pearing in (58) does not possess a simple closed-form solution, and is therefore evaluated in the computer program by an application of Simpson's Rule. An explanation of this computer program is given later.

The equations (45), (48), (50), (53), and (57) represent five independent equations for the determination of the three displacement coefficients, a_1, a_2, a_3, the mid-meridian constraining pressure, P_c, and the wafer centerline deflection, Δ . Once these quantities are known, the displacements, strains, stresses, and applied force can all be found by utilizing the appropriate equations. When each of the above equations are expanded, the thought of obtaining an explicit equation for each of the unknowns is out of the question. The complexity of these equations provided the motivation for writing a computer program that would solve for the unknowns, using an iteration scheme. Appendix I has been reserved for a discussion of the use and operation of the programs utilized in determining the unknown coefficients, and evaluating the stresses, applied force and strains pertaining to the two-dimensional analysis of a compressed wafer.

2. One-Dimensional Wafer Profile- Zero Shear. The displacement function that will yield the deformation pattern shown in the first part of Figure 1 is written as

$$\psi_1 = a_5 r^3 z + a_6 r^2 z \qquad (59)$$