



LIBRARIES

UNIVERSITY OF WISCONSIN-MADISON

Miscellaneous specimens: [specimens 29594-29699, 48000-48866]. No. 194 1897

[s.l.]: [s.n.], 1897

<https://digital.library.wisc.edu/1711.dl/Q4S75JE653R7783>

<http://rightsstatements.org/vocab/InC/1.0/>

For information on re-use see:

<http://digital.library.wisc.edu/1711.dl/Copyright>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

9-891

MISCELLANEOUS.

194

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 $2 \times 2\frac{1}{2} \times \frac{1}{4}$ 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. 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.

186 194

194

Miscellaneous specimens.

7 2 8 29632

Museum, University of Wyoming

Museum No. 279

Petrified Bone
From ~~Temper~~ large Dinosaur
Locality Albany County Wyo.

Donor }
Collector }

STRAITS OF
AND FROM DETROIT
SLEEPING CAR SER-

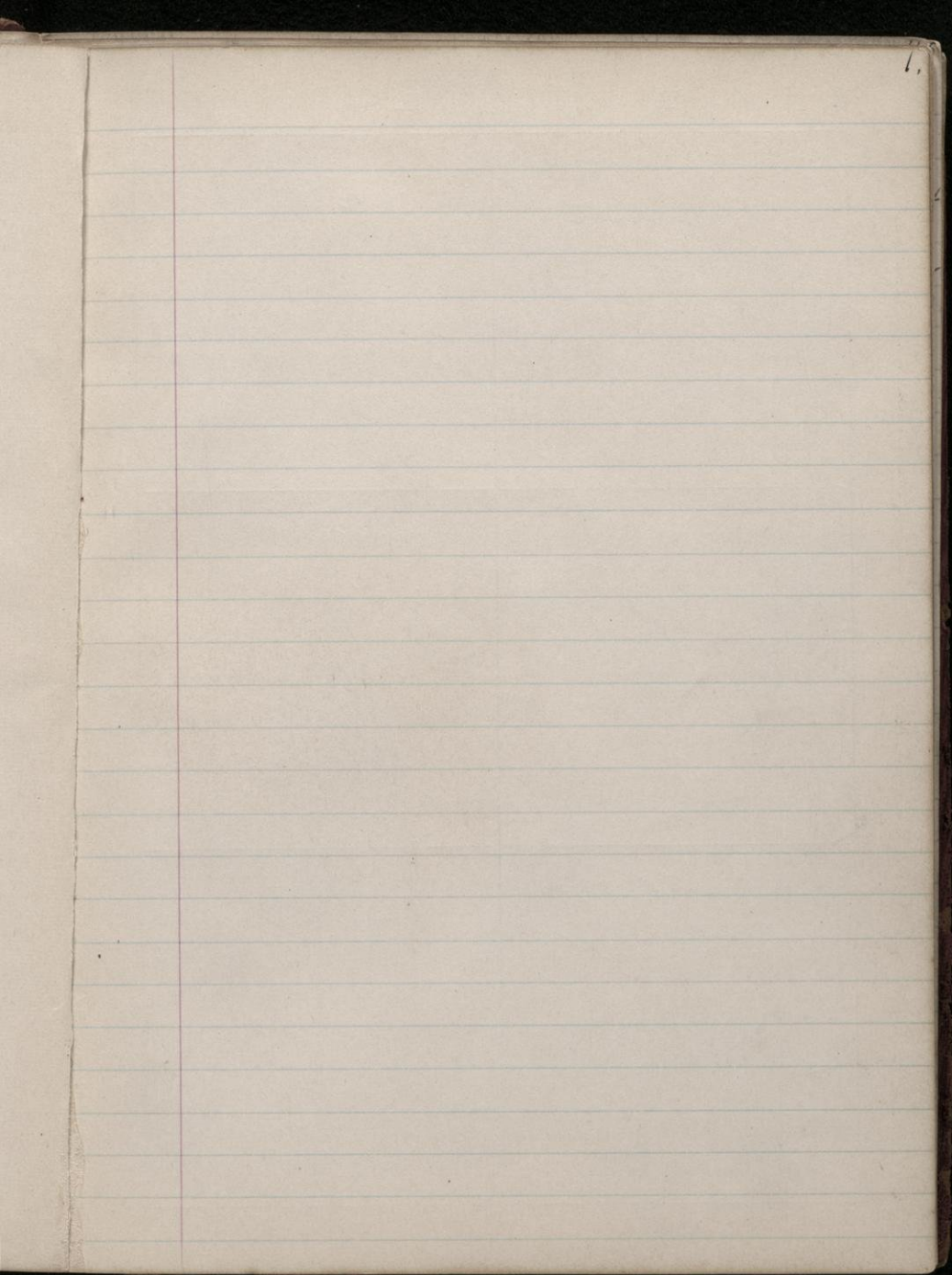
General Passenger Agent,
up for postage. Address Geo.
will be sent you on receipt of
order descriptive of the
Mike & St. Paul railway.
Excursion tickets over the

ended to

The follow
stock quotation
& Bro. Savings

BOS.

Ashebed.	31%
Allouez.	31%
Atlantic.	31%
Arnold.	31%
Bald.	31%
B. & M.	31%
B. & B.	31%



2

29594 Quartz-conglomerate. Pottsville series.
Lykens Valley, Pa. From David White.

29595 Folded gneiss near Great Falls, north
side of Potomac river. About 12 miles above
Washington.

29596-29604 from R.D. Salisbury. Greenland
trip

29596 Coast of Miter Bay, 95 miles S of
Cape York. Lat. 76° . Long. alt $65^{\circ}30'$
N. Large stretches along coast.

29597 Contorted schist. Miter Island.

29598 Bone island, Jones Sound.

29599 " " " " from a dike

29600 " " " "

29601 Gneiss Jakobshavn. Lat. 69° . Whole
coast like this.

29602 Sentinel Nunatak, near Bowdoin
Bay.

29603 Cape Labin. Lat. $78^{\circ} 45'$ West side
Smith Sound. Prim. rock of island.

29604 Gruss. Hektentorg. Lat 67° .

Laramie, Wyoming.

2 cur'ls

Section in Semine Mt. Nyo. from
Bradley's Pk 2 miles west.

$$\rangle \longrightarrow E$$

290 = 29607

$$r_{99} = r_{9616}$$
$$300 = 296.17$$

301 = 29618

302-29619

$$303 = 29620$$

304-29621

305 = 29622

306 = 29673

$$367 = 296^{\circ}4$$

308 - 29625

371 = 29626

~~29673~~ 306
~~29617~~ 300
 284
~~29613~~ 296
~~293~~ } 29610
 Taken from
 boulders in
 the wash

Taken from } ~~303~~ 29620
formation in } ~~305~~ 29622
place } ~~304~~ 29621
29614 } ~~297~~

29605-29626 See appended sheets + ¹⁴ below.

29627 } ~~to~~ Diabases, S. Africa, Merian
28 }

29629 From Tacon range. Fossils, wavy bedding

29630 } Phyllite from Pike between Ridgville
29631 } and Frederick. Western Maryland
29632 } series of semicrystalline rocks. Show
diagonal intersecting fissility in 2
directions.

29633+ See p. 5, et seq.

29605- Specimens from ^{Wyo} Montana sent
- 29626 by Prof. W. C. Knight. See
his letter of June 25, 1896, in
letter file.

29843 - 29899 }
29957 - 29999 } Specimens from
Wyo. Montana, sent in

by Prof. W. E. Knight.

For description see Knight's
letter of Oct. 13 1898 in letter
file and also Van Hise's
reply in letterbook No. XXXI,
p. 460. Sweetwater Dist.

29633 Tourmaline rock, Whalen Canyon,
Laramie, Wyo. (Knight)

29634 Gneiss. Porphyritic feldspar. Pre-Camb.
Colo. line in Medicine Bg. mts.
(3 special large sized sections)

29635 Granite-schist. Bitterroot
formation, 5 miles N. of Hamilton,
Montana. (Bailey Hills, Aug. 6/98)

29636 Locality. Gibbonsville, Idaho,
See Post Route Map.

From the dump of the Anderson
quartz-pyrite gold mine.

Collected by Bailey Willis, July 23
1898.

Note: This specimen represents the
rock mass which constitutes the
mountain range between the
Big Hole basin, Montana, and
the Salmon river, as observed on
the route from Wisdom, Montana
to Gibbonsville. It is the prevailing
rock over a large area. So far
as observed the bedding, which is
thought to be secondary, strikes
N.-S. and dips Eastward to
30° to 80°. Occasional western
dips are noted. The rocks are
minutely jointed, and in
addition thereto faulted and
brecciated. The major joint
system strikes E.-W. and
dips 70°-80° N. The quartz
veins mined at Gibbonsville
correspond with this joint
system, and have suffered

much ~~post~~-mineralization faulting, on thrust planes which usually dip 30°E .

The following five specimens are from O. A. Derby, São Paulo, Brazil.

29637

Chlorite-cyanite-schist containing monazite. Locality: Serra de Gigante near Diamantina, Minas Geras.

29638

Sericite-hematite-schist containing monazite (The supposed barrotic structure is not as distinct in this specimen as in some others, but on a slightly wet polished surface something suggestive of the structure of the Dallas specimen can be seen.) Locality: São João de Chapala near Diamantina, Minas Geras.

29639

Sericite-hematite-schist with primary magnetite and perovskite (?) and secondary tourmaline. (This is the supposed modified

basalt. In thin sections the manner in which the white areas have been invaded by Tourmaline is very interesting.
 Locality: near Fall of Rio Saltas near Diamantina, Minas Geroes, Brazil.

29640 Sericite-schist with monazite.
 (By careful sliming a very perceptible residue of zircon-shaped monazite can be obtained from a single one of these fragments). Locality: Sopa near Diamantina Minas Geroes, Brazil.

29641 Residue of prismatic monazite from decomposed sericite-schist
 Same locality as 29640. All of specimen is in slide #15823.

~~29648~~ 25718 Schist-conglomerate. From dam
of Sturgeon^{River} north of Metropolitan,
Michigan.

29642-
29656 Slate + iron formation material
from Sect. 16 Sta. 7 North
Freedom, Baraboo Valley. Collected
by C. K. Leith, May, 1901. An description
see his notebook for that area.

41533

W. S. Bayless.

See letter Feb. 1902

41534

41535

29657 Mashed + sunmashed pebbles from
conglomerate at Falls of Pine River
south of Phoenix, Wis

29658 Green slate showing a so "false"
bedding marked by red lines
at angles to true bedding +
cleavage.

- 29657 Amasa, Mich. Sec. 20-45-33
 Pit 375 ft 250 ft. Grunite
 sent in by J. Park Channing, 1902
- 29658 Amasa, 20-45-33
 Pit 500 ft 225 ft.
 G.S. or slate. Channing, 1902
- 29659 Pyritiferous slate from drill S of
 Iron Jet. From T. Walsh.
 See letter of Nov. 18, 1902.
Slide.
- 29660 (1) Tak + Chl. Sch. S. of Iron Jet. See letter
 29661 (2) from T. Walsh of Dec. 6th.
 29
- 29662 Anthosite from Frank D. Adams, Montreal
- 29663 Squeezed equivalent of same, showing
 development of parallel structure by
 granulation
- 29664 Paleozoic slate from Cliff overlooking
 St. Lawrence at Lacbe.

29665 Magnetic Sand from N. shore of St. Lawrence

29666 Same after treatment. See letter of
Etakki.

29667 Iron pyrites from mts of Arkansas, -
fissure vein.

29668 Oxidized iron ore from same vein
above level of groundwater. (see letter of
R W Clawson, April 4, 1903.)

29669 Slate in iron formation. Minn. ^{see 29,59-14}
(see letter of Kirby Thomas 11/19/03)

29670 Slate (see letter of Hopewell Clarke
Nov 26, 1903) ^{see 2,49-23}

29671 Slate (see letter of Hopewell Clarke
Nov, 26, 1903 Leitch's file) 29,50-22

29672 Clinton iron ore Mayville, Wis.

29673 " " " "

29674 " " " "

29675 From bottom of hole #2 - Sec 10-58-
15. Depth 1069 feet. 100 ft S. and
100 ft E of N.W. corner of section
next page

(See letter of E. J. Longyear 2/1/04)

29676 Hole 52 - Sec 3-58-15. From
76 to 155 ft. (See letter of
E. J. Longyear 2/1/04)

29677 Hole 52 - Sec. 3-58-15.
1400 feet East to 100 ft South
of W. 1/4 Post. Depth 52 to 76
(See letter of E. J. Longyear 2/1/04)

29678 Hole 52 - Sec. 3-58-15. Some of
this in bottom sample.
Depth 155 ft.
(See letter of E. J. Longyear 2/1/04)

29679-29687 Clinton Iron ore sent by
W. L. Smythe Jr. Clinton, N. Y.

29688 Cherty iron carbonate. Gogebic dist.
29689 " " " " "

mesabi

29690 Hole 110 187 to 222'6" Granite (See
blue print from Range 15 by Longyear)

- 29691 Fine grained granite
- 29692 Hole 111, 147 to 168'
- 29693 Bottom Hole 17, 58 ft deep.
- 29694 Hole 103, Bottom 325' 6"
- See blue print
from range 15
by E. J. Longyear
- 29695 ^{Cuyuna} Garnetiferous mica chlorite schist. from Minnesota See letter of H Bayers 2/19/04
- 29696 Quartzite. See letter of H Bayers 2/19/04
- 29697 From just S.W. of Mecedah quartzite at depth of 200-225 feet E. $\frac{1}{2}$ N.W. SE of 24 Longyear & Hodge Mar 2, 1904
- 29698 Northern Minnesota See letter of H Bayers 2/25/04 and CK Leith's reply 3/5/04.
- 29699 Calamine from New Mexico. Picked up at Mineral Point Smelters.

48000 - 48004 Clinton iron ore from
Mayville, Wis.

48005 Peculiar mineral, running high in
metallic iron, mined as iron ore.
From Fayal mine, Mesabi range, Minn.

^{Oryzina Range}
48006-48011 specimens from I. B.
Ayers, Kimberly, Minn. ^{Letter 7/12/04}

48006 Common rock of the region not
grouped with jasper.

48007 Jasper dipping east about 30°
cut by quartz veins bearing N. of E.

48008 East of intervening swamp and
about 500 feet from jasper

48009 Veins cutting across schist
and jasper.

48010 Next bed above jasper dipping
E. with jasper.

48011 Veins cutting across schist and
jasper.

48012 Petrified asphalturn^(?) from Wyoming. See letter from Wm Flint, Moorcroft, Wyo. 10/3/04

48013 Waterloo, quartzite collected by J.D. Warner, described Plate I figs I and II Warner's thesis

48014	sp. 16475	Same described Plate I fig III
48015	sp. 16476.	" " I " IV } missing
48016	sp. 16477.	" " II " I }
48017	sp. 16478.	" " II " II }

48018-48023 Specimens collected by W.F. Bain in southwestern Missouri specimens have not been entered up but have been distributed in Museum and attic. Can be found if necessary.

48018 (Bain No 1.) Older chert and carb. limestone (Central City, Mo.

48019 (Bain No. 2) Older chert and blende with calc. matrix. Mo. Ind. Fields, Webb City, Mo.

48020 (Bain No 3) Younger chert and blende, usual type, Boston-Gut-There, Prosperity, Mo.

- 48021 (Bain's No. 4) Older and younger chert near quartz. Boston-Get-Ther Mine, Prosperity, Mo.
- 48022 (Bain's No. 5) Pink and gray dolomite with blende. Red Cloud Mine, Rush, Ark.
- 48023 (Bain's No. 6) Blende in Carb. limestone with older chert. Upper limestone, Nevada Sink, Webb City, Mo.
- For description of slides of above (16585-16589) see Bain's South-western Missouri Report, p. 122.
- 48024 Baltimore gneiss, supposed to be sedimentary in origin. From railway cut, City of Baltimore.
- 48025 Metamorphosed marble showing porphyritic mica. From North Carolina.
- 48026 Limestone breccia cemented by dolomite and blende. From Arkansas.

48027 Garnetiferous sillimanite gneiss west of St. Jean de Matha, Canada, Grenville series. Thought by Adams to be sedimentary because of Chem. composition. Described Am. Jour. Sci. vol L., 1895, pp. 58-69.

48028 Flexible sandstone from N. Carolina.

48029 - Barron Co. Wis. L. & Burling,
48141 See notebook #411.

48143 Pentlandite from Sudbury nickel district, Ontario. Sent by A.E. Barlow. Two specimens smaller one assaying about 12% nickel; larger, 10% nickel (from Creighton's Mine.)

48142 Granite-gneiss, Snell Quarry, Gwinnett Co., Ga., from W.S. Yeates. (See Bull. 9-A, Geol. Survey of Ga., p. 144).

48144 From foot hills of Medicine Bow range, east of Medicine Peak, Wyo. See letter of Logal W Trumbull, Apr. 17 1905.

48145 From Shannon Co., central Mo.
 +
 48146 Replacement of limestone. Mined
 near railway. Igneous rock is
 near but not next. In sink holes.

Specimens 48147, 48148a, 48148b and
 48149 sent by Chas. L. Tilton, Powderhorn,
 Colorado. See his letter of Aug. 5th, 1905,
 to C. K. Leith.

48147 Specimen 48147 "is from the warm
 spring on the knoll first below the hotel,
 the one where the rancher has piped it
 into his meadow."

Specimens 48148a and 48148 b "are from
 the cold spring under the fence where we
 got the water one evening" (C.K. Leith, C.R.
 48148a Van Hise and Mr. Tilton). Specimen 48148a
 (soft) "is taken about 100 feet below the
 48148b flow, and 48148b (hard) from a ridge that is
 sort of thrown up about 150 or 200 feet
 below the present outflow."

48149 Specimen 48149 "is from the soda (cold)
 spring around the base of the hill from
 Specimens 48148a and 48148b and was taken
 about 150 feet from the present outflow."

The spring from which 48147 was taken
 used to be very hot some years back, but is
 now not too hot to drink.

Quoted from Mr. Tilton's letter.

199
COLLECTED BY R. J. HOLDEN IN
VIRGINIA.
(1905)

From Ivanhoe Mine of New River
Mineral Company, Ivanhoe, Wythe Co. Va.

- 48150 Barite weathered from limestone.
Occurs in residual clay.
- 48151 Same occurring in limestone as-
sociated with lead and zinc.
- 48152 Limestone as it occurs normally
in vicinity of these minerals. Note
the dolomite sand on weathered surface.
- 48153 Same limestone showing the weath-
ering out of chert.
- 48154 Same rock weathered, carries
chiefly lead.
- 48155 same-- higher in lead.
- 48156 Same rock carrying chiefly
sphalerite and weathered products.
- 48157 Same rock fresh, with sphalerite,
galena and pyrite.
- 48158 Same -- lead with much iron.
- 48159 Iron weathered from same sul-
phide rock.

48160 Lead with what is probably galena.
Sulphate of lead.

48161 Limonite in residual clay above
those rocks but doubtfully from
pyrite

Above specimens all came from with-
in 20 feet of one another.

48162. Calamine from similar formation in
Bertha mine, some miles east.

From Zimmerman mine, one mile
east of Ivanhoe mine.

48163 Shenandoah limestone -- Knox. shows
differential weathering.

48164 Phase of limestone. Banded re-
crystallization.

48165 Same limestone with fluorite.

48166 Same limestone with fluorite (?)
and sphalerite.

From Ivanhoe mine.

48167 Chert nodule weathered from lime-
stone.

48168 Another specimen of limestone with
sphalerite outside of barite.

(Copied from list sent by Holden
with letter of July 10, 1905, to C.K.L.)

- 21
- 48169 } Collected summer of 1905 by G. W. Cady
 & C. F. Bowen, ^{Flouville} Marquette Dist. in
 48170 } Wis. See notebook 416

48171 Nematite. Brought by C. R. Van Hise from vicinity of Matachewan, on Montreal River. Given him by fire Rangers.

Analysis by Lerch.

Fe 64.41
 Phos. .001

48172 Staurolitic mica-schist from mouth of Swan River south of Little Falls, Minn., along the Mississippi River. Metamorphosed ^{Lower} Huronian graywacke-slate. Collected Nov. 1905. by C. K. Leith

48173 Slate and ferruginous slate, showing zeolites and some green earthy material. From Pickands-Mather shaft, Cuyuna Iron Range, Minn. Collected Nov. 1905. by C. K. Leith

- 48174 Conglomerate from near Loon Lake, Ontario, sent by H. E. Kuobel Pt. Arthur. See his letter of 9/10/05 to C. K. Leitch and reply.
- 48175 From Pickands-Mather shaft Cuyuna Range, Minn. Greenstone (?) no
- 48176 sent in by W. N. Smith.
- 48177 { Zoffe says from outcrop in sec. 32-48-18
Coal (?) from ^{near Gashton} ~~Marquette~~ Minn.
sent by E. J. Longyear 10/27/1905
- 48178 Specimen of Iron Ore sent in by W. McCarthy (see his letter of Jan. 1, 1906, filed under Ontario, Genl 1905) Sample from property which he has for sale.
- 48179 North of Georgian Bay, Algoma dist, Ontario, Canada (See next page).

48179. Sent by S. Dillon-Mills, 538 Huron St. Toronto, Ontario. (See letter to Pres. Van Hise, Jan. 17th, 1906. He says: "I am taking the liberty of sending you a small sample of metamorphic mineral which appears to be new to the geologists here to whom it has been submitted. Dr. Coleman of the Toronto School of Practical Science pronounces it a mixture of quartz and prochlorite, from its appearance under the microscope. It occurs as a small lenticular mass in an intrusive binary granite forming a small dike in a quartzite of an arkose character, in the Huronian on the north of the Georgian Bay, in MacKinnon Tp., Algoma. Its peculiar columnar structure first attracted my attention".

48180 Stretched pebbles from Acove conglomerate. Presented by S.W. McCallie, Asst. State Geologist of Georgia 3/14/06.

(green quartzite)
48181 Norman Mine, Sec. 9, 58-17, Musabi Range, Minn., depth of 316 ft. Above this "we drilled some good ore & some taconite and ore & some lean ore." This is apparently bottom rock

Sent by Cole & McDonald Ex. Co.
 Virginia, Minn. (See letter to C.K. Leith
 Apr. 11, 1906 & his reply of Apr. 14, 1906.
 filed under Cuyuna Range, Commercial
 file)

48182 Magnetic sand } S. W. Wisconsin
 48183 " Water }
 Presented by Mr. Mutchler.

48184 Porous limestone from near
 Bemidji, Minn. See letter from
 R. C. Jamison filed under
 Cuyuna Range, Commercial file
 (May 19, 1906)

48185 Amygdaloid from Keweenaw
 series sent by H. B. Woodland.
 See letter of May 18, 1906. USGS
 file. Sec. 45, 45-17 Minn.

48186- Collected by G. W. Corey & C. F.
 48214 Bowen, summer of 1905.
 from Florence District (Wis.)
 (Black No. A. S. & S., red Corey & Bowen's)
 See also specimens 48169-70
 See notebook 416 for descriptions

317 26
48215 Georgia granite slides 17317
48216 Barry " 17318

The above granites being considered for Andersonville Monument & sent to Pres. Van Nise for examination. Slides made & examined by C. F. Leith and rept made to CRV in letter of Dec. 4, 1905.

Specimens returned to Pres. Van Nise

48217 Baxter Mine, southwestern Wisconsin
Presented by Geo. Parker, Janesville
See his letter of May 31, 1906.
Clayey substance impregnated with zinc.

48218 Fossils brought up by drill from just above St. Peters sandstone in Dec. 16 Town of Linden, Wis., at depth of 94'. Presented by C. F. Wise 1906.

48219 Oil bearing formation from well 8 mi. north of Granite, Oklahoma. at depth of 2035'. Sent for examination by C. E. Buell (see letter of 6/12/06).

Woman River, Ariz.

Collected by F. J. Katz, summer
of 1906. See his notebooks ~~nos.~~

Commercial No. 7.

W. R. #1 (W. R. 1, 2 etc Katz' nos.)

48220

48221

48222

48223

48224

48225

48226

48227

48228

48229

48230

48231

48232

48233

2

3

4

5

6

7

8

9

10

11

12

16

17

- 48234 Granite foot wall, "Live Oak Mine"
Old Hat Mining Dist, Pinal Co.,
Arizona. Presented by John D.
Burgess, Tucson, Ariz. see his letter
of Dec. 12, 1906 in the SS file.

Specimens collected for St.
Louis Exposition, 1904, by F. B. Van
Horn.

Numbers in parenthesis Van Horn's
numbers)

MARQUETTE DISTRICT.

- 48235 Leith's specimen showing peculiar con-
(48000) centric markings on piece of ore.
 From old stone pile.
- 48236 Original cherty iron carbonate from
(48001) Barnum mine, Ishpeming.
- 48237 Martite crystals from Cleveland-Cliffs
(48002) rock pile.
- 48238 Ajibik quartzite from south of wagon
(48003) road over Carp river near Deer Lake.
- 48239 Goodrich conglomerate. From old open
(48004) pit north of Section 21 mine.
- 48240 Goodrich quartzite from old stone
(48005) quarry southwest of Ishpeming.
- 48241 Ferruginous chert from Section 21
(48006) mine.
- 48242 Ferruginous slate from L. S. & I. R. R.
(48007) line just west of crossing with road
 Negaunee to Palmer.

S.

T.

R.

48235

(48000)

48241

(48006)

48242

(48007)

48251

(48016)

48265

(48030)

- 48243 Soft ore jasper from Lucy mine.
(48008)
- 48244 Kona dolomite from east shore of Goose
(48009) Lake.
- 48245 Siamo slate from south shore of Teal
(48010) Lake near Cambria mine.
- 48246 Mesnard quartzite from east of State
(48011) Prison, Marquette. One specimen
 showing ripple marks on the surface.
- 48247 Bijiki schist from near east end of
(48012) Michigamme lake, in railroad cut.
- 48248 Michigamme slate from mainland just
(48013) west of islands in Michigamme lake.
- 48249 Grünerite-magnetite schist from western
(48014) side of Mt. Humboldt.

GOGEBIC DISTRICT.

- 48250 Ferruginous chert from Palms Mine at
(48015) Bessemer.
- 48251 Cherty iron carbonate from Palms mine
(48016) at Bessemer.
- 48252 Quartz slate from Palms Mine at Bes-
(48017) semer.

- 48253
(48018) Quartzite from Palms Mine at Bessemer.
- 48254
(48019) Graywacke from railroad cut on Wisconsin Central near Hoyt, Wis.
- 48255
(48020) Banded Jasper from Comet mine east of Wakefield.
- 48256
(48021) Unaltered dike from Germania mine, Hurley, Wis.
- 48257
(48022) Magnetite-actinolite schist from old test pit just east of depot at Penokee Gap.
- 48258
(48023) Black Mica slate from north of corner section 2-3-10-11 near Penokee, Wis.
- 48259
(48024) Ferruginous slate from Palms mine, south of Bessemer.

MENOMINEE DISTRICT.

- 48260
(48025) Talc slate from Curry mine near Norway.
- 48261
(48026) Black quartzite next to Talc slate at Curry mine. Persistent phase only a few inches thick which goes through the property of the Curry Mine.
- 48262
(48027) Black quartzite showing contact with Traders iron formation, from near Norway, Curry mine.

48263 Traders or North iron formation at Curry
(48028) Curry mine.

48264 Same as 48263.
(48029)

48265 Intermediate or Brier slate between
(48030) North and South iron formations at
Curry Mine.

48266 Same as 48265.
(48031)

48267 Curry or South iron formation at Curry
(48032) mine.

48068 Randville dolomite at Curry mine.
(48033)

48269 Hanbury (Upper Huronian) slate, from
(48034) south side of Lake Hanbury, near
Curry mine.

48270 Northwest of Swanzy Dist.
Sent by Longyear & Hodge
Jan. 12, 1907. Fine grained
greenstone - probably diorite.

48271 Globe Arizona
48272 " " Limestone from
from beds in Apache quartzite
Simpson & Wightman claims 40'
down shaft and from cave
about 5 miles E-NE of Globe, Ariz.
Presented by Dr. J. Morgan Clements

48273 - 75 Mesabi Range. Presented by
E. Longyear. See letters of Feb 5 & 7,
1907. USGS file.

48273 121' - 140', immediately beneath a very
rich taconite and paint rock.

48274 140' - 189'

48275 189 - 193'

All from Hole 91, NE $\frac{1}{4}$ of SW $\frac{1}{4}$ of
Sec. 13, 58-20, 400' N. 100' W
of SE corner of the forty

48276 Cherty iron carbonate (unaltered
phase of the iron formation)

From EQL Hole #112 300' W &
400' N. of St. $\frac{1}{4}$ post Rec. 27,47-26
Mich. Depth 530' (slide)
Presented by El Longyear, see
letter 2/6/07 used file

48277 Green slate, Mesabi Range.
 $\frac{1}{4}$ mile south of Biwabik Mine
at depth of 170' with 16' of 45%
ore above it & 50 feet of rich
taconite above that & about 100'
of surface on top. Presented by
C. L. Judd, Duluth, Minn.
see letter 2/27/07 in USGS file

48278 ^{Cong^{#3}} Granite from Swanzy Dist.,
(Q 17316) Mich. sent by Longyear & Hodge
Marquette Mich. see letter of May
29th & our reply of June 1, 1907
in USGS file. Specimen returned
to L & N.

48279 Iron Carbonate, Cascade Range.
see letter from Longyear & Hodge,
Marquette, Mich., Jan 8, 07, USGS file.

48280 Hole #152, Sec. 20, 47-26, 130' (Mich.)
Sent by Longyear & Hodge. See letter
July 8, 1907 in USGS file.

48281-48293. Holes #1, 2 & 3, Sec. 32,
45-25 Mich. (2) Sent for class-
ification by Longyear & Hodge.
See their letter of July 15, 07. USGS file.

48281 Hole #1 60-90'

48282 #1 90-116'

48283 2 61-79

48284 2 79-93

48285 2 93-113

48286 2 113-133

48287 2 133-159

48288 2 159-171

48289 3 112-120

48290 3 120-128

48291 3 128-141

48292 3 141-159

48293 3 159-179

48294 - 48367 Gunflint Lake, Minn.

See following pages, 34-37
(See also Commercial notebook #11
by EC Harder)

SAMPLES AND CORES FROM THE
GUNFLINT LAKE DISTRICT,
1906 - 07.

48294	Greenstone (?) shaft.					
48295	"	N. of Hole 11.				
48296	"	N. of Hole 12.				
48297	"	"	"	"	14.	
48298	"	"	"	"	58.	
48299	Granite boulder.					
48300	Gabbro from Ry. cut.					
48301	Iron formation S. of Hole 57.					
48302	"	"	"	"	"	
48303	"	"	"	"	58.	
48304	"	"	(contact phase)			
	N. of 58.					
48305	Hole 13, Depth 66, Core C.					
48306	"	17,	"	32,	" D.	
48307	"	17,	"	36,	" H.	
48308	"	17,	"	40,	" A.	
48309	"	17,	"	44,	" A.	

Specimens 48310 - 48367
constitute a set of typical
iron formation, gabbro and
greenstone from the Gunflint
Lake District.

48310	Hole.	Depth.	Core.	Formation.
48310	3	42	A.	Gabbro (Upper part.)
48311	"	64	C.	Coarse-grained gabbro.
48312	"	64	B.	Fine-grained gabbro.
48313	"	78	A.	Gabbro.
48314	"	124	C.	Gabbro. (Typical)
48315	"	156	F.	Gabbro. (Iron in magnetite and pyrite.)
48316	"	170	C.	Gabbro.
48317	"	179	DEF	Gabbro.
48318	14	4&5	C&D	Iron formation.
48319	"	14	A..	Contact (Iron formation.)
48320	"	14	B.	Contact.
48321	"	20	B.	Intrusive sill.
48322	"	22	C.	Contact. (Intrusive.)
48323	"	22	D.	Contact.
48324	"	22	E.	Contact. (Iron formation.)
48325	"	23	A.	Contact. (Iron formation.)
48326	"	23	H.	Iron formation.
48327	"	26	B.	Iron formation.
48328	"	31	A&B	Iron formation.

	Hole.	Depth.	Core.	Formation.
48329	14	35	E.	Contact. (Iron formation.)
48330	"	35	F.	Contact. (Iron formation.)
48331	"	36	A.	Contact. (Intrusive)
48332	"	37	E&F	Intrusive.
48333	"	38	G&H	Contact. (Intrusive)
48334	"	39	A&B	Contact. (Iron formation.)
48335	"	40	G.	Iron formation.
48336	"	43	C.	Iron formation.
48337	"	47	F&G	Contact. (Iron formation.)
48337a	"	48	A.	Contact.
48338	"	48	B.	Contact. (Intrusive)
48339	"	52	B&C	Intrusive. (?)
48340	"	54	D.	Intrusive.
48341	"	56	J.	Contact. (Intrusive)
48342	"	57	A.	Contact. (Iron formation.)
48343	"	58	F.	Iron formation.
48344	"	59	B.	Iron formation.
48345	"	56	F.	Iron formation.
48346	"	60	G.	Iron formation.
48347	"	64	A.	Iron formation.
48348	"	67B&68A		Iron formation.
48349	"	71	C&D	Iron formation.
48350	"	73	B&C	Iron formation.
48351	"	76	E.	Iron formation.
48352	"	79	J&L	Iron formation.
48353	"	81	F.	Iron formation.
48354	"	82	D.	Ore.
48355	"	84	G.	Ore.

	Hole.	Depth.	Core.	Formation.
48356	14	85	ACD	Contact ore and amphibole (iron formation.)
48357	"	85	E.	Greenstone.
48358	"	90	B&C	Greenstone.
48359	2	275		Greenstone.
48360	"	281	B.	Greenstone.
48361	"	297	D.	Greenstone.
48362	"	307	B.	Greenstone.
48363	"	316	B.	Greenstone.
48364	"	350	D.	Greenstone.
48365	"	430	A.	Greenstone.
48366	"	447	C.	Greenstone.
48367	"	463-467	A.	Greenstone.

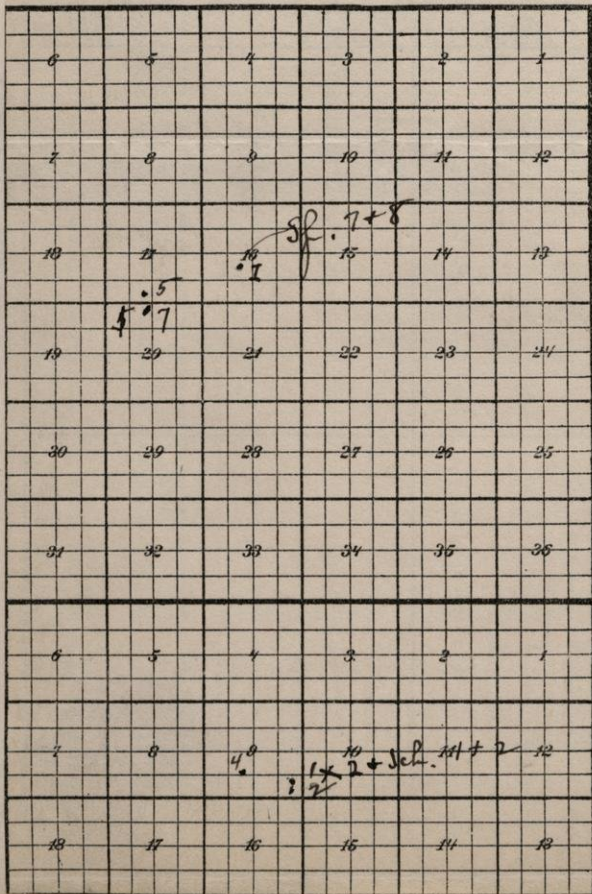
48367a Composite sample from Hole #2, Gunflint Lake District, Minn. See letter to E. J. Longyear, Hibbing, Minn., March 13, 1908, in Gunflint file. Sample made up by selecting representative core from each of following depths:

11-34	197	1/2-205
34-42		206-218
44-63		218-223
63-86		223-225
86-87 1/2		225-229 1/2
87 1/2-104	229	1/2-232 1/2
104-135		232 1/2-247
135-139		247-257
139-172		257-258
177-194		258-264

Analysis of above: Iron 23.09, Phos. .049
Mang. .40, Silica 63.32, Alumina 1.46,
Lime .19, Magnesia .32.
See also letter from Fred Lerch, April
13, 1908. Gunflint file.

Plat showing location of specimens
and drill cores furnished by Mr.
J. W. Robinson, Weyerhaeuser, Wis.

RANGE NO. *8* *712*



T. 35

T. 34

48368-48394.
Specimens and drill cores
from vicinity of
Weyerhauser, Wisconsin.

Drill cores and specimens marked
with gummed labels furnished by J.
W. Robinson in Nov. 1907. Remainder
collected by Carl Zapffe in Nov. 1907.
Explanatory notes by Carl Zapffe.

- 48368 (Specimen No. 1.) Sec. 10, 34-8.
Large outcrops on both sides of
the railroad track (Soo line)
forming apparently the crest of
a fold striking northeast and
southwest. Probably iron forma-
tion.
- 48369 (Specimen No. 2.) Fragments taken
from 8 different pits which were
sunk on outcrops adjacent to out-
crop No. 1.

Drill cores from
Sec. 9, 34-8, Wisc.

48370	Hole No. 1.	140'
48371		145'
48372		150'
48373		195'

48374	Hole No. 2.	120'
48375		125'
48376		175'
48377		200'
48378		295' (?) or 215'
48379	4.	170'

48380 (Specimen No. 7.) Outcrop north-east bank of small creek in Sec. 16, 35-8. Outcrop shows a large vein of quartz beneath the samples about 4 or 5 feet thick beneath which in turn is a layer of green schistose material, probably quartzite.

48381 (Specimen 8.) Outcrop of igneous rock in Sec. 16, 35-8. Forms the southeast end of a large knoll. Is severely jointed.

Drill Cores.

48382	Hole No. 1, 16, 35-8.	75'
48383	Hole No. 5, 17, 35-8.	40'
48384		50'
48385		55'

40

Drill Cores.

48386 Hole No. 5. 17, 35-8. 70'

48387 Hole No. 7. 20, 35-8. 65'

48388 Olson No. 5. 135'

48389 Olson No. 7. 75'

48390)

48391)

48392)

48393)

From pits in Sec. 16, 35-8 going northward from 48370, following first a ravine and then climbing up the cross valley and ascending a large ridge on the top of which is a large outcrop of quartzite.

48394 Drift material. Specimens were taken from angular boulders which are characteristically distributed along the top of a ridge northeast-southwest in strike crossing secs. 3 and 4, 34-8. At the time of investigation (Nov. 1907.) a test pit was being sunk immediately on this ridge (presumption being that the iron formation forms this ridge on account of the abundance of iron formation drift).

Between this latter ridge and the ridge in secs. 16 and 20, 35-8 there is another ridge

48394(Cont) northeast-southwest in strike, along the crest of which there is considerable ferruginous chert in the form of large boulders. Some of this chert is very rich in iron and is practically ore.

48394a Collected by C.K. Leith Jan. 1908. See to notebook #425.

Banded quartzite in iron formation from south face of the hill just north of Peterson's farm, in Section 10. From belt along side of quartzite ridge.

48395

Slate from hole on the N.W. 1/4 of the NW 1/4, Sec. 16, 58-15, from depth of about 1200 feet. (Mesabi Range). Sent in by E. J. Longyear for classification. See his letter of Dec. 10, 1907 in USGS file. See also back of letter.

Detailed record of Hole (#101)

Surface,	144'
Slate,	41'8"
Slate and slaty taconite,	131'4"
Slate,	323'
Granite seam and slate,	13'
Slate and slaty taconite,	187'
Slate,	114'
Slate and slaty taconite,	21'
Taconite, slaty taconite & slate	10'
Slate,	<u>262'</u>
Depth Dec. 5th, 1907 (not finished)	1247'

48396 Woman River area,
to Summer of 1907 collected
48514 by R. C. Allen. (See Notebook
Commercial #16)

48515 Core from Sec. 958-15^{#191} depth,
1483 feet. Sent by E. J. Longyear,
Hibbing, Minn. See letter
E. J. L. 11/21/08. U.S.G.S. file.

48516 Core from same hole as above
1500 feet depth. Sent by E. J. L.
Hibbing, Minn. See letter
Feb. 13, 1908. U.S.G.S. file.

48517 Acadia.
Specimens of limonite ore collected
from Blue Ridge, Va., by R. J. Holden.
See letter, also map of Feb. 5, 1908.
U. S. G. S. file.

48518 Ironville. (Same as 48511)

48519 Buck Mt., Poorly weathered.
(Same as 48511)

48520 Buck Mountain. (See 48517)

Hole #101, Sec. 9-58-15, Mesabi
Range Minn. (EGL) (cores)

48521 Sec. 9-58-15, Hole #101, 1500' - 1510'.

48522 " " " 1510' - 1520'.

48523 " " " 1520' - 1530'.

48524 " " " 1530' - 1540'.

48525 " " " 1540' - 1550'.

48526 " " " 1550' - 1560'.

48527 " " " 1560' - 1570'.

48528 " " " 1570' - 1580'.

48529 " " " 1580' - 1590'.

48530 " " " 1590' - 1600'.

48531 " " " 1600' - 1610'.

48532 300'. ^{7.8% of} Sec. 29-47-26. (#103) (L & H) (3/23/08)

48533 880' - 890'. " " " " " "

48534 Slate from diamond drill hole
#101, Section 9, 47-45 W. Mich.
Depth 605 feet. Brotherton Iron
Mining Co., Wakefield, Mich.
Presented by R. S. Rose, Marquette, Mich.
4/23/08.

Specimens 48535-48547, incl., presented by R. S. Rose, Marquette, Mich., on visit to Madison in April 1908. From Gogebic District.

- 48535 Within 50 feet of Keweenawan, Sunday Lake country.
- 48536 Keweenawan trap and sandstone near contact. Sunday Lake country.
- 48537 From Diamond drill hole #101, Section 9, T. 47 N., R. 45 W. Depth 521'. Brotherton Iron Mining Co., Wakefield, Mich. Slate.
- 48538 Drill hole #101, do. Depth 540'
- 48539 " " " " " 621'
- 48540 17th level cross cut, Clarke shaft, Brotherton Mine.
- 48541 17th level cross cut, Brotherton dike.
- 48542 #4 shaft cross cut, Sunday Lake Mine.
- 48543. Hanging wall, 12th level #1, Mikado Mine.
- 48544 Hanging wall, 12th level #2, Mikado Mine.
- 48545 Hanging wall, 12th level, west of #2 shaft, Mikado Mine.

48546 Hanging wall, east end of Rock Drift,
12th level, Mikado Mine.

-----oOo-----

48547 Hard ore from 5th level of the
Chicago Mine, Penokee-Gogebic Range.
Presented by R. S. Rose, Marquette,
Mich., April 28, 1908.

48548 Eruptive rock from Blanchards Rapids,
Minn, Morrison Co., Sec. 32, 128-29,
on west side of Mississippi river.

48549 East bank of Mississippi river,
at Little Falls, Minn.

48550 Williams farm, just west of Little
Falls, Minn.

Specimens 48548-48550, incl.,
presented by Hopewell Clarke, St.
Paul, Minn., April 28th, 1908.

48551 Fe_2O_3 from contact of granite and
greenstone, Woman River, Ontario.
A. R. Schultz, 1904.

48552 Fe_3O_4 from west of mountain, west of
Woman River. Woman river district,
Ontario. A. R. Schultz, 1904.

48553 Belt east of Woman river, Woman river
district, Ontario, 1904.

48554 Belt immediately east of Woman River,
Woman river district, Ontario. 1904.

48555 Island on Onaping Lake, Ontario.
A. W. Lewis, 1904.

48556 West of Vulcan Mine, the 15th
level, 1200 ft from surface on
the south of Curry formation.
Sent by Wm. Kelly, Vulcan, Mich.,
May 4, 1908.

58-15. Hole # (Cores)

48557 2016'-2020'. Taconite & quartzite.

48558 2020'-2027'. Quartzite.

48559 2027'-2035'.

48560 2035'-2040'.

Presented by E. J. Longyear
Hibbing, Minn., May 12/08.

48561 Sec. 30-48-28, Hole #1, Depth 296'. Clowry

48562 " " " 198 "

48563 " " " 302 "

Presented by J. C. Hodge,
Marquette, Mich., May 17/08.

Specimens 48564 to 48566 from 47-26 Michigan. Presented by O. B. Warren, Hibbing, Minn. See his letter of June 12th, 1908, in U.S.G.S. file.

48564 From outcrop near highest point on the line between Sec. 29 and 32, 47-26, 900 feet west of S 1/2 Post, Sec. 29. Determined as diorite.

48565 Piece of core from drill hole, same location.

48566 Core from depth of 245' from a drill hole located north of the dike in the SW 1/4 of Sec. 29, 47-26. This core came between the hard ore jasper of the upper formation and the ferruginous chert of the lower formation.

48567 Core from depth of 890' from drill hole in Sec. 5, 58-15, Mesabi Range. Presented by E. Longyear 9/12/08

48568 Intrusive from Sec. 13, 57-22, NE of SE, Mesabi Range, Minn. Depth 209'. 20' thick. Jacinite on each side

- 48569 Magnetite from Moose Mt.,
Ontario. Collected by C.K.
Leith, 1908.
- 48570 Sholdice exploration, Republic
48571 Area, Crystal Falls Dist, Mich.
48572 Collected by C.K. Leith, 1908.
See commercial note book # 47
- 48573 Canisteo pit, Vermilion Dist.
Presented by A. S. Diehl,
Coleraine, Minn. Taken from
thin stratum very close to the
top of the ore body and at a
depth of about forty feet from
surface. See letter from Mr.
Diehl, 7/6/08 USSS file
- 48574 to Presented by AC Lane, State
48579 Geologist of Michigan, 1908.
- | | | |
|-------|---------------------------|----------|
| 48574 | Adventure Mine | #2, 105' |
| 48575 | " " | #2, 192' |
| 48576 | " " | #2, 200' |
| 48577 | Teunisch | #3, 251' |
| 48578 | " " | #3, 328' |
| 48579 | " " | #2, 512' |

See his letter of 8/12/08

48580 From Rabbit Lake shaft, Quinua
Range, Minn. Presented by
Clyde Adams. See his letter of
Oct. 23, 1908.
Cherty phase of iron formation.
Transferred See #49475

48580 Rudolph area, Wis. $2\frac{1}{2}$ miles north-
east of Rudolph & $4\frac{1}{2}$ miles south from
Junction City. Presented by J.W.
Robinson. See his letter 11/13/08.

48581 Same ^{location} as above. From ledge at 11 feet.

48582 Western extension of Mesabi Range,
Minn. Sec 4, 54-26. Sent by
E J Longyear 11/30/08. (See his
letter Weiss file)

48583 From pit # Sec. 16, 41-28, Mich.
48584 (Holmes Land & Iron Co.)

#48583 from depth of 35-39'

#48584 " " " 39-41'

Sent by Chas J. Forell (See his letter 12/7/08
"Monomine" file.)

- 48585 From Pit # See 16-41-78. Mich.
(Holmes Land & Iron Co.)
Depth, 48 ft. Sent by
Chas. J. Sorell (See his
letter of 12/30/08. Menominee
file.)
- 48586 Specimen of magnetite from the
northern part of St. Louis
Co., Minn. (Namkeen Lake).
See letter of Jan. 4th, 1909, Gen'l
file. J. A. Merrill.)
- 48587 Cretaceous material from
Wacker Pit, Danettes
Mine. Presented by
O. B. Warren, June 22, 1908.
- 48588 Presented by Dr. W. S. Emmons
to February, 1909.
- 48595 48588. Fresh andesite, 200' E of
Falcon Lodge on Rock Creek, Nev.
48589. Altered phase of 48588.
48590. Granite, Phoenix Mine.
Lenapo, Nev.
48591. Decomposed granite,

wall vein near shaft on
tunnel level. Tenabo-
Phoenix Mine, Nev.

48592. Fresh granite, Grey
Eagle mine near Tenabo^{Nev.}
1/4 mi. north of mine.

48593 Decomposed granite,
Grey Eagle mine, near Tenabo^{Nev.}
Near 65' level.

48594. Porphyry, Hilltop Dist.,
Fresh porphyry, S.E. of Independ-
ent mine near houses.

48595. Altered porphyry & ore in
quartzite. Hilltop Mine, Mark-
Rancho, Nev.

53

48596 Drill cores presented by E. J.
to Longyear, Hibbing, Minn. See his
48609 letter of May 3rd, 1909. U.S.G.S. file
From sec. 4, 58-15, Mesabi district,
Minnesota.

Hole 213, sec. 4, 58-15.

48596 Depth 101 to 404'.

Hole 214, sec. 4, 58-15.

48597	From	89	to	93'
48598		98	"	103'
48599		125	"	132'
48600		142	"	153'
48601		164	"	176'
48602		190	"	208'
48603		226	"	244'
48604		262	"	279'
48605		297	"	315'
48606		325	"	334'
48607		347'3"		360'7"
48608		360'7"		369'7"
48609		369'7"		377'

48610. Pseudomorphs of chlorite and amphibole after garnet from iron formation in vicinity of Michigamme, Mich. Collected by C. K. Leith, May 1909.
See Mon. 28, U.S.G.S.; also
On pseudomorphs of chlorite after garnet, at the Spurr Mountain iron mine, Lake Superior, by Raphael Pumpelly. Am. Jour. Sci. & Arts, vol. 10, July 1875, pp. 17-21.
- 48611 Drill cores from drilling near
48612 Alborn, east central Minnesota, sec.
48613 24, 52-18 (St. Louis Co.) Presented by J. U. Sebenius, May 1909.
- 48614 Quartzite from west end of sec. 3, 58 1/2-17, Mesabi Range, Minn., presented by E. J. Longyear. See his letter of May 12, 1909, U.S.G.S. file.
- 48615 Gold-bearing quartz, from Michipicoten area, Ontario. (120 miles west of Sault Ste. Marie, Ontario). Sent in by F. I. Carpenter, May 15, 1909. See letter filed under "Menominee."

55

The following is an extract from letter from G. H. Cox, dated April 22, 1909, to C. K. Leith:

"I am expressing you today some samples of chert from the Franciscan formation as exposed at Hunters Point, just south of San Francisco, and described by Dr. Lawson in his report on the San Francisco Peninsula.

"The cherts at this point are near the contact with a spheroidal basalt, probably the samples were taken within 20 to 60 feet of this contact. In the field it looks as if the iron might have been introduced from the basalt, but Dr. Lawson states that this ferruginous character occurs in other places in just the same manner. And, while the chert does become redder at the contact, the color is usually not so deep as that shown by all of these samples.

"It was impossible to take samples from the same strata to show the different stages of alteration, as the beds are very complexly folded and usually thin.

"It is evident that both quartz and iron have been carried in solution, also that the more altered portions (in general) are seemingly the richer in iron, especially near the shale partings, more especially where these partings are thick. Compare samples Nos. 6, 7 and 8 with No. 3.

- 48616 "Sample No. 1. Taken from near the summit of Hunters Point, about 500 feet from the east end.
- 48617 "Sample No. 2. Same place as No. 1. Represents the half inch shale partings that occur here between the two inch beds of chert.
- 48618 "Sample No. 3. Small exposure about 100 feet east along the strike, no shale partings here.
- 48619 "Sample No. 4. About 50 feet east of No. 3 along general strike. Two
- 48620 inch beds Sample No. 5, of chert with half inch shale partings rich in iron, No. 5.
- "Samples 6, 7, 8 and 9. These represent a vertical section taken about 300 feet east of No. 4 and probably about 30 feet lower in the formation.
- 48621 Sample No. 6 shows an extra thick rich shale parting;
- 48622 No. 7, the adjacent portion of the hanging wall, a bed of chert 1 1/2 feet thick;
- 48623 No. 8, the center of this bed;
- 48624 No. 9, the center of a similar, but unaltered bed above, showing the unaltered character of the chert.
- 48625 No. 10, 10 feet lower. Shows extreme weathering."

48626. From well at depth of 170 feet, NE-NE of sec. 21, 43-34, Iron River district, Mich. Presented by Prof. F. I. Carpenter, 1909.

48627. Greenalite from Mesabi Range, Minn. Described by C. K. Leith in Mon. 43, U. S. Geol. Survey.

48628. Diamond-bearing rock from Pike Co., Ark. See letter from Austin Q. Millar to President Van Hise, March 1, 1909. "Between the Northern and Southern diamond bearing Kimberlite occurrences of this field (a distance of 2 1/2 miles) is located a very strange occurrence of quite a large area which has not been examined only in the most superficial way, which is surrounded and largely covered by cretaceous, post tertiary and quaternary sediments, so much so that none of the fresh peridotite is visible, if it occurs. The disintegration of what is evidently the bulk of the rock present is represented by the samples I am sending you under another cover and accompanying this metamorphosed material is quartzite (probably carboniferous) and "iron ore" containing chromite grains."

48629, 48630 and 48631 from Crystal Falls district, Mich. Presented by R. S. Rose with letter of Feb. 17, 1909.

- 48629 "Iron Ore ?" Pit No. 14, 20 feet deep. 600 N., 1330 W., sec. 27, 44-31. Dip 50° E. Strike N & S.
- 48630 1, quartz and ochre; 2 quartzite; 3 lean ore. Pit. ~~Max~~ 13 feet deep. 640 N. 1530 W., sec. 27, 44-31.
- 48631 Lansing Mining Co. From winze, depth 60 feet. Shaft at 40 N., 1040 W., sec. 33, 44-31. Small ore body.
- 48632 Ore from Tp. 24 N., R. 15 W., Pepin Co., Wisconsin. Sent by E. J. Longyear in letter of June 23, 1908, filed under Cuyuna Range.
- 48633 Iron ore from south of Atikokan Range, on lands of Bachus & Brooks. Presented by E.J. Longyear, Nov. 13, 1909.
- 48634 Chalcopyrite and quartz, near the Mississagi river, Algoma district, Ontario. Presented by A.K. Holmes, with letter of Nov. 15, 1909. (Filed under his name in "Canada, General".
- 48635 Porphyry from test pit in NE-SW sec. 3, 62-18, Vermilion dist., Minn. Specimen comes from well defined ledge. (See letter from S.H. Owens, Eveleth, Minn., Jan. 29, 1910, filed in U.S.G.S. file).

59
48636 Lignite (of probable Cretaceous age) from drill hole on NW 1/4 of Sec. 8, 57-20, near Hibbing, Mesabi Range, Minn., at depth of 200 feet. Submitted by R. B. Whiteside, Duluth, Minn., with letter of Feb. 17th, 1910.

48637-48762. From Woman River iron claims, Ontario. Samples collected by R. C. Allen from trenches summer of 1907. See Commercial notebook No. 16, and his rept. of Jan. 13th, 1908.

48763-48770 From McNamara properties near Bland, Mo. Collected by Eliot Blackwelder, spring of 1910. See detailed locations below:-----

48763 (Blackwelder's sample A) Ore from pit in Drewel property, NE $\frac{1}{4}$ and NE $\frac{1}{4}$ -NW $\frac{1}{4}$ Sec. 5-42-6.

48764 Blackwelder's sample B) Ore from Jett property, Sec. 2-42-7. From dump near trench.

48765 (Blackwelder's sample C) Limonite from Hyman & Finney property.

48766 Blue hematite ore from 2-foot bed in pit 1, Pelican property.

48767 Mixed hematite and limonite from pit 5, Pelican property.

48768 Soft red ore from 6' bed, S.W. pit, Pelican property.

48769 Banded ferruginous sandstone, S.W. pit Pelican property, just above the ore.

48770 Chert breccia, S.W. pit, Pelican property, just above the ore.

48771 Sample containing molybdenum, from Menominee district, Mich. Sent by A. K. Holmes, March 27, 1911. (See his letter of that date in Menominee file.).

48772. Sample from the foot-side of the lean ore band, 320' W. 530' N of 1/16 Corner, south drift of the 13th level of the Hemlock Mine, Section 4, 44-33. Michigan. Specimen collected by C. K. Leith and Harmon Lewis when examining mine for Pickands Mather and Company, Nov. 1911.

48773. Samples from Warner Pit, Section 9, 44-33, Crystal Falls Dist., Mich. Pickands Mather & Co.

48774 Drill samples from the Warner Exploration, Section 9, 44-33, Crystal Falls Dist., Michigan, from to
48854 Holes 1, 5 and 8. Sent in for examination by the Pickands Mather Co.

Warner Exploration, Hole 1.

48774 From 445 to 450 (Core.)

Warner Exploration, Hole 5.

48775	From 355 to 360	(Cuttings)
48776	360 365	"
48777	365 370	"
48778	370 375	"
48779	375 380	"
48780	380 385	"
48781	385 390	"
48782	445 450	"
48783	450 455	"
48784	455 460	"
48785	460 465	"

Warner Exploration, Hole 8.

48786	From 30 to 35	Core & Cuttings.
48787	35 40	" "
48788	40 45	" "
48789	45 50	" "
48790	50 55	" "
48791	55 60	" "
48792	60 65	" "
48793	65 70	" "
48794	70 75	" "
48795	75 80	" "
48796	80 85	" "
48797	85 90	" "
48798	90 95	" "
48799	95 100	" "
48800	100 105	" "
48801	105 110	" "
48802	110 115	" "
48803	115 120	" "
48804	120 125	" "

Warner Explor. Hole 8 con't.

	From	to	Core	& Cuttings
48805	125	130		
48806	130	135	"	"
48807	135	140	"	"
48808	140	145	"	"
48809	145	150	"	"
48810	150	155	"	"
48811	155	160	"	"
48812	160	165	"	"
48813	165	170	"	"
48814	170	175	"	"
48815	175	180	"	"
48816	180	185	"	"
48817	185	190	"	"
48818	190	195	"	"
48819	195	200	"	"
48820	200	205	"	"
48821	205	210	"	"
48822	210	215	"	"
48823	215	220	"	"
48824	220	225	"	"
48825	225	230	"	"
48826	230	235	"	"
48827	235	240	"	"
48828	240	245	"	"
48829	245	250	"	"
48830	250	255	"	"
48831	255	260	"	"
48832	260	265	"	"
48833	265	270	"	"
48834	270	275	"	"
48835	275	280	"	"
48836	280	285	"	"
48837	285	290	"	"
48838	290	295	"	"
48839	295	300	"	"
48840	300	305	"	"
48841	305	310	"	"

Warner Exploration Hole 8, Cont.

48842	From 310 to 315	Core & Cuttings
48843	315 320	" "
48844	320 325	" "
48845	325 330	" "
48846	330 335	" "
48847	335 340	" "
48848	340 345	" "
48849	345 350	" "
48850	350 355	" "
48851	355 360	" "
48852	360 365	" "
48853	365 370	" "
48854	370 375	" "

Drill samples from Sections 25 and
30, T. 63 N., R. 12 W. Vermilion Range
Minn. Specimens sent in by L. W. Fargo,
1911.

Hole 9, Section 30, 63-12, Lot 4.

48855 From 250 to 420 Cores.

Hole 11, Section 25, 63 - 12, E 1/2
of the NE 1/4.

48856 From 375 to 410 Cores.

Hole 12, Section 25, 63 - 12, E 1/2
of the NE 1/4.

48857 From 37 to 62. Cores.

- 48858 17516 }
 48859 17517 } So called dike material from
 east end of 18th level Windsor mine,
 Gogebic range, Mich. Collected by
 C. K. Leith, March, 1912.
- 48860 } Samples of limonite from Butler &
 48861 } Wayne counties, Missouri. Presented
 48862 } by Wm. E. Smith, 1911.
- 48863 From railway cut near Randolph, Wis.
 (SW $\frac{1}{4}$ sec. 35-13-12 Columbia, Co., Wis.)
 Collected by C. K. Leith, 1912. C. K.
 Leith testified in lawsuit for Olin,
 Butler & Curkeet.
- 48864 Iron pyrites stems, found in an open-
 ing in the Frontier Zinc Mine at Ben-
 ton, Wis. These project from the ceil-
 ing and from the walls. Sent by In-
 terstate Light & Power Co., Galena,
 Ill., May 31, 1911 (See letter.)
- 48865 *vacant*
- 48866 Iron ore from E $\frac{1}{2}$ -SE $\frac{1}{4}$ Sec. 15-11-3,
 Vernon Co., Wis. Submitted by F. R.
 Hanzel, Prairie du Chien, Wis. Jan.
 14, 1913.

