the relative magnitude of q in the second front is negligible, as shown in Fig. 5.6. The coefficients C_L are varied to determine effects of q on the transient wave profiles.

Richtmyer (36) has shown, using quadratic q, that a small coefficient of pseudo-viscosity produces an ocillatory output even when the stability condition $(\Delta x/\Delta t)$ is satisfied. Figs. 5.7 through 5.9 show similar changes in profiles for various C_L. Figs. 5.10 and 5.11 give the profile at fixed times for three different values of C_L. From these it is quite clear that the shock profile converges to the same form after about three relaxation times. Details of the relaxation process at early times can be obscured by oscillations when C_L is too small as these figures show. A very large C_L produces so much damping that sudden changes in profile are prevented. This can allow q to control the profile of the second shock as well as the first. A value of $C_L = 0.1$ was found satisfactory for most of the calculations described here.

Novikov observed a drop in pressure behind the first shock. These calculations sometimes show such a drop, but it is more likely due to oscillations in the output than to a physical effect.

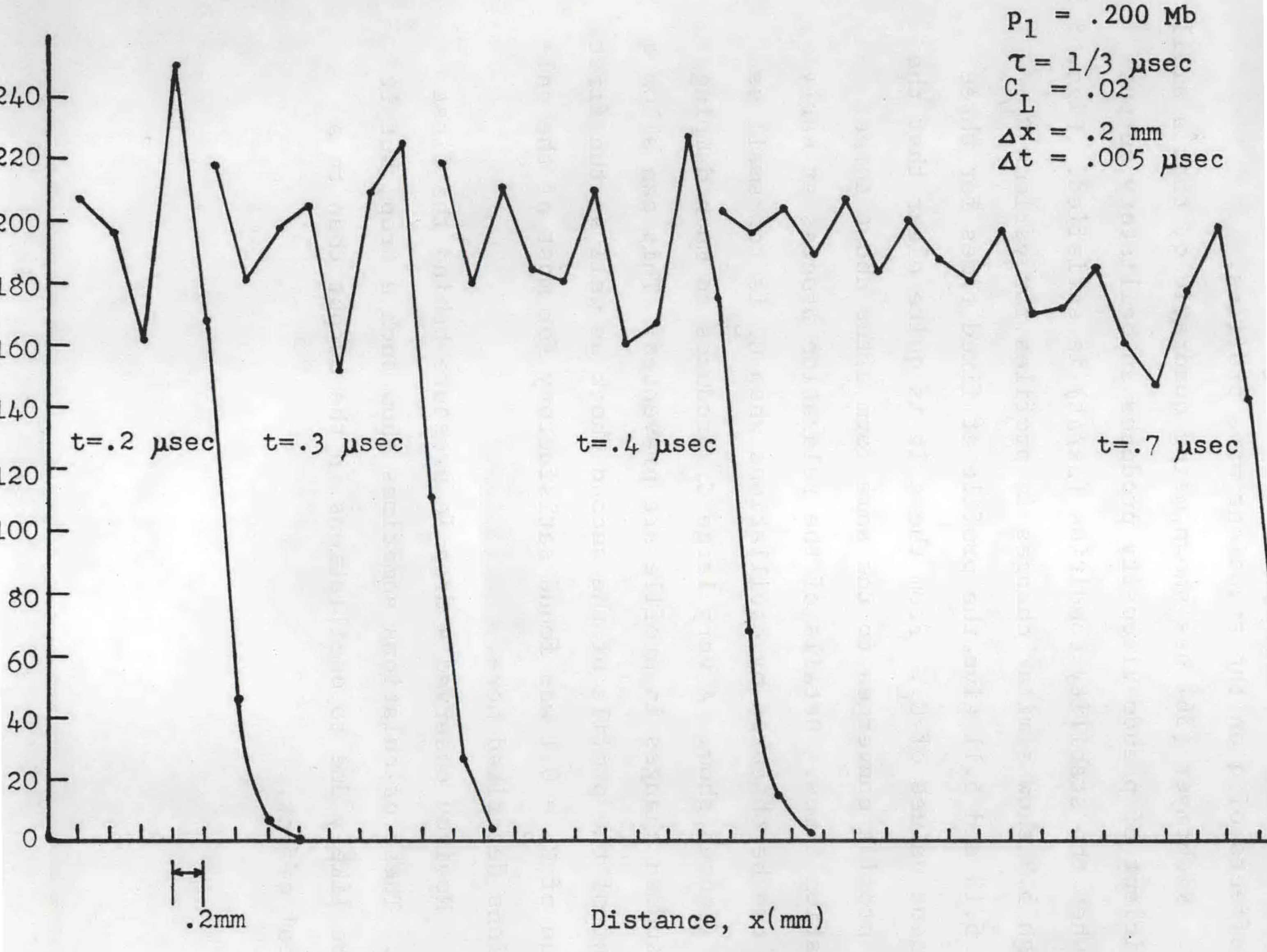

Fig. 5.7.--Wave Propagation with C_L = .02. Δx and Δt are space and time increments used in the numerical integration.