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F. V. HAYDEN,

U. S. GEOLOGIST-IN-CHARGE.

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BULLETIN No. 4.—*December* —, 1878.

LIST OF ILLUSTRATIONS.

PLATE.

WOODCUTS IN TEXT.

excepting the extreme tip of the principal, are straight, and the reticulation tetragonal. The wing appears to be hyaline throughout, the pterostigma very slightly infumated, the nervures fusco-castaneous, those about the pterostigma deepening nearly to black. Apically the wing is well rounded, its apex falling in the middle and not at all produced. A species is indicated of about the size of *P. macropus* Sel.

Length of pterostigma along costal edge 1.5mm, of same from inner lower angle to outer upper angle 2.1mm; breadth of pterostigma 0.65mm, of wing in middle of apical half 5.5mm.

ARACHNIDA.

Nos. 3, 4a, 4199, 4200, represent legs of the same or allied species of spider of about the size of *Epeira riparia* Hentz; femora and tibiæ and the sides of the tarsi are abundantly supplied with longitudinal rows of fine, long, black spines, the claw double. No. 36 preserves the spines alone of the same sort of leg.

Length of femora 7mm, of tibiæ 7.75mm, of tarsi 3.25, of claw 0.3mm, of spines 0.75mm.

No. 63 shows the hairy, subfusiform, ovate body of a spider apparently a little smaller than the above.

Length of abdomen 4.5mm; breadth of same 1.8mm.

No. 4201 is the egg-cocoon of a spider, and is of exactly the same size, shape, and general appearance as those from British Columbia, which I have described under the name of *Aranea columbiæ*, excepting that, from a break in the stone, there is no trace of a pedicel.

Length of egg-cocoon 5mm; breadth 4mm.

MYRIAPODA.

Iulus telluster.—A single Myriapod (No. 154a) found by Mr. Richardson in the Green River bed is so fragmentary that it can only be referred to *Iulus* in a broad generic sense. The piece is composed of ten or twelve segments, probably from near the middle of the body, lying in a straight line and crushed, with no trace of any appendages. The segments appear to be composed of a short anterior and a larger posterior division, each independently and very slighly arched; the posterior division is about twice as long as the anterior, and each is transversely regularly and very finely striate parallel to the anterior and posterior margins of the segments. The foramina can be detected on some of the segments, and by their aid the width of the body can be more accurately determined. As crushed, the body is 2.3mm broad, but its probable true width is 1.5mm, while the segments are each about 0.8mm long; the fragment preserved measures 8.5mm long.

DOI. Bulletin of the U.S. Geological and Geographical Survey of the Territories. F.V. Hayden in charge. 1878. Vol IV. GPO: Wash, 1878. Bulletin No. 4, Dec, 1878.

ART. XXXIII.—REPORT ON THE COLLECTION OF FISHES MADE BY DR. ELLIOTT COUES U. S. A. IN DAKOTA AND MONTANA DURING THE SEASONS OF 1873 AND 1874.

By David S. Jordan, M. D.

[The fishes worked up by Professor Jordan in the present communication represent probably about two-thirds of the collection made during my connection with the United States Northern Boundary Commission, the remainder of the specimens having been lost or mislaid. I am informed, however, that the series submitted to Professor Jordan contains some novelties, rarities, and other specimens of sufficient interest to render publication desirable. I have incorporated a few collector's field-notes with the author's manuscript. The fishes taken in 1873 were secured in the waters of the Red and Mouse Rivers and some of their affluents; those secured in 1874 are from watersheds entirely different both from the last named and from each other, being partly taken from the Milk River and its northern tributaries, and partly from the Saint Mary's River, Chief Mountain Lake, and other headwaters of the Saskatchewan.

For articles on other portions of my collections see this Bulletin, this Vol., No. 1, pp. 259–292; No. 2, pp. 481–518; No. 3, pp. 545–661; No. 4, pp. 801–830.—Ed.]

By some accident, the exact record of the localities of some of the smaller fishes has been lost or confused, and some of the specimens collected by Dr. Coues have failed to reach the writer, having probably been distributed through the general collection of the National Museum. I therefore add the field record of Dr. Coues, from which the general field of collection can be ascertained.

Collector's Memorandum.

1000. Catfish. Red River, near Pembina, Dakota. May 30, 1873.
1076. Pike [*Esox lucius*]. Near Turtle Mountain, Dakota. Aug. 10, 1873.
1084. Lot of small fish. Mouse River, Dakota. Aug. 17, 1873.
1100. Shovel-nosed Sturgeon [*Scaphirhynchops platyrhynchus*]. Fort Buford, Dakota. June 12, 1874.
1103–4–5. Catfish [*Ichthælurus punctatus*]. Big Muddy River. June 20, 1874.
1109–10. Lot of small fish [*Hyodon chrysopsis*]. Quaking Ash River. June 26, 1874.
1139. Sucker [*Catostomus teres*]. Two Forks Milk River. July 15, 1874.
1140. Cyprinoid. Two Forks Milk River. July 15, 1874.
1143. Sucker [*Catostomus teres*]. Two Forks Milk River. July 17, 1874.
1144. Cyprinoid. Two Forks Milk River. July 17, 1874.
1155–6. Lot of fish [*Pantosteus virescens*]. Sweetgrass Hills. July 29, 1874.
1162. Sucker [*Catostomus teres*]. Headwaters Milk River. Aug. 9, 1874.
1163–4–5. Lot of fish, three kinds. Headwaters Milk River. Aug. 9, 1874.
1168. Large fish. Headwaters Milk River. Aug. 14, 1874.
1169–70–1–2–3. Lots of fish. Headwaters Milk River. Aug. 14, 1874.
1174. River Trout [*Salmo clarkii*]. Saint Mary's River. Aug. 16, 1874.
1175. "Gristle-nosed Fish" [*Polyodon folium?*]. Saint Mary's River. Aug. 16, 1874.

SEE CJD BROWN PADDLEFISH IN FT PECK (1951)

1176. Pike [*Esox lucius*]. Saint Mary's River. Aug. 16, 1874.
1178. Lake Trout [*Cristivomer namaycush*]. Chief Mountain Lake. Aug. 18, 1874.
1179. Whitefish [*Coregonus quadrilateralis*]. Chief Mountain Lake. Aug. 18, 1874.
1182. Whitefish [*Coregonus couesi*]. Chief Mountain Lake. Aug. 18, 1874.
1189. Head of 18-lb. Salmon [*Salmo stomias*]. Chief Mountain Lake. Aug. 24, 1874.
1192. Sucker [*Catostomus teres*]. Chief Mountain Lake. Aug. 28, 1874.

Family ACIPENSERIDÆ.

Genus SCAPHIRHYNCHOPS Gill.

(*Scaphirhynchus* Heckel preoccupied.)

1.—SCAPHIRHYNCHOPS PLATYRHYNCHUS (Raf.) Gill.

Shovel-nosed Sturgeon.

1820—*Acipenser platorhynchus* RAF., Ich. Oh. p. 80
Acipenser platorhynchus KIRTLAND, Rept. Zool. Ohio, 1838, 196.
Acipenser platorhynchus KIRTLAND, Bost. Journ. Nat. Hist. v, 25.
Acipenser platorhynchus STORER, Synopsis Fish N. A. (1846), 501.
Scaphirhynchus platyrhynchus BAIRD, Iconogr. Encycl. ii, 1850, 238.
Scaphirhynchus platyrhynchus GIRARD, U. S. Pac. R. R. Surv. x, 357.
Scaphirhynchus platyrhynchus JORDAN, Man. Vert. 1876, 312, and of American writers generally.
Scaphirhynchops platyrhynchus GILL, 1867? (in a catalogue of fishes of the Missouri region; the reference not at hand. (Name only.)
Scaphirhynchops platyrhynchus COPE & YARROW, Zool. Lieut. Wheeler's Expl. W. 100th Mer. v, 1876, 639.
Scaphirhynchops platyrhynchus JORDAN & COPELAND, Check List Fishes, 1876, 161.
Scaphirhynchops platyrhynchus NELSON, Bull. Ills. Mus. Nat. Hist. 51, 1876.
Scaphirhynchops platyrhynchus JORDAN, Man. Vert. ed. 2d, 346, 1878.
Scaphirhynchops platyrhynchus JORDAN, Cat. Fishes N. Am. 413, 1878.
1834—*Acipenser cataphractus* GRAY, Proc. Zool. Soc. London, 122.
Scaphirhynchus cataphractus GÜNTHER, Cat. Fishes Brit. Mus. viii, 345, 1870.
1835—*Scaphirhynchus rafinesquii* HECKEL, Ann. Wiener Mus. Naturg. i, 71.
Scaphirhynchus rafinesquii HECKEL, Ann. Wien. Mus. Naturg. i, 72, pl. viii.
Scaphirhynchus rafinesquii BRUTZER, Dissert. Dorpat. 1860.

Dr. Coues writes me that he obtained a fine specimen of this species at Fort Buford, Dakota. I have not seen it, however. This species seems to be abundant in all the large streams between the Alleghanies and the Rio Grande. West of the Rio Grande Basin, it has not yet been noted.

The "Gristle-nosed Fish" from Saint Mary's River, recorded by Dr. Coues, is perhaps *Polyodon folium* Lac. I have not seen the specimen referred to.

Family SILURIDÆ.

Genus ICHTHÆLURUS Rafinesque.

2.—ICHTHÆLURUS PUNCTATUS (Raf.) Jor.

Channel Cat. White Cat. Lady Cat.

1818—*Silurus punctatus* RAF., Amer. Monthly Mag. and Critical Review, Sept. 359.
Ictalurus punctatus JORDAN (1876), Bull. Buff. Soc. Nat. Hist. 95.

Ictalurus punctatus JORDAN (1876), Manual of Vertebrates, 300.
Ictalurus punctatus JORDAN & COPELAND (1876), Check List in Bull. Buff. Soc. Nat. Hist. 159.
Ictalurus punctatus JORDAN (1877), Annals Lyc. Nat. Hist. N. Y. 350.
Ictalurus punctatus NELSON (1876), Bull. Ills. Mus. Nat. Hist. 50.
Ichthælurus punctatus JORDAN (1877), Bull. U. S. Nat. Mus. ix, 38.
Ichthælurus punctatus JORDAN (1877), Bull. U. S. Nat. Mus. x, 76.
Ichthælurus punctatus JORDAN (1878), Man. Vert. ed. 2d, 328.
Ichthælurus punctatus JORDAN (1878), Bull. Hayden's Geog. Geol. Surv. Terr. 415.
1819—*Pimelodus caudafurcatus* LE SUEUR, Mémoires du Muséum, v, 152.
Amiurus caudafurcatus GÜNTHER (1864), Catalogue of Fishes, v, 102.
1820—*Silurus maculatus* RAF., Quarterly Journal of Science, Literature, and Arts, London, 48 (et var. *erythroptera*, 49).
Pimelodus (Ictalurus) maculatus RAF. (1820), Ichthyologia Ohiensis, 62.
1820—*Silurus pallidus* RAF., Quart. Journ. Sci. Lit. Arts, London, 49 (et vars. *marginatus, lateralis, leucoptera*).
Pimelodus pallidus RAF. (1820), Ich. Oh. 63.
Pimelodus pallidus KIRTLAND (1838), Report Zool. Ohio, 169, 194.
1820—*Silurus cerulescens* RAF., Quart. Journ. Sci. Lit. Arts, London, 49 (et var. *melanurus*).
Pimelodus cerulescens RAF. (1820), Ich. Ohiensis, 63.
Pimelodus cerulescens KIRTLAND (1838), Rept. Zool. Ohio, 169, 194; (1846), Bost. Journ. Nat. Hist. iv, 332.
Pimelodus cerulescens STORER (1846), Synopsis Fishes N. A. in Mem. Nat. Acad. Sci. 405.
Ictalurus cærulescens GILL (1862), Proc. Bost. Soc. Nat. Hist. 43.
Ictalurus cærulescens COPE (1865), Proc. Acad. Nat. Sci. Phila. 85; (1870), Proc. Am. Philos. Soc. 489.
Ictalurus cærulescens JORDAN (1874), Ind. Geol. Survey, 222.
Ictalurus cærulescens GILL (1876), Ich. Capt. Simpson's Exped. 417.
Ichthælurus cærulescens COPE (1869), Journ. Acad. Nat. Sci. 237.
1820—*Silurus argentinus* RAF., Quart. Journ. Sci. Lit. Arts, London, 50.
1820—*Pimelodus argyrus* RAF., Ichthyologia Ohiensis, 64.
1840—*Pimelodus furcifer* CUV. & VAL., Hist. Nat. des Poiss. xv, 139.
Pimelodus furcifer "HYRTL (1859), Denkschr. Akad. Wiss. Wien, 16".
Pimelodus furcifer "KNER, Sitzgsber. Akad. Wiss. Wien, xxvi, 421".
Ictalurus furcifer GILL (1862), Proc. Bost. Soc. Nat. Hist. 43.
Ictalurus furcifer JORDAN (1876), Manual Vert. 300.
1852—*Pimelodus gracilis* HOUGH, Fifth Ann. Rept. Reg. Univ. Condition State Cabinet Nat. Hist. Albany, 26.
Synechoglanis gracilis GILL (1859), Trans. Lyc. Nat. Hist. 3 (reprint).
Ictalurus gracilis GILL (1862), Proc. Bost. Soc. Nat. Hist. 43.
Ictalurus gracilis COPE (1865), Proc. Acad. Nat. Sci. Phila. 85.
Ictalurus gracilis JORDAN (1876), Man. Vert. 300.
Ictalurus gracilis JORDAN & COPELAND (1876), Check List, 159.
1858—*Pimelodus vulpes* GIRARD, Proc. Acad. Nat. Sci. Phila. 170; (1859), U. S. and Mex. Bound. Surv. 33.
Ictalurus vulpes GILL (1862), Proc. Bost. Soc. Nat. Hist. 43.
Ictalurus vulpes JORDAN & COPELAND (1876), Check List, 159.
1858—*Pimelodus olivaceus* GIRARD, Pac. R. R. Survey, x, 211.
Ictalurus olivaceus GILL (1862), l. c. 43; (1876), Rept. Ichthy. Capt. Simpson's Exp. 417.
Ictalurus olivaceus JORDAN (1876), Man. Vert. 300.
Ictalurus olivaceus JORDAN & COPELAND (1876), Check List, 159.
1859—*Synechoglanis headlei* GILL (1859), Trans. Lyc. Nat. Hist. N. Y. 2 (reprint).

Ictalurus beadlei GILL (1862), Proc. Bost. Soc. Nat. Hist. 43.
Ictalurus beadlei JORDAN & COPELAND (1876), Check List, 159.
1859—*Pimelodus houghii* GIRARD, Proc. Acad. Nat. Sci. Phila. 159.
1859—*Pimelodus megalops* GIRARD, Proc. Acad. Nat. Sci. Phila. 161.
Ictalurus megalops JORDAN & COPELAND (1876), Bull. Buff. Soc. Nat. Hist. 159.
1859—*Pimelodus graciosus* GIRARD, Proc. Acad. Nat. Sci. Phila. 161.
1860—*Pimelodus hammondii* ABBOTT, Proc. Acad. Nat. Sci. Phila. 568.
1860—*Pimelodus notatus* ABBOTT, Proc. Acad. Nat. Sci. Phila. 569.
1862—*Ictalurus simpsoni* GILL, Proc. Bost. Soc. Nat. Hist. 43; (1876), Ich. Capt. Simpson's Exp. 417.

Heads of three specimens, not obviously different from Eastern specimens of this widely diffused species. The specific names *olivaceus*, *simpsoni*, *hammondi*, and *notatus* have been given to Channel Cats from the Missouri region, chiefly on account of their "remote habitat"; but the examination of specimens does not show a shade of difference.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21203	1103	Big Muddy River, Dak	Dr. Elliott Coues	June 20, 1874.
21204	1104	do	do	do.
21205	1105	do	do	do.

Family CATOSTOMIDÆ.

Genus PANTOSTEUS Cope.

3.—PANTOSTEUS VIRESCENS Cope.

1876—*Pantosteus virescens* COPE, Lieutenant Wheeler's Expl. W. 100 Mer. v, Zool. 675.
Pantosteus virescens JORDAN & COPELAND, Check List Fishes N. A. 156, 1876.
Pantosteus virescens, JORDAN, Bull. U. S. Geol. Surv. Terr. iv, 416, 1878.

Numerous small specimens, from two to seven inches in length, agreeing very well with Professor Cope's description. They all have the peculiar form of mouth, and the semi-cartilaginous maxillary sheath, which the other members of this genus and some of the species of *Catostomus* possess. The head is very short, forming barely one-fifth the length without caudal. The scales are very small, there being from 95 to 100 in the lateral line. All of these specimens have, however, a small fontanelle, which probably becomes closed with age; otherwise the species is to be referred to *Catostomus*. Its relations to *Catostomus discobolus* Cope are very close.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21191	1155	Sweet Grass Hills	Dr. Elliott Coues	July 29, 1874
21191	1156	do	do	do.

Genus CATOSTOMUS Le Sueur.

4.—CATOSTOMUS RETROPINNIS Jordan, sp. nov.

This species belongs to the subgenus of typical *Catostomus*. It is therefore related to *C. latipinnis*, *C. longirostris*, and *C. tahoensis*, and may be briefly characterized as having the body, scales, dorsal and ventral fins of *longirostris*, with the mouth and lips of *latipinnis*. Its nearest relations are, I think, with *latipinnis*, with which species it is compared below.

Body long and slender, subterete, compressed behind, the form therefore essentially that of *C. longirostris*, the depth contained 5½ times in the length. Head large, long, its length contained about four times in the total length without the caudal fin (4½ in *latipinnis*); interorbital space broad and flat, about 2½ times in length of head; eye small, high up, and posterior, entirely behind the middle of the head (near the middle in *latipinnis*); preorbital bone very long, its length about three times its depth (scarcely twice in *latipinnis*); the snout correspondingly prolonged; fontanelle quite small; mouth very large, formed as in *latipinnis*, but rather broader and not so long; upper lip pendent, very large, with a broad, free border, with 5 to 8 series of low tubercles, almost obliterated in the type-specimen, on account of the softening of the skin; lower lip very full, its posterior margin reaching to the nostrils (rather farther in *latipinnis*).

Dorsal fin not large, its rays I, 11 (I, 13, in *latipinnis*); its base about three-fifths the length of the head (five-sixths in *latipinnis*); its insertion unusually backward, much nearer base of caudal than the tip of the snout (much nearer the snout in *latipinnis*); caudal fin large, well forked, its rudimentary basal rays not greatly developed; anal fin long and high, reaching base of caudal; ventrals not reaching to vent (to vent in *latipinnis*); pectoral fins long.

Caudal peduncle rather stout and deep, its least depth more than one-third head (less than one-third in *latipinnis*); its length about two-thirds that of head (seven-eighths in *latipinnis*). In *latipinnis*, the caudal peduncle is notably long and slender.

Scales quite small, about as in *longirostris*, larger behind, the exposed portion not notably lengthened as in *latipinnis;* chest with well-developed scales (these rudimentary and imbedded in *latipinnis*).

The type is a large specimen, 16¾ inches long; a male, as is shown by the presence of tubercles on the anal and caudal fins, a fact confirmed by dissection. In coloration, it is rather dark, with traces of a dusky lateral band, which passes around the snout. This specimen is numbered 21197 on the Register of the National Museum.

Another specimen of this species is in the National Museum, from Platte River. It was identified by me as the female of *C. latipinnis*, the numerous differences in form being supposed to be sexual. As the

types both of *latipinnis* and *retropinnis* are adult males, that supposition is not tenable.

So far as is known to me, but one genuine specimen of *C. latipinnis* is now known. It is the original type of Baird and Girard's description, from the Gila Basin, the one figured in the Ichthyology of the United States and Mexican Boundary Survey. It is in fine condition, and is well represented in the figure referred to. This specimen now lies before me, and the comparisons above made were taken from it.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21197	.....	..... (?)	Dr. Elliott Coues.....	.....(?).

5.—CATOSTOMUS TERES (Mitchill) Le Sueur.

Common Sucker.

1803—*"Le Cyprin Commersonien"* LACÉPÈDE, Hist. Nat. des Poiss. v, 502, 508.
Catostomus commersonii JORDAN (1878), Man. Vert. ed. 2d, 320.
Catostomus commersoni JORDAN, Cat. Fishes N. Am. (1878), 416.
18——*Cyprinus catostomus* PECK, Mem. Am. Acad. ii, 55, pl. 2. (Not of Forster.)
1814—*Cyprinus teres* MITCHILL, Lit. and Phil. Trans. N. Y. i, 458.
Catostomus teres LE SUEUR (1817), Journ. Acad. Nat. Sci. Phila. 108.
Catostomus teres THOMPSON (1842), Hist. Vt. 134.
Catostomus teres CUV. & VAL. (1844), Hist. Nat. des Poissons, xvii, 468.
Catostomus teres STORER (1846), Synopsis Fish N. A. 423.
Catostomus teres AGASSIZ (1855), Am. Journ. Sci. Arts, 2d series, xix, 208.
Catostomus teres GÜNTHER (1868), Cat. Fishes Brit. Mus. vii, 15.
Catostomus teres COPE (1870), Proc. Am. Philos. Soc. Phila. 468.
Catostomus teres JORDAN (1875), Fishes of Ind. 221.
Catostomus teres JORDAN (1876), Man. Vert. 293.
Catostomus teres NELSON (1876), Bull. No. 1 Ills. Mus. Nat. Hist. 48.
Catostomus teres JORDAN & COPELAND (1876), Check List, 156.
Catostomus teres JORDAN & GILBERT (1877), in Klippart's First Rep. Ohio Fish Com. 84, pl. xii, figs. 18, 19.
Catostomus teres JORDAN (1877), Bull. U. S. Nat. Mus. ix, 37.
1817—*Catostomus communis* LE SUEUR, Journ. Ac. Nat. Sci. Phila. i, 95.
Catostomus communis DEKAY (1842), N. Y. Fauna, part iv, Fishes, 196.
Catostomus communis CUV. & VAL. (1844), Nat. Hist. des Poissons, xvii, 426.
Catostomus communis KIRTLAND (1845), Bost. Journ. Nat. Hist. v, 265.
Catostomus communis STORER (1846), Synopsis, 421.
Catostomus communis COPE (1868), Journ. Acad. Nat. Sci. Phila. 236.
Catostomus communis UHLER & LUGGER (1876), Fishes of Maryland, 138.
1817—*Catostomus bostoniensis* LE SUEUR, Journ. Acad. Nat. Sci. Phila. 106.
Catostomus bostoniensis STORER (1838), Rept. Ich. Mass. 84.
Catostomus bostoniensis CUV. & VAL. (1844), Hist. Nat. des Poiss. xvi, 432.
Catostomus bostoniensis STORER (1846), Synopsis, 423.
Catostomus bostoniensis PUTNAM (1863), Bull. Mus. Comp. Zool. 10.
Catostomus bostoniensis GILL (1865), Canadian Nat. 19, Aug.
Catostomus bostoniensis STORER (1867), Hist. Fishes Mass. 290, pl. xxii, f. 3.
Catostomus bostoniensis THOREAU (1868), Week on Concord and Merrimack, 38.
1820—*Catostomus flexuosus* RAF., Ich. Ohio, 59.

1823—*Catostomus hudsonius* RICH., Franklin's Journ. 717. (Not of Le Sueur.)
Cyprinus (Catostomus) hudsonius RICH. (1836), Fauna Bor.-Amer. Fishes, 112.
1836—*Cyprinus (Catostomus) reticulatus* RICHARDSON, Fauna Bor.-Amer. Fishes, 303.
1838—*Catostomus gracilis* KIRTLAND, Rept. Zool. Ohio, 168.
1838—*Catostomus nigricans* STORER, Rept. Ich. Mass. 86. (Not of Le Sueur.)
Catostomus nigricans THOMPSON (1842), Hist. Vt. 135.
1842—*Catostomus pallidus* DEKAY, N. Y. Fauna, part iv, Fishes, 200.
Catostomus pallidus STORER (1846), Synopsis, 426.
1844—*Catostomus aureolus* CUV. & VAL., Hist. Nat. des Poiss. xvii, 439. (Not of Le Sueur.)
Catostomus aureolus GÜNTHER (1868), Cat. Fishes Brit. Mus. vii, 16.
1850—*Catostomus forsterianus* AGASSIZ, Lake Superior, 358. (Not of Rich.)
Catostomus forsterianus AGASSIZ (1855), Am. Journ. Sci. Arts, 2d series, xix, 208.
Acomus forsterianus GIRARD (1856), Proc. Acad. Nat. Sci. Phila. 173.
1856—*Catostomus sucklii* GIRARD, Proc. Acad. Nat. Sci. Phila. 175.
Catostomus sucklii GIRARD (1858), U. S. Pac. R. R. Exp. x, pl. li, 226.
Catostomus sucklii COPE (1872), Hayden Geol. Surv. Wyoming, 434.
Catostomus sucklii JORDAN & COPELAND (1876), Check List, 156.
1860—*Catostomus texanus* ABBOTT, Proc. Acad. Nat. Sci. Phila. 473.
Catostomus texanus JORDAN & COPELAND (1876), Check List, 156.
1860—*Catostomus chloropteron* ABBOTT, Proc. Acad. Nat. Sci. Phila. 473.
Catostomus chloropteron COPE (1865), Proc. Acad. Nat. Sci. Phila. 85.
1876—*Catostomus chloropterus* JORDAN & COPELAND (1876), Check List, 156.

Numerous specimens, not differing in any noticeable respect from Eastern specimens of this universally distributed species. One or two of them have only ten dorsal rays.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
20191	.....	.....	Dr. Elliott Coues.....	
20194	.....	.....	.....do	

Family CYPRINIDÆ.

Genus PIMEPHALES Rafinesque.

6.—PIMEPHALES PROMELAS Rafinesque.

1820—*Pimephales promelas* RAF., Ich. Oh. 94.
Pimephales promelas KIRTLAND (1838), Rep. Zool. Oh. 194.
Pimephales promelas KIRTLAND (1838), Bost. Journ. Nat. Hist. iii, 475.
Pimephales promelas STORER (1846), Syn. 418.
Pimephales promelas AGASSIZ (1855), Am. Journ. Sci. Arts, 220.
Pimephales promelas PUTNAM (1863), Bull. M. C. Z. 8.
Pimephales promelas GÜNTHER (1868), Cat. Fishes, vii, 181.
Pimephales promelas JORDAN (1874), Ind. Geol. Surv. 224.
Pimephales promelas JORDAN (1876), Bull. Buff. Soc. Nat. Hist. 94.
Pimephales promelas JORDAN (1876), Man. Vert. 275.
Pimephales promelas JORDAN & COPELAND (1876), Check List, 146.
Pimephales promelas NELSON (1876), Bull. Ills. Soc. Nat. Hist. 45.
Pimephales promelas JORDAN (1877), Bull. U. S. Nat. Mus. ix, 32.
Pimephales promelas JORDAN (1878), Man. Vert. ed. 2d, 288.

Pimephales promelas JORDAN, Cat. Fishes N. A. 419.
1856—*Pimephales fasciatus* GIRARD, Proc. Acad. Nat. Sci. Phila. 180.
Pimephales fasciatus GIRARD (1858), Pac. R. R. Surv. x, 234.
1860—*Plargyrus melanocephalus* ABBOTT, Proc. Acad. Nat. Sci. Phila. 325.
Pimephales melanocephalus JORDAN & COPELAND (1876), Check List, 146.
1864—*Pimephales milesii* COPE, Proc. Acad. Nat. Sci. Phila. 282.
Pimephales milesii GÜNTHER (1868), Cat. Fishes, vii, 181.
Pimephales milesii JORDAN (1876), Man. Vert. 276.
1866—*Pimephales agassizii* COPE, Cyp. Penn. 391.
Pimephales agassizii JORDAN (1874), Ind. Geol. Surv. 224.

Numerous specimens, to all appearance precisely like others from the Ohio River; the lateral line is imperfect and extends to a little past the beginning of the dorsal.

Genus COUESIUS Jordan, gen. nov.

7.—COUESIUS DISSIMILIS (Grd.) Jordan.

1856—*Leucosomus dissimilis* GRD., Proc. Acad. Nat. Sci. Phila. 189.
Leucosomus dissimilis GIRARD (1858), U. S. Pac. R. R. Exp. x, 250.
Semotilus dissimilis JORDAN, Bull. U. S. Geol. Surv. Terr. 1878, iv, 427.
1877—*Nocomis milneri* JORDAN, Bull. Nat. Mus. x, 64.
Ceratichthys milneri JORDAN (1878), Bull. U. S. Geol. Surv. Terr. iv, 427.
Ceratichthys milneri JORDAN (1878), Man. Vert. 2d ed. 307.

This species was first described by Girard from specimens from the Upper Missouri region, and referred by him to the genus *Leucosomus* (=*Semotilus*). As he did not describe especially its dentition, it has been presumed by myself and others that the species really was a *Semotilus*, and, if so, probably related to the Eastern *Semotilus bullaris* (*rhotheus* Cope), a species without the usual black dorsal spot.

Specimens collected in Lake Superior by Mr. J. W. Milner were lately described by me as *Nocomis* (=*Ceratichthys*) *milneri*, without a thought as to the necessity of comparing them with one of Girard's *Leucosomi*.

Comparison of the numerous specimens collected by Dr. Coues with Girard's description and my own leaves no doubt whatever in my mind as to their identity both with *Leucosomus dissimilis* and *Ceratichthys milneri*. The specific name *dissimilis*, however, cannot be used for this species, if referred to *Ceratichthys*, as there is already a "*dissimilis*" (*Leuciscus dissimilis* Kirtland) in the genus *Ceratichthys*. The reprehensible custom, so often practised by Girard, of giving, as specific names to new species, names already borne by species of allied genera, always leads to confusion as the boundaries of genera are changed. If referred to *Ceratichthys*, then the species should stand as *Ceratichthys milneri* Jordan.

Since the above was written, the author has reviewed some of the characters on which our current genera of *Cyprinidæ* rest. I am disposed to agree with Professor Cope that the presence or absence of the single tooth forming a second row is not, in most cases at least, a good

generic character, as it is subject to many variations. I find, however, that in those species which have *two* teeth in the smaller row, that character is very constant. I find also that in those genera (*Luxilus*, *Alburnops*, *Ceratichthys*, *Cliola*, etc.) in which some of the species possess *two* teeth in the outer row, while others have no teeth or but one, those species with two teeth are strikingly different in general external characters and appearance from the others, and have in each of the above cases been already distinguished as subgenera (*Photogenis*, *Hydrophlox*, *Episema*), and in all but one have received distinctive names. The *Cyprinidæ* are small fishes, of low organization, and the very numerous species are very closely related. It seems advisable to divide the various forms related to *Leuciscus* into groups with distinctive names, which we may call "genera", although they may not be exactly co-ordinate with the genera of some family less rich in species. To combine them all into one genus, as has been attempted by Günther and Valenciennes, has led only to confusion and the almost utter loss of all knowledge of the species. Our tests of a "generic character" in such a group must be, Does it hold? Is it capable of exact definition and determination? Does it set off species really related, from others of more remote affinities? At present, the character of the two inner teeth seems to fill these requirements, and it is therefore held provisionally as a true generic character. It may be premised that this character requires verification in several species now referred to *Notropis*, *Luxilus*, *Cliola*, *Rhinichthys*, etc.

COUESIUS, gen. nov.

TYPE.—*Leucosomus dissimilis* Grd. = *Nocomis milneri* Jordan.

CHARACTERS.—*Leuciscinæ*, with the fins normal, the dorsal over or slightly posterior to ventrals, the basis of the anal short; mouth normal; end of the maxillary bone with a small but conspicuous barbel; scales rather small; lateral line present; intestinal canal short; teeth 2, 4–4, 2, those of the longer row hooked, sharp-edged, without grinding surface; upper jaw protractile.

This genus is dedicated to Elliott Coues, one of the very foremost of American students of vertebrates, to whose activity as a collector we owe the interesting collection which is the subject of the present paper.

The following analysis of the genera of American *Cyprinidæ* which now seem to me worthy of recognition will show the relations of the genus *Couesius* to its affines.

*. Dorsal fin without a strong, developed spine; ventral fins not decurrent on the abdomen.
†. Pharyngeal teeth developed.
‡. Dentary bones straight and flat, united throughout their length; mandible much incurved, tongue-like, a lobe on each side of it at base; air-bladder normal. (*Exoglossinæ*.)
a. Teeth hooked, 1, 4–4, 1, without grinding surface; dorsal fin nearly opposite ventrals; anal basis short; no barbel; premaxillaries not projectile; intestinal canal short.
EXOGLOSSUM.

‡ Dentary bones arched, well separated except at their symphysis.

§. Air-bladder suspended in the abdominal cavity, surrounded by many convolutions of the long alimentary canal. (*Campostomatinæ.*)

b. Teeth 4–4 or 1, 4–4, 0, with oblique grinding surface, scarcely hooked; mouth small, inferior; upper jaw protractile; dorsal over, or slightly posterior to ventrals; base of anal short; alimentary canal 6 to 9 times the length of the body; no barbel.. CAMPOSTOMA.

§§. Air-bladder contiguous to the roof of the abdominal cavity, and above the alimentary canal.

¶. Intestinal canal elongate, more than twice the length of the body; peritoneum usually more or less black; premaxillaries projectile. (*Chondrostomatinæ.*)

d. Each jaw provided with a firm, hard, straight, cartilaginous plate, that of the lower jaw hard and conspicuous; peritoneum black; intestinal canal elongate. (*Chondrostomatinæ.*)

c. Teeth 5–4, club-shaped, entire, hooked, with a broad, oblique grinding surface; dorsal fin slightly behind ventrals; anal base scarcely elongate (rays 9); caudal fin very long, with numerous accessory rays recurrent on the caudal peduncle; scales rather small, loosely imbricated; lateral line present; upper jaw protractile.. ACROCHILUS.

dd. Jaws without conspicuous horny plate.

e. Teeth 6–6, compressed, lanceolate, erect, very slightly bent inward; lower jaw sharp-edged, with a knob at the symphysis; dorsal over ventrals; basal caudal rays largely developed; scales small.... ORTHODON.

ee. Teeth 4–4.

f. Teeth cultriform, with oblique grinding surface and little or no hook; lips attenuate, without sheath; rudimentary dorsal ray firmly attached to the first developed ray.

g. Lateral line complete; dorsal over ventrals; mouth horizontal —Scales very small ..... ZOPHENDUM.*

— — Scales large .... HYBOGNATHUS.

gg. Lateral line incomplete; dorsal behind ventrals; mouth oblique..... COLISCUS.

ff. Teeth short, with grinding surface, and a small hook; rudimentary dorsal ray separated from the first developed ray by membrane; dorsal scales small.

h. Lateral line incomplete; no barbel..... PIMEPHALES.

hh. Lateral line complete; maxillary with a rudimentary or obsolete barbel ..... HYBORHYNCHUS.

eee. Teeth 5–5 or 5–4, with grinding surface and hook; dorsal behind ventrals.

i. Lateral line incomplete; anal base short; scales very small. CHROSOMUS.

ii. Lateral line complete; anal base elongate; scales moderate; basal caudal rays largely developed.... LAVINIA.

¶¶. Intestinal canal short, little if any longer than the body; peritoneum mostly white. (*Leuciscinæ.*)

j. Teeth raptatorial, those of the main row more or less hooked.

* *Zophendum*, gen. nov.: type "*Hyborhynchus*" *siderius* Cope.

k. Maxillary without barbel.

l. Anal basis considerably elongate (of 12 to 25, rarely fewer, rays); belly behind ventrals compressed to an edge; lateral line decurved, complete.

m. Teeth 5–5, sharp pointed, with grinding surface; anal rays 11 to 15..... .....NOTEMIGONUS.

mm. Teeth 2, 5–5, 2, entire, without grinding surface; anal rays 13 to 30..... .....ALBURNUS.*

ll. Anal basis shorter (of 7 to 11 rays); abdomen not compressed to an edge.

n. Teeth 1, 3–3, 1, without grinding surface; dorsal behind ventrals; isthmus very wide ....TIAROGA.

nn. Teeth in the main row 4–4.

o. Opercular and mandibular bones, without externally visible cavernous chambers.

p. Teeth with grinding surface developed.

q. Jaws with a hard, bony sheath, resembling the teeth of *Tetrodon;* teeth 4–4; rudimentary dorsal ray connected by membrane..... COCHLOGNATHUS.

qq. Jaws normal; rudimentary dorsal ray attached.

r. Teeth 4–4 or 1, 4–4, 1; anal basis short (rays 7 to 9).

s. Scales very small ..... ALGANSEA.

ss. Scales large.

t. Lateral line complete ..... HUDSONIUS.

tt. Lateral line incomplete ....CHRIOPE.†

rr. Teeth 2, 4–4, 2.

u. Dorsal fin over or slightly behind ventrals; anal basis short (8 or 9 rays)..... LUXILUS.

uu. Dorsal fin much behind ventrals; anal basis elongate (10 to 12 rays)..... .....LYTHRURUS.

pp. Teeth without masticatory surface, their edges serrate or entire.

v. Lips thin, normal; lateral line complete.

w. Teeth 2, 4–4, 2..... NOTROPIS.

ww. Teeth 4–4 or 1, 4–4, 1..... CLIOLA.

vv. Lips thin; lateral line incomplete; teeth 1, 4–4, 2. PROTOPORUS.

vvv. Lips thick, fleshy, enlarged behind; mouth small, inferior; dorsal fin beginning in front of ventrals; teeth 4–4; lateral line complete ..PHENACOBIUS.

oo. Opercular and mandibulary bones with externally visible cavernous chambers; teeth 1, 4–4, 0, without grinding surface; lips normal; dorsal over ventrals ....ERICYMBA.

nnn. Teeth in the main row 5–5 or 5–4.

A. Lateral line incomplete.

B. Dorsal fin over ventrals; scales large; teeth 4–5, with grinding surface..... .....HEMITREMIA.

BB. Dorsal fin behind ventrals; scales small; teeth 2, 5–5, 2 (or 2, 5–4, 2), without grinding surface. PHOXINUS.

AA. Lateral line complete.

C. Teeth raptatorial, entire, without grinding surface, 2, 5–4 or 5, 2 or 1.

* *Alburnus* Heckel = *Richardsonius* Grd.

† *Chriope*, gen. nov.; type *Hybopsis bifrenatus* Cope.

D. Teeth subconic, little hooked, wide set.
PTYCHOCHILUS.
DD. Teeth compressed, hooked, close set.
— Caudal peduncle very slender, the basal caudal rays much developed ..... GILA.
— — Caudal peduncle stout, the basal caudal rays little developed ..... TELESTES.*
CC. Teeth raptatorial, with developed grinding surface.
E. Teeth 2, 5–4 or 5, 2 or 1 ..... SQUALIUS.†
EE. Teeth 4–5 or 5–5 ..... LEUCOS.‡
kk. Maxillary with a small barbel; teeth hooked.
F. Premaxillaries projectile, a groove separating the upper lip from the forehead.
G. Teeth 2, 4–5–2, without grinding surface; barbel minute, not at the end of the maxillary; dorsal more or less posterior to ventrals ..... SEMOTILUS.
GG. Teeth 2, 5–4, 2, or 2, 5–5, 2, with grinding surface; barbel terminal.
— Caudal fin symmetrical, the rudimental basal rays little developed ..... SYMMETRURUS.§
— — Caudal fin unsymmetrical, the rudimental basal rays largely developed ..... POGONICHTHYS.
GGG. Teeth in the principal row 4–4; barbel terminal.
I. Teeth without grinding surface.
J. Dorsal behind ventrals; scales small; teeth mostly 1, 4–4, 1 ..... APOCOPE.
JJ. Dorsal over ventrals or slightly posterior; scales moderate or rather large.
K. Teeth 4–4, or 1, 4–4, 1 ..... CERATICHTHYS.
KK. Teeth 2, 4–4, 2 ..... COUESIUS.
II. Teeth with developed grinding surface.
L. Dorsal fin more or less directly above ventrals; scales large; teeth 2, 4–4, 2.
LL. Dorsal fin wholly behind ventrals; scales small; teeth 4–4 ..... AGOSIA.
FF. Premaxillaries not projectile; teeth mostly 2, 4–4, 2, without grinding surface; scales small; dorsal behind ventrals; barbel terminal ..... RHINICHTHYS.
jj. Teeth molar, of the grinding type, two or three of the main row blunt and much enlarged; teeth in three rows, the outer deciduous, 2 or 3, 2, 5–4, 2, 2 or 3.
M. Upper jaw not protractile; no barbel; dorsal fin beginning behind ventrals ..... MYLOPHARODON.
MM. Upper jaw protractile; maxillary with a barbel; dorsal over ventrals ..... MYLOCHILUS.
††. Pharyngeal teeth quite rudimental, replaced by a somewhat uneven ridge of the bone. (*Graodontinæ.*)
N. Dorsal fin short, without spinous ray, opposite ventrals; anal basis short; mouth small, without barbel, the upper jaw somewhat the larger; intestinal canal short; lateral line complete ..... GRAODUS.

6

* *Telestes* Bonaparte = *Tigoma*, *Siboma*, and *Clinostomus* Grd.
† *Squalius* Bonaparte = *Cheonda* Grd.
‡ *Leucos* Heckel = *Myloleucus* Cope.
§ *Symmetrurus*, gen. nov.; type *Pogonichthys argyrosus* B. & G.

**. Dorsal fin with a strong spine, which is composed of two, the posterior received into a longitudinal groove of the anterior; inner border of the ventral fins adherent to the body dorsal behind ventrals; teeth hooked, without grinding surface. (*Plagopterinæ.*)
O. Body with small scales; teeth 2, 4–4, 2; no barbel ..... LEPIDOMEDA.
OO. Body naked.
P. Teeth 1, 4–4, 1; no barbel ..... MEDA.
PP. Teeth 2, 5–4, 2; a barbel at the end of the maxillary ..... PLAGOPTERUS.

The relations of the European and American genera of *Cyprinidæ* may be approximately indicated by the following grouping. The clusters of genera here indicated as "groups" have about the value attached by the "ultra conservative" writers to their "genera". The subfamilies here recognized, of *Chondrostomatinæ*, *Leuciscinæ*, and *Abramidinæ*, are very closely connected by their American representatives, perhaps too closely for recognition. The group *Graodontinæ* is admitted provisionally, the singular character ascribed to the genus *Graodus* being possibly erroneous. I have not examined the intestines of *Rhodeus* and *Leucos*, and their positions in the series may require change. The type of the European genus *Squalius* has a narrow grinding surface on its teeth, and it is congeneric with the species referred by Girard to *Cheonda*. In like manner, our current genera *Richardsonius*, *Tigoma*, and *Myloleucus* are equivalent to *Alburnus*, *Telestes*, and *Leucos*.

European genera are designated by an asterisk (*); genera common to Europe and America by a dagger (†).

Subfamily CAMPOSTOMATINÆ.
Campostoma Agassiz.

Subfamily CHONDROSTOMATINÆ.
Group ACROCHILI.
Acrochilus Agassiz.
Group CHONDROSTOMATA.
*Chondrorhynchus** Heckel.
*Chondrostoma** Agassiz.
Group ORTHODONTES.
Orthodon Girard.
Group LAVINLÆ.
Lavinia Girard.
Group RHODEI.
*Rhodeus** Agassiz.
Group CHROSOMI.
Chrosomus Rafinesque.
Group HYBOGNATHI.
Zophendum Jordan.
Hybognathus Agassiz.
Coliscus Cope.
Pimephales Rafinesque.
Hyborhynchus Agassiz.

Subfamily EXOGLOSSINÆ.
Exoglossum Rafinesque.

Subfamily GRAODONTINÆ.
Graodus Günther.

Subfamily LEUCISCINÆ.
Group TIAROGÆ.
Tiaroga Girard.
Group COCHLOGNATHI.
Cochlognathus Baird & Girard.
Group LUXILI.
Algansea Girard.
Hudsonius Girard.
Chriope Jordan.
Cliola Girard (*Codoma*, *Cyprinella*, etc.).
Protoporus Cope.
Notropis Rafinesque.
Lythrurus Jordan.
Luxilus Rafinesque.
Group ERICYMBÆ.
Ericymba Cope.
Group PHENACOBII.
Phenacobius Cope.
Group RHINICHTHYES.
Rhinichthyes Agassiz.
Group CERATICHTHYES.
Agosia Girard.
Ceratichthys Baird.
Apocope Cope.
Couesius Jordan.
Platygobio Gill.

Subfamily LEUCISCINÆ.
Group GOBIONES.
*Gobio** Cuvier.
Semotilus Rafinesque.
Symmetrurus Jordan.
Pogonichthys Girard.
Group TINCÆ.
*Tinca** Cuvier.
Group MYLOCHILI.
Mylochilus Agassiz.
Group MYLOPHARODONTES.
Mylopharodon Ayres.
Group LEUCISCI.
*Scardinius** Bonaparte.
*Idus** Heckel.
Ptychochilus Agassiz.
Gila Baird & Girard.
*Telestes**† Bonaparte.
*Squalius**† Bonaparte.
*Phoxinus**† Agassiz.
Phoxinellus Heckel.
*Leucos**† Heckel.
Leuciscus Cuvier.

Subfamily ABRAMIDINÆ.
Group ABRAMIDES.
*Leucaspius** Heckel.
Notemigonus Rafinesque.
*Abramis** Cuvier.
*Blicca** Heckel.
*Alburnus**† Heckel.
*Aspinus** Agassiz.
Group PELECI.
*Pelecus** Agassiz.
Subfamily PLAGOPTERINÆ.
Lepidomeda Cope.
Plagopterus Cope.
Meda Girard.
Subfamily AULOPYGINÆ.
*Aulopyge** Heckel.
Subfamily BARBINÆ.
*Barbus** Cuvier.
Subfamily CYPRININÆ.
Group CYPRINI.
*Cyprinus** Linnæus.
Group CARASSII.
*Carassius** Nilsson.

The following species are to be referred to the genus *Couesius*:—*Couesius dissimilis*, = *Leucosomus dissimilis* Girard; *Couesius prosthemius*, = *Ceratichthys prosthemius* Cope; *Couesius squamilentus*, = *Ceratichthys squamilentus* Cope; *Couesius physignathus*, = *Ceratichthys physignathus* Cope.

In *C. dissimilis*, the dorsal fin is almost directly over the ventrals; the mouth is large and quite oblique, the jaws being about equal; the maxillary barbel is very distinct; the scales are about 11–70–9. In the collection are 50 specimens of all sizes, from one inch in length to about five.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21206	.....	..... (?)	Dr. Elliott Coues.....	.....(?).

Genus RHINICHTHYS Agassiz.

8.—RHINICHTHYS MAXILLOSUS Cope.

1864—*Rhinichthys maxillosus* COPE, Proc. Ac. Nat. Sci. Phila. 278.
Rhinichthys maxillosus GÜNTHER (1868), Cat. Fishes Brit. Mus. vii, 190.
Rhinichthys maxillosus JOR. (1878), Bull. U. S. Geol. Sur. Terr. iv, 426.

Forty-three specimens of this species were obtained, from one to four inches in length. The species is somewhat intermediate between the Eastern *R. cataractæ* (*R. nasutus* Ag.) and *R. atronasus*. The specimens agree well with Professor Cope's figure in the Report of the Ichthyology of Lieutenant Wheeler's Explorations, but they differ slightly in proportions from the original description. *Rhinichthys dulcis* Girard is apparently a different fish, similar to and probably identical with *Rhinichthys obtusus* Ag. (=*Rhinichthys lunatus* Cope).

Genus CLIOLA Girard.

9.—CLIOLA CHLORA Jordan, sp. nov.

A small pale species, resembling a *Notropis*. Body slender, compressed, resembling in form that of *Notropis rubrifrons* Cope, the greatest depth, at the beginning of the dorsal, contained about five times in the length. Head rather small, 4¼ in length, the eye rather large, longer than snout, forming about one-third the length of the head, about equal to the width of the interorbital space; mouth small, quite oblique, the lower jaw included when the mouth is closed, the maxillary scarcely reaching to the front of the eye.

Scales very large, 4–35–3, about 12 in front of the dorsal fin; body entirely scaly except the thoracic region; lateral line decurved in front, thence nearly straight.

Dorsal fin beginning about midway of the body, directly over the ventrals, rather high, its rays, I, 7; anal fin short and high, I, 7; pectorals not reaching nearly to ventrals, the latter almost to vent.

Teeth hooked, without masticatory surface, in one row, 4–4.

Coloration quite pale; back greenish; cheeks and sides with a silvery band, belly white. No spots on the fins except sometimes a dusky shade at base of caudal; no dusky or plumbeous shading on the body.

Length of types about 2½ inches each. There are twelve of these typical examples, numbered 20193 in the United States National Museum.

The affinities of this small species seem to be rather with the Texan species, *C. vivax* and *C. velox*, than with the other forms now referred to this genus.

Smithsonian number.	Collecter's number.	Locality.	Collector.	Date.
20193	.....	..... (?)	Dr. Elliott Coues	....(?).

Genus PROTOPORUS Cope.

10.—PROTOPORUS, sp. nov.?

Mixed with the specimens of *Cliola chlora* were several individuals in poor condition, with the teeth 4–4, hooked, without grinding surface, and the lateral line incomplete. If this latter character is permanent, and a lateral line is not developed with age, the species is perhaps referable to the genus *Protoporus*. The only species of that genus, *P. dominus* Cope, has two rows of teeth (teeth 2, 4–4, 1), so that the present species, if

a *Protoporus*, is at least specifically distinct. My specimens are, however, neither adult nor in good condition, and I prefer to leave the task of describing a new species to some later observer.

Family HYODONTIDÆ.

Genus HYODON Le Sueur.

11.—HYODON (ELATTONISTIUS) CHRYSOPSIS Rich.

Gold Eye. Northern Moon-eye. "Naccaysh."

1823—*Hyodon clodalus* RICH., Franklin's Journal, 716. (Not of Le Sueur.)
1836—*Hyodon chrysopsis* RICH., Fauna Bor.-Am. iii, 532.
Hyodon chrysopsis DEKAY, New York Fauna, Fishes, 1842, 267.
Hyodon chrysopsis STORER, Synopsis Fishes N. A. 1846, 463.
Hyodon chrysopsis JORDAN, Bull. U. S. Nat. Mus. x, 67, 1878.
Hyodon chrysopsis JORDAN, Man. Vert. ed. 2d, 277, 1878.
Hyodon chrysopsis JORDAN, Bull. Hayden's Geol. Surv. Terr. iv, 429.

This beautiful species was first described by Richardson from specimens obtained in the Saskatchawan region. For a time after Richardson's day the species was kept alive by compilers, but for the last twenty-five years it has been generally ignored or considered a mere synonym of *Hyodon tergisus*. For its rediscovery science is indebted to the collection now under consideration. Its resemblance to *H. tergisus* is not very great; the body is very much more compressed than in the latter species, the abdomen being almost cultrate, while the dorsal fin is reduced in size, having only about nine developed rays. In view of these peculiarities, Dr. Gill and myself have proposed for it the subgeneric name of *Elattonistius*. At present, *Elattonistius* is considered as a subgenus of *Hyodon*, but if no intermediate forms occur it may require elevation to full generic rank. The following analysis of the species of *Hyodon* gives the principal distinctive characters of the three species now known: *Elattonistius chrysopsis*, *Hyodon tergisus* Le S., and *Hyodon selenops* Jordan & Bean.

*. Dorsal fin reduced, and with only about nine fully developed rays; abdomen sharply carinated (*Elattonistius*):

†. Dorsal fin very small, of about nine *developed* rays (besides the two or three rudiments), the length of its longest rays half greater than the length of the base of the fin; body deep, closely compressed, the belly strongly carinated both before and behind ventrals; eye moderate (about 3½ in head); scales rather closely imbricated, 5–58–8; pectoral fins falcate, nearly as long as the head, nearly or quite reaching ventrals; anal with 30 or 31 developed rays; head 4⅓ in length; depth 3¼ ..... CHRYSOPSIS.

**. Dorsal fin moderate and with eleven or twelve fully developed rays; abdomen more or less obtuse (*Hyodon*):

†. Dorsal fin larger, of about 12 developed rays; its longest rays scarcely longer than the base of the fin; form of body intermediate; the belly in front of ventrals obtusely carinated; eye large, about 3 in head; scales medium, 5–58–8; pectoral fins decidedly shorter than head, not reaching nearly to ventrals; anal rays 28 or 29; head 4⅓ in length, the depth about 3 ..... TYRRELLUS.

††. Dorsal fin moderate, of 11 or 12 developed rays, nearly as long as high in front; body elongate, not greatly compressed; the belly in front of ventrals transversely rounded, not carinated; eye very large, about 2½ in head; scales loosely imbricated, 4–50–7; pectoral fins considerably shorter than head, not reaching nearly to ventrals; anal rays 27; head 4⅓ in length; depth about 4 ..... SELENOPS.

Numerous specimens are in the collection, obtained by Dr. Coues in Quaking Ash River, a tributary of the Upper Missouri, June 26, 1874.

Family SALMONIDÆ.

[I obtained no *Salmonidæ* from any of the Missouri or Milk River waters, but found this family abounding in the lake and river headwaters of the Saskatchewan. The St. Mary's, for instance, was full of the beautiful trout identified by Prof. Jordan as *S. clarki* var. *aurora*, and in Chief Mountain Lake, at an elevation of about 4,000 feet, the Great Mackinaw Trout, *Cristivomer namaycush*, was very plentiful. There being no tackle in the party stout enough to handle these fellows with, the men used to catch them with hooks made from the handles of camp-kettles, attached to a piece of tent-rope and baited with salt pork; usually pushing out on the lake on a raft, and hauling in the game just as a fisherman would take cod. I think there are in these same waters one or two other *Salmonidæ*, besides the two Whitefish.—C.]

Genus COREGONUS Linnæus.

12.—COREGONUS COUESI Milner.

Chief Mountain Whitefish.

1874—*Coregonus couesi* MILNER, Rept. Com. Fish and Fisheries for 1872–73, 88.
Coregonus couesi JORDAN & COPELAND, Check List Fishes N. A. 145, 1876.
Coregonus couesi JORDAN, Man. Vert. 2d ed. 276, 1878.
Prosopium couesi MILNER, MSS.—JORDAN, Man. Vert. 2d ed. 362, 1878.
Coregonus couesi JORDAN, Bull. U. S. Geol. Surv. iv, 429, 1878.

This interesting species was described by Mr. Milner from the specimen in the present collection. I have nothing new to add to his very complete account.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
14146	1182	Chief Mountain Lake.....	Dr. Elliott Coues.....	Aug. 19, 1874.

13.—COREGONUS QUADRILATERALIS Richardson.

Menomonee Whitefish. Shad-waiter.

1823—*Coregonus quadrilateralis* RICHARDSON, Franklin's Journal, 714.
Coregonus quadrilateralis RICHARDSON, Fauna Bor.-Am. iii, 204, pl. 89, f. 1.
Coregonus quadrilateralis CUVIER & VALENCIENNES, Hist. Nat. des Poiss. xxi, 512.
Coregonus quadrilateralis DEKAY, New York Fauna, Fishes, 249. 1842.
Coregonus quadrilateralis STORER, Synopsis Fishes N. A. 453, 1846.
Coregonus quadrilateralis AGASSIZ, Lake Superior, 351. 1850.
Coregonus quadrilateralis GÜNTHER, Cat. Fishes Brit. Mus. vi, 1867, 176.

Coregonus quadrilateralis MILNER, Rept. Comm. Fish and Fisheries for 1872–73, 49, 1874.
Coregonus quadrilateralis JORDAN & COPELAND, Check List Fishes N. A. 145, 1876.
Coregonus quadrilateralis JORDAN, Man. Vert. ed. 2d, 276, 1878.
Prosopium quadrilaterale, MILNER, MSS.—JORDAN, Man. Vert. ed. 2d, 276, 1878.
Coregonus (Prosopium) quadrilateralis JORDAN, Bull. U. S. Geol. Surv. iv, 429, 1878.
1851—*Coregonus novæ-angliæ* PRESCOTT, Silliman's Am. Journ. Sc. Arts, xi, 342.
Coregonus novæ-angliæ GÜNTHER, Cat. Fishes Brit. Mus. vi, 186, 1867.

A single specimen, in poor condition, but probably referable to this species, is in the collection. The head is somewhat crushed, so that the form of the mouth is not shown. Both this species and the preceding belong to a well-marked subgenus, called by Mr. Milner *Prosopium*.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21202	1179	Chief Mountain Lake.....	Dr. Elliott Coues.....	Aug. 18, 1874.

Genus CRISTIVOMER Gill & Jordan.

14.—CRISTIVOMER NAMAYCUSH (Walbaum) Gill & Jordan.

Mackinaw Trout. Great Lake Trout. Longe. Togue.

1792—*Namaycush salmon* (not "*Salmo namaycush*", as quoted by authors) PENNANT, Arctic Zoology, Introduction, 141; vol. ii, 139. (British America.)
Salmo namaycush WALBAUM, Artedi Pisc. p. —.
Salmo namaycush BLOCH, Schneider, Syst. Ich. 1801.
Salmo namaycush RICH., Fauna Bor.-Amer. iii, 179, pl. 79, and pl. 85, f. 1, 1836.
Salmo manycash (*sic*) KIRTLAND, Rept. Zool. Ohio, 105, 1838.
Salmo namaycush KIRTLAND, Bost. Journ. Nat. Hist. iv, 25, pl. 3, f. 2, 1842.
Salar namaycush CUV. & VAL., Hist. Nat. des Poissons xxi, 348, 1848.
Salmo namaycush AGASSIZ, Lake Superior, 331, 1850.
Salmo namaycush GÜNTHER, Cat. Fishes Brit. Mus. vi, 123, 1867.
Salmo namaycush MILNER, Rept. Comm. Fish and Fisheries for 1872–73, 38, 1874.
Salmo namaycush SUCKLEY, Monograph Genus Salmo, 151, 1874.
Salmo namaycush JORDAN, Man. Vert. 260, 1876.
Salmo namaycush NELSON, Bull. Ills. Mus. Nat. Hist. 44, 1876.
Salmo namaycush, JORDAN, Man. Vert. ed. 2d, 272, 1878.
Cristivomer namaycush GILL & JORDAN, MSS.—JORDAN, Man. Vert. ed. 2d, 359, 1878.
Cristivomer namaycush JORDAN, Bull. U. S. Geol. Surv. Terr. iv, 430, 1878.
1817—*Salmo pallidus* RAFINESQUE, Am. Month. Mag. and Critical Review, 120. (Lake Champlain.)
1818—*Salmo amethystus* MITCHILL, Journ. Acad. Nat. Sci. Phila. v. 1, 410. (Great Lakes.)
Salmo amethystus DEKAY, New York Fauna, Fishes, 240, pl. 76, 1842.
Salmo amethystus STORER, Synopsis Fishes N. A. 193, 1846.
1842—*Salmo confinis* DEKAY, New York Fauna, Fishes, 238. (Louis Lake, N. Y.)
Salmo confinis STORER, Synopsis Fishes N. A. 193, 1846.
Salmo confinis SUCKLEY, Monograph Genus Salmo, 153, 1874.

Salmo confinis JORDAN, Man. Vert. 261, 1876.
Salmo confinis JORDAN, Man. Vert. ed. 2d, 273, 1878.
1850—*Salmo symmetrica* PRESCOTT, Silliman's Am. Journ. Sci. Arts, 2d series, xi, 340, 1850. (Lake Winnipiseogee.)
Salmo symmetrica SUCKLEY, Monograph Genus Salmo, 157, 1874.
Salmo symmetrica JORDAN, Man. Vert. 261, 1876.
Salmo symmetrica JORDAN, Man. Vert. ed. 2d, 273, 1878.
1863—*Salmo toma* HAMLIN, Second Annual Rept. Nat. Hist. and Geol. Maine for 1862, p.—. (Lakes of Maine.)
Salmo toma HAMLIN, Rept. Comm. Fish and Fisheries for 1872–73, 354, 1874.
1864—*Salmo adarondacus* NORRIS, Angler's Guide, p. —. (Adirondack Region.)

The head and caudal fin of a large specimen from Chief Mountain Lake. It does not differ in any obvious respect from Lake Michigan specimens. On examination of specimens supposed to be typical of each of the various nominal species included above, I am unable to see that they differ in any respect likely to prove constant.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21200	1178	Chief Mountain Lake.....	Dr. Elliott Coues.....	Aug. 18, 1874.

Genus SALMO Linnæus.

Subgenus SALAR Valenciennes.

15.—SALMO STOMIAS Cope.

Big-mouthed Trout.

1872—*Salmo (Salar) stomias* COPE, Hayden's Geol. Surv. Wyoming for 1870, 433.
Salmo stomias COPE, Hayden's Geol. Surv. Montana for 1871, 470, 1872.
Salmo stomias COPE & YARROW, Wheeler's Expl. W. 100th Mer. v, 684, 1876.
Salmo stomias HALLOCK, Sportsman's Gazetteer, 346, 1877.
Salmo stomias var. *stomias* JORDAN, Man. Vert. ed. 2d, 358, 1878.
Salar stomias JORDAN, Catalogue of Fishes N. A. 431, 1878.

This species is represented in the collection by a single head, 5½ inches in length, accompanied by the caudal fin. Before seeing specimens of this species, I had presumed that it might have been based on some one of the numerous varieties of *Salmo pleuriticus* Cope. There can be, however, no doubt of its specific distinctness. The following description is taken from this head, No. 21199, from Chief Mountain Lake:—

Head very long, rather pointed, broad and flat above, not carinated; the snout not at all gibbous or convex from the eyes forward, the head thus having a depressed and pike-like appearance.

Mouth very wide, the broad curved maxillary reaching much beyond the eye; eye moderate; snout in this specimen prolonged, emarginate at the end, receiving the swollen tip of the lower jaw; caudal fin scarcely emarginate and unspotted, as is the head.

Hyoid bone with a band of rather strong teeth. This character will at once separate it from *S. pleuriticus*, which has similarly small scales, as that species never has hyoid teeth; the relations of this fish are therefore as much with *S. clarki* and *S. henshawi*, as with *spilurus* and *pleuriticus*. From both *S. henshawi* and *S. clarki* it differs in the form of the head and small size of the scales; from *S. henshawi* notably in the form of the caudal fin. The following are the measurements of the head:—

Snout in head 3½; eye in head 6⅔; interorbital space in head 3⅔; maxillary in head 2½; mandible in head 1⅓; length of head in inches 5½. The snout and bones of jaws are doubtlessly shorter in the female.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21199	1189	Chief Mountain Lake	Dr. Elliott Coues	Aug. 24, 1874.

16.—Salmo clarki Rich.

Var. *aurora* (Grd.) Gill & Jordan.

Missouri River Trout. Utah Trout.

Var. *clarki.*

1836—*Salmo clarkii* Richardson, Fauna Bor.-Amer. iii, 225.
Salmo clarkii Storer, Synopsis Fishes N. Am. 197, 1846.
Salmo clarkii Herbert, Frank Forrester's Fish and Fishing, Suppl. 40, 1850.
Salmo clarkii Suckley, Nat. Hist. Wash. Terr. 344, 1860.
Salmo clarkii Suckley, Monograph Genus Salmo, 112, 1874.
Salmo clarkii Jordan, Man. Vert. ed. 2d, 359, 1878.
Salar clarkii Jordan, Bull. U. S Geol. Surv. Terr. 430, 1878.
1856—*Fario stellatus* Grd., Proc. Ac. Nat. Sc. Phila. 219.
Fario stellatus Girard, U. S. Pac. R. R. Exp. Fish, 316, pl. 69, f. 5–8.
Fario stellatus Suckley, Nat. Hist. Wash. Terr. 346, 1860.
1861—*Salmo brevicauda* Suckley, Ann. N. Y. Lyc. Nat. Hist. vii, 308.
Salmo brevicauda Günther, Cat. Fishes Brit. Mus. vi, 120, 1867.
Salmo brevicauda Suckley, Monograph Gen. Salmo, 140, 1874.

Var. *aurora.*

1856—*Fario aurora* Grd., Proc. Ac. Nat. Sc. Phila. 218. (Based on two young specimens.)
Fario aurora Grd., Pac. R. R. Rep. x, 308, 1858.
Salmo aurora Suckley, Nat. Hist. Wash. Terr. 343, pl. 68, 1860.
Salmo aurora Günther, Cat. Fishes Brit. Mus. vi, 119, 1867.
Salmo clarkii var. *aurora* Jordan, Man. Vert. ed. 2d, 359, 1878.
Salar clarkii var. *aurora* Jordan, Bull. U. S. Geol. Surv. Terr. iv, 430, 1878.
1856—*Salar lewisi* Girard, Proc. Ac. Nat. Sc. Phila. 219.
Salar lewisi Girard, U. S. Pac. R. R. Expl. Fish, 318, pl. 72, 1858.
Salmo lewisi Suckley, Nat. Hist. Wash. Terr. 348, 1860.
Salmo lewisi Günther, Cat. Fishes Brit. Mus. vi, 122, 1867.
Salmo lewisi Suckley, Monograph Genus Salmo, 139, 1874.
1856—*Salar virginalis* Girard, Proc. Ac. Nat. Sc. Phila. 220.
Salar virginalis Girard, Pac. R. R. Expl. Fish, 320, pl. 73, f. 1–4, 1858.
Salmo virginalis Suckley, Nat. Hist. Wash. Terr. p. —, 1860.
Salmo virginalis Günther, Cat. Fishes Brit. Mus. vi, 123, 1867.
Salmo clarkii Suckley, Monograph Gen. Salmo, 137, 1874.

Salmo virginalis Cope & Yarrow, Wheeler's Expl. W. 100th Mer. 655, 1876.
1872—? *Salmo carinatus* Cope, Hayden's Geol. Surv. Montana for 1871, p. 471.
1874—*Salmo utah* Suckley, Monograph Genus Salmo, p. 136, 1874.

A single head of this abundant species is in the collection. It is to all appearance entirely typical of what I call var. *aurora.*

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21201	1174	St. Mary's River	Dr. Elliott Coues	Aug. 16, 1874.

Family ESOCIDÆ.

17.—Esox lucius Linnæus.

Common Pike.

SYNONYMY FOR EUROPEAN SPECIMENS.*

The Pike. Hecht. Brochet. Lucio or *Luzzo. Gädda* (Sweden).
Lucius, Bellon, De Aquat. p. 296.—Rondel. ii, p. 188.—Salv. pp. 94, 95.—Schonev. p. 44.—Aldrov., De Pisc. p. 630.—Jonston, iii, t. 3, c. 5, t. 29, f. 1.—Gesner, De Pisc. p. 500.—Willugh. p. 236, tab. P, 5, f. 2.—Ray, Syn. p. 112.—Klein, Miss. Pisc. v, p. 74, tab. 20, f. 1.
Esox No. 1, Artedi, Synon. p. 26; Gen. p. 10, and spec. 53.—Gronov., Zoophyl. No. 361.
Esox lucius L., Syst. Nat. i, p. 516.—Bloch, Fische Deutschl. i, p. 229, t. 32; Bl. Schn. p. 390.—Lacépède, v, p. 297.—Reisinger, Prodr. Ichth. Hung. p. 47.—Donovan, Brit. Fishes, v, pl. 109.—Flem., Brit. An. p. 184.—Jurine, Mém. Soc. Phys. et Hist. Nat. Genève, iii, 1825, p. 231, pl. 15.—Ekström, Fische Mörko, p. 78.—Fries & Ekström, Scand. Fisk. p. 49, t. 10.—Nilss., Prodr. p. 36, and Scand. Faun. Fisk. p. 343.—Pall., Zoogr. Ross.-As. iii, p. 336.—Parnell, Wern. Mem. vii, p. 272.—Yarr., Brit. Fishes, 1st ed. 1, p. 383; 2d ed. 1, p. 434; 3d ed. 1, 343.—Sélys-Longch., Faune Belge, p. 223.—Cuv. & Val., xviii, p. 279.—Kröyer, Danm. Fisk. iii, p. 236.—Gronov., Syst. ed. Gray, p. 146.—Günther, Fische des Neckars, p. 107.—Rapp, Fische des Bodensees, p. 11.—Heckel & Kner, Süsswasserfische, p. 287.—Siebold, Süsswasserfische, p. 325.—Günther, Cat. Fishes Brit. Mus. vi, p. 226, and of all authors since Linnæus.

SYNONYMY FOR AMERICAN SPECIMENS.

1818—*Esox estor* Le Sueur, Journ. Acad. Nat. Sci. Phila. i, 413.
Esox estor Günther, Cat. Fishes Brit. Mus. vi, 228, 1867. (Excl. syn. pars. Not of Richardson, DeKay, and others, which is *E. nobilior* Thompson.)
Esox lucius var. *estor* Jordan, Man. Vert. 255, 1876.
Esox lucius var. *estor* Nelson, Bull. Ills. Mus. Nat. Hist. 1876.
Esox lucius estor Jordan & Copeland, Check List Fishes, 143, 1876.
1836—*Esox lucius* Richardson, Fauna Bor.-Am. iii, Fishes, 124.
Esox lucius? DeKay, New York Fauna, Fishes, 226, 1842.
Esox lucius? Storer, Synopsis Fishes N. A. 438, 1846.
Esox lucius Cope, Proc. Ac. Nat. Sc. Phila. 79, 1865.
Esox lucius Cope, Trans. Am. Philos. Soc. Phila. 408, 1866.
Esox lucius Günther, Cat. Fishes Brit. Mus. vi, 227, 1867.
Esox lucius Jordan, Bull. U. S. Nat. Mus. x, 55, 1877.
Esox lucius Jordan, Man. Vert. ed. 2d, 266, 1878.
Esox lucius Jordan, Bull. U. S. Geol. Surv. Terr. 432, 1878.

1846—*Esox reticulatus* KIRTLAND, Bost. Journ. Nat. Hist. v, 233, pl. 10, f. 2. (Not of Le Sueur; first carefully distinguished from the Muskallunge.)
1846—? *Esox deprandus* (LE SUEUR) CUV. & VAL. xviii, 336.
? *Esox deprandus* COPE, Proc. Ac. Nat. Sci. Phila. 79, 1865.
? *Esox deprandus* COPE, Trans. Am. Philos. Soc. 408, 1866.
? *Esox deprandus* GÜNTHER, Cat. Fishes Brit. Mus. vi, 2, 1867.
1850—*Esox boreus* AGASSIZ, Lake Superior, 317, 1850.
Esox lucioides AUCT.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
21195	1076	Turtle Mountain	Dr. Elliott Coues	Aug. 10, 1873.
.....	1176 (head)	St. Mary's River, Rocky Mountains	do	Aug. 18, 1874.

The Common Pike is very abundant in all waters of Northern Asia, Northern Europe, and of North America north of about the latitude of the tributaries of Lake Erie, to Quincy, Ill., and northwestward to Alaska. It is one of the very few fresh-water fishes common to the eastern and western continents. I have carefully compared Swedish and American specimens, and I am unable to detect any specific differences whatever. No other strictly fresh-water species is known to be common to Europe and America. I have, however, little doubt of the identity of the American *Lota maculosa* (Le S.) with the European *Lota vulgaris* Cuv. In this case, the American species has the prior name.*

The number of nominal species of the genus *Esox* is greatly in excess of the number of definable forms. Those apparently worthy of recognition may be grouped in three subgeneric sections as follows:—

I. MASCALONGUS Jordan: Species of the largest size, with the branchiostegals in increased number (17 to 19), and the lower half of the cheeks and of the opercles bare of scales; coloration dark-spotted on a lighter ground. "Muskallunges."..*nobilior*.

II. ESOX Linnæus: Species of large size, with the branchiostegals 15 or 16 in number; coloration pale-spotted on a darker ground; fins black-spotted. "Pikes." *lucius*.

III. PICORELLUS Rafinesque: Species of medium or small size, with the branchiostegals 12 to 15 in number; coloration reticulated or barred with dark green on a lighter ground or nearly plain. "Pickerels."
reticulatus, americanus, raveneli, cypho, salmoneus.

Family ETHEOSTOMATIDÆ

Genus ALVORDIUS Girard.

18.—ALVORDIUS MACULATUS Girard.

Black-sided Darter.

1841—*Ethcostoma blennioides* KIRTLAND, Boston Journ. Nat. Sci. iii, 348. (Not of Raf.)
Etheostoma blennioides STORER, Syn. Fishes N. A. 270, 1846.
Etheostoma blennioides AG., Amer. Journ. Sci. Arts, 305, 1854.
Etheostoma blennioides COPE, Proc. Ac. Nat. Sci. Phila. 233, 1864.
Ethcostoma blennioides VAILLANT, Recherches sur les Poissons, etc. 70, 1873.

*This conclusion has been already independently reached by Dr. T. H. Bean of the Smithsonian Institution.

1859—*Alvordius maculatus* GIRARD, Proc. Ac. Nat. Sci. Phila. 67.
1859—*Hadropterus maculatus* GIRARD, Proc. Ac. Nat. Sci. Phila. 100.
Etheostoma maculatum COPE, Am. Philos. Soc. 449, 1870.
Etheostoma maculatum VAILLANT, Recherches sur les Poissons, etc. 54, 1873.
Alvordius maculatus JORDAN, Man. Vert. 2d ed. 220, 1878.
Alvordius maculatus JORDAN, Bull. U. S. Geol. Surv. Terr. iv, 438, 1878.
1877—*Alvordius aspro* COPE & JORDAN, Proc. Ac. Nat. Sci. Phila. 51.
Alvordius aspro JORDAN, Bull. Nat. Mus. x, 14, 1877.

Numerous young specimens with the coloration obliterated, but not apparently different from ordinary Indiana specimens.

Smithsonian number.	Collector's number.	Locality.	Collector.	Date.
20193	.....	.....	Dr. Elliott Coues	.....