

## THREE OUTCROPS OF VOLCANIC ASH IN NORTH CENTRAL OKLAHOMA

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Deposits of volcanic ash and volcanic dust in different parts of Oklahoma have been described in Bulletins 13, 22 and 27 of the Oklahoma Geological Survey. These materials have little economic value and outcrops occurring in different areas are not important except to those individuals who are interested in collecting scientific information concerning various types of sediment and agencies which have been responsible for such accumulations. Volcanic ash because of its porous character absorbs water readily and physical properties which are observed in unweathered material are soon destroyed when these sediments are exposed to chemical weathering occurring in the upper portion of the regolith.

The first outcrop which is reported in this paper was observed in 1928. It is exposed in a roadside cut and in a field on the south side of the highway about one fourth mile southwest of Hennessey, Oklahoma in SW $\frac{1}{4}$ , SW $\frac{1}{4}$ , Sec. 24 and in the NW $\frac{1}{4}$ , NW $\frac{1}{4}$ , Sec. 25, T. 19 N.; R. 7 W., Kingfisher County. This deposit of volcanic ash is about eighteen inches thick. Some evidence of stratification occurs in the sediments overlying the volcanic ash in this area. (See Fig. 2). The sharp line of demarcation between the volcanic material and the sandy deposits above would indicate that running water did not redeposit the ash from some other area. The density of this material was 1.1 which is much lower than the average apparent specific gravity of sandy soil. The chemical composition of this deposit is a hydrated potassium aluminum silicate according to a report received from the Oklahoma Geological Survey.

The second exposure of volcanic ash was observed in the spring of 1936 about one-half mile south of Blackburn in Pawnee County. This deposit is also exposed along the highway and was originally about five feet thick. The surface four feet of the ash in this area has been changed by weathering. The lower foot in this cross section is only slightly altered. (See Fig. 1). The density is approximately 1.05 which indicates a high degree of porosity. This ash is nearly white whereas the sample collected near Hennessey is tinged with red. The location of this outcrop is on the township line in the east center of section 25, T. 22 N., R. 7 E., and in west center of Sec. 30, T. 22 N.; R. 6 E., Pawnee County. Soils developed from volcanic ash should have a favorable physical condition as long as the high porosity of the parent material is maintained. A relatively dense layer of clay which has some appearance of stratification occurs between the unweathered horizon and the weathered portion of this exposure. The sediment below the volcanic ash is not alluvium, and has a very irregular surface as indicated by the contact which is shown in Figure 1. It is quite evident that the ash in this area was deposited on an eroded topography since the material below the ash has none of the characteristics of a buried soil.

A third deposit of volcanic ash was observed about ten feet below the surface of the ground when soil was being removed for the basement of a new library building located at the corner of Sixth Avenue and Husband Street in Stillwater, Oklahoma. This deposit, according to Ray Stz, Geologist at the Oklahoma A. and M. College, is of permian origin and was similar in character to the material observed near Blackburn.



Fig. 1. Volcanic ash one-half mile south of Blackburn, Oklahoma.

Fig. 2. Volcanic ash one-fourth mile south west of Hennessey, Oklahoma.