should be a straight line having slope B and intercept A. For the compounds checked straight lines did result except for some deviations at pressures of 700 bars or lower. These deviations are to be expected because the mathematical form of the Hudleston equation is such that it would not be expected to hold as atmospheric pressure is approached.

For a given compound the plots of the Hudleston equation at a series of temperatures proved to be a family of approximately parallel lines, indicating that B is constant for a given compound. The intercept, A, approximates a linearly decreasing function of the temperature. Using the relations discovered for A and B it was possible to write a general Hudleston equation for each compound. For example: (Slide #5)

PSU 87

$$\log \left[v^{2/3}P/(v_o^{1/3} - v^{1/3})\right] = A + B\,(v_o^{1/3} - v^{1/3})$$

$$\log \left[v^{2/3}P/(v_o^{1/3} - v^{1/3})\right] = 4.615 - 0.00250\,(t - 60) + 6.209\,(v_o^{1/3} - v^{1/3}).$$

An examination of the compressibilities of the hydrocarbons studied led to a number of general conclusions. For a given compound and temperature the compressibility decreases with increasing pressure, the rate of decrease becoming smaller at higher pressures, as the following example shows: (Slide #6)

PSU 88, 135° C

P(bars)	k (bar)$^{-1}$
atmos.	12.2×10^{-5}
670	6.36
1340	4.22
3350	2.14
6700	1.18
10050	0.81

k = compressibility = $-1/v_o\,(\partial v/\partial P)_T$