

The Mississippian Kisbey Sandstone Interval in the Carnduff-Silverton-Hastings Area – an Eolian Coastal Dune Deposit.

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ABSTRACT

The Mississippian Kisbey Sandstone interval in southeastern Saskatchewan is an enigma for three reasons. Firstly, it is quartz sandstone in a largely carbonate succession. Secondly, it varies from one to three or more sandstone beds, and thirdly, its source is difficult to determine. Throughout a large portion of southeastern Saskatchewan the Kisbey is a thin dolomitic sandstone or sandy dolomite unit that lies between the overlying Frobisher Beds and the subjacent Alida Beds. Sand-size quartz grains have been observed at this stratigraphic level from the Manitoba border as far west as range 8 west of the second meridian. However, there are 2 or more quartz sand bodies in Mississippian rocks of the Carnduff-Silverton-Hastings area. Cores from some wells in the study area have quartz sandstones that appear to have been deposited in littoral and subtidal settings, but a core from one well has several sandstone beds. Two proximal to the top of the Alida Beds, a third at the normal stratigraphic level of the Kisbey, and three other quartz sandstones that make up the entire Frobisher interval. The lowest of the latter three is a ten-metre thick, purplish–red stained, foreset-crossbedded, quartz sandstone. The foresets dip at approximately 20° and are intermittently emphasized by thin, grayish white crust of finely crystalline calcium sulfate. This thick sand body can be interpreted as forming in either an eolian coastal dune setting or in an incised valley. However the former is more likely.