

the first derivatives of equation (2) by a delta process. The second derivatives of equation (2) were obtained by having the computer use a delta process on the first derivative equations which were taken by hand. The Algol language carries eight digits through all operations and with proper choice of increment, we were able to obtain three to four significant figures in the delta process operations.

The program was run not only for cadmium but also for magnesium and beryllium. The calculation for magnesium was made with the ideal (c/a) ratio to enable comparison with the results of the hand calculation quoted by Reitz and Smith⁽²⁾. The comparison was favorable, checking both first (C_H shear) and second derivative values quoted within 1 per cent. The calculation for beryllium was made with a (c/a) ratio of 1.568 to enable comparison with the values quoted by Bernstein⁽⁶⁾. In this case there is a major disagreement. The results of these comparisons are displayed in Table A1.