THE STRATIGRAPHIC CORRELATION OF THE WEWOKA FORMATION

by

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The purpose of the study was to determine the position of the Wewoka formation with respect to the stratigraphic section as recognized in northeastern Oklahoma. The problem was divided into three phases. First, a reference section was established from the examination of samples from wells drilled near Tulsa. Second, this reference section was extended by means of a subsurface traverse from Tulsa to the area east of Wewoka, Oklahoma, where the name of the formation was first suggested. Third, the Wewoka formation was isolated from the overlying and underlying formations and correlated into the traverse developed in the second phase of the study.

The first phase of the study established a succession of lithologic units from the Verdigris limestone to the Hogshooter limestone. In general it corresponded to the accepted stratigraphic sections in the vicinity of Tulsa but three specific differences which were noted are worthy of mention.

(1) A lithologic unit was noted between the coal at the base of the Fort Scott limestone and the underlying Prue sandstone. Where typically developed this unit consists of a dense, argillaceous limestone. Laterally it grades to a calcareous, finely sandy shale, or a calcareous, fine-grained sandstone. It attains maximum thickness south of the Arkansas River in T. 17 N., and thins to the north, south, and west. (2) A similar lithologic unit of a calcareous nature was noted immediately below the Oolagah limestone. In T. 20 N., R. 13 E., this unit consists of an oolitic, sandy, crinoidal limestone. Northward into T. 21 N. it becomes an argillaceous limestone. Southward it becomes a calcareous sandstone extending beyond the limit of recognizable Oolagah limestone lithology and converging upon the underlying Fort Scott limestone until it directly overlies that formation in T. 17 N. This unit remains lithologically distinct from the Peru sandstone. Lithologic unit (1) is considered a part of the Fort Scott formation and lithologic unit (2) is considered a part of the Oolagah formation.

(3) The third significant difference involves the Lenapah formation. In the vicinity of Tulsa, the Lenapah is a thin limestone lying a short distance below the base of the Seminole sandstone. Southward through Tsp. 18, 17, and 16 N., the unit thickens considerably and becomes a section of interbedded, calcareous shales and dense argillaceous limestones. In at least one area (sec. 5, T. 17 N., R. 12 E.) it contains a massive, crinoidal, oolitic, sandy limestone. Along the line of traverse of this study this unit was not recognized south of T. 16 N., R. 8 E. This entire unit is considered to be the Lenapah formation and the thin Lenapah limestone of the Tulsa vicinity is considered the northern representative of the thicker formation to the south.

Following the erection of a standard section the second phase of the study was undertaken; that of extending this section southward from Tulsa to the vicinity of Wewoka. Use of sample logs was made from T. 21 N., to T. 16 N. and combined sample logs and closely spaced electric logs from T. 16 N.,

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