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## **Notes on Longyear's collection: [specimens] 10364-10421. No. 51 November, 1885**

Van Hise, Charles Richard, 1857-1918

[s.l.]: [s.n.], November, 1885

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U. S. GEOLOGICAL SURVEY  
FIELD SECTION BOOK

No. 51.

November, 1885

Notes on Longyear's Collection.

C. R. Van Hise.

10364-10421.

# Survey of the Pre-Cambrian Rocks of the N. W. States.

## 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 figure attached, showing the amount and inclination of the dip. Denote slaty or other very plainly bedded rocks by lines running in the direction of the strike, with figures and a dip arrow attached as before. In all cases where there is the least doubt about the true bedding directions, 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 line as 100 paces, and twenty of these spaces as 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.

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.

3. The ruling of the left hand page is also arranged so that a smaller scale can be used. Each one of the black lines may represent a section line and the red lines quarter sections and "forties." The scale of the maps may thus be reduced, if desirable, to two inches to the mile (the ordinary town plat scale.)

4. Collect a specimen from each separate ledge of rock, or wherever there is a change of rock on any one ledge. In case of trips made on foot or in canoes, for long distances, neighboring ledges, unquestionably of one kind of rock, need not be sampled, the position and extent of the ledge being marked on the map, with a note that it is of a rock identical with specimen so-and-so. Under the same conditions small sized samples, trimmed to a uniform size of  $2\frac{1}{2} \times \frac{3}{4}$  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 § 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. In all cases collect chips for slicing. All specimens are to have numbers painted on them, in white on a black background, in the field.

5. 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., etc.

6. Forward this note book, as soon as filled, as registered mail matter, to R. D. IRVING, U. S. Geologist, Madison, Wis.

51.

Notes Taken at Office  
of J. M. Longyear  
Marquette, Mich  
Nov. 1885

# J. 46 N. R. 42 W. Mich.

| L. No. Provisional Names |                        | St. N. | St. W. | Sec. |
|--------------------------|------------------------|--------|--------|------|
|                          | 688 Hornblende Schist  | 1000   | 200    | 22   |
|                          | 2482 Granite           | 0      | 1450   | 21   |
|                          | 2470 Mica Schist       | 1420   | 0      | 7    |
|                          | 2471 Chloritic Slate   | 100    | 500    | 8    |
|                          | 2472 Mica Schist       | 775    | 500    | 8    |
| 10364                    | 2473 Chloritic Slate   | 1300   | 2000   | 10   |
|                          | 2474 " "               | 10     | 1500   | 12   |
|                          | 2475 " "               |        |        |      |
|                          | 2476 Hornblende Schist | 1400   | 0      | 13   |
| 10365                    | 2477 Quartzite         | 300    | 2000   | 13   |
|                          | 2478 Hornblende Schist | 1200   | 1000   | 13   |
|                          | 2479 Gneiss            | 570    | 1000   | 14   |
| 10366                    | 2480 Mica Schist       | 500    | 0      | 15   |
|                          | 2481 " "               | 750    | 1000   | 15   |
|                          | 2482 " "               | 800    | 500    | 16   |
| 10367                    | 2483 " "               | 1050   | 1000   | 16   |
| 10368                    | 2484 Chloritic Schist  | 1770   | 1000   | 17   |
|                          | 2485 Mica Schist       | 1225   | 1000   | 18   |
|                          | 2486 " "               | 50     | 270    | 19   |
|                          | 2487 " "               | 1600   | 1000   | 20   |
|                          | 2488 " "               | 1900   | 870    | 20   |
|                          | 2489 Gneiss            | 270    | 1025   | 21   |
|                          | 2490 Coarse Hb. Schist | 10     | 420    | 21   |
| 10369                    | 2491 Chloritic Slate   | 1900   | 1100   | 22   |
|                          | 2492 Coarse Hb. Schist | 350    | 1000   | 22   |
|                          | 2493 " Mica Schist     | 1100   | 1030   | 22   |

J. 46. N. R 42. W. Mich. <sup>2</sup>

|       | L. No. | Provisional Name       | A. W. |      | Sec. |
|-------|--------|------------------------|-------|------|------|
|       |        |                        | A.    | W.   |      |
|       | 2404   | Schist                 | 1610  | 500  | 22   |
|       | 2495   | Hornblende Schist      | 900   | 1000 | "    |
|       | 2496   | " "                    | 1125  | 1000 | "    |
| 10370 | 2497   | Mica Schist            | 960   | 1500 | 23   |
|       | 2498   | Hornblende Schist      | 1125  | 1925 | "    |
|       | 2499   | " "                    | 1250  | 1500 | "    |
| 10371 | 2500   | Hornblende Schist      | 900   | 0    | 24   |
| 10372 | 2501   | Chloritic Schist       | 1140  | 0    | 25   |
|       | 2502   | Greenstone             | 600   | 0    | "    |
| 10373 | 2503   | Hornblende Schist      | 130   | 0    | "    |
|       | 2504   | " "                    | 1050  | 1500 | 26   |
| 10374 | 2505   | Mica Schist            | 1550  | 1500 | 27   |
|       | 2506   | Hornblende Gneiss      | 2000  | 1050 | "    |
|       | 2507   | Coarse Mica Schist     | 500   | 1900 | "    |
|       | 2508   | Hornblende Schist      | 1875  | 1000 | "    |
|       | 2509   | Greenstone             | 1625  | 1375 | "    |
|       | 2510   | Coarse Hb. Schist      | 525   | 1980 | "    |
| 10375 | 2511   | Green Schist           | 1200  | 1500 | 28   |
| 10376 | 2512   | Schist                 | 1225  | 1500 | 29   |
| 10377 | 2513   | "                      | 1750  | 500  | 30   |
|       | 2514   | Greenstone             | 1025  | 0    | "    |
|       | 2515   | Coarse Schist          | 1610  | 0    | 30   |
| 10378 | 2516   | Coarse Hb. Schist      | 1750  | 1000 | 4    |
|       | 2517   | " " "                  | 1300  | 500  | "    |
| 10379 | 2518   | Green Chloritic Schist | 960   | 0    | "    |

T. 46 N. R. 42 W. Mich.

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| <u>2. Nos.</u> | <u>Provisional Names</u> | <u>N</u> | <u>W</u> | <u>S. 100</u> |
|----------------|--------------------------|----------|----------|---------------|
| 2519           | Hornblende Schist        | 1475     | 1200     | 30            |
| 2520           | " "                      | 1675     | 0        | "             |
| <u>2521</u>    | " "                      | 1650     | 2000     | "             |
| <u>2522</u>    | Chloritic Mica Schist    | 250      | 0        | 82            |
| 2523           | Granite                  | 400      | 0        | "             |
| 2524           | Crane Mica Schist        | 2000     | 1200     | 83            |
| <u>2525</u>    | " " "                    | 1270     | 1000     | 34            |
| 2526           | Hornblende Schist        | 1150     | 0        | "             |
| 2527           | " "                      | 1800     | 1700     | 36            |
| 2528           | Hornblende Mica Sch.     | 1800     | 500      | "             |
| 3130           | Qu                       | 1630     | 1590     | 13            |
| <u>3131</u>    | "                        | "        | "        | "             |
| 3132           | "                        | 2000     | 1250     | "             |
| 3133           | "                        | 2000     | 1375     | "             |
| 3136           | Granite                  | 200      | 1250     | 12            |
| 3254           | Typ. Mica Schist         | 0        | 1500     | 20            |
| <u>3255</u>    | " " "                    | 310      | 1250     | "             |
| 3256           | Hb. Mica Schist          | "        | "        | "             |
| 3257           | " " "                    | 0        | 1400     | "             |
| 3258           | " " "                    | 0        | 1500     | "             |
| 3259           | Hornblende Schist        | 400      | 125      | "             |
| 3260           | Mica Schist              | 450      | 250      | "             |
| 3261           | Hornblende Schist        | 350      | 240      | "             |
| 3262           | Quartz                   | 200      | 0        | "             |
| 3263           | "                        | 1600     | 2000     | 29            |

J. 46 N. R. 42 W. Mich. <sup>4</sup>

|       | No.         | Provisional Name       | N. W. Sec |      |     |
|-------|-------------|------------------------|-----------|------|-----|
|       |             |                        | N.        | W.   | Sec |
|       | 3264        | Chlorite Schist        | 1500      | 1875 | 29  |
|       | 3265        | Cone 46 Sch. or Gneiss | 1625      | 1500 | "   |
|       | 3266        | Mica Schist            | 1850      | 2000 | "   |
|       | 3267        | Granite                | 1825      | 1500 | "   |
|       | 3268        | Chloritic Mica Schist  | 1750      | 2000 | "   |
|       | 3269        | Homblende Schist       | 1625      | 1625 | "   |
|       | 3270        | " "                    | 1500      | 2000 | "   |
|       | 3271        | " "                    | 1690      | 2000 | "   |
|       | 3272        | " "                    | 2000      | 1400 | "   |
|       | 3273        | " "                    | 1775      | 500  | 30  |
|       | 3274        | " "                    | 1950      | 300  | "   |
|       | 3275        | " "                    | 1625      | 500  | "   |
|       | 3276        | " "                    | 1530      | 500  | "   |
| 10384 | <u>3421</u> | Loran Magnetic Ore     | 1688      | 478  | "   |
|       | 3422        | Chloritic Schist       | "         | "    | "   |
|       | 3423        | " "                    | 1698      | "    | "   |
|       | <u>3685</u> | Magnetic Ore           | 1678      | "    | "   |
|       | 3686        | " "                    | "         | "    | "   |
| 10385 | <u>3687</u> | " "                    | "         | "    | "   |
|       | 3688        | Mica Schist            | 1706      | 478  | "   |
|       | 3689        | Magnetic Ore           | 1790      | 1713 | 29  |
|       | 3690        | " "                    | 1763      | 1810 | "   |
|       | 3691        | " "                    | 1785      | 1730 | "   |
|       | 3692        | " "                    | 1792      | 1690 | "   |
| 10386 | <u>3744</u> | Mica Schist            | 1950      | 1875 | 29  |

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J. 46 N. R 42 W. Mich.

| L. Nos | Provisional Names          | N W Sec |      |     |
|--------|----------------------------|---------|------|-----|
|        |                            | N       | W    | Sec |
| 3745   | Mica Schist                | 1942    | 1375 | 29  |
| 3746   | " "                        | 1958    | "    | "   |
| 3747   | Lean Magnetic Ore          | 1966    | "    | "   |
| 3748   | " " "                      | 1764    | 1795 | "   |
| 3749   | " " "                      | 1767    | 1810 | "   |
| 3750   | " " "                      | 1688    | 497  | 30  |
| 10387  | <u>3864</u>                | 1790    | 1250 | 13  |
|        | 3865 - Like 3864           | 1920    | 1250 | "   |
| 10388  | <u>3866</u>                | 1930    | 1330 | "   |
|        | 3867 Like 3866             | 1952    | 1250 | "   |
|        | 3868 " "                   | 1952    | 1250 | "   |
|        | 3869 Like 3864             | 1920    | 1250 | "   |
|        | 3870 Lean Magnetic Ore     | "       | "    | "   |
|        | 3871 Like 3866             | 1700    | 1750 | "   |
|        | 3872 Like 3864             | 160     | 1200 | 12  |
|        | 3873 " "                   | 140     | 1250 | 12  |
| 10389  | <u>3874</u>                | 160     | 1250 | "   |
|        | 3875 Like 3864             | 85      | 1240 | "   |
|        | 3876 Leucite Schist        | 135     | 1300 | "   |
|        | 3877 Hornblende Schist     | 200     | 1300 | "   |
|        | 3878 " "                   | 300     | 1300 | "   |
|        | 5357 Magnetite - Quartzite | 1630    | 1619 | 13  |
| 10390  | <u>5358</u>                | 1470    | 1679 | "   |
|        | 5359 " "                   | "       | "    | "   |

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T 47 N. R 42 W. Mich.

All specimens in Mr. Long-  
year's collection from this  
township were examined.  
The following points of interest  
were noted.

Specimens from secs. 25, 26, 27, 28  
are either lower green schists,  
or granite.

Sec. 30 has no ore exposure out  
upon our Geologic map.

| <u>Co. No.</u> | <u>Parish</u>   | <u>No.</u> | <u>Pr.</u> | <u>Sec.</u> |
|----------------|-----------------|------------|------------|-------------|
| 3461           | Humboldt Schist | 16 25      | 1750       | 31          |
| 3463.          | "               | "          | 2000       | 1750 31     |

J. 47. N. R 43 W. Mich<sup>7</sup>.

| L. Nos.    | Provisional Names     | N.   | W.   | Sec. |
|------------|-----------------------|------|------|------|
| 199        |                       | 100  | 1600 | 11   |
| 3290       | Greenstone N. T.      | 250  | 1750 | "    |
| 8291       | " " "                 | 1625 | 1300 | 13   |
| 10391 3306 |                       | 1375 | 1625 | 21   |
| 3313       | Greenstone (Leirite?) | 1525 | 600  | 23   |
| 3316       | " (Leirite?)          | 1125 | 1250 | "    |
| 3319       | Hornblende Schist     | 500  | 750  | 24   |
| 3322       | Gneiss                | 200  | 1360 | "    |
| 3323       | Granite               | 875  | 1130 | "    |
| 3325       | Greenstone (Leirite?) | 625  | 275  | "    |
| 3326       | Hornblende Gneiss     | 460  | 1625 | "    |
| 3498       | Greenstone (Leirite?) | 950  | 375  | 34   |
| 3499       | Granite + Hb. Schist  | 825  | 375  | "    |
| 3500       | Granite               | 750  | 700  | "    |
| 3501       | Greenstone (Leirite?) | 775  | 1225 | "    |
| 3502       | Granite               | 1500 | 125  | "    |
| 3503       | "                     | 1475 | 1225 | "    |
| 3504       | "                     | 125  | 1250 | "    |
| 3505       | Hb. Sch. or Leirite   | 0    | 1800 | "    |
| 3506       | Mica Sch. or Hb. Sch. | 875  | 1700 | "    |
| 3507       | Granite               | 400  | 700  | "    |
| 3508       | Hornblende Schist     | 1125 | 1375 | 35   |
| 3509       | Granite               | 1625 | 375  | "    |
| 3510       | "                     | 750  | 225  | "    |
| 3511       | " Very coarse         | 750  | 375  | "    |

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J. H. N. R 43. W. Mich.

|       | Provisional Number                   | N.   | W.   | Sec. |
|-------|--------------------------------------|------|------|------|
|       | 3512 Granite                         | 375  | 1750 | 35   |
|       | 3513 "                               | 500  | 1225 | "    |
| 10392 | 3514 Hb. Sch. or Quartz              | 375  | 750  | "    |
|       | 3515 Granite                         | 50   | 1375 | "    |
|       | 3516 "                               | 0    | 925  | "    |
|       | 3517 Hb. Sch. or Quartz              | 1970 | 125  | "    |
|       | 3518 " " " " Granite                 | 2000 | 750  | 36   |
|       | 3519 " " " " also                    | 1550 | 1250 | "    |
|       | 3520 " " " " "                       | 425  | 250  | "    |
|       | 3521 Granite                         | 1250 | 1750 | "    |
|       | 3522 Hb. Sch. or Quartz              | 125  | 750  | "    |
|       | 3523 Coarse Hb. Schist.              | 775  | 250  | "    |
| 10393 | 3524 Hb. Sch. or Quartz also Granite | 1400 | 750  | "    |
|       | 3525 Granite and F. Hb. Sch.         | 50   | 530  | "    |
|       | 3526 Granite and Hb. Sch.            | 550  | 250  | "    |
|       | 3527 "                               | 1475 | 1600 | "    |
|       | 3528 Coarse Hb. Schist               | 600  | 1875 | "    |
|       | 3529 Fine Hb. Schist                 | 850  | 1650 | "    |
|       | 3530 " " " "                         | 0    | 75   | "    |
| 10394 | 3831 Very ferruginous Schist         | 1965 | 750  | 20   |
| 10395 | 3839 " " " "                         | 1700 | 750  | "    |
| 10396 | 5467                                 | 280  | 1500 | 13   |
|       | 5468 Litho                           | 328  | 965  | "    |
| 10397 | 5470                                 | 207  | 500  | 14   |
|       | 5472 Greenstone N. T.                | 1060 | 1000 | 14   |

J. 47. N. R 43 W. Mich<sup>9</sup>

S. Nos. Original name N W Sec

10398 5481

1155 1950 16

10399 5482

829 920 21

3514 and 3524 represent the most extremely hornblende and massive of the Hb. Sch or diorites so called above.

Secs. 31, 32, 33, 34, 35, & 36 contain very numerous exposures which are all hornblende schist, mica schist, chloritic schist, gneiss and granite. The gneisses and granites are preponderant although the schists are plentiful enough.

All ferruginous specimens were examined at ~~the~~ location and none differs from those furnished by our map ~~with~~ found except 3837 and 3839.

# J. 47 N. R. 44 W. Mich<sup>10</sup>

|       | L. No.      | Provisional Name                                | N    | W    | Sec. |
|-------|-------------|-------------------------------------------------|------|------|------|
| 10400 | <u>262</u>  | Gabbro                                          | 1550 | 550  | 27   |
| 10401 | <u>264</u>  | Greenstone                                      | 2000 | 800  | 31   |
| 10401 | <u>278</u>  | Greenstone (unit?)                              | 2000 | 950  | 27   |
| 10402 | <u>283</u>  | Lean Banded Mag. Cr.                            | 1540 | 1600 | 17   |
|       | 3694        | Lean Magnetic Cr.                               | 1875 | 660  | 18   |
|       | 3695        | " " "                                           |      |      |      |
|       | 3696        | " " "                                           |      |      |      |
|       | 3697        | " " "                                           |      |      |      |
|       | 3698        | " " "                                           | 1883 | 660  | "    |
|       | 3719        | Green Chlorite Slate                            | 1428 | 50   | 22   |
|       | 3721        | Greenstone                                      | 0    | 1000 | "    |
| 10403 | <u>3723</u> | Lean magnetic Cr.<br>Dip N. E. 60°. St. N 40° W | 1164 | 1779 | 23   |
|       | 3730        | Very ferruginous Quartzite                      | 800  | 1400 | 17   |
|       | 4222        | Green Chloritic Schist                          | 515  | 1875 | "    |
|       | 4223        | Ferruginous Schist                              | 518  | 1875 | "    |
|       | 4224        | Ferruginous Quartzite                           | 522  | 1875 | "    |
| 10404 | <u>4226</u> | Green Schist                                    | 75   | 1700 | "    |
|       | 4227        | Flint                                           | 280  | 1375 | "    |
|       | 4228        | Red Limestone                                   | 300  | 1400 | "    |
| 10405 | <u>4497</u> | Very Ferruginous Schist                         | 1100 | 875  | 14   |
| 10406 | <u>4532</u> | Red Quartzite                                   | 1350 | 1620 | 16   |
| 10707 | <u>4533</u> | " "                                             | 1625 | 1600 | 16   |
|       | 4544        | Greenstone (diabase?)                           | 750  | 850  | 20   |
| 10408 | <u>4547</u> | Hornblende Schist                               | 425  | 150  | 21   |

# J. 47 N. R. 44 W. Mich. "

|       | L. Nos. | Provisional Name             | N    | W    | Sec. |
|-------|---------|------------------------------|------|------|------|
|       | 4537    | Diabase                      | 1460 | 125  | 19   |
|       | 4538    |                              | 1625 | 125  | "    |
| 10409 | 4539    | Greenish Micaceous Quartz.   | 1960 | 1050 | "    |
|       | 4558    | Slate of Slate Cong.         | 675  | 1100 | 23   |
|       | 4559    | " " " " " " " " " " " "      | 375  | 125  | "    |
|       | 4561    | " " " " " " " " " " " "      | 750  | 375  | "    |
|       | 4563    | " " " " " " " " " " " "      | 725  | 635  | "    |
|       | 4564    | Compact Grey Slaty Quartzite | 725  | 1100 | "    |
|       | 4565    | Slate of Slate Cong.         | 750  | 1275 | "    |
| 10410 | 4569    | Greenstone                   | 150  | 1875 | "    |
|       | 4583    | Finegr. Slaty Quartzite      | 1755 | 1125 | 25   |
|       | 4584    | Typical Slate Cong.          | 1625 | 1125 | "    |
| 10411 | 4588    | Greenstone?                  | 1125 | 1875 | "    |
|       | 4589    | Coarse Greenstone            | 815  | 1875 | "    |
| 10412 | 4597    | Hornblende Schist            | 100  | 1875 | "    |
|       | 4592    | Greenstone (Leinite?)        | 1280 | 1625 | "    |
| 10413 | 4593    | Chloritic Schist             | 800  | 1625 | "    |
|       | 4603    | Slate from Sl. Cg.           | 1375 | 1340 | "    |
|       | 4619    | Greenstone (Leinite?)        | 1625 | 375  | 27   |
|       | 4620    | " "                          | 1730 | 375  | "    |
|       | 4621    | " "                          | 1875 | 960  | "    |
|       | 4622    | " "                          | 1560 | 875  | "    |
|       | 4623    | " "                          | 1125 | 875  | "    |
|       | 4624    | " "                          | 960  | 710  | "    |
|       | 4625    | " "                          | 792  | 875  | "    |

J. 47 N. R. 44 N. Arch.

12

| Loc  | Provisional name         | N    | W    | Sec. |
|------|--------------------------|------|------|------|
| 4626 | Greenstone (Diorite?)    | 1375 | 650  | 27   |
| 4627 | " "                      | 1990 | 870  | "    |
| 4628 | " "                      | 703  | 1125 | "    |
| 4629 | Hornblende Schist        | 1864 | 1075 | 29   |
| 4630 | " "                      | 1900 | 635  | "    |
| 4631 | Mica Schist (Hornblende) | 1565 | 1030 |      |
| 4632 | Green chloritic Schist   | 1980 | 40   | "    |
| 4633 | Hornblende Schist        | 1625 | 275  | "    |
| 4634 | Hornblende Mica Sch.     | 1990 | 250  | 31   |
| 4635 | Hornblende Schist        | 1250 | 375  | "    |
| 4636 | " "                      | 1900 | 125  | "    |
| 4637 | " "                      | 6    | 170  | 33   |
| 4638 | Granite                  | 3    | 380  | "    |
| 4639 | "                        | 0    | 1795 | 34   |
| 5506 | Greenstone               | 1520 | 505  | 17   |
| 5509 | Diorite                  | 1900 | 1000 | 25   |

283 Dip 40° N. St. N. 80° W.  
 Exposure 10 feet wide  
 100 steps long. Large  
 outcrop of diorite is  
 found directly north.

13

J. 47 N. R. 44 W. Mich.

Section 19 contains only lower schists.

All specimens in sec 20 except 4544 are chloritic lower green schists.

In sec. 24 slate conglomerate and slate are only found.

Sec 29 contains only two specimens of schists.

Sec 30 contains nothing aside from three specimens schists.

Sec 31 contains schists and greenstones.

Sec 33 contains schists and  
3 N. 380 W. Granite.

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J 47 N. R 45 W. Mich.

| L. No. | Provisional Names            | N.   | W.   | Sec. |
|--------|------------------------------|------|------|------|
| 266    | Granite                      | 2000 | 600  | 29   |
| 4895   | Greenstone                   | 250  | 1850 | 3    |
| 4896   | "                            | 90   | 990  | 4    |
|        | "                            | 180  | 1700 | "    |
| 4900   | "                            | 1060 | 400  | 5    |
| 4904   | "                            | 1575 | 1625 | "    |
| 4929   | Lean Banded Ore              | 1110 | 600  | 7    |
| 4931   | " " "                        | 800  | 1995 | 8    |
| 4932   | " " "                        | 865  | 1990 | "    |
| 4933   | Lean Ore (Test pit)          | 1060 | 1250 | "    |
| 4987   | Chert                        | 1125 | 625  | 13   |
| 4988   | Black Flint (N. side of bed) | 1260 | 625  | "    |
| 4989   | Banded Limestone             | 1375 | 875  | "    |
| 4990   | Coarse White Quartzite       | 1170 | 625  | "    |
| 4991   | Green Schist                 | 575  | 140  | 4    |
| 4992   | " "                          | 900  | 875  | "    |
| 4993   | " "                          | 900  | 640  | "    |
| 4994   | " "                          | 700  | 875  | "    |
| 4995   | " "                          | 550  | 60   | "    |
| 4996   | " "                          | 820  | 645  | "    |
| 5001   | " "                          | 260  | 1375 | "    |
| 5061   | Granite                      | 1080 | 30   | 29   |
| 5062   | "                            | 1950 | 1850 | 30   |
| 5063   | "                            | 1490 | 1875 | "    |
| 5064   | Hb. Sch. or Limestone        | 1790 | 1625 | 30   |

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J. 47 N. R. 45 W. Mich.

| L. No. | Provisional Name  | N.   | W.   | Sec. |
|--------|-------------------|------|------|------|
| 5065   | Hornblende Schist | 1450 | 1625 | 30   |
| 5066   | Granite           | 11   | 1125 | 31   |
| 5067   |                   |      |      |      |
| 5068   | Granite           | 300  | 1375 | 31   |
| 5069   | "                 | 940  | 1375 | "    |
| 5070   | "                 | 1300 | 1375 | "    |
| 5071   | Hornblende Schist | 1625 | 1375 | "    |
| 5072   | " "               | 1040 | 650  | "    |
| 5073   | Granite           | 770  | 625  | "    |
| 5074   | "                 | 1375 | 875  | "    |
| 5075   | "                 | 290  | 625  | "    |
| 5076   | "                 | 1250 | 1600 | "    |
| 5077   | "                 | 930  | 1830 | "    |
| 5078   | "                 | 226  | 1830 | "    |
| 5079   | "                 | 325  | 875  | 32   |
| 5080   | "                 | 490  | 125  | "    |
| 5081   | "                 | 1495 | 1750 | 33   |
| 5082   | "                 | 1475 | 1620 | "    |
| 5083   | "                 | 1250 | 1625 | "    |
| 5084   | "                 | 650  | 1375 | "    |
| 5085   | "                 | 100  | 875  | "    |
| 5086   | "                 | 810  | 250  | "    |
| 5162   | "                 | 900  | 875  | 29   |
| 5163   | "                 | 1150 | 875  | "    |
| 5164   | Hornblende Schist | 1000 | 485  | "    |

J. 47. R 45 W. Mich. 16

| T. No.     | Provisional Names             | N    |      | W  | Sec. |
|------------|-------------------------------|------|------|----|------|
|            |                               |      |      |    |      |
| 5165       | Hornblende Schist             | 1790 | 1375 | 27 |      |
| 5166       | Hb. Mica Schist               | 1012 | 1960 | "  |      |
| 5167       | Granite                       | 1120 | 375  | "  |      |
| 5168       | "                             | 1010 | 1960 | "  |      |
| 5169       | Hornblende Schist             | 1950 | 2000 | "  |      |
| 5170       | "                             | 1125 | 375  | "  |      |
| 10414 5171 | Granite                       | 1375 | 1375 | "  |      |
| 5172       | "                             | 875  | 1375 | "  |      |
| 5173       | "                             | 140  | 375  | 34 |      |
| 5174       | Hornblende Schist             | 300  | 2000 | "  |      |
| 5175       | Granite                       | 1140 | 1125 | 35 |      |
| 5176       | "                             | 775  | 1875 | "  |      |
| 5515       | Greenstone N.T.               | 1500 | 500  | 8  |      |
| 5516       | " " "                         | 1450 | 1475 | "  |      |
| 5517       | " " "                         | 1675 | 975  | "  |      |
| 10415 5518 | Black Banded Ferruginous Sch. | 795  | 1975 | "  |      |

Sec 9 contains no iron & porphyry not plotted.

Sec. 11. Sec 12 contains greenstone only.

Sec 15 contains lower green schists only

" 16 " " " " "

L.E. Hb. Sch. + Mica Schist

Nothing in the N 1/2 Secs 16+17 & up as far as (Jud)

Secs. 30, 31, 32, 33, 34 contain granite.

J. 47 N. R. 46 W. Mich<sup>17</sup>

| Loc.       | Provisional Name      | N. W. Sec. |      |      |
|------------|-----------------------|------------|------|------|
|            |                       | N.         | W.   | Sec. |
| 5134       | Hornblende Schist     | 1945       | 365  | 23   |
| 5135       | "                     | 1950       | 125  | "    |
| 5136       | Granite               | 1910       | 125  | "    |
| 5137       | "                     | 195        | 1625 | "    |
| 5138       | "                     | 450        | 1625 | "    |
| 5139       | "                     | 50         | 1900 | "    |
| 5140       | "                     | 1940       | 1900 | "    |
| 5141       | Hornblende Schist     | 1995       | 1225 | "    |
| 5142       | Granite               | 1580       | 1125 | "    |
| 5143       | Hornblende Schist     | 1025       | 1125 | "    |
| 5144       | Granite or Hb. Schist | 920        | 1125 | "    |
| 5145       | Granite               | 1320       | 875  | "    |
| 5146       | "                     | 1100       | 5    | "    |
| 5147       | Hb. Mica. Schist      | 1775       | 375  | 25   |
| 5148       | Granite               | 1415       | 375  | "    |
| 5149       | "                     | 1600       | 1875 | "    |
| 5150       | Hb. Mica Schist       | 1995       | 5    | "    |
| 5151       | Hornblende Schist     | 769        | 625  | "    |
| 5152       | Hornblende Schist     | 50         | 150  | 36   |
| 10416 5301 | Sandstone             | 1020       | 1900 | 9    |
| 5202       | Greenstone N.T.       | 1140       | 1875 | "    |
| 10417 5305 | Gneiss                | 800        | 1340 | 10   |
| 10418 5311 | Granite               | 1995       | 300  | 19   |
| 5312       | "                     | 1825       | 1140 | "    |
| 5313       | Quartz                | 1825       | 1625 | "    |
| 5315       | Granite               | 1425       | 10   | 21   |

# J. 47. R 46 W. Mich.<sup>18</sup>

| L. N.S. | Provisional named  | N.   | W.   | Sec. |
|---------|--------------------|------|------|------|
| 5316    | Granite            | 1900 | 100  | 27   |
| 5317    | "                  | 1490 | 60   | "    |
| 5318    | "                  | 1175 | 125  | "    |
| 5319    | "                  | 1140 | 875  | "    |
| 5320    | "                  | 1075 | 1125 | "    |
| 5321    | Givite n H. Schist | 1075 | 175  | "    |
| 5322    | Granite            | 1020 | 390  | "    |
| 5324    | "                  | 125  | 100  | 29   |
| 5325    | "                  | 1100 | 875  | "    |
| 5326    | "                  | 1625 | 850  | 33   |
| 5327    | Givite n H. Schist | 1005 | 990  | "    |
| 5328    | Hornblende Schist  | 1800 | 1625 | "    |
| 5329    | Granite            | 540  | 875  | "    |
| 5330    | "                  | 1150 | 1125 | 30   |
| 5331    | "                  | 375  | 125  | "    |
| 5332    | "                  | 675  | 1600 | 35   |
| 5333    | "                  | 1435 | 1650 | "    |
| 5334    | "                  | 1995 | 1650 | "    |

Sec. 1 is full of brecciated M.

# Mine. Townships. Mich.

Frap. 16 25 N. 375 W. Sec 5. T49-R42.

Luarz-Porphry 0 N. 320 W.  
Sec. 31 T50 R44.

Frap. 10 50 N. 1150 W. Sec 15 T49 R43.

Luarz-Porphry. 250 N. 1900 W.  
Sec 9. T49 R43.

Sandstone at  
following localities.

|       | N.    | W.    | Sec. | T. | R.  |
|-------|-------|-------|------|----|-----|
| 10419 | 10    | 1075- | 1    | 49 | 43  |
| 10420 | 1325- | 1125- | 23   | 50 | 44  |
| 10421 | 1960  | 1985- | 18   | 49 | 44, |

Frap at following localities.

| N.   | W.   | Sec. | T. | R. |
|------|------|------|----|----|
| 430  | 1835 | 17   | 48 | 44 |
| 1380 | 8    | 10   | "  | "  |
| 1100 | 1975 | 11   | "  | "  |
| 2000 | 100  | 5    | 48 | 45 |
| 2000 | 160  | 17   | "  | "  |
| 2000 | 275  | 19   | "  | "  |
| 1700 | 2000 | 7    | "  | "  |

near N.E. corner of N.E. N.E.

Sec. 23 T. 48 R 47.



