

Announcements

Be on time tomorrow!

The Skaergård Intrusion Greenland

Or
"Skaergaard"

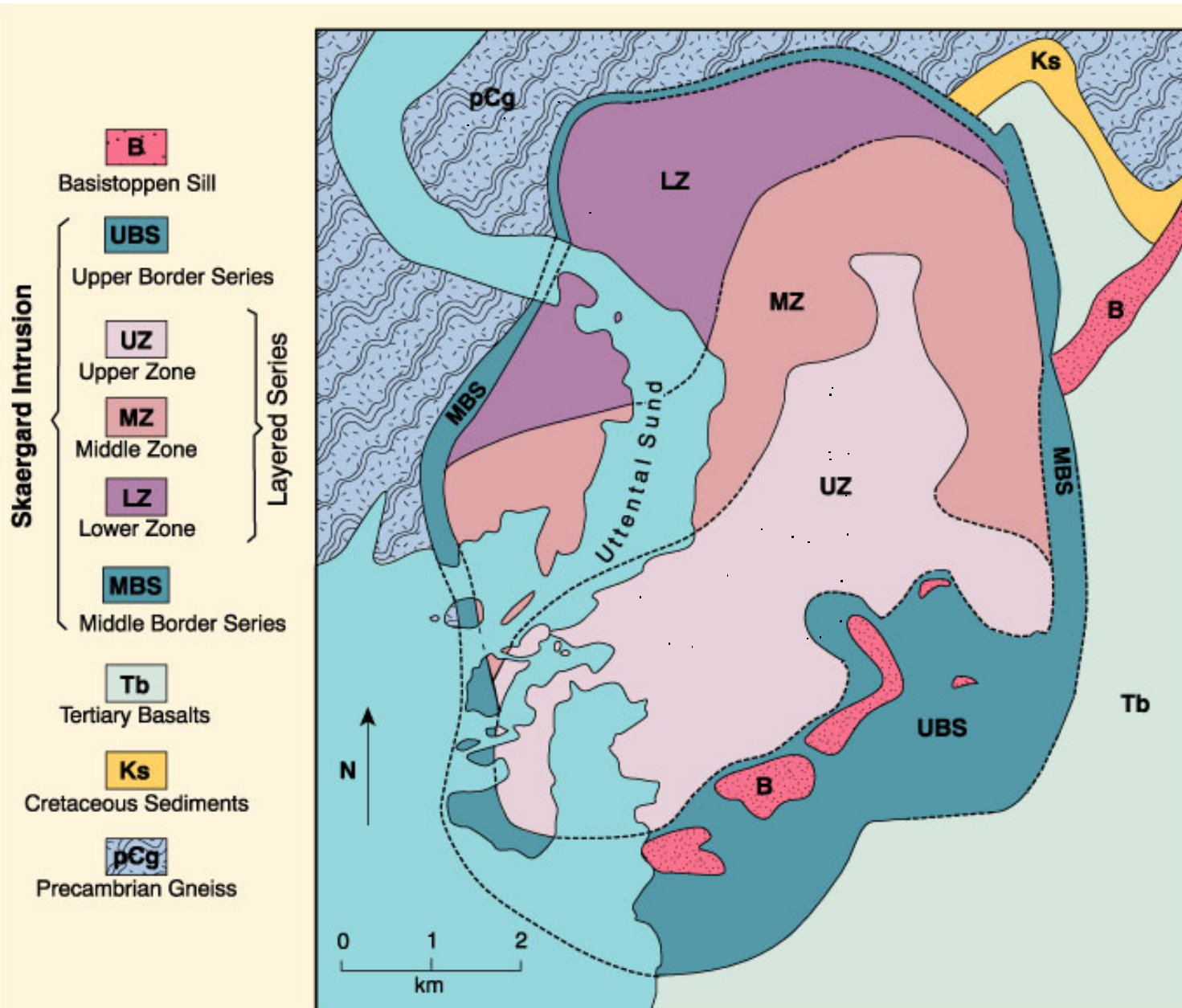


Figure 12-10. After Stewart and DePaolo (1990) *Contrib. Mineral. Petrol.*, 104, 125-141.

Stratigraphy

Skaergård subdivided into three major units:

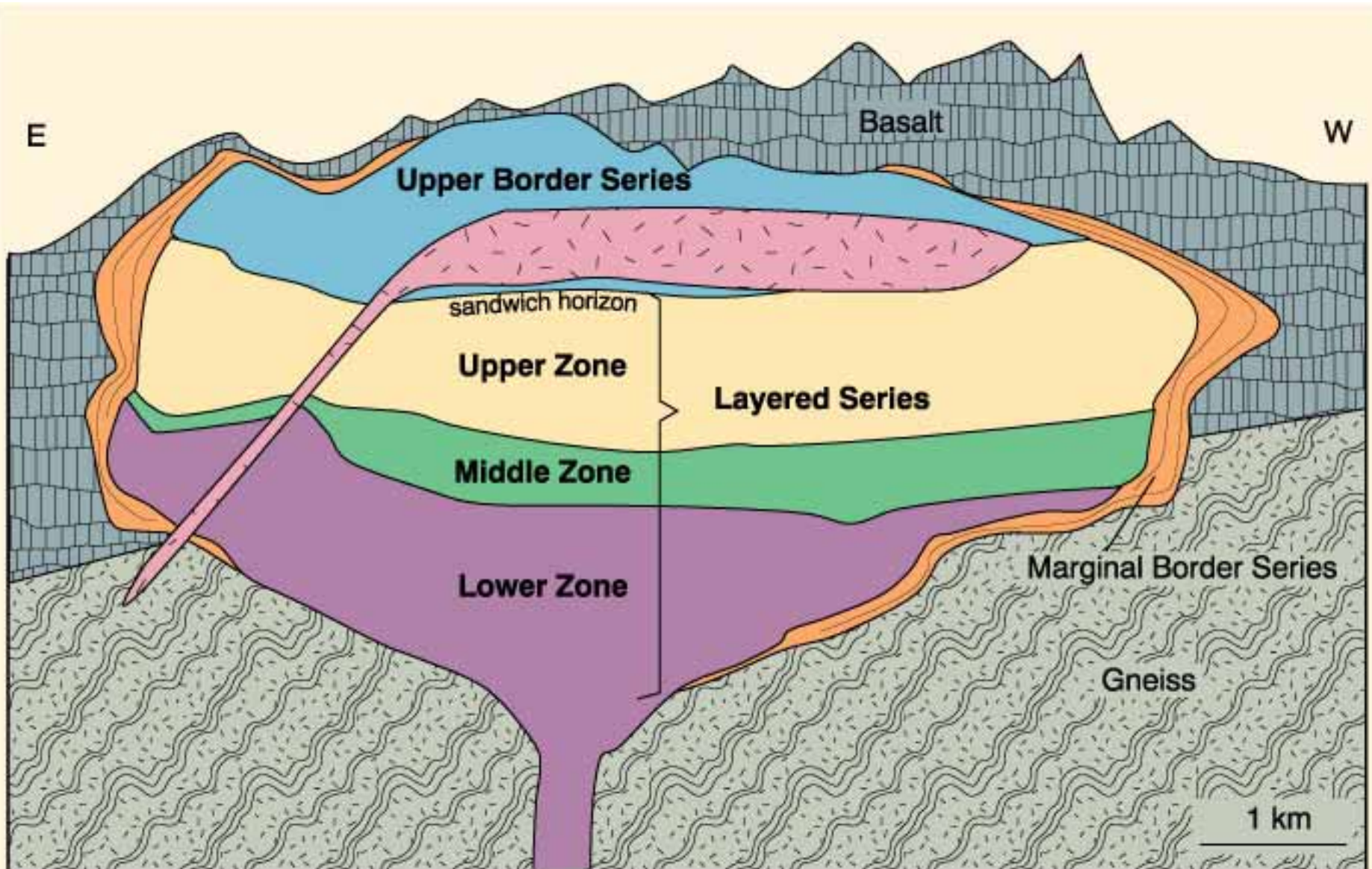
- Layered Series
- Upper Border Series
- Marginal Border Series

Upper Border Series and the Layered Series meet at the **Sandwich Horizon** (most differentiated liquids)

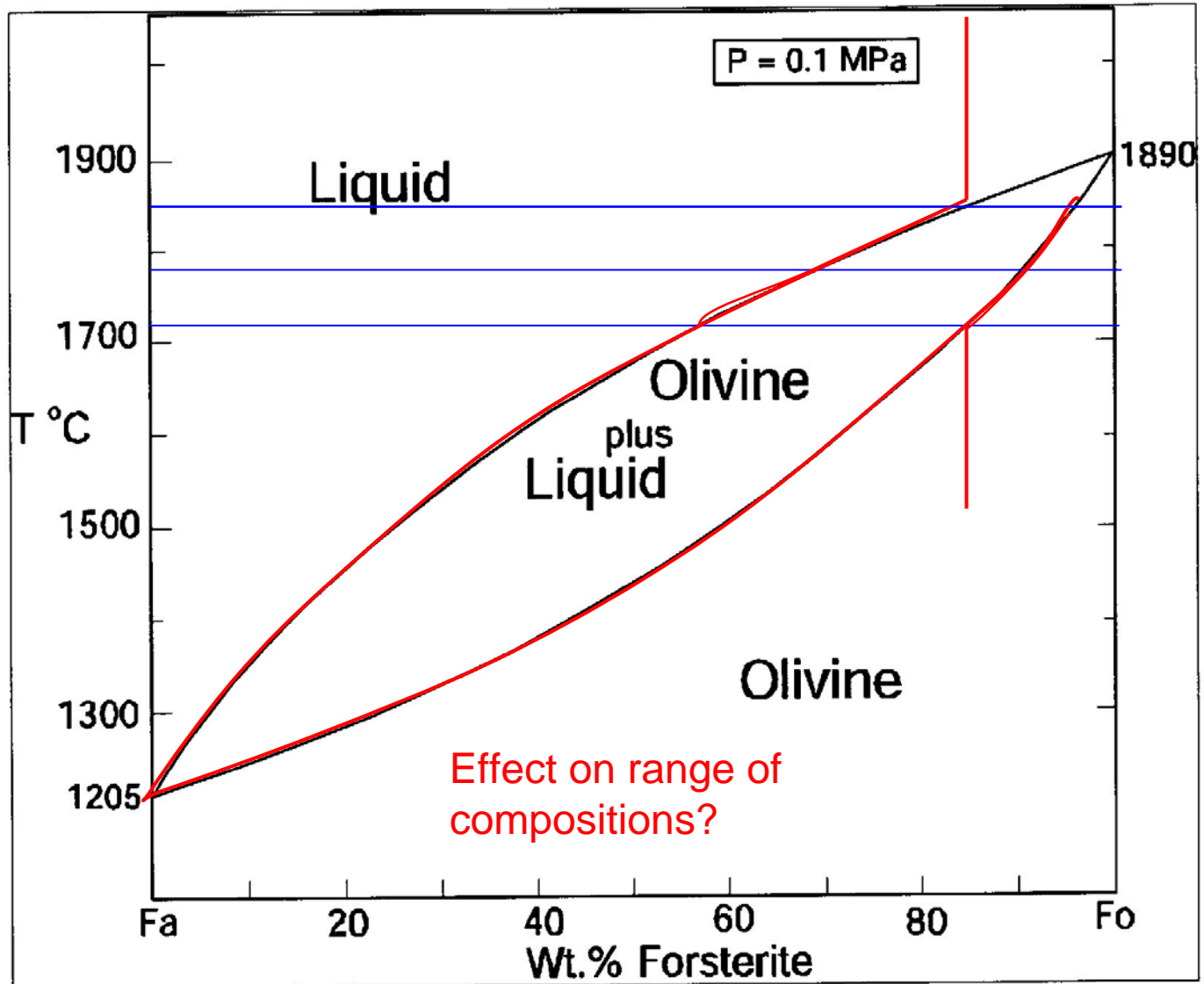
- Magma **intruded in a single surge**
(premier natural example of the crystallization of a mafic pluton in a single-stage process)

Cross section looking down dip.

Figure 12-11. After Hoover (1978) Carnegie Inst. Wash., Yearb., 77, 732-739.



Fractional crystallization



Modal (%min), Phase (min in or out), and Cryptic (compositional) Layering

(cryptic determined for intercumulus phases)

How well does Bowen's reaction series apply here?

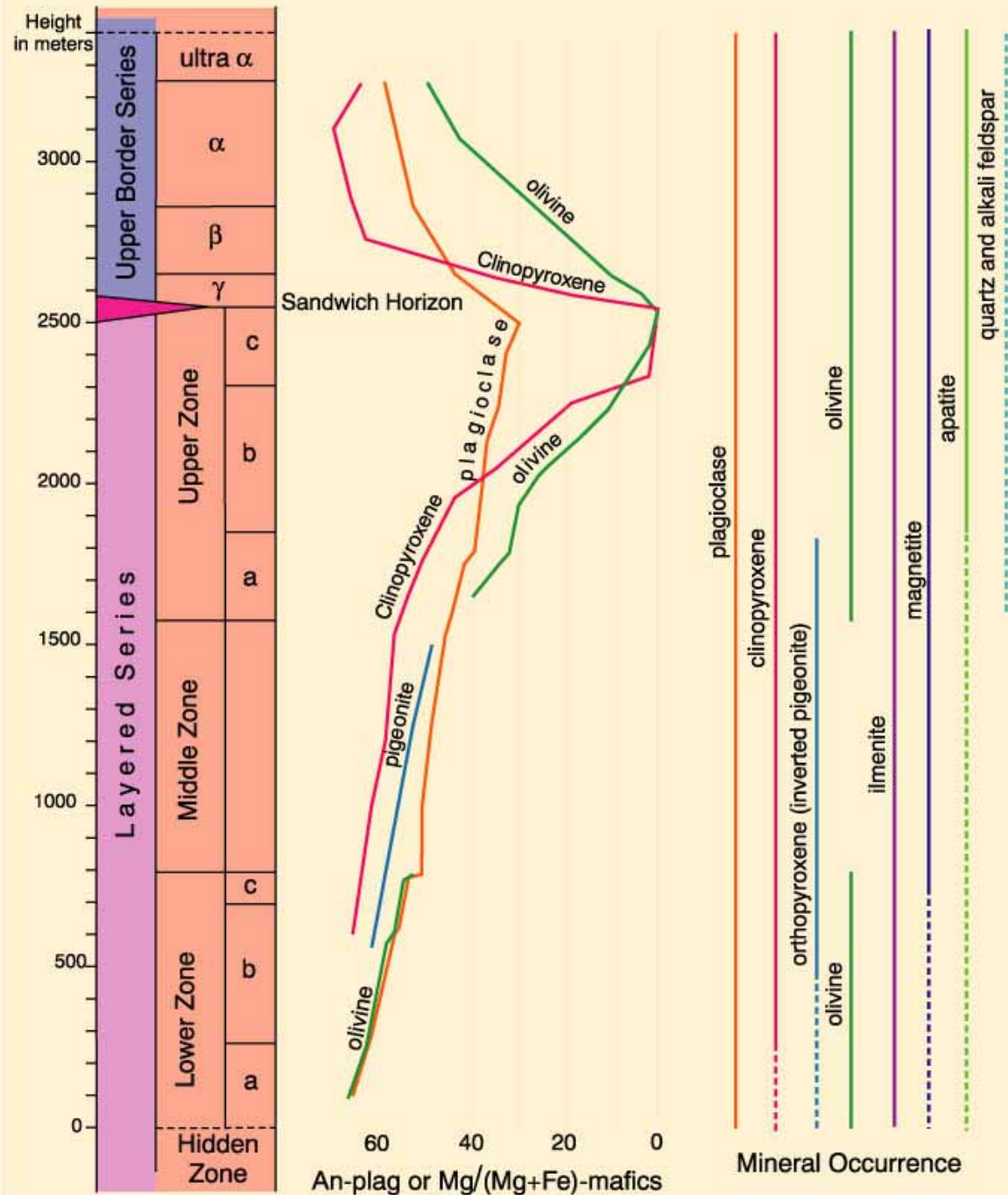
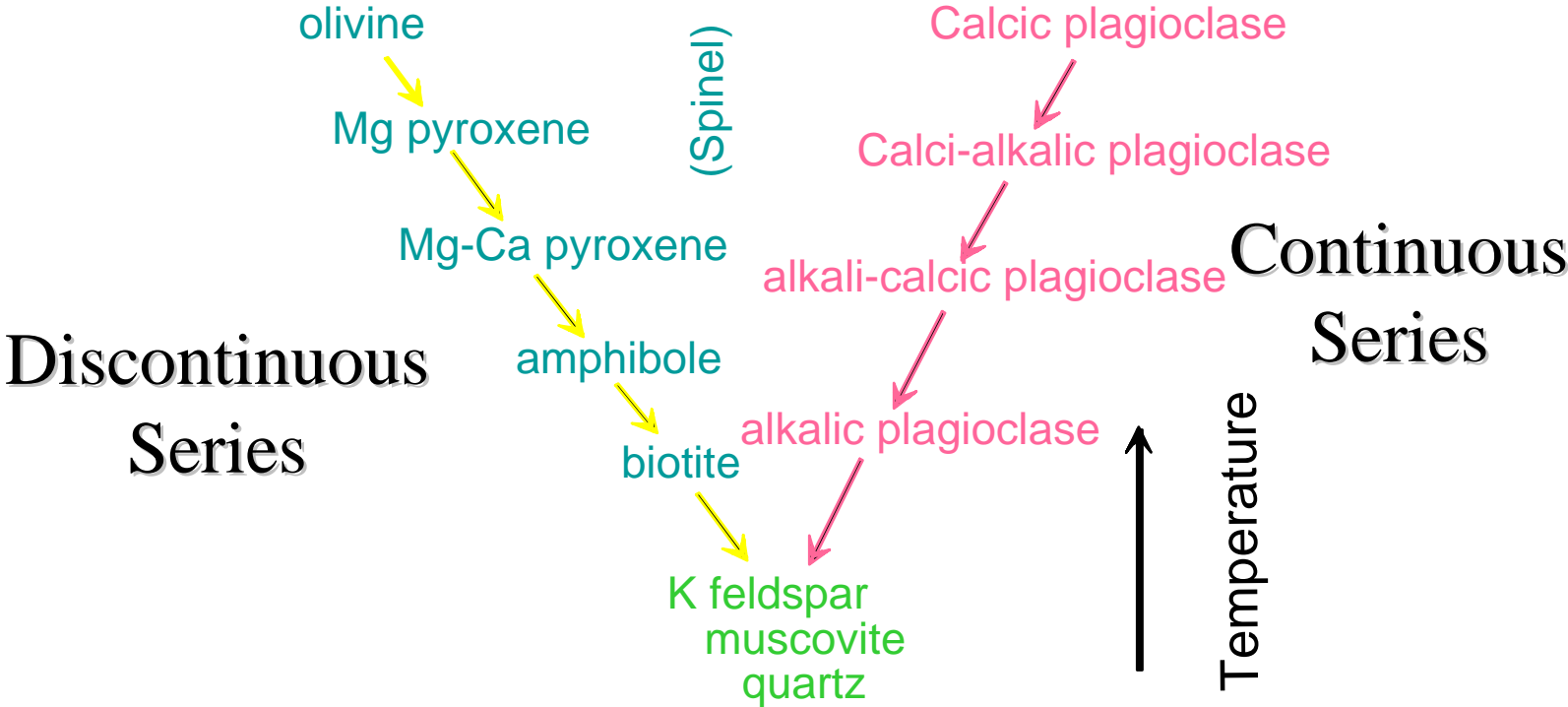


Figure 12-12. After Wager and Brown (1968) Layered Igneous Rocks. Freeman. and Naslund (1983) J. Petrol., 25, 185-212.

Bowen's Reaction Series



Summary of important points

- Layered mafic intrusions represent best case for studying fractional crystallization and layering in intrusions: still are incompletely understood
- Fractional crystallization results in evolving magma composition and wide range of crystal compositions
- Melting on a binary diagram