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*Humble Oil*

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## A NEW LENTIL IN UPPER FAYETTEVILLE FORMATION

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In the shale above the Wedington Sandstone Member of the Fayetteville Formation and below the Pitkin Formation is a fossiliferous limestone which has been reported (Cronis, 1930, p. 68) in many places in northwestern Arkansas but has not been named and described. A similar fossiliferous limestone of the Fayetteville Formation west of Fort Gibson in Oklahoma was mentioned by Huffman (1958, p. 23<sup>1</sup>); whether or not it is the same as that of Arkansas has not been determined. Because of an abundance of fossils and distinctive rock type, the limestone is capable of becoming useful as a reference horizon. This usefulness requires that the unit be named and it may therefore be called the Koger Limestone Lentil of the Fayetteville Formation. The type locality of the Koger Limestone Lentil is two miles northwest of Elkins, Washington County, Arkansas and 2 miles east of Koger Branch near the center of the north boundary of sec. 3, T. 15 N., R. 29 W. Here the limestone is exposed in a stream bed and is approximately 12 inches thick. It lies 40 feet above the Wedington Member of the Fayetteville Formation and approximately 50 feet below the base of the Pitkin Formation. The name is derived from the nearest named geographical feature, Koger Branch of Middle Fork of White River.

The Koger limestone crops out in many places in the eastern Washington County and western Madison County, Arkansas. In places where the limestone is covered by colluvium, its presence is recognizable in surface fragments.

Besides the type locality, a reference section of the Koger limestone occurs on South Mountain (-Baxter Mountain), south of Fayetteville, Arkansas in NE $\frac{1}{4}$  sec. 28, T. 16 N., R. 30 W. on Country Club road. Along the Frisco Railroad tracks in Fayetteville, Arkansas near Bench Mark 1333 is an exposure which crops out in the drainage ditch. A number of large fragments rest nearby. Here cephalopods were collected in 1961 by Jeff Honderich, a student of the University of Arkansas. The goniatites are *Eumorphoceras plummeri* Miller and Youngquist (1948), *Paracravenoceras ozarkense* Gordon (1960) *Cravenoceras hesperium* Miller and Furnish (1940), and *Tumulitesvarians* McCaleb, Quinn and Furnish (1964). These fossils have not been found above the Fayetteville Formation. A coiled nautiloid, *Stroboceras* Hyatt (1884), was collected at the same place. The catalogue number of these fossils is (L-87-RR), Geology Department, University of Arkansas. Another coiled nautiloid, 64

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**Tylonautilus** Pringle and Jackson (1928), some gastropods, and trilobite pygidia (L-88-BM) were collected from the limestone on South Mountain. Miller and Furnish (1955, p. 462) reported a large **Tylonautilus** from the Fayetteville Formation at Braggs Mountain in northeastern Oklahoma. Girty (1909, p. 50 & 86) described under the name **Coelonautilus gratus** two immature specimens of **Tylonautilus** from the Caney shale of the Arbuckle region in southern Oklahoma. **Tylonautilus** is a guide fossil to the **Eumorphoceras** Zone in England, but in Arkansas it ranges from the Moorefield Formation through beds equivalent in part to the Pitkin Formation. Fossils including brachiopods, some gastropods and numerous trilobite cephalata and pygidia referable to **Kaskia** were collected at the type locality northwest of Elkins, Arkansas. **Archimedes**, a bryozoan, is also present in the limestone at the three places mentioned.

The Koger limestone lentil is marine, dark-gray, hard, dense, finely crystalline, and fossiliferous. The lentil is six to fourteen inches thick. The surface of the limestone varies from yellow-brown to red-brown depending on the degree of weathering.

With exception of the trilobites, the fauna of the Koger limestone also occurs in the lower portion of the Fayetteville Formation. Croneis (1930, p. 69) stated that the Fayetteville Formation is Chesterian but its faunal assemblage differs from those typical of Chester age.

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