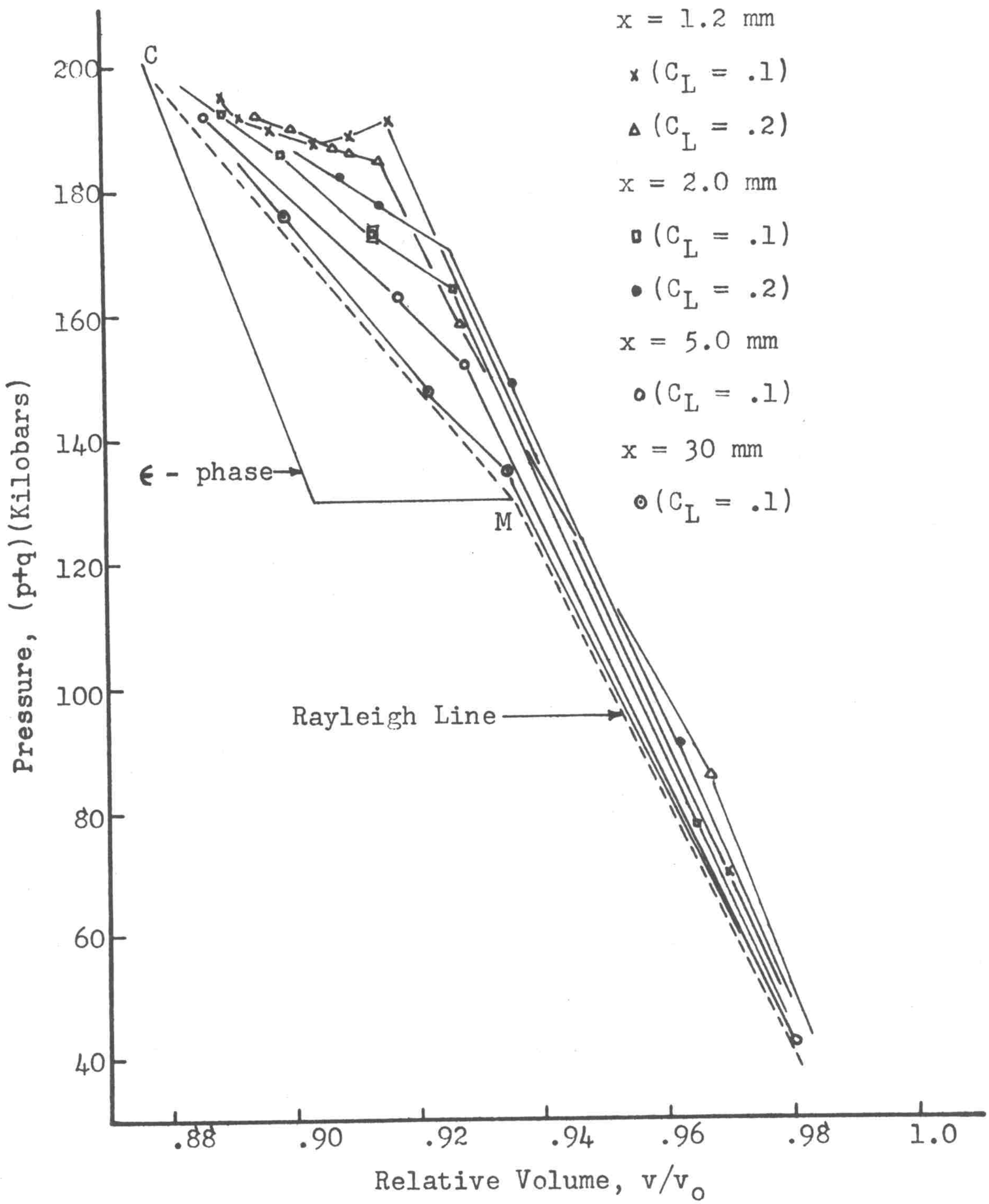

Fig. 5.15-- Total Stress (p+q) and Rayleigh Line

program is available for integrating the flow equations, as in this case, it turns out to be easier to run the program with a uniform driving pressure and tabulate p and v in the uniform region far behind the shock fronts than to do the equilibrium computation. That has been done and the results are shown in Fig. 5.16.

TI is the temperature independent solution (which is on the second phase isotherm), and TD1 and TD2 are temperature dependent solutions with different isothermal compressibilities (a_2 = 3.4 and a_2 = 2.4, respectively). The difference between TI and TD1 is due only to the temperature dependence in the equation of state. The reason TI lies above TD1 can be explained as follows: since dp/dT is negative in the coexistence region, the transition produces a temperature decrease. This decrease is found to be larger, except near the transition point, than the temperature rise in the first shock (about 20^{o}), hence it gives a slight pressure drop for the temperature-dependent equation of state. Experimental values measured by Minshall (13) are indicated by crosses. The differences between these and the calculated curves are substantial. It is quite possible that a curve passing through points B and C can be developed by allowing v_2-v_1 to vary with p. Point A, however, appears to be unattainable within what are here believed to be reasonable limits of the thermodynamic and transition parameters.