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PAPER NO. I.

A SILURO-DEVONIAN OIL HORIZON IN SOUTHERN OKLAHOMA.

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NORMAN

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A SILURO-DEVONIAN OIL HORIZON IN SOUTHERN OKLAHOMA.

In August of the past year the Nance Syndicate well located in sec. 4. T. 4N., R. 5E., Pontotoc County, Okla., encountered a limestone at a depth of 2,305 feet. The formation made a small show of oil and after 105 feet of it had been penetrated, operations were discontinued and the well was shot with 200 quarts of nitro-glycerine. The shot was successful and the well came in for an initial production of about 125 barrels per day. In placing the charge it was arranged so as to extend from the bottom of the well to within 15 feet of the top of the lime and there is, therefore, no doubt that it was this formation that yielded the oil.

At the time that the well was brought in the writer obtained a number of limestone fragments, which were thrown out by the shot and from the fragments secured fossils which indicated that the formation was of Silurian age.

The surface deposits in the vicinity of the well are of late Pennsylvanian age and in stratigraphic position belong at least 1,000 feet above the Seminole conglomerate of Taff. From a consideration of the following Pennsylvanian stratigraphic column given by Taff for the Coalgate quadrangle, only 15 miles east of the well, it will be seen that an occurence of Silurian rocks at the depth at which the limestone was encountered was hardly to be expected.

Pennsylvanian Formations of the Coalgate Quadrangle
By Joseph A. Taff.

Formation	Thickness in feet.
Seminole conglomerate	50
Holdenville shale	260
Wewoka formation	700
Wetumka shale	120
Calvin sandstone	145-240
Senora formation	140-485
Stuart shale	90-280
Thurman sandstone	80-260
Boggy shale	2,000-2,600
Savanna sandstone	1,000
McAlester shale	1,800-2,000
Hartshorne sandstone	150
Atoka formation	3,100
Wapanucka limestone	100

In order to obtain a more definite determination of the age of the limestone, a small collection of fragments was sent to Dr.

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J. J. Galloway, Professor of Paleontology at Columbia University. From this collection Dr. Galloway was able to identify the following fossils:

Dalmanella elegantula (Dalman), typical specimens.
Spirifer crispus (Hisinger), probably the variety S. crispus simplex (Hall), since it lacks the zig-zag growth lines of S. Crispus.
Wilsonia saffordi (Hall), brachial valve.
Ceolospire hemisphærica (Sowerby), doubtful.
Calymene niagarensis (Hall), two free checks.
Ostracods, probably *Bythocypris* sp. undescribed.
Bryozoan, young, like *Ceramopora*.

From the evidence afforded by these Dr. Galloway stated, that in his opinion, the formation was of Niagaran age, probably the equivalent of the Henryhouse shale of the lower Hunton formation which outcrops in the Arbuckle Mountains some 12 miles to the south of the well.

Shortly after the Nance Syndicate well was brought in, the Trans-continental Oil Company's well, in sec. 14, T. 5N., R. 4E., some 6 miles to the northwest encountered a similar lime at 2,660 feet. This lime differed from that in the Nance well in that it was only 50 feet thick and made but a very small showing of oil. No fossils were secured from it but the similarity of the logs of the two wells and their proximity strongly indicate that the two occurrences are parts of the same formation.

It is difficult to explain the disparity of the thickness at the two localities. Four possibilities here suggest themselves, but so far evidence is not at hand to justify a definite conclusion.

1. The formation may thin northward.
2. Toward the north the upper or lower parts of the formation may grade into shales, indistinguishable from the associated strata.
3. Emergence at the northern end of the area, during part of the time at which the Hunton of the Arbuckle Mountains was being deposited, may have prevented deposition of part of the formation to the north.
4. Folding and erosion prior to the deposition of the overlying Pennsylvanian strata may have resulted in the removal of the upper portion of the formation at certain localities.

Shortly after the discovery of the limestone in the Trans-continental well considerable excitement was caused by the bringing in of the Maud Oil and Gas Company's well, No. 2, located in sec. 18, T. 7N., R. 5E., about 12 miles north of the Trans-continental well. The producing horizon at Maud was also found to be a limestone and resembled the bed in the Trans-continental well, in that it was only about 50 feet thick, but differed from both the Nance and Trans-continental occurrences in that it was rather sandy.

Fragments of this lime were secured and, because of a suspicion that it was to be correlated with the limes farther south, some of these pieces were sent to Dr. Charles Schuchert of Yale University who was able to identify the following fossils:

Anoplotheca concava (Hall).
Phacops (probably *P. hudsonicus or P. logani*).
Ostracoda, crinoidal fragments, and young of *Meristella*.

From this assemblage Dr. Schuchert stated that the lime of the Maud well was certainly of Heldebergian (Lower Devonian) age and considered it to be the equivalent of the upper Hunton formation.

It will be recalled that Chester A. Reeds* made a special study of the Hunton formation of the Arbuckle Mountains and in 1911 contributed a most helpful and interesting paper on the subject. In this article it was shown that the formation contained several unconformities and ranged in age from Niagaran

Reeds, Chester A., American Journal of Science, 1911, p. 256.

Correlation Table of the Siluro-Devonian Rocks, Arbuckle Mountains, Oklahoma

Period	Series	Stage	Reed 1911	Taff, Ulrich and Girty 1903-1904	
Devonian	Helderbergian	Becraft	Bois d'Arc Limestone 0-90' average 60'	Upper Hunton	Oriskany
		New Scotland	Haragan Shale 0-166' average 100'	Middle Hunton	Helderbergian
			Break		
Silurian	Niagaran		Henryhouse Shale 0-223' average 90'		
			Break		
	Alexandrian	Ohio Clinton	Chimneyhill Limestone: Pink crinoidal member 0-39' average 15'; Glauconitic member 0-25' average 15'; Oolitic member 0-12' average 5'	Lower Hunton	Niagaran / Clinton

(Middle Silurian) to Heldegergian (Lower Devonian). The preceding table, reproduced from his paper, shows the unconformities found by Reeds and the manner in which he subdivided the formation.

It is not known what significance attaches to the fact that the fossils from the Maud well indicate that the lime there belongs to the upper Hunton (Heldegergian) while those from the Nance well indicate that the formation at that place belongs to the lower Hunton (Niagaran). It may be that the apparent absence of portions of the formation in each locality is to be explained as a mere coincidence in the writer's selection of the few fragments which were sent to Dr. Galloway and Dr. Schuchert; or it may be that certain portions of the bed were more easily shattered and thus contributed a majority of the fragments available after the wells had been shot.

Since the finding of the lime in the Maud well it has been encountered in another locality. The Doan Oil Company's well in sec. 20, T. 5N., R. 4E., two miles west of the Trans-continental, penetrated limestone at 2,500 feet which, although no fossils have been secured from it, is almost certainly to be correlated with the lime in the Trans-continental well. The lime in the Doan well made only a negligible show of oil and was not shot.

To summarize, it may be said that in an area extending northward from the Arbuckle Mountains, through the western part of Pontotoc County and the southern part of Pottawatomie County, portions at least, of the Hunton limestone have been encountered at comparatively shallow depths, in four scattered wells. The formation dips toward the north, but at so slight an angle as to insure its presence within drilling depth over a large area. In two of the wells where the formation has been found it carried oil in commercial quantities and since it is apparently a new oil horizon for the State it should warrant further investigation.

For the benefit of those persons especially interested in the area, logs of the four wells mentioned are herewith included:

	Name and Location of Well	Depth at Which Limestone Was Found
1.	Nance Syndicate, Sec. 4, T. 4N., R. 5E., Pontotoc County, Okla.	2305 feet
2.	Transcontinental Oil Co. Sec. 14, T. 5N., R. 4 E., Pontotoc County, Okla.	2660 feet
3.	Doan Oil Company Sec. 20, T. 5N., R. 4E., Pontotoc County, Okla.	2500 feet
4.	Maud Oil and Gas Co., No. 2 Sec. 18, T. 7N., R. 5E., Pottowatomie County, Okla	3730 feet

Hoggard No. 1, sec. 4, T. 4N., R. 5E., Pontotoc County, Oklahoma
Nance Syndicate.

Character of rock.	Thickness *Feet*	Depth *Feet*	Character of rock.	Thickness *Feet*	Depth *Feet*
Surface to clay	4	4	Sandy shale	45	865
Sand rock	26	30	Blue shale	15	880
Red bed	72	102	Red rock	25	905
Sand rock	20	122	Water sand	30	935
Blue shale	8	130	Blue clay	35	970
Red rock	22	152	Red rock	30	1000
Brown shale	18	170	Blue shale	20	1020
Water gravel	15	185	Water sand	20	1040
Red rock	10	195	Blue clay	20	1060
White shale	25	220	Black shale	50	1110
Brown shale	10	230	Lime (hard)	12	1122
White shale	15	245	Blue clay	15	1137
Soft sand	7	252	Black shale	30	1167
White shale	48	300	Sandy shale	8	1175
Red rock	20	320	Red rock	15	1190
Lime	10	330	Black shale	35	1225
Red rock	20	350	Water sand	25	1250
Blue clay	10	360	Sand lime	25	1275
Red rock	20	380	Black shale	35	1310
Lime	10	390	Lime shell	10	1320
Red rock	25	415	Blue clay	15	1335
Limestone	7	422	Black shale	39	1374
Red rock	8	430	Blue clay	16	1390
Lime shell	2	432	Water sand	20	1410
Red rock	12	444	Blue clay	25	1435
Oil sand	30	474	Blue sandy shale	45	1480
Red rock	36	510	Black shale	70	1550
Lime shell	6	516	Sandy shale	10	1560
Red rock	34	550	Oil sand	20	1580
Shell lime	5	555	Ore sand (good) (Showing of oil)	20	1600
Red rock	20	575	Black shale	15	1615
Blue clay	25	600	Sandy lime	25	1640
Red rock	20	620	Black shale	70	1710
Lime shell	5	625	Hard Shell	2	1712
Blue clay	10	635	Black shale	63	1775
Water sand	25	660	Sand (oil)	3	1778
Red rock	45	705	Black shale	142	1920
Water sand	25	730	Sand (oil)	10	1930
Red rock	30	760	Brown and black shale	375	2305
Water sand	15	775	White lime	107	2412
Blue shale	15	790	Still in lime		
Lime	5	795			
Blue shale	25	820			

Well—150 feet from N. line and 150 feet from E. line, sec. 14, T. 5N., R. 4E., Pontotoc County, Oklahoma

Transcontinental Oil Co.

Character of rock.	Thickness Feet	Depth Feet	Character of rock.	Thickness Feet	Depth Feet
Clay	27	27	Lime and granite (granite-pieces of feldspar in the lime)	3	925
Lime, hard, white	3	30	Shale, brown, soft	13	938
Shale, red soft	20	50	Lime	2	940
Shale, blue	17	67	Shale, brown	4	944
Sandy shale, red	18	85	Shale, blue	24	968
Sandy shale, red	12	97	Water sand	8	976
Mud, blue	13	110	Shale, brown, soft	5	981
Shale, red	47	157	Lime, white, hard	4	985
Water sand, white not enough for drilling	13	170	Shale, brown	5	990
Mud, blue	5	175	Water sand, white	6	996
Shale, red	50	225	Shale, brown	17	1013
Shale, gray	11	236	Water sand	12	1025
Shale, red, caving	74	310	Shale, brown	25	1050
Shale, gray	65	375	Water sand (hole full of water	15	1065
Sand, little water	5	380	Lime, hard	1	1066
Sandy lime	10	390	Water Sand	9	1075
Water sand, white, 6 bailers per hour	12	402	Shale, red, soft	49	1124
Shale, blue	5	407	Water sand, white	8	1132
Shale, red	25	432	Lime, hard	2	1134
Water sand	13	445	Shale, brown	26	1160
Sandy lime	16	461	Shale, blue	95	1255
Shale, blue	22	483	Shale, brown	10	1265
Sandy lime, white, hard	12	495	Shale, blue	10	1275
Shale, red	140	635	Water sand, white	20	1295
Water sand, white	25	660	Lime	15	1310
Lime, white, hard	5	665	Shale, blue	22	1332
Sand	12	677	Shale, brown	2	1334
Shale, blue	43	720	Lime, white	10	1344
Lime, white hard	12	732	Shale, blue	68	1412
Shale, blue, soft	23	755	Shale, brown	18	1430
Shale, red	2	757	Shale, blue	25	1455
Slate, black	8	765	Sand, dry	10	1465
Water sand, white	10	775	Shale, blue, soft	15	1480
Shale, blue	13	788	Lime	5	1485
Shale, red	6	794	Shale, blue, soft	20	1505
Sand, white	6	800	Shale, black	10	1515
Shale, blue	16	816	Shale blue	85	1600
Shale, yellow	8	824	Shale, black	5	1605
Sand	10	834	Shale blue	21	1626
Red bed	20	854	Sand, show oil	2	1628
Sand	12	866	Shale, pink	2	1630
Mud, blue	6	872	Shale, blue	72	1702
Lime	15	887	Sand, white (gas)	20	1722
Shale, soft, brown	16	903	Shale, blue	98	1820
Lime, and granite (this reported granite was probably pieces of feldspar in the lime.)	17	920	Red bed	5	1825
			Shale, brown	15	1840
			Shale, black	25	1865
Shale, brown	2	922	Shale, blue	35	1900

Well—150 feet from N. line and 150 feet from E. line, sec. 14, T. 5N., R. 4E., Pontotoc County, Oklahoma

Transcontinental Oil Co.—(Continued).

Character of rock.	Thickness Feet	Depth Feet	Character of rock.	Thickness Feet	Depth Feet
Shale, black	50	1950	Shale, blue, soft	70	2340
Shale, white, sandy	11	1961	Shale, black	42	2382
Lime, hard	4	1965	Shale, gray	15	2397
Shale, blue, soft	27	1992	Shale, gray	73	2470
Lime	5	1997	Shale, blue, soft	20	2490
Shale, blue, soft	63	2060	Shale, and lime shells	10	2500
Lime, hard	10	2070	Shale, black	30	2530
Shale, blue, soft	15	2085	Shale, brown	95	2675
Lime	5	2090	Shale, and lime shells		
Shale, blue, soft	52	2142	Hunton Ls.	10	2685
Lime	16	2158	Lime, white, hard	95	2780
Shale, blue	92	2250	Slate, soft	90	2870
Lime, brown	2	2252	Still drilling		
Sand, little water	18	2270			

W. V. Cook, Well No. 1, NE. cor., NW¼, NE¼, sec. 20, T. 5, R. 4E.

Doan Oil Co.

Character of rock.	Thickness Feet	Depth Feet	Character of rock.	Thickness Feet	Depth Feet
Sand and red mud	35	35	Lime shells	5	1031
Coarse gravel-water	20	55	Grey shale	16	1047
Red rock	25	80	Blue shale	5	1052
Coarse gravel	10	90	Lime	3	1055
Sand rock	10	100	Sand (Water sand at 1060 feet)	10	1065
Red rock	140	240	Red rock	10	1075
Lime shells	15	255	Sand	11	1086
Red rock	70	325	Lime	4	1090
Brown shale	62	394	Red rock	3	1093
Lime	5	399	Lime	5	1098
Brown shale	11	410	Red rock	59	1157
Sand rock	15	425	Sand	8	1165
Brown shale	15	440	Blue Slate	25	1190
Red rock	45	485	Red rock	15	1205
Red sand rock	15	500	Lime shells and shale	7	1212
Red rock	65	565	Blue slate	13	1225
Sand (Water at 580')	40	605	Blue shale	10	1235
Red rock	75	680	Blue slate	10	1245
Sand (Water)	12	692	Sand	5	1250
Red rock	46	738	Blue slate	10	1260
Lime shells	12	750	Sand	5	1265
Red rock	40	790	Blue slate	5	1270
Red rock-shale	25	815	Sand	10	1280
Red rock	160	975	Blue shale	15	1295
Lime	15	990	Sandy lime	15	1310
Red rock	13	1003	Red rock	10	1320
Lime and shale	6	1009	Sand	10	1330
White shale	5	1014	Sandy lime	23	1353
Sand shell	1	1015			
Red rock	11	1026			

W. V. Cook, Well No. 1, NE. cor., NW¼, NE¼, sec. 20, T. 5, R. 4E.
Doan Oil Co.

Character of rock.	Thickness Feet	Depth Feet	Character of rock.	Thickness Feet	Depth Feet
Sand	27	1380	Blue slate and lime shells	3	1868
Lime	5	1385	Black shale	22	1890
Blue shale	5	1390	Light blue shale	25	1915
Lime and sand shells (small oil show)	23	1413	Blue shale	27	1942
Red rock	12	1425	Black shale	20	1962
Sand	5	1430	Lime shell	3	1965
Lime	23	1453	Blue shale	17	1982
Red rock	11	1464	Lime-shells	3	1985
Blue slate	22	1486	Blue shale	18	2003
Brown shale and lime shells	14	1500	Black shale	2	2005
Blue shale	12	1512	Black slate	4	2009
Red rock	3	1515	Blue shale	6	2015
Sand	10	1525	Black shale	10	2025
Slate	15	1540	Blue shale	10	2035
Blue slate	5	1545	Black shale	10	2045
Blue slate	10	1555	Blue shale	5	2050
Blue shale	15	1570	Sandy lime	10	2060
Blue slate	5	1575	Black shale	65	2125
Blue shale	11	1586	Blue slate	10	2135
Blue slate	6	1592	White slate	10	2145
Blue shale	3	1595	Blue slate	5	2150
Blue slate	10	1605	Lime	30	2180
Blue shale	10	1615	White slate	10	2190
Red rock	17	1632	White slate	10	2200
Blue slate	3	1635	Black slate	5	2205
Sand	5	1640	Blue slate	5	2210
Blue shale	8	1648	Black slate	10	2220
Sand	12	1660	Blue slate	8	2228
Blue slate	23	1683	Black slate	10	2238
Red rock	7	1690	Black shale	7	2245
Blue shale	20	1710	Black slate	15	2260
Lime	15	1725	Sand—dry	20	2280
Blue shale	7	1732	White slate	15	2295
Blue slate	6	1738	Blue slate	25	2320
Blue shale and sand shells	12	1750	Sand water	5	2325
Sand	15	1765	Black slate and lime shells	10	2335
Blue slate	10	1775	Sand—water	10	2345
Blue shale	6	1781	Lime, hard	5	2350
Lime	10	1791	Lime	5	2355
sand—water	24	1815	Black slate	5	2360
Blue shale	5	1820	Black slate	100	2460
Blue shale and lime shells	7	1827	Blue slate	25	2485
Blue slate	16	1843	Black slate	15	2500
Lime shells	7	1850	Sandy lime	5	2505
Lime	5	1855	Sand and lime	10	2515
Sand	2	1857	Sand	10	2525
Blue slate	8	1865	Sandy lime, hard	5	2530
			Lime, hard	10	2540
			Lime, sand, and shale		

W. V. Cook, Well No. 1, NE. cor., NW¼, NE¼, sec. 20, T. 5, R. 4E.
Doan Oil Co.—(Continued).

Character of rock.	Thickness Feet	Depth Feet	Character of rock.	Thickness Feet	Depth Feet
(broken formation)	10	2550	White shale	10	2655
Lime and shale	10	2560	White slate	10	2665
Shale—black	10	2570	White shale	10	2675
Shale—soft	5	2575	White slate	10	2685
Shale—white	5	2580	White shale	40	2725
Lime	5	2585	Blue shale	5	2730
Lime, hard	5	2590	Black shale	5	2735
Lime, hard	15	2605	Blue shale	5	2740
White lime	10	2615	Black shale	5	2745
Hard lime	5	2620	Blue shale	5	2750
White slate	5	2625	Black shale	15	2765
White slate	20	2645	Top of lime, hard	5	2770

WELL NO. 2, W. ½, of NE. ¼, sec. 18, T. 7N., R. 5E.
Maud Oil & Gas Co.

Character of rock.	Thickness Feet	Depth Feet	Character of rock.	Thickness Feet	Depth Feet
Red rock	30	30	Streaked shale	17	560
Water sand	30	60	Lime shell	14	574
Red rock	10	70	Blue shale	6	580
Sandy shale	25	95	Hard white sand	14	594
Hard sand	10	105	Red shale	7	601
Red mud	5	110	Sandy blue shale	31	632
Sandy blue shale	50	160	Water, broken sand	8	640
Salt water sand	5	165	Sandy lime	20	660
Brown shale	25	190	Red shale	7	667
Red mud	10	200	Blue shale	23	690
Sandy blue shale	40	240	Water sand	2	692
Blue and brown shale	10	250	Blue shale	8	700
Sandy brown shale	15	256	Gray lime	35	735
Sand with water	5	270	Oil show—white sand	5	740
Gravel	20	290	Blue sandy	12	752
Red mud	2	292	Brown sandy	13	756
Sand	38	330	Sand, light	10	775
Streaked brown and blue	10	340	Blue shale	21	796
Blue shale	10	350	Dark coarse sand	5	801
Brown and red shale	10	360	Blue shale	5	806
Red muddy shale	10	370	Sandy lime	14	820
Red shale	10	380	Light shale	5	825
Blue shale	17	397	Sand hard, parafine and oil	38	863
Hard white sand	2	399	Red shale	7	870
Blue and brown	4	403	Mixed shale	15	885
Red shale	17	420	Lime shell	65	950
Blue and brown shale	10	430	Red rock	3	953
Pure red mud	20	450	Sandy lime	8	961
Brown and red shale	10	460	Blue shale	7	968
Blue and brown shale	30	490	Sandy lime shell	38	1006
Soft blue shale	20	510	Blue and brown shale	2	1008
Gray sandy slate	15	525	Water and sand	27	1035
Sand, little water	10	535	Sandy lime	5	1040
Red shale	8	543	Red rock	50	1090

WELL NO. 2, W. ½, of NE. ¼, sec. 18, T. 7N., R. 5E.
Maud Oil & Gas Co.—(Continued).

Character of rock.	Thickness Feet	Depth Feet	Character of rock.	Thickness Feet	Depth Feet
Blue shale	5	1095	Red rock	5	2150
Blue shale	20	1115	White lime	10	2160
Sand hole full water	10	1125	Blue gravel	10	2170
Sand blue shale	7	1132	Light gray shale	20	2190
Sand	15	1147	Black slate	130	2320
Blue shale	18	1165	Hard sand	5	2325
Lime shell	16	1181	(Small lime shale on top of slate—no water)		
Brown shale	4	1185			
Brown shelly shale	10	1195			
Blue shelly shale	45	1240	Slate	75	2400
Blue shelly shale	15	1255	Lime shell	5	2405
Blue shelly shale	55	1310	Sand	10	2415
Sandy lime	80	1390	Slate	30	2445
Blue shale	15	1405	Lime	5	2450
Red shale	25	1430	Sand, dry, no water	10	2460
Blue shale	20	1450	Black sand	25	2485
Shelly blue shale	5	1455	Gray shale	15	2500
Blue shale	20	1475	Blue shale	60	2560
Sand—little water	45	1520	Sand salt water	25	2585
Sandy shale	16	1536	Broken slate	29	2614
Blue shale	34	1570	Gray shale	31	2645
Blue lime	40	1610	Slate	30	2675
Blue lime	10	1620	Sand	10	2685
Black sand	5	1625	Sand	5	2690
Brown mud	20	1645	Lime	18	2708
Hard sand	25	1670	Lime and shale	12	2720
Blue shale	30	1700	Hard lime shell	5	2725
Sandy lime	5	1705	Sticky shale	11	2736
Blue shale	85	1790	Sticky shale	5	2741
Pink shale	10	1800	Sticky shale	12	2753
Salt water—sand—some gas	10	1810	Dark shale and shells	17	2770
			Hard shell	6	2776
Hard sandy lime	10	1820	Blue shale	4	2780
Sand	10	1830	Dark shale	10	2790
Slate	8	1838	Lime shell shale	6	2796
Blue slate	4	1842	Dark shale	54	2850
Lime shell	6	1848	Blue shale	25	2875
Blue slate	7	1855	Sticky shale	35	2910
Black slate	5	1860	Lime	10	2920
White slate	11	1871	Blue shale	25	2945
Blue slate	11	1882	Lime	16	2961
Blue shale	8	1890	Gas showing, sandy lime	4	2965
Gray lime	5	1895			
Blue shale	30	1925	Blue shale	30	2995
Slate caves	20	1945	Hard lime shell	5	3000
Brown shale	25	1970	Blue shale	70	3070
Hard lime	15	1985	Hard shale	5	3075
Water sand—some water	15	2000	Blue shale	45	3120
			Oil and gas showing, sand	4	3124
Blue shale	65	2065	Blue shale	43	3167
Slate	75	2140	Sand, (show oil and gas) water in bottom	85	3252
Gravel	5	2145	Blue shale	90	3342
Show gas, lime shell	6	3348	Blue slate	8	3468
Blue shale	17	3365	Show gas, lime shell	6	3474
Gas show—shell	4	3369	Brown slate	26	3500
Blue shale	47	3416	Dark blue slate	20	3520
Lime shell	3	3419	Brown slate	80	3600
Blue slate	31	3450	Blue shale	15	3615
Some water (3 bailers per hour)			Brown slate	115	3730
			Oil sand	45	3775
			Blue green shale	19	3794
			Hard shelly formation	12	3806
Sandy shale	10	3460	Blue shale	16	3822

WELL NO. 2, W. ½, of NE. ¼, sec. 18, T. 7N., R. 5E.
Maud Oil & Gas Co.—(Continued).