

influence as long as his life lasted. If a bill was before the legislature in which he felt an interest, he argued the case to the young men who were generally glad to further his wishes. Socially, he was always a pleasant person to meet, and while he was a man of positive convictions, he had few or no enemies. His life was one of eminent usefulness and when he was called hence the entire State mourned his departure. The most permanent and distinguishing feature of his public record will long be consulted in the Reports of the Iowa Supreme Court from 1854 to 1870.

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### THE LEHIGH BONE-BED.

An editorial article appeared in Vol. III, current series of this magazine (pp. 647-9), in which a visit to that locality was mentioned, with the surmise that possibly it might be what is known as a "kitchen-midden," or "refuse heap," of some long-ago dwellers in the Des Moines valley. Ancient mounds abound in that section, and stone implements and fragments of pottery are often found thereabouts. But opinions as to the origin of this bone-bed are various. One Iowa naturalist, who, by the way, had not visited it, ventured the suggestion that there might have been a slough or swamp at that place in which large numbers of animals had been mired and perished. Another believed that the elk and buffalos had been driven over the high bluffs by the Indians and slaughtered in large numbers. Not long ago Prof. Samuel Calvin, our distinguished State Geologist, visited the deposit and made a hasty examination of the stratum of bones, as well as of the geological features of the locality. At our solicitation he sent the following brief but highly interesting account of his observations for these pages:

An interesting accumulation of bones, belonging apparently to the buffalo or American bison, has recently been unearthed at a point three or four miles north of Lehigh, in Webster county, Iowa. The find occurs a few rods back from the Des Moines river, near the mouth of a secondary

ravine which has appropriately been named "Bone-yard hollow." The bones are numerous and seem to have been piled together in a promiscuous heap. By far the larger number are in an advanced stage of decay; the teeth being the only skeletal parts which can be said to be reasonably well preserved. The hundreds of teeth, chiefly molars and pre-molars, taken from the locality, indicate that a large number of individual skeletons had been heaped together by some process or other. All the specimens which had been taken out at the time the writer visited the locality had been secured by a process of undercutting at the base of a low bank of earth, and the softened bones—everything indeed except the teeth—were destroyed by the operation.

From six to eight feet of fine silt overlies the bones; and this deposit, charged with numerous shells of land snails representing several species of *Mesodon*, seems at first glance to be a portion of a distinct terrace which extends along the Des Moines river for some distance southward from Bone-yard hollow. The terrace is flat-topped, eight or ten rods wide, and fifteen or twenty feet high where it fronts the river flood plain. The river is here bounded by steep bluffs eighty to a hundred feet in height; and, for some distance back from the river, Bone-yard hollow and all the other lateral ravines are picturesque gorges cut in Carboniferous sandstone. As to age, the terrace dates back practically to the Glacial Epoch; it should probably be referred to the time immediately following the withdrawal of the Wisconsin glaciers, when in this region the ice which had previously choked the valley had melted away and left the channel free, but while glaciers still lingered about the head-waters of the stream and gave origin to more or less copious, silt-bearing floods.

Now the question arises as to whether the deposit of bones is older than the terrace. Is the overlying silt an original part of the terrace with which it is associated and into which it blends with apparently perfect homogeneity? If so it would be a most interesting fact. For arrow points, deftly fashioned by human hands, are associated with the bones and teeth in such wise as to leave no doubt that man and the animals represented by the buried skeletons were contemporaneous. It looks as if there had been no disturbance of the terrace or additions to its materials; forest trees have grown to maturity since the bones were covered; many facts, which there is not space here to enumerate, might be cited in support of the hypothesis that the bone deposit was there before the materials of the terrace were laid down; and yet there is a possibility, a very strong probability in fact, that the bones and arrow points of this interesting locality are much younger than the latest Wisconsin floods which swept down the valley of the Des Moines.

The bone deposit occurs at the point where the terrace abuts against the bluff. It also occurs at the point where the terrace was cut transversely by the stream which excavated Bone-yard hollow. The lateral valley is somewhat widened at this point; the little stream has shifted its course so that it is no longer cutting the upper end of the terrace, the materials of which have assumed a stable slope. The bones happened to be piled at

the very point where a slight re-adjustment of the terrace materials, coupled with the waste and wash from the bluff, would cover them with a silt indistinguishable from that laid down by the older Wisconsin floods. That the deposit is old compared with the historic period of Iowa may safely be affirmed; but that it is preglacial or interglacial, as would at first sight seem to be the case, is highly improbable. Under what conditions and for what purpose the bones were accumulated where they are now found is a question for the ethnologist.

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### CORN AND HAY AS FUEL.

Along in the early seventies, chiefly in 1871-'72, corn was plenty and cheap, while coal and wood were scarce and dear. Some man tried the experiment of using corn for fuel and announced the result as a success. He found that from burning a dollar's worth of good Iowa corn more heat could be evolved than from the wood or coal that could be bought with the same money. Others had occasionally tried the same experiment, in Iowa and Illinois, even as far back as 1857, and reached the same conclusion. The writer of this item distinctly remembers seeing corn so utilized both in heating furnaces and in cooking and heating stoves. In many cases corn and bituminous coal were burned together, making hot fires. But cheap as corn was in those days it seemed a criminal waste to use it in this way. When one considers the amount of choice food for man and beast that is contained in a bushel of our magnificent Iowa corn, no matter how cheap it may become, there would seem to be no excuse for burning it for fuel except in some dire extremity. But with many people the question was merely one of dollars and cents. Which fuel was the cheapest?

During the same period, perhaps reaching down some years later, prairie hay was used for fuel in like manner in Northwestern Iowa. Large cylindrical heating stoves were constructed from thin sheet iron, expressly for burning hay. A machine was invented for twisting the hay into hard coils so that it should not go up in a flash and burn too rapidly.

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