TABLE 6. TYPICAL GAS ANALYSES
Constituents of Gas—Per Cent by Volume

No.	Type	Source	CO_2	O_2	N_2	CO	H_2	CH_4	C_2H_6	C_3H_8	C_4H_{10}		Specific Gravity	Btu per Cu. Ft. Gross	Btu per Cu. Ft. Net
1	Natural	Birmingham, Ala.	..	..	5.0	..	..	90.0	5.0	..	..	..	0.60	1002	904
2	Natural	Pittsburgh, Pa.	..	..	0.8	..	..	83.4	15.8	..	..	..	0.61	1129	1021
3	Natural	Los Angeles, Calif.	6.5	..	..	..	..	77.5	16.0	..	..	..	0.70	1073	971
4	Natural	Kansas City, Mo.	0.8	..	8.4	..	..	84.1	6.7	..	..	..	0.63	974	879
5	Natural	Reported by Ley	0.5	..	12.8	..	..	72.3	14.4	..	..	..	0.68	990	896
6	Natural	Dry type	0.2	..	0.6	..	..	99.2	..	..	..	..	0.56	1007	906
7	Natural	Wet type	1.1	..	..	..	..	87.0	4.1	2.6	2.0	C_5H_{12} 3.4	0.71	1223	1109
8	Natural	Sweet type	..	..	2.8	..	..	73.1	23.8	..	..	..	0.68	1166	1056
9	Natural	Sour type	..	..	..	H_2S 6.4		58.7	16.5	9.9	5.0	C_5H_{12} 3.5	0.92	1489	1359
10	Natural	Casinghead type	..	..	..	..	..	36.7	14.5	23.5	14.9	C_5H_{12} 10.4	1.29	2133	1959
11	Propane	Commercial (natural gas)	..	..	..	..	..	..	2.2	97.3	0.5	..	1.55	2558	2358
12	Propane	Commercial (refinery gas)	..	..	..	..	..	..	2.0	72.9	0.8	C_3H_6 24.3	1.77	2504	2316
13	Butane	Commercial (natural gas)	..	..	..	..	..	..	..	6.0	94.0[c]	..	2.04	3210	2961
14	Butane	Commercial (refinery gas)	..	..	..	..	..	..	..	5.0	66.7[b]	C_4H_8 28.3	2.00	3184	2935
15	Butane-air	.....	..	..	..	..	..	..	..	..	17.2	Air 82.8	1.16	550	516
											(Illuminants)				
16	Refinery oil	Liq. phase crack (Cross)[a]	..	0.2	0.6	1.2	6.1	4.4	72.5	..	..	..	1.00	1650	1524
17	Reformed natural	Straight shot generator	2.1	0.3	1.5	13.6	48.3	33.0	..	..	1.2	..	0.41	559	497
18	Reformed natural	Water gas generator	1.2	0.1	3.8	22.3	49.8	21.9	..	..	0.83	..	0.44	464	424
19	Refinery oil	Vapor phase crack	0.2	0.2	0.5	1.2	13.1	23.3	21.9	..	39.6	..	0.89	1475	1351
20	Reformed refinery oil	.....	2.3	0.7	4.9	20.8	49.8	12.3	5.5	..	3.7	..	0.51	530	475
21	Oil gas	Portland	1.2	0.5	2.4	7.7	54.2	30.1	..	..	3.9	..	0.37	570	510

TABLE 6. TYPICAL GAS ANALYSES (CONCLUDED)
Constituents of Gas—Per Cent by Volume

No.	Type	Source	CO_2	O_2	N_2	CO	H_2	CH_4	C_2H_6	C_3H_8	C_4H_{10}		Specific Gravity	Btu per Cu. Ft. Gross	Btu per Cu. Ft. Net
22	Coal gas	Horizontal retort	2.4	0.8	11.3	7.4	48.0	27.1	..	..	3.0	..	0.47	542	486
23	Coal gas	Inclined retort	1.7	0.8	8.1	7.3	49.5	29.2	..	..	3.4	..	0.47	599	540
24	Coal gas	Contin. vert.	3.0	0.2	4.4	10.9	54.5	24.2	..	..	2.8	..	0.42	532	477
25	Coal gas	Inter. vert.	1.7	0.5	8.2	6.9	49.7	29.9	..	..	3.1	..	0.41	540	482
26	Coke oven	Inter. vert. chamber	2.1	0.4	4.4	13.5	51.9	24.3	..	..	3.4	..	0.42	520	466
27	Coke oven	By-product	2.0	0.03	4.8	5.5	51.9	32.3	..	..	3.2	..	0.40	569	509
28	Producer	Buckwheat anthr.	8.0	0.1	50.0	23.2	17.7	1.0	..	..	...	..	0.86	143	133
29	Producer	Bituminous	4.5	0.6	50.9	27.0	14.0	3.0	..	..	...	..	0.86	163	153
30	Producer	Coke + 0.6 lb. steam	6.4	..	52.8	27.1	13.3	0.4	..	..	...	..	0.88	135	128
31	Blast furnace	.....	11.5	..	60.0	27.5	1.0	..	..	..	...	..	1.02	92	92
32	Blue gas	Coke	5.4	0.7	8.3	37.0	47.3	1.3	..	..	...	..	0.57	287	262
33	Blue gas	Bituminous	5.5	0.9	27.6	28.2	32.5	4.6	..	..	0.7	..	0.70	260	239
34	Carburetted water	Low gravity backrun	3.6	0.4	5.0	21.9	49.6	10.9	2.5	..	6.1	..	0.54	536	461
35	Carburetted water	Heavy oil with blow run	6.0	0.9	12.4	26.8	32.2	13.5	..	..	8.2	..	0.66	530	451
36	Carburetted water	.....	4.3	0.7	6.5	32.0	34.0	15.5	..	..	7.0	..	0.67	534	493
37	Carburetted water	High Btu	0.7	0.3	5.8	11.7	28.0	36.1	..	..	17.4	..	0.63	840	770
38	Sewage	Decatur, Ill.	22.0	..	6.0	..	2.0	68.0	..	..	...	..	0.79	690	621

This table from Gaseous Fuels, *American Gas Association*, p. 22.

Nos. 1- 4—Are average compositions as served to customers in cities named.
5-10—Ley, "Geology of Natural Gas," p. 1075.
11-14—Private communication; Mattocks, Philgas Co.
15 —Handbook of Butane and Propane Gases.
16 —Gas Engineers' Handbook, p. 171.
17 —"Natural Gas," May 1929, p. 566.
18 —A.G.A. Proc., 1935, p. 781.
19 —Gas Engineers' Handbook, p. 171.
20 —E. L. Hall, U.G.I. Co.
21 —Portland Gas and Coke Co.
22-25—"Combustion," Third Edition, A.G.A.
No. 26 —Average data 30 days. United Engineers & Constr.
27 —H. C. Porter, Coal Carbonization, p. 315.
28-31—"Combustion," Third Edition, A.G.A.
32 —W. R. Morris, A.G.A. Proc., 1922, pp. 21-52.
33 —E. L. Fisher, A.G.A. Proc., 1929, Reversed Air-Blast Process.
34 —A.G.A. Proc., 1930, pp. 1490-1502.
35 —A.G.A. Proc., 1930, p. 1335.
36 —"Combustion," Third Edition, A.G.A.
37 —A.G.A. Proc., 1934, p. 929.
38 —Private memorandum; Morse Boulger Destructor Co.

[a] Dubbs process produces less illuminants (6.7%) and 65% CH_4 and 16% C_2H_6. [b] Divided 16.5% isobutane, 50.1% n-butane. [c] Divided 23.3% isobutane, 70.7% n-butane.