Menominee dist., Mich.: [specimens] 48169-70, 48186-48214. No. 416 1905

Corey, G. W.
[s.l.]: [s.n.], 1905

U. S. GEOLOGICAL SURVEY

FIELD SECTION BOOK

9-891

LAKE SUPERIOR DIVISION.

INSTRUCTIONS.

1. Ordinarily at least two pages of this book will be devoted to one section. On the left-hand page, place a map of as much of the section as has *actually been seen.* Denote rivers, lakes, marshes, etc., by the usual topographical signs. Denote the ledges of rock, when no structure is made out, by cross-hatching, making the cross-hatching cover as nearly as possible the areas occupied by the exposures. If the rock is a massive one, but still more or less plainly bedded, use the same sign with a dip arrow and number attached, showing the direction and amount of the dip. Denote a shaly or other very plainly bedded ledge by right parallel lines, and a ledge having a secondary structure by wavy parallel lines running in the direction of the strike, with dip arrow and number attached as before. The greatest care must be taken to avoid confusing slaty or schistose structure with bedding, and in all cases where there is the least doubt about the true bedding direction, indicate it by a query. To each exposure on the face of the map attach the number of the specimen representing it. In mapping the section count each of the spaces between the blue lines as 100 paces, and twenty of these spaces to one mile, or 2,000 paces. Usually the southeast corner will be placed at the bottom of the page, or at the first black line above the bottom of the page, and at the right-hand side. If, however, for any reason, it is desirable to show portions of an adjoining section, the southeast corner may be shifted up, or the map may be turned around and the north placed at the left-hand side of the page. The ruling of the left-hand pages is also arranged so that, if desirable, a larger or a smaller scale can be used, eight inches, two inches, one inch, or one-half inch to the mile. With the two-inch scale, the squares outlined in black represent sections, and those in red, quarter sections and "forties," while the space between the blue lines is 200 paces.

2. On the right-hand page place the notes descriptive of the exposures. Begin in each case with the number of the specimen, placing the number on the left-hand side of the red line, after which give in order on the right of the same red line the position of the ledges as reckoned in paces from the southeast corner of the section and the dip and strike when observable, the latter always being expressed from the north; for instance 4025, 250 *N.*, 300 *W.*, *Strike, N.* 78° *E.*, *Dip* 50° *S.* Then follow with a full description of the ledge. When topographical maps are used for locations this paragraph applies only in part.

3. Collect a specimen from every ledge, or wherever there is a change of rock on any one ledge, taking care to get fresh material, unless for a special purpose the weathered surface is desired. In case of trips made on foot or in canoes, for long distances, neighboring ledges, unquestionably of one kind of rock, need not be specimened. The position and extent of the ledges not specimened should be marked on the map, with notes that each is of a rock identical with specimen so-and-so. Under the same conditions small-sized specimens, trimmed to a uniform size of 2 x 2½ x ¾ inches will be allowed, but in all other cases *large-sized specimens*, trimmed to a size of 3 x 4 x 1 inches, must be selected, in accordance with section 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. Specimens should not be placed together without protection in the collecting bag, as the fresh surfaces, important in determining the character of rocks, are thus destroyed. They should be damaged by no temporary mark, but the numbers should be at once marked in at least two places upon the inclosing paper or cloth bags. Specimens may be permanently marked in camp by painting the numbers upon them in white upon a black background, using Silver White and Ivory Black oil tubes for color, with turpentine as a diluent.

4. On the last twenty-five pages of the book give, as may seem desirable, a general account of the examination of the region mapped in the previous pages, correlation of observations, sketches, cross sections, etc.

5. Forward this note book as soon as filled as registered mail matter to C. R. Van Hise, U. S. Geologist, Madison, Wis.

G. W. Lovey,
Houghton, Mich.

-1905-

Notebook No. 416.

Specimens 48169-70.

+ 48186-48214

40-18

Summary of Conclusions.

Southern Greenstone Schist Area.

(1.) The Greenstone schists are older than the Huronian sediments to the north.

(2.) The northern limit, of the Amimesse Schists in the Florence District, is as indicated by the dotted ink line on the Huronian map (tracing).

"Western Area" - Menominee Dist.

(1.) The Western Area of the Menominee District and its westward extension in the Florence district, is not essentially a greenstone area but rather an area in which the predominating rocks are sediments

(2.) The greenstones of this area are intrusive into the sediments.

(3) That the areal distribution of the greenstones is fairly well indicated by their actual outcrops.

"Western Area" of the Menominee District and its westward extension in the Florence District.

The greenstones of this area form irregular areas of rather limited extent. These areas are longer from E to W than from N to S. Evidence of the intrusive character of the greenstones is found along the Brule and Menominee Rivers in T 40 N, R 18 E Wis. In Sec 9-40N-18E at several points along the Brule, are to be found outcrops of the massive greenstones in contact with the slates. In every case the slates are more micaceous near the contact than elsewhere. In fact they become mica schists and occasionally is seen a slight development of some secondary mineral, probably garnet. In every case along the Brule, the contacts of the greenstones and sediments are not sharply defined, the greenstones being schistose and chloritic at the contacts. In Sec. 13, 40N, 18E greenstone is found in contact with a micaceous quartzite. The actual well defined contact may be seen here, and the intrusive character of the greenstone is clearly shown. A wedge of the greenstone cuts the quartzite at 1650 paces N - 200 pW Sec 13, T 40N, R 19E. The quartzite at this place is much fissured and shattered.

The Bruli River, where it crosses the east half of Sec 9-40N-18E is a favorable place to see the way in which the intrusive greenstones stand out prominently as hills in the slate area. The river here cuts through the slate and greenstones giving a grand cross section. The conclusion is here forced on one, that the actual outcrops of the greenstones of this area, represent with a very fair degree of accuracy, the actual distribution of the greenstones. The actual outcrops of the greenstones are many times longer east and west than north and south as has been noted. This however does not justify one in correlating greenstone knobs because they happen to line up in the direction of their long dimensions.

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Southern Greenstone Schist Area. The westward extension of the "southern area" of the Hemmingford district.

The Ammessic schists are represented in the southern part of the Florence district chiefly by a hornblendic gneiss which is at points micaceous. This gneiss is cut by basic and acid intrusives, the former being the most abundant.

In section 28, T39N, R18E is found the best cross section of the lower part of the Huronian rocks. The sediments here lie unconformably against the greenstone schists. The unconformity is marked by a conglomerate containing pebbles of chlorite exposed along both the north and south banks of the Pine River. On the north bank at 1000 paces N - 1100 paces W of the SE Cor. Sec 28 T39N. R18E the best exposure is seen in the low bank of the river. Following down the river from this point the conglomerate grades up into a conglomeritic slate and slate. At a distance of 300 paces a narrow band of actinolitic chlorite schist is found. This schist is a metamorphosed phase of the tuff immediately following which is found well exposed in the small hills along the river at and below this point. The slates strike N54W. The schistosity of the tuff his N85E. The tuff is made up of fragments which vary in sizl from 4 inches to $\frac{1}{8}$ inch. and less. The most abundant fragments are about 1" in diameter. The fragments are drawn

into eyes by pressure and are invariably rounded. The material of the matrix and pebbles is identical in character as far as can be determined with a hand lens.

At 1500 N - 100 W (Sec. 28, T. 39 N., R. 18 E.) is found a quartzite striking N 47 W. This horizon is traceable from this point across section 28, 20 and 19 in T. 39 N., 18 E. passing just North of the NW cor of section 28; at ¼S between 20 and 19 and 150 paces north of the north west corner of section 19. From this point, where the strike has reached to N. 78 W. by gradual swing, the quartzite is traceable only a few hundred paces across the south east quarter of section 13 in T 39 N, R 17 E. Beyond to the westward this horizon is not traceable. The quartzite has an average surface width of about 100 paces and is uniformly of light gray color. It contains rounded pebbles of granulated quartz. To the north of this quartzite belt lie the gray slates" so common in the Hamburg.

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48169 Quartz conglomerate. N. of Pine River breakwater, Sec. 28-39 N, 18 E. 1725 paces N. - 1375 W. Wis.

48170 150 Paces N. of N. E. Cor. 24-39-17, Wis.

48186-48214 Collected by G W Corey & C. F. Bowen summer of 1905, from Florence Dist (Wis.) (Black Nos. U.S.G.S., red Corey & Bowen's)

48186 (1) Upper Pine River Falls in N. W. 1/4. Sec. 36-40 N, 16 E. Close to contact.

48187 #2 Upper Pine River Falls in N. W. 1/4. Sec. 36-40 N, 16 E. About 8 paces E. of contact.

48188 (2) Pine River Breakwater. Pebble from tuff. 39-18 E

48189 #3 Upper Pine River Falls in N. W. 1/4. Sec. 36-40 N, 16 E. About 11 paces E. of (contact.)

H8190 (3) Pine River Breakwater. 39-18 E

H8191 #4 Upper Pine River Falls in N. W. 1/4 Sec. 36-40 N, 16 E. About 20 paces E. of (contact?)

H8192 (4) Pine River Breakwater. Old Greenstone tuff. 39-18E

H8193 #5 Upper Pine River Falls in N. W 1/4 Sec. 36-40 N, 16E. About 28 paces E. of (contact) showing tourmaline.

H8194 (5) On Pine River N. Bank below the breakwater. 39-18E Old Greenstone tuff.

H8195 (6) 1700 N. and near W. line of Sec. 28-39-18.

H8196 #6 Upper Pine River Falls. About 30 paces E. of (contact) 40-16E (at real contact) Diabase.

48197 (7) 1700 N. and near W. line of Sec. 28-39-18.

48198 #7 Upper Pine River Falls in N.W. 1/4 Sec. 36-40 N, 16E. Diorite

48199 #8 Upper Pine River Falls (Dike?) in Diorite. N. W. 1/4. Sec. 36-40 N, 16E.

48200 (8) 1700 N and near W. line of 28-39-18.

48201 #9 Latest intrusive (dike) at Upper Pine Falls. Sec 36-40 N 16E. On N.W. 1/4 sec.

48202 (10) Pine River breakwater. Part of "Diorite" conq. 39-18E

48203 (11) Pine River, Diorite conq. 28-39-18. Center of section.

48204 (12) Slate. W. end of Pine River breakwater. 39-18E

48205 (15) On Brulé. 100 N 100 W of N.W. Cor. 13-40-18.

48206 (16) Diorite. NW 1/4 of NE 1/4 of 35-40-17. near road.

48207 (17) Quartzite on Brulé in N.W. 1/4 of Sec. 9. N. of Florence. 40-18

48208 (18) North of Little Quinesec Falls. 38-20E

48209 (21) Gneiss. 250 N of S.W. Cor. of Sec. 15-39-17.

48210 (24) 78 paces N. of S.E. Sec. Cor. of Sec. 24-39-17.

48211 (26) 833 paces N. of S.E. Cor. 24-39-17.

48212 (27) 300 paces N. of S. 1/4 Sec. 24-39-17.

48213 (29) N. of Sandstone Conglomerate in S.E. 1/4 13-39-17.

48714 750 N.- 550 W. Sec. 15-39 N, ~~16~~ 17 E.
(31) Wisconsin.