

XLIV. THE WEBBERS FALLS "TRAP DYKE" AS A SOURCE OF MATERIAL FOR PRIMITIVE IMPLE- MENT MAKERS

Joseph B. Thoburn

Oklahoma City, Oklahoma

When the first collection of prehistoric stone implements, tools and weapons was brought to the University of Oklahoma from Muskogee County, in the latter part of 1913, there was included in it a number double-bitted hoes and celts which had been fashioned from a very hard rock, nearly black in color, which flaked like flint or chert, though much more coarsely and with a rough-surfaced fracture somewhat like that of limestone. In showing the collection to Dr. D. W. O'Hearn, then director of the Oklahoma Geological Survey, his curiosity was aroused and he asked to be permitted to examine one of the implements. Trying it with his knife blade and finding it very hard, he remarked that it seemed to be like trap rock and expressed surprise that rock of such a character should be so commonly used in such a quarter. Inasmuch as the collection above mentioned had been gathered in the vicinity of Webber Falls, the thought instantly occurred to me that possibly this material had been secured from the ledge which causes the riffle or rapid in the Arkansas River and which has long been known as Webber Falls. Subsequent inquiry and investigation revealed the fact that implements and other artifacts made from this material were of more or less common occurrence over a wide scope of country, extending as far north as the Kansas-Oklahoma boundary line, as far south as Fort Smith, Arkansas, and as far west as Oklahoma City.

The material seemed to be peculiarly adapted to the varied uses of the stone age man as it readily lent itself to fashioning by any of the three methods—pecking, flaking and grinding or polishing. It is hard, though not so hard as chert. On the other hand it also

lacks the refractoriness of chert and seemed to be possessed of a measure of toughness that rendered it peculiarly adaptable for use in the form of implements of tillage and for heavy cutting tools, such as hoes, spades, turf cutters, axes, hatchets and celts. That it is softer than the silicious rocks is readily shown by the fact that the cutting edges of the implements of tillage are often found to be worn smooth. Also, implements and ornaments of this material, which are highly polished, are also found. These include celts and hatchets, or tomahawks, and beads, one-fourth to three-fourths of an inch in diameter and roughly spherical in shape, neatly drilled through for stringing in the form of a necklace.

Although I was at Webbers Falls or in that vicinity a number of times subsequently, the stage of water in the river was always such that it was impossible to examine the ledge which I suspected of being the source of this material so largely resorted to by the ancient implement makers. In October, 1921, I was so fortunate as to visit the place where the river was at a low stage and found the ledge exposed for a distance of fully 100 feet from the eastern bank. It proved to be composed of the material that I had suspected but not in the structural form that I had thought a trap dike should be, for it occupied a nearly horizontal position with a slight inclination toward the south by southwest. Its surface was channelled, grooved and pocketed by the erosive action of water and sand. It was apparent that, if it really was a trap formation, it must have been forced between two strata of sedimentary rock, which seemed scarcely likely. Its lines of cleavage seemed well defined, and in three planes, one horizontal and two vertical, one of the latter intersecting the other at an angle of approximately forty-five degrees. Inquiry revealed the fact that the formation thus exposed in the river channel extends eastward underneath the site of the neighboring village of Gore and that it had been encountered in the digging of wells and cisterns, which necessitated drilling and blasting and that, locally, it was known as "black granite."

Shortly after I visited and examined the ledge, a representative of the Oklahoma Geological Survey also visited and investigated it. He succeeded in finding fossils in the formation, thus proving that, instead of being a trap dike, it is in fact a sedimentary rock. Analysis reveals the fact that it is an argillaceous limestone, containing a relatively large percentage of silica. In other words, it is a variety of argillite. Whether it occurs elsewhere in the state and whether this particular stratum outcrops at other points, remains to be learned.

That the stone age man actually resorted to the ledge as it

outcrops in the channel of the river, rather than by quarrying or mining it at some other point is abundantly proven by the fact that water-worn splinters and chunks with the grooves, channels and pockets worn by the erosive action of flowing water and sand may be picked up on village and shop sites which are many miles distant from Webbers Falls. Whether implements of this material may be found in the remains of all prehistoric cultures of the region in question has not been determined.

It would be interesting to know if rock of this stratum can be quarried in unfractured slabs, for, if so, it might have considerable value in the manufacture of furniture and interior architectural finish.