

## TWO NEW CRABS FROM THE EOCENE OF TEXAS

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The species here described come from the same general region in Texas. The Raninid was taken in a core drill, Lane No. 1, depth 260 feet, by the Marland Oil Co., a part of the Thomas Jordan Survey of land in Navarro County. The Lane farm is located about 4 miles north of Kerens and 8 or 10 miles west-southwest of Tool in Henderson County. Until now the genus *Notosceles* was known from only one species, a Recent one.

The Xanthid was collected by John E. Adams, Bureau of Economic Geology, Austin, Tex., in the bed of Little Brazos Creek, Brazos County, on both sides of the old Bryan and Brazos Valley Railroad bridge.

The type-specimens are in the United States National Museum.

### Family RANINIDAE

#### Genus NOTOSCELES Bourne

*Notosceles* BOURNE, Journ. Linn. Soc., Zool., London, vol. 35, 1922, p. 73; type, *N. chinmonis* Bourne, a Recent species from the Sulu Sea.

#### NOTOSCELES BOURNEI, new species

#### Plate 1

*Raninoïdes* sp. RATHBUN, in Hull, Bull. Amer. Assoc. Petroleum Geologists, vol. 9, No. 1, 1925, p. 169.

Carapace (pl. 1, fig. 4) about two-thirds as wide as long, widest at the middle of its length, lateral spine in front of middle of antero-lateral margin. Surface minutely punctate, punctae close together; except on the frontal and orbital regions where the surface is densely and roughly granulate. The granulation begins just in front of the base of the lateral spine and at the end of a curved (convex forward) ridge which passes obliquely forward to a point just behind the inner of the orbital fissures and then transversely behind the front;

the surface of the ridge as well as the space anterior to it is granulate. Front with a sharp well advanced median tooth with a small tooth on either side; outline obscure but the accessory tooth points obliquely outward. Orbital slits deep and open, the inner sinus longer than the outer, its outer margin exceeding the inner margin, while the reverse is true of the outer sinus; margin between the sinuses oblique and nearly straight. Outer orbital tooth broad, tipped by a long, but thick and slightly curved spine, convex outside. The antero-lateral spine of the carapace is similar to the orbital spine but longer; it also is curved but directed very slightly outward, but not so far as the line of the widest part of the carapace. The postero-lateral margin is slightly sinuous and marked by a raised line formed by a single row of close granules; it rounds into the truncate posterior margin. Length of carapace 12.6, width 8 mm. The above description is made from a small specimen imbedded in a cross section in such a way that only the dorsal surface of the carapace is exposed. Cat. No. 369608, U.S.N.M.

Fortunately another specimen showing sternal as well as dorsal surface was taken previously from the Midway, basal Eocene, near Kerens, Navarro County; it was submitted to Dr. W. L. Stephenson by D. W. Ohern, Borealis Oil Co., Oklahoma City. This specimen lacks the frontal and orbital regions; it measures 25.6 mm. in length up to the anterior base of the lateral spine; approximate width 22 mm., estimated length 34.6 mm. Carapace (pl. 1, fig 1) very convex from side to side, high in the middle where it forms a broad smooth ridge; either side of it on the posterior half of the carapace there is a shallow depression; at the widest part of the carapace on the left side (the right side is broken away) there is a large round smooth boss. I am not sure that this is natural to the crab as it looks much like a swelling due to parasitism.

*Additional occurrence.*—Two specimens were taken in the Midway of southwestern Arkansas at Buzzard Bluff, sec. 16, T. 14 S., R 26 W., Miller County, by J. P. D. Hull, and were returned to him.

*Comparison with type-species.*—So far as the carapace and sternum (pl. 1, fig. 2) are concerned this species agrees in all essentials with the Recent or type-species of the genus. The postero-lateral margins converge more rapidly and the posterior margin is correspondingly shorter than in *N. chimmonis*. The lobe at the middle of the supra-orbital margin is subquadrate instead of triangular.

## Family XANTHIDAE

## Genus HARPACTOCARCINUS A. Milne Edwards

*Harpactocarcinus* A. MILNE EDWARDS, Ann. Sci. Nat., Zool., ser. 4, vol. 18, 1862, pp. 46 and 64; type, *H. punctulatus* (Desmarest) from the Eocene of Priabona.

## HARPACTOCARCINUS AMERICANUS, new species

## Plates 2 and 3

The specimens were obtained chiefly from the interior of concretions, but the material was so friable that the fossils broke into many pieces. One female and one male were in a layer 10 feet below the concretions; they are used as holotype and paratype.

*Diagnosis.*—Lateral teeth behind the orbit five, very small. Surface of carapace uneven in posterior two-thirds. Chelipeds similar and of moderate size in the female, unequal in male, the major one of enormous size, the fingers greatly elongate.

*Description.*—Carapace of female holotype (pl. 2, fig. 3) very little broader than long; chord of antero-lateral margin nearly as long as postero-lateral margin, and amply rounded; postero-lateral margin slightly sinuous, nearly straight. Surface very convex, more so from front to back than from side to side; punctate and very finely granulate. From either side of the widest part of the mesogastric region a broad, nearly longitudinal furrow runs back to the intestinal region stopping short of the posterior margin. A large but low swelling occupies the inner angle of the branchial region, and a larger but less well defined one adjoins it in an antero-lateral direction. From the lateral tooth a very blunt ridge runs backward and inward and upward on to the dorsal surface. At the end of this ridge and a little above and within the postero-lateral margin there is a round shallow depression. The postero-lateral margin is very thick and not clearly defined, the antero-lateral is thin but blunt and furnished with five small teeth behind the orbit; their tips are for the most part broken off; the anterior or first tooth is very slight, scarcely a tooth but a very oblique angle in the margin; the other teeth appear to be normal to the margin, the second one very small, the third and fourth larger and perhaps subequal, the fifth probably considerably larger, judging from a section of the base. The intervening sinuses are unequal and in the order of their length on the left side are 1.3.2.4.5, the first sinus longest, the fifth shortest. On the right side the first tooth is nearer the orbit. The upper margin of the orbit is approximately a semi-circle viewed from above, the outer angle narrow and well advanced; at the lower inner angle there is a strong, conical, subacute tooth, more advanced than the outer tooth.



The under side of the carapace (pl. 2, fig. 4) is more coarsely granulate than the upper, the granules more distant; on the margins and along the pterygostomian ridge the granulation is fine and close. The remains of the buccal cavity and the outer maxillipeds indicate the following: The buccal cavity widens forward, its anterior margin sinuous. The exognath and endognath of the maxillipeds are wide, the exognath widest at the middle; endognath obliquely placed, ischium widening distally, merus obliquely placed, its anterior margin fitting against the arch of the buccal margin. On the sternum at the base of the cheliped and either side of the proximal end of the terminal segment of the female abdomen there is a large tubercle obliquely compressed. The first five segments of the mature abdomen are short, the sixth is nearly twice as long as the fifth, measured at the middle, and is longer at the sides, the distal margin being a broken line; terminal segment not quite so long. Surface coarsely and unevenly punctate. Length of carapace approximately (front margin broken off) 35 millimeters; width to base of lateral tooth, 44.6; fronto-orbital width, 23 millimeters. Cat. No. 369607, U.S.N.M.

A pair of loose chelae, one with fingers (pl. 2, figs. 1 and 2), may belong to the holotype as they have the same rusty coloration and gloss. Left palm about two-thirds as high as right. A large tubercle opposite the digital sinus and an oblique line of three tubercles on the proximal half; the upper and middle tubercles are elongate and similar, the middle one shorter; the lowest one is conical; a lobe on inferior margin at proximal end. Upper margin incomplete in both palms but having three large tubercles, while the hinder portion in the smaller palm is produced in a lamina bearing three smaller tubercles (fig. 2, *3t*). An outer margin of the upper surface shows a few low swellings. The inner surface (pl. 2, fig. 2) has through the middle a short longitudinal line of granules, three on the larger palm, four on the smaller. Fingers of the larger chela similar, short, triangular in side view; prehensile edge largely occupied by two huge, low molariform teeth or tubercles.

Paratype *a*: One concretion yielded not only the body of a crab but a manus. The front between the eyes is fairly well shown (pl. 2, fig. 6); the median teeth are separated by a very shallow sinus and are only slightly in advance of the lateral pair.

Paratype *b* (pl. 2, fig. 5) shows the position of the outer maxillipeds and the basal antennal article (*a*).

*Males*.—Paratype *c*: The male (pl. 3, figs. 1 and 2) which was found outside a concretion is much larger than any of the females; carapace about 72 millimeters wide, but so damaged that few characters are discernible. One lateral tooth (perhaps the third) remains (pl. 3, fig. 2*t*); it is strong, conical, obliquely upturned; the inter-

mediate marginal granules are of important size, almost tubercles. The surface is more even than in the smaller females. The right cheliped is present and the stumps of three ambulatory legs (pl. 3, fig. 1). Cheliped massive, its chela as long as the carapace is wide. Surface of carpus and chela coarsely granulate. Carpus (pl. 3, fig. 2) a little longer than wide; on the upper side a shallow groove runs parallel to the distal margin. Chela strongly curved both crosswise and lengthwise following the conformation of the lower surface of the body. Palm (pl. 3, fig. 1) increasing rapidly in height from the proximal to the distal end, but not attaining a height equal to its length. The outer surface is bent strongly over horizontally to form an upper surface (pl. 3, fig. 2); the lower margin is very concave, accented by the strongly deflexed finger. Outer surface (pl. 3, fig. 1) with a high conical swelling (*s*) opposite the interdigital sinus and further back from the margin than in the female; of the three proximal tubercles only the uppermost (*r*) is preserved, a short longitudinal ridge highest at its middle and sloping down to either end. Upper surface of palm (pl. 3, fig. 2) oblique and convex in both directions except at the distal end, where there is a depression; its inner margin is marked by a row of four large tubercles on the proximal half and a suggestion of two others on the distal half; its outer margin has near the middle three or four small and very low tubercles. Fingers very broad at the base where they meet when closed, but rapidly tapering to long, narrow, thick fingers, broad-oval in cross section, with subacute tips. Each finger (pl. 3, fig. 1) has at base on the occludent margin a large conical tooth or tubercle, the dactylar tooth folding within or proximal to the propodal tooth. Near the middle of the dactylus is a similar though smaller tooth; extremity of immovable finger unknown. The stump of the merus of the left cheliped suggests that the latter was much smaller than the right cheliped. The merus of the ambulatory legs is long and narrow, the cross section narrow-oval.

Paratype *d*: Distal half of dactylus of a larger male chela than any preserved showing a part of the large tooth at middle (pl. 3, fig. 5*t*). Paratype *e*: A much worn left palm of medium size with stumps of fingers. The remoteness of the large tubercle from the fingers indicates a male. Paratype *f*: A piece of a left cheliped comprising merus and carpus (pl. 3, fig. 3); the former is short and stout, not quite so high as long, its margins bluntly rounded except at the proximal end of the lower outer margin, which is drawn to a thin, sharp edge (*t*). The subtriangular outer surface of the carpus ends proximally in a projecting point (*p*). Sex indeterminable.

*H. americanus*, the first species of the genus to be described from the American continent, resembles several European species. In its

few and small lateral teeth it is like *H. quadrilobatus* (Desmarest),<sup>1</sup> and *H. souverbiei* (A. Milne Edwards);<sup>2</sup> in the shape of the major chela of the male it resembles *H. macrodactylus* (Milne Edwards);<sup>3</sup> while the astonishing sexual dissimilarity and inequality of the chelipeds is paralleled by *H. punctulatus* (Desmarest), which is described at length from abundant material by A. Milne Edwards.<sup>4</sup> The chelae of the female are of the same type as those of *Zanthopsis leachii* (Desmarest)<sup>5</sup> and have similar ornamentation. The carapace of *H. americanus*, however, though uneven is not lumpy as it is in even the smoothest of the *Zanthopsis* species.

#### EXPLANATION OF PLATES

##### PLATE 1

##### *Notosceles bournei*

- FIGS. 1-3. Paratype, near Kerens, Navarro County, dorsal view,  $\times 1\frac{1}{2}$ .  
 1. Dorsal view. 2. Ventral view. 3. Left profile, ventral side uppermost.  
 4. Holotype, 4 miles N. of Kerens, dorsal view,  $\times 10$ .

##### PLATE 2

##### *Harpactocarcinus americanus*

- FIGS. 1 and 2. Chelae, supposedly of holotype,  $\times 1\frac{1}{2}$ . 1. Outer view. 2. Inner view; *3t*, 3 tubercles on lamina.  
 3 and 4. Holotype, ♀,  $\times 1\frac{1}{2}$ . 3. Dorsal view. 4. Ventral view.  
 5. Paratype *b*, ventral view,  $\times 2$ ; *a*, basal article of antenna.  
 6. Paratype *a*, ♀, fronto-dorsal view,  $\times 2$ .

##### PLATE 3

##### *Harpactocarcinus americanus*

- FIGS. 1 and 2. Paratype *c*, ♂,  $\times 1\frac{1}{2}$ . 1. Ventral view; *e*, end of movable finger; *r*, uppermost of 3 proximal tubercles on palm; *s*, conical swelling opposite interdigital sinus. 2. Dorso-frontal view; *t*, sole antero-lateral tooth; *r* and *s*, as above.  
 3. Paratype *f*, merus and carpus of left cheliped, upper-outer view,  $\times 1\frac{1}{2}$ ; *p*, posterior angle of carpus; *t*, thin proximal-outer edge of merus.  
 4. Merus of a left ambulatory leg, outer view,  $\times 2$ .  
 5. Paratype *d*, left dactylus of ♂, outer view,  $\times 1\frac{1}{2}$ ; *t*, tooth at middle.

<sup>1</sup> A. Milne Edwards, Ann. Sci. Nat., Zool., ser. 4, vol. 18, 1862, pl. 4, fig. 1.

<sup>2</sup> Idem, pl. 6, fig. 3.

<sup>3</sup> Idem, pl. 10, fig. 1a.

<sup>4</sup> Idem, pp. 68-70, pl. 8, figs. 1, 1a; pl. 9, figs. 1, 1a.

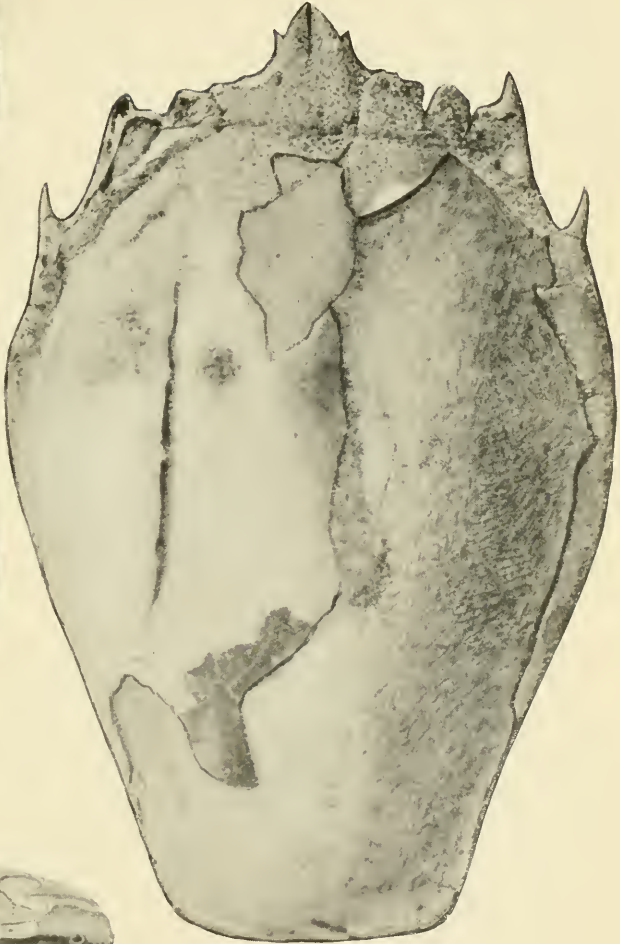
<sup>5</sup> Bell, Monograph Foss. Malac. Crust. Great Britain, pt. 1, 1857 (publ. 1858), pl. 1, fig. 3.



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3

NOTOSCELES BOURNEI FROM THE EOCENE OF TEXAS

FOR EXPLANATION OF PLATE SEE PAGE 6

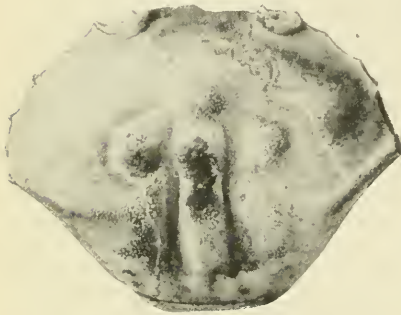




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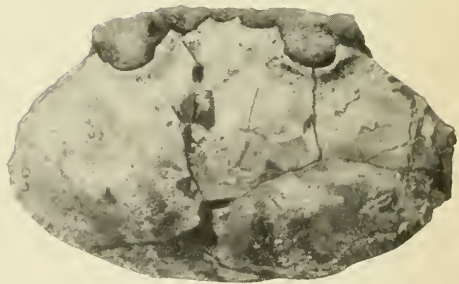
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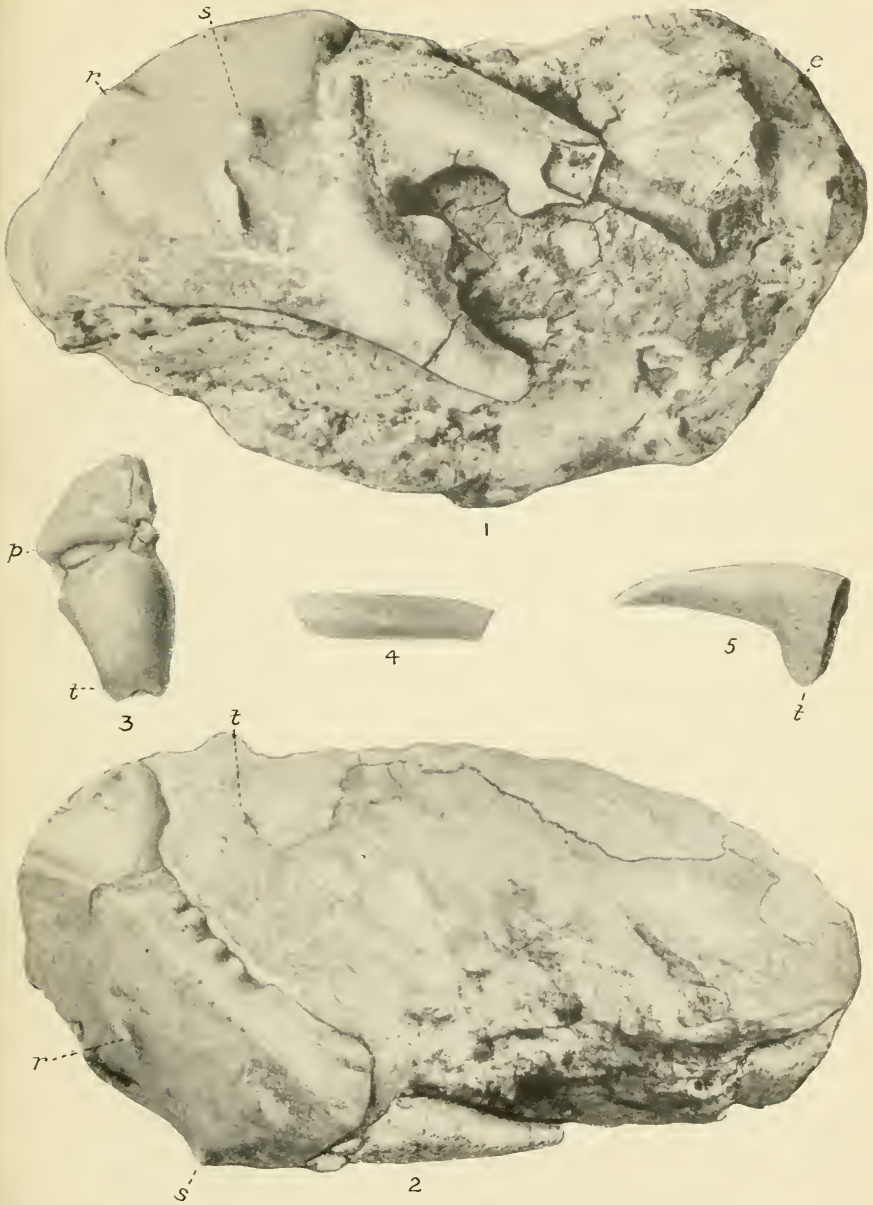


6

HARPACTOCARCINUS AMERICANUS FROM THE EOCENE OF TEXAS

FOR EXPLANATION OF PLATE SEE PAGE 6





HARPACTOCARCINUS AMERICANUS FROM THE EOCENE OF TEXAS

FOR EXPLANATION OF PLATE SEE PAGE 6

