$C_a = (c_{11} - c_{12})$

 $G_R = (5C_a c_{44}) / (3C_a + 4c_{44}).$

 $dK_{R}/dp = C_{b}(K_{R}/C_{c})^{2}(dC_{c}/dp) - (K_{R}^{2}/C_{c})(dC_{b}/dp),$

 $K_R = C_c/C_b$

 $C_b = c_{11} + c_{12} + 2c_{33} - 4c_{13}$

 $C_c = c_{33}(c_{11} + c_{12}) - 2c_{13}^2$.

 $dG_V/dp = (1/30) [dC_b/dp + 12(dc_{44}/dp) + 12(dc_{66}/dp)],$

(8)

(9)

(10)

(11)

(17)

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(19)

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(4a) $dG_V/dp = f_3(dc_{\mu\nu}/dp)$

(4b) $dG_R/dp = f_4(dc_{\mu\nu}/dp);$

where f_1 through f_4 are some linear combinations of the

(a) Cubic Crystals:

(5) $dK_V/dp = dK_R/dp = dK^*/dp = dc_{11}/dp - \frac{2}{3}(dC_a/dp),$ (6) $dG_V/dp = \frac{1}{5}(dC_a/dp) + \frac{3}{5}(dc_{44}/dp),$

each heading.

$$G_R/dp = \frac{4}{5} (G_R/C_a)^2 (dC_a/dp) + \frac{3}{5} (G_R/c_{44})^2 (dc_{44}/dp),$$
(7)

single-crystal elastic constants and their pressure de-

rivatives, and they depend upon the crystal symmetry.

The rigorous expressions for Eqs. (3) and (4) depend, therefore, on the symmetry of crystal in question; in

the following, the expressions for cubic, hexagonal,

trigonal, and tetragonal crystals are presented under

where

and

and

and

and

(b) Hexagonal Crystals: $dK_V/dp = \frac{1}{9} [2(dc_{11}/dp + dc_{12}/dp) + dc_{33}/dp + 4(dc/dp)],$

and

where where

and

and

where

where

and

and

(c) Trigonal Crystals:

 $dG_R/dp = \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + 2(G_R/C_a)^2 (dC_a/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c)^2 (dC_c/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c) (dK_V/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c) (dK_V/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c) (dK_V/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c) (dK_V/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c) (dK_V/dp) - 6(G_R^2/C_c) (dK_V/dp) + \frac{1}{5} \left[\frac{6K_V (G_R/C_c) (GK_V/dp) - 6(G_R^2/C_c) (GK_V/dp) + \frac{1}{5} \left[\frac{6K_V (GK_V/dp) - 6(GK_V/dp) + \frac{1}{5} \left[\frac{6K_V (GK_V/dp) - 6(GK_V/dp) + \frac{1}{5} \left$

 $C_d = C_c C_{44} C_{66}$

 $+2(G_R/c_{44})^2(dc_{44}/dp)+(G_R/c_{66})^2(dc_{66}/dp)],$ (12)

$K_V = \frac{1}{9} [2(c_{11} + c_{12}) + c_{33} + 4c_{13}],$			(13)
$G_R = \frac{5}{2} [C_d/C_e],$		ì	(14)

 $C_e = C_c(c_{44} + c_{66}) + 3K_V c_{44} c_{66}.$

 $dG_V/dp = \text{Eq.} (11).$

(15) $dK_V/dp = \text{Eq.}(8),$ (16) $dK_R/dp = \text{Eq.}(9),$

and

where

where

and

(1)(2)

(3a)

(3b)

 $dG_R/dp = \frac{2}{5}(G_R/C_h)^2 [(C_a + 2c_{44})dC_h/dp] - \frac{2}{5}(G_R^2/C_h)[dC_a/dp + 2(dc_{44}/dp)]$ $+ \frac{6}{5} \left[K_V (G_R/C_c)^2 (dC_c/dp) - (G_R/C_c) (dK_V/dp) \right],$ $G_R = \frac{5}{2} \left[C_f / C_g \right],$ $C_{1} = C_{c}(c_{44}c_{66} - c_{14}^{2})$ $C_{a} = C_{c}(c_{44} + c_{66}) + 3K_{V}(c_{44}c_{66} - c_{14}^{2}),$