diameters to become steady, and the radius of curvature of the steady-state wave front in composition B is also about 3.5 to 4.0 charge diameters. Moreover, during any wave shape transient the shape of the wave front tends to revert rapidly to the normal wave front irrespective of the (abnormal) wave shape built into the detonation front during formation of the detonation wave. For instance, when detonation is initiated as a reentrant wave, the wave front undergoes a rapid transition into a normal spherical form and in doing so it exerts an *overdrive* that increases toward the axis of the charge or center of the wave. This overdrive effect has been used to accelerate pellets to higher velocities than is possible with a normal wave.[23]

A plane detonation wave may be regarded as a special case of a reentrant wave relative to the steady, spherical detonation wave, or unsteady, but stable spherical wave that would exist during formation of the detonation head in a case of symmetrical point initiation. A plane detonation wave may, therefore, itself tend to overdrive the detonation. The nonsteady and overdrive character of the plane wave lens system may, in fact, be inferred by the pick-up in velocity of the wave in water (from the 8-in.-diam charge) indicated by the nonlinearity of the "wedge trace" of Fig. 1, reference 20 over the very small (less than 3 mm) distance involved. In contrast to this effect, note that there was no appreciable change in velocity of the transmitted wave in water in the case of the 10-in. diameter, low density, coarse TNT charge shown in Fig. 8 for a distance of at least 2 in. Whether or not this is the true explanation for the discrepancy between the results of this investigation and those of Deal for composition B, Deal's methods involves nonsteady detonation waves, whereas the present investigation pertains to steady detonation waves.

[23] M. A. Cook and R. T. Keyes, J. Appl. Phys. **29**, 1651 (1958).