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THE SCIENTIFIC NAME OF THE COLUMBIA
RIVER CHUB

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UNTIL 1905 the scientific name of the Columbia River chub was generally accepted, for example by Jordan and Evermann (1896: 219), as *Mylocheilus caurinus* (Richardson). In that year Snyder (1905: 341) stated that the name should stand as *Mylocheilus lateralis* Agassiz and Pickering, and to date no one has questioned the validity of Snyder's opinion. Snyder wrote: "Recent authors have not only continued to associate *M. lateralis* with *L. caurinus*, but they have also considered the species identical, a proceeding wholly at variance with the facts. Richardson described a form closely resembling *Ptychocheilus oregonensis*, with which he says it was confused by the collector." He then described and later (1908: 173, fig. 3) figured a specimen which he thought represented *Leuciscus caurinus* Richardson.

A number of good reasons occur to us for doubting the validity of the nomenclatorial change induced by Snyder:

1. The distinctions used by Richardson (1836: 304-305) to separate *Cyprinus* (*Leuciscus*) *caurinus* and *Cyprinus* (*L.*) *oregonensis* are the more obvious differences between the species now referred to *Mylocheilus* and *Ptychocheilus*, respec-

tively. The latter differs from the former, to use Richardson's own words, in the following features:

FORM more tapering forwards, the shoulders not so high: *head* longer, forming one-fourth part of the length of the fish, including the middle caudal rays [in *caurinus* in contrast, "the *head* forms one-fourth of the length of the fish, caudal excluded"]: *snout* obtuse and even with the margins of the upper and lower jaw when the mouth is closed [in *caurinus*, "snout rather obtuse, and projects a little beyond the shut mouth"]: mouth considerably larger, being cleft as far back as the edge of the orbit: . . . the gill-cover less widely rounded, and the edge of the operculum concave [in *caurinus*, "gill-cover . . . rounded at the apex; posterior edge of operculum straight"]: . . . The *dorsal* also stands farther back, being nearer to the tip of the tail than to the point of the snout, while the *ventrals* stand under the first dorsal ray, and midway between the orbit and base of the central caudal rays. The distance from the gill-openings to the ventrals reaches from the latter to half way between the anal and the caudal [in *caurinus*, "the *dorsal* commences exactly midway between the tip of the snout and base of the central caudal rays. . . . The *ventrals* are attached under the fifth dorsal ray, or considerably before the middle of the fin, and midway between the gill-opening and end of the anal"]].

2. Richardson's failure to describe the barbel in his *caurinus*,—a point held very important by Snyder,—apparently cannot be held significant. The statement as to the absence of a barbel is given only under the diagnosis of the "subgenus" *Leuciscus*, in these words "The *Leucisci*, or Daces, have a short dorsal and anal, are destitute of spinous rays or barbels. . . ." Yet the only species described in the body of the text (*caurinus* and *oregonensis* appear in the appendix) is *Cyprinus* (*Leuciscus*) *gracilis*, the present *Platygobio gracilis*, which has a barbel at least twice as long as in *Mylocheilus*. Richardson, accustomed to European cyprinids with their long barbels, doubtless overlooked the rudiment in his species *caurinus*, just as Agassiz did in describing *Hybopsis gracilis* (= *Hybopsis amblops*).

3. That Richardson described under the name of *Cyprinus* (*Leuciscus*) *caurinus* the species currently called *Mylocheilus lateralis* is virtually assured by the fact that Günther (1868:

270) clearly described the latter on the basis of two of the original types and one additional specimen.

4. Furthermore, the type with which Snyder associated Richardson's name is so rare as to make it extremely unlikely that the early author would have had a specimen among the few examples of "dace" at his disposal. Yet he did have four of *caurinus*, whereas only two specimens of the type described by Snyder have been obtained in the whole period of modern exploration. The two abundant cyprinids of the lower Columbia, almost certainly the ones which Richardson's collectors encountered, are *Mylocheilus* and *Ptychocheilus*.

No other specimen corresponding with Snyder's description of *Leuciscus caurinus* has been discovered until the present year, when the junior author and Allan De Lacy collected one in a tributary of Snake River near King Hill, Idaho (Cat. No. 92239, Museum of Zoology; collected June 20, 1931). Snyder's specimens were taken in the Willamette River near Corvallis, Oregon.

5. Another supplementary reason for regarding Snyder's specimen of "*Leuciscus caurinus*" as different from Richardson's *caurinus*, a reason not really needed to prove the point, is the fact that the former is in our opinion a hybrid between *Acrocheilus alutaceus* and *Ptychocheilus oregonensis*. The reasons for this interpretation follow:

a. Hybrids in the Cyprinidae have been demonstrated to be of frequent occurrence in Europe, and the senior writer has obtained many intergeneric combinations among the American cyprinids and other fishes.

b. The type is very rare: only two specimens are known.

c. Both were taken in company with the assumed parent species.

d. The proportions are strictly intermediate between those of *Acrocheilus alutaceus* and *Ptychocheilus oregonensis*. This we prove for our specimen by the data given in Table I. The intermediate head proportions and curvature of mouth are shown in the figure. Snyder's specimen differs from ours

chiefly in those characters, such as the smaller eye, which change with age.

TABLE I

COMPARATIVE MEASUREMENTS OF *Acrocheilus alutaceus*, *Ptychocheilus oregonensis*, AND THE SUPPOSED HYBRID. ALL SPECIMENS FROM A TRIBUTARY OF THE SNAKE RIVER, KING HILL, IDAHO.

	<i>Acrocheilus</i>	Hybrid	<i>Ptychocheilus</i>
Number of specimens	15	1	15
Length to caudal, mm.	57-83 av. 71.4	65	58-86 av. 71.5
Depth of body in standard length	4.0-4.4 av. 4.15	4.4	4.4-4.9 av. 4.69
Least depth in projection of greatest depth	2.7-3.1 av. 2.90	2.5	2.1-2.3 av. 2.24
Upper caudal lobe in standard length	2.7-3.5 av. 3.02	3.2	3.2-3.6 av. 3.41
Head length in standard length	3.8-4.0 av. 3.90	3.7	3.4-3.6 av. 3.48
Head depth in head length.	1.3-1.5 av. 1.41	1.6	1.7-1.8 av. 1.74
Mouth from end of muzzle in head	3.1-3.5 av. 3.37	3.0	2.5-2.9 av. 2.68
Orbit to posterior edge of preopercle in orbit	1.4-2.0 av. 1.77	1.35	1.0-1.1 av. 1.06
Length of orbit in head length	3.4-3.6 av. 3.51	3.8	4.1-4.5 av. 4.32
Orbit in least depth of caudal peduncle	1.0-1.3 av. 1.17	1.3	1.3-1.5 av. 1.40

e. The number of scales is essentially intermediate if we consider the two specimens together: we count in the lateral line 71 to 79 (average, 74.0) in *Ptychocheilus oregonensis*; 77 in our hybrid (yielding with Snyder's count of 86 in his specimen an average of 81.5); 81 to 93 (average, 86.3) in *Acrocheilus alutaceus*.

f. The fin rays in our specimen are as in *Ptychocheilus* (dorsal, 9; anal, 8), whereas Snyder gave for his specimen the count of *Acrocheilus* (dorsal, 10; anal, 9).

g. The color of the peritoneum in both specimens is dusky, thus intermediate between the silvery color of this membrane in *Ptychocheilus* and the black color in *Acrocheilus*. The intestine, however, is short as in *Ptychocheilus*, not having any kinks to approach the coils of *Acrocheilus*.

h. The pharyngeal teeth are somewhat intermediate in that on one side of each specimen there is only one tooth in the inner row, as compared with 0 in *Acrocheilus* and 2 in *Ptychocheilus*. The other side in Snyder's specimen showed 2 teeth. The second side in our specimen has such a bizarre tooth formula as to suggest something erratic in the heredity of the individual. This arch presents a greater number of tooth rows, four, than has been reported for an American cyprinid. The tooth formulae are:

	<i>Acrocheilus</i>	Snyder's hybrid	Our hybrid	<i>Ptychocheilus</i>
Left side	5	5, 1	4, 1, 2, 2	5, 2
Right side	4	4, 2	4, 1	4, 2

CONCLUSIONS

The fish described by Richardson as *Cyprinus (Leuciscus) caurinus* is the species which prior to 1905 was generally called *Mylocheilus caurinus*.

Mylocheilus caurinus in our opinion is the correct name for this species, the common Columbia River chub.

The specimen described by Snyder as *Leuciscus caurinus*, like the recently obtained and second known specimen of this type, represents in our opinion a hybrid between *Acrocheilus alutaceus* and *Ptychocheilus oregonensis*.

Therefore, the nominal genus *Clarkina* Jordan and Evermann (1927: 502), actually based wholly on Snyder's account of "*Leuciscus caurinus*," although assigned the type species *Cyprinus caurinus* Richardson, should be abolished.

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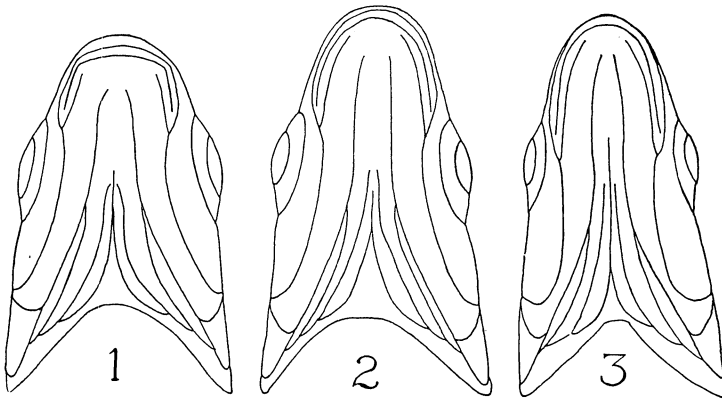


PLATE I

Lower surface of heads in Columbia River Cyprinidae.

Drawings of specimens each 65 mm. long to caudal, all from tributary of Snake River, King Hill, Idaho; drawn with aid of camera lucida by Leonard P. Schultz, all to the same scale.

FIG. 1. *Acrocheilus alutaceus*

FIG. 2. Hybrid, *Acrocheilus* × *Ptychocheilus*

FIG. 3. *Ptychocheilus oregonensis*

