B. GEOLOGY

XXVII. THE HIGHEST POINT IN OKLAHOMA.

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Oklahoma is one of the few states in which the highest point and the lowest point of elevation has not been accurately determined. The United States Geological Survey gives the elevation as about 4,800 feet, and uses as authority a newspaper article, published after a field trip made by Dr. Gould in 1903. Dr. Gould[1] in 1905, estimated that the altitude at the New Mexico line was over 4,500 feet. At this time the entire panhandle of Oklahoma, known as "No Man's Land", or the "Neutral Strip", was included in Beaver County. These are the only references to the highest elevations in the state which are to be found in the geological literature of Oklahoma.

During the middle of July, 1925, Dr. Gould and the writer spent several days in Cimarron County Oklahoma, and during this time endeavored to check up the elevation of the highest point in the state. This was more difficult than one would suppose, since the nearest known elevation is located in Clayton, N. M., a distance of approximately 50 miles by auto road.

We knew that the highest point was located somewhere on Black Mesa, a tongue of lava about three miles in length, extending into Oklahoma from New Mexico. In order to determine the elevation and location of this point, a line of barometric levels was run from a point on the northwestern bank of the Cimarron River, near Kenton, through Kenton, to Clayton, N. M., and back again to the point on Cimarron River. This line was run a second time, so as to furnish a check on the readings taken on the first trip. In order to catch the barometric changes due to variations in atmospheric pressure, four intermediate points were chosen, at which the barometer was read. The first was located at the top of the Dakota sandstone; the second on the divide between Cimarron River and Corrumpa Creek; the third on the bridge over Corrumpa Creek; and the fourth on the bridge over Seneca Creek.

The elevation at the Fort Worth & Denver Railroad Station at Clayton is 5,057 feet. By means of the line of levels run, the elevation of the point on the northwest bank of Cimarron

[1]Gould, C. N., Geology and Water Resources of Oklahoma, U. S. Geol. Survey, Watersupply paper, No. 148, p. 132, 1905.

River was found to be 4,385 feet. From this point the line was then carried west along the foot of the Black Mesa to a point just over the Oklahoma-New Mexico line, and another station established there. The line was then taken to the top of Mesa, and by means of hand levels, the highest point on the top of the Mesa was located, the barometer taken to that point and read A monument some four feet in height and composed of blocks of lava, was then erected at this place. On the return trip to the station on Cimarron River, a reading was again taken at the foot of the Mesa.

The following table shows the barometric reading with their corresponding time, taken on the trip from the Cimarron station to the top of the Mesa and back again:

Place	Bar.	Time	Bar.	Time	Cor. Bar.
Cimarron River	4385	11:20	4450	1:50	4385
Foot Mesa	4560	11:45	4630	1:25	4549
Monument	5080	12:55			5040

The difference in the two readings at the Cimarron River between 11:20 A. M. and 1:50 P. M. show a difference of 65 feet, this difference being 65 feet too high. The time between 11:20 and 1:50 is equal to 150 minutes, and from 11:50 to 12:55 is equal to 95 minutes. By proportioning the error we find that the elevation taken at the monument is subject to a correction of 40 feet, which makes the elevation at that point 5,040 feet.

The average barometric pressure curve for a day shows the least variation from 12:30 to 1:30 P. M. For this reason the readings taken on the trip on the top of the Mesa and back should be quite accurate. We believe that these elevations are within the limit of error to which barometric readings are subject, and are correct to within 10 feet.

It is hoped that the services of the Topographic Branch of the U. S. Geological Survey can be obtained in the near future to run an accurate line of spirit levels to the highest point in the state. Until then the elevation (5,040 feet), which Dr. Gould and the writer determined, will be used by the Oklahoma Geological Survey as the highest point in Oklahoma. Bulletin 34 of the Survey on the Geology of Cimarron County, uses this figure.