Black River Falls: [specimens] 13812-13850. No. 71 November, 1887

Van Hise, Charles Richard, 1857-1918
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N-71

U. S. GEOLOGICAL SURVEY

FIELD SECTION BOOK

No. 71.

November, 1887

Black River Falls

C. R. Van Hise.

13812-13860

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 2x2½x⅝ inches will be allowed, but in all other cases *large sized specimens*, trimmed to a size of 3x4x1 inches, must be selected, in accordance with ¾ 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.

+227 C. R. Van Hise's record ... 1887.
... G. S. ...

13812 Quartzite E. Bank Black River. From natural exposure, short distance north of south line of Sec 11, T. 21 N. R 4 W. Wis. Strike E. 30° S. Dip 82° S.

13813 Slate. Rail road cut on S. W. part of "mound 1" in the S. W. 1/4 of the S. E. 1/4 Sec 11, T 21 N. R 4 W. Wis. Strike E. 25° S. Dip 82° S.

13814 Ferruginous Schist. Taken from end of cross cut in drift running into west face of "mound 1"

13815 Red slate. Taken from end of drift of which 13814 represents cross cut.

13816 Hematitic and Magnetitic
13817 Quartz Schists. "Old York Opening". In the extreme S. E. part of the N. E. 1/4 of the S. W. 1/4 Sec. 11, T 21 N R 4 W. "Mound 2". Strike E. 33° S.

Dip 83° S. Norman's Specimens 9835–9841 inc. come from this place.

13817a Lenses Banded Iron Schist. From "River Shaft". In the N.E. part of the N.E. ¼ of the S. W ¼ Sec 11.

13818 Hematitic and Magnetitic Iron Schist. From "Old Dubuque" opening in the west part of the N. W ¼ of the S. E ¼ Sec 11, T 21 N, R 4 W. Mis.

13819 Hematite and Limonite. Richest material obtainable by picking from seams at Black Smith Shop opening.

13820 Actinolite Magnetite Rock. From top of "Mound 1"

13821 Actinolitic Magnetite Iron Schist. From top of "mound 1"

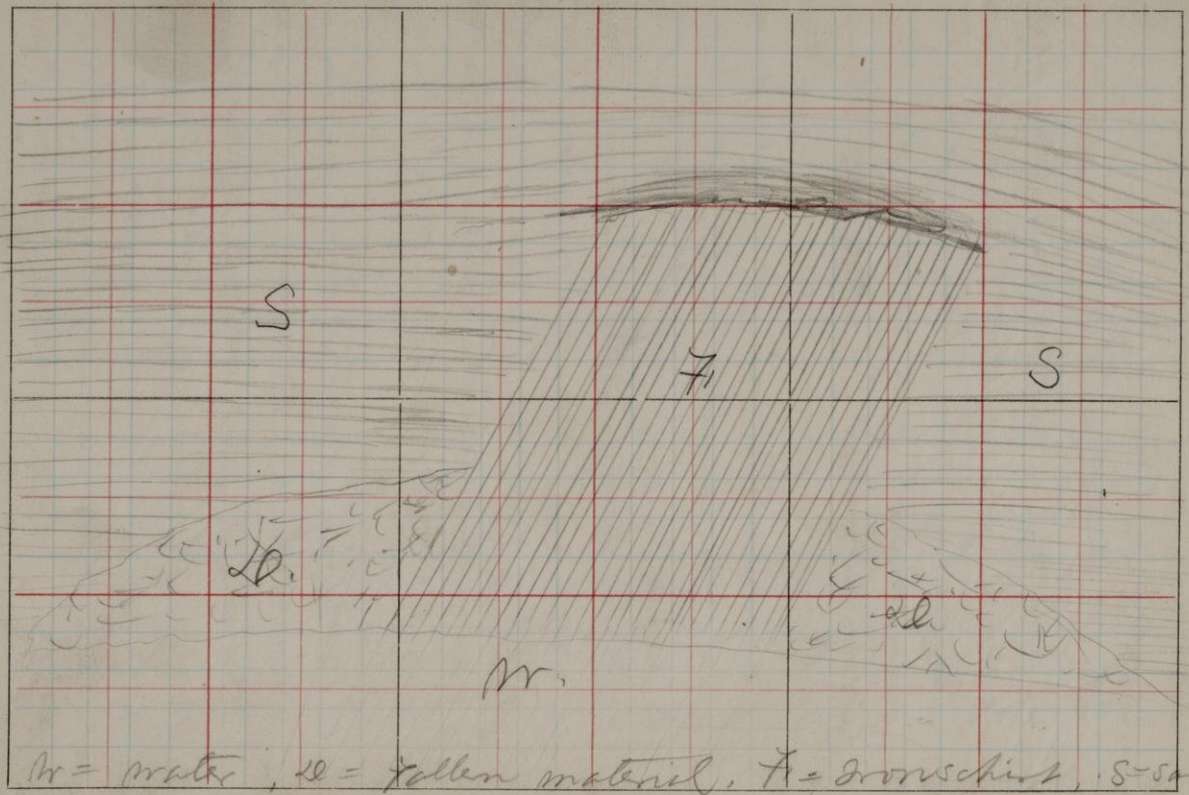
From top of mound 1, mounds 7 and 6 were plainly visible, and with dial compass sites mound 7 in direction E 10° S. and mound 6, N. 42° E.

13822 Magnetite many Schist. From west end of "mound 5" in the S. E ¼ of the N. E. ¼ Sec 12 T 21 N R 4 W. Wis. Strike E 30° S. Dip 60° S.

13823 Iron Breccia, Taken from
13824 junction of ferruginous
13825 formation and Potsdam Sandstone, E. end of "mound 5" The ferruginous schists which are capped with the above breccia have the same strike and dip as shown by some schists at west end of mound 13822.

6 Mound 6 is located in the center of the S. E. 1/4 of Sec 31 T. 62 N. R 3 W. 5th P.M. to large exposures of the supposed ferruginous schists which from the many loose fragments are supposed to constitute the mass of the hill — are here found. These fragments and masses are so numerous and large as to leave no doubt that the hill is composed of this material. The fragments are of the same lean magnetic and hematitic quartz schist characteristic of mounds 1, 2, and 5.

Traveling north-west from mound 6, Black River is reached at about a half miles distance. The ferruginous schists of the region are well exposed upon both sides of the river and upon the west side of the river



Wr = water, fa = fallen material, Fl = Flowschist, S = Sandstone

these schists dipping at a high angle to the southward are overlain by horizontal Potsdam sandstone presenting a beautiful unconformity. A cliff of the schist has stood up in the sea of the Potsdam time; about this cliff the sandstone has accumulated and near the top of the cliff there is a bowing up of the horizontal layers of the sandstone, as though affected by false bedding upon account of the proximity of the schist. Upon the opposite page is a rude sketch of this interesting exposure as seen from across the river.

Upon the east side of the river the ferruginous schists are also well exposed, but here the overlying sandstone is not seen. The strike is here E. 30° S. Dip 50° South.

13826 Ferruginous Slate – Lean iron ore seam of material enriched by weathering action.

13827 Hematitic and Magnetitic Quartz Schist from same place.

13828 Sericite Schist at north end of some exposure.

"Mound 7"

This mound is situated principally in the S. E. ¼ Sec 15, T 21 N R 3 W, but running over into the S. W. ¼ of the S. W ¼ of Sec 14

13829 Hematitic and Magnetitic Quartz Schist. From the top of the center of mound. Strike here E 28° S 32° S, dip 83° South.

13830 Gneiss. From pit at north foot of center of mound

13831 White Quartz from vein contained in gneiss.

13832 Hematitic and Magnetitic

Quartz Schist. South side of
center of mound where drift and
shaft have penetrated the hill
13833 Ore. From seam said to be 2'
wide for this place and from
which 100 tons of ore of a work-
able character has said to have
been taken. This material appears
to differ from the leaner rock (leached out
surrounding in that the quartz has been
13834 Mica Schist. Taken from
end of drift from which
13832 and 13833 come. In drift
the banded schist in one place
is said to be somewhat con-
torted and shows lower dip
than average for hill.

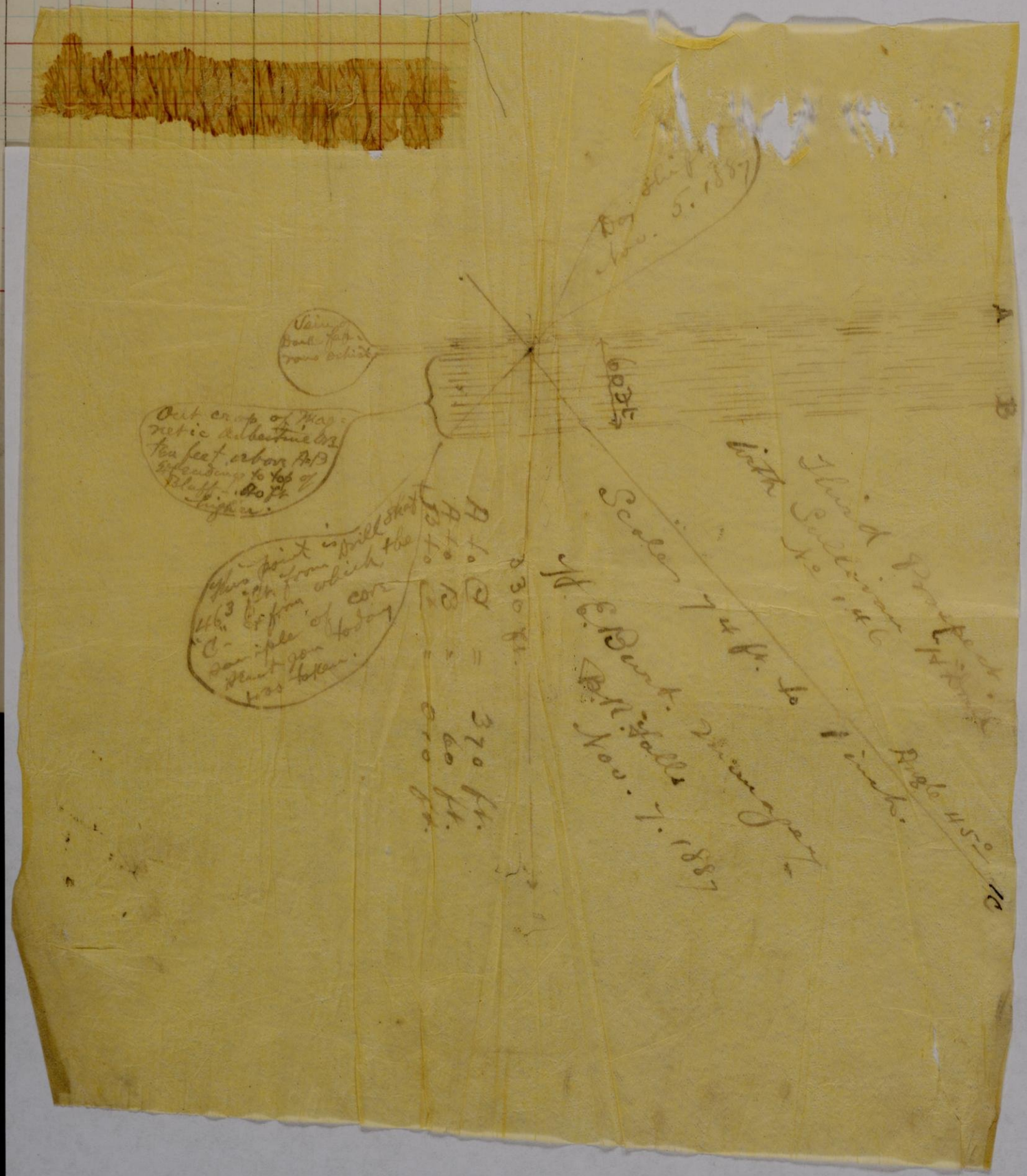
Mound seven was thoroughly
walked over. A large part
of it is exposed naturally
and where not thus exposed
is in many places cut by
test pits. It is practically
all the same material
Hematitic and magnetitic Quartz

Schist. In seams where the quartz has been dissolved out, the proportion of iron oxide is somewhat greater than in the the average mass of the hill.

12835 Hematitic and Magnetitic Iron Schist. From mound 7, located in S.E. ¼ of S.W. ¼ Sec 1, T 21 N., R 4 W., Miss. Meridian. Strike E 30° S. Dip 80° S. The sides of the mound are covered to a greater or less extent by the Potsdam Sandstone, which in places where the sandstone and iron schist are found near each other, becomes an iron breccia, the ~~top~~ pebbles being from the ferruginous schist and the cement sandstone. This breccia is in the nature of a true basal conglomerate. This conglomerate and sandstone

T. R.

covers the entire west



covers the entire west end of the mound.

13836 Specimens of the breccia
13837

13838 Granite from south of Black River Falls furnace near the center of the N ½ Sec 14, T 21, R 4 W. Misc.

The following specimens were taken from a drill hole, old of which is annexed, and which is located between the river and the east line of the N. E ¼ of the S. W ¼ of Sec 11, T 21 N R 4 W. and somewhat nearer the south than the north line of the 40. All specimens except first from hole 3.

No. Sp.	Month	Day of Month	Depth feet
13839			232
13840	10	11	138
13841	"	"	"
13842	"	"	145
13843	10	13	182

No Sp	Month	Day of month	Dabb fol.
13844	10	17	231.
13845	10	18	258
13846	10	20	279
13847	10	21	286
13848	10	27	313
13849	11	4	455
13850	11	10	500

The strike and dip of these mounds have great uniformity, and would incline one to believe that the rocks belong to a single unfolded series were it not for the fact that northern dips are found in the neighborhood - Sect. Wis. which makes it very probable that we have to do with a highly folded series, in which the same layer is many times repeated. The strike and dip are not more uniform than the character of the schist

which compels the conclusion of an enormous thickness of deposition of the same kind of rock or else of repetition of layers by folding.

The surrounding country is covered with Potsdam sandstone which must also without doubt completely covered all the mounds, but which has been removed by erosion, with the exception of the breccias or basal conglomerate which are found upon the flanks of several of the mounds. In one place besides this breccia, ordinary sandstone is found.

In this region under the Potsdam sandstone are also a series of granite, gneiss and mica schists, the gneiss and mica schists dipping at a high angle

The contacts of these rocks with the ferruginous schists are not found in natural exposure. The only place where found in contact with each other is at mound 7. Here on the north side of the mound a test pit and upon the south side a drift have exposed both series of rocks, but the relations of the two are not definitely known. Upon the south side of the mound according to H. E. Bent who conducted the excavation the mica schists and ferruginous schists are not in exact conformity.