

## ACTINOMYCOSIS IN A FOSSIL RHINOCEROS

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The transmission of the ray fungus, *Actinomyces*, through grass, straw, chaff, the beards of wheat to cattle and the ensuing pathology of the oral region, the lungs and other parts of the body are well known, and there are several excellent reviews of these matters. While cattle are most susceptible, as seen in the numerous cases of "lump-jaw" and other actinomycotic infections, yet the fungus is known to cause a similar pathology in man, the horse, elephant, dog, pig and other mammals. So far as I am aware no infection of the rhinoceros has been reported, so the presently described case is the more interesting.

Mr. Harold J. Cook, of Agate, Nebraska, has recently loaned me for study the jaw of a fossil rhinoceros, *Aphelops*, from the Snake Creek Beds, Pliocene, of the northwestern part of Nebraska. Matthew and Cook have reported on this fauna, which is represented by abundant though fragmentary remains. The present specimen consists of all the right mandibular ramus and a portion of the left, which is diseased. The pathologic area has all the appearances of an *actinomycotic osteitis*, and while one must use due caution in diagnosing fossil lesions, yet the present case is remarkably similar, in all its appearances, to modern examples of "lump-jaw."

The preserved portion of the lesion involves the alveolus of the left large incisor tooth and is, apparently, the oldest and so far the only fossil neoplasm of a definite actinomycotic nature. Some years ago I suggested that a swelling in the jaw of a fossil horse, *Meryohippus campestris*, might be due to actinomycosis in its early stages, yet there was no definite indication of the nature of the infection externally. The value of the specimen as a type fossil forbade dissection. This leaves the fossil rhinoceros jaw as the most suggestive case yet seen among fossil vertebrates.

Direct comparison of the fossil lesions with a modern example of "lump-jaw" reveals a number of similarities. In the fossil neoplasm, most of which unfortunately is lost, the exterior is relatively firm, while the interior of the tumor-mass is mealy in appearance with numerous necrotic sinuses. The sinuses channel out to the surface of the jaw and one had formed into the alveolus. Apparently near the center of the mass nearly all traces of osseous structure was lost, due to the destructive activity of the ray fungus. There is no indication of healing and doubtless the infection was active at the time of death of the animal, suggesting that the infection, then as now, was of long duration.

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