Lindsay and Bromley suggested approximating the Sutherland constants by

$$S_1 = 1.5\,T_b\,, \tag{12}$$

$$S_{12} = \sqrt{S_1 S_2}\,. \tag{13}$$

Reid and Sherwood (25) use these relations for dense gas mixtures using Junk's data for ethylene-carbon dioxide and ethylene-nitrogen mixtures with only fair success and with errors of approximately the same magnitude but in the opposite direction as those obtained using the Lenoir, Junk, and Comings correlation with Kay's rule.

The Lindsay-Bromley relation was tested using equations (10) through (13). The pure dense gas viscosities were obtained from references (5, 20, 21) and fit by least squares to polynomials in density for interpolation. The results are summarized in Table III, and were significantly better than those calculated by the Enskog equation, with the maximum deviations occurring at the pressures corresponding to the critical density. Good approximations were obtained at the highest and the lowest pressures.

Other Interpolation Techniques

The results were also interpolated by a simple reciprocal relation,

$$\frac{1}{k} = \frac{x_1}{k_1} + \frac{x_2}{k_2}\,. \tag{14}$$