the more general case, variations are occurring in the axial direction Z, and must be accounted for. The center of the wafer is shown to be the thinnest section; however, this is not a necessary assumtion in that the analysis will dictate the required direction of curvature. As will be explained later, the variations in the one-dimensional analysis are assumed to be linear, while those in the two-dimensional case can be parabolic.

The admittance of an elastic containing ring around the wafer retards its motion, and significantly raises the stress level within the wafer. This, and other techniques, have been responsible for the generation of pressures of the magnitude required for bismuth phase changes as discussed earlier. The containing ring acts only on the wafer, hence the entire compressive force of the anvils is directed through the wafer. The actual design and construction of the containing ring is described in the section Experimental Facilities.

In order to effectively demonstrate the influence of the parameters under study, a single wafer material, called the primary material, was utilized in those tests where the material constants were not variable. Additional experiments were conducted with different wafer materials, called the secondary materials, to evaluate the material effect. The selection of the primary wafer material was based on the following factors: (1) high strain hardening; (2) high ductility; (3) incompressibility; and (4) essentially linear strain hardening. Strain hardening is one of the chief para-