Record of Topeka Well.

PLATE XXVII.

Diamond Core Drill Coal Hole drilled in 1886, on Lawrence Street between Second and Third, Topeka, Kansas. Record by B. B. Smyth in Kans. Acad. Sci., Vol. XIV, pp. 209–215. (Condensed.)

	MATERIAL.	Thickness of Strata.	Depth to Bottom of Strata.
1	Soil	42 feet	42 feet.
2	Fine gray Sand	16 "	58 "
3	Coarse Sand	24 " 6 inches	82 " 6 inches.
4	Blue Mud	18 " 6 "	101 "
5	Light blue Laminated Fire Clay	7 " 6 "	108 " 6 inches.
6	Dark conglomerate Limestone	3 "	111 " 6 "
7	Dark Limestone mixed with Clay	11 " 9 inches	123 " 3 "
8	Blue Fire Clay	1 "	124 " 3 "
9	Dark Limestone	3 " 10 inches	128 " 1 "
10	Blue Clay and Mud	9 " 7 "	137 " 8 "
11	Laminated Fire Clay	12 " 4 "	150 "
12	Gain in measuring rods	2 " 4 "	152 " 4 inches.
13	Blue Clay	2 " 6 "	154 " 10 "
14	Hard gray Limestone	2 "	156 " 10 "
15	Blue Clay and Mud	22 " 2 inches	179 "
16	Fossil Shell Limestone, gray	1 " 3 "	180 " 3 inches.
17	Blue Laminated Fire Clay	5 "	185 " 3 "
18	Clay and Mud	16 " 11 "	202 " 2 "
19	Laminated Fire Clay, light and dark	9 " 7 "	211 " 9 "
20	Laminated Clay, light	7 " 5 "	219 " 2 "
21	Blue Mud—Water	14 "	233 " 2 "
22	Hard gray Limestone	4 " 10 inches	238 "
23	Hard Fire Clay, light	5 " 7 "	243 " 7 inches.
24	Hard Limestone, gray	6 " 4 "	249 " 11 "
25	Gain in measurement	4 " 8 "	254 " 7 "
26	Limestone, light	8 "	255 " 3 "
27	Black Shale, hard Slate or Fire Clay	7 feet 1 "	262 " 4 "
28	Limestone, light	8 "	270 " 4 "
29	Fire Clay	6 " 7 inches	276 " 11 "
30	Gray Limestone	2 " 4 "	279 " 3 "
31	Hard black Fire Clay	6 " 4 "	285 " 7 "
32	Gray Limestone	1 " 7 "	287 " 2 "
33	Fire Clay occasionally mixed with Sand and a little Mud	124 feet	411 feet 2 inches.
34	Crystalline Limestone	2 " 3 inches	413 " 5 "
35	Fire Clay	35 " 6 "	448 " 11 "
36	Gain in measurement	5 " 8 "	454 " 7 "
37	Fire Clay	29 " 5 "	484 "
38	Hard Laminated Clay, dark, mixed with Limestone	16 feet	500 feet.
39	Hard Laminated Fire Clay, dark, mixed with Limestone	15 feet 5 inches	515 feet 5 inches.
40	Dark compact Fire Clay	25 " 6 "	540 " 11 "
41	Limestone, hard, light to dark, some shells and clay streaks	51 feet 8 inches	592 feet 7 inche
42	Hard laminated Fire Clay, dark	17 "	609 " 7 "
43	Limestone, light and dark gray	17 " 8 inches	627 " 3 "
44	Black Clay mixed with Limestone	3 "	630 " 3 "
45	Limestone, gray	6 "	636 " 3 "
46	Blue Clay mixed with Limestone	3 " 2 inches	639 " 5 "
47	Gray Limestone	9 "	640 " 2 "
48	Blue Clay	10 "	641 "
49	Gray Limestone	1 feet 4 "	642 " 4 inches.
50	Blue Clay	10 "	643 " 2 "
51	Gray Limestone	2 feet	645 " 2 "
52	Blue Clay mixed with Limestone	3 " 5 inches	648 " 7 "
53	Blue Clay and Mud	20 "	668 " 7 "
54	Limestone, light	20 " 4 inches	688 " 11 "
55	Soft Clay and Mud, dark	10 " 6 "	699 " 5 "
56	Gray Limestone, some streaks of Clay	12 " 10 "	712 " 3 "
57	Dark Mud and Fire Clay	12 " 1 "	724 " 4 "
58	Hard gray Limestone	7 "	731 " 4 "
59	Hard black Fire Clay	2 " 5 inches	733 " 9 "
60	Hard gray Limestone	1 " 9 "	735 " 6 "
61	Hard dark laminated Fire Clay	12 " 2 "	747 " 8 "
62	Hard gray Limestone	8 " 10 "	756 " 6 "
63	Hard Fire Clay, dark	4 " 9 "	761 " 3 "
64	Limestone, light and dark	3 " 8 "	764 " 11 "
65	Dark Clay and Fire Clay	9 " 6 "	744 " 5 "
66	Limestone, light	3 " 1 "	777 " 6 "
67	Slate Shale, dark, mixed with Limestone	10 " 6 "	788 "
68	Limestone, some shells, dark to light	14 "	802 "
69	Gain in measurement	9 "	811 "
70	Clay mixed with Limestone	4 " 3 inches	815 " 3 inches.
71	Limestone, light to dark	14 " 6 "	829 " 9 "
72	Laminated Clay or Slate Shale, dark	5 " 6 "	835 " 3 "
73	Hard conglomerate fossil Limestone, mottled	3 feet 3 inches	838 feet 6 inches.
74	Dark laminated Clay	2 " 2 "	840 " 8 "
75	Conglomerate fossil Limestone, dark	10 "	841 " 6 "
76	Laminated Clay and Limestone, dark	12 feet 8 "	854 " 2 "
77	Hard conglomerate fossil Limestone, gray	12 " 2 "	866 " 4 "
78	Dark Clay mixed with Limestone	4 " 10 "	871 " 2 "
79	Hard Limestone, light gray	7 " 1 "	878 " 3 "
80	Hard Slate Shale, black	2 " 4 "	880 " 7 "
81	Mud and black Clay	3 " 4 "	883 " 11 "
82	Hard Limestone, gray, white, black	28 " 11 "	912 " 10 "
83	Sandstone, gray	3 "	915 " 10 "
84	Laminated Clay and Mud, blue	5 " 1 inches	920 " 11 "
85	Blue Slate Shale	3 "	923 " 11 "
86	Hard Limestone, light gray	11 "	934 " 11 "
87	Dark Fire Clay	4 "	938 " 11 "
88	Gain in measurement	1 " 10 inches	940 " 9 "
89	Hard blue Fire Clay	12 " 4 "	953 " 1 "
90	Gain in measurement	1 " 8 "	954 " 9 "
91	Dark Clay Shale	31 " 8 "	986 " 5 "
92	——	8 " 4 "	994 " 9 "
93	Bituminous Shale	1 " 6 "	996 " 3 "
94	Conglomerate Limestone, mixed with Clay, dark	2 feet 6 inches	998 feet 9 inches.
95	Dark Clay Shale	1 " 3 "	1,000 "
96	Limestone	3 "	1,003 "
97	Laminated Shale, light	8 " 2 inches	1,011 " 2 inches.
98	Limestone	2 "	1,013 " 2 "
99	**COAL**	**1 " 4 inches**	**1,014 " 6 "**
100	Laminated Shale	3 " 8 "	1,018 " 2 "
101	Laminated Sandstone, light	34 " 10 "	1,053 "
102	Laminated Shale, light	3 " 4 "	1,056 " 4 inches.
103	Limestone	1 " 9 "	1,058 " 1 "
104	Laminated Shale, light	5 "	1,063 " 1 "
105	Limestone	1 "	1,064 " 1 "
106	Shale, light, dark, light, dark, light	38 "	1,102 " 1 "
107	Sandstone, light	1 " 10 inches	1,103 " 11 "
108	Shale, light, dark, light	17 " 4 "	1,121 " 3 "
109	**COAL**	**1 "**	**1,122 " 3 "**
110	Shale, black to light	7 " 1 inches	1,129 " 4 "
111	**COAL**	**1 " 2 "**	**1,130 " 6 "**
112	Shale, dark to light	10 "	1,140 " 6 "
113	Sandstone and Shale	3 " 8 inches	1,144 " 2 "
114	Black Shale	2 "	1,146 " 2 "
115	**COAL**	**1 "**	**1,147 " 2 "**
116	Shale and Clay, light to dark, some flint	49 " 10 inches	1,197 "
117	**COAL**	**1 "**	**1,198 "**
118	Laminated Shale and Sandstone	14 " 8 inches	1,212 " 8 inches.
119	**COAL**	**1 "**	**1,213 " 8 "**
120	Fire Clay	4 "	1,217 " 8 "
121	Shale, light, and Slate Shale	13 " 8 inches	1,231 " 4 "
122	Sandstone, micaceous, to hard blue Clay	11 "	1,242 " 4 "
123	Hard blue Clay	2 " 8 inches	1,245 "
124	Limestone, porous—gas	3 " 7 "	1,248 " 7 inches.
125	Clay	10 "	1,249 " 5 "
126	Sandstone, variegated	9 feet	1,258 " 5 "
127	Shale, dark	3 inches	1,258 " 8 "
128	Sandstone	4 "	1,259 "
129	Shale, dark	3 feet 11 "	1,262 " 11 inches.
130	**COAL**	**3 "**	**1,263 " 2 "**
131	Shale, light to dark	8 feet 7 "	1,271 " 9 "
132	Limestone, dark	4 "	1,272 " 1 "
133	——	2 feet 1 "	1,274 " 2 "
134	Shale, dark	2 " 4 "	1,276 " 6 "
135	Limestone, gray	6 "	1,277 "
136	Shale, black	1 feet 9 "	1 278 " 9 inches.
137	Limestone	6 "	1,279 " 3 "
138	Shale, dark	5 feet 3 "	1,284 " 6 "
139	——	2 " 8 "	1,287 " 2 "
140	Hard blue Fire Clay	12 " 5 "	1,299 " 7 "
141	Shale with Limestone and "Sulphur"	4 " 8 "	1,304 " 3 "
142	Clay and Fire Clay	4 "	1,308 " 3 "
143	Shale	4 " 8 inches	1,312 " 11 "
144	Fire Clay	5 "	1,317 " 11 "
145	Dark Shale	1 "	1,318 " 11 "
146	——	3 " 8 inches	1,322 " 7 "
147	Shale mixed with Iron Oxide	3 "	1,325 " 7 "
148	Sandstone	8 " 11 inches	1,334 " 6 "
149	Shale, dark	6 " 4 "	1,340 "
150	**COAL**	**8 "**	**1,340 " 8 "**
151	Black Shale	10 feet	1,350 " 8 "
152	**COAL**	**2 inches**	**1,350 " 10 "**
153	Sandstone	9 "	1,351 " 7 "
154	——	3 "	1,351 " 10 "
155	Sandstone, hard	11 "	1,352 " 9 "
156	Fire Clay mixed with Limestone	7 feet 9 "	1,360 " 6 "
157	Clay Shale and dark Clay	9 "	1,369 " 6 "
158	Fire Clay and Sandstone, mixed, dark	1 "	1,370 " 6 "
159	Sandstone, gray	1 " 6 inches	1,372 "
160	Shale, some Limestone	8 " 6 "	1,380 " 6 inches.
161	Fire Clay	2 "	1,382 " 6 "
162	Dark Clay Shale with Mica Sandstone	8 "	1,390 " 6 "
163	——	3 " 1 inches	1,393 " 7 "
164	Sandstone	10 "	1,394 " 5 "
165	Dark Shale mixed with Sandstone	12 "	1,406 " 5 "
166	Dark Clay mixed with Sandstone	12 "	1,418 " 5 "
167	Sandstone, gray	8 " 11 inches	1,427 " 4 "
168	Limestone, light	4 "	1,427 " 8 "
169	Sandstone Shale	6 feet 7 "	1,434 " 3 "
170	Sandstone, gray	15 " 4 "	1,449 " 7 "
171	Shale, dark	6 "	1,451 " 1 "
172	Sandstone, variegated gray	3 feet 9 "	1,453 " 10 "
173	Shale	1 "	1,454 " 10 "
174	Sandstone with Shale bands	12 "	1,466 " 10 "
175	Laminated Shale, dark	33 " 2 inches	1,500 "
176	Sandstone and Shale, light	13 " 7 "	1,513 " 7 inches.
177	Limestone, light	7 " 2 "	1,520 " 9 "
178	Shale, dark, light, dark	9 "	1,529 " 9 "
179	**COAL**	**1 " 1 inches**	**1,530 " 10 "**
180	Shale, light to 66, then dark	66 " 6 "	1,597 " 4 "
181	**COAL**	**1 " 8 "**	**1,599 "**
182	Shale, dark	6 "	1,599 " 6 inches.
183	Crystalline Limestone, light	3 feet 3 "	1,602 " 9 "
184	Shale, dark	4 "	1,606 " 9 "
185	**COAL SEDIMENT**	**10 inches**	**1,607 " 7 "**
186	Sandstone and Shale, variegated, light	3 feet	1,610 " 7 "
187	Shale, light, then dark 10 feet	10 " 6 inches	1,621 " 1 "
188	Sandstone, white	4 " 6 "	1,625 " 7 "
189	Shale, dark	12 " 6 "	1,638 " 1 "
190	Shale, soft and light	3 "	1,638 " 4 "

Record of a Deep Well at Lyndon, Osage County.

PLATE XXVII.

Reported by Mr. McClair.

	MATERIAL.	Thickness of Strata.	Depth to Bottom of Strata.
1	Clay Surface	10 feet	10 feet.
2	Limestone, (elevation of railroad)	14 "	24 "
3	Soft Slate Shale, light	6 "	30 "
4	Limestone	5 "	35 "
5	Dark Shale	2 "	37 "
6	Gray Limestone	3 "	40 "
7	Light Shale	10 "	50 "
8	Shells of Limestone	3 "	53 "
9	Soft Shale	7 "	60 "
10	Hard Limestone	5 "	65 "
11	Soft Shale	10 "	75 "
12	Limestone	4 "	79 "
13	Sandy Shale	34 "	113 "
14	Limestone	4 "	117 "
15	Shale	1 "	118 "
16	Limestone	7 "	125 "
17	Shale	13 "	138 "
18	Limestone	20 "	158 "
19	Black Slate Shale	5 "	163 "
20	Limestone	1 "	164 "
21	Soft Soapstone Shale	10 "	174 "
22	Magnesia Limestone	10 "	184 "
23	Sandy Shale	20 "	204 "
24	Shale, trace of COAL	10 "	214 "
25	Shale	10 "	224 "
26	Sandstone—salt water	15 "	239 "
27	Shale	3 "	242 "
28	Sandstone	12 "	254 "
29	Blue Shale	37 "	291 "
30	Sandstone	12 "	303 "
31	Shale	92 "	395 "
32	Sandstone	105 "	500 "
33	Soft Shale	7 "	507 "
34	Limestone	93 "	600 "
35	Shale	70 "	670 "
36	Limestone	57 "	727 "
37	Shale	11 "	738 "
38	Sandstone	82 "	820 "
39	Limestone	10 "	830 "
40	Black Slate Shale	5 "	835 "
41	Limestone—salt water	17 "	852 "
42	Shale	6 "	858 "
43	Limestone	9 "	867 "
44	Slate Shale	118 "	985 "
45	Sandstone	20 "	1,005 "
46	Soapstone Shale	2 "	1,007 "

Record of a Deep Well at Eureka, Greenwood County.

PLATE XXVII.

Bored by Churn Drill. Reported by L. C. Wooster. Completed October 6, 1897.

	MATERIAL.	Thickness of Strata.	Depth to Bottom of Strata.
1	Clay and Gravel	15 feet	15 feet.
2	Limestone	2 "	17 "
3	Shale	2 " 8 inches	19 " 8 inches.
4	**COAL**	**4 "**	**20 "**
5	Limestone	3 feet	23 "
6	Shale	76 "	99 "
7	**COAL**	**8 inches**	**99 " 8 inches.**
8	Limestone	45 feet 2 "	144 " 10 "
9	Shale	10 " 8 "	155 " 6 "
10	Arenaceous Limestone	6 " 8 "	162 " 2 "
11	Shale	20 "	182 " 2 "
12	Limestone	6 " 7 inches	188 " 9 "
13	Black Slate Shale	3 "	191 " 9 "
14	Limestone	1 " 9 inches	193 " 6 "
15	Shale	5 " 10 "	199 " 4 "
16	Red Clay	28 "	227 " 4 "
17	Limestone	1 " 4 inches	228 " 8 "
18	Shale	9 " 4 "	238 "
19	Limestone	1 " 4 "	239 " 4 "
20	Shale	5 " 3 "	244 " 7 "
21	Limestone, pyritiferous	9 "	253 " 7 "
22	Shale	12 " 10 inches	266 " 5 "
23	Limestone	2 "	268 " 5 "
24	Limestone, "magnesia"	9 " 10 inches	278 " 3 "
25	Limestone	5 " 6 "	283 " 9 "
26	Black Slate Shale	2 " 9 "	286 " 6 "
27	Limestone	8 "	287 " 2 "
28	Shale	43 feet 8 "	330 " 10 "
29	Limestone	28 " 3 "	359 " 1 "
30	Slate Shale	9 "	368 " 1 "
31	Flint	4 " 8 inches	372 " 9 "
32	Limestone	10 "	382 " 9 "
33	Shale	23 " 7 inches	406 " 4 "
34	Limestone	12 " 4 "	418 " 8 "
35	Shale	8 " 8 "	426 " 4 "
36	Sandstone	74 " 9 "	501 " 1 "
37	Limestone	1 " 1 "	502 " 2 "

Figure 1.

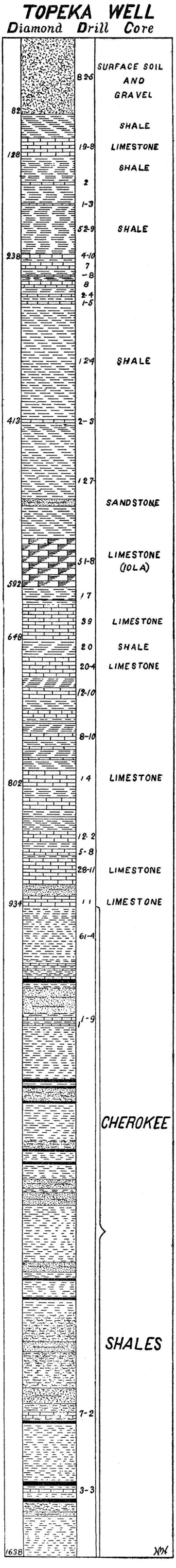

Figure 2.

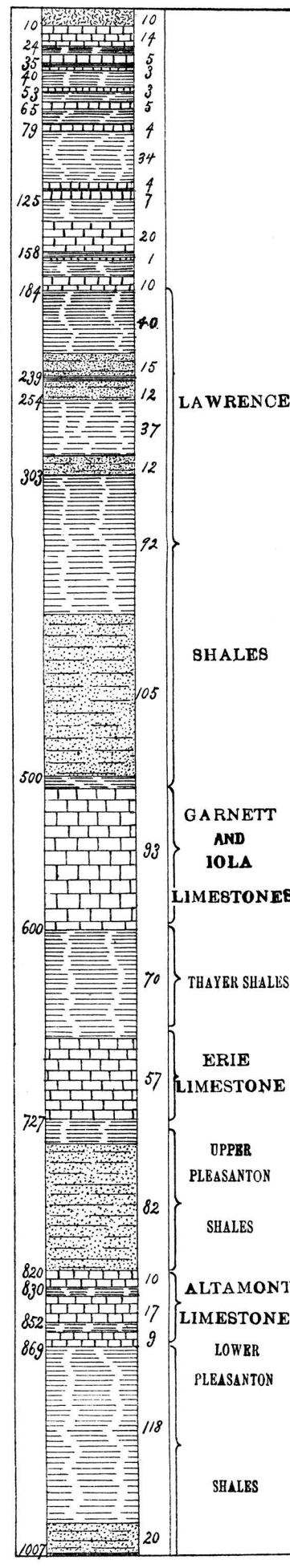
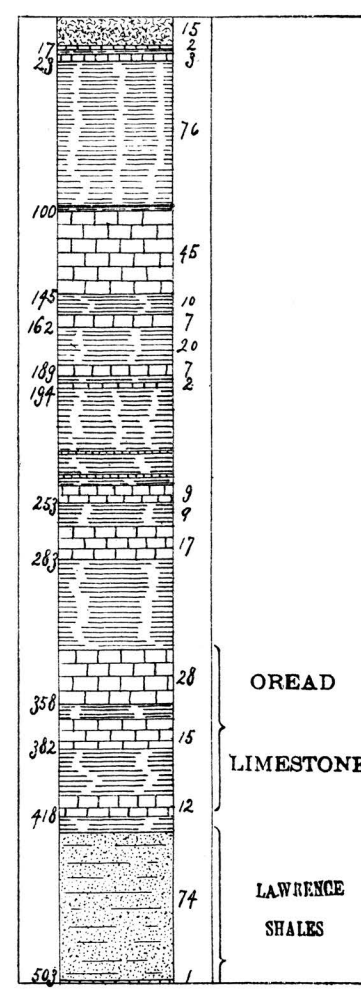
Figure 3.