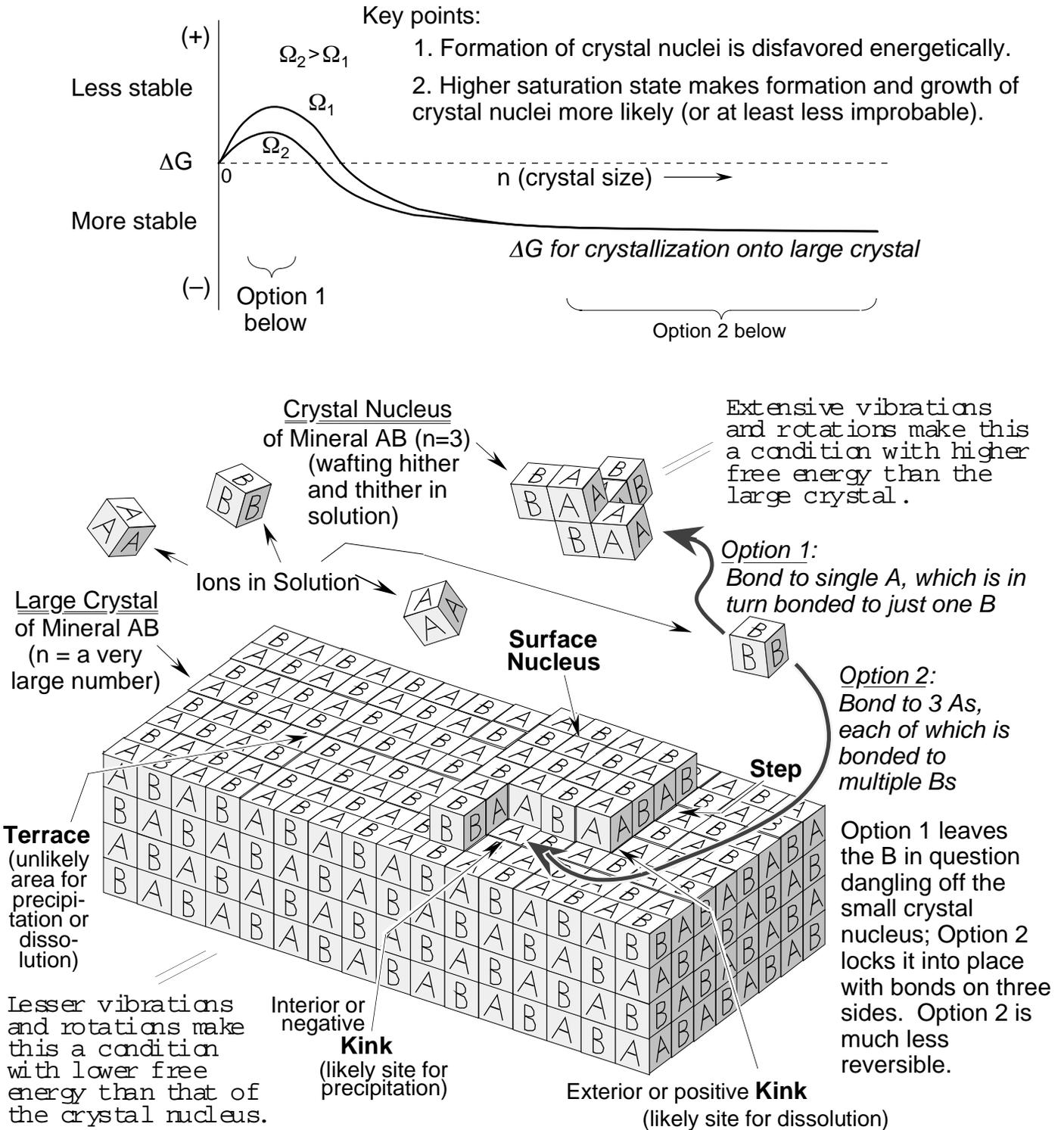


Nucleation vs. Precipitation on an existing lattice: A schematic contrast

The plot just below is an alternate version of Berner's (1980) Figure 1. It is a thermodynamic statement about why nucleation of new crystals is disfavored, except at high saturation (Ω). The sketch at the bottom page illustrates why a larger crystal is a more stable substrate for precipitation than a small nucleus (the trend across the top plot).



The diagrams above are largely intended to consider precipitation, but they can also be used to illustrate likelihood of dissolution. Compare how likely a B is to break off the nucleus versus how likely a B is to come out of a site on the flat surface of the large crystal.