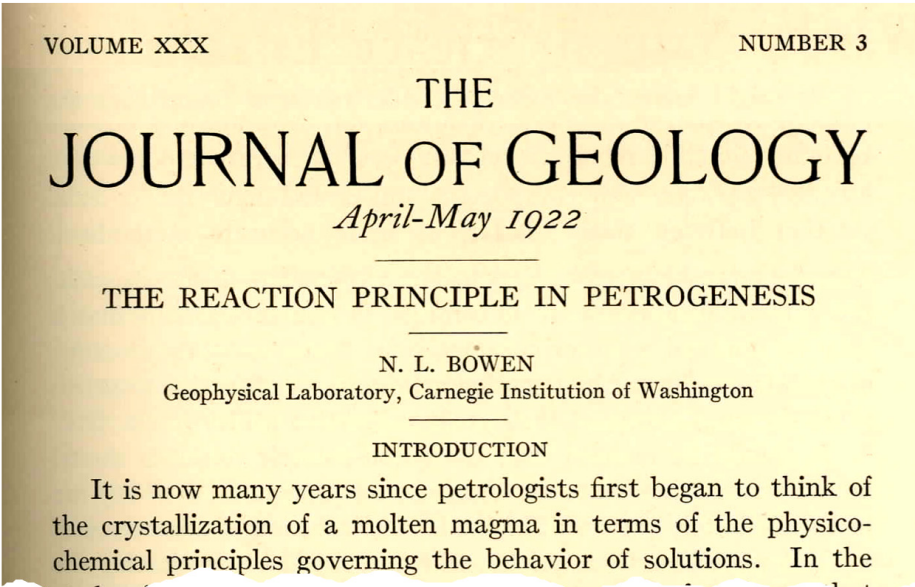


Bowen's Reaction Series I: The original document



This is the first of five pages attempting to explain the order of the minerals in Bowen's Reaction Series, the progression of minerals commonly observed in the crystallization of a silicate magma. This page merely shows Bowen's Reaction Series as Bowen drew it in his landmark 1922 paper. However, something interesting emerges: Bowen's diagram contains not only the discontinuous series (olivine to biotite) and the continuous series (anorthite to albite) with which modern geologists are familiar. It also contains a third branch for the spinels, such as chromite. The logic of including the spinels is that they form early on and so can be put in the order of formation with olivine and anorthite. The logic of excluding them is that they don't seem to be part of a *reaction series* wherein early formed minerals break down to form later ones. On these pages, we'll keep Bowen's spinels in play as we try to explain the order of the minerals in the *three series*.

