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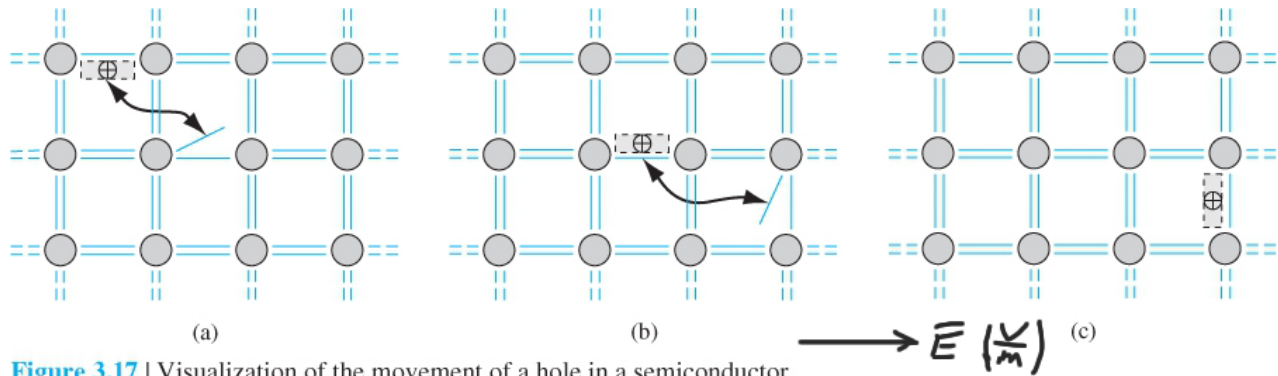


Figure 3.17 | Visualization of the movement of a hole in a semiconductor.

- The electrons are moving right to left while the holes are moving left to right.
- Looking at the valence energy bands-

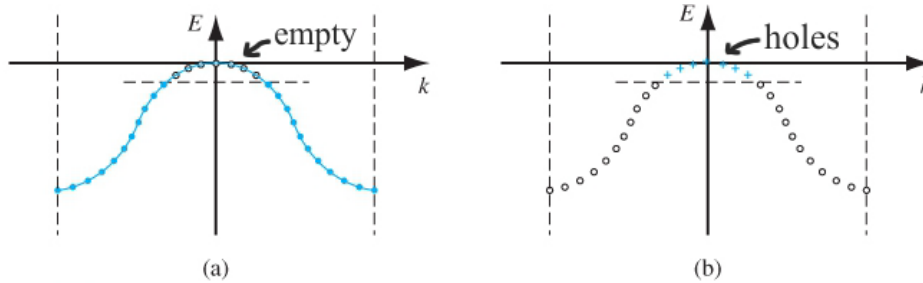


Figure 3.18 | (a) Valence band with conventional electron-filled states and empty states. (b) Concept of positive charges occupying the original empty states.

- Compare this with earlier energy versus  $k$  plots.

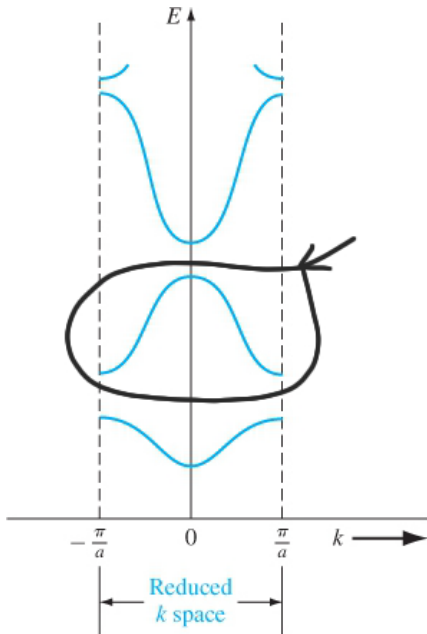


Figure 3.11 | The  $E$  versus  $k$  diagram in the reduced-zone representation.

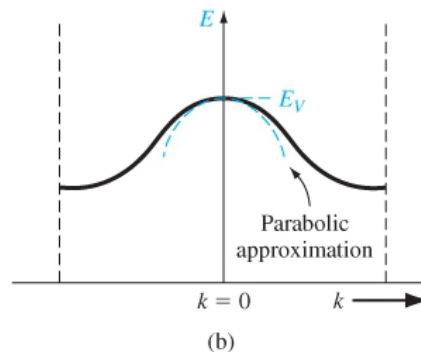


Figure 3.16 | (b) The valence band in reduced  $k$  space, and the parabolic approximation.