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Notice of Arrow Points from the Loess in the City of Muscatine

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ware. A few of these fragments were on the surface; others were buried a few inches. Some at least were very old.

A few flakes were dug up between the loose rocks and a rude ax was found on the surface. The place, frequented at present by hunters and stockmen and formerly by prospectors, is not likely to yield many relics of a portable kind at this day. However one very interesting implement was obtained and has been pronounced unique by the Bureau of Ethnology. This was found on the surface about one-third of a mile below the excavations, having been transported presumably by water. It is an oval-lenticular tool of quartzite, its greatest length, breadth and thickness being respectively four and one-half, three and one-third and one and three-eighth inches. One surface is somewhat rough and has been worked into its present form, which nicely fits the hollow of the hand when the fingers are slightly curved. The other surface is smoothly worn and shows distinct longitudinal scratches; these, moreover, make a small angle with the line of greatest length, which fact, together with its shape, curvature and markings, suggests that the stone held in the concave palm, was used as a sort of pestle, by a vertical motion against the sides of the larger excavations or "mortars." How much reduction the pestle has suffered cannot be known.

Other pestles may also have been used, but the large excavations were uniformly pointed at bottom and would not permit the use of the ordinary sort.

NOTICE OF ARROW POINTS FROM THE LOESS IN THE CITY OF MUSCATINE.

READ DECEMBER 29TH. 1891, BY F. M. WITTER.

No other question has ever engaged the attention of man more than that which relates to the origin and destiny of his race.

Many theories have been advanced to account for man's origin and there is likewise great diversity of opinion as to his destiny.

Evolution, it seems to one, is competent to explain the natural order of things from the crystal to man. Except we build on the sure foundation of the past and present all speculation concerning man's destiny must be conjecture.

The geologic history of the earth is determined from its rocks and what they contain.

The beautiful and multifarious forms of nature's mineral flowers, the legions of plants and animals whose impress are stamped in its rocky beds form chapters in the history of our globe.

So, too, the imperishable remains of primeval man, such as the cave-dwellings, shell-heaps, earth-mounds and works of stone are the sources from which the early history of this paleolithic man or man-like animal is derived.

Man began his career as master of the world when he commenced the use of fire and stone.

The various forms of quartz, such as chert, flint, agate and obsidian, bore to him the same relation that iron bears to us.

Out of these he fashioned his spear and arrow points, knives and drills.

In the beds of those ancient lakes, the geologist has described, the archaeologist looks for the tools and weapons of prehistoric man. Near the close of the great Ice Age in this latitude, especially in Iowa, numerous lakes were formed along the courses of the rivers by occasional barriers of ice across the valleys of the streams.

The city of Muscatine stands on the bed of one of these lakes. At that time the surface of this lake stood nearly at the top of our highest hills, perhaps one hundred and fifty feet above high water in the great river at our feet.

The fine grained yellowish brown material, so conspicuous at our brick-yards and in all streets where cuts have been made, was deposited in this lake. It covers the Drift, or at any rate the coarser materials of the Drift, and lies over our hills like a great mantle. In places it is from forty to fifty feet thick.

The geologist calls it Loess. It is the last in the series of marked physiological changes that have occurred in this region. The border or shoreline of this Loess lake is quite easily found. From this Loess have been taken several species of land and fresh-water shells, the remains of two American reindeer, fragments of wood, the antler of some species of deer, etc. Long ago I was led to believe we ought to obtain evidence that men were here before this lake had disappeared. On Eighth street, near St. Matthias church, Mr. Chas. Freeman was for many years engaged in changing a fine hill of this Loess into brick. I have before me a rather rudely formed spear point of pinkish chert. This, Mr. Freeman says, he took from the Loess at this place at a point about twelve feet from the surface. In answer to my questions he said it could not have possibly dropped from the top, for he was digging under the bank for the purpose of caving it down when the spear point was struck, and he was specially interested in the impress or matrix where it lay. Several of the deeper depressions on this implement are still filled with the characteristic Loess. About the same time in the same bank as the Loess was caved off, Mr. Freeman noticed a stone, as he supposed, projecting from the vertical wall. As such things were rare in this compact homogeneous Loess, he examined it and found it to be an arrow point projecting from the undisturbed earth, at least twenty-five feet below the surface. At a brickyard about two blocks to the north of this, as Mr. Freeman was moulding brick, he took from the clay a well-formed arrow point. This was covered with a blue clay quite different from the usual Loess. Inasmuch as this arrow point had passed through the bed where the clay is mixed it seemed as if the story it told was not very clear. At a point in this bank a bed of fine blue clay was uncovered. The top of this blue clay was over eight feet from the surface. On examination of the bank and inquiry into the circumstances I believe, with Mr. Freeman, that the arrow point must have come from the blue clay. About one mile from where it empties into the Mississippi river, Mad Creek has cut away the point of a hill, the top of which is Loess. This cut forms a bank almost perpendicular, probably forty feet high. About ten feet from the top is a bed of gravel perhaps one foot thick. In this gravel bed Mr. Joe Freeman, a third year student in our High school, found a considerable fragment of the tooth of an elephant. I examined this gravel bed and found in it

numerous flint chips, such as are supposed to have been struck from arrow and spear points, knives, etc.

On both sides of our great river in this region, on the most commanding sites, are mounds of earth, the works of men. These mounds do not seem to be built on Loess. They are considered to be very ancient. Might it not be possible that the men who built these mounds were of the same race as those who pursued their game and lost their weapons by the shore of our ancient Loess lake?

THE GAS WELLS NEAR LETTS, IOWA.

READ BY F. M. WITTER AT THE SIXTH ANNUAL SESSION OF THE IOWA ACADEMY OF SCIENCE, IN DES MOINES.

In the early part of December, 1890, Mr. T. L. Estle, living in section 3, township 75, north, range 4, west 5th p. m., sunk a well on his farm for water. In drift at a depth of about one hundred feet he struck gas, which burned readily but in two or three days the gas ceased to flow. Between forty and eighty rods west of this place, about the same time Mr. R. M. Lee bored for water. At about one hundred feet he failed to get water and stopped boring. In the evening he commenced to pull out his casing, and succeeded in raising it perhaps eight or ten feet. During the night a great roaring was heard and on approaching the well with a lantern the gas took fire and a great flame shot several feet in the air with a frightful noise. In a few days the flame was extinguished and the gas piped into Mr. Lee's house a few rods away, where for over a year it has furnished him light and fuel. This well now furnishes Messrs. R. M. Lee, T. J. Estle, J. E. Lee and Robt. Lee with all their fuel and light. Robt. Lee is a little over one mile from the well.

It is carried in common gas pipe laid on top of the ground. This is two inches, one and one-half inches and the last half mile one inch in diameter.