

## GASTROLITHS

IN a recent article entitled 'Gastroliths'<sup>1</sup> Dr. G. R. Wieland described some highly polished quartz pebbles, that I had shown to him, stating that they had been obtained in Colorado. This is an error. The pebbles came from the same locality as those obtained by him from Mr. Speers.<sup>2</sup> They were found in the Jurassic or Morrison formation of Montana near the Big Horn Mountains and were near, but not associated with, stegosaurid dinosaur bones. It is noteworthy that some of these jasper pebbles were dug from the clay in this polished condition, showing conclusively that they had been polished either before or during deposition. Others had been uncovered by erosion. Associated with the polished stones were many of less brilliant colors that were unpolished.

Mr. R. P. Whitfield informs me that he has seen quartz pebbles as highly polished as these at Spirit or Devil's Lake near Baraboo, Wis., which had been polished by the action of the wind. However, in a collection of wind-polished stones from New Jersey, preserved in the American Museum, all show faces and parallel angles that have been determined by the direction of the wind and position of the pebbles at different times. Some of these specimens are highly polished, but in no case showing the luster of the Montana specimens.

In the contents of chickens' gizzards I have found that pieces of glass subjected to its action for some time invariably have the edges rounded, while the faces are etched, entirely lacking the former polish. On the other hand, hard quartz pebbles found within the body cavity of a Moa show polish and considerable luster.

The unusually high polish of the Montana pebbles does not seem satisfactorily explained, either by the action of the wind or pressure of the clays. But, notwithstanding their proximity to scattered bones, there does not seem sufficient evidence to assume that these stones had been swallowed by dinosaurs as

<sup>1</sup> SCIENCE, N. S., Vol. XXV., No. 628, pp. 66-67, January 11, 1907.

<sup>2</sup> *Ibid.*, N. S., Vol. XXIII., No. 595, pp. 819-821, May 25, 1906.

were the stomach stones of Plesiosaurs.\* There is, however, an example nearly as well established for the herbivorous dinosaur Claosaurus of the Laramie formation.

In 1900, while collecting fossils in Weston County, Wyoming, which is a continuation of the Converse County beds, I found a Claosaurus skeleton imbedded in a hard concretionary sandstone. In chipping off the surplus stone three rounded well-worn pebbles were found near the fore legs, embedded in the same matrix. These specimens were preserved and the occurrence made note of at once, for similar stones had not been seen anywhere in the deposit. These pebbles are rounded and vary in size, the largest measuring nearly three inches across. They resemble those found with plesiosaur remains and are polished to about the same degree.

It would be interesting to know what per cent. of acid is contained in the stomach of such birds as the Ostrich and Rhea.

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## SPECIAL ARTICLES

RECONNOISSANCE OF A RECENTLY DISCOVERED  
QUATERNARY CAVE DEPOSIT NEAR AUBURN,  
CALIFORNIA

It was recently my good fortune to be sent by Professor J. C. Merriam to investigate a cave which had been brought to his notice through Dr. J. C. Hawver, of Auburn, California. Professor Merriam has since visited the cave and has kindly turned his notes over to me. In recognition of Dr. Hawver's vigorous prosecution of the work of cave exploration in this region we have named the cavern Hawver Cave in his honor.

Hawver Cave is situated about three miles due east of Auburn, Eldorado County, California. It is in one of several lenses of limestone in the Calaveras formation of that region. The trend of the lenses is north and south and the fissures in the limestone extend in the same direction. The entrance of the cave is on the top of the knoll a little south

<sup>\*</sup> *Ibid.*, N. S., Vol. XIX., No. 501, pp. 184-185, August 5, 1904.