the limestones are residual marine Cretaceous deposits that have survived various periods of erosion. The Almagres red shales and marine limestones may be equivalent to the Todos Santos (Jurassic?) and Sierra Madre (Cretaceous) formations, exposed throughout southern Mexico and northern Central America. Recognition of these deposits is important for a better understanding of the structural history of the Isthmian Saline Basin.

The "Natro-Carbonatite Lava" of Oldoinyo Lengai, Tanzania

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The "natro-carbonatite lava" found (only) in the crater of the active volcano Oldoinyo Lengai, Tanzania, has been accepted generally as the effusive equivalent of deep-seated magma that crystallizes as the economically important carbonatites. New analyses of the "lava," with isolation and identification of its two essential components—$Na_2Ca(CO_3)_2$ (nyerereite) and a solid solution of Na_2CO_3 with $Na_2Ca(CO_3)_2$—with review of geological and geochemical evidence, indicate a surficial origin of the "lava," as a reaction product of the local troniferous lacustrine sediments with the intrusive nephelinitic magma, whose ash forms the volcanic cinder cone. Phase equilibrium studies show that precisely such a rock, chemically and mineralogically, should crystallize as a peri-eutectic from a complex troniferous sediment-alkalic magma system; and should separate as an immiscible carbonate melt from a heavier silicate fluid.

Both components of the lava have been synthesized: the first by heating hydrous sodium calcium carbonates (pirssonite or gaylussite): anhydrous $Na_2Ca(CO_3)_2$ forms around 250° C, as fibrous pseudomorphs (ASTM powder pattern 2–0970) which after melting around 820° C crystallizes as the dimorphous nyerereite; the second component has long been known as a solid solution formed by dissolving $CaCO_3$ in molten Na_2CO_3.

The low temperature $Na_2Ca(CO_3)_2$ has been identified in the muds of Lake Magadi, presumably a result of hot springs acting on lacustrine carbonates or by solar heating of carbonates in the dried mud.

The economic and petrologic importance of carbonatites warrants close scrutiny of what is regarded, possibly erroneously, as a particularly noteworthy example of such a deposit.

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A Depositional Model for the Permian Beacon Rocks of the Transantarctic Mountains, Antarctica

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The Baltic Sea and Gulf of Bothnia are presented as a possible depositional model to explain the Permian Beacon rocks of the Transantarctic Mountains. The Pleistocene Scandinavian ice sheet flowed diagonally into the Gulf of Bothnia, where it was deflected and flowed parallel with the length of the basin. The salinity of the Baltic Sea and Gulf of Bothnia varies from more than 20‰ in the south to less than 5‰ in the north. Thus, it seems possible to have simultaneous marine and lacustrine deposition in the same body of water.

The Permian Beacon basin of deposition was long and narrow, and bounded by a high-grade metamorphic and granitic highland in the Ross Ice Shelf area. The Permian ice sheet, as well as currents which deposited the overlying nonglacial sediments, flowed along the length of the present mountain range, toward the Weddell Sea, then an area of rapid