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GEOMETRIES AND GENERAL FEATURES OF SOME CENOZOIC VALLEYS AND VALLEY FILLS,
WESTERN NEBRASKA

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Portions of Tertiary and Quaternary valleys and valley fills have been exhumed by recent stream erosion at many sites in western Nebraska. Paleovalleys vary from narrow, steep-sided, high gradient tributary gullies less than 0.1 km wide to broad, flat-floored valleys produced by lateral erosion. Segments of valley floors may be nearly smooth in the case of a Quaternary example, or may be very irregular with potholes and other deep scour features. Paleovalley sides, when exposed, are often steeply sloping, and approaching or possibly going beyond the vertical where the valleys have been eroded into the Brule Formation. Paleovalleys range in straightness from those that are nearly straight to those with broadly meandering forms. Both single and seemingly anastomosing paleovalleys occur in the area.

Paleovalley fills, including channel fills, vary in composition from alluvial deposits derived completely from local sources to sediments eroded by streams heading in the Rocky Mountains or carried by winds from volcanic sources in the Rocky Mountains or areas farther west. Fills deposited along valley sides include blocks of rock up to one meter or more in intermediate diameter moved only a few meters downslope from their sources.