

XIX. A REPORT ON THE FISHES OF OKLAHOMA, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES.*

A. I. Ortenburger and Carl L. Hubbs.

This paper is concerned primarily with a collection of fishes made by the University of Oklahoma Museum of Zoology Expedition between June 15th and July 25th, 1925. Collecting was done at the following localities:

(1). 18 miles southwest of Wister, Holston Creek, Le Flore County.

(2). 2 miles north of Wister, in pond, Le Flore County.

(3). 6 miles south of Wister, Poteau River, Le Flore County.

(4). 7 miles south of Broken Bow, Pine Lake, McCurtain County.

(5). 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

(6). 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

(7). 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

(8). 9 miles east of Broken Bow, small tributary of Little River, McCurtain County.

(9). 4 miles west of Arkansas-Oklahoma line, Red River, McCurtain County.

(10). 6 miles north of Valliant, Little River, McCurtain County.

(11). 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

(12). 8 miles northwest of Cache, Panther Creek (branch of West Cache Creek), Comanche County.

Some other small collections are also reported on in this paper. These are (1) a collection made by Mark Markowitz under the direction of Ortenburger in the small tributaries of the Washita River near the town of Dougherty, Murray County and (2) miscellaneous small collections made by Ortenburger and others near Norman, Cleveland County.

These specimens are in the University of Oklahoma Museum of Zoology, with the exception of duplicates which are in the Museum

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of Zoology of the University of Michigan. Lot numbers when indicated are field numbers of the U. O. M. Z.

It can readily be seen that these collections are entirely from the southern half of the state; the large majority of the specimens are from the southeastern corner. Hence this paper represents only the beginning of a fish survey of the state.

In all, 57 forms are listed. Two new genera are described by Hubbs, *Sclerotis* (type *Lepomis miniatus* Jordan) and *Allotis* (type *Bryttus humilis* Girard). He also describes a new species of shiner, *Notropis ortenburgeri*. A new species of black bass, *Micropterus pseudaplites* is listed in this paper; the description of this form is being published elsewhere by Hubbs. A new subspecies *Notropis cornutus isolepis* is herein described by Hubbs and Brown.

POLYODONTIDAE.

1. *Polyodon spathula* (Walbaum).

P-35. One large specimen (49 inches in length) taken in the Kiamichi River, 4 miles east of Tuskahoma, Pushmataha County.

LEPISOSTEIDAE.

2. *Lepisosteus osseus* (Linnaeus).

Fowler's suggestion¹ that the long-nosed gars should be referred to more than one species has not been confirmed.

P-11. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

M-1. Near Dougherty, tributary of Washita River, Murray County.

CLUPEIDAE.

3. *Dorosoma cepedianum* (LeSueur).

We follow Regan² in aligning *Dorosoma* among the Clupeidae.

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

CATOSTOMIDAE.

4. *Megastomatobus cyprinella* (Cuvier and Valenciennes).

As Fowler has claimed³ and as Hubbs indicates in his recently

¹Proc. Acad. Nat. Sci. Phila., 1910 (1911), p. 604-606.

²Ann. Mag. Nat. Hist., (8) 19, 1917, p. 297.

³Proc. Acad. Nat. Sci. Phila., 65, 1913, p. 45.

published check-list of Great Lakes fishes, *Sclerognathus* is a synonym of *Ictiobus*.

P-20. 4 miles west of Arkansas-Oklahoma line, Red River, McCurtain County.

5. *Carpiodes carpio* (Rafinesque).

P-20. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.

Just south of Norman, Canadian River, Cleveland County.

6. *Erimyson sucetta oblongus* (Mitchill).

P-6. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-11. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, small tributary of Little River, McCurtain County.

7. *Minytrema melanops* (Rafinesque).

P-28, P-29, P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

8. *Moxostoma aureolum* (LeSueur).

P-21. 9 miles east of Broken Bow, small tributary of Little River, McCurtain County.

CYPRINIDAE.

9. *Cyprinus carpio* Linnaeus.

P-19, P-20. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.

10. *Macrhybopsis aestivalis aestivalis* (Girard).

Just south of Norman, Canadian River, Cleveland County.

11. *Platygobio gracilis* (Richardson).

Just south of Norman, Canadian River, Cleveland County.

12. *Opsopoeodus emiliae* Hay.

Hubbs has examined the types of *Opsopoeodus osculus* Evermann⁴, a supposedly valid Texan species, and finds that they agree

⁴Evermann, Bull. U. S. Fish Comm., 11, 1891 (1892), p. 82; Jordan and Evermann, Bull. U. S. Nat. Mus., 47, pt. 1, 1896, p. 248.

well with *O. emiliae* Hay. The lack of development of the male dorsal fin markings is simply due to the fact that nuptial examples are not included among the types. The type of *osculus* has 9 developed dorsal rays. *Trycherodon megalops* Forbes is another synonym of *O. emiliae*, as Forbes and Richardson have already pointed out.

P-2. 2 miles north of Wister, in pond, Le Flore County.

13. *Notropis deliciosus* (Girard).

After examining a part of the type material of *Alburnops blennius* Girard, Fowler came to the conclusion⁶ that Meek erred in applying this name to *N. deliciosus*. We have examined not only the few types in the Philadelphia Academy, but also the larger series in the National Museum, and we fully agree with Fowler. The original *blennius* is undoubtedly the species later renamed *jejunus* by Forbes, and it is therefore with that species that the name *Notropis blennius* should be associated.

P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-42—P-46. 8 miles northwest of Cache, Panther Creek (tributary of West Cache Creek), Comanche County.

Four miles southwest of Norman, Canadian River, Cleveland County.

O-203. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

Near Dougherty, tributary of Washita River, Murray County.

14. *Notropis boops* Gilbert.

This well-marked species has long been confounded with *Alburnops shumardi* Girard and *A. illecebrosus* Girard. Of these, the former (*shumardi*) is not clearly identifiable, unless possibly with the second; the types are lost. *Notropis illecebrosus* is a species quite unlike *boops*, as Fowler has shown⁷. It is, in fact, the species subsequently described by Evermann as *N. chamberlaini*. The types of *illecebrosus* and *chamberlaini*, examined by Hubbs in the National Museum, agree perfectly.

P-1. 18 miles southwest of Wister, Holston Creek, Le Flore County.

P-5, P-6, P-9. 2 miles north of Broken Bow, Yanubbe Creek.

⁶Proc. Acad. Nat. Sci. Phila., 62, 1910, p. 274-276, fig. 4, 6, 10.

⁷Proc. Acad. Nat. Sci. Phila., 1910, p. 276, pl. 16, fig. 11.

⁸Evermann, in Jordan and Evermann, Bull. U. S. Nat. Mus., 47, pt. 3, 1898, p. 2800; Rept. U. S. Comm. Fish and Fish., 1898, p. 307, pl. 18.

McCurtain County.

P-12, P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-23, P-24, P-25. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-26. 6 miles north of Valliant, Little River, McCurtain County.

P-27, P-28, P-29, P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

P-44. 8 miles northwest of Cache, Panther Creek (tributary of West Cache Creek), Comanche County.

15. **NOTROPIS ORTENBURGERI** Hubbs, new species.

Type 43 mm. long to caudal, a nearly ripe female, from Mountain Fork River, 10 miles southeast of Broken Bow, McCurtain County, Oklahoma.

D. 8; A. 10; teeth 4-4. Scales about $5\frac{1}{2}$ —36— $3\frac{1}{2}$, 13 before dorsal; each with rather numerous slightly divergent radii on the large exposed field. Lateral line complete or nearly so; little decurved. Head 4.0; depth 4.6. Body compressed, rather straight-sided; lower jaw slightly included, but mouth very oblique, the upper jaw anteriorly on level with upper margin of pupil, reaching to below nostrils; eye large, 2.7 in head. Fins rather sharp; dorsal inserted over middle of pelvic base, slightly nearer tip of snout than base of caudal; its depressed length 1.35 in its distance from occiput; pectorals reaching two-thirds distance to pelvics, the latter to anus. Pale; scale margins marked off near back only; a bare trace of a mid-dorsal streak; fine punctulations about and behind anal base; a lateral band of punctulations continued forward around tip of jaws, but not encroaching on snout above premaxillaries; no definite caudal spot. Peritoneum silvery.

The immediate relationships of this species are not evident. I associate with it the name of A. I. Ortenburger, who is initiating an Oklahoma fish survey.—C. L. H.

16. *Notropis nux* Evermann (?).

Ten specimens of a small *Notropis* from Mountain Fork River 10 miles southeast of Broken Bow, McCurtain County, Oklahoma, are referred with some trepidation to this Texan species.

D. 8; A. 8; teeth 4, 2—2, 4. Scales 5—33—3, 17 or 18 before

dorsal; each with rather few divergent apical radii. Lateral line complete or nearly so; little decurved. Jaws subequal; mouth oblique; premaxillaries anteriorly a little above level from middle of pupil; upper jaw extending to below nostrils. Eye moderate, 3.5 to 4.0 in head, including opercular membrane (3.5 in type of *mus*). Fins long and sharp; depressed dorsal 1.2 to 1.3 in distance from occiput; pectorals reaching about three-fourths distance to pelvics, the latter to or beyond anal origin. A dusky or black lateral streak extending from the tips of the jaws to a small black spot at base of caudal; dorsal scales with dark margins, except on pale streak just above lateral band; a mid-dorsal streak, wider and bolder before than behind dorsal; dark punctulations about and behind anal base. Peritoneum pale.

17. *Notropis sabinæ* Jordan and Gilbert.

This species seems related to *N. longirostris*. On comparison of the type material, the two species are found to agree in having the snout about half longer than the small eye, but the large mouth nevertheless extending well beyond front of eye, and in having the dorsal fin inserted distinctly nearer tip of snout than base of caudal. The two differ chiefly in dentition, the formula for *sabinæ* being 4-4, that for *longirostris* 4, 1-1, 4 (as indicated by Gilbert); the snout appears to be somewhat the sharper in *sabinæ*.

We have a small series from the Red River four miles west of the Oklahoma-Arkansas line (taken on the Texas side of the river). The specimens from this locality differ from typical examples from the Sabine River in having a somewhat smaller eye (4.5 to 5.0, rather than 4.0 in head) and the scales before the dorsal more crowded (16 to 20 instead of 13 to 15). Anal rays 7 (rarely 6) as in *longirostris*; typical *sabinæ* has also 7 rays.

A series from the Canadian River $4\frac{1}{2}$ miles southwest of Norman differs from typical *sabinæ* in the same way, and in addition shows usually 8, although sometimes 7, anal rays; eye, 4.0 to 4.6 in head, thus sometimes as large as in typical *sabinæ*, a point worthy of note.

It is possible that both of these races deserve to be separated from typical *sabinæ*, but we await further material to test out the geographic constancy of the features we have mentioned.

18. *Notropis whipplii whipplii* (Girard).

Hubbs has lately re-examined the type of *whippii*, and finds that it is a highly developed male of the species with which the

name has properly been associated.

P-2. 2 miles north of ~~Wister~~, in pond, Le Flore County.

P-12, P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-26. 6 miles north of Valliant, Little River, McCurtain County.

P-28, P-29, P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

19. *Notropis lutrensis* (Girard).

Just south of Norman, and $4\frac{1}{2}$ miles southwest of Norman, Canadian River, Cleveland County.

Seven miles west of Norman, in pond, Cleveland County.

One mile south and $1\frac{1}{2}$ miles east of Norman, in pond, Cleveland County.

Thirteen miles east of Norman, Little River, Cleveland County.

Near Dougherty, tributary of Washita River, Murray County.

Nine miles northwest of Headquarters, Wichita National Forest and Game Preserve, small creek flowing from Time O' Day Spring, Comanche County.

Specimen from Alva, Oklahoma, at Field Museum.—(C. L. H.)

20. *Notropis atherinoides* Rafinesque.

We have examined the types of *Alburnus dilectus* Girard, and regard them as synonymous (specifically if not subspecifically) with *Notropis atherinoides*, the races of which are yet to be satisfactorily distinguished.

P-12. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-27. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

21. *NOTROPIS CORNUTUS ISOLEPIS*

Hubbs and D. E. S. Brown, new subspecies.

Type an adult specimen 101 mm. long to caudal, collected in Mountain Fork River 10 miles southeast of Broken Bow, McCurtain County, Oklahoma. Numerous paratypes are from the same locality and from 2 miles north of Broken Bow and 9 miles east of Broken Bow; another is from Cache Creek, in the Wichita National Forest 8 miles northwest of Cache, Comanche County, Oklahoma. Still others, in the National Museum, are from Caddo Creek, Arkansas.

Table showing variation in two subspecies of *Notropis cornutus*.

	Scales from dorsal fin to occiput																	
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
<i>N. c. isolepis</i> , Caddo Cr., Ark.-----	1	7	1															
Vic. Broken Bow, Okla.-----	1	22	11	5														
Cache Cr., Okla.-----			1															
Totals, <i>N. c. isolepis</i> -----	2	30	12	5														
<i>N. c. chrysocephalus</i> -----					2	10	14	38	52	29	24	17	11	6	2		1	1

This race represents the species in the Red River basin. It differs from all the other subspecies of *cornutus* in having the scales scarcely crowded before the dorsal, the typical number being 13 on the mid-line from the dorsal fin to the occiput, with a range of variation of 12 to 15. It approaches most closely *Notropis cornutus chrysocephalus* Rafinesque, which occupies contiguous territory, the central and eastern part of the Mississippi basin.

The variation in the number of scales before the dorsal in these two subspecies may be indicated in a table of available counts. Three series of counts for *isolepis* are given; the counts for *chrysocephalus* are of many sets, from Indiana, Ohio, Kentucky, West Virginia, Virginia, Tennessee, Georgia, Alabama, Nebraska and Missouri and from Fayetteville, Wyatt, and Mammoth Springs in the White River drainage of Arkansas. Nowhere is the area occupied by typical *chrysocephalus* have we found the modal numbers of predorsal scales fewer than 17.

22. *Notropis umbratilis umbratilis* (Girard).

Hubbs has examined the type of *Alburnus umbratilis* Girard, finding that the species currently called *Notropis umbratilis* has been correctly identified with Girard's species. *Notropis notemigonooides* Evermann and *Notropis fumeus* Evermann, two nominal species described from Texas, are closely related to *umbratilis*, although they have not been compared with that species in the literature.

P-1. 8 miles south of Wister, Poteau River, Le Flore County.

P-2. 2 miles north of Wister, in pond, Le Flore County.

P-5, P-6, P-9. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-11, P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-23, P-24, P-25. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-28, P-29, P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

23. *Phenacobius mirabilis* (Girard).

Forbes and Richardson (1908, p. 159) were probably right in their conclusion regarding the identity of *P. scopifer* with *P. mirabilis*.

Near Dougherty, tributary of the Washita River, Murray County.

Notemigonus crysoleucas crysoleucas (Mitchill).

In 1921 Hubbs¹ indicated that Oklahoma lies in the region of intergradation between the northwestern subspecies with few anal rays and the southeastern race (*boscii*) having more anal rays. No actual counts were then available from this state, however, and the material at hand proves the indication to have been erroneous. *Notemigonus crysoleucas* in Oklahoma has the anal rays almost as few as in the northwestern part of its range.

Table showing variation in number of branched anal rays in specimens of *Notemigonus crysoleucas* from Oklahoma.

	Branched anal rays			
	10	11	12	13
Poteau River, 6 miles south of Wister.....			1	
Canadian River near Norman, Okla.....	1	7	7	2
Canadian River cut off pond, 7 miles west of Norman, Okla.		1	2	2
Tributary of Arkansas River, near Okmulgee, Okla.		1		1
Total	1	9	10	5

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

Four miles southwest of Norman, Canadian River, Cleveland County.

Seven miles west of Norman, in pond, cut off from Canadian River, Cleveland County.

A tributary of the Arkansas River near Okmulgee, Okmulgee County.

25. *Hybognathus hayi* Jordan.

Our material of *hayi* comes from farther west than any of the prior records for the species, but we have compared our examples with the types in the National Museum and have found them to agree.

H. hayi has the eye larger than in *nuchalis* (much larger than in *H. n. placitus*), the snout less obtuse and the gape semioval rather than semicircular as seen from below.

P-19. 4 miles west of Arkansas-Oklahoma line, Red River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

¹Trans. Ill. St. Acad. Sci., 11, 1918 (1921), p. 149.

26. *Hybognathus nuchalis placitus* Girard.

Examples are in the Field Museum from Alva, Oklahoma, which were collected by Surber.

P-19, P-20. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.

Four miles southwest of Norman, Canadian River, Cleveland County.

27. *Ceratichthys vigilax* Baird and Girard.

Ceratichthys, *Cochlognathus*, *Hyborhynchus* and *Pimephales* form a closely related cluster of genera (the *Pimephalinae*). *Cochlognathus* differs from *Ceratichthys* not only in having horny cutting edges along the jaws but also in having the nuptial tubercles confined to one instead of two rows on the snout.

Near Dougherty, tributary of Washita River, Murray County.

28. *Hyborhynchus notatus* (Rafinesque).

The current re-separation of *Hyborhynchus* from *Pimephales* seems well justified.

P-1. 18 miles southwest of Wister, Holston Creek, Le Flore County.

P-6. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-23, P-24. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-27. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

29. *Pimephales promelas confertus* (Girard).

We have lately examined the material needed for working out the relationships of *P. p. maculosus* with *P. m. confertus* of the Rio Grande. The supposedly distinctive color features of the breeding males of *confertus* are duplicated in *promelas* proper, and the scales are not finer as described. Now that *maculosus* has proved identical with *confertus*, the latter name takes precedence.

Just south of Norman, Canadian River, Cleveland County.

Four miles southwest of Norman, Canadian River, Cleveland County.

One mile south and 1½ miles east of Norman, in pond, Cleveland County.

Nine miles northwest of Headquarters, Wichita National Forest and Game Preserve, in small stream from Time O' Day Spring,

Comanche County.

A tributary of the Arkansas River, near Okmulgee, Okmulgee County.

30. *Campostoma anomalum* (Rafinesque).

P-21, O—203. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-28, P-29, P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

P-42—P-46. 8 miles northwest of Cache, Panther Creek (branch of West Cache Creek), Comanche County.

Near Dougherty, tributaries of the Washita River, Murray County.

AMEIURIDAE.

31. *Ictalurus furcatus* (Le Sueur).

P-18. 4 miles west of Arkansas-Oklahoma line, Red River, McCurtain County.

32. *Ictalurus punctatus* (Rafinesque).

P-13. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-18, P-19. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.

P-37. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

Just south of Norman, Canadian River, Cleveland County.

33. *Ameiurus melas catulus* (Girard).

In our examples identified as *A. m. catulus* the anal rays, including all rudiments, number 19 to 23; the pectoral spine bears only obscure denticulations, even in the young, although often nearly half as long as the head; the body proportions are those of typical *nebulosus*; the ground color is dusky silvery to blackish and the anal fin is colored as in typical *melas*. These specimens therefore present characters more or less intermediate between those of *A. nebulosus* and those of *A. m. melas*. The actual relation of this race will be discussed by us in a later paper.

P-28, P-39, P-40. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

Just south of Norman, Canadian River, Cleveland County.

Norman, Doll's Park Creek, Cleveland County.

One mile south and $1\frac{1}{2}$ miles east of Norman, large pond, Cleveland County.

A tributary of the Arkansas River, near Okmulgee, Okmulgee County.

34. *Ameiurus natalis* (Le Sueur).

P-27, P-28, P-29, P-31, P-32. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

P-43. 8 miles northwest of Cache, Panther Creek (branch of West Cache Creek), Comanche County.

Near Dougherty, tributaries of the Washita River, Murray County.

ESOCIDAE.

35. *Esox vermiculatus* (Le Sueur).

P-11. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-25. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-27. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

36. *Fundulus notatus* (Rafinesque).

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

P-6. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-11, P-12, P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-23, P-24. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-29. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

37. *Plancterus kansae* (Garman).

In a recent paper, Hubbs⁹ has proposed the elevation of the subgenus *Plancterus* to generic rank, and has shown that the species ordinarily known as *Fundulus zebrinus* is a complex of two forms, *zebra* and *kansae*. Whether these are species or subspecies remains to be determined.

P-42—P-46. 8 miles northwest of Cache, Panther Creek (branch of West Cache Creek), Comanche County.

⁹Misc. Publ. Mus. Zool., Univ. Mich., No. 16, 1926, p. 14-15.

Nine miles northwest of Headquarters, Wichita National Forest and Game Preserve, stream from Time O' Day Spring, Comanche County.

Just south of Norman, Canadian River, Cleveland County.

Near Dougherty, tributaries of the Washita River, Murray County.

Specimens also seen from Alva, Oklahoma.—(C. L. H.)

POECILIIDAE.

38. *Gambusia patruelis* (Baird and Girard).

In the same paper, Hubbs has indicated that the species usually called *Gambusia affinis* is wrongly so named, being in fact a complex of *G. holbrookii* of the Atlantic drainage and *G. patruelis* of the Gulf drainage.

P-11, P-14. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-20. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.

P-28, P-29, P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

A tributary of the Arkansas River, near Okmulgee, Okmulgee County.

APHREDODERIDAE.

39. *Aphredoderus sayanus* (Gilliams).

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

PERCIDAE.

40. *Perca flavescens* Mitchill.

These specimens come from far beyond the recorded range of the species.

Three miles southwest of Norman, Canadian River, Cleveland County.

41. *Boleosoma camurum* Forbes.

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

42. *Poeciliichthys lepidus* (Girard).

P-2. 2 miles north of Wister, in pond, Le Flore County.

Near Dougherty, tributary of Washita River, Murray County.

43. *Poeciliichthys whipplei* Girard.

P-10. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-29. P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

44. *Hololepis fusiformis* (Girard).

P-11. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-29. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

CENTRARCHIDAE.

45. *Micropterus dolomieu* Lacepede.

P-26. 6 miles north of Valliant, Little River, McCurtain County

46. *Micropterus pseudaplites* Hubbs (ms.).

Hubbs hopes soon to publish elsewhere a revision of the species of black bass and to include in it a description of this new species.

P-2. 2 miles north of Wister, in pond, Le Flore County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-20. 6 miles north of Valliant, Little River, McCurtain County.

47. *Aplites salmoides* (Lacepede).

P-1. 18 miles southwest of Wister, Holston Creek, Le Flore County.

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-19. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-2. P-24. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-29. P-39. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

Seven miles west of Norman, in pond, Cleveland County.

48. *Chaenobryttus gulosus* (Cuvier and Valenciennes).

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

49. *Apomotis cyanellus* (Rafinesque).

A number of writers have urged that several genera of sun-

fishes be united with *Lepomis*, but in general their indications of intergradation have involved the characters of occasional hybrid individuals. *Apomotis* is well distinguished from other sunfish genera by its large mouth, well developed supplementary maxillary, obsolescent ctenii on scales, low anal spines and scarcely bilobed air-bladder.

P-5, P-7, P-22, P-25. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-11, P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-19. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-27—P-29, P-31, P-34, P-36, P-38—P-40. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

M-2. Near Dougherty, tributary of Washita River, Murray County.

Just south of Norman, Canadian River, Cleveland County.

Norman, Doll's Park Creek, Cleveland County.

One mile east and 1½ miles south of Norman, in pond, Cleveland County.

A tributary of the Arkansas River, near Okmulgee, Okmulgee County.

SCLEROTIS Hubbs, new genus.

Type, *Lepomis miniatus* Jordan.

Body chubby, sunfish-shaped; scales rather large, mostly ctenoid; pyloric caeca few and large, unbranched; anal spines 3, rather high. the fin short; tongue, hyoid and pterygoids toothless, but palatine toothed; mouth rather small; supplementary maxillary small; lower pharyngeals narrow, with subconic teeth; operculum truncate, the bone quite stiff to the normal membranous margin; pectoral fins rather short and rounded, much shorter than head; dorsal shallowly emarginate, the spines not very high; gillrakers rather short, but better developed than in *Xenotis*; cranium and facial bones without large sensory cavities.

Sclerotis shares many characters with *Xenotis* and *Heteroperca*, having most in common with *Xenotis*. It differs sharply from both these genera in the structure and shape of the operculum and in the development of palatine teeth.

(*Sclerotis*: in reference to the stiff "ear". The name should apparently be regarded as of masculine gender.)

50. *Sclerotis miniatus* (Jordan).

P-11. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County. Caught by seining a slough which was connected with the river by a small stream.

ALLOTIS Hubbs, new genus.

Type, *Bryttus humilis* Girard.

Body usually slenderer than in other sunfishes, but often becoming chubby with age; scales large, mostly ctenoid; pyloric caeca large and few, unbranched; anal spines 3, high, the fin short; tongue, hyoid, pterygoids and palatines all toothless, mouth moderately small, not reaching to below middle of eye; lower pharyngeals narrow, with conic teeth; black opercular flap large, but almost entirely membranous, the bluntly pointed opercular angle, although flexible, not extended far into the "ear"; pectoral fins usually but little shorter than head, and rather sharp; dorsal scarcely emarginate; gill-rakers rather long and slender; top of cranium, preopercle, mandible, suborbitals, preorbital and nasals all thin, with large sensory cavities.

Allotis is most like *Xenotis* and *Helioperca*, and has ordinarily been included in the latter group. It differs sharply, however, in the structure of the opercular flap and especially in the cavernous structure of the cranial and facial bones.

(*Allotis* = another ear, in allusion to the distinctive structure of the opercular flap. The name should apparently be regarded as of masculine gender.)

51. *Allotis humilis* (Girard).

P-2. 2 miles north of Wister, in pond, Le Flore County.

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

P-28, P-29, P-31, P-39, P-40. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

Seven miles west of Norman, in pond, Cleveland County.

One mile south and 1½ miles east of Norman, in pond, Cleveland County.

A tributary of the Arkansas River, near Okmulgee, Okmulgee County.

Just south of Norman, Canadian River, Cleveland County.

52. *Helioperca incisor* (Cuvier and Valenciennes).

The blue-gill should apparently be known under this name, rather than that of *Lepomis pallidus*.

P-1. 18 miles southwest of Wister, Holston Creek, Le Flore County.

P-2. 2 miles north of Wister, in pond, Le Flore County.

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

P-11. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-24. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-28, P-29, P-31, P-33, P-39, P-40. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

Seven miles west of Norman, in pond, Cleveland County.

53. *Xenotis megalotis fallax* (Baird and Girard).

The extreme characters of this race are shown only by the nuptial males.

P-2. 2 miles north of Wister, in pond, Le Flore County.

P-5, P-6, P-7. 2 miles north of Broken Bow, Yanubbe Creek, McCurtain County.

P-11, P-12, P-16, P-17. 10 miles southeast of Broken Bow, Mountain Fork River, McCurtain County.

P-21. 9 miles east of Broken Bow, tributary of Little River, McCurtain County.

P-23. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-26. 6 miles north of Valliant, Little River, McCurtain County.

P-27—P-29, P-31, P-38, P-39, P-40. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

Just south of Norman, Canadian River, Cleveland County.

54. *Centrarchus macropterus* (Lacepede).

P-4. 7 miles south of Broken Bow, Pine Lake, McCurtain County.

55. *Pomoxis annularis* Rafinesque.

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

Near Dougherty, in tributary of Washita River, Murray County.

ATHERINIDAE.

56. *Labidesthes sicculus* Cope.

In Oklahoma material the soft anal rays vary from 21 to 25 in number. This number holds over most of the range of the species. Near the northern end of its range, however, an increase has been reported. Benaley²⁸ counted 24 to 27 rays in specimens from

²⁸Conn. Acad. Sci., 1911-1914 (1915), p. 38.

Georgian Bay, indicating the existence there of a fairly distinct race. Material from southeastern Michigan, near the type-locality of the species, shows an intermediate number of anal rays. We doubt, therefore, that this variation should be made use of for subspecific discrimination.

P-1. 18 miles southwest of Wister, Holston Creek, Le Flore County.

P-3. 6 miles south of Wister, Poteau River, Le Flore County.

P-23, P-24. 2 miles northwest of Broken Bow, Yashoo Creek, McCurtain County.

P-26. 6 miles north of Valliant, Little River, McCurtain County.

P-28, P-29, P-31. 4 miles east of Tuskahoma, Kiamichi River, Pushmataha County.

SCIAENIDAE.

57. *Aplodinotus grunniens* (Rafinesque).

P-19. 4 miles west of the Arkansas-Oklahoma line, Red River, McCurtain County.