
Cross-Section of the Simpson Group from Murray County to Cleveland County, Oklahoma

CARL A. MOORE, University of Oklahoma, Norman.

In the type section the Simpson Group is well over 2,000 feet thick, and it has been divided into the Bromide formation at the top, Tulip Creek, McLish formation, Oil Creek formation, and the Joins formation at the base. The Joins rests on the Arbuckle limestone and has been classified with the Arbuckle by some workers.

Northward from the outcrop area, the Simpson group thins progressively, grading from 1400 feet at Mayesville, to 900 feet at Moore, 600 feet in Major County, 300 feet in Harper County and 100 feet in western Beaver County in the Oklahoma Panhandle.

Figure 1 is a cross section from the outcrop section northward to Moore, Oklahoma, and is an attempt to illustrate how it thins.

The Joins formation appears to maintain a fairly uniform thickness throughout. This would indicate that the Joins may be closely related to the Arbuckle limestone since the Oil Creek formation appears to thin progressively northward.

The Oil Creek formation consists of a thick unit of limy shales overlying a thick basal sandstone member. The limy shale member thins markedly while the basal sandstone thins to a lesser degree. This unit illustrates the principal thinning within the area of this cross section.

Thinning in the McLish is shown to be less prominent than in the Oil Creek, while the Bromide formation thins very little as far north as Moore, Oklahoma. The Tulip Creek is here considered to be the lower part of the Bromide formation but it cannot be traced with certainty from the outcrop area northward in subsurface.

Conclusions point to a thinning within the Oil Creek member of the Simpson with a lesser amount of thinning at base of Oil Creek. Such a thinning pattern would point to a correlation of the Joins with the Arbuckle.

Evidently the Simpson was deposited in full thickness in the present Arbuckle area. Northward, onto the stable foreland shelf area progressively younger members of the Simpson are found on the Arbuckle, until the upper Simpson is the most widespread member of the Simpson group. It should be possible to map zones in the Anadarko basin in which various members of the Simpson group wedge out due to non-deposition.
