TABLE 1.—*Results of cracking oil under pressures of 3 atmospheres to about one-thirtieth of an atmosphere, showing effect of various pressures on gas formation.*

| Temperature. | Oil used. | Absolute pressure. | Carbon. | Tar. | Gas. | Illuminants. | Methane. ($CH_4$). | Ethane ($C_2H_6$). | Hydrogen. ($H_2$). |
|---|---|---|---|---|---|---|---|---|---|
| °C. | *C. c.* | *Pounds.* | *Grams.* | *C. c.* | *Liters.* | *Per cent.* | *Per cent.* | *Per cent.* | *Per cent.* |
| 650 | 400 | 45 | 8 | 133 | 145 | 30.5 | 45.1 | 11.5 | 9.3 |
| 750 | 400 | 45 | 26 | 87 | 194 | 15.5 | 56.6 | 6.1 | 17.5 |
| 900 | 400 | 45 | 165 | 9 | 310 | 5.0 | 41.6 | None. | 50.0 |
| | | *Atmosphere.* | | | | | | | |
| 650 | 400 | 1 | 3 | 163 | 135 | 43.6 | 33.7 | 10.2 | 9.1 |
| 750 | 400 | 1 | 18 | 80 | 206 | 30.6 | 41.1 | 4.9 | 19.2 |
| 900 | 400 | 1 | 115 | 11 | 382 | 13.1 | 46.7 | None. | 38.6 |
| 750 | 400 | 1/20–1/30 | 1 | 153 | 146 | 56.1 | ..... | ..... | 12.5 |
| 850 | 400 | 1/20–1/30 | 3 | 100 | 211 | 52.9 | 20.5 | 3.4 | 15.6 |
| 900 | 400 | 1/20–1/30 | 3 | 60 | 234 | 52.1 | 24.0 | 1.3 | 17.3 |
| 950 | 400 | 1/20–1/30 | 12 | 58 | 235 | 46.9 | 27.0 | Trace. | 20.8 |

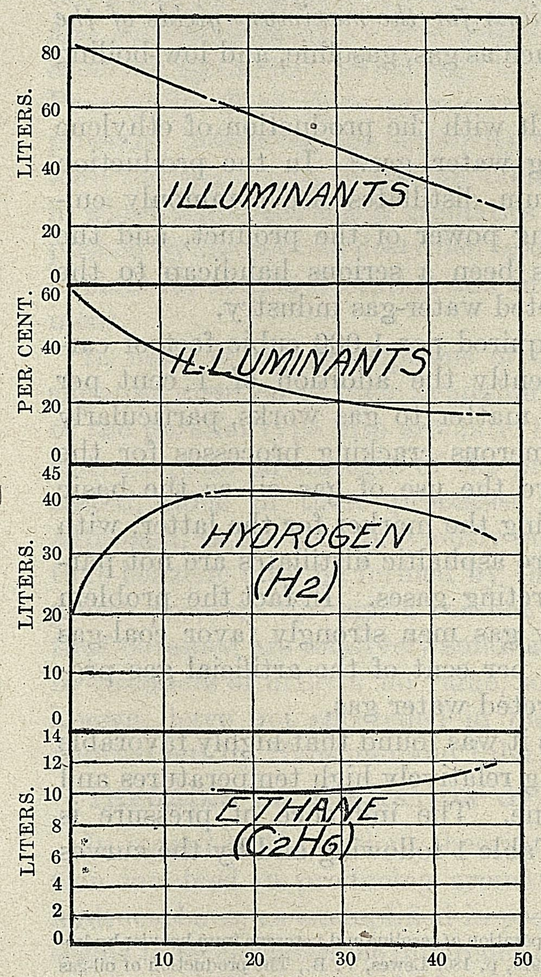


FIGURE 2.—Curves showing effects of pressure on proportions of illuminants, $H_2$, and $C_2H_6$ from oils cracked at 750° C.

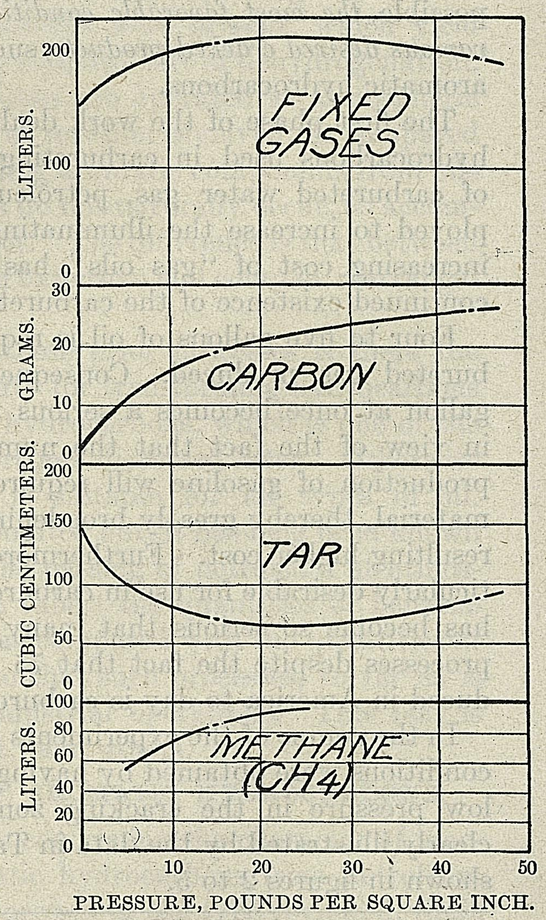


FIGURE 3.—Curves showing effects of pressure on proportions of fixed gases, carbon, tar, and $CH_4$ from oils cracked at 750° C.

In this research qualitative data were obtained showing the marked influence of the presence of different end-product gases on the crack-