

**XVII. NOTES ON THE AREA LYING BETWEEN THE
NORTHWESTERN EDGE OF THE ARBUCKLE
MOUNTAINS AND THE WILDHORSE
SANDSTONE**

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From the Oklahoma Geological Survey.

Introduction

Due to some differences of several men regarding the age of the rocks in this area, the following report was made after careful study and several field trips. Valuable aid in working this out was received from Dr. C. E. Decker.

Several articles have been written concerning the Arbuckle mountains region in general but no detailed report has ever been made on this particular area.

Location

The area described herein includes all or part of the following:

Secs. 1 to 7 inclusive, T. 1S., R.2W.

Secs. 24 to 29 inclusive, T. 1N., R.2W.

Secs. 31 to 36 inclusive, T. 1N., R.2W.

Secs. 13, and 19 to 36 inclusive, T. 1N., R.1W.

Secs. 2 to 8 inclusive, T. 1S., R.1W.

Carter, Garvin, and Murray counties, Oklahoma.

Topography

The region is quite rough with elevations ranging from 800 to 1500 feet above sea. Drainage is to the east to the Washita river through Wildhorse creek and its tributaries, Eight Mile and Masse creeks.

Geology

The most common rocks in this area are red, blue, yellow, brown, and purple shales; and red, yellow, brown, salt and pepper, and black sandstones. The evidence seems to indicate that these are Permian (as Permian is now considered), either included in or equivalent to a central portion of the Enid formation. Adjacent to the mountains lies a series of nonfossiliferous limestones and conglomerates, varying in color from a lavender to white, gray and brown. These are only found close to the mountain mass and thin out away from it, running into the Permian shales and interbedding with them, showing them to be Permian also.

The limestone is massive, without cleavage, bedding planes, or

any definite fracture. Its composition is limestone and shale thoroughly mixed, the greater portion being limestone. It is of nearly the same texture and composition from top to bottom wherever it occurs, and in some places it has a thickness of 80 feet. Its occurrence and uniformity in characteristics suggests that it is a lake deposit of Permian age. The drainage doubtless was from a limited area of limestone and shale on the south and east sides, and because of the relative position of the Arbuckle limestone, probably much of the calcium carbonate and clay came from it.

The conglomerates are at least five in number and like the limestones are Permian in age with one possible exception, which is known to be later than earliest Permian. This one dips about 10 feet per mile and the dip is approximately parallel to the strike of the Permian on which it lies. It is a narrow elongate conglomerate shaped like a channel deposit. At the north end, porphyry is found in the conglomerate, while further south it fails to occur. Accordingly, if it is a channel deposit, doubtless the drainage was toward the north, but sufficient evidence has not been secured to decide definitely that it is of channel origin.

Structure

The beds on which dips could be measured showed that the dips are from 6 to 10 degrees directly away from the mountain front along the north side. They vary from about 4 degrees on the Wildhorse sandstone to 8 and 10 degrees next to the mountains. On the west side the dip is about 11 degrees next to the mountains, and could not be determined away from them.

The general structure of the Permian suggests that the post-Permian uplift was of about the same magnitude as all that occurred before it. The dips of the Permian are about half as great as those of the older rocks lying directly beneath it in the mountains.

The Wildhorse sandstone makes a ridge on the north side and parallel with the Wildhorse creek in range 1 west. West of that the sandstone curves around the mountains to the southwest with one irregularity, namely, a large nose is folded in it extending westward toward the town of Tatums.

The Permian sediments abut against the older rocks unconformably and a well, in section 19 T. 1N., R. 1W., was getting red beds at a depth of 1765 feet, and the drillers have been bothered with caving under at a depth of 1283. This shows that there was very marked topography in this region during the time when this part of the Permian was deposited, and if there is Pennsylvanian strata conformably under the Permian they would occur far down the slopes of the mountains of Permian times.