

Distribution of Upper Devonian--Lower Mississippian Misener sandstone
- Salina basin

Kansas Geological Survey
Open-File Report 89-18
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DISCUSSION

The Misener sandstone is a basal transgressive sandstone developed at the base of the Upper Devonian-Lower Mississippian Chattanooga Shale. It is erratically developed and thus difficult to characterize with isopach maps at a large scale.

In an attempt to trace this unit which is of local importance for production of petroleum, it was decided that regional mapping could be attempted using geographic sections as information blocks. Map 89-18 was constructed by inspecting all scout cards, lithologic logs, and geophysical logs in the Salina basin area of Kansas and in turn, noting the presence (or absence) of Misener sandstone. If a section (1 x 1 mile) did not record the presence of Misener sandstone by any wells drilled in it, it was assigned a gray color. If one or more wells in a section noted the presence of Misener (even though other wells did not detect its presence), the section was assigned a red color if the sandstone body is less than 10 feet thick, or an orange color, if the sandstone is greater than 10 feet thick.

The sandstone distribution map is superimposed upon a subcrop map of pre-Chattanooga units. The patterns on the subcrop map are both a function of the geologic structure of the units underlying the Chattanooga Shale and their paleotopography.

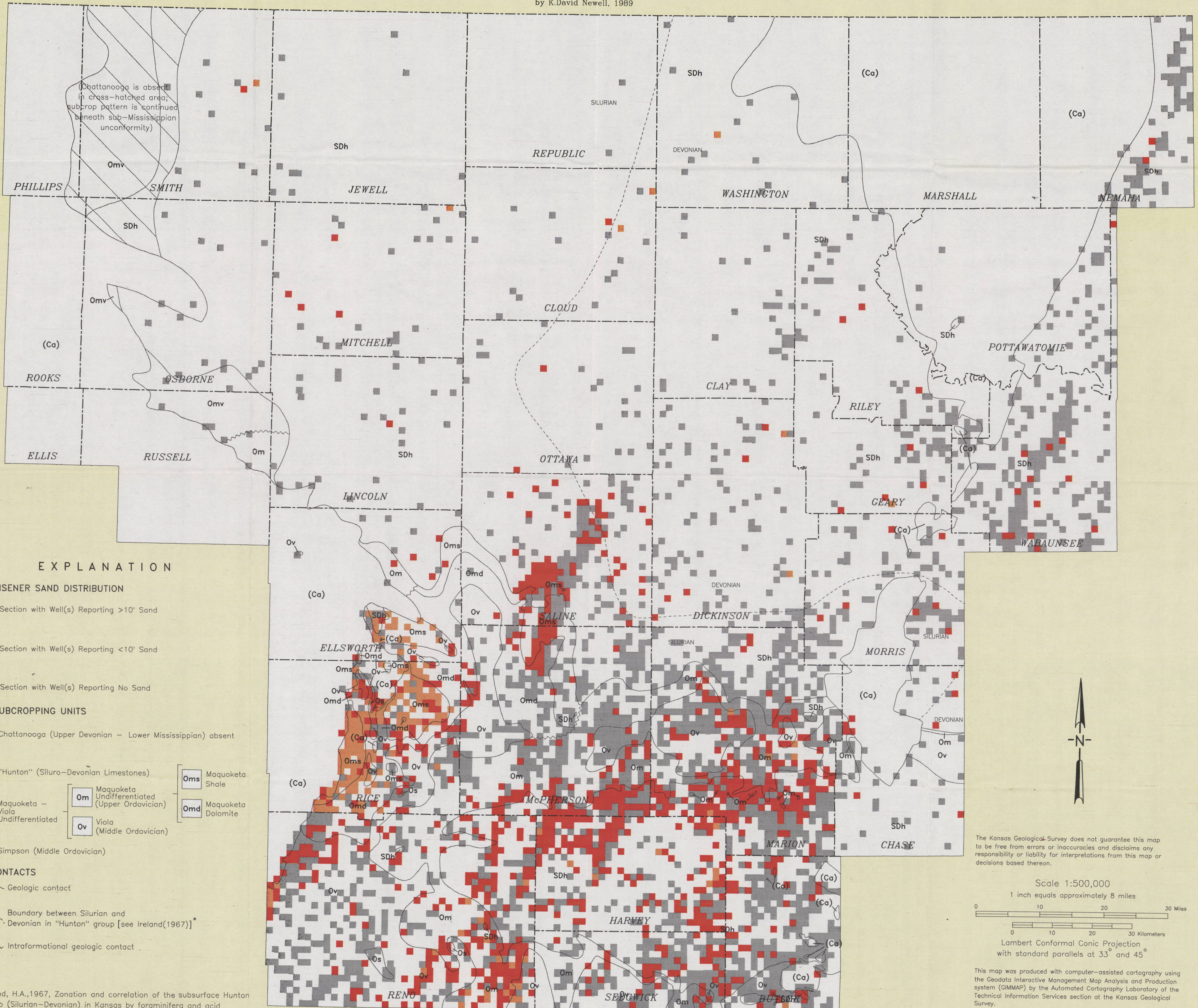
Sandstone of the Misener is particularly well developed in Rice County and southern Ellsworth County on the western side of the arch that separates the Salina and Sedgwick basins. The abundance of thick Misener in this area is probably attributable to this sand being shed off the Central Kansas uplift from eroding Simpson and granitic basement terrane. A second sandstone trend is evident in an arc crossing Marion County, southern McPherson County, northwestern Harvey County and eastern Reno County. This trend parallels subcrop trends and reflects development of sandstone bodies along the flank of the McPherson valley--a large pre-Chattanooga valley. The sands are probably a series of paralic sand bodies developed during successive still-stands during a sea-level rise. The axis of the McPherson valley is notably free of sand bodies, hence fluvial-type sand bodies within the valley before the major Chattanooga transgression are probably not preserved.

SALINA BASIN

DISTRIBUTION OF UPPER DEVONIAN - LOWER MISSISSIPPIAN MISENER SANDSTONE

Superimposed on Sub-Chattanooga Subcrop Map

by K. David Newell, 1989



EXPLANATION

MISENER SAND DISTRIBUTION

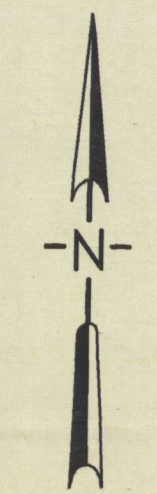
- Section with Well(s) Reporting >10' Sand
- Section with Well(s) Reporting <10' Sand
- Section with Well(s) Reporting No Sand

SUBCROPPING UNITS

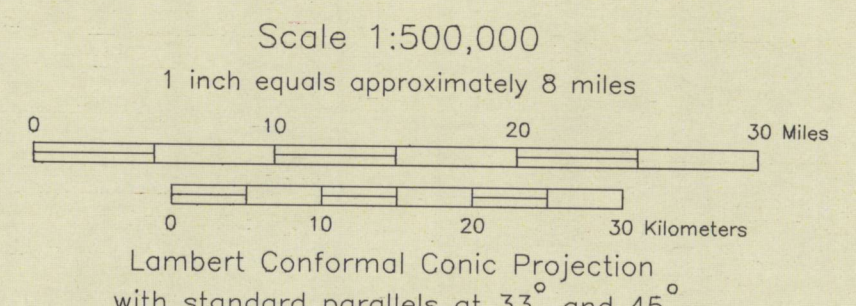
- (Ca) Chattanooga (Upper Devonian - Lower Mississippian) absent
- SDh "Hunton" (Siluro-Devonian Limestones)
- Oms Maquoketa Shale
- Omd Maquoketa Dolomite
- Omv Maquoketa - Viola Undifferentiated (Upper Ordovician)
- Ov Viola (Middle Ordovician)
- Os Simpson (Middle Ordovician)

CONTACTS

- Geologic contact
- Boundary between Silurian and Devonian in "Hunton" group [see Ireland(1967)]*
- Intraformational geologic contact



The Kansas Geological Survey does not guarantee this map to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations from this map or decisions based thereon.



*Ireland, H.A., 1967, Zonation and correlation of the subsurface Hunton Group (Silurian-Devonian) in Kansas by foraminifera and acid residue: K.U. Dept. of Geol. Spec. Pub. No. 2, p. 479-502.

This map was produced with computer-assisted cartography using the Geodata Interactive Management Map Analysis and Production system (GIMMAP) by the Automated Cartography Laboratory of the Technical Information Services section at the Kansas Geological Survey.