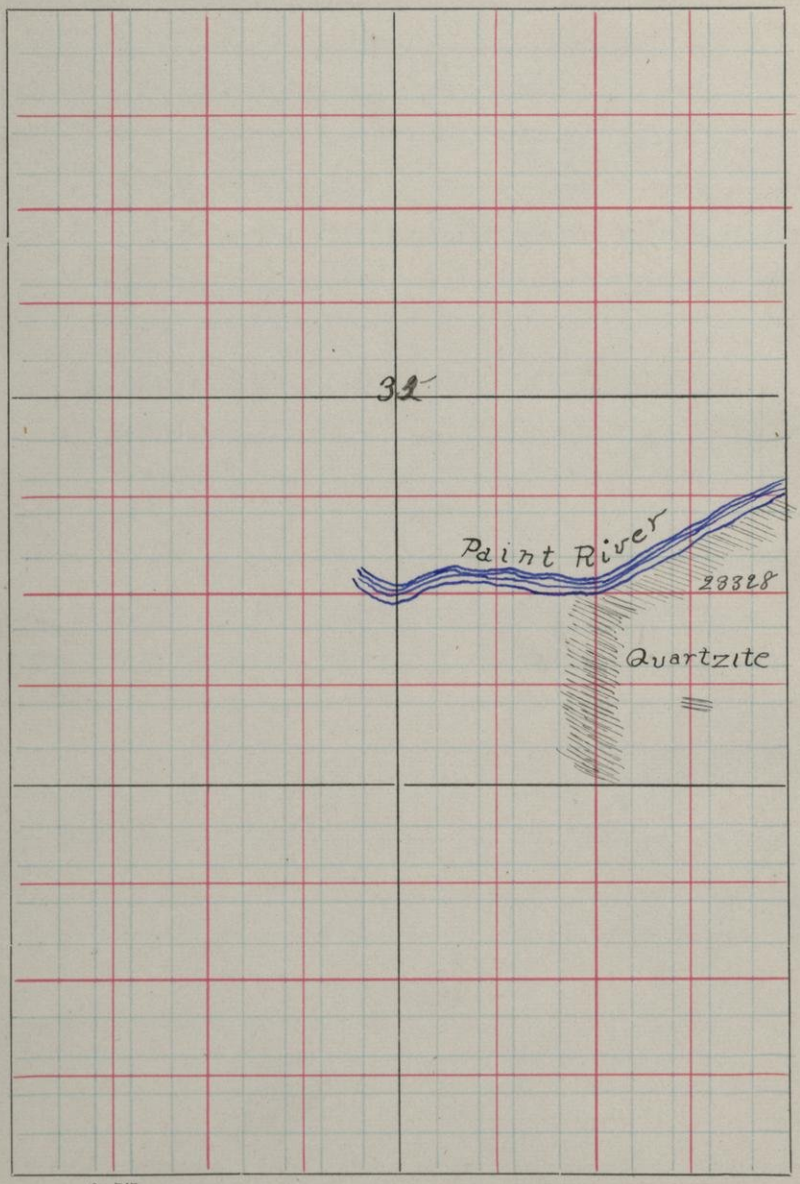
23341 200 W of SE cor of 17-42-31 from near where 23340 was taken. At this place the ledge shows a large quantity of gabbro fragments squeezed into the schistose greenstone or quartzite. Specimen is a gabbro fragment in the schist. (Bayley ran an section line between 17+20 and 16+21.)

S. 36 T. 42 R. 32



23327 1200 N 1670 W 36-42-32
north end of rapids. Quite
fine grained as well as coarse
grained quartzite compose the
ledges at this place.
Strike N 45° W Dip 75° S

S. 35 T. 42 R. 32



6—747

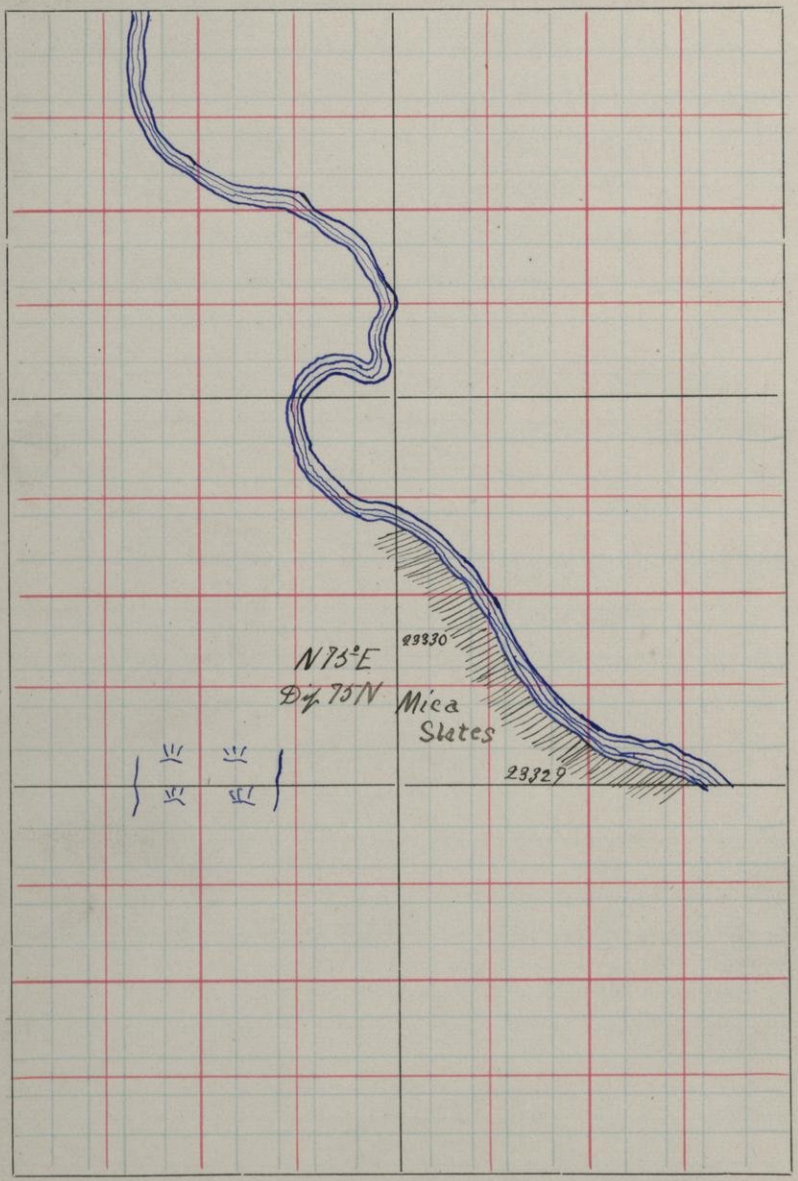
23828 560 N 500 W 36 - 42 - 32
At the south end of rapids
The quartzite is much like that
at the north end. Strike of
bedding N 70° W Dip about
75° S.W. as near as could be
made out. No folding of
the beds back upon each
other was noticed.

S. 31 T. 42 R. 81

31

6—747

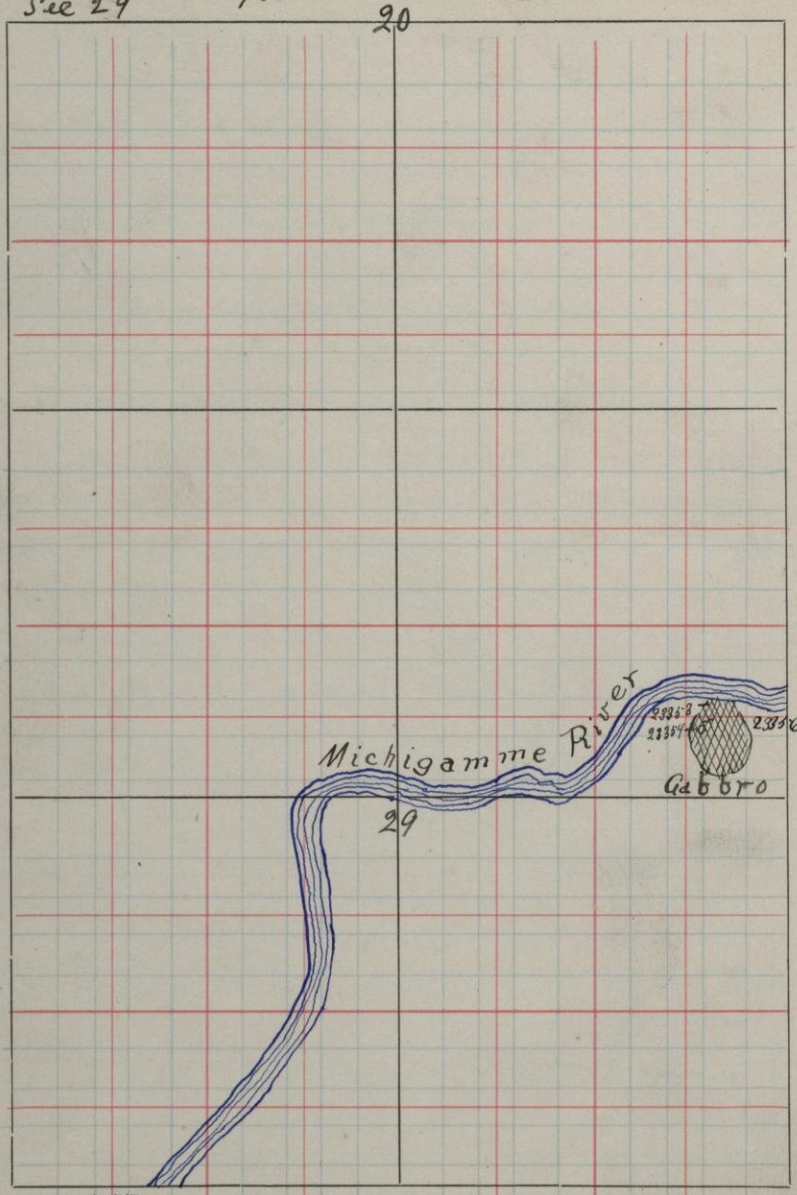
S. 32 T. 42 R. 31



23329 70 N 400 W 32-42-31
Continuous outcrops of mica schists on river bank. Strike is N 75° E Dip 75° N

23330 450 N 800 W 32-48-31
The rock at this place is more quartzose. At this place there is a high precipitious cliff on the river bank. The rapids known as Beaver Falls are at this place and further up the river. The rapids consist of rock alternating between 23329 and 23330

S. S½ of 20 and See 29 T. 42 R. 31



6—747

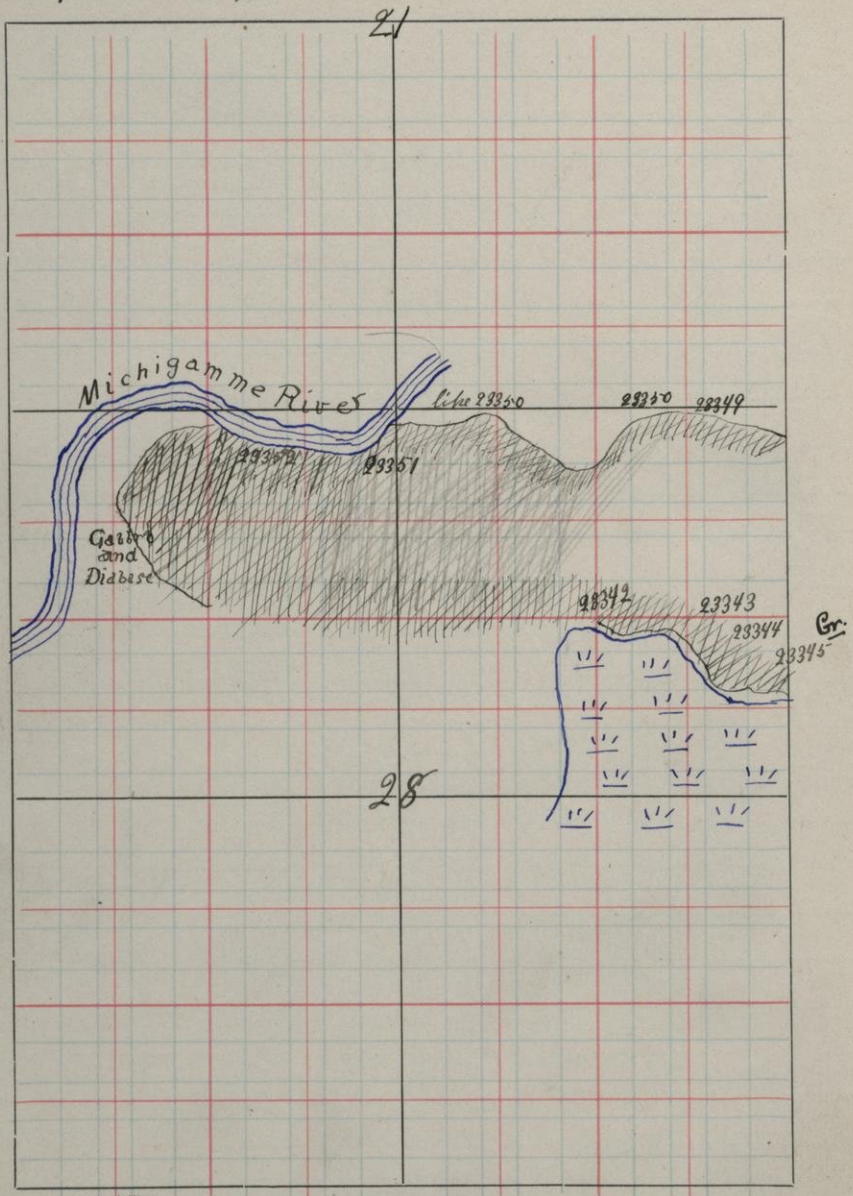
23353 1260 N 200 W 29-42-31
On bank of river is outcrop of weathered pyroxenic gabbro like specimen.

23354 1500 N 200 W 29-42-31
The greater part of the knob is of coarse gabbro like the specimen

23355 Same location. Occurs in narrow veins in the above. It is a coarse gabbro containing much quartz. Shear zone?

23356 Same location. A fragment of quartzite included in the pyroxenic gabbro.

S. 21+28 T. 42 R. 31



23342 1450 N 600 W 28-42-31
Ledge of fine grained greenstone

23343 1460 N 350 W 28-42-31
Passing eastward over same ledge come to a quite coarse mass of gabbro.

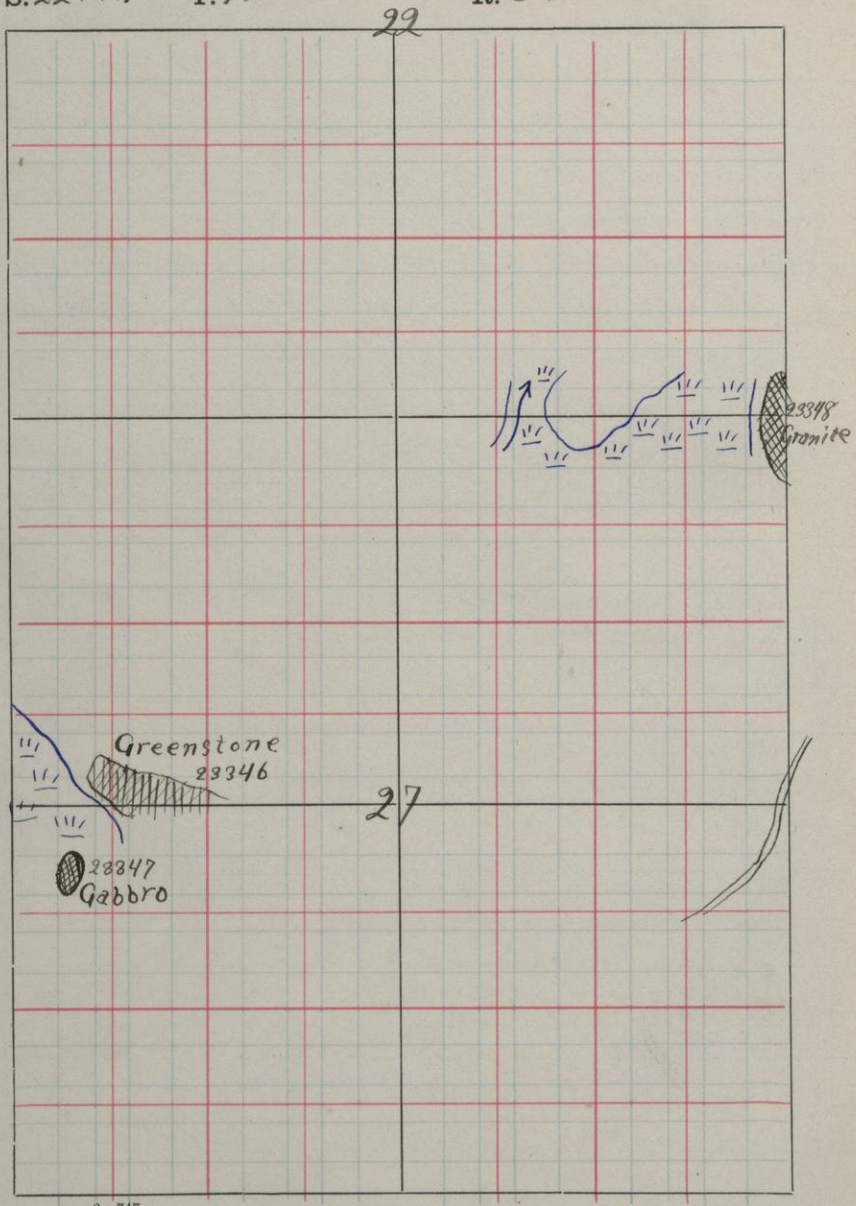
23344 1340 N 200 W 28-42-31
At this place the rock is diabase again like 23342.

23345 1325 N 150 W 28-42-31
At this place is a mass of granite. The relations of the granite, gabbro and fine grained greenstone could not be made out. Much the larger part of ledges is fine grained greenstone like 23342 and -44 The ledge is covered with drift in places.

23349 325 W 1975 N 28-42-31
Ledge of quite coarse gabbro

23350 1475 N 350 W 28-42-31
Further west along same ridge find fine grained greenstone, diabase Relation of the two could not be made out.

S. 22+27 T. 42 R. 31



6—747

23346 1050 N 1640 W 27-42-31
At this place is a large hill of fine grained greenstone somewhat friable and soft. It is schistose with a strike of schistosity N and S.

23347 850 N 1900 W 27-42-31
Ledge of gabbro.

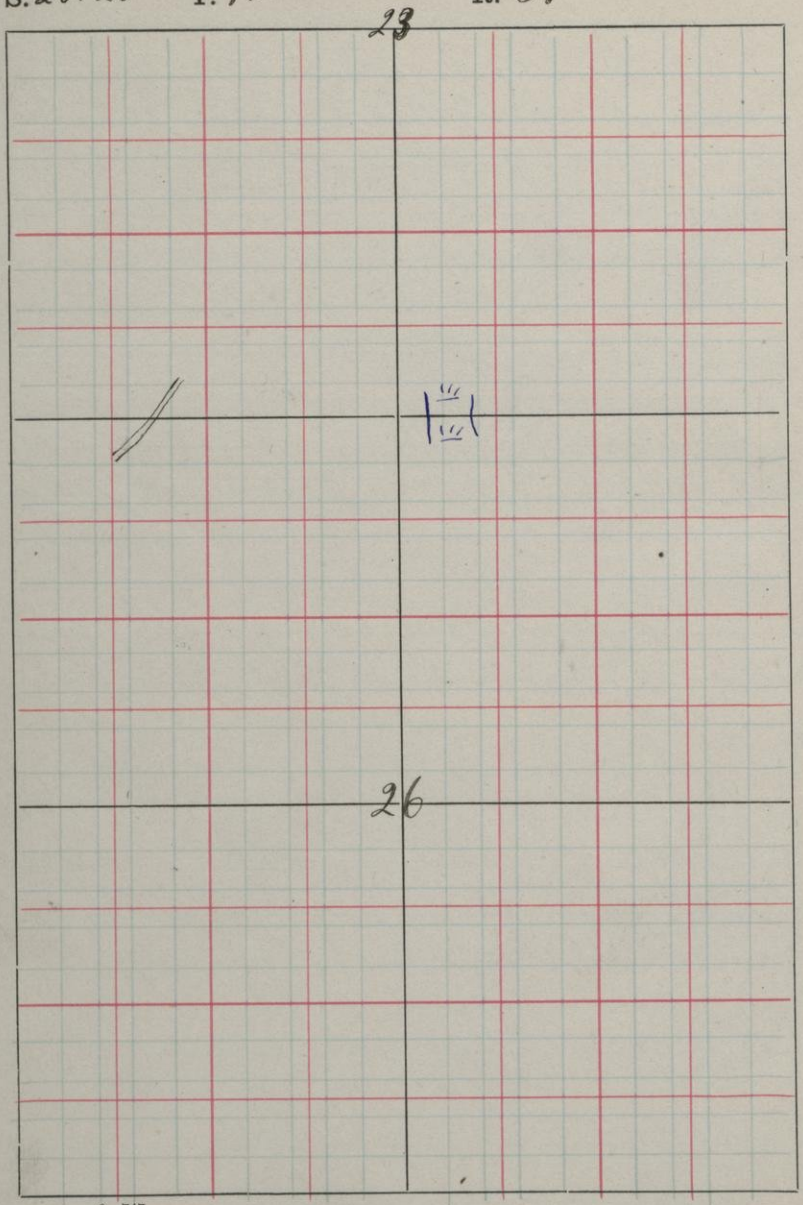
23348 0 N 80 W 22-42-31
Ledge of mica granite or gneiss.

(Platted on preceding page)

23351 925 N 1100 W 28-42-31
Ledge like specimen on river bank.

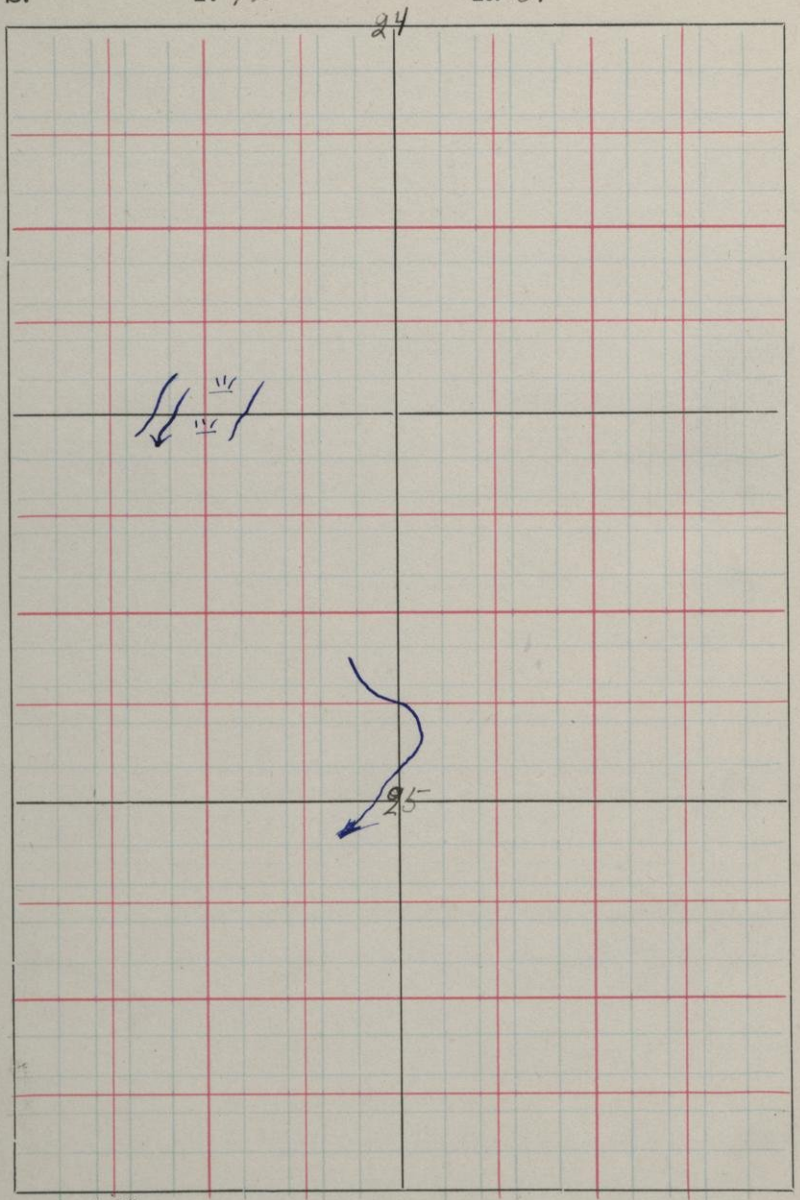
23352 925 N 1450 W 28-42-31
Ledge of coarse gabbro containing veins of fine grained diabase. The relations of the two could not be made out. Sometimes one predominates and sometimes the other.

S. 23+26 T. 42 R. 31



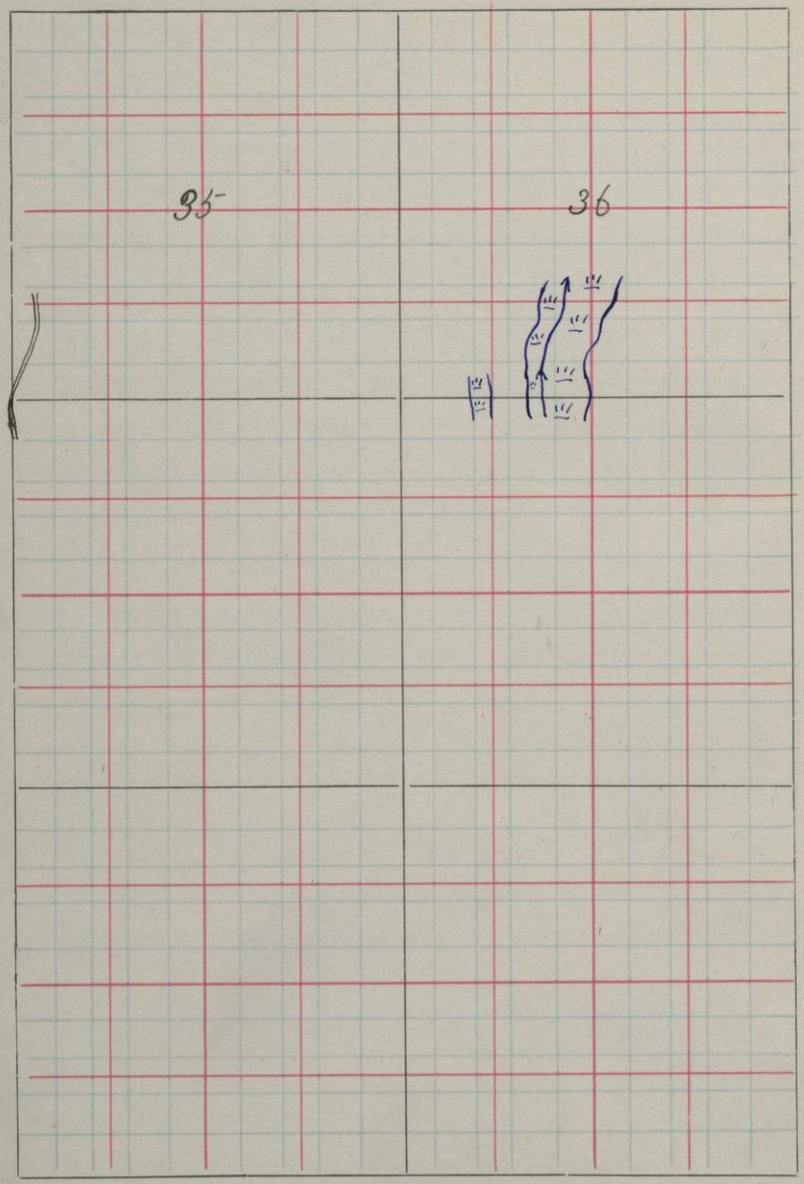
6—747

S. 24+25 T. 42 R. 31



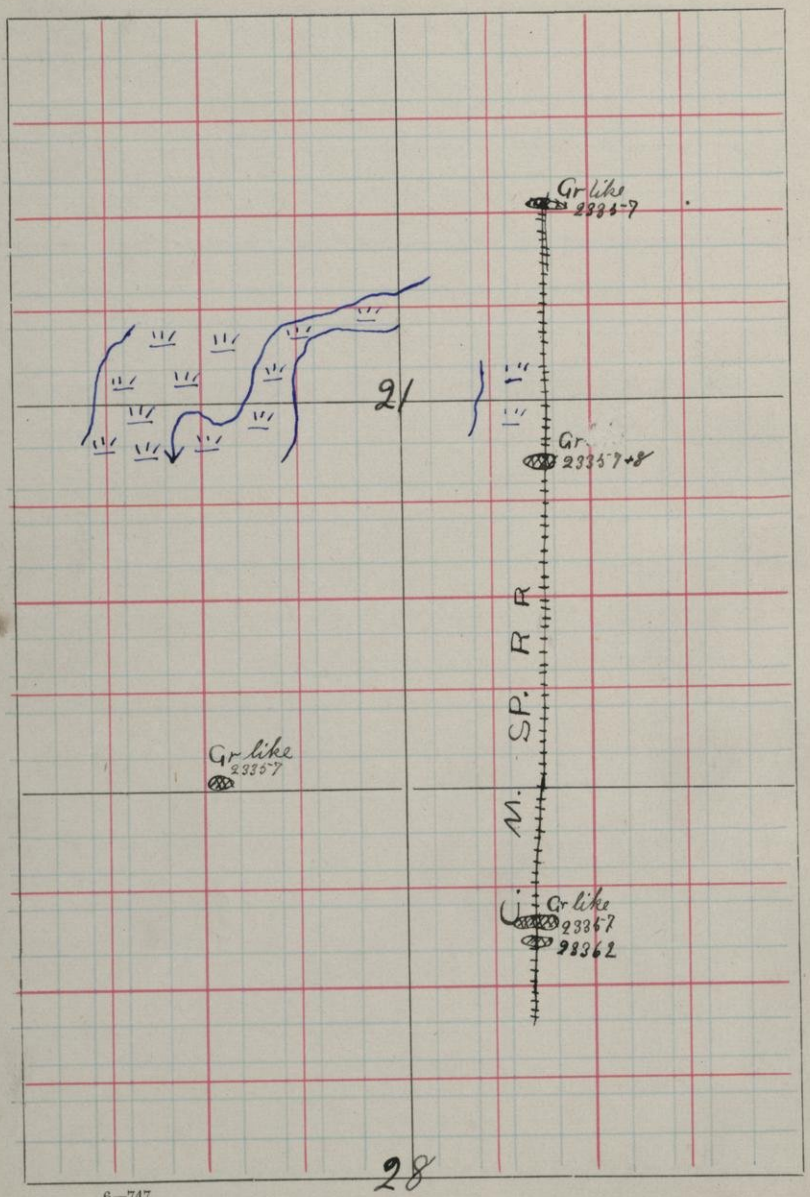
6—747

S. 35-36 T. 42 R. 31



6—747

S. 21+28 T. 42 R. 30



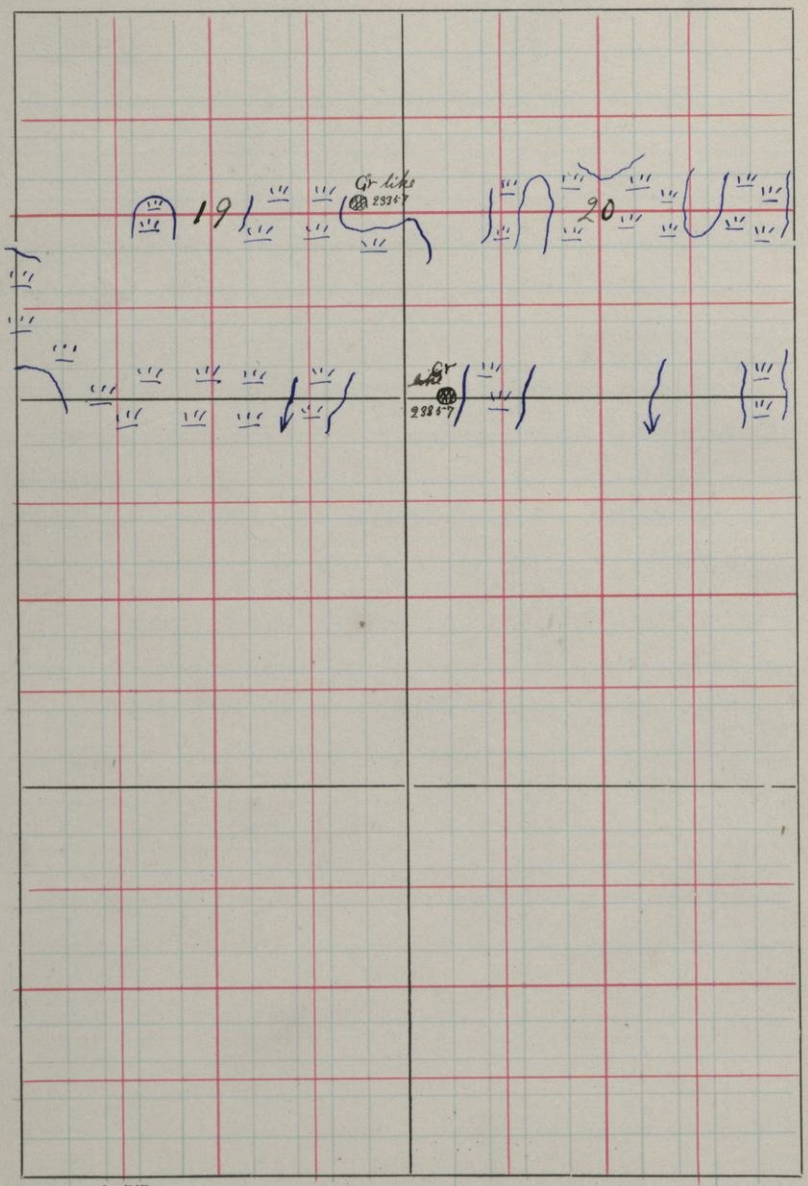
6—747

23357 860 N 630 W 21-42-30
Ledge of granite containing much gro mica, on R.R. It contains patches of dark rock.

23358 Same location. Shows fragments or patches of darker fine grained granite.

23362 1650 N 655 W 28-42-30
Dyke of black hornblende rock which seems to cut the coarse granite like 23357.

S. 19 & 20 T. 42 R. 31



6—747