5. TRANSFORMATIONS IN CRYSTALLOGRAPHY

Fig. 5.1.3.5. Tetragonal lattices, projected along [001]. (a) Primitive cell \( P \) with \( a, b, c \) and the \( C \)-centred cells \( C_1 \) with \( a_1, b_1, c_1 \) and \( C_2 \) with \( a_2, b_2, c_2 \). Origin for all three cells is the same. (b) Body-centred cell \( F \) with \( a, b, c \) and the \( F \)-centred cells \( F_1 \) with \( a_1, b_1, c_1 \) and \( F_2 \) with \( a_2, b_2, c_2 \). Origin for all three cells is the same.

Fig. 5.1.3.7. Hexagonal lattice projected along [001]. Primitive hexagonal cell \( P \) with \( a, b, c \) and the three \( C \)-centred (orthohexagonal) cells \( a_1, b_1, c_1; a_2, b_2, c_2; a_3, b_3, c_3 \). Origin for all cells is the same.

Fig. 5.1.3.6. Unit cells in the rhombohedral lattice: same origin for all cells. The basis of the rhombohedral cell is labelled \( a \) with \( F \) and the \( a \)-centred cells \( F \). All three cells is the same. (a) Primitive rhombohedral cell (- - - lower edges), \( a \). Projection along \( \gamma \). (b) Reverse setting of triple hexagonal cell \( b \). (c) Obverse setting of triple hexagonal cell \( c \). (d) Body-centred cell \( d \). (e) And the three \( C \)-centred (orthohexagonal) cells \( e \).

The advantage of the use of \((4 \times 4)\) matrices is that a sequence of affine transformations corresponds to the product of the correspond-