

POROSITY DEVELOPMENT IN THE CRETACEOUS
NIOBRARA FORMATION, COLORADO

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Unlike clastic rocks, where porosity may be predictable according to arrangement and packing of grains, carbonate rocks pose problems for exploration geologists in porosity calculation or evaluation. A connection between carbonate depositional texture and energy levels may differentiate pore types between grain-supported and mud-supported carbonate rocks. Energy variations at the carbonate depositional site as related to wave and current action may range from quiet water through strongly agitated water, and hence may also control porosity distribution according to limestone types. The depositional environment of the Cretaceous Niobrara Formation in the Boulder region, Colorado, provides a good model that illustrates this principle. The pore space of the stratiform Niobrara limestone originated from both depositional and post-depositional processes that intertwined the textural history of porosity.