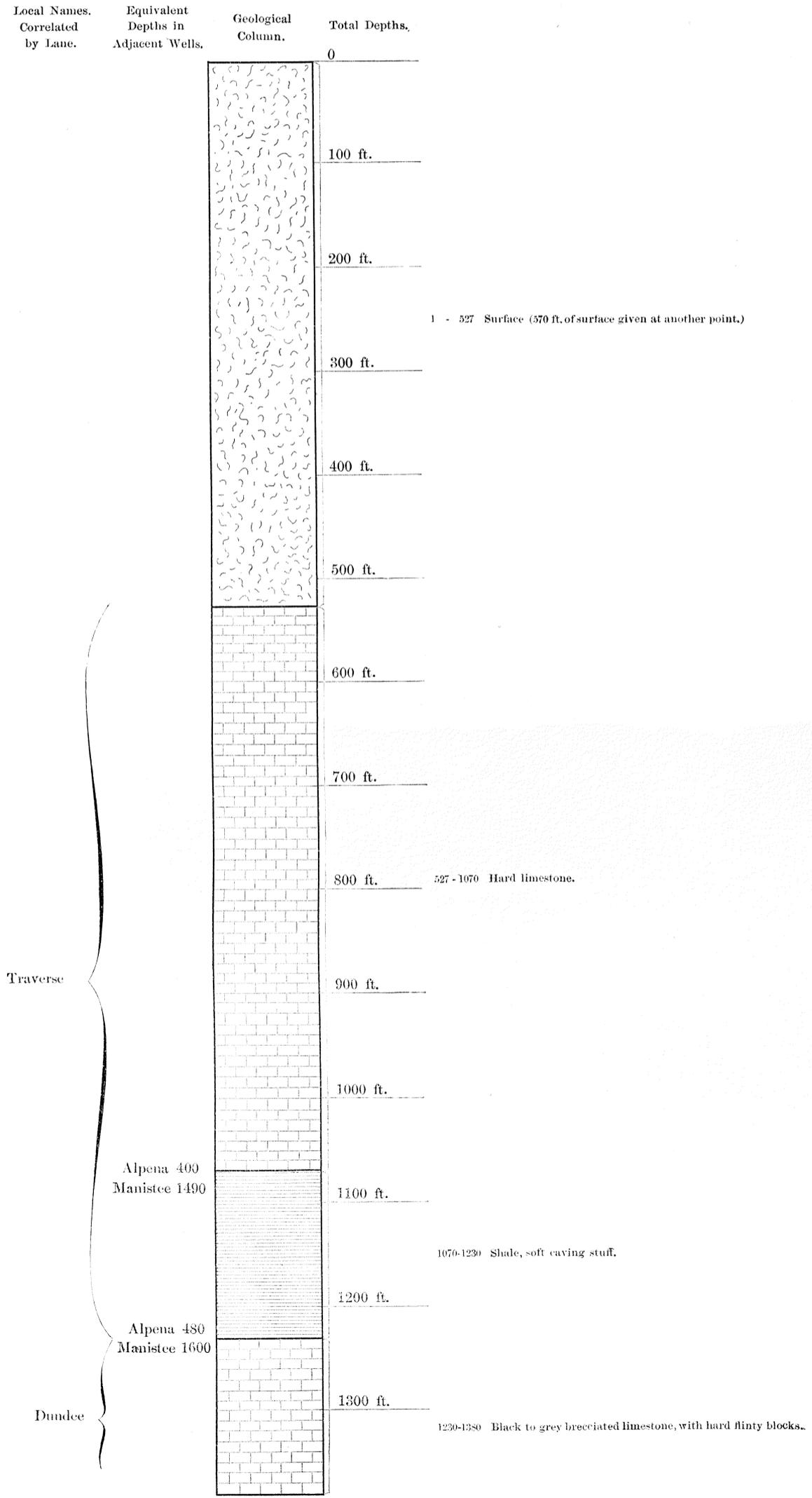


Benzie Co., Alt. 600 ft. +
A. G. Butler. Depth, about 1800 ft.
C. E. Wright and Mr. Percy.

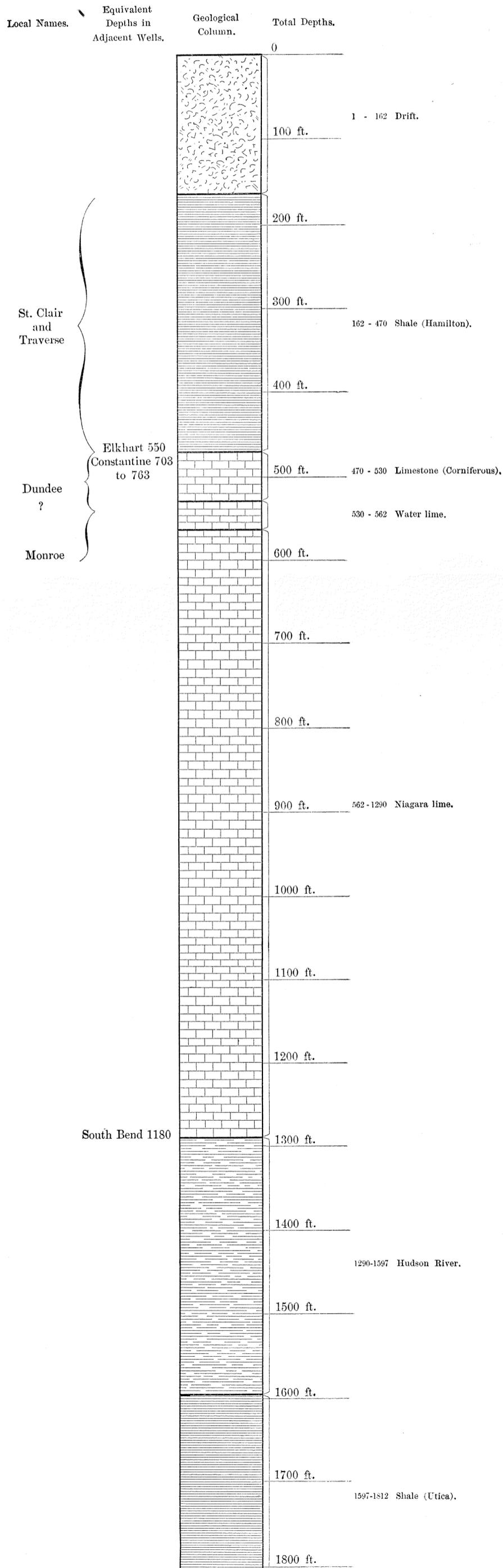


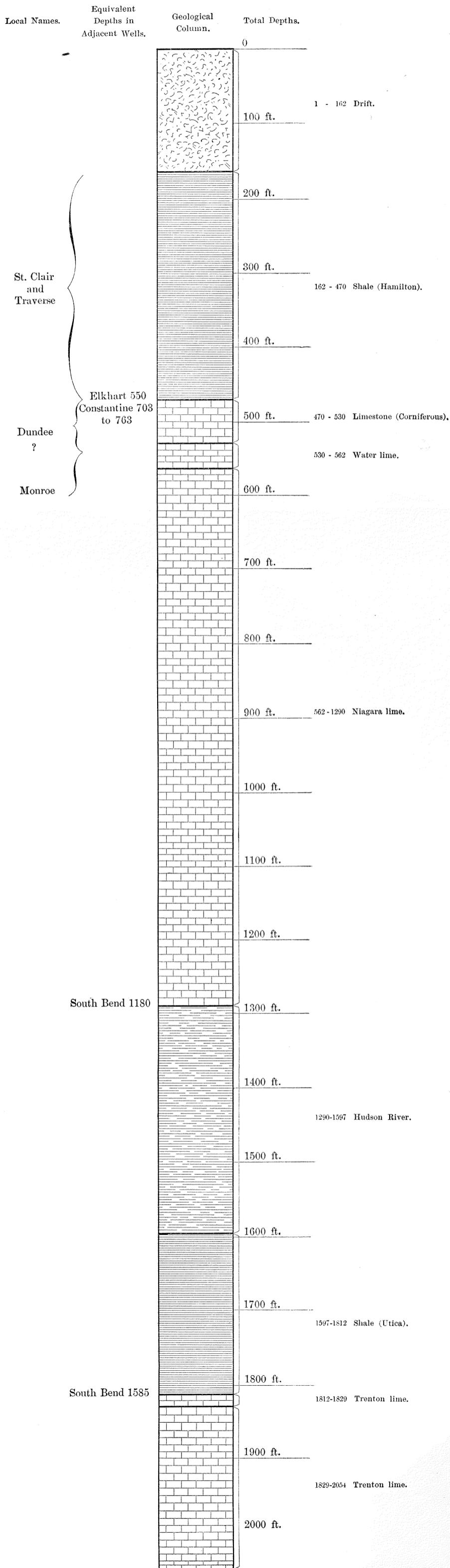
527 - 1070 Hard limestone.

1070-1230 Shale, soft caving stuff.

1230-1380 Black to grey brecciated limestone, with hard flinty blocks.

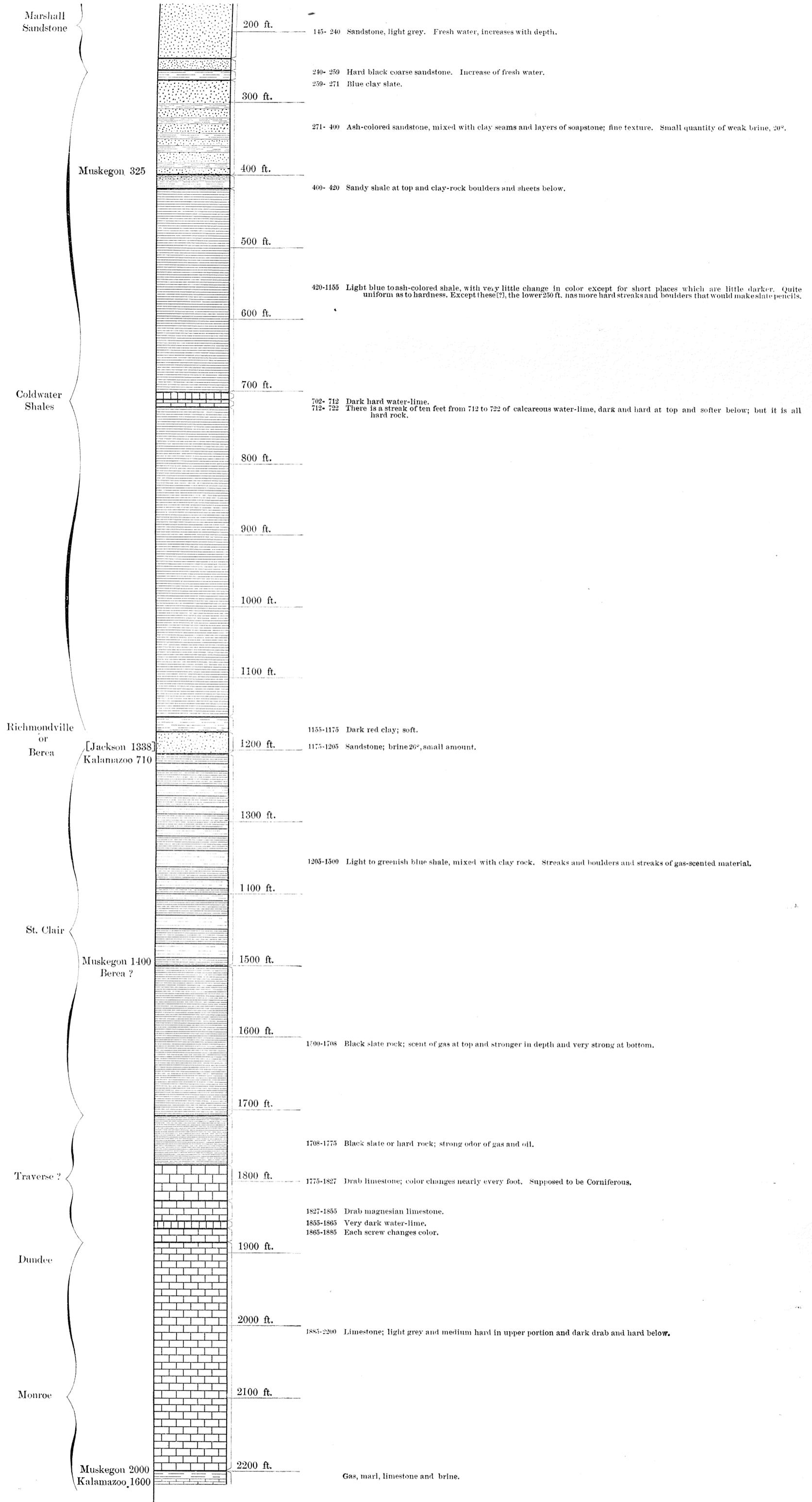
Elkhart Co., Indiana. Alt. 789 ft.
Depth 2054 ft.
Sorby, State Geologist of Indiana (?), acc. to C. E. Wright.





Kent Co. Alt. 605 ft. to 639 ft.
 Grand Rapids Artesian Well Co. Depth 2220 ft.
 C. E. Wright.

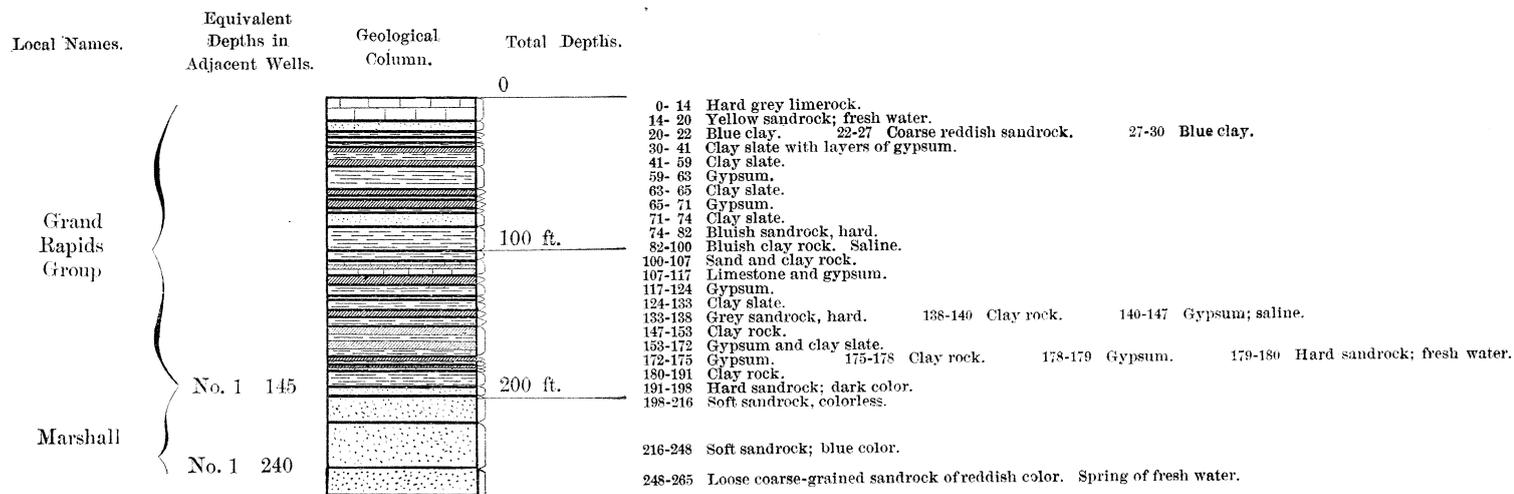
Local Names. Correlated by Lane.	Equivalent Depths in Adjacent Wells.	Geological Column.	Total Depths.	Driller's record.
			0	
Grand Rapids Group			1- 10	Drift.
			10- 57	Black clay slate.
Marshall Sandstone			100 ft.	57- 128 Plaster rock mixed with clay slate.
			128- 145	Sandstone, dark and light colored.
			200 ft.	145- 240 Sandstone, light grey. Fresh water, increases with depth.
			300 ft.	240- 259 Hard black coarse sandstone. Increase of fresh water. 259- 271 Blue clay slate.
Muskegon 325			400 ft.	271- 400 Ash-colored sandstone, mixed with clay seams and layers of soapstone; fine texture. Small quantity of weak brine, 20%.
			500 ft.	400- 420 Sandy shale at top and clay-rock boulders and sheets below.
			600 ft.	420-1155 Light blue to ash-colored shale, with very little change in color except for short places which are little darker. Quite uniform as to hardness. Except these(?), the lower 250 ft. has more hard streaks and boulders that would make slate pencils.
Coldwater Shales			700 ft.	
			800 ft.	702- 712 Dark hard water-lime. 712- 722 There is a streak of ten feet from 712 to 722 of calcareous water-lime, dark and hard at top and softer below; but it is all hard rock.
			900 ft.	
			1000 ft.	
Richmondville or Berea	[Jackson 1338] Kalamazoo 710		1100 ft.	
			1200 ft.	1155-1175 Dark red clay; soft. 1175-1205 Sandstone; brine 26%, small amount.
St. Clair			1300 ft.	
			1400 ft.	1205-1500 Light to greenish blue shale, mixed with clay rock. Streaks and boulders and streaks of gas-scented material.
			1500 ft.	
Traverse ?	Muskegon 1400 Berea ?		1600 ft.	1500-1708 Black slate rock; scent of gas at top and stronger in depth and very strong at bottom.
			1700 ft.	1708-1775 Black slate or hard rock; strong odor of gas and oil.
Dundee			1800 ft.	1775-1827 Drab limestone; color changes nearly every foot. Supposed to be Corniferous.
			1827-1855	Drab magnesian limestone.
			1855-1865	Very dark water-lime.
		1865-1885	Each screw changes color.	
			1900 ft.	



GRAND RAPIDS, No. 2.

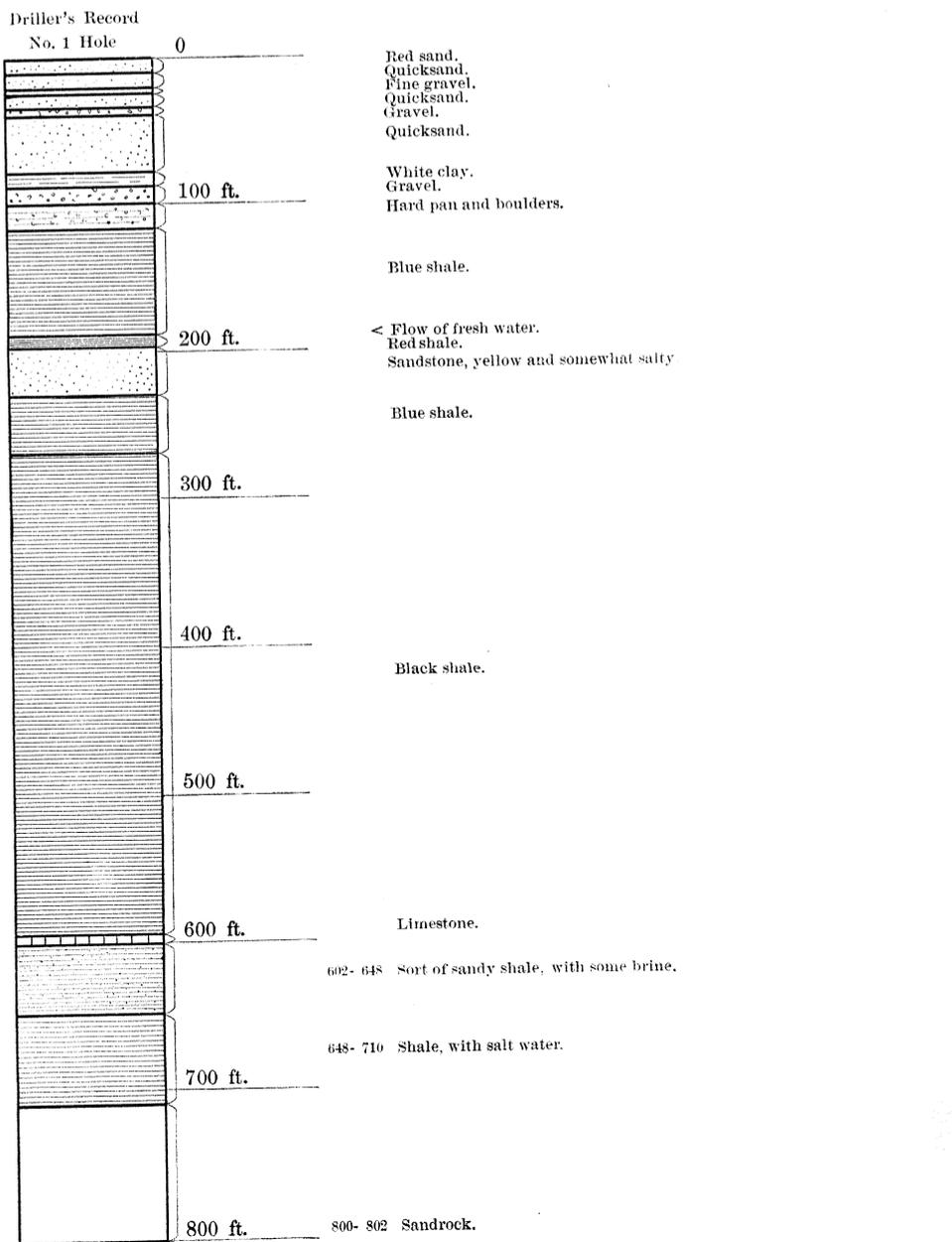
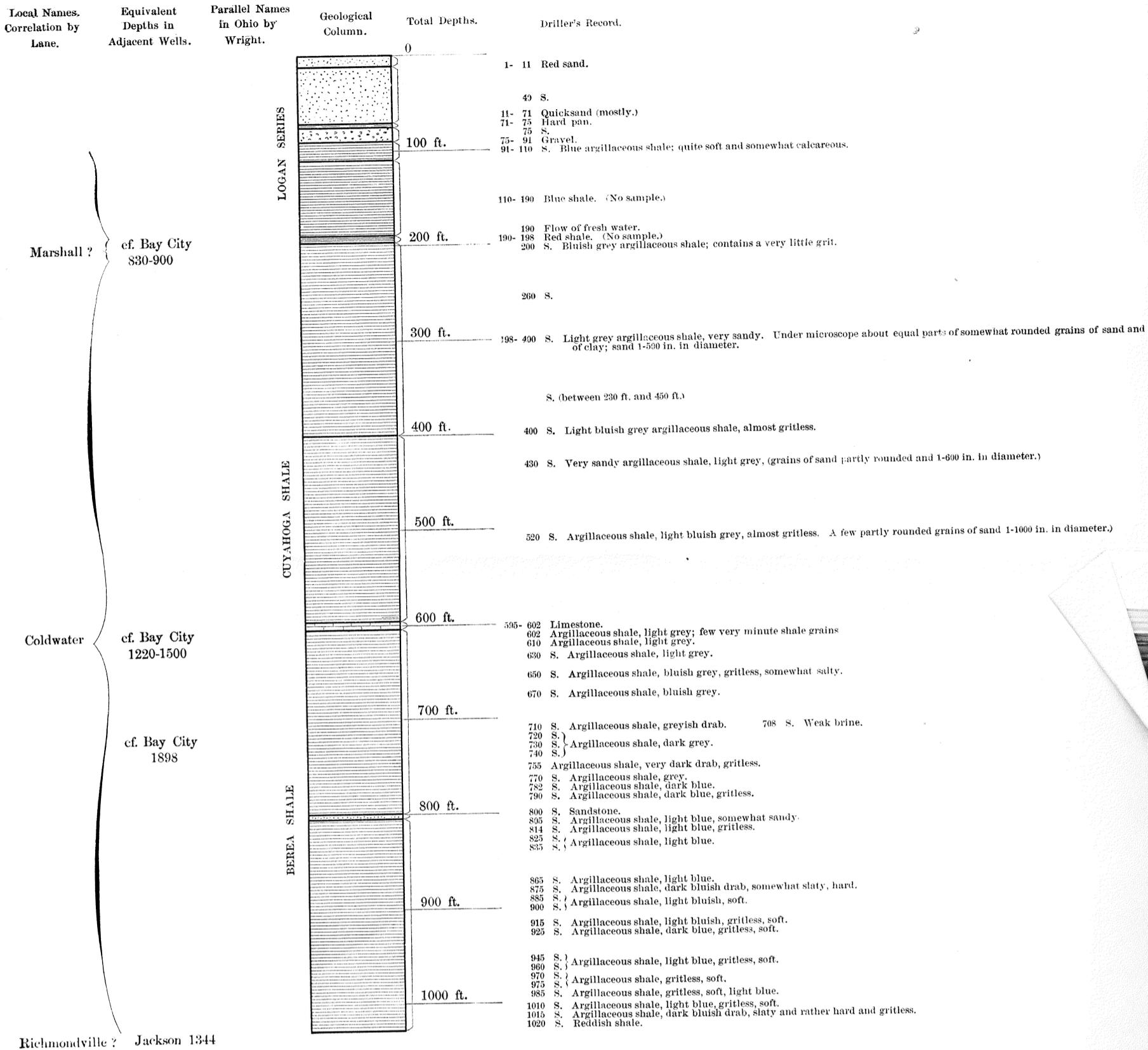
Plate XXI.

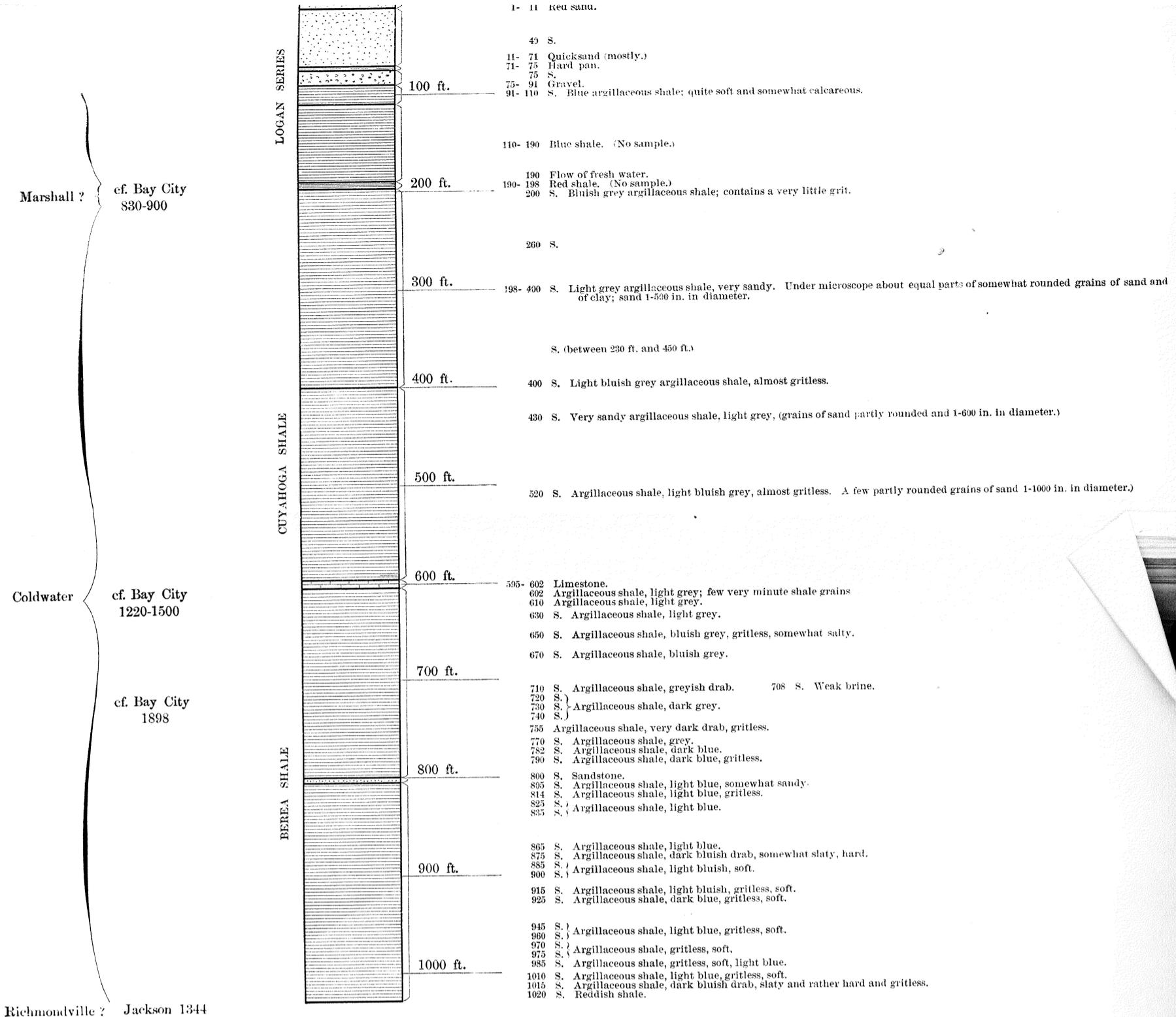
Hon. L. Lyon. Depth 265 ft.



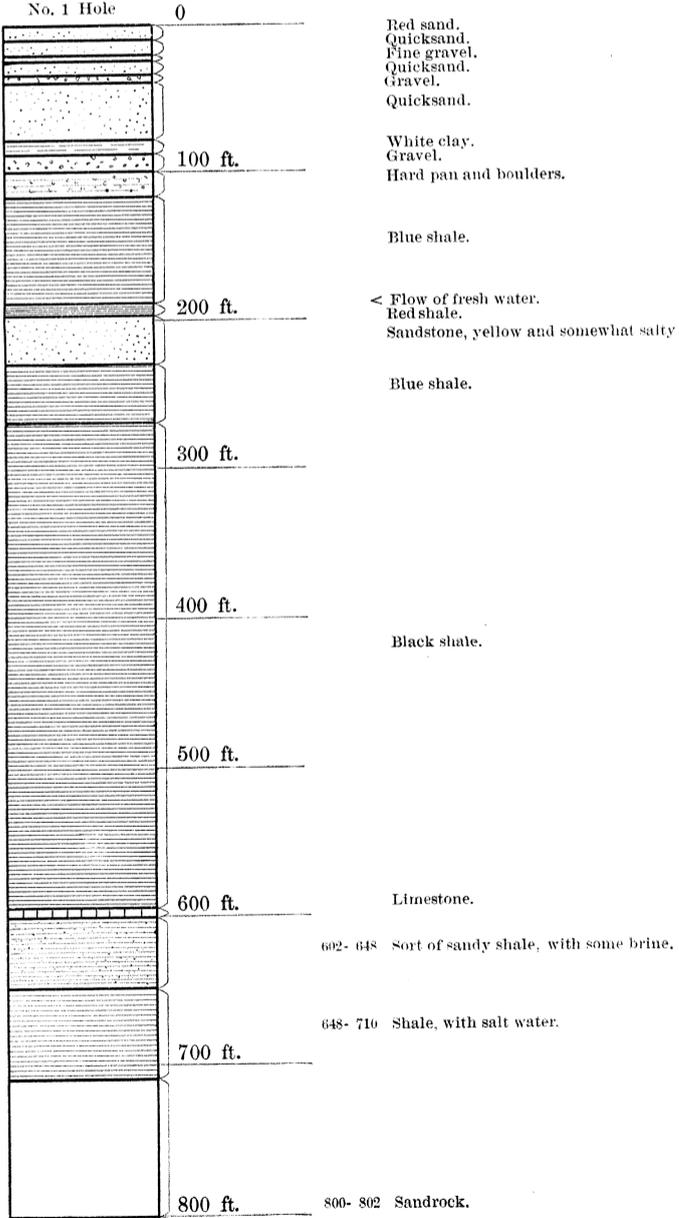
IMLAY CITY.

Lapeer Co., Alt. 830 ft.
Walker and Co. Depth 1020 ft.
C. E. Wright. Driller's notes and samples.





Driller's Record
 No. 1 Hole



ABBREVIATIONS.

S. is placed after points from which samples are taken.

Jackson Co., Alt. 928 ft.
 Worthington and Cooley Mfg. Co. Depth 2455 ft.
 C. E. Wright; samples with the State Survey. R. M. Decker & Co., Drillers. Cf. Rominger, III, p. 123-126. [Redrawn by L.]

Local Names.	Equivalent Depths in Adjacent Wells.	Geological Column.	Total Depths.	Drillers' record.	Record of Samples by Wright.
			0	Surface; began sinking May 11, 5 P. M.	
				1- 22 Surface, quicksand and clay.	
Upper s. s.				22- 36 Shelly sandstone.	
			50 ft.	36- 46 Black slate.	
Coal Measures				46- 51 Fine gravel.	
	Owosso 250			51- 83 Black shale. } This is probably Bennet Sewer Pipe Co.'s fire clay on line of J. L. & S. R. R. May 13th.	
				83- 88 Limestone. }	< 90 Calcareous sandstone; slow ef. cold; 85 per cent res., coarse grained sand.
			100 ft.		
					< 135 Calcareous sandstone; 75 per cent residue, fine grained.
			150 ft.		< 146 Argillaceous sandstone; slow ef. cold; 70 per cent res., light grey.
			200 ft.		< 185 Calcareous sandstone; slow ef. cold; 75 per cent res., sand.
Parma Sandstone				83- 373 Sandstone; extra flow of water at 218 ft.	< 218 Sandstone; very slow ef. cold; 85 per cent residue, grey sand.
			250 ft.		
					< 270 Calcareous sandstone; slow ef. cold; 75 per cent res., light grey sand.
			300 ft.		
					[Part of the bottom of this may be limestone as indicated in other wells.]
			350 ft.		
				373- 380 Black slate or shale.	
				380- 385 Blue sand.	
			400 ft.	385- 415 Dark slate.	< 415 Cal. sandstone; slow ef. cold; 75 per cent residue, drab sand.
				415- 430 Blue sand.	< 430 Argillaceous slate; very slow ef. cold; light grey to dark drab.
	Owosso 600 Bay City 635			430- 445 Sand and slate.	< 445 Argillaceous slate, dark drab.
			450 ft.		< 460 Argillaceous slate; no effervescence; dark drab.
			500 ft.		
Grand Rapids Group					
			550 ft.	445- 660 Dark slate.	< 580 Argillaceous slate; no ef.; dark drab.
			600 ft.		< 630 Argillaceous slate; slow ef., dark drab; 95 per cent residue.
			650 ft.	658 reached June 8th, 1 P. M. 665 1 ft. brown limestone.	< 660 Sandstone; slow effervescence; 90 per cent residue.
	Bay City 820				
Marshall Sandstone				660- 710 Blue sandstone, said to taste salty, but no water.	< 710 Sandstone; slow ef.; 75 per cent residue, dark drab.
			700 ft.		< 725 Sandstone; slow ef.; 75 per cent residue, drab.
				710- 770 Slate, at 740 quite salty, at 750 less so. A black scum that has shown all through the slate is darker and more noticeable than before.	
			750 ft.		
				770- 771 Limestone, brown.	< 770 Argillaceous slate; slow ef.; 95 per cent residue, dark drab.
	Bay City 930				
			800 ft.		
			850 ft.		
			900 ft.	895 June 10th, 1 P. M.	
			950 ft.		

