

This conclusion proves the fallacy of Mr. Fenneman's argument, for although the two large mounds represented in the illustration have never been touched by the plow, the surface of the "low grassy knoll at the left" has been cultivated for many years, since early in the last century, and consequently its height has been reduced many feet. A sketch of the group made about the year 1840 and reproduced in "The Valley of the Mississippi," No. 3, September, 1841, shows the mounds to have been at that time of approximately the same height, therefore the "grassy knoll" was at one time thirty feet or more in height, and it is known that during the course of its destruction human remains were revealed by the plough.

Cahokia, the subject of this discussion, is the largest artificial earthwork in the United States. It stands in the extreme southern part of Madison County, Illinois, about six miles east of the Mississippi. It is in form a truncated rectangular pyramid, rising to a height of one hundred feet above the surrounding plain. Its base, rectangular in form, covers an area of about sixteen acres and measures 1,080 feet from north to south and 710 feet from east to west. Surrounding Cahokia are 69 lesser mounds, some of which are more than 40 feet in height. Some are circular, others rectangular; the latter, including Cahokia, are placed with their sides toward the cardinal points. A group of smaller mounds stood near the bank of the Mississippi a little south of west of the main group; between the two were several isolated mounds serving to connect the groups. On the opposite side of the river, on the summit of the ridge a short distance from the river, stood a group of 26 mounds, all of which have long since disappeared. These were within the limits of St. Louis.

As is generally known to those who are familiar with the distribution of mounds in the southern part of the country, there usually occurs in every group one mound which is larger and more imposing than the others. Often the larger work is separated from the main group by an open space, again it is more closely associated with the lesser mounds,

sometimes being surrounded by them. The St. Louis group belonged to the former class; the larger group, with Cahokia near its center, belongs to the latter. The mounds of the St. Louis group, and those which formerly stood on the opposite side of the Mississippi, have disappeared, and many of the lesser works of the main Cahokia group have been practically obliterated by the plow. In view of these conditions it is gratifying to know that a movement is now being made to have Congress purchase, and set apart as a park, an area of sufficient size to include Cahokia and certain of the smaller mounds which have escaped destruction. This would preserve the largest earthwork in America, the most imposing aboriginal monument east of the Mississippi. It is quite evident that Mr. A. R. Crook, of Springfield, Ill., is antagonistic to this movement, but such statements as those recently made by him should not be allowed to influence the work now being done.

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AN EXAMINATION OF BLOOD-EJECTING HORNED LIZARDS

THE horned lizard's (or horned "toad's") remarkable habit of ejecting blood from its eye when attacked, although well authenticated, is so rarely observed that it is thought by many to have its origin and its creditability in the little animal's dragon-like appearance. Even Ditmars confesses that it took an actual demonstration, witnessed only after handling several hundred specimens, to upset his scepticism. His description of the performance is well known.¹

Hay (1892), Stejneger (1893), Van Denburg (1897), Brunner (1907), Bryant (1911) and others have observed and mentioned this peculiar habit. It is not limited to any single species.

Various explanations have been suggested; among others that the phenomenon is connected with the breeding season, that it may be due to some parasite, and that it may be "a secondary use acquired by a relatively few forms."

¹ "The Reptile Book," p. 145.

Bryant sectioned the eyelids of a blood-ejecting specimen, and found them highly vascular and full of blood sinuses.

On July 4, while collecting specimens of *Phrynosoma cornutum* for examination of stomach contents, I was fortunate enough to witness this phenomenon. One of my students, walking by my side, stooped and thrust out his hand to pick up a large specimen, when he was met by a sudden spurt of blood coming unmistakably from the lizard's eye. The blood spread over the young man's hand in a fan shaped and even smear, extending from the second joint of the index finger to the wrist, and being about thirty mm. wide at the base. On July 7, another specimen, while being chloroformed, shot a quick jet of blood from one eye. The blood was given an almost explosive impulse, and formed a single thick drop on the inner wall of the bell jar. On July 20, another specimen ejected blood while being anesthetized. In this case, the blood on the wall of the bell jar was mixed with tiny fragments of skin and a few scales.

All three animals were subjected to a very careful examination. All were males. Their lengths were 108 mm., 110 mm. and 108 mm. The lizards were in good condition, even being free from tapeworms and other intestinal parasites with which local *Phrynosomas* are much infected. The stomach contents were characteristic, consisting of agricultural ants, small beetles, isopods, etc. In each case, the eye from which the blood was ejected showed a small quantity of clotted blood in the posterior corner. The vessels were slightly swollen. The cornea seemed to be intact. In the first two cases there was a small spot in the sclerotic coat, which can be best described as a blood blister. The contents on removal to a slide, and staining with Wright's stain, showed nothing except a few red corpuscles and lymphocytes. The third specimen showed nothing but a mass of clotted blood in the posterior corner of the eye. In each case, careful dissections were made, using needles and working under a 48 mm. objective. No parasites of any kind were found.

In my opinion, the most significant fact of all is that all three animals were moulting, the third being in quite an advanced stage.

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THE COTTON WORM MOTH AGAIN

THE large northward flight of the cotton worm moth, *Alabama argillacea* Hubn., in September, 1911, is still fresh in the memory of entomologists. In 1912 a few of these moths were taken in Massachusetts, but in 1913 none were found, so far as the knowledge of the writer goes.

The present year none were reported in September, but on the evening of October 17, large numbers appeared at the lights in and around Worcester and were in evidence for several days. No other reports of their appearance in the state this year have been received, but it is hardly probable that they were only locally present.

It is interesting to note that while they were taken during the last week in September in 1911, and from September 21 to 25 in 1912, their first appearance this year was October 17, nearly a month later than in the other years mentioned.

Since the above was put in type this insect has also been reported as abundant in Pittsfield during the same period.

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SCIENTIFIC BOOKS

Lehrbuch der Meteorologie. Von DR. JULIUS HANN, Professor an der Universität Wien. Dritte, unter Mitwirkung von PROFESSOR DR. SÜRING (Potsdam) umgearbeitete Auflage. Leipzig, 1913, 1914. Chr. Herm. Tauchnitz. 8vo. Pts. 1-9, pp. 800.¹

It is significant of the progress of meteorology that three editions of von Hann's "Lehrbuch" have been published in the past twelve

¹ Ten parts are to be issued. The last one has been delayed, doubtless on account of the war.—*The reviewer.*