

they could be mistaken, while clinging to the limbs of trees, for short stubs of broken branches, and thus cheat their enemies out of a meal.

Taking this as the same species as described and figured in the article, it may be noticed that the distribution is wide, Ohio to Kansas, though it may be expected wherever apples are grown. From the adults, several lots of eggs were found on underside of leaves, and their development will be watched.

E. S. TUCKER.

Lawrence, Kansas, Aug. 16.

EXPLOSIVE GAS IN LOCOMOTIVE ENGINES.

In the article on p. 79 of *Science*, Aug. 11, 1893, concerning "Explosive Gas in Hot Water Apparatus," are some very pertinent questions to which I would like to add several in regard to high-pressure engines.

Assuming the facts stated as true, as they probably are, in the case of heating furnaces in houses, may they not be true also in, for instance, a locomotive engine under certain circumstances?

May not the hydrogen in a locomotive become mixed with common air?

May not this mixture be exploded under certain circumstances likely to occur in locomotives?

May not this be the real explanation of those sudden and terrific explosions that occasionally occur, where no apparent cause can be assigned?

M. W. V.

Ft. Edward, N. Y., Aug. 16

COYOTE OR BEAR?

COYOTE or bear? "that is the question" which has apparently agitated Dr. Franz Heger, Curator of the Ethnographical Museum at Vienna, ever since Mrs. Zelia Nuttall, Special Assistant in Mexican Archaeology of the Peabody Museum, Cambridge, Mass., described and figured an ancient Mexican shield inlaid with feather-work and gold and bearing an animal device of a blue "monster" on a red field. (*Internationales Archiv für Ethnographie*, Vol. V., Part 1, 1892).¹

This shield Mrs. Zelia Nuttall found preserved at Castle Ambras, in Tyrol, and, recognizing its unique character, obtained permission from the Imperial Oberhofmeis-

teramt at Vienna to have it sketched and photographed. It proved to be an ancient Mexican feather-work shield, with an authentic history, like the head-dress of the time of Montezuma, still exhibited at Vienna, "unfortunately always upside down." This was restored by Dr. Ferdinand von Hochstetter and described by him as a standard or banner.² Both head-dress² and shield were sent by Cortez to Charles V., and subsequently formed part of the historical collection of armor formed by his nephew, the Archduke Ferdinand of Tyrol, and were duly recorded in the Inventories of that famous collection. Strangely enough, the shield was supposed to be lost, and Professor Hochstetter lamented "its total disappearance." All the while it was lying *perdu*, in a case labelled "Transatlantic and Oriental Curiosities," at Castle Ambras in Tyrol, until its importance was recognized by Mrs. Nuttall on a chance visit to the Museum Ambras. Soon after Mrs. Nuttall announced the continued preservation and whereabouts of this valuable Ancient Mexican relic to the Anthropological Society of Berlin, and the shield was consequently removed to Vienna. Some other Ancient Mexican objects were also transferred there at the same time, and these Dr. Franz Heger has described in a memoir published in the *Annals of the Imperial Natural History Museum of Vienna*, 1892.³

It is not altogether surprising that the Austrian curators should have felt a little sore that the real history of so valuable a relic should have been forgotten, although the specimen was duly taken care of, and that its whereabouts and unique value should have been made known by a foreign visitor and Mexicanist scholar. But that is no reason why Mrs. Zelia Nuttall's critical and searching investigations on "ancient Mexican shields" in general, and the Ambras shield in particular, should be misrepresented and misquoted. Any one reading Mrs. Nuttall's original memoir, and Dr. Heger's more recent article, cannot help seeing such to be the case. For instance, Dr. Heger curtly states, "According to Z. Nuttall the mon-

1. See "Ancient Mexican Heraldry," by Agnes Crane. *Science*, Vol. XX., No. 503, Sept., 1892.

2. "Standard or Head-dress," by Zelia Nuttall, Peabody Museum Papers. Vol. I., No. 1, 1888.

3. *Alt mexikanische Reliquien aus dem Schlosse Ambras in Tirol*.

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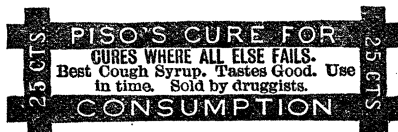
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ster on the shield represents the fabulous Ahuizotl, or water animal," whereas, while duly considering the possibilities of such identification, Mrs. Zelia Nuttall stated, in conclusion, "that she was prevented from upholding it," and drew attention to the resemblance between the outlines of the Ambras "monster" and those of the coyote or prairie wolf, as depicted in the Codex Mendoza to express ikonometrically the name of the Pueblo *Coyohuacan*—place of wolves. Dr. Edward Seler subsequently endorsed Mrs. Nuttall's identification of the Ambras monster as a coyote or prairie wolf.

Dr. Heger, however, declines to recognize the device as representing a wolf, and declares it to be a bear from "its fangs, claws and shaggy coat,"—characteristics, by the way, also common to the wolf. He admits that "the tail is rather long for a bear," but adduces, in support of his hypothesis, the fact that bushy tails are possessed by the smaller species of bears, and proceeds to evolve from his inner consciousness a Mexican species of small, long-tailed bear, unknown alike to ancient Mexican pictographers and more prosaic but exact modern zoölogists. Such authorities as Wallace⁴ and W. H. Flower⁵ state that only one species of bear, *Ursus ornatus*, is known to occur in the Neotropical region, which includes the American continent from the northern limits of Mexico to Patagonia, and that species is the spectacled bear, restricted to the Chilean sub-region.

Is it possible that Dr. Heger confused the *true bears*

(Ursidæ) with the raccoons (Procyonidæ) familiarly known in Germany as "Waschbären," from their singular habit of washing their food. These, however, are not bears but small *bear-like* animals with long tails, commonly annulated. These raccoons do occur in Mexico, but they are characterized by "turn up" noses, which give them a mild and inquisitive appearance, differing widely from the wolverine aspect of the Ambras "monster," which looks as much like a wolf rampant with protruded claws as heraldic designs with that intent in general. The feet of the coyote or prairie wolf are more correctly indicated in the pictograph of the coyote from the Mendoza codex. The bears are flat-footed and cannot retract their claws, which form the only ursine feature of the Ambras monster.

Dr. Heger's fallacies, misquotations and self-contradictions are amusingly exposed by Mrs. Zelia Nuttall, in the current number of the *Internationales Archiv für Ethnographie*, Part 6, 1893. To use a familiar metaphor, it will be seen that the lady has left neither Dr. Heger nor his hypothetical, long, bushy-tailed, small Mexican bear a leg to stand upon. *Far-similes* of both the Ambras shield and the feather head-dress of the time of Montezuma are exhibited in the Ethnological Department of the Chicago Exposition. We believe Mrs. Nuttall is about to enter on the official duties connected with her appointment as "Judge of ethnological exhibits in the Women's Department," to which she has been recently nominated.

AGNES CRANE.

⁴ "Geographical Distribution of Animals," Vol. II., p. 201.

⁵ "Mammals Living and Extinct," p. 565.

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