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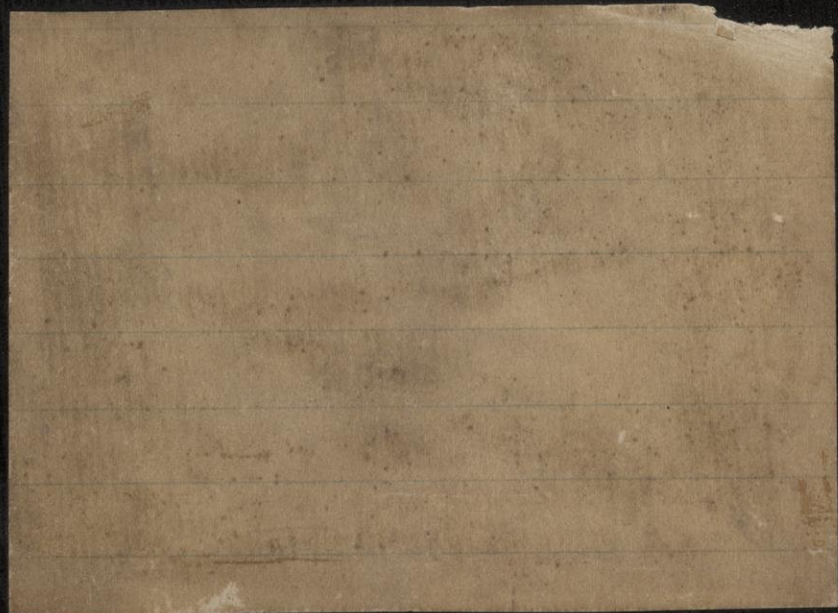
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U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK



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 page is also arranged so that, if desirable, a smaller scale can be used, two inches, one inch, or even 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, for instance 4025, 250 N., 300 W., *Strike, N. 6° E., Dip, 50° E.* Then follow with as full a description of the ledge as possible. 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, but chips of them must be taken. 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 $2 \times 2\frac{1}{2} \times \frac{3}{4}$ inches will be allowed, but in all other cases *large sized specimens*, trimmed to a size of $3 \times 4 \times 1$ inches, must be selected, in accordance with section 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. In all cases collect chips for slicing. 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. It is desirable that specimens 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.

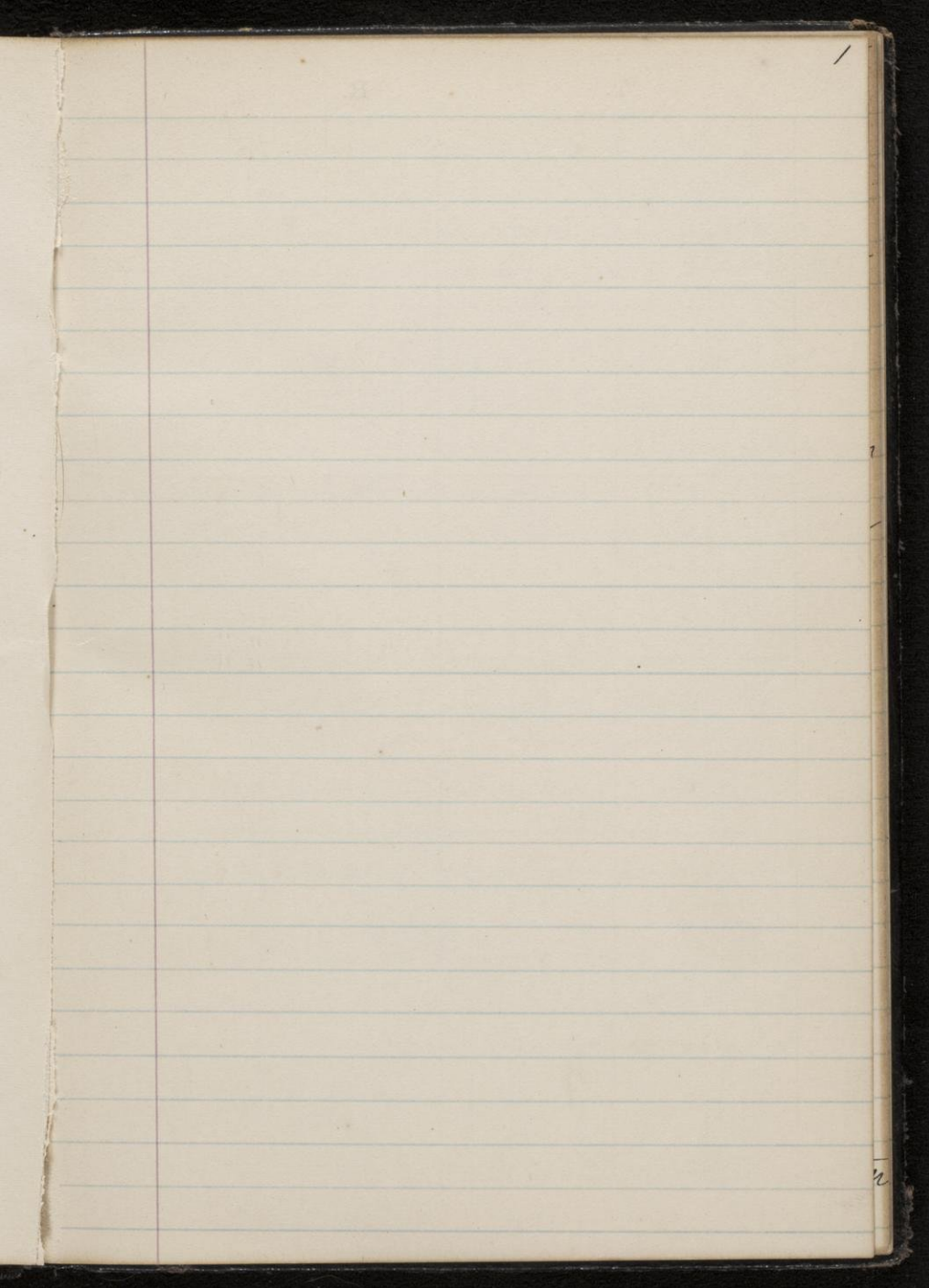
22216

No. II

#129

22 269. Siderite slate. Shows trans-
formation of siderite into kerolite.

22 229 lbs



Monday, September 7, 1891.

Started at 1170 N. 1500 W. Sec. 24-47-27 and ran south to the granite. Working on one side of the line on the other.

22216 G. 880 N. 1520 W. Exposure of greenstone or diorite. Quite a large exposure on north side of Summit Mountain. Specimen was taken about 25 paces west of our line although the exposure also crosses the line.

22217 G. 500 N. 1600 W. Greenstone. Farther up north side of Summit Mountain

G. 420 N. 1640 W. Greenstone

G. 380 N. 1650 W. Greenstone. (Mr King took spec.)

22218 S.C. ^{Sec 25-47-27} 1100 N_n and a little west of 1500 W. Schistose greenstone. This is a rounded knob about 100 paces E W and is cut by granite veins.

22219 S.C. ^{Sec 25} 1100 N. Between 22218 and 1500 W is another isolated knob of greenstone. The

granite dike is very plainly seen on this knob, and is very much contorted, and about 10 feet wide. The specimen is taken near the dyke.

^{sec 25}
22220 400 N. 1450 W. Exposure of greenstone.

^{S.C.}
22221 Granite vein in above.

Gr

This is a small knob.

22222 Granite in small exposure 1875 W.

Gr

1000 N. ^{sec 25}

^{sec 25}
22223 1150 N. 2000 W. Greenstone schist.

S.C.

22224 125 N. 2000 W. ²⁴ ~~sec 24~~ 47-27-exposure of coarse greenstone.

Gr

Gr 210 N. is small isolated knob of greenstone

Gr. 340 N. Large exposure of greenstone.

Mr King took specimen.

22225 500 N. 2000 W. Exposure of coarse greenstone.

Gr

875 N. Iron Cliffs Branch C & NW Ry.

Specimens collected and notes made
by J.P. King on trip Monday.

- 22248 _{G.} 525 N. 1300 W. Greenstone
- 22249 _{G.} 370 N. 1480 W. Seems to be the eastern limb of a high ledge. Exposure covered considerably at this point.
- 22250 I. C.
22251 J. Actinolite schist. Poor chance for dip and strike. Roughly however, strike 25° N of E; dip 37° N. 50 N. 1700 W. Ledge 25 paces long, varying from 3 to 10 in width.
- 22252 _{G.S.} ^{Sec 25-} 1150 N. 1470 W. Schistose greenstone, western end of hill. Strike 20° S of E; dip 46° N.
- 22253 _S 850 N. 1475 W. Hornblende-gneiss. Small lenticular dike of granite running through it.
- 22254 _{S.C.} 500 N. 1400 W. western end of hill, Hornblende-gneiss.
- 22255 _{G.} Greenstone 175 N. 1925 W. Sec 24.
- 22256 _{G.G.} Greenstone ledge 1660 N. 1900 W.
1660 N. 1960 W. Greenstone ledge.
- 22257 _{G.} 1150 N 1775 W. Big greenstone exposure.

Tuesday, September 8, 1891.

Started at railroad near the NW corner Sec 19-47-26. and ran south to the south line of the section. The exact location is 1925 N. 1500 W.

1910 N is stream.

22226 1790 N. 1500. Small exposure of ferruginous ~~S. N. I~~ chert or quartzite. The rock is deeply weathered. The exposure is nearly covered by drift and I am not certain is in place.

22227 970 N. 1500 W. Small exposure of ^{banded} ferruginous chert and jasper. Strike dip could not be gotten.

22228 600 N. 1500 W. Small exposure of slate, about 15 or 20 paces long. Strike NE-SW.; dip 35° NW.

22229 340 N. 1500 W. Exposure of chert. Strike ^{40°} E ~~40°~~ N; dip ^{30°} ~~30°~~ N.
I.A.
S. N.?
S. S. 300 N is a small exposure.
(~~Shale, limestone, quartzite, sandstone~~)

22230 I.A. 200 N. 1500 W. is a long ridge of ferruginous chert, striking E 15° N; dip 25° N.

At south line went west 250 paces and then north to ~~north~~^{railroad} line of section.

G. 22231 }
 22232 }
 G.W. ? }
 20 N. 1750 W. Taken from dump pile of test pit. The top part of the pit is drift, but below rock can be seen in place.
 22232 Quartz-diorite; 22231, Same, iron stained

IA 22233 }
 22234 }
 I.S. }
 100 N 1750 W. Banded chert. 22234 has coarser layer. Strike 35° N of E; dip 40° N.

1880 W. 20 N. is a continuation of this exposure Oley says.

22235 I.S. North of 22233-34 is a swamp for a short distance, and beyond the swamp the country is unexposed until 1570 N. chert is reached. This exposure is small.

Reached Railroad at 1900 N.

At railroad turned west 250 paces
and then ran north to W $\frac{1}{4}$ post Sec
7-47-26.

22236
G. 170 N. 2000 W. Sec 18-47-26. is a large
exposure of coarse greenstone

IA 22227 }
IA 22238 } 420 N. 2000 W. Actinolite-schists. Strike
15° S of E; dip 30° N.

G 22239 600 N. 2000 W. Large exposure of greenstone
South and east sides of exposure about
40 feet & nearly perpendicular.

G Greenstone is also found at 840 N.

22240
G. 1600 N. Coarse greenstone.

22241
I A. 1780 N. Narrow exposure of slate, about 150
feet long (E-W)

IA 22242 }
G 22243 } 1850 N. is a slaty or laminated rock and
about 30 paces east of this is a fine-
grained greenstone.

G A couple of small exposures of greenstone.

were found between here and 2000 N.

22244
G. 300 N. 1925 W. Sec 7-47-26. is an exposure of coarse-grained greenstone. This rock is also found west of the line.

22245
F. A. 340 N 1925 W. is a large exposure of slate. Strike 20 S of E. dip 30 S. The north side of this hill (i.e., about ~~1925~~⁴⁵⁰ N) is coarse greenstone.

22246
G

G. Small exposures of greenstone were also found at 650 N. 1925 W and 700 N 1925 W.

22247
S. F. 1000 N. 1985 W. Small exposure of slate. Strike 15° N of W; dip 45 S.

Wednesday, September 9, 1891.

Began at 1000 N. 1750 W. Sec. 7-47-26 and ran south to railroad.

900 N to 700 N is tamarack swamp.

22258 600 N. and a little west of our line is a small exposure of coarse greenstone, about 30 feet long and 15 wide

22259 460 N. After crossing another swamp an exposure of finer grained greenstone is met with.

22260 300 N another exposure of greenstone begins, and continues to 260 N.

22261 1900 N. 1750 W Sec 18-47-26 is a large greenstone ridge of the medium grained variety. The north side of this bluff is about 30 feet perpendicular.

1720 N Greenstone.

22262 850 N. Very small exposure of slate.

strike and dip could not be gotten.

22263
I. A. 550 N. is a small exposure of slate. Strike
W 20° S; dip 35° N

22264
G 350 N. is a large greenstone ledge.

22265
G 1960 N-1750 W. Sec 19-47-26 is a large
exposure of greenstone. The south side is
about 15 or 20 feet straight. At the bottom
of the hill is swamp bordering the railroad.

1900 N. is railroad (Iron Cliffs Branch C & M W)

At this point went down the railroad to a
point 2000 N. 1250 W. Sec 19-47-26, and ran
south one mile. The country south is
swampy, low, or dirt covered and no
exposures were seen for some time

22266
I. S. 300 N. 1250 W. First exposure seen on run
south from railroad. Ferruginous chert
It seems to be the eastward continuation
of the ridge from which 22230 & 22234
were taken. Strike W. 20° S; dip 30 N.

at south line of section went east 250 paces and then north to railroad

22267 G.W. 110 N. 1000 W. small exposure of quartzite. Am in doubt as to whether in place; exposure is small, and boulders of the same material are seen hereabouts.

22268 G.W.F. 200 N. 980 W. Large exposure of diorite containing quartz?

22269 S.N. G.S. 1690 N 1000 W. Small exposure of chert rock. (Shows some bands ferruginous hematite)

at north line of Sec 19-47-26 went west 250 paces, then north 1 1/2 miles.

22270 G. 1840 N. 1000 W. ^{Sec 19-47-26} Large exposure of greenstone

22271 I.A. 750 N. 1250 W. Sec 18-47-26 Small exposure of slate about 20 paces long and 5 or 10 wide. Strike E 15° S. dip 60° to 65° N.

22272 I.A. 1575 N. 1125 W. Slate in long exposure. Strike SE-NW; dip 45° S. This ledge crosses our line at 1900 N.

- 22273 G. 1975 N. Large exposure of medium-grained greenstone. This extends to the section line.
- G. 75 N. 1250 W. Sec 7-47-26 Small greenstone exposure.
- 22274 G. 350 N. Greenstone. Greenstone in small exposures is also found at 400 N, 440 N & 500 N.
- 22275 G. 925 N. Come to a hill on the north side of which is a greenstone exposure. The south side is covered with drift.

Thursday, September 10, 1891.

Began at S.N. 1750W. Sec 1-47-27 and ran north to the railroad.

22276 α 250 N. is a long high ridge of greenstone
The hill extends about 10° S. of W.

α 310 N. is a smaller hill of greenstone.

22277 α 500 N. Another ridge of greenstone. Eastern end of this hill is at 1650W.

22276-77 extend for a hundred paces ~~either~~ side of our line, while the 310 N exposure was crossed near its west end. It extends about 100 paces east.

$\left. \begin{array}{l} 22278 \\ 22279 \end{array} \right\}$ not plat. 1620W. 650N is found a pit of the Jackson mine. 22278 chert and ore from this place. 22279 ore conglomerate.

$\left. \begin{array}{l} 22280 \\ \text{not plat} \end{array} \right\}$ The conglomerate extends west of the pit. In this (to the west) is a narrow layer of 22280 of soap rock or paint rock. On the north side of the pit is found

22281 soapstone.
sub plat

710 N. is southern edge of eastern pit south of railroad. Railroad was reached at 775 N.

Here turned east 250 paces, then ran south to south line of the section.

800 N. 1500 W. is shaft house of Jackson mine. The railroad is about 25 paces north of this.

At 1400 W. the railroad is 850 N.

22282 660 N. 1450 W. Exposure of greenstone.
G.S.

G 530 N. 1500 W. Another exposure of greenstone.

175 N. is the Ishpenning-Regauna wagon road.

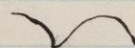
At south line of section went east 500 paces and then north to railroad.

22283 75 N. 1410 W. Small exposure of chert. On south side is small strip of greenstone.
J.C.
22284
Sp.

22285 0 N. 1350 W. Large exposure of greenstone.
G.

22286 135 N. 1050 W. Small exposure of chert and orv.
I.C.

22287 155 N. 1050. is a test pit about 35 feet long (E-W)
22288 and 10 feet across. 22287 soapstone from
I.C. pit, 22288 contorted chert rock from
western end of pit.

22289 1100 W. 155 N. Chert from pit test pit.
I.C. At the west end of this pit is an anticline;
like this 

190 N. 1000 W. is another pit

22290 220 N. 1075 W. is a small low exposure
I.C. of chert and orv. About 25 feet E-W.

325 N ^{1000 W} is the Regaunee-Iskperning wagon road.

22291 520 N. 1000 W. is a large exposure of banded
I.J. jasper and orv. The banding is very
much contorted in places, especially on the
north side of the hill.

22292 On the summit of the hill at 500 N 1000 W.
S.F.

is found, in 22291, a patch of 22292 paint rock.

The railroad is about 850 N (estimated) we could not go to it because large open pit of Jackson Mine

at 550 N. went west 250 paces and then south to the south line of the section.

22293
Sp. F.

200 N. 1275 W. is a small exposure of chert. Strike & dip not made out. This is by the ^(south) side of the wagon-road

22294
I.O.

125 N. 1275 W. Small exposure of chert ferruginous chert. This exposure is somewhat drift covered.

Camp on Cascade road near Halfway House
 Saturday, September 12, 1890.

Started at SE corner Sec 18-47-26
 and ran north $1\frac{1}{2}$ miles.

140 N is stream by camp. at 250 N the
 Regannel-Cascade road swings to the west
 Road was crossed at 400 N, 550 N. Crossed
 railroad at 700 N.

22295
 I.A. ? 950 N. and just east of the line is a large
 exposure of ferruginous slate. This exposure
 is between the wagon and rail roads. The
 rock is very much crumpled and strike
 and dip were hard to get. As near as it
 could be made out it is strike W50 N; dip
 about 25° SW. The rock of this pit has
 been carried some distance and piled
 by the side of the railroad.

22296
 I.A. 1410 N. 230 W. Ferruginous schist
 in railway cut on Duluth South Shore
 & Atlantic.

1710 N wagon road again.
 1980 N wagon road crosses both D.S.S. & A. &

C & NW Rip.

22297 I.C.
22298 sp. 260 N. 80 W. Sec 7 47-26. Large open pit where mining operations have been extensively carried on. I believe this is known as the old Chicago Mine. The pit is about 50 feet N & S and 30 E & W. 22297 banded chert and ore, striking E 10° N. dip 45° S. 22298 Soaprock from same pit.

22299 I.C. Lean ore and chert from above pit.

22300 I.C. 975 N 50 W Sec. 8 47-26. is a large test pit. The cherty rock was taken from the dump heap. Pit is filled with water.

22301 I.A. 1225 N. 50 W. is another test pit, the sides of which are boarded up. Specimen was taken from dump heap.

1250 N. is wagon road to Goose Lake.

Specimens collected by Mr. VauKorn, he
going to the west of Oley.

- 22302 I.A. 1080 N. 200 W. Sec 18-47-26. Small exposure
of slate. Strike N 15° W. dip S. 75° W.
- 22303 I.A. 1780 N. 225 W. Sec 18. Exposure of slate. Strike
N. dip 20° W.
- 22304 G. 1640 N. 225 W. Sec 18. Greenstone.
- 22305 I.A. 1680 N. 165 W. Sec 18. Ferruginous schist
or slate.

Thursday, September 17, 1891.

Began at N 1/4 post Sec 19-47-26 and
ran east 250 paces, then south one
mile.

- 22306 I.A. 1520 N. 780 W. is a small exposure of
ferruginous slate. Strike and dip could
not be taken.

22307 1380 N. 750 W. is another small exposure
I.A. of slate.

I.A. 1350 N. 750. Another small exposure.

D. S.S. & A. Ry. is 710 W. 1000 N.

22308 350 N. 680 W. small exposure of quartzite.
G.W.?

22309 I.A. 300 N. 600 W. in a railway cut on D., S. & A.
22310 G.W.F. Ry. is a large exposure of these rocks.
22309^{actual} is at the north end of the exposure,
while to south and higher up is found
22310, quartzite. The strike of 22309 is N 18;
dip 35° west. This place was again
visited September 27th.

22311 S.M. 250 N. 750 W. is an exposure of greenstone
22312 G.W. or quartz-diorite? This exposure is about
15 feet high just east of our line. 22311 is
the main rock of the exposure, but towards
the south the quartz seems to be collected
in veins 22312.

G.W. A small hill east of the line & the next
hill south is of this same rock.

at south line of section went east 250
paces and then north one mile.

560W. 0N. is the SSS & A Ry.

22313 250 N. 460 W. is an exposure of ferruginous
I.A. slate. Strike and dip could not be gotten.

22314 725 N. 550 W. Ferruginous chert taken
I.A. from dump pile by a shaft where con-
siderable mining has been done.

I.A. Slate also at 1225 N 400 W.

22315 1310 N. 425 W. A very large exposure of
I.A. ferruginous slate. Strike N 15 W. dip 25 W.
The rock can be seen to the east for 75 or 100
paces. A little stream falls over this rock
a little east of where specimen was taken,
the falls being about 10 feet high.

22316 1490 N. 550 W. Ferruginous chert. This is
I.S. in a cut on the SSS & A Ry and can be seen
for 150 paces on both sides of the track

1570 N 500 W. is stream 1590 N. is railroad

The rock cherty rock is here exposed.

No other exposure was seen on the run north.

After dinner started at SE corner Sects-47-26 and ran west 400 paces, then north 1 1/2 miles.

DSS & A Ry 0 N. 145 W. CYNW Ry 375 N 400 W (2nd Cliff branch)

22317 G. 500 N 400 W. is a large exposure of greenstone.

G 750 N. another greenstone

22318 S.F. 800 N. 400 W. Small exposure of ferruginous slate. Strike & dip could not be taken.

22319 G. 820 N. 400 W Large exposure of greenstone

22320 G. 1040 N. 400 W. on south slope of hill is a large exposure of greenstone.

- 22321 1300 N. 400 W. A very small exposure of
I.A. slate. Strike N 5° W; dip 40° W.
- 22322 1400 N. 400 W. Small exposure of ferruginous
I.S. chert. This rock is also exposed at
1580 N.
- 22323 1725 N. 400 W. is an exposure of ferruginous
I.A. chert. Strike N 10° E; dip 38° W.
- 22324 1725 N. 550 W. Large exposure of schistose
S.M. greenstone.
- 22325 150 N. 400 W. Sec. 7-47-26. very small
I.S. exposure of ferruginous chert.
- 22326 400 N. 400 W. 7-47-26 small exposure of
G greenstone.
720 N. is railroad track.
- 22327 I.C. 850 N. 400 W. is south end of large open
22328 Sp. R
22329 Sp. R
Sp. R
Sp. R
pit where mining has been carried on.
22327 ferruginous chert. 22328-29 Green
stones associated with 22327.

22330 I.C.
22331
Sp.

1020 N. & just east of line is a small pit
22331 Greenstone schist and 22330 ferrug-
inous chert from this pit. There are two
more pits west of this one, but no different
rock was seen.

at 1175 N. quit work as the plane table was
to correct here.

Friday, September 18, 1891.

Began at 250 W. 2000 N. Sec 19-47-26
and ran south one mile.

SSSRA Ry crossed at 1840 N.

22332
S.F.

1750 N. 350 W. in cut on railroad is an
exposure of ferruginous slate, about 30 feet long.
Strike N 15 W; dip 40 W.

The country from the railroad south
to 1700 N is swamp.

22333 I.A. 1280 N. 250 W. Small exposure of actinolite-schist by edge of swamp.

The country south of swamp is drift covered and no exposures were seen.

At south line of section went east 250 paces and then north one mile.

Going north the country is low and without exposure.

22334 G 1650 N. 0 W. Large exposure of coarse greenstone.

At section corner turned east 250 paces and then ran north. On the run east the country is low and swampy.

22335 Q.S.F. On the run north no exposures were seen until 900 N 1625 W ^{Dec 17-47-26} is reached. Here is found greenstone, being at base of greenstone hills which extend from this place to nearly to 1500 N 1500 W. On our run north we meandered the swamp rather than go through it.

G. 1325 N. 1600 W. West foot of greenstone ridge.

At the north line of Sec 17-47-26, which was reached at 1500 W. went west 500 paces and then north to the north line of Sec 8

Sp. 22386
I.C. 22337
I.C. 22338

1325 N. 1930 W. is a large open pit. 22386 is soaprock from tongue ^{dividing} separating the pit nearly in two. 22337 Ferruginous slate from north pit. Strike and dip of this could not be determined as the rock is very much folded and crumpled. On south side of south pit is found 22338 ferruginous chert.

22339 1620 N. 2000 W. Sec 8-27-46 ⁽³⁾ small exposure of greenstone. Top of hill is drift covered, but the greenstone is well exposed on the north side, i.e. about 1660 N.

From the foot of this exposure to the north line of section the land is cultivated

at NW corner Sec 8-47-26 went east

250 paces and then ran south

22340
α. 1550 N. 1750 W. is a large exposure of
greenstone schist.

α 1430 N. on S. side of same hill is another
outcrop of greenstone.

1150 N. 1750 W is Goose Lake wagon road.
From this point south the land is
more or less cultivated and no exposures
were seen.

Monday, September 21, 1891.

Began at 0 N. 1500 W. Sec 17-47-26
and ran north 1500 paces.

22341
α. 350 N. 1500 W. is first exposure, coarse
greenstone. This is the southern
end of the greenstone ridge that
extends almost continuously to
1500 N.

22342
G. 700 N. is another exposure of this coarse
greenstone. Our line of travel is along
the west side of this ridge.

22343
G. 1015 N. is more of the coarse greenstone

22344
G. 1375 N. is greenstone. This is north end
of the greenstone ridge.

at 1500 N. went to 2000 N. 1250 W and
then went south one mile.

1325 N. 1250 W. is greenstone. This is
east side of hill we came north over.

22345
G.S. 1160 N. is an exposure of schistose
greenstone.

From here south the land is without
exposure, being swampy or cultivated.

In the afternoon we started at
2000 N. 1500 W. Sec 20-47-26 and ran
south one mile.

- 22346 I.A. 1530 N. is a test pit the rock of which is ^{actinolite-schist.} ferruginous slate. The same I.A. rock is also found at 1500 N. at a test pit.
- 22347 I.O. ^{ore} ~~parent~~ rock from this pit.

22353 I.A. 75 paces east of our line at this point drilling has been carried on. The specimens were taken from the dump pile.

at south line of section went east 500 paces and then north one mile.

22348 G.W.F. 80 N. 1000 W. is a small exposure of actinolite schist. North of this is a swamp

22349 G.W. 950 N. is an exposure of quartzite

22350 G.W. 1075 N. another exposure of quartzite.

G.W. at 1200 N is a large exposure of this quartzite.

22351 G.W. 1400 N. is quartzite. This exposure is not prominent and occupies the south side of a gentle slope.

Qw. Another exposure of quartzite is at
1475 N.

22352
Q. Coarse greenstone at 1675 N.

Tuesday, September 22, 1891.

Started at 500W. 2000 N. Sec 20-47-26
and ran south one mile.

Not an exposure was seen all the
way south. at south line of section
turned east 500 paces and then went
north two miles. No exposure was
seen on the run north until 1600 N.
0W. Sec 17-47-26 was reached.

22354
Q. Here is a very high steep exposure of
greenstone.

at NE corner turned west 500 paces,
then ran south one mile.

22355
Q. 1600 N. 500. Large greenstone exposure

G 1550 N 500 W. Sec 17-47-26 Greenstone.

22356 G.S.
22357 G.S.

1475 N. is a large exposure of fine grained greenstone. In this there are seams or patches of a coarser kind. 57.

22358 I.S.

875 N. is a small exposure of actinolite schist. Strike W 30 S. Dip 20 N.

Camp on Goose Lake road near Partridge
Thursday, September 24, 1891

Started 2000 N. 1500 W. Sec 16-47-26
and ran south one mile.

Country low and drift covered. No
outcrops seen.

At south line of section went east 500
paces, then north one mile.

22359 S.S.

950 W. 0 N. is a small exposure of
greenstone.

at north line of section went east
500 paces, then south one mile.

22360
G.W.

1550 N. 500 W. is a small exposure of
quartzite.

at south line of section went east 500
paces and then ran north.

M. 22361
M. 22362

10 N. 420 W. Exposure of chert, 22362 is
lighter material found in 22361.

M.

0 N. 260 W. Another exposure of same
rock.

IC 22363
IC 22364

560 N. 50 W. is a new working and known
as Section 16 mine. They were only down
about 25 or 30 feet at the time we
were there. Lean material taken from
dump pile representing the rock taken
out. 22364 is lower down in the working
than 22363

22365
G

1510 N. 0 W. Knob of greenstone extending
about 100 paces north.

From corner continued north along east line of Sec. 9. Swamp continues to 1100 N.

22366
S. F.

1170 N. Fine grained greenstone, about 100 paces ESW and about 80 NWS. North of this exposure the country is low or drift covered and in one place a swamp extends for 100 paces

22367
Q.

1900 N. is a large exposure of quartzite occupying eastern end of hill at this point. To the west the hill is drift.

at NE corner Sec. 9 - turned west 500 paces, then south.

No exposures were seen. Most of the way is through swamp.

Friday, September 25, 1891.

Began at 0 N. 1500 W. Sec. 8-47-26
and ran north one mile.

IC 22368 260 N. 1625 W. Actinolite schist and
IC 22369 banded ore and chert from dump pile
of test pit (filled with water) at this place

IC 22370 }
SP 22371 } 200 N. 1540 W. Specimens from dump
IC 22372 } pile of test pit. Pit filled with water.
22370 banded chert 22371 soap rock
22372 ferruginous chert. North of this
pit is duff country and farther north
swamp.

IC 22373. 1140 N. 1440 W. Large test pit in side of
hill. 22373 Lean banded ore from pit. Strike
E₀W; dip 60 S. In other places the rock
~~seems to be~~ ^{are} bent and very much contorted
22374 soap rock associated with 22373
sp.

22375
i.e. 1440 W. 1230 N. Exposure of actinolite
schist, about 60 feet long E₀W & 25 N₀S.
Strike E₀W; dip 30 W.

1.C. 1290 N. 1430 W. Another test pit filled with water, but in which the rock ~~can be~~ is very much crumpled.

1.C. 1290 N. 1420 W another pit, and 1410 W still another. The strike and dip of the first could not be ~~taken~~. at the second pit the rock has a general dip to the south.

22376
1.C. chert and ore from second pit. Strike E & W dip 40 S.

1.C. At 1340 N 1410 W the rock dips both to the north and south forming an anticline. Exposure about 10 feet high.

22377
S.P.F.
22378
1.C. 1450 N. 1500 W Large open pit, about 100 steps SW-NE. The main rock on the SE side is chlorite or soap rock, dipping south. On the NW side (about 50 paces wide) is banded ferruginous chert. Strike W. 5 S. dip 45 S.

1925 N ^{1370 W} to CTM Ry. 1950 N. 1380 W is CTM tracks to Buffalo mine.

at north line of section went east 250 paces, and then south.

Swamp continues on the run south to 1550 N, where railroad is struck.

1500 N. 1250 W is north end of railroad cut on Northwestern road where ^{the} anticline is so beautifully exposed. This was not specimened as Bayley was here the year before and drew a plan and took specimens. Railroad runs S 20° E at this place.

1150 N. 1325 W is wagon road.

1100 N. 1325 W. Test pit.

940 N. 1250 W. swamp begins

940 N. 1175 W. Goose Lake wagon road.

900 N. 900 W. edge of swamp and road.

22379
22380
G.W.

G.W.F.

550 N. 1150 W. edge of swamp. Exposure of greenstone 20 x 15 steps and rising from 4 ~~to~~ 9 feet. 22379 the greenstone (specimen not conglomeratic) 22380 pebble. The pebbles in the exposure are of varying sizes. Specimens collected by Alley.

22381
S.F.

480 N. 1250 W. Low ledge of chlorite schist on north slope of hill. Specimen collected by Alley.

Saturday, September 26, 1891.

Began at 0 N. 1500 W. Sec. 10-47-26 and ran north one mile.

22382 750 N. 1475 W. is an exposure of quartzite.
G.W.G. This is a high hill east of our line.
Exposure about 100 paces farther north
swings to the east.

22383 950 N. Exposure of greenstone. This
G. rock is seen as far as 1020 N.

22384 ~~and~~ 1100 N and just east of our line
G. is coarse greenstone.

22385 1300 N. north side of high greenstone
G. ridge. Oley says about 250 feet high.
1450 N is bottom of hill.

Swamp to the corner from this place.

At north line turned east 500 paces
and then ran south one mile

22386 1900 N. 1000 W. Greenstone hill about
G.

60 feet high.

- G 1650 N is another exposure of greenstone.
- 22387 G 1300 N is a small drift covered greenstone exposure.
- 22388 G 950 N. Large hill of greenstone
- G 800 N Greenstone hill
- G 620 N Greenstone
- G 370 N Greenstone.
- G a large hill of greenstone is found at the 5 $\frac{1}{4}$ post.
- at south line ran east 500 paces then north to one mile.
- 22389 G 470 W. 8 N. is east face of large exposure of greenstone.
- 22390 G 1240 N. 500 W. Smaller exposure of greenstone about 15 paces long and 6 feet high. Thus far on run north have been in a valley with very thick growth of bushes on all side.

T.

R.

22393

94

95

96

97

98

99

400

} Near Rycent

300 η 600 π,

19-47-26.

} Refer to spe.

22309-10x

22391 1325 N. 500 W. Small nearly covered
I.A. exposure of ferruginous slate.

22392 1680 N. 500 W. Large greenstone hill, extending
G. to 1720 N. ~~out~~

At north line went east 500 paces & then south to the south line. No. exposures were seen for the entire distance.

Sunday, September 27, 1891.

I visited the railroad cut on D., D.S. & A. where specimens #22309-10 were taken. This cut is about 85 paces long, and in the highest part where the section was made is about 12 or 15 feet high.

Photos 1121, 1122 & 1123. Views of cut
in D., S. S. Ry, near Cascade, Mich.
where specimens 22393-22400⁵²²³⁰⁹⁻¹⁴ were taken.

Monday September 28, 1891.

Began at 0 N. 1000 W. Sec 9-47-26 and ran north one mile.

275 N. is C & M W Ry at Partridge station

With the exception of one drift covered hill the way was in swamp until 1430 N. is reached.

22401
a. Small exposure of quartzite just west of our line at 1430 N. 3 or 4 feet high and about 20 feet long.

at north line of section went west 500 paces, then south one mile.

22402 1625 N. 1500 W. Exposure of quartzite.
E. Gw.

22403 1450 N. Small exposure of actinolite-
S.F. schist? just beneath it 22404
22404 quartzite. The two were not found in
Gw. contact. am not certain quartzite is
in place.

22405^S 1225 N. is an exposure of slate, about 30 feet E & W 15 N & S. The same rock is also at 1175 N.

South of this is swamp. 440 N is C & N W Ry. 20 N is Goose Lake wagon road.

At south line went west 500 paces, then north one mile.

300 N. O W. is wagon road,
600 N. C & N W.

^{Gr.}
22406 }
22407 } 820 N. O W. Exposure of quartzite, about
a. 40 ft E & W by 20 N & S.

22408^{Gr.} }
22409^{Gr.} } Rocks taken from dump pile of old working
22410^{Sp.} } at 950 N. 1925 W Dec 9-47-26. The pit is
22411^{S.} } boarded up. 22408-22409 Graywackes,
22410 soapstone 22411 slate.

22412^a 1250 N. O W. Quartzite. This is seen in several patches across the line at the place.

S 22413 }
Gr. 22414 } 1350 N. O W exposure of slate and quartzite.
Gr. 22415 } ²²⁴¹³ ²²⁴¹⁵

Fragments of quartz 22414 are found in the slate. 22414

22416 Q.
22417 Q.F. 1650 N. 50 W. is a pit filled with water. Specimens were taken from the dump head. 22416, quartzite; 22417 ferruginous quartz.

22418 S. 1840 N. Exposure of slate.

22419 S. 1900 N. is an exposure of black slate, about 30 feet E.W. and 15 N.S.

22420 Q.W. 1950 N. 0 W. is an exposure of quartzite or graywacke. This exposure is about 2 feet high & 20 long, partly covered with moss and drift.

A north line went west ⁽⁵⁰⁰⁾paces and then ran south one mile.

22421 I.C. 1850 N. 500 W. Sec 8-47-26 is an exposure of ferruginous chert. The rock strikes E.W. and dips S.

1800 N. 530 W. is a test pit of the same rocks

This is filled with water and boarded up.

1660 N. 550 W. is another test pit of iron which this same rock is found.

925 N. is Co NW Ry

520 N. Goose Lake wagon road.

at south line went west 250 paces then north one mile.

425 N. Goose Lake road.

700 N Co NW Ry.

22422 _{S.} 750 N. 850 W. exposure of slate in which are quartz veins

22423 _{Grw.} 1280 N. 750 W Exposure of quartzite.

22424 _{Grw.} 1300 N. 750 W. is ridge of quartzite. On the north side this ridge is 30 feet perpendicular.

1850 N is a test pit with ferruginous

check on the dump pile.

22425
S. 600 N. 850 W. Exposure of slate. About
100 paces E & W & 20 wide.

525 N. 850 W. Another exposure of slate.

