

## ANOTHER IOWA BONE BED.

BY PROF. F. E. L. BEAL.

During my connection with the Iowa Agricultural College at Ames (1876-83), my vacations, which occurred in the winter months, were mostly spent roving over the neighboring country, studying the bird-life of the region, and incidentally anything else that attracted my attention. Two or three miles northeast from Ames on the eastern side of the Skunk river bottom there is a barren, gravelly area covered with a dwarfed growth of shrubs, and in shape a series of ridges which extend out into the bottom land like the fingers of an outstretched hand. Walking out upon one of these ridges one day, I was surprised to come upon the remains of a large skull which a few moments' inspection showed to be that of a buffalo. I was at first astonished to find this relic so far from any place the buffalo were then known to inhabit, but a little reflection recalled the fact that in former times great herds of these creatures had roamed over the Iowa prairies, and left their bones in its soil. Still I was puzzled to account for the state of preservation in which the relic was found, for no bones could have lasted for a century or more exposed on the surface of this dry ridge. At the foot of the slope and on both sides of the ridge, however, were spread out several acres of soft, wet bog, intersected by a deep ditch cut out by the water that issued from springs at the foot of the gravelly slopes. I promptly surmised that this bog was the real repository of the buffalo bones, and that the skull I had found had been taken from the bog and carried up to the top of the ridge by human agency. Moreover the bones were black as ebony, showing their contact with black mud. Having reached this conclusion, I descended the slope and began a search for more bones. I soon found that I had come upon a real cemetery of the buffalo. In every place where the grass and weeds had been cut away

by the running water, pieces of ribs or leg bones could be seen sticking out of the mud, and occasionally the great horn cores would betray the presence of a skull. All of these bones were stained nearly jet black by the years of soaking in the black mud in which they were imbedded. Finally, I began an exploration of the main ditch, which ran through the bog and was the principal outlet of the surplus water. At the time of my first visit there was but little water running, and I was able to walk up the ditch with very little inconvenience. Where I first came upon it, the depth was about six or seven feet, but it increased in depth toward its upper end where it was nearly ten feet deep and quite broad. At this place a sudden widening had occurred, owing to a mass of earth that had slid down from one of the banks and been washed away. I was startled to see the almost perfect skeleton of a huge buffalo bull, left exposed by this downslide of earth. The bones were nearly all in place, the skull, the curved spinal column and the large leg bones all standing out in bold relief. The skeleton was about four feet below the surface and evidently just where the animal had got mired and sunk in the treacherous bog.

Some months after this discovery I found some buffalo bones in a small piece of marshy ground near the Agricultural College, at a point near the pumping station. A drainage ditch dug through this marsh exposed a number of bones all of the same characteristic black color. At the time of discovery it seemed impossible that the buffalo could have been mired in this place, for domestic cattle and hogs crossed it every day, but it might have been broader and deeper in earlier times. It is probable that every marshy piece of land in Iowa contains some of these relics of a former race, and it is not improbable that many bones besides those of the buffalo are entombed in these places. The antlers and bones of an elk were found in digging a ditch in the woodland of the college farm.

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The writer of this note, about the year 1882, one day received an invitation from Prof. Beal to come to his home in Ames and spend a day out among the birds and trees. The invitation was gladly accepted. (In those days Prof. Beal was by all odds the foremost writer on the birds in Iowa. He wrote a series of articles for *The Des Moines Register* which should have been printed in a book.) So, one morning we started out. Walking west on the track of the Chicago & Northwestern Railway until we were abreast of the college, we then struck off to the northeast across the wide bottom land and through the timber to this old bone-bed. We found it precisely as he describes it, but I differed with him as to its origin. In my judgment there had been, at some time long ago, a washout in the bluff which must have been from fifteen to twenty-five rods across in either direction. Where the original brook or runnell had dropped down to the river bottom, this waterway had been dammed, possibly by a community of beavers, but more likely by an accumulation of brush and dead grass and weeds. Once such a dam was formed, the accumulation of muck or peat was the most natural thing in the world, and the dam would be kept in repair by the constant additions of the same material of which it was composed. In time the peaty substance accumulated to the depth of from four to six or seven feet. Perhaps the water in those days carried an infusion of salt, or was what is called "brackish," like the "deer-licks." This may have been a veritable "deer-lick," where wild animals went to drink the brackish water. At all events, there were several feet of soft mud into which the beasts had walked and perished, or they had been driven into the quagmire by the Indians. The skulls were in a perfect state of preservation, not at all mineralized, but jet black in color. We broke small fragments from them, and found the inside of the bones to be pure white, without a suggestion of discoloration. The other bones were so far decayed as to have become quite fragile. Hundreds of these animals must have perished in this locality. At the time of our visit two or three little brooks had cut deep channels through the black deposit, in many places going down to the whitey clay, which formed the bottom of the ancient pond. The beds of these brooks were strewn with bones.—CHARLES ALDRICH.

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The above articles were referred to Dr. Charles A. White, of Washington, D. C., who will be remembered as the State Geologist of Iowa (1876-80). He wrote concerning them as follows:

DEAR MR. ALDRICH:—Prof. Beal's article and your added note are well worth publishing. I never made any such discoveries in Iowa, but they are just what may be expected in numerous places. I think that all ruminants and pachyderms were fond of the sulphuretted hydrogen water of many of the bogs as well as of the common salt that some of them may have contained. I therefore think that the suggestion that other bones than those of the buffalo may be found there is a good one. Mammoth, mastodon and peccary bones should be looked for, as the bogs doubtless began their treacherous work before the extinction of those animals.

CHARLES A. WHITE.

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