

UNIVERSITY OF CALIFORNIA PUBLICATIONS

BULLETIN
OF THE
DEPARTMENT OF GEOLOGY

VOLUME 3

ANDREW C. LAWSON, *Editor*



BERKELEY
THE UNIVERSITY PRESS
1902-1904

TWO NEW SPECIES OF FOSSIL TURTLES
FROM OREGON.

BY

O. P. HAY.

The testudinate remains here described were collected by parties under the charge of Dr. John C. Merriam during the years 1899 and 1900, in the course of geological explorations in the John Day basin of Oregon. The materials are quite fragmentary, and there is some question regarding the horizon from which some of them were derived. Nevertheless, it seems to the writer that the bones afford characters which will enable future investigators, obtaining haply better materials, to identify their finds. Of the remains sent me there are four lots, with numbers indicating localities where collected and their place in the record of the museum of the University of California, as follows:

Museum No. 2219, locality No. 909, Rattlesnake beds, Rattlesnake Creek.

Museum Nos. 2179, 2180, locality No. 815, Mascall or Rattlesnake beds, Rattlesnake Creek.

Museum No. 552, locality No. 887, Mascall or Rattlesnake beds, Rattlesnake Creek.

Museum No. 2192, locality No. 896, Mascall beds, Beaver Creek, near Crooked River.

The lots about which there is doubt are those bearing the museum numbers 552, 2179, and 2180. The nature of the doubt is explained in the following extract from Dr. Merriam's report on the geology of the John Day basin (Univ. Cal. Bull. Dept. of Geol., ii, p. 311, 1901):

"The Rattlesnake gravels contain many vertebrate remains, most of which have hitherto been listed with the Mascall fauna. The Rattlesnake fossils, when weathered out, are frequently to be found resting upon the Mascall beds below, and as most of the material from both Rattlesnake and Mascall is found detached from the matrix, the difficulties in the way of separating the faunas are considerable."

The bones sent me are hard and thoroughly fossilized, and the color and the character of the fossilization appears to be identical in the two cases. For reasons given below I regard provisionally the questionable materials as having been derived from the Rattlesnake beds.

According to Dr. Merriam's report, the the Mascall beds belong to the upper Miocene, the Rattlesnake deposits to the Pliocene.

CLEMMYS HESPERIA sp. nov.

I take as the type of this species the bone bearing the number 2219 of the Palæontological Department of the University of California. This is the left hyoplastron, having the outer

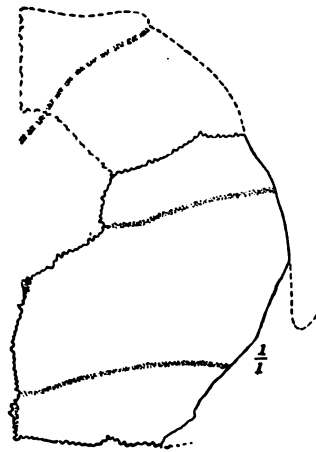


FIGURE 1.

posterior portion, which enters into the bridge, missing. Figure 1 represents it the natural size and as viewed from below. The sutural edges are present which met the hyoplastron of the opposite side, the postero-lateral border of the entoplastron, the hinder extremity of the epiplastron, and the front of the hypoplastron. As will be observed, the humero-pectoral sulcus, represented by a dotted band, crosses the entoplastron, while the pectoro-abdominal sulcus is well back on the hyoplastron. The structure of these parts is identical with that of the genus *Clemmys*, represented to-day on the Pacific Coast by *Clemmys marmorata*. The free border of the bone between the humeral buttress and the epi-hyo-plastral suture is acute.

The bone thickens until it reaches a thickness of 7 mm. where the suture just named meets the entoplastron. At the inner posterior angle the bone is only 3 mm. thick.

In lot No. 2179 there is a portion of a left hyoplastron which lacks the free border, but which in the portions represented is identical with the specimen above described. I regard it, therefore, as belonging to the same species and to the same formation. In this lot are included also a portion of the right epiplastron (Fig. 2), the first right peripheral bone (Fig. 3), a right peripheral, apparently the eighth or ninth, and some other fragments. The epiplastron has the border which joined its fellow of the other side missing, so that it is impossible to determine accurately the width of the anterior lip of the plastron. However, this bone has been used in making the restoration of the front of the plastron, as seen in figure 1. Figure 2 shows this bone as seen from below. It resembles closely the same bone in *C. guttata*, except that its upper side was not so deeply excavated as in the latter species. According to the restoration the lip had a breadth of about 34 mm.

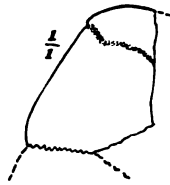


FIGURE 2.

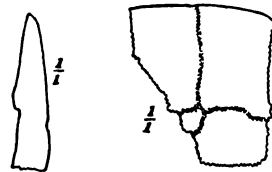


FIGURE 3.

The free borders of the epiplastron are subacute. Seen from the side, this border runs forward to the gulo-humeral sulcus and then turns rather abruptly downward, forward and inward. From the acute edge the bone thickens rapidly, until a thickness of 7 mm. is attained. The gulo-humeral sulcus has probably continued backward on the entoplastron.

A piece of the thickened border of the xiphiplastron of this specimen is present. It extends from the junction with the hyoplastron to just behind the femoro-anal sulcus. Most of the free edge is broken away, but enough remains to show that it was acute. It thickens gradually until, at the inner border of

the surface above which was covered with horny skin, the thickness is 6 mm. The femoro-anal sulcus comes to the free edge 19 mm. behind the anterior end of the bone.

Figure 3 presents a view of the first right peripheral both from above and from the right-hand edge, which joined the second peripheral. The left-hand border joined the nuchal. The first peripheral resembles closely that of *C. guttata*. It will be observed that the outer anterior angle of the first vertebral scute extends outward on the bone here described and comes into contact with the second marginal scute. We have the same arrangement here that we find in *C. leprosa*, as shown by figure 30, page 102, of Boulenger's Catalogue of Chelonians. This indicates that the first vertebral scute was broader than it is in *C. guttata*. The peripheral mentioned above, probably the ninth of the right side, resembles somewhat that represented by figure 4; but it is shorter antero-posteriorly and higher, the fore and aft dimension being 15 mm., the height 19 mm. The longitudinal

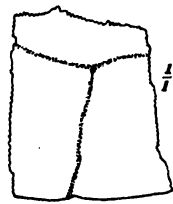


FIGURE 4.

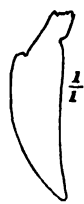


FIGURE 5.

dinal sulcus runs closer to the upper border than in figure 4. The figure just referred to presents a view of the left ninth peripheral of an individual somewhat larger than the one just described. It is part of a lot numbered 552. Figure 4 shows the upper surface and the anterior end of the bone. Accompanying this bone there is the hinder outer angle of the hypoplastron, extending from the suture with the xiphiplastron to the inguinal buttress. A view of a section of the bone near the xiphiplastral surface is shown in figure 5. It is of course possible that this lot was derived from the Mascall beds and do not belong to this species.

From a comparison of the bones above described with the corresponding parts of *C. guttata* it appears that the carapace of *C. hesperia* attained a length of five or six inches. Unfortunately, I have not been able to compare the fossil species with *C. marmorata* of the Pacific Coast.

From the Rattlesnake beds, Rattlesnake Creek, Oregon.

CLEMMYS SAXEA sp. nov.

This species is founded on rather meagre materials, being represented by two bones, the pygal marginal, and a posterior peripheral. These bear the number 2192 of the museum of the University of California. They were collected from the Mascall beds, on Beaver Creek, near Crooked River, Oregon.

The marginal pygal, taken as the type of the species, is represented by figure 6. This presents a view of the bone seen

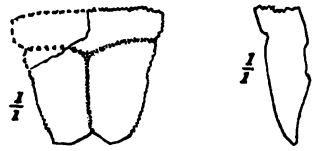


FIGURE 6.

from above and also as seen from the sutural edge; and therefore both the size and the thickness of the bone are indicated. It has an antero-posterior length of 18 mm. and a width of 22 mm. at

the anterior end and of about 10 mm. at the posterior end. The greatest thickness is 6 mm. On the superior surface the bone is convex; on the inferior surface it is concave. The sulci bounding the dermal shields are deeply impressed. The one between the last vertebral scute and the supracaudal scute lies well down on the bone, as in *C. guttata*. In *C. leprosa*, according to Dr. Boulenger's figure, this sulcus lies on the penultimate pygal bone. This bone is of rather peculiar form and will doubtless be easily recognized when additional materials have been discovered.

The peripheral accompanying this pygal, the tenth of the left side, resembles the one represented by figure 4, but is smaller, and the horizontal sulcus has evidently run very close to the upper border, as it does in the corresponding bone of *C. leprosa*. Near the hinder end of the upper edge of the bone is a deep pit for the end of a rib.