

Walter N. Elswick No. 1(1226) Well.

Greenbrier District, Summers County, W. Va.

By Godfrey L. Cabot, Inc., Charleston, W. Va.

Located 0.2 Mi. S. of 37° 40' and 4.63 Mi. W. of 80° 45'

Big Bend Quadrangle, E. C.

Elevation, 1526'L.

Permit Sum - 1

Drilling commenced Nov. 14, 1946; completed Dec. 1, 1947.

13" casing 12'; 18" 471' (collar show); 8", 1205' (show); 7", 5614' (show);
5" 5614' (show);

Section based on samples from 100' to 6957', examined by Russell R. Flowers.

Top Bottom Thickness

MAUCH CHUNK GROUP 1002, plus feet.

100	106	6	Shale, red, 70%; siltstone, gray 30%
106	110	4	No sample
110	119	9	Shale and siltstone, red; a little limestone
119	128	9	Shale, red, 90%; shale, dark-gray, 5%; siltstone, grayish-red, 5% (toward bottom of interval)
128	142	14	No sample
142	153	11	Shale, red 70%; shale, greenish-gray to dark-gray, 15%; calcite, white, coarse-grained at top, 5%; siltstone, greenish-gray to red, micaceous toward bottom, 10%
153	158	5	No sample
158	162	4	Siltstone, calcareous, very light gray to reddish-brown, 30%; shale, red and gray, 70% with trace of calcite
162	168	6	Clay, shale, red, 70%; shale, gray, 30%
168	178	10	Shale, very dusky red, calcareous, silty, shale, greenish-gray, very calcareous; limestone, gray, pisolitic, silty; appears be in thin beds
178	188	10	No sample
188	194	6	Shale, gray, silty; siltstone, greenish-gray; limestone, light to dark brown to gray
194	205	11	Shale and siltstone, grayish to very dusky red, 65%; shale, greenish-gray to dark-gray, 35%
205	248	43	No sample

248	258	10	Clay-shale, grayish-red at top of interval; siltstone, shaly, very dark red, and shale, green
258	293	35	No samples
293 ³	305	12	Shale, light-to dark-gray, silty, moderately calcareous with grayish-green to grayish-red shale toward bottom
305	311	6	No sample
311	325	14	Shale, grayish-red, silty; shale, greenish-gray; clay, silty, dark-gray
325	333	8	Clay-shale, black, silty, 20%; shale, gray and grayish- brown, moderately calcareous
333	336	3	No sample
336	355	29 ¹⁹	Sandstone, very fine to fine grained, light-gray with carbonaceous streaks; clay-shale, brownish- gray to black, carbonaceous, pyritic
355	374	19	Shale, gray, moderately calcareous, with some carbonaceous streaks
374	416	42	No samples
416	426	10	Shale, light-to dark-gray, calcareous
426	436	10	No samples
436	440	4	Shale, gray, partly calcareous - some carbonaceous material
440	466	26	No samples
466	472	6	Siltstone, grayish-red, very sandy, micaceous, moderately calcareous
472	488	16	No samples
488	494	6	Shale, gray, slightly calcareous; limestone, gray to brown, partly dolomitic; a small amount of gypsum
494	508	14	Siltstone, grayish-red and greenish-gray, shaly, what micaceous, some/glauconitic ?
508	523	15	Siltstone, greenish-gray to brownish-gray, 80%; siltstone and shale, grayish-red to very dusky red, 20%
523	535	12	No samples

535	540	5	Shale, gray, calcareous; limestone, gray, shaly; trace of calcite as crystal aggregates
540	561	21	No samples
561	598	37	Sandstone, white to light gray, very fine to fine-grained, streaks of micaceous siltstone, moderately calcareous at top
598	636	38	Clay-shale, gray, laminated, soft, 75%; limestone, brownish-gray to black, 25%
636	653	17	Limestone, brownish-gray, light to dark gray, moderately dolomitic, shaly, 40%; trace of pyrite; siltstone, light-to dark-gray, calcareous, shaly, 60%
653	661	8	No samples
661	685	28	Shale, gray, distinctly laminated, highly calcareous, fossiliferous, pyritic
685	693	8	Shale, gray, silty, dolomitic, fossiliferous, 67% limestone, dark gray streaked with white, 33%
693	698	5	No sample
698	734	36	Limestone, dark gray, shaly, fossiliferous, some pyrite towards bottom
734	742	8	Siltstone, light-to dark-gray, calcareous;
742	788	46	shale, gray, silty
742	788	46	Limestone, mottled gray and white, somewhat oolitic, somewhat shaly at bottom
788	809	21	Sandstone, very fine to fine-grained, light-to medium-gray, calcareous, 75%; shale and siltstone (at bottom), gray 25%
809	822	13	Siltstone and shale, gray, calcareous
822	829	7	No sample
829	836	7	Limestone, dark gray, fossiliferous, oolitic; siltstone, light green to greenish gray, ^{slightly} calcareous 40%; shale, gray, silty, calcareous; limestone, dark gray
836	843	7	Siltstone, light-to medium-gray, calcareous 40%; shale, gray, silty, calcareous; limestone, dark gray
843	863	20	Sandstone, white to light greenish gray, fine-grained, calcareous, 60%; shale and siltstone, light grayish green to gray, 35%; limestone, dark gray to brown, 5%

863	872	9	Siltstone and shale, gray, slightly pyritic, calcareous, 90%; limestone, dark gray to brown, 10%
872	888	16	Shale and siltstone, medium gray
888	892	4	No sample
892	895	3	Limestone, silty and calcareous siltstone, brownish-gray to dark-gray, 70%; shale, greenish-gray to medium-gray, slightly calcareous, laminated
895	917	22	Sandstone, white to light gray, fine-grained, calcareous, 60%; shale (in bottom two-thirds) light greenish gray, very sandy in part, 30%
917	928	11	Sandstone, fine-grained and siltstone, light gray to light greenish gray, highly oolitic (calcite oolites), 40%; limestone, nearly white to light brown, grades into siltstone and sandstone, 60%
928	934	6	Limestone, brown to greenish-gray, very sandy, and shaly, highly oolitic
934	949	15	Limestone, light to dark brown, fossiliferous, highly oolitic, sandy
949	985	36	Limestone, light brown to very dark grayish brown, highly to very highly oolitic, fossiliferous with very little residua
985	1002	17	Shale, grayish-red to dark-red at top with greenish-gray to gray, silty, calcareous, shale in middle and bottom of interval
1002	1009	7	Shale, gray to greenish-gray, silty, calcareous to a limy shale that grades into a brown limestone
1009	1015	6	Shale, greenish-gray, limy; shaly limestone; limestone, light brown
1015	1026	11	Interbedded: Shale, medium-gray, silty, calcareous; shale, greenish gray, silty, moderately calcareous, and limestone, light-brown to greenish-gray
1026	1048	22	Limestone, nearly white to light-brown and greenish-gray, slightly dolomitic, at top interbedded with grayish-brown to greenish-gray, shaly, calcareous, siltstone
1048	1102	54	Limestone, dark gray, shaly, fossiliferous

GREENBRIER LIMESTONE 875 FEET

1102	1110	8	Limestone, dark brownish gray, fossiliferous, shaly in part (moderate amount of residue)
1110	1117	7	Limestone, light-to medium-gray, shaly, oolitic
1117	1131	14	Limestone, nearly white to light grayish brown with gray, shaly limestone and gray, silty, calcareous shale at bottom
1131	1146	15	Interbedded limestones; at top, limestone, dusky-red, shaly; limestone, nearly white to light-gray, highly oolitic, and at bottom, limestone, light greenish gray, shaly
1146	1165	19	Limestone, nearly white to dark grayish brown, highly oolitic, interbedded with a thin light greenish gray, shaly limestone
1165	1179	14	Limestone, dark grayish brown, shaly, oolitic
1179	1220	41	Limestone, medium-to dark-brown, oolitic, fossiliferous, less oolitic toward middle and bottom of interval
1220	1249	29	Limestone, light to dark brownish gray, oolitic, interbedded with a thin gray, silty and shaly limestone which becomes a gray, calcareous shale toward the middle of the interval
1249	1270	21	Limestone, light-to medium-gray
1270	1280	10	Limestone, white to light brown, mostly oolitic
1280	1290	10	Limestone, light to dark brownish gray, fossiliferous, somewhat oolitic
1290	1329	39	Limestone, light to medium brownish gray, highly oolitic, moderately fossiliferous and is almost entirely oolitic with calcite cement at the top
1329	1335	6	Limestone, light to dark brownish gray, silty in part, fossiliferous, oolitic
1335	1354	19 22	Limestone, medium to dark brownish gray, small amount of shale in middle and lower part of interval
1354	1375	21	Limestone, medium-gray, silty, considerable silica residue when treated with HCl
1375	1401	26	Limestone, nearly white to medium grayish brown, highly oolitic at top decreasing toward bottom

1401	1427	26	Limestone, medium to dark brownish gray, fossiliferous, slightly cherty, large residue when treated with HCl and at the bottom greenish gray to gray, very silty, moderately oolitic limestone
1427	1470	43	Limestone, dark brownish gray, fossiliferous and oolitic in part, partly dolomitic with a thin, brown limestone at the bottom
1470	1476	6	No sample
1476	1495	19	Limestone, light to dark brownish gray to gray, dolomitic (?) in part
1495	1503	8	Shale, dark gray, highly calcareous ^e , silty, fossiliferous at the top
1503	1506	3	Limestone, silty, medium to dark brownish gray, oolitic and fossiliferous
1506	1511	5	Limestone, medium to dark grayish brown, highly oolitic
1511	1538	27	Limestone, dark brownish gray to dark gray, silty in part
1538	1556	18	Limestone, dark gray, slightly fossiliferous and partly dolomitic at middle, very shaly toward bottom. At bottom a thin limestone, dark brown with light spots, highly xxx fossiliferous
1556	1575	19	Siltstone, gray, highly calcareous; limestone, medium to dark gray, very shaly, moderately dolomitic in part
1575	1597	22	Limestone, light-to dark-brown to brownish-gray, fossiliferous, oolitic at the top and middle; limestone, light-to medium-gray, shaly, dolomitic
1597	1612	15	Limestones interbedded: at the top, a light grayish-brown limestone; limestones, light to medium grayish red, moderately dolomitic and nearly white to medium grayish-green, moderately dolomitic
1612	1629	7	No sample
1619	1627	8	Limestone, grayish-red, very shaly, moderately dolomitic
1627	1634	7	No sample

1634	1646	12	Limestone, light to dark, grayish-brown, sandy, oolitic in part, interbedded with thin, medium gray, shaly and thin, red and green, dolomitic limestones
1646	1678	32	Limestone, medium to dark grayish-brown, moderately oolitic, dolomitic in part
1678	1687	9	Shale, dark gray, highly calcareous, silty
1687	1716	29	Limestone, nearly white to dark grayish-brown, slightly dolomitic near center, and highly oolitic at the bottom
1716	1722	6	No sample
1722	1736	14	Siltstone, light brownish-red to brown to gray, highly calcareous, interbedded with a light gray to dark brown, partly oolitic limestone
1736	1743	7	Limestone, dark brown to gray, clastic texture, mostly oolitic
1743	1760	17	Limestone, medium brown, dolomitic with a few feet of dark gray, silty, highly calcareous shale at the top
1760	1786	26	Limestone, light-to medium-brown, slightly dolomitic at the top increasing to moderately dolomitic at bottom
1786	1797	11	Limestone, light-brown, sandy, dolomitic (?), 50%; limestone, light gray, shaly, 50%
1797	1815	18	Limestone, dark brownish-gray, shaly and silty, fossiliferous, interbedded with a thin, green, calcareous shale at the middle, and a thin brown, oolitic limestone
1815	1826	11	Limestone, light to dark brown, slightly sandy with an occasional large sand grain, interbedded at top with a thin, dark brownish-gray limestone and at bottom a thin, light gray, shaly limestone
1826	1844	18	Limestone, light to dark brown, partly sandy and dolomitic at top
1844	1846	2	Shale, gray, silty, highly calcareous
1846	1867	21	Limestone, light-brown to brownish-black, slightly cherty at top and slightly dolomitic toward bottom

1868	1882	15	Dolomite, white to light gray, calcareous, slightly cherty, interbedded with a thinner, light brown to brownish black limestone that has highly dolomitic portions
1882	1907	25	Dolomite, white, very sandy, calcareous, interbedded with a thin light olive gray to greenish gray, highly dolomitic, calcareous, shale
1907	1912	5	Shale, light olive gray to medium gray, highly dolomitic, calcareous; limestone, brownish-gray to brownish-and grayish-black, highly oolitic, fossiliferous, trace of chert
1912	1935	23	Interbedded limestone, brownish-gray to brownish-black, slightly dolomitic, cherty; at top, medium-gray, dolomitic shaly limestone; lower in the interval thin, green to greenish-gray, moderately dolomitic, slightly calcareous shales
1935	1942	7	Limestone, brownish-gray to brownish-black, highly dolomitic in part, moderately cherty
1942	1956	14	Limestone, brownish-black, highly dolomitic, slightly cherty; trace of gypsum
1956	1977	21	Interbedded; limestone, light brownish-gray, highly dolomitic, silty in part; limestone, brownish-gray to brownish-black, dolomitic; a small amount of anhydrite; near the bottom, shale, light gray to greenish-gray, highly dolomitic, calcareous
MACCRADY FORMATION, 47 feet			
1977	1998	21	Interbedded: siltstone, gray to greenish-gray, calcareous, streaked with dolomitic limestone, 25%; shale, grayish-red calcareous, silty, 25%; trace of white anhydrite
1998	2007	9	Shaly dolomitic limestone to calcareous, dolomitic shale and siltstone, gray to greenish-gray, 75%; shale and siltstone, grayish-red to reddish-gray, 25%
2007	2023	16	Interbedded: shale and siltstone, grayish-red, calcareous; siltstone to shale to shaly dolomitic limestone, gray to greenish-gray; a small amount of anhydrite with included chlorite

2023	2024	1	Shale, grayish-red, partly calcareous
POCONO FORMATION & DEVONIAN SHALES 4623 FEET			
2024	2052	28	Siltstone and shale, brownish-gray to greenish-gray, moderately calcareous; small amount of anhydrite with chlorite inclusions
2052	2073	21	Clay-shale, 80% [*] moderately calcareous, light olive-gray to greenish-gray, contains much sand (fine to coarse) well rounded for the most part, small amount of pyrite and chlorite interbedded with brownish-gray to greenish gray shale and siltstone, 20%
2073	2080	7	Sandstone, light pinkish-gray to light greenish-gray, fine to coarse, angular to subangular, a very tight sand; shale, gray, grayish-red, brownish-gray, greenish-gray (cavings ?); clay-shale, 20%
2080	2092	12	Sandstone, light greenish-gray to nearly white, fine to coarse, angular to subangular, a small amount of chlorite scattered throughout
2092	2097	5	Sandstone, light olive gray, very fine and very tight
2097	2102	5	No sample
2102	2142	40	Sandstone, brownish-gray, very fine, silty, micaceous, slightly calcareous (very tight sand)
2142	2149	7	Sandstone, brownish-gray, very fine, silty, micaceous (very tight) silty, micaceous, slightly calcareous; interbedded with a siltstone and a light brownish-gray brownish-gray, fine to coarse sandstone
2149	2164	15	Interbedded: shale, brownish to grayish-black; sandstone, brownish-gray, very fine to coarse, silty in part
2164	2180	16	Shale, brownish-to grayish-black; siltstone, brownish-gray, sandy, micaceous. The shale predominates at the top
2180	2194	14	Siltstone to fine sandstone, brownish-gray, interstratified with thinner layers of medium dark gray shales and siltstones
2194	2197	3	No sample
2197	2202	5	Sandstone, light greenish gray with light reddish-gray streaks, very fine, very tight

2202	2206	4	No sample
2206	2225	19	Shale, brownish-to grayish-black, silty
2225	2240	15	Siltstone, brownish-gray to brownish-black
2240	2256	16	Siltstone, brownish-gray to medium dark gray, coarse, calcareous in part, sandy
2256	2290	34	Siltstone, brownish-gray to medium dark gray, fine-to coarse-grained, calcareous in part; small amount of medium to dark gray, silty shale
2290	2307	17	Siltstone, light olive gray to medium gray, coarse to fine, slightly to moderately calcareous with a medium to dark gray, poorly laminated, silty shale near the bottom
2307	2341	34	Siltstone, brownish and light olive gray to medium gray, moderately calcareous, fine-to coarse-grained with a mottled greenish-black and brownish-red, medium to coarse, moderately calcareous siltstone near the top
2341	2347	6	No sample
2347	2356	9	Siltstone, light-to medium-gray, fine-to medium-grained calcareous in part, 80%; shale, medium-to dark-gray, silty, laminated, 20%
2356	2375	19	Siltstone, brownish-gray and medium gray to medium dark gray, fine-to medium-grained, with a small amount of medium-to dark-gray shale
2375	2400	25	Siltstone, light to dark brownish-gray, fine-to medium-grained
2400	2450	50	Shale, dark-gray to grayish-black, 80% (Sunbury shale ²); sandstone, light brownish gray, fine-grained, 10%; siltstone light-to medium-gray, coarse-to fine-grained, 10%
2450	2525	75	Sandstone, yellowish-gray, subangular to curvilinear, a fairly tight sand, fine-to medium-grained at the top, fine toward the middle, and very fine grained to coarse silt at the bottom (Berea ²), 50%; shale, medium to dark gray at top, medium dark gray to grayish-black toward the bottom, 50%
2525	2550	25	Shale, medium dark gray to grayish-black

2550	2580	30	Shale, medium to dark gray, distinctly laminated in part, very sandy in part interbedded with a medium gray fine to coarse grained siltstone at the bottom
2580	2610	30	Siltstone, light to medium gray, fine to medium grained, shaly; trace of calcite and siderite
2610	2625	15	Siltstone, very light to light gray, coarse-grained, 85%; shale, medium-to dark gray, silty, 15%
2625	2650	25	Siltstone, very light to light gray, medium-to coarse- grained, 60%; siltstone and shale, medium-to dark-gray , micaceous, 40%; siltstone, medium-grained, sideritic; trace of calcite
2650	2677	27	Siltstone, very light gray, coarse; trace of calcite
2677	2692	15	Siltstone, very light gray to dark brownish gray, shaly
2692	2707	15	Shale, medium-gray to grayish-black, very silty
2707	2713	6	Siltstone, very light gray, medium grained, slightly calcareous, interbedded with a medium to dark gray, very silty, thin shale
2713	2732	19	Siltstone, very light gray to medium, partly shaly, very slightly calcareous with a very silty, medium dark to dark gray shale at the bottom
2732	2744	12	Siltstone and shale, very light to dark gray, very slightly calcareous
2744	2768	24	Shale, light to dark gray, very silty; small amount of dolomitic limestone; pyritic toward the bottom
2768	2780	12	Siltstone, medium light gray to light brownish-gray, fine-to coarse-grained, interbedded with a medium- gray to grayish-black, slightly pyritic shale
2780	2784	4	No sample
2784	2794	10	Shale and siltstone, medium light to dark gray; trace of siderite; trace of calcite
2794	2824	30	Siltstone, very light to medium light gray, very shaly, fine-to coarse-grained, calcareous in part, interbedded with a medium light gray to grayish-black, very silty shale near the top
2824	2890	66	Siltstone and shale, light to medium dark gray, slightly calcareous near the bottom

- 2890 2990 100 Siltstone and shale, very light to medium gray, very slightly carbonaceous, slightly calcareous in part
- 2990 2999 9 Sandstone, brownish-gray, very fine-grained, very silty, moderately calcareous, 70%; siltstone, fine- to coarse-grained, olive gray to very light gray, 20%; shale, light-to medium-gray, silty, 10%
- 2999 3290 91 Shale and siltstone, light to medium dark gray to greenish-gray, ~~very slightly carbonaceous at top and middle~~, very slightly carbonaceous at the top and middle to slightly calcareous toward the bottom; trace of pyrite at the top
- 3290 3335 45 Shale, medium light to medium gray, silty, interbedded with a very light to medium dark gray to light olive gray, slightly calcareous, micaceous in part *siltstone*
- 3335 3400 65 Siltstone, light-gray to light olive gray, slightly micaceous, slightly calcareous, interbedded with a light-to dark-gray, partly silty shale
- 3400 3430 30 Siltstone, very light gray to greenish-gray, moderately calcareous, interbedded with medium light to medium dark gray, partly silty shale in upper part; ~~interbedded~~ *scattered* fragments of limestone
- 3430 3445 15 Siltstone, very light to dark gray, ~~not~~ highly calcareous, shaly, coarse grained at top of interval and *at* bottom interbedded with a medium light to dark gray, very silty shale; scattered fragments of limestone
- 3445 3460 15 Siltstone, grayish-brown, brownish-gray, light-to dark-gray, moderately calcareous, 85%; shale, medium light gray to dark gray, dusky-brown to brownish-black, very silty in part, 15%
- 3460 3469 9 Siltstone, light to medium gray, highly calcareous, medium to coarse grained
- 3469 3603 134 Siltstone, light to medium dark gray to greenish-gray, moderately to highly calcareous, slightly carbonaceous toward the bottom, interbedded with small amounts of medium light to dark gray, silty shale

- 3603 3618 15 Siltstone, light to medium dark gray, slightly calcareous
small amounts of medium to dark gray, silty shale
- 3618 3635 17 Siltstone, dark gray to grayish black, moderately cal-
careous, with streaks of calcite, interbedded with
brownish-gray siltstone (streaked with calcite) and
a small amount of brownish-gray shale
- 3635 3658 23 Siltstone, light to medium-gray, slightly calcareous
with a small amount of medium-to dark-gray, silty
shale; ^{some} limestone fragments
- 3658 3766 108 Siltstone, greenish-gray and light-to medium-gray,
medium-to coarse-grained, slightly to moderately
calcareous; small amount of medium-to dark-gray,
very silty shale
- 3766 3900 134 Siltstone, light olive gray to medium gray, very
slightly to slightly calcareous, interbedded with medium
to light gray to dark gray, silty shale
- 3900 3960 60 Siltstone, light olive gray to medium gray, very slightly
calcareous; shale, medium light gray to grayish-black,
the grayish-black shale is very silty
- 3960 4507 547 Siltstone, light olive gray to medium-gray, very
slightly calcareous, interbedded with brownish-gray
to brownish-and grayish-black, silty shales; the
grayish-black shales are carbonaceous; pyritis in
part toward the bottom
- 4507 4539 32 Shale, grayish-black to black, carbonaceous, distinctly
laminated, 45%; shale, medium-gray to brownish-gray and b:
brownish-black, pyritic, 45%; siltstone, light olive
gray, slightly calcareous, 10%
- 4539 4615 76 Shale, medium-gray to brownish-gray to grayish-black,
grayish-black shale is carbonaceous; siltstone, light
olive gray to brownish-gray, pyritic, slightly cal-
careous
- 4615 4693 78 Siltstone, light olive gray to medium-and brownish-gray,
moderately calcareous at top to slightly calcareous
at bottom, micaceous at the top; shale medium-to brown-
ish-gray to black, black is carbonaceous, silty

- 4693 4780 87 Siltstone, very light to light-olive gray to medium gray, slightly calcareous at top, moderately calcareous toward the bottom, interbedded with a smaller amount of medium light gray to dark gray, partly silty shale; small amount of grayish-black to black shale
- 4780 4828 48 Siltstone, very light gray to greenish-gray to medium light gray, slightly to moderately calcareous; shale, light-gray to medium-gray, partly silty
- 4828 4921 93 Siltstone, light olive gray to greenish gray, slightly to moderately calcareous; interbedded with medium light gray to grayish-black, partly silty, partly laminated shales with mostly ~~the~~ dark shales toward the bottom
- 4921 5020 99 Siltstone, light to dark greenish ^{gray} to olive-gray, shale medium to dark gray, silty in part; trace of calcite
- 5020 5090 70 Siltstone, light to dark olive gray to greenish gray, slightly to moderately calcareous; interbedded with light-gray to grayish-black, silty shales
- 5090 5150 60 Shale, medium light gray to medium dark gray; siltstone, light to dark olive gray to medium gray, moderately calcareous
- 5150 5207 57 Interbedded: siltstone, light to dark olive gray to medium gray, very slightly calcareous; shale, medium-gray to brownish-gray to grayish-black, silty in part, increase in grayish-black toward bottom
- 5207 5240 33 Shale, grayish-black to black, carbonaceous, 50%; shale, medium light ^{gray} to brownish-gray to brownish-black, 35%; siltstone, light to dark olive gray to medium gray very slightly carbonaceous, 15%
- 5240 5296 56 Shale, medium-gray and brownish-gray to brownish-and grayish-black, poorly laminated, 80%; siltstone, light to dark olive gray to medium-gray, very slightly calcareous, trace of calcite

- 5296 5325 29 Siltstone, light to dark olive gray to medium gray, moderately calcareous, interbedded with medium to dark gray shale, moderately calcareous in part, laminated; the shale is present in greatest amount at top decreasing toward the bottom
- 5325 5360 35 Shale, brownish-gray to brownish-black to black, slightly to moderately calcareous, poorly laminated, interbedded with siltstone, light ^{to} dark olive gray; the siltstone is 10% at top increasing to 30% at the bottom
- 5360 5380 20 Siltstone, light to medium dark gray to greenish gray, ~~medium~~ to coarse-grained, very slightly calcareous, 50%; interbedded with a medium-gray to grayish-black, ~~50%~~ laminated shale, 50%
- 5380 5389 9 No sample
- 5389 5443 54 Interbedded; shale, medium-to brownish-gray to grayish-black, 80%; siltstone, light to dark olive gray to medium gray, very slightly calcareous, 20%
- 5443 5500 57 Shale, medium to brownish gray to brownish black to black, distinctly laminated, black shale is carbonaceous; siltstone, light olive gray, somewhat calcareous
- 5500 5576 76 Interbedded: Shale, grayish black to black, black is carbonaceous, 35%; shale medium-to brownish-gray to brownish-black, silty, 50%; siltstone, light to dark olive gray, 15%
- 5576 5615 39 No samples
- 5615 5808 193 Shale, grayish-black to black, black is carbonaceous, 35%; shale and siltstone, medium-to dark-gray, slightly carbonaceous, 65%; trace of calcite; small amount of limestone, white to yellowish-gray, very sandy at the top
- 5808 5848 48 Interbedded: Shale, medium light to dark gray, 50% at the top increasing to over 60% at base of interval; siltstone, medium light gray, moderately calcareous; trace of grayish black to black shale

5848	5860	12	Shale, medium gray to grayish black (in greatest amount), interbedded with siltstone, medium light gray to medium gray, fine to medium grained, slightly calcareous, and a small amount of highly micaceous, brownish gray siltstone, partly coarse-grained and partly extremely fine grained (cleaves readily in thin flakes)
5860	5960	100	Shale, medium-gray to grayish-black, silty, 90%; siltstone, light-to medium-gray, slightly to very slightly calcareous; trace of calcite
5960	6020	48 ⁶⁰	Shale, medium-to dark-gray, partly silty, 80%; interbedded with a grayish-black shale; black is carbonaceous, 20%
6020	6030	10	No sample
6030	6090	60	Shale, medium to dark-gray, 70%; siltstone light-to dark-gray, moderately calcareous, 25%; shale, grayish-black to black, 5%; trace of calcite
6090	6102	12	No samples
6102	6162	60	Interbedded: shale, medium to dark gray, partly silty, 60% siltstone, light to dark olive gray, slightly calcareous, 15% at top to ^a trace at bottom; shale, grayish-black to black; black is carbonaceous, trace at top to 30% at bottom; trace of calcite
6162	6194	32	Shale, medium-to dark-gray, silty; trace of calcite
6194	6205	11	No sample
6205	6271	66	Shale and siltstone, medium light to medium gray; trace of limestone
6271	6278	7	No sample
6278	6314	36	Shale, medium-to dark-gray, silty, small amount of limestone
6314	6375	61	Shale, medium-gray to black, silty, slightly carbonaceous, small amount of limestone
6375	6391	16	No sample
6391	6498	107	Shale, grayish-black to black, black is carbonaceous and decreases at the bottom of the interval; small amount of limestone at the bottom of the interval; small amount of limestone

- 6498 6518 20 Shale, medium dark gray to black, partly carbonaceous; small amount of limestone
- 6518 6525 7 No sample
- 6525 6569 44 Shale, medium dark gray to grayish-black, slightly calcareous, 60%-70%; shale, black, carbonaceous, 30%-40% increasing toward the bottom of the interval; small amount of limestone
- 6569 6647 78 Interbedded; Shale, black, carbonaceous, slightly calcareous at top to highly calcareous and moderately dolomitic at the bottom, 50% at top to 70% at bottom, interbedded with grayish black to dark gray, slightly carbonaceous, ^{shale} slightly calcareous at top to moderately calcareous to highly calcareous and moderately dolomitic at the bottom; small amount of dark gray, carbonaceous limestone

~~DEVONIAN STRATA~~

HUNTERSVILLE CHERT, 77 FEET

- 6647 6657 10 No sample
- 6657 6658 1 Chert, very light gray to brownish-gray, slightly calcareous; chert, milky white to medium dark gray, very shaly, highly calcareous in part
- 6658 6660 2 Shale, medium dark gray to grayish-black, highly calcareous and dolomitic, 80%; chert, light- to dark-brown, slightly calcareous, 20%
- 6660 6666 6 chert, very light gray to grayish-black, very shaly, highly calcareous and moderately dolomitic, very slightly to slight^{ly} glauconitic
- 6666 6676 10 Shaly chert to cherty shale, very light gray to grayish-black, very highly glauconitic (indices below 1.58, almost ^a match), highly calcareous
- 6676 6681 5 No sample
- 6681 6696 15 Chert, light-gray to grayish-black, very shaly at top, slightly (at top) to highly calcareous (at bottom)
- 6696 6698 2 No sample
- 6698 6703 5 Chert, very light^{gray} to brownish-gray to grayish-black; very calcareous; limestone, very light to dark gray, cherty, shaly

6705	6708	5	No Sample
6708	6720	12	Limestone, very light gray to brownish gray to grayish black very cherty and shaly, partly glauconitic, somewhat sandy
6720	6724	4	Sandy limestone, shale and chert
6724	6728	4	ORISKANY SANDSTONE 27 feet Sandstone, nearly white to medium gray, very fine to fine grained, highly calcareous
6728	6743	15	No samples
6743	6751	8	Sandstone, nearly white to light gray, fine to medium grained, subangular to subrounded, quartzose, much of the quartz grains are clear and glossy, many of the large grains are round, and frosted, highly calcareous
6751	6762	11	HELDERBERG GROUP 172 plus feet Limestone, very light gray to grayish-black, the light colored is very sandy and cherty, the darker is very shaly increasing toward the bottom where it is fossiliferous
6762	6763	1	No sample
6763	6766	3	Sandstone, nearly white to light-gray, mostly milky white chert and clear glassy, fine quartz grains, highly /calcareous, slightly shaly
6766	6769	3	No sample
6769	6775	6	Cherty limestone at top to limy chert at bottom, chert nearly white to light-gray, limestone light-to medium- gray, very sandy
6775	6782	6	Limestone, light-to dark-gray, very cherty, shaly,
6781	6787	6	Limestone, medium to dark brownish gray, very shaly, cherty
6787	6792	5	No sample
6792	6800	8	Limestone, white to medium-gray, cherty, slightly shaly in upper part, lower part slightly sandy
6800	6813	13	Limestone, white to medium-gray, clastic texture, very sandy, slightly shaly and slightly dolomitic at bottom
6813	6826	15	Cherty limestone at top to limy chert at bottom, clastic texture, light-gray to grayishblack, very sandy, shaly
6826	6832	6	Sandstone, very light gray to grayish black, very fine grained, highly calcareous, cherty and shaly at top, very shaly at bottom

6832	6838	6	No samples
6838	6844	6	Limestone, very light gray to grayish black, clastic texture, very sandy (at top) to sandy, shaly, and cherty
6844	6856	12	Limestone, medium to dark gray, clastic texture, sandy shaly, and cherty
6856	6881	25	Shale, dark gray to grayish black, highly calcareous with a large amount of interbedded white to medium gray, very sandy, cherty limestone with a clastic texture, very shaly, extremely sandy (approaching calcareous sandstone), somewhat fossiliferous at bottom
6881	6886	5	No samples
6886	6893	7	Limestone, very light to medium gray, clastic texture, very sandy, slightly shaly
6893	6897	4	No sample
6897	6905	8	Limestone, light gray to grayish black, clastic texture, very shaly, sandy
6905	6909	4	Limestone, light to medium gray, clastic texture, very sandy (almost a calcareous sandstone), shaly
6909	6923	14	Limestone, light to dark brownish gray, clastic texture, very highly oolitic, sandy, a little shale
6923	6930	7	Limestone, dark gray to grayish-black, somewhat oolitic, slightly sandy, 50%; sandstone, light to medium gray, very highly calcareous, very fine grained sandstone, quartz grains are sub-angular to sub rounded
6930	6935	5	No samples
6935	6938	3	Sandstone, medium to dark gray, highly calcareous, very fine grained, quartz ^{grains} sub-angular to sub rounded, pyrite, 75%; limestone light to dark gray and brownish gray, moderately dolomitic, very cherty, 25%
6938	6947	9	Limestone, medium ^{gray} to brownish-gray to grayish-black, shaly sandy, and cherty with considerable interbedded medium dark gray to dark greenish gray, slightly sandy limestone
6947	6957	10	Limestone, medium gray to grayish-black, slightly shaly, sandy and silty, slightly dolomitic
6957	6972	15	No samples
	6972		Total depth

REVISED COPY

MON-1

4210-573
④

Walter N. Elswick No. 1

G. L. Cabot

Depth Interval: 6691-6758

Top	Bottom	Thickness	
6691	6696	5	CHERT (medium-gray) to silicified, silty shale (dark-gray), calcareous and somewhat dolomitic.
6696	6698	2	No Sample
6698	6700	2	CHERT TO SILICIFIED SHALE, medium- to dark-gray, calcareous; some dark-gray to grayish-black, sandy (very fine), silty, highly glauconitic shale (this appears to be the base of the Huntersville chert).
HELDERBERG FORMATION			
6700	6703	3	LIMESTONE, medium light to medium dark gray, very silty to a calcareous siltstone; a trace of sphalerite.
6703	6708	5	No Sample
6708	6713	5	SANDSTONE (very fine, highly calcareous) to limestone (very sandy), medium-gray with dark-gray streaks, very shaly and silty.
6713	6720	7	LIMESTONE, medium-to dark-gray, very silty to a grayish-black, silty, calcareous shale; small amount of chert.
6720	6728	8	SANDSTONE, light- to medium-gray (with dark-gray shaly streaks), very highly calcareous to a sandy limestone, very fine to fine grained, some medium grains (rounded).
6728	6743	15	No Sample
6743	6751	8	SANDSTONE, light-gray, fine-grained with many medium grains (rounded), very highly calcareous to a very sandy limestone at the bottom; contains some shaly material.
6751	6758	7	LIMESTONE, medium-gray with very sandy light-gray and very shaly dark-gray spots and streaks, cherty.