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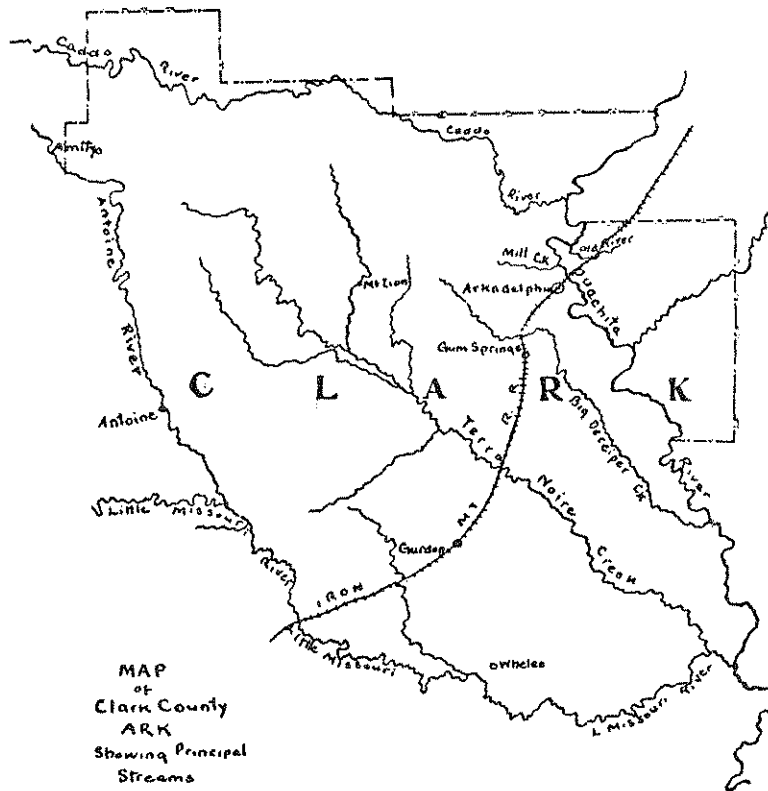
THE MOLLUSCA OF CLARK COUNTY, ARKANSAS.

BY REV. H. E. WHEELER, CONWAY, ARK.

Clark County lies in the south-central portion of the state of Arkansas and has an area of 875 square miles and a population of about 25,000. About one-third of the county—the southeastern section—is of tertiary and quarternary age. The northwestern third of the county forms a part of the southern exposure of a vast carboniferous area in the state which is generally referred to the Mississippian sub-division, and consists of non-coalbearing sandstones and shales lying above the Batesville sandstones. Between these formations lies a wedge-shaped section of cretaceous marls and clays, which form the eastern boundary of these limited rocks in the state. The alluvial lowlands of southeastern Arkansas are developing a prosperous agriculture, cotton and corn being naturally the most prolific crops, but rice is now being successfully cultivated. The county does not extend into the mountainous paleozoic region, and hence cannot boast any elevations of consequence.

The general course of the streams in the county is from northwest to southeast. The Antoine and Little Missouri rivers form the western and southern boundaries of the county, while the Caddo river crosses the county along its northern boundary, emptying into the Ouachita river some five miles above Arkadelphia. The latter river rises in the mountains of Polk County and throughout its tortuous course of several hundred miles is one of the most beautiful watercourses in the entire southwest. It passes through the eastern extension of the county, but con-

stitutes, in part, the natural boundary between the counties of Dallas and Clark. The Terra Noire creek is an intra-county stream flowing in a southeasterly course and dividing the county into two nearly equal parts. Several smaller creeks supply this vigorous stream from either side. Little Deceiver



creek is a small tributary of the Big Deceiver, and the latter creek flows in parallel direction with the Terra Noire, emptying into the Ouachita at the lower end of the county. This whole section, then, is furnished with a most complete drainage system, and the streams in question are not less inviting opportunities for an earnest and patient collector. Practically no

work, however, has been done on the Missouri rivers, while the Caddo is the most unknown to the malacologist. No remuneration to whomsoever.

Although something like a drainage system from Arkansas,¹ and the natural and western Arkansas malacologists, the fauna of the lower courses of all the streams before a satisfactory catalogue has been written, not less than forty years ago.¹

A three year's pastorate in Clark County, gave the writer the opportunity to collect the mussels of Ouachita river and snails as were to be had. H. Clapp the identification is nearly complete, and he has here listed. Dr. A. E. Ort has been very generous in the part of this is the result of Dr. Bryant Walker. My determination of the *Unionid* collection.

The country around Arkadelphia

¹ The richness of the Arkansas species described from this state in Missouri, portions of each being in the *Unionid*, thirty-four species, twenty-three of which are land snails are listed, all of which were collected. Consult: Simpson, "A Preliminary Report on the Mollusks of the State of Missouri," Acad. Scien. St. Louis, Vol. XX. *NAUTILUS*, Vol. XXVIII, p. 12. The fact that the State of Missouri has had efficient conchologists, among them and more recently Professor Utter

² From November 1910 to December

work, however, has been done in the Antoine or Little Missouri rivers, while the Caddo and the upper Ouachita are almost unknown to the malacologist, and promise generous remuneration to whomsoever first will require their secrets.

Although something like fifty species have been described from Arkansas,¹ and the mountainous regions of northern, central and western Arkansas have been often visited by conchologists, the fauna of the low-lands, particularly the *Unionie* fauna, of the lower courses of all rivers, is practically unknown. Before a satisfactory catalogue of the Mollusca of the state can be written, not less than forty counties call for a conchological survey.¹

A three year's pastorate in Arkadelphia,² the capital of Clark County, gave the writer frequent opportunities for collecting the mussels of Ouachita river and such land, and fresh-water snails as were to be had. Through the kindness of Mr. George H. Clapp the identification of the land shells has been made nearly complete, and he has determined all of the rarer forms here listed. Dr. A. E. Ortmann and Mr. L. S. Frierson have been very generous in the help given on the *Unios*, but for the most part this is the result of much patient study on the part of Dr. Bryant Walker. Most of the specimens on which the determination of the *Unionidæ* depended are now in the Walker collection.

The country around Arkadelphia would be quite discouraging

¹ The richness of the Arkansas fauna is well indicated by a comparison of species described from this state and those described from the adjoining state, Missouri, portions of each being included in the Ozarkian uplift. Exclusive of the *Unionidæ*, thirty-four species have been described from Arkansas, twenty-three of which are land snails. From Missouri nine species and varieties are listed, all of which with one exception, are fresh-water forms. Consult: Simpson, "A Preliminary List of the Mollusca of Missouri," Proc. Acad. Scien. St. Louis, Vol. XXII, No. 8, p. 68, and Pilsbry's Note in the NAUTILUS, Vol. XXVIII, p. 12. This is especially significant in view of the fact that the State of Missouri has been favored with the residence of faithful and efficient conchologists, among whom may be mentioned Mr. Sampson, and more recently Professor Utterback.

² From November 1910 to December 1913.

ary between the counties of
to creek is an intra-county
course and dividing the
ts. Several smaller creeks
ther side. Little Decoiper

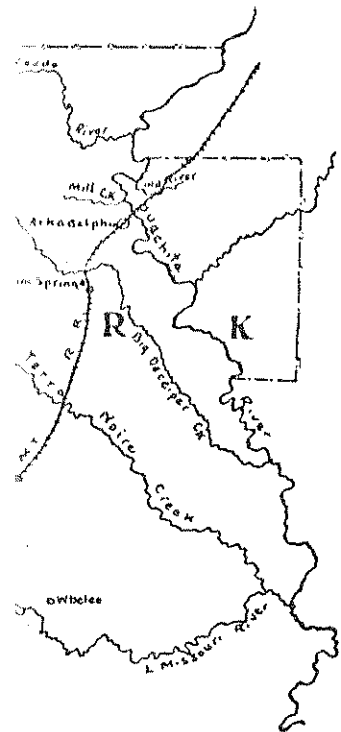


Fig Decoiper, and the latter
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t collector. Practically no

to a casual collector. The swamps and "cray-fish land" offer little attraction to ambitious snails, and even the hill country has not yet organized a molluscan colonization bureau. In the cretaceous limestones of the central area the conditions are a little more promising. The entire portion of the County lying east of the Ouachita river is typical tertiary soil, but there are no exposures of strata in these lowlands, and fossils are to be secured only from occasional well borings.

Since there are many creeks and bayous the collector would expect a few colonies of *Sphaeriidae*, or at least a larger list of the *Lymnaeidae*. As will be seen, however, the *Unios* fully make up for any disappointment on this score. Not only are there many species and varieties, but specimens in finer condition could not be desired. The mussel beds of the Ouachita river, while worked to some extent for pearls, have not been found profitable, and button factories are too far away to make the exportation of shells for commercial purposes practicable. From the mouth of the Caddo river (five miles above Arkadelphia), the Ouachita abounds in mussel "beds" throughout the rest of its course, and the accessible and prolific breeding "bars" are less disturbed than is usually found in the experience of the uniologist. Arkadelphia was at one time the head of navigation, but steamers now seldom ascend the river above Camden.

"Old River," the type locality of the genus *Arkansia*, is really an "ox-bow" lake, a former channel of the Ouachita, and it is still connected with it by a small creek which does not appear to dry up in summer. Its mouth is about two miles north of Arkadelphia on the left bank, almost lost in a rather dense and difficultly passable swamp. Here, and for a mile or more up stream, Old River is deep and rather wide, with a very sluggish current. In this habitat are found very large specimens of *Anodonta suborbiculata* Say, which are of great beauty, and the largest specimens of *Arkansia wheeleri* Walker and Ortmann. One of the latter measured 109.25 by 87 by 58 mm. In the summer "Half-Moon Lake," the upper channel of Old River, is set off by the subsidence of water on the sand bars, and through the narrow creek which connects it with its lower course it is quite impossible to navigate even a small canoe.

Young *Arkansia* are found on sand bars and muddy bottoms where they prefer the oozy mud and little or no current. So few gravid females of this new species during the breeding season being winter, the localities being almost inaccessible.

Mr. Sampson in his "Pleurocera of Arkansas,"¹ enumerates twelve species in Clark County. Five of them are new to me, namely: *Physa gyrina* (Say), *Physa anatina* of my list, *Pleurocera lewisii*, *Pleurocera subulavatum* (Say), *Pleurocera lawrencei* Lea. Mr. Callahan in "Arkansas,"² reports three species in Clark County, namely: *Physa* Say, and *Unio tumescens* Lea. *Unio tumescens* is very likely a new species. Many shells collected in the past are of a yellow color," and they are not on the surface," just as he describes them. I am surely mistaken in the locality of the species belongs to the *Unio* group found, so far as I am aware. The Arkansas range of this species is given by Walker in Simpson's "Catalogue of the Mollusks of Arkansas."

Annotate

Carychium exile H. C. Lea
marshy pasture along Mill Creek,
North of Arkadelphia.

Lymnaea columella Say. (C)

¹In Annual Report of the Geol. Surv. of Arkansas, pp. 179-199.

²Transactions Acad. Scien., St. Louis, 1880.

³See in loco, p. 751.

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Young *Arkansia* are found in the shallow waters both on the
 sand bars and muddy bottoms, but like other *anodontine* species
 they prefer the oozy mud of the river margins where there is
 little or no current. So far, the most patient effort to secure
 gravid females of this new genus has not been successful, the
 breeding season being winter, and the localities just described
 being almost inaccessible at this season.

Mr. Sampson in his "Preliminary Report of the Mollusca of
 Arkansas,"¹ enumerates twelve species of mollusks collected in
 Clark County. Five of these I have not been able to verify,
 namely: *Physa gyrina* (Say), which is possibly the same as
Physa anatina of my list, *Campeloma subsolidum* (Anth.) which
 is certainly what is now described by Walker as *Campeloma*
lewisii, *Pleurocera subulare* (Lea) which may be *Pleurocera ele-*
vatum (Say), *Pleurocera canaliculatum* (Say), and *Goniobasis*
lawrencei Lea. Mr. Call in his "Study of the Unionidæ of
 Arkansas,"² reports three species from the Ouachita collected
 in Clark County, namely: *Unio parvus* Barnes, *Unio subrostratus*
 Say, and *Unio tumescens* Lea. What Professor Call took to be
tumescens is very likely a juvenile *Fusconaia undata* (Barnes).
 Many shells collected in late summer have a clear "honey
 yellow color," and they are "abundantly rayed over the entire
 surface," just as he describes the so-called *tumescens*. Lea was
 surely mistaken in the locality given for his type specimen, for
 the species belongs to the Tennessee drainage, and has not been
 found, so far as I am aware, west of the Mississippi River.
 The Arkansas range of this species is also questioned by Dr.
 Walker in Simpson's "Catalogue of the Naiades."³

Annotated List of Species.

Carychium exile H. C. Lea. Collected in one place only, a
 marshy pasture along Mill Creek, an insignificant stream just
 North of Arkadelphia.

Lymnæa columella Say. Ouachita River under the Railroad

¹ In Annual Report of the Geological Survey of Arkansas for 1891, Vol. II,
 pp. 179-199.

² Transactions Acad. Scien., St. Louis, 1895, pp. 1-65, Plates I-XXI.

³ See in loco, p. 751.

bridge at Arkadelphia; also Caddo River near County bridge five miles North of Arkadelphia.

Lymnaea humilis modicella Say. Found in the environs of Arkadelphia; in Mill Creek; rarely in the Ouachita River margins. Rare!

Planorbis trivolvis Say. Ouachita River, Old River, and Big Deceiper Lake, nine miles south of Arkadelphia.

Planorbis dilatatus Gould. Ouachita and Old Rivers. There are possibly two forms in this lot.

Planorbis sampsoni (Ancey). Clear Lake, two miles east of Arkadelphia, and ponds south of Arkadelphia (young shells only). This species seems to be exceedingly perishable.

Ancylus kirklandi Walker. Caddo River (common) Clear Lake.

Ancylus walkeri Pilsbry and Ferriss. Ouachita River at Arkadelphia. Very rare.

Ancylus sp.? Ouachita River near Arkadelphia.

Physa anatina Lea. Mill Creek, ponds south of Arkadelphia, and Big Deceiper Creek at Gum Springs, six miles south of Arkadelphia.

Physa sp.? Clear Lake east of Arkadelphia.

Strobilops labyrinthica (Say). Arkadelphia. Everywhere common in suitable localities.

Strobilops labyrinthica texasiana Pilsbry and Ferriss. Arkadelphia. Not uncommonly there is found what seems to be a hybrid between this variety and the species proper.

Strobilops virgo (Pils). Arkadelphia, but found also in the bordering county of Grant.

Pupoides marginatus (Say). Arkadelphia.

Gastrocopta contracta (Say). Arkadelphia.

Gastrocopta contracta climeana Van. Arkadelphia, very rare.

Gastrocopta pentodon (Say). Arkadelphia.

Gastrocopta tappaniana (C. B. Ads). Arkadelphia. Collected also in adjacent counties north and east of Clark.

Succinea avara Say. Environs of Arkadelphia, not common.

Omphalina friabilis (W. G. Binn.). Arkadelphia. Very rare!

Vitrea indentata (Say). Arkadelphia; Gurdon.

Vitrea radiatula circum
rare, generally associated
Vitrea (Paravitrea) signi
in the foothills. Rare!

Vitrea wheatleyi (Bland)
cannot be placed anywhere
is either *wheatleyi*, or a var
Eucomulus chersinus troch
common.

Eucomulus chersinus polyg
Zonitoides arborea (Say
Deceiper Creek, and at Gu
Zonitoides (Pseudohyalina
Gastrodonta demissa brit
northwest of Arkadelphia
rare.

Pyramidula alternata (Sa
and six miles east of Wheel
Helicodiscus parallelus (S
near Little Deceiper Creek.

Circinaria concava (Say)
Arkadelphia, and "Big Bluff"
north of Arkadelphia.

Polygyra leporina Gould.
mon in most of the low lan

Polygyra dorfeuilleana Lee
Gurdon. Rare! Nearly a
bark, seldom under logs an

Polygyra inflecta (Say).
southeastern corner of the (

Polygyra albolabris (Say)
not appear to be the varie
the shells of this type west
referred.

Polygyra divesta (Gould).
Big Deceiper Creek, Gurdon

Polygyra zaleta (Binney)
Rare!

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north and east of Clark.

s of Arkadelphia, not common.

Binn.). Arkadelphia. Very

delphia; Gurdon.

Vitrea radiatula circumstriata Taylor. Arkadelphia. Quite
rare, generally associated with *arborea*.

Vitrea (Paravitrea) significans (Bland). West of Arkadelphia
in the foothills. Rare!

Vitrea wheatleyi (Bland)? Arkadelphia. This species, which
cannot be placed anywhere else among the *Zonitidæ* collected,
is either *wheatleyi*, or a variety of it.

Euconulus chersinus trochulus (Rein.). Arkadelphia. Fairly
common.

Euconulus chersinus polygyratus (Pils.)? Arkadelphia.

Zonitoides arborea (Say). Arkadelphia; also along Little
Deceiper Creek, and at Gurdon. Generally distributed.

Zonitoides (Pseudohyalina) minuscula (Binney). Arkadelphia.

Gastrodonta demissa brittsi (Pils.). In the hills five miles
northwest of Arkadelphia. Smaller than typical *brittsi*, and
rare.

Pyramidula alternata (Say). Arkadelphia, Gurdon, Whelen,
and six miles east of Whelen in the southeast end of the County.

Helicodiscus parallelus (Say). Arkadelphia, west of the town
near Little Deceiper Creek. Very rare!

Circinaria concava (Say). Limestone region west of Arka-
delphia, and "Big Bluff" on the Ouachita River, two miles
north of Arkadelphia.

Polygyra leporina Gould. Arkadelphia and Gurdon. Com-
mon in most of the low lands.

Polygyra dorfeuilliana Lea. In low hills west of Arkadelphia,
Gurdon. Rare! Nearly always found under small pieces of
bark, seldom under logs and stones.

Polygyra inflecta (Say). Arkadelphia, Gurdon, Whelen, and
southeastern corner of the County.

Polygyra albolabris (Say). Arkadelphia. Rare! This does
not appear to be the variety *alleni* Wetherby, to which all of
the shells of this type west of the Mississippi River have been
referred.

Polygyra divesta (Gould). Arkadelphia, Crawford's Mill on
Big Deceiper Creek, Gurdon.

Polygyra zaleta (Binney). Woods west of Arkadelphia.
Rare!

Polygyra obstricta carolinensis (Lea). Typical shells collected in heavy woods along the Little Missouri River in the southeast corner of the County. Here there is much cypress. Clark County corners at the confluence of the Little Missouri and the Ouachita rivers, the former making the southern and the latter the eastern boundary line.

Polygyra clausa (Say). Arkadelphia. Generally distributed. The commonest of the *Helices* in all this region!

Polygyra stenotrema ("Fer." Pfr.). Arkadelphia and Crawford's Mill on Big Deceiper Creek.

Polygyra monodon (Rack) var. Whelen and southeast corner of the County.

Polygyra fraterna aliciae (Pils.). Crawford's Mill on Big Deceiper Creek.

Bulimulus sp.? Fragments of a *Bulimulus* were collected in the hills west of Arkadelphia. It is probably *dealbatus* (Say).

Amnicola cincinnatiensis (Anth.). Big Deceiper Creek at Gum Springs.

Somatogyrus wheeleri Walker. Ouachita River, type locality, under railroad bridge, Arkadelphia. Rare.

Somatogyrus amnicoloides Walker. Ouachita River, type locality, under railroad bridge, Arkadelphia. Rare.

Campeloma lewisii Walker.¹ Ouachita and Old Rivers, Arkadelphia, very common; Big Deceiper Lake, nine miles south of Arkadelphia; Caddo River.

[*Pleurocera canaliculata* Say]. Reported by Sampson on authority of Call from the Ouachita River in Clark County. Not found.

Pleurocera elevatum (Say). Ouachita, Caddo and Old Rivers near Arkadelphia; Big Deceiper Lake.

[*Pleurocera subulare* (Lea)],² reported from Clark County, Ouachita River, by Call in Sampson,³ was not located. Possibly young *elevata* were mistaken for this species.

¹ Vide, NAUTILUS, Vol, XXVIII, pp. 126, 127.

² Vide NAUTILUS, Vol, XXX, pp. 122-124, On "*Pleurocera subulare*, Lee," by Calvin Goodrich.

³ See "Preliminary List of the Mollusca of Arkansas," Geol. Surv. of Ark., 1891, Vol. II, p. 197.

Goniobasis plebeia Arkadelphia. Very

Goniobasis lawrenci in Garland County, the Ouachita River near the boundary of Hot Springs, but

Helicina orbiculata creek and river drainage brought down from the County.

Lampsilis ventricosa Arkadelphia and at Sk closely related to *ex* "gorgeously appeared others with varying *Lampsilis hydiana* common in all the river Huie farm and at Arkadelphia.

Lampsilis orbiculata admitted to the list on dated June 5, 1911 *silis ventricosa satur* must regard as *La* also is not listed of shape etc. complete color is not quite typical is [among the shell *orbiculata*, preserving nacre." If *orbiculata* make differentiation then our Ouachita

¹ Vide Proc. Ac. Nat. plebeius are here figured

² See "The Mussels of Fisheries, Doc. No. 781

(Lea). Typical shells collected in the Missouri River in the southeast where there is much cypress. Clark and the Little Missouri and the latter making the southern and the latter

Arkadelphia. Generally distributed in all this region!

(Pfr.). Arkadelphia and Crawford Creek.

Whelen and southeast corner

Crawford's Mill on Big

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It is probably *dealbatus* (Say).

Big Deceiper Creek at Gum

Ouachita River, type locality, Arkadelphia. Rare.

Ouachita River, type locality, Arkadelphia. Rare.

Ouachita and Old Rivers, Arkadelphia, Deceiper Lake, nine miles south of

Reported by Sampson on Ouachita River in Clark County.

Ouachita, Caddo and Old Rivers, Deceiper Lake.

reported from Clark County, Arkadelphia, Sampson,² was not located. Possibility for this species.

pp. 126, 127.

122-124, On "Pleurocera subulare,

follosca of Arkansas," Geol. Surv. of

Goniobasis plebeius (Anth).¹ Ouachita and Caddo Rivers, Arkadelphia. Very common.

Goniobasis lawrencei (Lea), described from the Ouachita River in Garland County, was not found. Search was made for it in the Ouachita River at Cove Creek station, Hot Springs County, near the boundary of Garland County, about twelve miles east of Hot Springs, but without success.

Helicinus orbiculata Say. Dead shells only were collected from creek and river drift at Arkadelphia, these being evidently brought down from the limestone hills in the western part of the County.

Lampsilis ventricosa satur (Lea). Ouachita River below Arkadelphia and at Skillern's Shoals; Old River. In form it is closely related to *excavatus*. Specimens from the Ouachita are "gorgeously appareled", some of a deep solid yellow color, others with varying and elaborate patterns of green.

Lampsilis hydiana (Lea). The Southern form of *luteola*, common in all the rivers, and also in Big Deceiper Creek on the Huie farm and at Gum Springs; also in Salt Bayou east of Arkadelphia.

Lampsilis orbiculata (Hild). Old River. This species is admitted to the list on the authority of Dr. Ortmann. In a letter dated June 5, 1911, Dr. Ortmann writes: "Among the *Lampsilis ventricosa satur* was one individual (female, sterile) which I must regard as *Lampsilis orbiculata* (Hildreth). This species also is not listed from your region. The specimen agrees in shape etc. completely with the Ohio forms of *orbiculata*, only the color is not quite typical." Again on June 19, 1911: "And there is [among the shells received] a fine typical male of *Lampsilis orbiculata*, preserving even the characteristic pink stain of the nacre." If *orbiculata* and *ligamentina gibba* are so similar as to make differentiation difficult as is stated by Wilson and Clark,² then our Ouachita specimens are not this species.

¹ Vide Proc. Ac. Nat. Sc., Phila., 1900, pp. 458, 459. Both *elevatum* and *plebeius* are here figured.

² See "The Mussels of the Cumberland River and Its Tributaries", Bureau Fisheries, Doc. No. 781, p. 49.

Lampsilis higginsii (Lea). A fine typical series of this species was collected from the Ouachita River below Arkadelphia, at Skillern's Shoals, and also in Old River.

Lampsilis higginsii grandis Simpson. Old River. These shells are larger and *less inflated* than typical *higginsii*. The feeble posterior ridge, high beaks, shining surface, and the absence of growth ridges make the identification satisfactory.¹

Lampsilis (Nephronaias) ligamentina (Lam.). Everywhere common in the Ouachita and Old Rivers. The common "mucket" of the pearl-ers.

Lampsilis fallasiosa (Smith) Simpson. A common species collected in the Ouachita River, Old River, and Terra Noire Creek. The validity of this species as distinct from *anodontoides* Lea presents no difficulty to one who has a series of shells from Arkansas localities to compare with those from regions further North. Consult Simpson's diagnosis in his "Descriptive Catalogue."

Eurynia recta (Lam.). Ouachita and Old Rivers.

Eurynia subrostrata (Say). Though not common this species has been found in Ouachita and Old Rivers, Big Deceiper Creek at Gum Springs, Big Deceiper Lake, and a few "sloughs" south of Arkadelphia.

Micromya lienosa (Con). Ouachita and Old Rivers. Rare.

Micromya lienosa nigerrima (Lea). Common in both Ouachita and Old Rivers, Big Deceiper Creek at Gum Springs, and Caddo River. The nacre is *white*, and the epidermis a lead-black, unpolished.

Eurynia (Micromya) arkansasensis (Lea). On July 28, 1913, two females from the Ouachita River south of Arkadelphia were sent to Dr. Ortmann, who reported: "I think here we have *arkansasensis* again! These agree rather well with females received previously (from you) from Saline River, Benton." The species is smaller than *lienosa*, lighter in color, and with a silvery nacre. Of the *arkansasensis* collected from the Saline River on July 13, 1911, of which there were four males and two females, Ortmann says: "Here it is! The males, although

¹See "Descriptive Catalogue of the Naiades," Simpson, p. 78.

slightly differing from the typical female figure. The female of these specimens, the *Micromya*, but the papillae are not developed. They make this identification Dr. Ortmann, XXX, p. 54.

Carunculina texasensis (Lam.). Terra Noire Creek; Caddo River.

Carunculina parva (Lam.). Gum Springs; Big Deceiper Creek. The shells of these named localities are different from those of "corvinus," as at first reported.

Carunculina glans (Lam.). Gum Springs; Big Deceiper Creek. These shells have an unusually perfect shape. In all respects are entirely typical of the type.

Carunculina cromwelli (Lam.). Gum Springs; Big Deceiper Creek; near Arkadelphia. The shells of *cromwelli*, and the identification of these are unusually perfect. They are in a remarkably close relationship to *glans*. A sufficient explanation, but not a complete one, is given by Walker in letter to the author.

Proptera purpurata (Lam.). Common. See Ortmann, A. O. S. Trans., VIII, 1912, p. 5.

Paraptera gracilis (Lam.). Common. Skillern's Shoals; Caddo River. See Ortmann, A. O. S. Mus., VIII, 1912, p. 5.

Lampsilis leptodon (Lam.). Skillern's shoals and in other localities. We have been unable to secure specimens in burrowing until the swiftest part of the current. The specimens are secured.

Obovaria castanea (Lea).

A fine typical series of this species Ouachita River below Arkadelphia, at the mouth of Old River.

Simpson. Old River. These shells are typical *higginsi*. The feeble polishing surface, and the absence of identification satisfactory.¹

ligamentina (Lam.). Everywhere on the Ouachita and Old Rivers. The common

(h) Simpson. A common species on the Ouachita River, Old River, and Terra Noire. This species as distinct from *anodontoides* is one who has a series of shells from the Ouachita which are with those from regions further west. Simpson's diagnosis in his "Descriptive

of the Ouachita and Old Rivers.

Though not common this species occurs on the Ouachita and Old Rivers, Big Deceiper Creek, Big Deceiper Lake, and a few "sloughs"

on the Ouachita and Old Rivers. Rare.

(Lea). Common in both Ouachita and Big Deceiper Creek at Gum Springs, and on the Ouachita as *white*, and the epidermis a lead-

texasensis (Lea). On July 28, 1913, specimens from the Ouachita River south of Arkadelphia were reported: "I think here we have a species which agree rather well with females (you) from Saline River, Benton." It is a *licinosa*, lighter in color, and with a *texasensis* collected from the Saline River. Simpson of which there were four males and one female. "Here it is! The males, although

of the *Blinded!*" Simpson, p. 78.

slightly differing from one another, agree well with Lea's original figure. The female has never been figured. According to these specimens, the species would be an *Eurynia*, subgenus *Micromya*, but the papillae of the mantle margin are very poorly developed. They may be larger in *gravid* females." With this identification Dr. Walker is satisfied. See NAUTILUS, vol. XXX, p. 54.

Carunculina texasensis (Lea). Ouachita and Old Rivers; Terra Noire Creek; Caddo River; Big Deceiper Lake. Common.

Carunculina parva (Bar.) Ouachita and Old rivers; Caddo River; Terra Noire Creek at Mount Zion; Big Deceiper creek at Gum Springs; Big Deceiper Lake. The shells from the last named locality are different from the usual form, but are not "*corvinus*," as at first supposed.

Carunculina glans (Lea). Ouachita and Old rivers; Terra Noire creek at Mt. Zion; Caddo River near Arkadelphia. Rare. These shells have an unusual *cream-colored* nacre, but in other respects are entirely typical.

Carunculina cromwellii (Lea). Big Deceiper creek, Gum Springs; Big Deceiper Lake; Terra Noire Creek; Caddo River, near Arkadelphia. The beak sculpture agrees exactly with *cromwellii*, and the identification is well confirmed. The beaks are unusually perfect. "This is another example of the remarkably close relationship that exists, without as yet a sufficient explanation, between the fauna of Arkansas and Alabama." Walker in letter.

Proptera purpurata (Lam.). Ouachita and Old River. Common. See Ortmann, Ann. Car. Mus., VIII, 1912, p. 334.

Paraptera gracilis (Bar.). Ouachita River below Arkadelphia, and Skillern's Shoals; Old River. See Ortmann, Ann. Car. Mus., VIII, 1912, p. 331.

Lampsilis leptodon Raf. A rare shell collected only at Skillern's shoals and in one place below Arkadelphia. So far we have been unable to secure gravid females. This species delights in burrowing under sharp and rather heavy rocks in the swiftest part of the current, and it is with difficulty that any specimens are secured.

Obovaria castanea (Lea). Ouachita River below Arkadelphia,

Skillern's Shoals and Old River. This species and *Nephronaias ligamentina* are the most prolific shells in the river. The epidermis of *castanea* is a most beautiful silken black, sometimes with a deep purple bloom, but young shells are yellowish brown and frequently rayed!

Amygdalonaia securis (Lea). Ouachita River below Arkadelphia, Skillern's Shoals, and Old River. This is considered a pearl shell. Very fine specimens are from Old River.

Amygdalonaia elegans (Lea). Ouachita River below Arkadelphia, Skillern's Shoals, and Old River. Quite common.

Amygdalonaia donaciformis (Lea). Found only in one bed below Arkadelphia and in the swift current at Skillern's Shoals. Later at Old River.

Tritogonia tuberculata (Barnes). Ouachita River, Skillern's Shoals and below Arkadelphia; Old River; Terra Noire creek. The river specimens are much inferior in size to those collected in the Tennessee drainage.

Tritogonia nobilis (Con.). Old River. Rare! Simpson now places this species as given.

Cyprogenia aberti (Con.). Ouachita River, Skillern's Shoals, and in many beds below Arkadelphia. Specimens are not as large as typical *aberti*, and may eventually be referred to the variety *lamarckiana* Lea.

Cyprogenia aberti lamarckiana (Lea). Ouachita River, Arkadelphia. This was also collected in the Caddo River in Montgomery County.

Obliquaria reflexa Raf. Ouachita River below Arkadelphia, Skillern's Shoals, Old River. The young are, in these localities, beautifully sculptured.

Ptychobranthus phaseolus (Hild). Ouachita River, Arkadelphia, and Skillern's Shoals; Old River. It is fairly common on the rocky shoals, sometimes on the sand bars. There seems to be no dividing line between this species and its variety *clintonense*, Simp.

Ptychobranthus clintonense Simp. Ouachita River above and below Arkadelphia, but not in Old River. Typical specimens with wavy lines are more common at Skillern's shoals. Dr. Walker is disposed to refer all Ouachita forms to *clintonense*.

Strophitus edenti
In the latter localities
Anodonta imbecilis
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Anodonta suborbis
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Anodonta virens
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Symphynota costata
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This species and *Nephronaias* shells in the river. The epifal silken black, sometimes tinged shells are yellowish brown

Ouachita River below Arkadelphia. This is considered as from Old River.

Ouachita River below Arkadelphia. Quite common.

(a). Found only in one bed of current at Skillern's Shoals.

Ouachita River, Skillern's Shoals; Terra Noire creek. Superior in size to those collected

River. *Rare!* Simpson now

Ouachita River, Skillern's Shoals, Arkadelphia. Specimens are not as large as those eventually be referred to the

(Lea). Ouachita River, Arkadelphia, in the Caddo River in Mont-

Ouachita River below Arkadelphia, the young are, in these locali-

(b). Ouachita River, Arkadelphia. It is fairly common on the sand bars. There seems to be a species and its variety *clinton-*

(c). Ouachita River above and below Old River. Typical specimens are from Skillern's shoals. Dr. Hensley has referred the Ouachita forms to *clintonense*.

Strophitus edentulus (Say). Ouachita River and Old River. In the latter locality specimens are quite thick and heavy.

Anodonta imbecilis Say. Ouachita River, Arkadelphia, Old River, and Deceiper Creek and Gum Springs. Common.

Anodonta suborbiculata Say. From Old River only. The young are perfect and most beautifully rayed. In the lower channel of the "river" they attain an unusual size.

Anodonta grandis leonensis (Lea). Ouachita River, Arkadelphia, and Old River. One must go deep in the mud for these fine shells but they are fairly common.

Anodonta virens Lea, var. Ouachita River and Old River, Arkadelphia. Distinguished from *leonensis* by having much higher and more prominent beaks, and by being less elongated.

Arkansia wheeleri, Walker and Ortmann. Old River and (rarely) Ouachita River below Arkadelphia. This is likely to remain one of the rarest of *Unios*. The nacre of this species is one of its most attractive characteristics. In young shells the entire margin is widely bordered with a rich salmon, in most adults it is a warm cream color, while in some specimens it is an opalescent blue. In very young specimens the plications are sometimes entirely wanting, but it could not be mistaken, even then, for any other species. Pearlshells sometimes open this shell mistaking it for *Quadrula pustulosa* (Lea).

Symphynota costata (Raf.). Ouachita and Old Rivers, but very rare indeed. This species is quite common, however, in the Saline River (at Benton), and it has been a surprise not to find it more abundant in the Ouachita. It is also common in the Caddo far up in Montgomery County.

Symphynota complanata (Bar.). One specimen only was collected in 1913 in the Ouachita River below Arkadelphia. This and *Cumberlandia monodonta* (Say) remain the rarest of all the *Unios* in this region.

Cumberlandia monodonta (Say). Ouachita River above Skillern's Shoals, Arkadelphia. This record extends the range of this species much further to the southwest than was to be expected, for heretofore it has not been known west of the Mississippi south of Iowa! A full discussion of the distribution will be found in Walker's "Distribution of *Margaritana margaritifera*

in North America", Proc. Mal. Soc., IX, June 1910, pp. 137-139; and in "Notes on the Distribution of *Margaritana monodonta* (Say)", NAUTILUS, Vol. XXV, pp. 57, 58. For the generic data consult Ortman, "Cumberlandia, a New Genus of Naiades", NAUTILUS, Vol. XXVI, pp. 13, 14, where this species is made the type of the genus.

Alasmidonta marginata Say. Ouachita River below Arkadelphia; Skillern's Shoals; Old River. This is also a rare species in this region.

Unio gibbosus subgibbosus (Lea). Ouachita River, Arkadelphia and Skillern's Shoals; Old River. All specimens collected have given to this variety, though some approach very closely Simpson's *delicatus*.

Unio tetrasmus (Say). In "sloughs" and shallow ponds near Arkadelphia, and in Big Deceiper Creek at Gum Springs. Not found in any of the larger streams. It is common in Malvern Creek, at Malvern, Hot Springs County.

Pleurobema pyramidata (Lea). Ouachita River, Arkadelphia, and Skillern's Shoals; Old River. Common, attaining, in quiet waters, a splendid development.

Pleurobema friersoni (B. H. Wright). Ouachita River, Arkadelphia and Skillern's Shoals; Old River. The nacre of these shells is often a beautiful rose or pink, but more commonly white. They were formerly considered to be *ridellii*, but it is now agreed to refer them to *friersoni*, though they are not altogether typically that species. See NAUTILUS, Vol. XXVIII, pp. 30, 31.

Crenodonta perplicata (Con.). Ouachita River, Arkadelphia and Skillern's Shoals; Old River; Caddo River. In Old River this species attains great size, and there is little erosion on the beaks even in the largest specimens. Dr. Ortman reports finding an Ouachita female (Old River), collected June 29, 1911, with glochidia, a very early date. See NAUTILUS, Vol. XXVIII, p. 21.

Crenodonta undulata (Bar.). Terra Noire Creek at Mt. Zion.

Crenodonta trapezoides (Lea). Ouachita River, Skillern's Shoals and near Arkadelphia; Old River. Common.

Quadrula cylindrica (Say). Ouachita River, Skillern's Shoals

and in nearly every mud
Cove Creek station in
collected from the Ouachita
wonderfully developed.

Quadrula metanerva (Lea)
and Skillern's Shoals.

mon. The variety *wardi*

Quadrula aspera (Lea).
Zion.

Quadrula lachrymosa (Lea)
Shoals and below Arkadelphia.
pressed form with large
typical form." Dr. Wal-

Quadrula pustulosa (Lea)
Skillern's Shoals; Caddo
delphia; Old River. They
are very perfect. Their
ance make them easily
"chita" shells. Some ex-
this species. Dr. Walker
the Old River shells, as follows:

a. Very oblique, usually

b. Quadrate, with a sil-

c. Intermediate. Shape

and sculpture like "a."
this species are perhaps w-

Fusconaia rubiginosa (Lea)
Springs, south of Arkadelphia.

were stated by Dr. Ortman
from the Pennsylvania species.

more glossy epidermis.

Noire Creek, west of Arkadelphia.

compressed than *cerina*, c-

"*Rubiginosa* is the small

into a more swollen form

and finally, in large rivers

beaks. The anatomy of

and *cerina*) is *absolutely* id-

ge., IX, June 1910, pp. 137-140. Description of *Margaritana monodonta*, pp. 57, 58. For the genus *Arca*, a New Genus *Arca*, pp. 13, 14, where this genus is described.

Ouachita River below Arkadelphia. This is also a rare species.

Ouachita River, Arkadelphia. All specimens collected have a very similar appearance, approaching very closely *Simpsonia*.

In "sloughs" and shallow Big Deceiver Creek at Gum Springs. It is common in larger streams. It is common in Gum Springs County.

Ouachita River, Arkadelphia. Common, attaining, in quiet

water. Ouachita River, Arkadelphia. The nacre of these shells is pink, but more commonly colored to be *ridellii*, but it is not *ridellii*, though they are not altogether alike.

See NAUTILUS, Vol. XXVIII,

Ouachita River, Arkadelphia. Caddo River. In Old River there is little erosion on the banks. Dr. Ortman reports (Arkadelphia River), collected June 29, 1911. See NAUTILUS, Vol. XXVIII,

Terra Noire Creek at Mt. Zion. Ouachita River, Skillern's Shoals. Common.

Ouachita River, Skillern's Shoals

and in nearly every mussel bed of the river; Old River. At Cove Creek station in Hot Springs County, specimens were collected from the Ouachita River with the cuneiform blotching wonderfully developed.

Quadrula metanerva (Raf.). Ouachita River, Arkadelphia and Skillern's Shoals. Not found in Old River. Very common. The variety *wardii* was nowhere located in this region.

Quadrula aspera (Lea). Old River; Terra Noire Creek at Mt. Zion.

Quadrula lachrymosa (Lea). Ouachita River at Skillern's Shoals and below Arkadelphia. "A comparatively small compressed form with large tubercles, quite different from the typical form." Dr. Walker in letter to the author.

Quadrula pustulosa (Lea). Ouachita River, Arkadelphia and Skillern's Shoals; Caddo River; Terra Noire Creek west of Arkadelphia; Old River. The shells from the last named locality are very perfect. Their brilliant color and handsome appearance make them easily the most attractive of all the "Ouachita" shells. Some excellent pearls have been obtained from this species. Dr. Walker distinguishes three "forms" among the Old River shells, as follows:

- a. Very oblique, usually densely pustulate.
- b. Quadrate, with a silky, polished epidermis.
- c. Intermediate. Shaped more like "b," but in epidermis and sculpture like "a." He thinks that several local races of this species are perhaps worthy of recognition.

Fusconaia rubiginosa (Lea). Big Deceiver Creek, Gum Springs, south of Arkadelphia. Two males from this locality were stated by Dr. Ortman to be indistinguishable in shape from the Pennsylvania specimens, but they had a lighter and more glossy epidermis. Some specimens collected in the Terra Noire Creek, west of Arkadelphia, on July 3, 1911, are more compressed than *cerina*, *chunii*, or *undata*. Dr. Ortman says, "Rubiginosa is the small creek form—in Pennsylvania, passing into a more swollen form (*trigona*) in the rivers of medium size, and finally, in large rivers, into the true *undata*, with high beaks. The anatomy of all the forms named (including *chunii*, and *cerina*) is absolutely identical." A form perfectly intergrading

between these Terra Noire *rubiginosus* and the Ouachita *undatus* was collected in the Saline River, at Benton, and this Dr. Walker unhesitatingly calls *cerina*.

Fusconaia cerina (Con). Caddo River, Arkadelphia.

Fusconaia undata (Bar).¹ Ouachita River, Arkadelphia and Skillern's Shoals; Old River. A common species.

Quadrula coccineum (Con.). A typical specimen was taken from the Ouachita at Arkadelphia in 1913; another was collected in June 1914.

Quadrula solida (Lea). A rare species collected only from the Ouachita River near Arkadelphia.

Fusconaia ebena (Lea). Ouachita River, Arkadelphia and Skillern's Shoals; Old River. Abundant.

Sphaerium striatinum Lam. Big Deceiper Creek five miles West of Arkadelphia; Gum Springs: Big Deceiper Lake.

Musculium transversum (Say). Big Deceiper Lake (teste Sterki).

SUMMARY.

Pulmonate Gastropoda	45
Operculate Gastropoda	7
Pelecypoda, all of which are <i>Naiades</i> except two	60
	<hr/>
Total species	112

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ORTMANN, "Studies in the Najades". NAUTILUS, Vol. XXVIII, pp. 129-131 (*Carunculina parva*); Ditto, XXVIII,

¹ See NAUTILUS, Vol. XXIV, pp. 6-10, 16-24, with plates. On the Validity of *Unio undatus*, Barnes, by Bryant Walker.

141, 142 (*Carunculina* 54-57 (*Eurygnis licinosa*, *satur*).

WALKER, "On Pale NAUTILUS, Vol. XXVII *loma lewisii*.

WALKER, "Apical Cl tion of Three New Speci 49-53. Description of

WALKER and ORTMAN NAUTILUS, Vol. XXV, *Arkansia* (genus) and *A*

NOTE.—The paper of E. (ern Arkansas and N. E. Lou should be compared for a list of which may be yet located i

DESCRIPTIONS OF NEW SI

BY

MOPALIA LOWEI n. sp.

The chiton is rather carinate, the lateral side uniformly mottled with few anterior valve has ten compressed tubercles, the intervals are also tuberculation. Valves ii to vii have dorsal ribs, the lateral areas with the jugal transverse converging forward parallel, but slightly irregular longitudinal ribs, somewhat, becoming diverging. These are intersected by ribs radiating forward and ending on the longitudinal

rubiginosa and the Ouachita *undata* River, at Benton, and this Dr. *arcina*.

Caddo River, Arkadelphia.

Ouachita River, Arkadelphia and et. A common species.

(c). A typical specimen was taken Arkadelphia in 1913; another was col-

A rare species collected only from the Arkadelphia.

Ouachita River, Arkadelphia and et. Abundant.

am. Big Deceiver Creek five miles in Springs: Big Deceiver Lake.

(Say). Big Deceiver Lake (teste

SUMMARY.	
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h are <i>Naiades</i> except two	60
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y List of the Mollusca of Arkansas," Report of the Geological Survey of Arkansas, pp. 181-199.

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on the Families and Genera of the Mollusca, Carnegie Museum, Vol. VIII, No. 2, Plates.

in the Najades". NAUTILUS, Vol. XXVIII, (Carunculina parva); Ditto, XXVIII,

, pp. 6-10, 16-24, with plates. On the Validity of the Genus *Carunculina* by Bryant Walker.

141, 142 (*Carunculina texasensis*, and *C. glans*), Ditto, XXX, pp. 54-57 (*Euryntia venosa*, *E. subrostrata*, and *Lampsilis ventricosa satur*).

WALKER, "On *Paludina coarctata* and *incrassata*, Lea". NAUTILUS, Vol. XXVIII, pp. 121-127. Description of *Campeploma lewisii*.

WALKER, "Apical Characters in *Somatogyrus*, with Description of Three New Species." NAUTILUS, Vol. XXIX, pp. 37-41, 49-53. Description of *Somatogyrus wheeleri*, and *S. amnicoloides*.

WALKER and ORTMANN, "A New North American Naiad", NAUTILUS, Vol. XXV, pp. 97-100, Pl. VIII. Description of *Arkansia* (genus) and *Arkansia wheeleri*.

NOTE.—The paper of E. G. Vanatta entitled, "Unionidae from Southeastern Arkansas and N. E. Louisiana", NAUTILUS, Vol. XXIII, pp. 102-104, should be compared for a list of species reported from the lower Ouachita, some of which may be yet located in Clark County sections of the river.

DESCRIPTIONS OF NEW SPECIES OF MOPALIA AND TRACHYDEEMON.

BY HENRY A. PILSBRY.

MOPALIA LOWEI n. sp.

The chiton is rather small, oblong, moderately elevated, carinate, the lateral slopes straight. The valves are irregularly mottled with ferruginous, sea-green and olive. The anterior valve has ten radial ribs, those at the suture bearing compressed tubercles, the others rounded tubercles. The intervals are also tuberculose, with some interstitial granulation. Valves ii to vii have low, tuberculose sutural and diagonal ribs, the lateral areas tuberculose and granular. Central areas with the jugal tract closely striate longitudinally, the striae converging forward near the beaks, elsewhere subparallel, but slightly irregular in places. Pleural tracts having longitudinal ribs, near the ridge converging forward somewhat, becoming divergent towards the lateral borders. These are intersected by a system of much weaker curved ribs radiating forward and laterally, forming oblong tubercles on the longitudinal ribs. The posterior valve is short,