

NOTES ON CHIMÆROID AND GANOID FISHES.

BY HENRY W. FOWLER.

The material mentioned in this paper is contained in the museum of the Academy of Natural Sciences of Philadelphia, unless otherwise stated.

CHIMÆRIDÆ.

Chimæra novæ-zealandiæ nom. nov.

For *C. monstrosa* var. *australis* Hector, Trans. N. Zeal. Inst., XXXIV, 1901 (1902), p. 239, Pl. 14, fig. 3, preoccupied by *C. australis* Shaw, Gen. Zool., V, 1804, p. 368, Pls. 158, a synonym of *Callorynchus*.

Of this family only two species are represented in our collection, *C. monstrosa* (L.) from Italy, and *Hydrolagus colliei* (Lay and Bennett) from Pacific Grove, Cal., and Alaska. I wish to call attention to the name *Chimæra neglecta* Ogilby, in Appendix A, *Rep. Com. F. N. S. Wales*, 1887 (1888), p. 23, which is preoccupied by *C. neglecta* Egerton, *Proc. Geol. Soc. London*, IV, 1843, p. 153, for a fossil species. According to Dr. Waite, *C. neglecta* Ogilby is thought to be identical with *Hydrolagus colliei* (Lay and Bennett), and had best be regarded as such, unless found to the contrary, though so far as I am aware this is its only occurrence in the Australian seas. If different, it requires a new specific name.

ACIPENSERIDÆ.

Acipenser sturio Linnæus.

Mediterranean 5, also 3 more dried; Adige, Italy 2; N. Am. 1; Del. R. 1 and 1 dry; Riverton 1; Washington Park 1; scute from Sea Girt, N. J.; skin from Castle Hill Beach, R. I.; Potomac R. 1; dry head without data. Also adult mounted, in Pa. F. Com. Coll.

Acipenser neccarii Bonaparte.

Faun. Ital., Pesc. III, pt. 2, XVI, XVII, 1836, descr. (*A. nacari* B., l.c., Pl. fig. 2). Adriatic.

Nos. 624 and 625, A. N. S. P., cotypes.

Acipenser brevirostrum Le Sueur. Pl. XXXVIII, fig. 1.

Trans. Amer. Philos. Soc., Phila., I, 1818, p. 290. River Delaware.
No. 16,953, A. N. S. P. Type(?).

This example, which I have only recently located in the collection, has been noted by Ryder, with whose remarks I agree. The original number is, however, painted on the side in black paint and not in white. The old Bonaparte Catalogue is still extant, but the number on this specimen does not refer to a sturgeon. I figure this interesting example on account of its historical interest and rarity, as I have found no authentic American figures except Ryder's photographs. Two other examples were examined, from Bayport, Fla., and Delaware Bay at Green Creek, in Cape May County, N. J.

Scaphyrhynchops platyrhynchus (Rafinesque).

N. Am. 3; no data 3 and 1 dry; Bridger Pass Expedition, in 1856, 1; Kansas 1; Gulf of Mexico 1.

Parascaphyrhynchus albus Forbes and Richardson.

A single example 503 mm. long from "North America" (Smiths. Inst., No. 3) is interesting as having been obtained long before this rare species was described.

POLYODONTIDÆ.

Polyodon spathula (Walbaum).

Kiskiminitas R., Pa., 1; New Orleans, La., 1; East. U. S. 1. Besides 1 dried example from Ohio R. and 2 dry heads. Mounted adult in Pa. Fish Com. Coll.

LEPISOSTEIDÆ.

The living members of this family have long been allowed to fall into a single genus, comprising only four American species. The material studied in the collection of the Academy shows at least twelve species, most of which were pointed out by Cope in 1865. I feel obliged to admit two genera, as in the *Lepisosteus* group no enlarged palatine teeth have been distinguished in any examples I have examined, while in the others, or *Cylindrosteus* group, they occur in the young as well as in the adult.

- a. *Lepisosteus*. No series of enlarged palatine teeth.
- b. Eye more than half of space to opercle.
- c. Opercle longer than high.....*huronensis*.
- cc. Opercle higher than long.....*osseus*.
- bb. Eye more than twice to opercle.
- d. Scales smooth.....*treculii*.
- dd. Scales crenulate.....*clintonii*.

aa. Cyliandrosteus. Always a series of enlarged palatine teeth.

e. Mouth-cleft, from snout tip to rictus, longer than rest of head.

f. Scales 60-63.

g. Eye $1\frac{3}{4}$ - $1\frac{7}{8}$ to opercle, $2\frac{1}{8}$ in interorbital; rictus width $3\frac{1}{4}$ - $3\frac{2}{3}$ in snout.....*platostomus*.

gg. Eye $1\frac{1}{3}$ to opercle, 2 in interorbital; rictus width 3 in snout.....*scabriceps*.

ff. Scales 55-58.

h. Eye $1\frac{3}{5}$ - $1\frac{3}{4}$ to opercle, 2 in interorbital.

i. Rictus width $4\frac{3}{4}$ in snout.....*productus*.

ii. Rictus width $3\frac{1}{3}$ in snout.....*agassizii*.

hh. Eye $2\frac{1}{4}$ to opercle, $2\frac{3}{4}$ in interorbital; rictus width $2\frac{7}{8}$ in snout.....*castelnaudii*.

ee. Mouth-cleft, from snout tip to rictus, shorter than rest of head.

j. Scales 57-60.

k. Eye $1\frac{1}{8}$ to opercle.....*megalops*.

kk. Eye 3 to opercle.....*tristæchus*.

jj. Scales 51-54; eye 2 to opercle
tropicus.

Lepisosteus huronensis (Richardson). Pl. XXXVIII, fig. 2.

Lepidosteus otarius Cope, Proc. Acad. Nat. Sci. Phila., 1865, p. 86. "Platte River, near Fort Riley."

Head $2\frac{1}{2}$ - $3\frac{1}{5}$; depth $3\frac{1}{8}$ - $5\frac{1}{6}$ in head; D. 8, rarely 7 or 9; A. 9, frequently 8, rarely 7 or 10; P. 12, often 11, rarely 7 or 10; V. 6, rarely 7; scales 62, frequently 63 or 64, rarely 60 or 61; predorsal scales 51, often 50, 52-54; scales around trunk middle 39, often 38, seldom 34, 35, 41-43; snout $1\frac{2}{5}$ - $1\frac{3}{7}$ in head; eye $1\frac{1}{5}$ - $1\frac{7}{8}$ to opercle; interorbital $\frac{7}{8}$ - $1\frac{1}{10}$; length 200-710 mm. Warren County, Pa., 3; Battle Creek in upper Mo. basin 1; Fort Riley, Kan., 1; Wabash R., Ind., 1; Holston R., Va. (dry head); also 6 dry heads and 4 dry skins without data. No. 16,968, A. N. S. P., cotype of *L. otarius* Cope. Figure of Warren County example.

Sarchirus vittatus Raf. and *S. argenteus* Raf. are unidentifiable young, possibly this species? *Lepisosteus longirostris* Raf. may be the adult, but is insufficiently described, and therefore I adopt Richardson's name as the oldest. *Lepisosteus semiradiatus* Ag., *L. harlani* Dum., *L. smithii* D., *L. ayresii* D., *L. copei* D., *L. troostii* D., and *Lepisosteus lineatus* Thomps. agree in the large eye and may be identical. *L. bison* DeK., *Lepisosteus lesuerii* Dum., *L. elisabeth* D., *L. lamarii* D., *L. piquotianus* D. and *L. horatii* D., all have a smaller eye.

Lepisosteus osseus (Linnæus). Pl. XXXVIII, figs. 3, 4.

Lepisosteus crassus Cope, Proc. Acad. Nat. Sci. Phila., 1865, p. 86. Probably Bombay Hook, Del.

Head $2\frac{3}{4}$ – $3\frac{1}{6}$; depth $2\frac{2}{3}$ – $3\frac{7}{8}$ in head; D. 7, seldom 8, rarely 9; A. 9, frequently 8; P. 12, rarely 10, 13 or 14; V. 6, rarely 5; scales 61, seldom 58, rarely 59, 60 or 63; predorsal scales 50, often 49 or 52, seldom 51; scales around trunk middle 42 or 44, seldom 41, 47 or 48; snout $1\frac{2}{5}$ – $1\frac{1}{2}$ in head; eye $1\frac{2}{3}$ – $1\frac{9}{10}$ to opercle; interorbital $\frac{5}{7}$ – $\frac{9}{10}$; length 424–1019 mm. Delaware Bay 1; Potomac R. 4, of which 3 dry; Bayport, Fla., 2 dry; no data 1 dry; Seaford, Del., jaws; Liberty County, Ga., jaws. No. 16,971, A. N. S. P., type of *L. crassus* Cope (figured).

The account by Linnæus is based on Catesby, Bonn., who undoubtedly had this species in view. *Esox viridis*, *Lepisosteus gavial* Lac., *Macrognathus loricatus* Gray and *Lepisosteus milbertii* Dum. are other synonyms. This species differs from the smooth-scaled *L. huronensis* in having the lateral scales, especially anteriorly, rugosely striated.

Lepisosteus treculii (Duméril). Pl. XXXVIII, fig. 5.

Head 3– $3\frac{1}{6}$; depth 4– $4\frac{1}{3}$ in head; D. 8; A. 8; P. 12; V. 6; scales 58?–60; predorsal scales 51; scales around trunk middle 39–43; snout $1\frac{1}{2}$ in head; eye 2– $2\frac{2}{3}$ to opercle; interorbital $\frac{9}{10}$ –1; length 900–1155 mm. Ohio R. 1 (figured) and San Antonio, Tex., 1, both dry skins.

Duméril's account is the earliest I find for this species. *L. oxyurus* Raf. and *Lepisosteus leptorhynchus* Girard are insufficiently described to permit identification. *L. louisianensis* Dum. differs in its small eye.

Lepisosteus clintonii (Duméril). Pl. XXXVIII, fig. 6.

Head $2\frac{7}{8}$ – $3\frac{1}{5}$; depth $2\frac{2}{7}$ –4 in head; D. 7–8; A. 9, seldom 8; P. 12–13; V. 6; scales 58–66; predorsal scales 50–54; scales around trunk middle 46, sometimes 45; snout $1\frac{3}{7}$ – $1\frac{1}{2}$ in head; eye $1\frac{5}{8}$ – $2\frac{1}{2}$ to opercle; interorbital $\frac{5}{6}$ – $1\frac{1}{10}$; length 365–1178 mm. Delaware R., just below Trenton, 1 dry (figured); Ohio R. 1 dry; no data 2.

Lepisosteus thompsoni Dum. has a still smaller eye, though otherwise agrees.

Cylindrosteus platostomus (Rafinesque). Pl. XXXVIII, fig. 7.

Head $3\frac{1}{2}$ – $3\frac{3}{5}$; depth $2\frac{1}{6}$ – $2\frac{1}{4}$ in head; D. 7–8; A. 8; P. 12; V. 6; scales 62–63; predorsal scales 54; scales around trunk middle 47–49; snout $1\frac{2}{3}$ in head; eye $1\frac{5}{6}$ to opercle; interorbital $\frac{9}{10}$; length 577–582 mm. "N. Am.," 2.

These examples would appear to be Rafinesque's species as expressed by Kirtland and Duméril. Kirtland's figure shows eye about $1\frac{3}{4}$ to opercle and rictus width about $3\frac{1}{5}$ in snout length. *L. (C.) oculatus*

Winchell may be a synonym. *Lepisosteus platyrhynchus* DeK. has much fewer scales, and *C. rafinesquii* Dum. is said to have eye 2 to opercle.

Cylindrosteus scabriceps sp. nov. Pl. XXXVIII, figs. 8, 9.

Head $3\frac{1}{8}$; depth $2\frac{7}{8}$ in head; D. 8, 1, fulcrum 5; A. 8, 1, fulcrum 6; P. 11, fulcrum 1; V. 6, fulcrum 3; scales 63 in l. l. to caudal base; predorsal scales about 53; scales around trunk middle 47; snout $1\frac{3}{8}$ in head; mandible $1\frac{4}{5}$; interorbital $6\frac{1}{2}$; dorsal length $2\frac{1}{3}$; anal $2\frac{1}{6}$; caudal, from base medianly of upper lobe $1\frac{7}{8}$; pectoral $3\frac{1}{4}$; ventral $2\frac{2}{3}$; snout width at rictus $6\frac{1}{2}$; eye $1\frac{2}{5}$ to opercle.

Body elongate, well compressed, predorsal region stoutest in width anteriorly, and greatest depth at ventral base. Caudal peduncle well compressed, least depth about $2\frac{1}{4}$ its total length.

Head well depressed, wider than deep, upper profile concave, especially just before eye, lower profile straight, and flattened sides slightly convergent below. Snout well depressed, arising in gentle median slope behind, and width at tip trifle less than half of basal width. Eye trifle elliptical, placed at last third in head length, and $1\frac{3}{8}$ in least interorbital width. Mouth not completely capable of closing, and mandible tip included well within snout tip. Series of minute sharp conic teeth along each edge of jaw externally of more or less unequal size. Just within small teeth a single series of enlarged slender conic teeth, in front of jaw these much larger and others gradually decreasing in size towards rictus, where very little larger than small external teeth. These long teeth uniformly larger in lower jaw, and when jaws close alternate so that their tips fit in sockets in opposite jaw. Front of upper jaw with 3 enlarged canines in transverse series, and mandible with 2 at end of each ramus. Osseous palatine ridge externally with an elongated narrow asperous area, and along its inner edge a series of small pointed teeth, much larger than asperities, and anterior ones largest, others graduated down posteriorly so as scarcely distinguishable toward rictus. An inner elongated area of palatine asperities, becoming wider posteriorly. A narrow median area of vomerine asperities. Along each edge of mandible internally narrow area of minute asperities. Tongue broadly expanded, free, deeply notched in front and upper surface well asperous. Nostrils 2 small pores, superior, near snout tip, distance between anterior and posterior little greater than internasal. Interorbital rather broadly depressed, only slightly convex. Opercle nearly deep as long, and lower edge deeply inclined down convexly

in front. Bones on head all with rather conspicuous and coarse rugosities or striae.

Gill-opening forward about $\frac{4}{7}$ to eye, forming rather broad fold over isthmus. Rakers 4 + 14 short rounded stumps, filaments about half of horizontal eye, and pseudobranchiae about $\frac{2}{3}$ of filaments. Few osseous scutes along inside edge of gill-opening.

Most all scales entirely smooth, a few about head and anterior predorsal region with a few slight rugosities. Series of enlarged scales along gill-opening above and down to pectoral base quite rugose. L. l. nearly median along side, curving down little low along caudal peduncle side, and each scale in its course with slight notch at posterior apex.

Dorsal origin little before last fourth in entire length of body, or about opposite base of fourth branched anal ray, second and third branched rays subequally longest, fin rounded, and when depressed nearly reaching median caudal base. Anal similar, inserted well before dorsal, and second, third and fourth branched rays subequally longest. Caudal elongate, rounded, and upper median rays longest. Pectoral pointed, $2\frac{3}{5}$ to ventral. Ventral larger than pectoral, inserted trifle nearer latter than anal, and depressed $2\frac{1}{10}$ to anal. Vent close before anal.

Color in alcohol faded dull brownish, back and upper surface darker, paler below. All fins pale brownish, each with a few rather large deeper brown spots, of darker shade on dorsal, anal and caudal, and others all very indistinct. Iris brassy.

Length 344 mm. (13 inches).

Type, No. 621, A. N. S. P. Leavenworth, Kan. E. D. Cope. (Figured.)

Also No. 622, A. N. S. P., paratype, same data. Besides this, are 2 other examples referrible to this species. An alcoholic preparation labeled "San Domingo, West Indies, W. M. Gabb," is uncertain and may have really come from somewhere in the United States, while a dry skin in the Cope Collection has no other data. These specimens show: Head $3\frac{1}{8}$ – $3\frac{1}{2}$; depth $2\frac{1}{3}$ – $3\frac{1}{3}$; D. 8; A. 8; P. 11–12; V. 6; scales 62–63 in l. l.; predorsal scales 51–55; scales around trunk middle 41–48; snout $1\frac{3}{5}$ – $1\frac{2}{3}$ in head; eye $1\frac{1}{3}$ – $1\frac{1}{2}$ to opercle, $1\frac{5}{6}$ –2 in inter-orbital; interorbital $\frac{4}{5}$ –1 to opercle; length 344–550 mm. This species differs at once from *C. platostomus* in the larger eye and much coarser striations or rugosities on the head.

(*Scaber*, rough; *ceps*, head.)

Cylindrosteus productus Cope. Pl. XXXVIII, figs. 10, 11.

Proc. Acad. Nat. Sci. Phila., 1865, p. 86. San Antonio, Tex.

Head $2\frac{4}{5}$ – $3\frac{1}{5}$; depth $3\frac{1}{10}$ – $3\frac{3}{5}$ in head; D. 8; A. 7–9; P. 10; V. 6; scales 57–60; predorsal scales 49–54; scales around trunk middle 42–44; snout $1\frac{3}{5}$ in head; eye $1\frac{1}{2}$ to opercle; interorbital $\frac{9}{10}$ –1; length 213–449 mm. Battle Creek in upper Missouri basin 2. No. 16,958, A. N. S. P., type of *C. productus* Cope, dry skin (figured).

Cylindrosteus agassizii Duméril. Pl. XXXVIII, fig. 12.

Head $3\frac{3}{5}$; depth $2\frac{3}{5}$ in head; D. 8; A. 7; P. 11; V. 6; scales 55; predorsal scales 47; scales around trunk middle 40; snout $1\frac{2}{3}$ in head; eye $1\frac{1}{2}$ to opercle; interorbital $\frac{7}{8}$; length 420 mm. Dry skin, "North America."

Cylindrosteus castelnaudii Duméril. Pl. XXXVIII, figs. 13, 14.

Head $3\frac{1}{4}$; depth 2; D. 9; A. 8; P. 11; V. 6; scales 58; predorsal scales 52; scales around trunk middle 45; snout $1\frac{2}{3}$ in head; eye $2\frac{2}{7}$ to opercle; interorbital $\frac{7}{8}$; eye in interorbital $2\frac{4}{7}$; length 600 mm. W. coast of Fla., in 1886, by Prof. A. Heilprin 1.

This example agrees with Duméril's account, which seems to be the earliest name for the species. Possibly *Lepidosteus* (*C.*) *latirostris* Girard is also identical, but the account of that species is insufficient. *C. bartonii* D. is another synonym.

Cylindrosteus megalops sp. nov. Pl. XXXVIII, figs. 15, 16.

Head $3\frac{3}{5}$; depth $1\frac{3}{4}$ in head; D. 7, 1, fulcrum 2? (damaged); A. 8, 1, fulcrum 8; P. 9, fulcrum about 8, weak and indistinct distally; V. 6, fulcrum 5; scales 57 in l. l. to caudal base; predorsal scales about 51; scales around trunk middle 44; snout $1\frac{4}{5}$ in head; mandible 2; interorbital 5; pectoral $2\frac{1}{4}$; ventral $2\frac{1}{5}$; snout width at rictus $4\frac{3}{4}$; eye $1\frac{1}{6}$ to opercle.

Body moderately elongate, well compressed, predorsal region stoutest in width, and greatest depth at ventral base. Caudal peduncle well compressed, least depth $1\frac{4}{5}$ its total length.

Head well depressed, much wider than deep, upper profile slightly concave, especially about middle of snout. Lower profile similarly approximated, and flattened head sides slightly convergent below. Snout well depressed, arising in gentle median slope behind, and width at tip trifle less than half of basal width. Eye large, trifle elliptical, placed about last $\frac{2}{5}$ in head length, and $1\frac{1}{2}$ in least interorbital width. Mouth completely closing, and truncated mandible tip included well within snout tip. Series of minute sharp conic teeth along each edge of jaw externally of more or less unequal size. Just inside small teeth a single series of enlarged slender conic teeth, towards front of jaw

these much larger and others gradually decreasing in size towards rictus, where quite larger still than very small externals. Long teeth uniformly larger in lower jaw, and when jaws close alternate so that their tips fit in sockets in opposite jaw. Front of upper jaw with 4 rather small teeth in transverse series and mandible with 1 enlarged tooth at each corner in front, also a smaller one unsymmetrically on front of left ramus. Osseous palatine ridge externally with an elongated narrow asperous area and along its inner edge a series of small pointed teeth, much larger than asperities, though quite inconspicuous. An inner elongated area of palatine asperities, becoming wider posteriorly. A narrow median area of vomerine asperities. Tongue broadly expanded, free, deeply notched in front and upper surface well asperous. Nostrils 2 small pores, lower inferior and posterior superior, near snout tip, distance between anterior and posterior about $1\frac{1}{3}$ in anterior internasal. Interorbital broadly depressed, very slightly convex. Opercle almost deep as long, and lower edge convexly curved forwards. Bones of head all with rather conspicuous and coarse rugosities or striæ.

Gill-opening forward about half-way to eye, forming rather broad fold over isthmus. Rakers about 5 + 10 short rounded asperous stumps, filaments about half of horizontal eye, and pseudobranchiae about $\frac{2}{3}$ of filaments. No osseous scutes along inside edge of gill-openings.

Most all scales entirely smooth. Series of enlarged scales along gill-opening above, and down to pectoral base, lower slightly roughened. L. 1. nearly median along side, sloping down little low along caudal peduncle side, and each scale in its course with slight notch at posterior apex.

Dorsal origin near last $\frac{3}{11}$ in total length (caudal damaged) or about opposite base of fifth branched anal ray. Anal similar, inserted well before. Caudal elongate, rounded, and upper median rays apparently (damaged) longest. Pectoral pointed, about $2\frac{1}{6}$ to ventral. Ventral trifle larger than pectoral, about 2 to anal, inserted about midway between pectoral and anal origins. Vent close before anal.

Color in alcohol uniform brownish, upper surface scarcely paler.

Length 418 mm. ($16\frac{1}{2}$ inches).

Type, No. 25,371, A. N. S. P. Bayport, Fla. J. B. Wood. Presented by E. D. Cope.

The above is the only example I have seen, and seems to be most closely related to *Lepidosteus grayi* Agassiz, which is said to have smooth scales, snout not longer than rest of head, and a series of

enlarged teeth in upper jaw. Agassiz's account, however, is too incomplete for positive identification. Regan has examined Agassiz's type and says it has a much broader snout than *C. platostomus*, or its width at mouth angles $2\frac{1}{3}$ in upper jaw length. *C. megalops* shows rictus width $2\frac{2}{5}$ in snout length. Regan also thinks *C. zadockii* Duméril may be identical with *C. grayi* Agassiz, though Duméril gives eye $1-2\frac{1}{3}$ in interorbital, and about 2 in postorbital to preopercle edge, besides smaller scales as 61 or 62. The type of *C. grayi* is 600 mm. and the examples of *C. zadockii* 620-660 mm.

(*Μεγαλόφ*, large-eyed.)

Cylindrosteus tristæchus (Schneider). Pl. XXXVIII, fig. 17.

Head $3\frac{4}{7}-3\frac{2}{3}$; depth $2\frac{2}{5}-3\frac{1}{5}$ in head; D. 7-8; A. 8; P. 13-14; V. 6; scales 61-63; predorsal scales 51-53; scales around trunk middle 58-61; snout $1\frac{4}{5}$ in head; eye $2\frac{2}{5}-2\frac{7}{8}$ to opercle; interorbital $\frac{5}{7}-\frac{3}{4}$; eye in interorbital 4; length 1067-1340 mm. Mississippi R. 1 from Dr. Anderson, and 1 from same basin in Louisiana from Dr. S. G. Richardson (figured), both dry skins. Also 2 others without data and 1 dry head.

I allow the identification of the Cuban and Mississippi Valley forms as Duméril, who has examined some of the former, gives the eye in agreement with my Mississippi R. examples, though Poey's figure of *Lepidosteus manjuari* shows the eye only 2 in postorbital to opercle. *Lepisosteus spatula* Lac., *L. albus* Raf., *L. ferox* R., *Lepidosteus* (*Atracosteus*) *berlandieri* Gir. and *A. lucius* Dum. are other synonyms.

Cylindrosteus tropicus (Gill). Pl. XXXVIII, fig. 18.

Head $2\frac{9}{10}$; depth $2\frac{3}{7}?$ in head; D. 8; A. 7; P. 14; V. 6; scales 53; predorsal scales 47; scales around trunk middle 45; snout $1\frac{5}{7}$ in head; eye 2 to opercle; interorbital $\frac{5}{6}$; eye $2\frac{1}{2}$ in interorbital; length 770 mm. Nicaragua, 1 from Dr. J. F. Bransford.

AMIATIDÆ.

Amiatus calvus (Linnæus).

Erie, Pa., 1; L. Erie, 1; Ithaca, N. Y., 1; Maryland, 1; Mississippi Valley, 1; also 15 others without data and 1 a dry skin.

EXPLANATION OF PLATE XXXVIII.

- Fig. 1.—*Acipenser brevirostrum* Le Sueur. Type (?). Upper figure to left dorsal view of head; upper figure to right ventral view of head; lower figure a lateral view.
- Fig. 2.—*Lepisosteus huronensis* (Richardson). Warren Co., Pa.
- Figs. 3, 4.—*Lepisosteus osseus* (Linnæus). Type of *Lepidosteus crassus* Cope.
- Fig. 5.—*Lepisosteus treculii* (Duméril). Ohio River.
- Fig. 6.—*Lepisosteus clintonii* (Duméril). Delaware River below Trenton.
- Fig. 7.—*Cylindrosteus platostomus* (Rafinesque). "North America"
- Figs. 8, 9.—*Cylindrosteus scabriceps* Fowler. Type.
- Figs. 10, 11.—*Cylindrosteus productus* Cope. Type.
- Fig. 12.—*Cylindrosteus agassizii* Duméril. North America.
- Figs. 13, 14.—*Cylindrosteus castelnaudii* Duméril. West coast of Florida.
- Figs. 15, 16.—*Cylindrosteus megalops* Fowler. Type.
- Fig. 17.—*Cylindrosteus tristæchus* (Schneider). Mississippi River, La.
- Fig. 18.—*Cylindrosteus tropicus* (Gill). Nicaragua.



Fowler, Henry W. 1910. "Notes on Chimæroid and Ganoid Fishes." *Proceedings of the Academy of Natural Sciences of Philadelphia* 62, 603–612.

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