

At the same meeting Mr. George H. Becker of the U. S. Geol. Survey presented a similar mortar found under Table Mountain some years before by Mr. Neale, a mining engineer. Mr. Neale signed an affidavit detailing the particulars, and his remembrance of the situation was so minute that there could be no question of the undisturbed character of the deposits. Mr. Becker well remarks that Mr. Neale's judgment as mining-engineer concerning the undisturbed character of the deposit is the highest evidence that can possibly be obtained, for that is a point to which the miner's attention is constantly directed, on account of the danger attending the opening of any old excavation.

The third new evidence offered was that of Mr. Clarence King, who had just presented to the Smithsonian Institution a fragment of a pestle which he had taken with his own hands, in the vicinity of the two previous places mentioned, from the undisturbed gravel beds underlying Table Mountain. I need not say that Mr. Becker and Mr. King are two geologists of the very highest standing in the country, and that they both have unusual familiarity with the phenomena of that region, and they both, together with Professor Marsh, Professor Putnam, and W. H. Dall, express their unqualified belief in reference to the Calaveras skull that it was found in place in the gravel beneath this same stream of lava.

But I have already made my communication too long. I trust, however, upon your forbearance in publishing it, since the facts are too numerous to be compressed into less space of description, and a volume would be required to give all the evidence in detail. In my book upon "Man and the Glacial Period" I was called upon to discuss a very broad subject in a very small volume, and so could not enter into details. I endeavored, however, to limit myself to facts of which there was abundant proof, if they should ever be called in question. And I would repeat that I am glad of the revival of interest in the subject which will be created by the expression of such doubts as still remain in Dr. Brinton's mind. I have no question but full discussion will dispel the uncertainty that may exist.

G. FREDERICK WRIGHT.

Oberlin, Ohio, Nov. 1, 1892.

The Rattlesnake of the Bottom-Lands of Mississippi.

ON August 8, 1891, I received, in a box whose base was about two feet square and whose height was about one foot, a rattlesnake which had been sent by express from Greenville, Miss. The snake was of a stout build, fierce looking and ready to rattle and strike. Through this wooden box had been bored a number of auger holes to supply the serpent with air; these had so weakened the box as to cause a split that afforded some chance of escape.

I thought from its appearance the snake was about four feet long; but after death actual measurement showed four feet five inches in length and eight inches in circumference at the largest part of the body. I had made a longer box with glass top and with a sliding door; through this without much difficulty the snake was transferred from the old box.

The color was an alternation of black spots and light brown ground. The black spots were larger than those of the Mountain Rattler, while the brown was not so bright. This snake had only three rattles when I received it; a careful examination showed that some of the rings had been broken off. I afterwards learned that eight of them were broken off in the express car between Greenville and Winona on the Georgia Pacific road. If this information be correct, the snake had at that time eleven rattles.

When I was endeavoring to make the snake go out of the old box into the new, the glass of the latter was at the side. The snake showed evidence of great irritation and anger; it rattled almost incessantly. Some children were a few feet in front of the glass; at the instant of passing into the new box it struck at the children with all its force, striking against the glass and spattering against it some white, thick, frothy liquid. The snake evidently did not understand glass, not having lived before in a box or house provided with that article. Twice afterwards, when it had been angered, it struck at persons standing a little way in

front of the glass; after this it refused to strike, seeming to understand that the glass presented a barrier too great for its strength. The head of the snake trembled from the effects of the blow against the glass. A match struck and lighted in front of the glass seemed to irritate and anger it more than anything else.

I took the precaution to have in the cage a wooden saucer. In this I blew at various times water and sweet milk. I put into the box living frogs, rats, mice, young flying-squirrels, chickens, etc. I also offered to it frequently fresh butcher's meat; but it refused all food; it evidently had no appreciation whatever of any attention or effort to be kind. A young chicken was bitten by it and was dead in twenty seconds; it fell instantly on being struck by the serpent's tooth. Two toads at different times died in the box after remaining therein about six days each. Several times I poured clean water into the box and on the snake; this made it move restlessly; it pushed its nose tremulously against the glass, and, slid it along the glass as if trying to break the glass or find an opening for escape. It seemed to reject water as indignantly as it did food. When lying in the box it seemed to be the perfect expression of sullen disdain.

During October it shed its skin partially. The work of shedding began in the night but it was never perfectly done, parts of the old skin adhering to the sides of the body. During its confinement a new rattle was formed between the former rattles and the body proper, showing thereby that the terminal rattle of the rattlesnake is the oldest.

As time went on the snake became poorer, but the skin was so thick and scaly that the ribs were not visible, and when it was irritated the body was distended to its full former size, either by the drawing and rigidity of the muscles or by inflation. Without food, without water, confined in a box and subject to some considerable variations of temperature, it lived from August 8, 1891, to April 15, 1892, eight months and seven days. During the winter the room in which it was kept often grew cold, but I never allowed it to be cold enough for water to freeze. When in the cold, it coiled closely and seemed torpid; but, on my moving the box into a warm room, it would very slowly uncoil and stretch itself in its box almost straight.

I have heard many extravagant stories about the length of time a rattlesnake could live without food, but I was not prepared to believe that it could live as long as eight months and seven days, until the fact was demonstrated as I have narrated above. Mr. W. W. Stone, the Auditor of Mississippi, who sent this snake to me, informed me it was without food at least a week before I received it. In feats of fasting this animal excels Dr. Tanner and all other human aspirants for that kind of distinction so far as to make their boasts futile.

R. W. JONES.

University of Mississippi.

Preliminary Note on Sleep.

THAT there is a relative anæmia of the brain during sleep is well established, but the hypotheses advanced to account for this or any other of the sleep phenomena are unsatisfactory. In "Comparative Physiology and Psychology," 1884, I treated the subject briefly, and since then have been gradually accumulating and arranging data for a theory which I have finally adopted, and which appears to me to be fairly complete as enabling the major phenomena to be accounted for.

Briefly stated, where there is physiological waste there is, normally, repair, and the activities of the brain demonstrably are kept up by renewed nutrition derived from a blood supply adjusted to the ordinary needs. When there is cerebral anæmia, as in chlorosis, then there is increased desire to sleep, the brain does not receive the necessary quantity to compensate waste, and it rests, just as any commercial activity will cease with withdrawal of means to continue it. Those who are familiar with my nutrient reflex theory, mentioned in the book referred to (Professor C. K. Mills of the Pennsylvania University, and Professor C. L. Herrick of the Denison, Ohio, University, have written approvingly thereon), will understand that with cessation of sensory stimulation there will be less blood attracted to the brain and other nerve-centres, the heart-beats lessen in vigor and num-