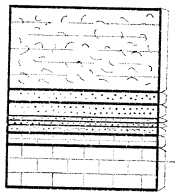
Lapeer Co., (or is it Canada? L.) Alt. 840 ft.
Clifford Oil Co. Depth 120 + ft.
C. E. Wright. July 24th, 1887.

CLIFFORD.

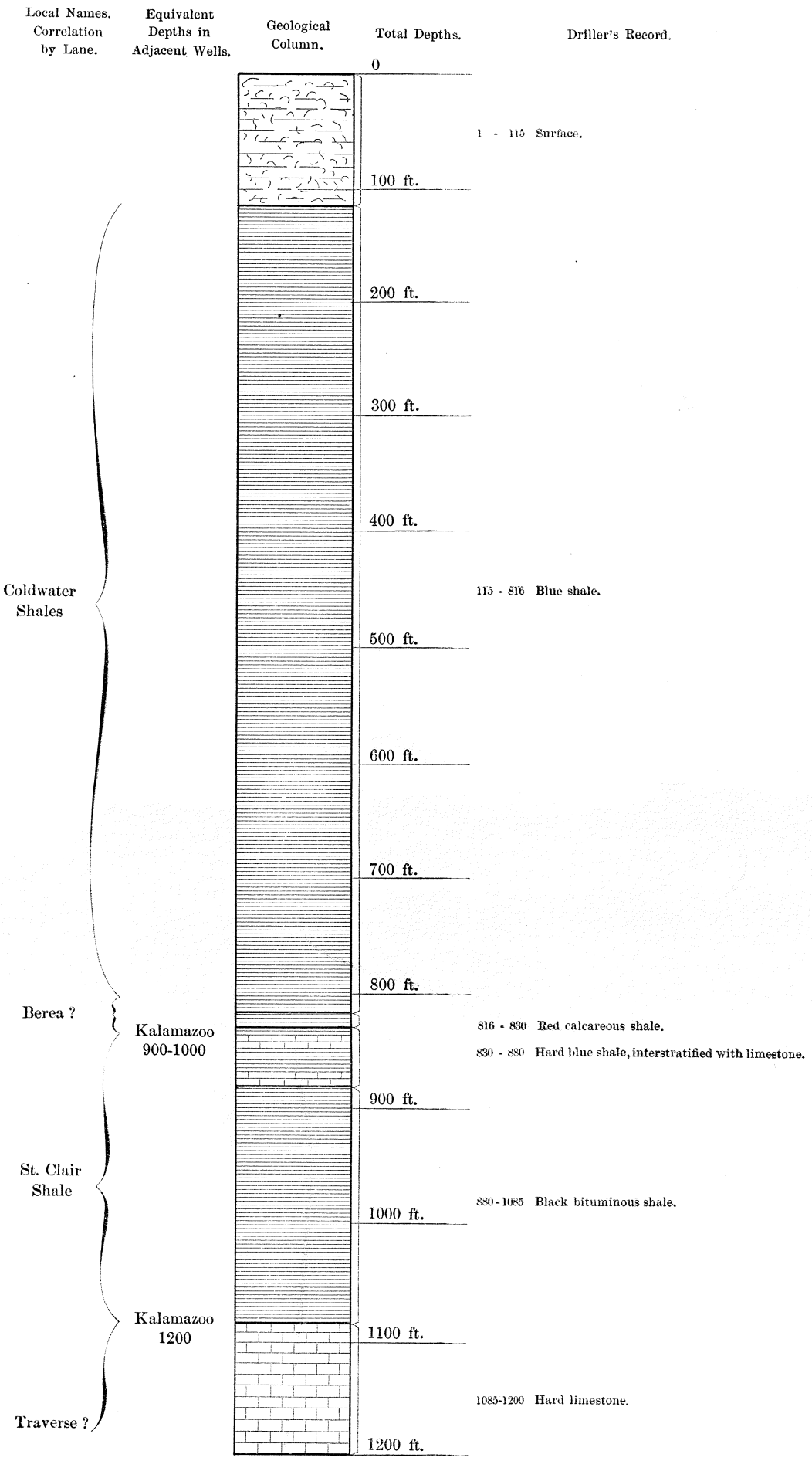
Plate IX.

Geological Column.	Total Depths.	Driller's Record.	
	100 ft.	1 - 55	Surface.
		55 - 63	Blue sandstone.
		63 - 74	Red Sandstone.
		74 - 75½	Coal and rotten rock.
		75½ - 78½	White quartz.
		78½ - 85	Loose rock of flint; copper, iron pyrites and streak of lead.
		85 - 92	Flinty limestone, red.
		92 -120	Blue limestone.

Branch Co., Alt. 983 ft.
Dr. J. H. Bennett. Depth 1200 ft.
C. E. Wright.

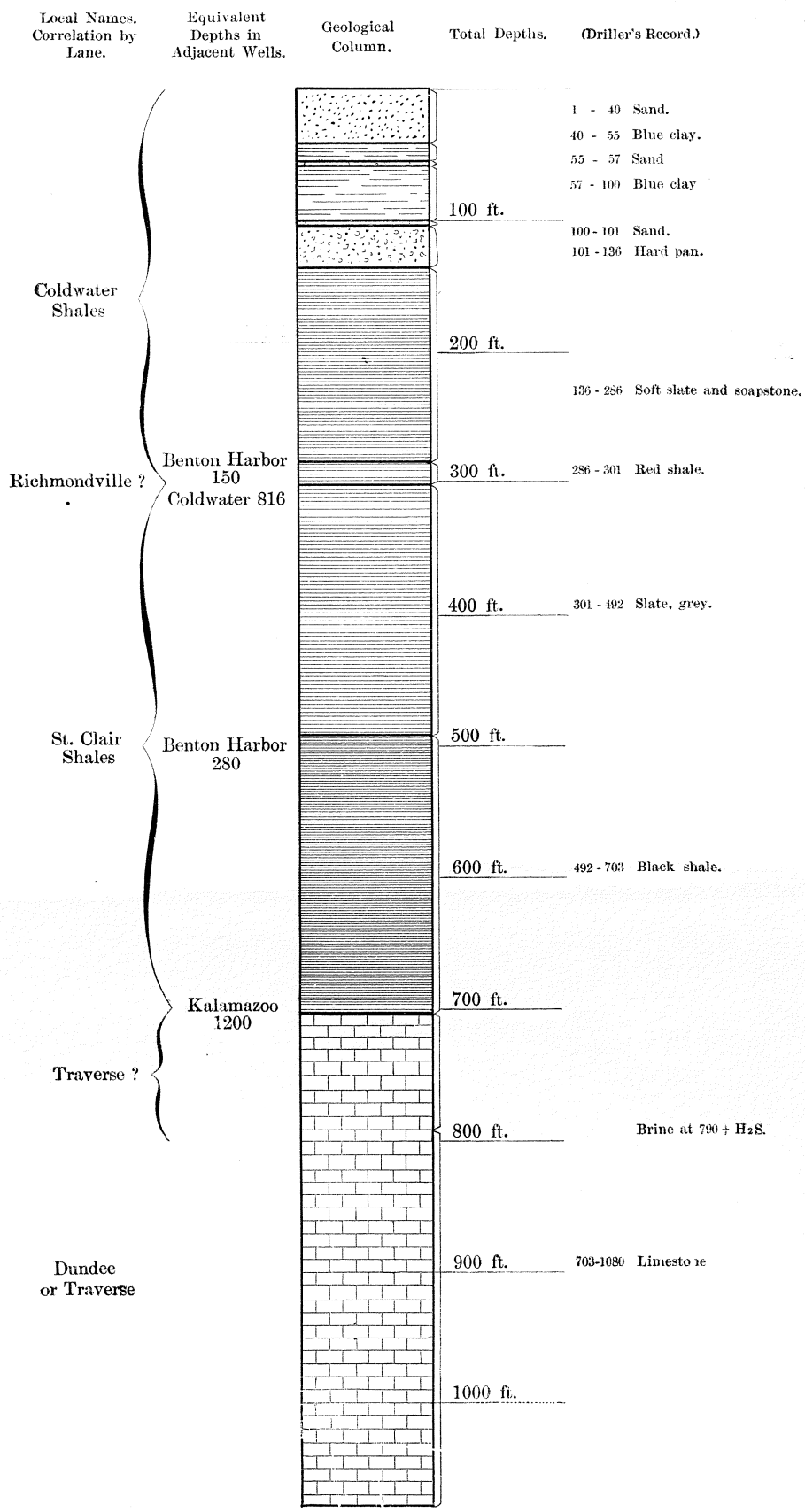
COLDWATER.

Plate X.



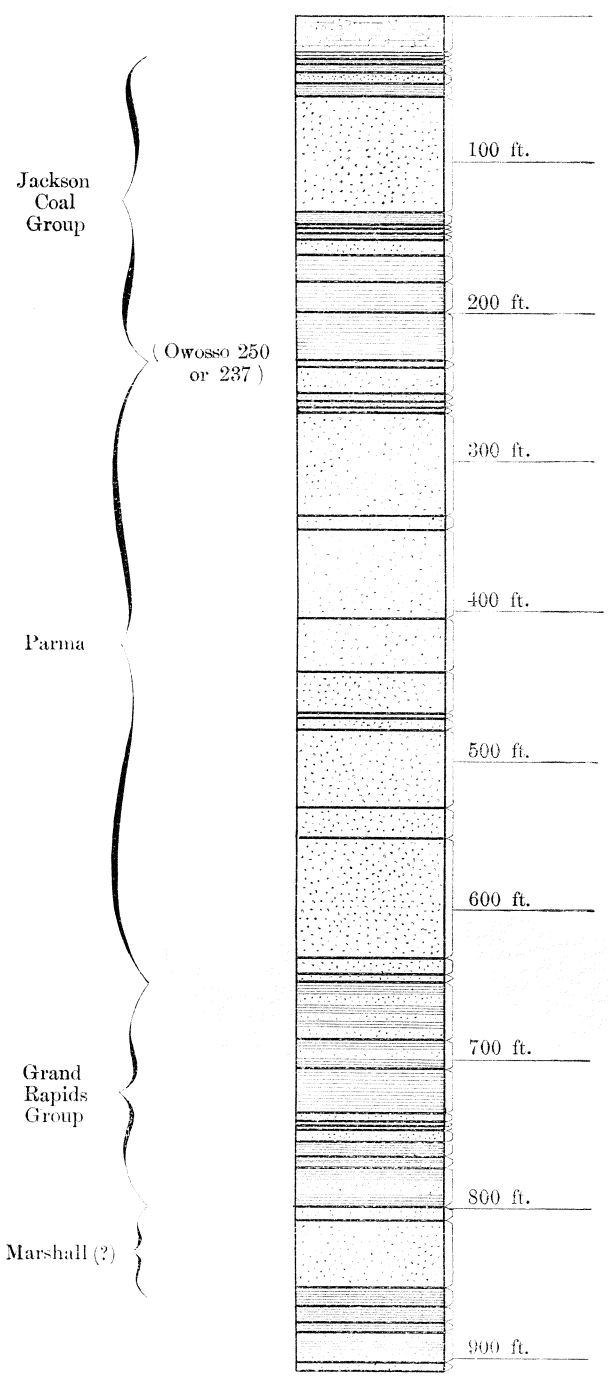
CONSTANTINE.

St. Joseph Co. Alt. 803 ft.
Levi Dodge. Depth 1080 + ft.
C. E. Wright; correlated by Lane.



Shiawassee Co. Alt. 776 ft.

Corunna Coal Co., located near the center of the S. side of the E. ½ N. W. ¼, S. 22, T. 7, N., R. 3, E. Depth 907 ft.
Drilled by O. J. Davids; finished January 7, 1885.
Test-hole for the lower strata of coal. It is possible that the whole series is really in the coal group.

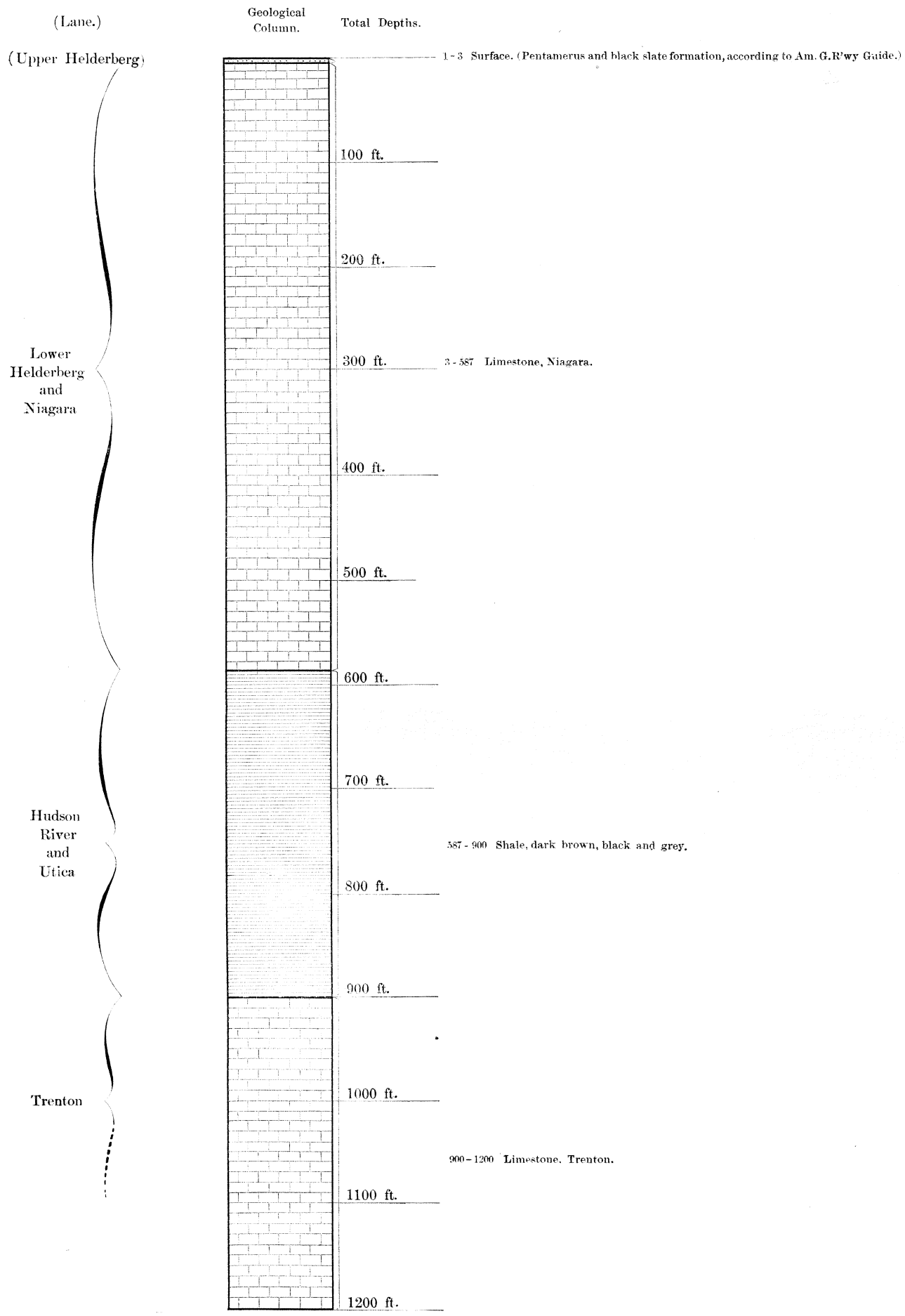


Local Names. Correlation by Lane.	Equivalent Depths in Adjacent Wells.	Geological Column.	Total Depths.	Driller's Record.		
			1 - 26½	Surface, sand and clay.		
			26½ - 28	Quicksand.		
			28 - 30	Light slate.		
			30 - 33	Dark slate.		
			33 - 40	Fine clay.		
			40 - 48	Sand rock.		
			48 - 55	Black slate.		
			55 -135	Sand rock.		
			135 -143	Black slate.		
			143 -144	Blue shale.		
			144 -147½	Sand rock.		
			147½-152	Blue shale.		
			152 -161	Sand rock.		
			161 -180	Blue slate.		
			180 -200	Grey shale, fine.		
			200 -231	Blue slate.		
			231 -238	Sand rock.		
			238 -255	Blue sand rock.		
			255 -260	White sand rock.		
			260 -266	Sand rock.		
			266 -268	Blue sand rock.		
			268 -337	White sand rock.*	*(It is very doubtful if all this is really quartz sand; some of it is possibly dolomite. L.)	
			337 -344	Bastard sand rock.		
			344 -407	Sand rock.		
			407 -441	Light grey sand rock.		
			441 -471	White sand rock.		
			471 -472	Dark sand rock.		
			472 -480	White sand rock.		
			480 -531	Blue sand rock.		
			531 -551	Common sand rock.		
			551 -631	Blue sand rock.		
			631 -643	Blue hard sand rock.		
			643 -649	Common sand rock.		
			649 -688	Alternate layers, sand rock and blue slate.		
			688 -706	Slate and sand rock.		
			706 -738	Blue slate.		
			738 -743½	Sandstone.		
			743½-744	Black Slate.		
			744 -745	Slate.		
			745 -755	Sand rock.		
			755 -765	Slate.		
			765 -773	Sand rock and blue slate.		
			773 -800	Sand rock and blue slate.		
			800 -809	Dark sand rock.		
			809 -852	Sand rock.		
			852 -864	Black slate.		
			864 -878	Slate.		
			878 -883	Grey slate.		
			883 -903	Slate and sand rock.		
			903 -907	Lean sand rock.		

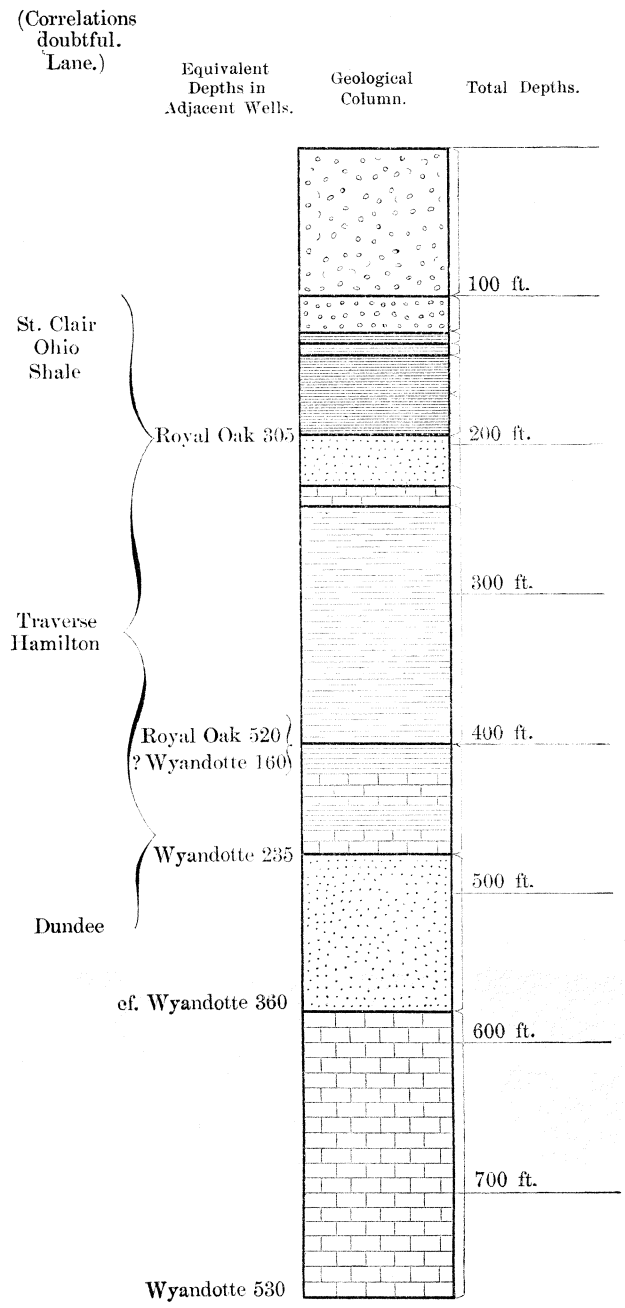
Ontario. Alt. 630 ft. (?).
J. J. Carter. Depth 1650 ft.
One-half mile due east from St. Clair, on the other side of the river.
C. E. Wright.

Local Names.	Equivalent Depths in Adjacent Wells.	Geological Column	Total Depths.	Driller's Record.
			0	
				1 - 123 Surface; blue clay.
			100 ft.	
				123 - 170 Alternate layers.
			200 ft.	
			300 ft.	
			400 ft.	
				170 - 836 Alternate layers of limestone and soapstone.
			500 ft.	
			600 ft.	
			700 ft.	
			800 ft.	
	Compare Marine City 635-770			Mineral water vein contains 60 per cent salt by Salinometer.
			900 ft.	
			1000 ft.	
Monroe or Lower				
			1100 ft.	
Helderberg				
			1200 ft.	
				836 - 1620 Hard limestone.
			1300 ft.	
			1400 ft.	
			1500 ft.	
			1600 ft.	
	Marine City 1600-1620			1620-1650 Salt.

Carroll Co., Indiana. Alt. 600 ft. (?).
Depth 1200 ft.
C. E. Wright, from Levi Dodge, Constantine, Michigan.

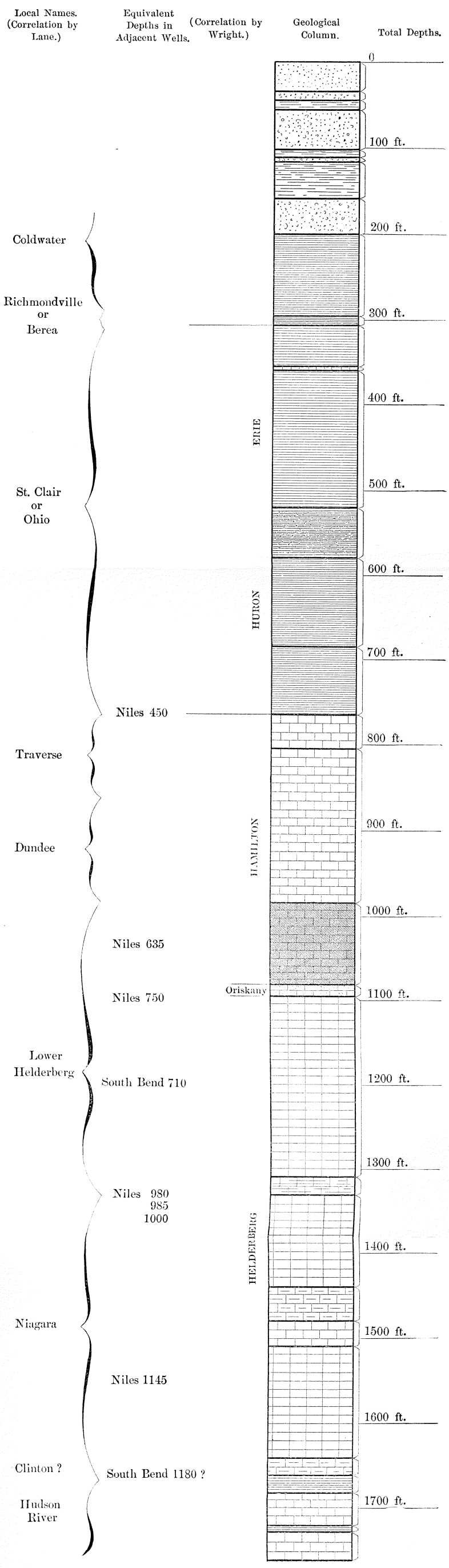


Wayne Co. Alt. 581 ft. to 634 ft.
Detroit Natural Gas Co., Fred. W. Hayes, Sec. and Treas. 7 M. N., and 3 E. of Jefferson Ave. Depth 770 ft
Frank E. Snow.



1-100	Gravel and gas (would burn).
100-125	Gravel.
125-133	Black slate.
133-140	Hard shale.
165	Gas and water (would light).
140-192	Black slate.
192-226	Shelly sandstone.
226-240	Limestone.
240-400	Soapstone.
400-475	Hard slates and limestone.
475-580	White sandstone, quite hard.
580-770	**Limestone.**
	Still in limestone.

Cass Co. Alt. 760 ft.
Round Oak Gas and Fuel Co. Depth 1760 ft.
C. E. Wright; Samples with the State Survey.
Drilled July 6th, 1887, by Will. M. Farr.



1- 34 Sand, fine and coarse.
34- 44 Gravel.
44- 56 Blue clay.
56- 103 Sand and some gravel.
103- 111 Blue clay.
111- 115 Coarse gravel.
115- 159 Blue clay, very tough.
159- 200 Sand and gravel, coarse and fine.
200 S.

275 S. Blue argillaceous shale; slow effervescence in acid.
282 S.

Red argillaceous shale; slow effervescence in acid, 12 ft.

330 S. Argillaceous shale; light blue, with streaks of hard blue sandstone; slow effervescence in acid; 90 per cent residue.
343 S.

Argillaceous limestone; very hard.

435 S. Argillaceous shale; bluish drab; slow effervescence; 95 per cent residue in acid.

565 S. Sandy shale; dark bluish drab; hard and soft; slow effervescence; 90 per cent residue.

640 S. Argillaceous shale; dark drab and brown, quite soft; slow ef.; 95 per cent residue, clay.
650 S. Argillaceous shale; dark brown, hard and soft, slow effervescence; 90 per cent residue, clay.
670 S. Argillaceous shale, dark brown, medium hard.

765 S. Brown argillaceous shale, burning with an aromatic smell.

800 S. Argillaceous limestone, dark drab, brisk ef. in cold acid; 10 to 15 per cent residue of clay.
805 S. Limestone, dark drab, c. g.,brisk ef. in cold acid; 2 per cent residue of angular grains of silica.

865 S. Limestone, dark drab, c. g., brisk ef. in cold acid; 2 per cent residue of angular grains of silica.
Salt 874 S. Limestone, light grey, f. g., brisk ef. in cold acid; 5 per cent residue of angular grains of quartz and silica.
Brine 100°

904 S. Limestone, light grey, f. g., brisk ef. in cold acid; 4 per cent residue of angular grains of quartz and silica.
920 S. Limestone, light grey, f. g., brisk ef. in cold acid; 1 per cent residue of silica.

950 S. Limestone, dark drab, c. g., brisk ef. in cold acid; 4 per cent of dark brown residue of silica and carbon.
965 S. Limestone; dark drab, f. g., brisk ef. in cold acid; 5 per cent of dark brown residue of silica and carbon.
975 S. Limestone, light drab, f. g., brisk ef. in cold acid; siliceous residue.
980 S. Limestone, brownish drab, m. g., brisk ef. in cold acid; 5 per cent siliceous residue.
985 S.
995 S.

1001 S. Gypseous dolomite, dark grey, m. g.; 25 per cent residue of gypsum, anhydrite and silica.
1010 S.
1020 S. Gypseous dolomite, drab, f. g., brisk ef.; 30 per cent residue of gypsum, anhydrite and silica.
1030 S. 1033 S.
1038 S. Gypseous dolomite; drab, f. g., brisk ef ; 10 per cent residue of gypsum, anhydrite and silica.
1050 S. 1055 S.
1060 S. Gypseous dolomite; drab, f. g., brisk ef.; 25 per cent residue of silica, gypsum and anhydrite.
1065 S.
1080 S. Gypseous dolomite; light grey, f. g., brisk ef.; 12 per cent res. of gypsum, anhydrite and cherty silica.
1085 S. 1090 S. 1092-1095 S.
1100 S. Arenaceous limestone, light grey, f. g. brisk ef.; 4 to 12 per cent res. of rounded grains of glassy sand, quartz and flint.
1105 S.
1115 S.
1120 S. 1125 S.
1135 S.
1140 S. (Dolomitic) limestone, light grey, f. g.; 3 to 5 per cent residue of quartz, flint and pyroxene (?).
1150 S.
1160 S. (Dolomitic) limestone, light grey, f. g.; 7 per cent residue of chert, quartz and pyroxene (?).
1175 S. Limestone, light grey; 5 per cent residue of chert, quartz, pyroxene and anhydrite.
1185 S. 1195 S.
1200 S. (Dolomitic) limestone, light grey; 1 per cent residue of chert, quartz, pyroxene and anhydrite.
1210 S.
1220 S. Limestone, light grey; 1 per cent residue of chert, quartz, pyroxene and anhydrite.
1240 S. Limestone, light grey; 1 per cent residue of chert, quartz, pyroxene and anhydrite.
1265 S. (Dolomitic) limestone, light grey; ¼ per cent residue of chert, quartz, pyroxene and anhydrite.
1275 S. Limestone, light grey; 15 per cent residue of clay.
1290 S.

1310 S. 1315 S.
1320 S. Argillaceous limestone, drab, f. g., brisk ef. in cold acid; 20 to 30 per cent residue of clay.
1325 S.
1330 S. (Dolomitic).
1335 S. 1340 S.
1350 S. Limestone, grey; brisk ef. cold acid; 1 to 2 per cent res. of rounded glassy grains of sand and angular ones of flint.
1370 S.
1380 S. (Dolomitic).
1390 S.
1395 S.
1400 S. Limestone, grey; brisk ef. in cold acid; 2 per cent residue of rounded glassy grains of sand and angular ones of flint.

1440 S. (Dolomitic limestone).

1455 S. Marly limestone, creamy grey, very brisk ef. in cold acid; 8 per cent residue of silica and clay.

1475 S.

1480 S.

1492 S. Limestone, creamy grey, f. g., brisk ef.; 1 per cent residue of rounded grains of glassy sand and angular ones of flint and anhydrite.
1518 S. (Dolomitic) limestone, creamy grey, f. g., brisk ef.; ½ per cent res. of rounded grains of glassy sand and angular ones of
1525 S. flint and anhydrite.

1540 S.

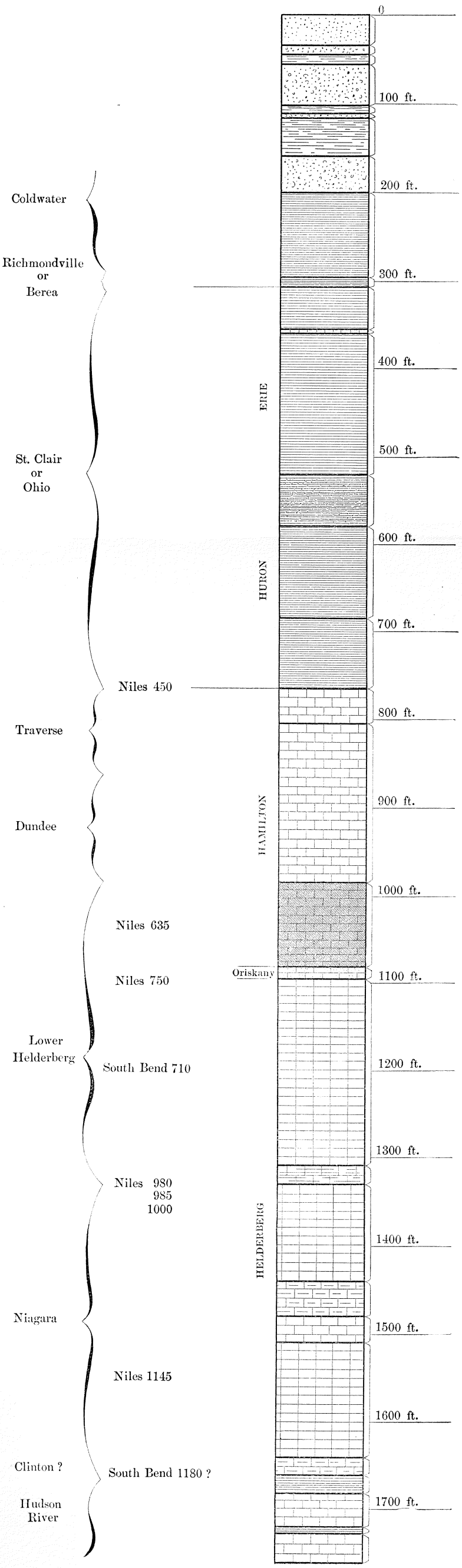
1550 S. Limestone, greyish white, f. g., brisk ef.; 5 per cent res. of rounded grains of glassy sand and angular ones of flint and anhydrite and clay.

1580 S. Limestone, greyish white, f. g., brisk ef.; 2 per cent res. of rounded grains of glassy sand and angular ones of flint and anhydrite and clay.

1610 S. (Dolomitic) limestone, grey, f. g., brisk ef.; 5 per cent residue of silica and clay.
1620 S. 1625 S.
1640 S. (Dolomitic).
1645 S.
1660 S. Marly limestone, creamy white; 1 to 8 per cent res. of rounded grains of sand, clay and anhydrite.
1665 S.
1670 S.
1680 S. Argillaceous shale, bluish drab, slight ef.; 95 per cent residue of clay.
1690 S.
1695 S.
1700 S. Argillaceous limestone, dark drab, brisk ef.; 10 to 15 per cent res. of clay and some dark flint.
1720 S. Black calcareous argillaceous shale, blue black, slow ef.; 95 per cent residue of clay.
1728 S.
1739 S.
1750 S.
1755 S.
1760 S. Carbonaceous limestone, brownish red to yellowish grey, brisk ef. in cold acid; 10 to 20 per cent residue of rounded glassy grains of sand, white chert and anthracite.

ABBREVIATIONS

Cass Co. Alt. 780 ft.
Round Oak Gas and Fuel Co. Depth 1760 ft.
C. E. Wright; Samples with the State Survey.
Drilled July 6th, 1887, by Will. M. Farr.



1- 34 S. Sand, fine and coarse.
34- 44 Gravel.
44- 56 Blue clay.
56- 103 Sand and some gravel.
103- 111 Blue clay.
111- 115 Coarse gravel.
115- 159 Blue clay, very tough.
159- 200 Sand and gravel, coarse and fine.
200 S.

275 S. Blue argillaceous shale; slow effervescence in acid.
282 S.

Red argillaceous shale; slow effervescence in acid, 12 ft.

330 S. Argillaceous shale; light blue, with streaks of hard blue sandstone; slow effervescence in acid; 90 per cent residue.
343 S.

Argillaceous limestone; very hard.

435 S. Argillaceous shale; bluish drab; slow effervescence; 95 per cent residue in acid.

565 S. Sandy shale; dark bluish drab; hard and soft; slow effervescence; 90 per cent residue.

640 S. Argillaceous shale; dark drab and brown, quite soft; slow ef.; 95 per cent residue, clay.
650 S. Argillaceous shale; dark brown, hard and soft, slow effervescence; 90 per cent residue, clay.
670 S. Argillaceous shale, dark brown, medium hard.

765 S. Brown argillaceous shale, burning with an aromatic smell.

800 S. Argillaceous limestone, dark drab, brisk ef. in cold acid; 10 to 15 per cent residue of clay.
805 S. Limestone, dark drab, c. g., brisk ef. in cold acid; 2 per cent residue of angular grains of silica.

865 S. Limestone, dark drab, c. g., brisk ef. in cold acid; 2 per cent residue of angular grains of silica.
Salt 874 S. Limestone, light grey, f. g., brisk ef. in cold acid; 5 per cent residue of angular grains of quartz and silica.
Brine 100°

904 S. Limestone, light grey, f. g., brisk ef. in cold acid; 4 per cent residue of angular grains of quartz and silica.
920 S. Limestone, light grey, f. g., brisk ef. in cold acid; 1 per cent residue of silica.

950 S. Limestone, dark drab, c. g., brisk ef. in cold acid; 4 per cent of dark brown residue of silica and carbon.
965 S. Limestone; dark drab, f. g., brisk ef. in cold acid; 5 per cent of dark brown residue of silica and carbon.
975 S. Limestone, light drab, f. g., brisk ef. in cold acid; siliceous residue.
980 S. Limestone, brownish drab, m. g., brisk ef. in cold acid; 5 per cent siliceous residue.
985 S.
995 S.

1000 S. Gypseous dolomite, dark grey, m. g.; 25 per cent residue of gypsum, anhydrite and silica.
1010 S.
1020 S. Gypseous dolomite, drab, f. g., brisk ef.; 30 per cent residue of gypsum, anhydrite and silica.
1030 S. 1033 S.
1038 S. Gypseous dolomite; drab, f. g., brisk ef; 10 per cent residue of gypsum, anhydrite and silica.
1050 S. 1055 S.
1060 S. Gypseous dolomite; drab, f. g., brisk ef.; 25 per cent residue of silica, gypsum and anhydrite.
1065 S.
1080 S. Gypseous dolomite; light grey, f. g., brisk ef.; 12 per cent res. of gypsum, anhydrite and cherty silica.
1085 S. 1090 S. 1092-1095 S.
1100 S. Arenaceous limestone, light grey, f. g. brisk ef.; 4 to 12 per cent res. of rounded grains of glassy sand, quartz and flint.
1105 S.
1115 S.
1120 S. 1125 S.
1135 S.
1140 S. (Dolomitic) limestone, light grey, f. g.; 3 to 5 per cent residue of quartz, flint and pyroxene (?).
1150 S.
1160 S. (Dolomitic) limestone, light grey, f. g.; 7 per cent residue of chert, quartz and pyroxene (?).
1175 S. Limestone, light grey; 5 per cent residue of chert, quartz, pyroxene and anhydrite.
1185 S. 1195 S.
1200 S. (Dolomitic) limestone, light grey; 1 per cent residue of chert, quartz, pyroxene and anhydrite.
1210 S.
1220 S. Limestone, light grey; 1 per cent residue of chert, quartz, pyroxene and anhydrite.
1240 S. Limestone, light grey; 1 per cent residue of chert, quartz, pyroxene and anhydrite.
1265 S. (Dolomitic) limestone, light grey; ¼ per cent residue of chert, quartz, pyroxene and anhydrite.
1275 S. Limestone, light grey; 15 per cent residue of clay.
1290 S.

1310 S. 1315 S.
1320 S. Argillaceous limestone, drab, f. g., brisk ef. in cold acid; 20 to 30 per cent residue of clay.
1325 S.
1330 S. (Dolomitic).
1335 S. 1340 S.
1350 S. Limestone, grey; brisk ef. cold acid; 1 to 2 per cent res. of rounded glassy grains of sand and angular ones of flint.
1370 S.
1380 S. (Dolomitic).
1390 S.
1395 S.
1400 S. Limestone, grey; brisk ef. in cold acid; 2 per cent residue of rounded glassy grains of sand and angular ones of flint.

1440 S. (Dolomitic limestone).

1455 S. Marly limestone, creamy grey, very brisk ef. in cold acid; 8 per cent residue of silica and clay.

1475 S.

1480 S.

1492 S. Limestone, creamy grey, f. g., brisk ef.; 1 per cent residue of rounded grains of glassy sand and angular ones of flint and anhydrite.
1518 S. (Dolomitic) limestone, creamy grey, f. g., brisk ef.; ½ per cent res. of rounded grains of glassy sand and angular ones of
1525 S. flint and anhydrite.

1540 S.

1550 S. Limestone, greyish white, f. g., brisk ef.; 5 per cent res. of rounded grains of glassy sand and angular ones of flint and anhydrite and clay.

1580 S. Limestone, greyish white, f. g., brisk ef.; 2 per cent res. of rounded grains of glassy sand and angular ones of flint and anhydrite and clay.

1610 S. (Dolomitic) limestone, grey, f. g., brisk ef.; 5 per cent residue of silica and clay.
1620 S. 1625 S.
1640 S. (Dolomitic).
1645 S.
1660 S. Marly limestone, creamy white; 1 to 8 per cent res. of rounded grains of sand, clay and anhydrite.
1665 S.
1670 S.
1680 S. Argillaceous shale, bluish drab, slight ef.; 95 per cent residue of clay.
1690 S.
1695 S.
1700 S. Argillaceous limestone, dark drab, brisk ef.; 10 to 15 per cent res. of clay and some dark flint.
1720 S. Black calcareous argillaceous shale, blue black, slow ef.; 95 per cent residue of clay.
1728 S.
1739 S.
1750 S.
1755 S.
1760 S. Carbonaceous limestone, brownish red to yellowish grey, brisk ef. in cold acid; 10 to 20 per cent residue of rounded glassy grains of sand, white chert and anthracite.

ABBREVIATIONS.

Ef. = Effervescence.
C. G. = Coarse grained.
M. G. = Medium grained.
F. G. = Fine grained.
Res. = Residue.
S. is placed after points from which samples are taken.

Elkhart Co., Indiana. Alt. 755 ft. or 741 ft.
Depth 615 ft.

Newspaper cutting, letter from Chas. A. Thompson, Adamsville, Cass Co., Mich., to C. C. Allison, Esq.