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# Electron Diffraction and Micrographic Study of the High-Temperature Changes in Illite and Montmorillonite Under Continuous Heating Conditions\*

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**Abstract:** Transmission and diffraction electron micrographs were made of illite and montmorillonite to study the changes that take place as the clays were heated continuously to 1200° C.

In both of the clay minerals studied, expulsion of a highly fluid material occurred subsequent to dehydroxylation and prior to the development of the first-formed high temperature phases. It was hypothesized that this material represented the expulsion of constituents in the clay in excess of those needed for the formation of the first high-temperature phase. Electron diffraction indicates that the high-temperature phases that formed all developed with some preferential orientation, and were strongly influenced in their development by the structure of the original clay.

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