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The crustaceans obtained were few, only 7 specimens, representing 3 species. Each species comes from a different horizon, the earliest one from the upper part (Snow Hill calcareous member) of the Black Creek formation, the later ones from the Peedee formation[1].

The oldest species is from the Black River near Ivanhoe, 56⅞ miles above Wilmington. It seems to belong to the extinct family Glypheidae, probably to the genus *Glyphea* (Jurassic and Cretaceous), which has been noted in North America only once before, at Nanaimo, Vancouver Island, by J. F. Whiteaves[2].

The second oldest species is a crab of large size, found near Hudlers Landing, on Cape Fear River, 30½ miles above Wilmington, for which a new genus has to be formed in the Family Atelecyclidae, which, like the Family Cancridae, has the outer maxillipeds so elongate as to project beyond the buccal cavity and overlap or conceal the epistome. Other large representatives of the Atelecyclidae occur today in the horse-crabs of the northern part of the north Pacific Ocean and in Bering Sea.

Of the most recent date in the Stephenson collection is an Astacoid shrimp which on account of its fragmentary condition I refer doubtfully to the genus *Eryma*. It is from the Neuse River, 34⅔ miles above New Bern. Numerous species of *Eryma* have been described from Europe, but only one from America, *E. dawsoni* Woodward[3], from the Upper Cretaceous of British Columbia.

Tribe BRACHYURA

Superfamily BRACHYRHYNCHA

Family ATELECYCLIDAE

Genus AVITELMESSUS [4] n. gen.

Carapace orbicular-oblong; fronto-orbital distance great; front very narrow; orbits wide, divided into 2 distinct fossae. Maxillipeds

[1]For the relative positions of the different horizons, see Stephenson, this volume, table facing p. 38. Localities Nos. 5363, 3452 and 4137 are those at which crustaceans were collected.

[2]Mesozoic Fossils. Vol. 1, part 5. Geol. Survey of Canada, p. 323, 1903.

[3]Geol. Mag., n. s., dec. 4, vol. 7, London, p. 400, pl. 16, fig. 2, 1900.

[4]*Avus*, an ancestor; *Telmessus*, a genus of Recent crabs.

elongate, especially the ischium, exceeding the buccal cavity and almost as advanced as the front; exognath of good width. Chelipeds massive, of moderate length; fingers elongate. Ambulatory legs long and broad. Sternum broad. Male abdomen covering the space between the coxae of the feet of the last pair.

Avitelmessus grapsoideus n. sp.

Plate 101; Plate 102, fig. 4.

Type-locality.—Near Hudlers Landing, Cape Fear River, 30½ miles above Wilmington, North Carolina; Peedee formation; Upper Cretaceous period; L. W. Stephenson, collector, No. 3452; Nov. 9, 1905.

Holotype.—Only specimen taken, a large male, showing dorsal aspect. Cat. No. 31895, U.S.N.M.

Measurements.—All the measurements are approximate, especially those of the carapace, which is broken diagonally through the middle and had also been crushed so that it cracked around the circumference, the upper half being crowded downward inside the lower half. Length of carapace 97 mm., width 101 mm., width of front 6.2 mm., width between outer angles of orbits 44 mm., distance from rostral tooth to outer tooth of antennal cavity 11.2 mm., distance from latter point to outer angle of orbit 10 mm., greatest length of carpus of left cheliped 30.2 mm., superior length of manus 25 mm., thickness of manus 21.5 mm., length of dactylus 39 mm.

Description.—Carapace thick; upper surface very convex from front to back, moderately convex from side to side; lateral margins arcuate from the orbital angle to the posterior margin, the posterior half of the carapace being almost a semicircle; antero-lateral margin thick, raised, blunt, armed with two stout, distant, suberect spines besides the orbital spine; surface uneven, anterior branchial region depressed, surrounded by a low, circular ridge partly armed with short spines and tubercles; surface sparingly ornamented with flattened granules and a few sharp tubercles. The front, between the antennae, occupies only about one-seventh of the anterior margin measured from the outer angle of one orbit to the outer angle of the other; it is oblong, slightly constricted at middle, inclined downward and with a broad median furrow; on either side its margin terminates anteriorly in a short, stout, blunt-pointed spine, which does not reach to the line of the outer angles of the orbits. The margin between these angles and the front is cut into two sinuses; the inner one is deeper and narrower than the outer; a small spine separates the two and is just as far behind the frontal spines as the latter are behind the outer spines of the orbit;

on the outer edge of the inner sinus there is a large oblong tubercle; on the lower edge of the outer sinus but near its inner limits there is a flat triangular tooth. At the inner side of each inner cavity there is the base of what may be the eyestalk, in which case the eye is elongate; it is possible that this stump represents the base of the antenna or of the antennule.

Chelipeds nearly equal, very stout; surface covered with prominent irregular granules; upper margin of merus armed with spines. Carpus crossed longitudinally (subparallel to outer margin) by a deep furrow; a narrower, shallower furrow runs parallel to and near the antero-external margin; a spine at the inner angle, one erect spine at the distal angle and 4 or 5 others on the inner half of the upper surface. Palm very thick, upper surface squarish, broken by a deep triangular cavity in the inner proximal portion, elsewhere rough with granules and short scattered spines, inner edge armed with 3 conical spines or teeth. The fingers taper gradually, curve inward and meet when closed, their prehensile edges armed with a few large molariform teeth; upper surface of dactylus flattened, with a large conical spine at the proximal end of the middle and bordered on each side with a row of graduated spines or tubercles.

Of the ambulatory legs, the first, second and fourth are present on the right side, the second and third on the left side. They are long, broad and flat, rough with granules and small tubercles; the merus, carpus and propodus have a longitudinal furrow; the merus joints are bordered above and below with a row of spines, which are longer and stronger on the lower margin of the posterior leg; on this leg, also, the distal spine of the upper margin is stronger than on the other legs. The dactyls are not preserved, but a narrow oval rim remaining beyond the propodus of the last leg may represent a cross-section of the dactylus.

Relationships.—The systematic position of this genus could not have been determined from the type specimen alone. Fortunately there is in the National Museum a series of somewhat smaller specimens of the same species in an unworked collection from the Ripley formation of Mississippi, obtained by Dr. T. W. Stanton in 1889. Several of these specimens show the ventral surface and especially the position of the maxillipeds. The distal portion of the merus joints and the entire palps are missing; notwithstanding, the endognath reaches very nearly as far forward as the front; the ischium is roughly twice as long as its width at middle; the exognath is more than half as wide as the endognath. The maxillipeds in fact occupy more space lengthwise and sidewise than in any recent genus of Atelecyclidae.

The orbits are more like those of *Hypopeltarium*[1], and if both cavities are filled by the eyes, these are unusually large, resembling *Telmessus*,[2] and the antennae must spring from below the eyes as in *Hypopeltarium*.

The sternum is wider than in other Atelecyclids, and the male abdomen covers not much more than one-third the width of the sternum at its middle, but the indications are that the third segment of the abdomen does reach between the coxae of the legs of the last pair.

The ambulatory legs resemble those of the Grapsidae, and to this fact the specific name draws attention. The chelipeds have a superficial resemblance to those of *Telmessus* and *Erimacrus*[3].

Telmessus cheiragonus[4] and *Erimacrus isenbeckii*[5] are the only Recent Atelecyclids which rival *Avitelmessus* in size.

Tribe ASTACURA

Genus ERYMA (?) Meyer

Neues Jahrb. f. Mineralogie, 1840, p. 587.

Eryma (?) americana n. sp.

Plate 102, figs. 5-7.

Type-locality.—Neuse River, 34⅔ miles above New Bern, North Carolina; Peedee formation; Cretaceous period; L. W. Stephenson, collector, No. 4137; 3 specimens.

Holotype.—Portion of a chela, half imbedded in the matrix. Cat. No. 31899, U.S.N.M.

Paratypes.—Two specimens, each representing a portion of a carapace. *a*, Cat. No. 31900, U.S.N.M.; *b*, Cat. No 31901, U.S.N.M.

Description.—The material is so fragmentary that the genus can not be told with certainty. The most that can be said is that it is related to the Astacidae. In the type specimen, only a small piece of the manus remains, but the greater part of the two fingers is in place; they are spread wide apart and if shut together would still gape; they are broken across so near their bases that one can not be sure which is the propodal finger and which is the dactylus. The left finger (see fig. 5, pl. 102), which I take to be the immovable one, is rather broad, at its middle a little more than one third of its length, while the other finger (dactylus?), allowing for the outer part, which is

[1]Miers, Challenger Rept., Zool., vol. 17, p. 210, 1886.

[2]White, Ann. Mag. Nat. Hist., vol. 17, p. 497, 1846.

[3]Benedict, Proc. U. S. Nat. Mus., vol. 15, p. 229, 1892.

[4]*Cancer cheiragonus* Tilesius, Mém. Acad. Impér. Sci. St. Pétersbourg, vol. 5, p. 347, pl. 7, fig. 1, 1815.

[5]*Platycorystes* (*Podacanthus*) *isenbeckii* Brandt, Bull. Phys-Math. Acad. Impér. Sci. St. Pétersbourg, vol. 7, p. 180, 1848.

broken away, is narrower, subcylindrical, its width at middle being one-fourth its length. Both fingers are of equal length as they stand, but are incomplete as to the tips. The surface of this specimen is covered with granules irregular in size and prominence, and not touching one another; there are no longitudinal furrows.

The specimens of carapace are much crushed; they are, however, subcylindrical and the surface shows depressed granules similar to those of the chela. The smaller specimen (*a*) is the anterior end of a carapace, with a deep subcircular sinus, presumably of an orbit; below the orbit the anterior margin trends gradually forward and downward to the angle of the carapace; above the orbit, the margin curves still more forward to the point where it is buried in the matrix. There is a deep round pit not far above the lower margin of the carapace and a little further back than the posterior line of the orbit.

The other specimen (*b*) represents a larger part of the carapace of a larger animal, but so broken about the edges that its characters are indefinite. There are four deep round pits in a transverse line well back from the front; also a short, stout, conical tooth on the more advanced part of the margin, which is imbedded in the matrix.

On neither specimen are any sutures visible or any rostral prolongation.

Measurements.—Length of fingers about 9.2 mm., width of chela at base of fingers about 8.2 mm. Length of carapace (*b*) 18.5 mm., greatest diameter 10 mm.

Tribe PALINURA
Superfamily SCYLLARIDEA
Family GLYPHEIDAE
Genus GLYPHEA (?) von Meyer

Neue Gattungen fossiler Krebse aus Gebilden vom Bunten Sandstein bis in die obere Kreide, Stuttgart, 1840, p. 10.

Glyphea (?) carolinensis n. sp.

Plate 102, figs. 1-3.

Type-locality.—Black River, near Ivanhoe, North Carolina, 56⅞ miles above Wilmington; upper part (Snow Hill calcareous member) of Black Creek formation; L. W. Stephenson, collector, No. 5363.

Holotype.—A portion of the right half of a carapace; also an impression of the same, Cat. No. 31897, U.S.N.M.

Paratype.—An oblong fragment from the same locality is known to belong to the same species on account of its very dark brown color and thin outer shell which cracks and curls over along the edges as in the holotype. It has a longitudinal groove on each side and may represent a truncate telson. Two narrow-oblong, detached plates are undetermined. Cat. No. 31898, U.S.N.M.

Description of holotype.—The anterior and posterior margins of the carapace are not shown, and the median line is indistinct, but can be traced by a line of distant spines. The lateral margin so far as visible is oblique, slanting inward anteriorly and nearly straight, interrupted by a broad notch; the margin suggests that of *G. rostrata* (Phillips)[1]. A broad and deep groove (the cervical groove) runs transversely inward from the notch and divides the specimen almost in two; the groove becomes narrower and shallower near the middle; in front of this groove are two ridges parallel to the lateral margin, the distance between the ridges twice as great as from the outer ridge to the margin; outer ridge narrow and sharper than the inner; behind the cervical groove there is a single obliquely longitudinal and curved ridge, more distant from the lateral margin than is the outermost of the anterior ridges. Shallow grooves appear to surround a small area in the middle of the carapace. Length of specimen about 30 mm.

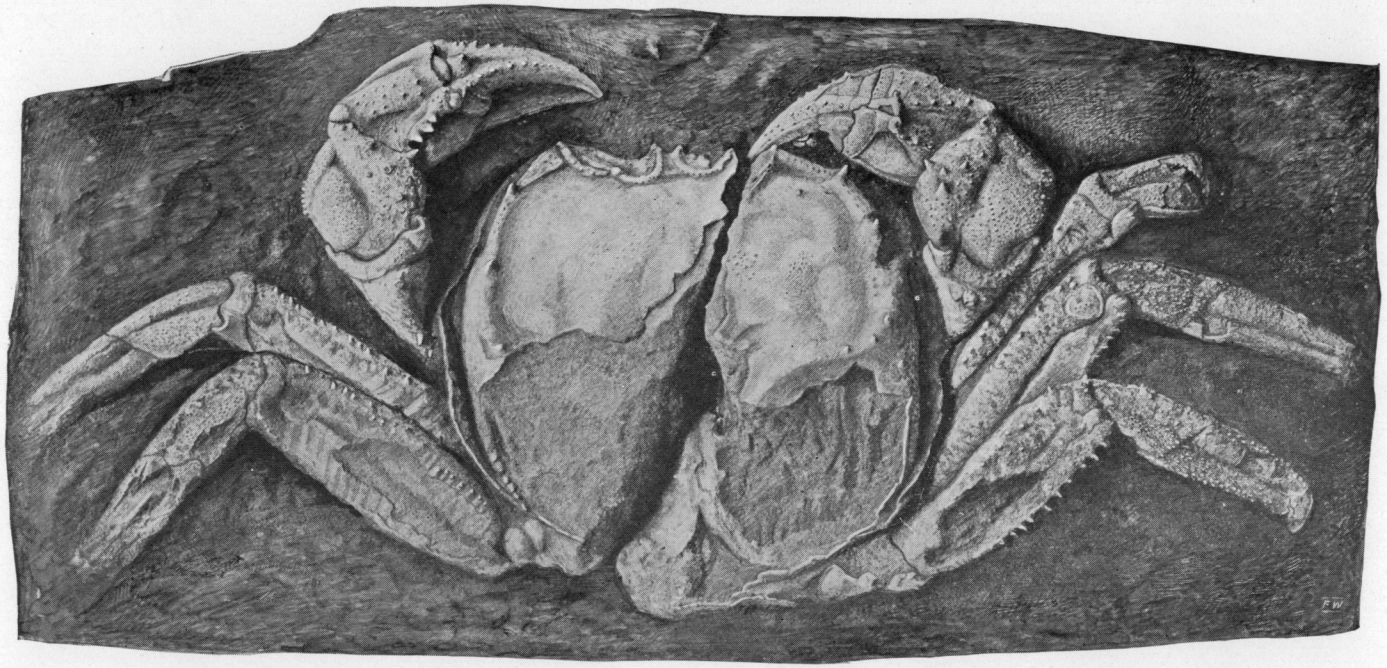
[1]See Woodward, Geol. Mag., vol. 5, London, 1868, pl. 17, fig. 2.

PLATE CI

PLATE CI

Avitelmessus grapsoideus Rathbun (p. 404).

Holotype, ♂, dorsal view. Peedee formation. North Carolina. About $\frac{2}{3}$ natural size.



Photographed by W. O. HAZARD.
Retouched by FRANCES WIESER.

PLATE CII

PLATE CII

Glyphea (?) carolinensis Rathbun (p. 407).

Figures 1-3. Specimens from the Snow Hill calcareous member of the Black Creek formation, North Carolina. Sightly reduced

1. Holotype, portion of carapace.
2. Impression of holotype.
3. Paratype, fragment.

Avitelmessus grapsoideus Rathbun (p. 404).

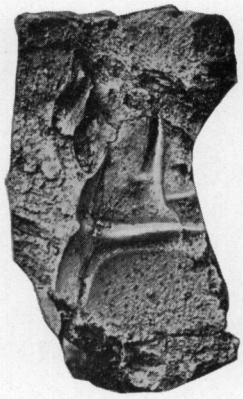
Figure 4. Paratype, ♂, ventral view. Ripley formation, Mississippi. U.S.N.M. cat. No. 31869. Slightly reduced.

Eryma (?) americana Rathbun (p. 406).

Figures 5-6. Specimens from the Peedee formation, North Carolina, x 2½.

5. Holotype, chela.
6. Paratype (*b*), carapace.
7. Paratype (*a*), portion of carapace.

1



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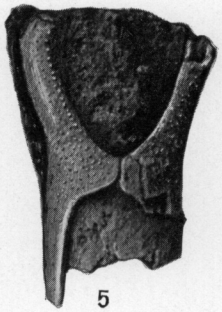

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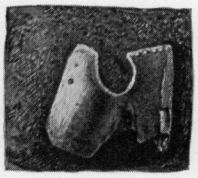

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Photographed by W. O. HAZARD.
Retouched by FRANCES WIESER.