THE SILUROID FISH *PSEUDECHENEIS* AND AN ALLIED NEW GENUS.

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[When I examined the unique specimen of "*Pseudecheneis paviei*" in the Paris Museum for the first time no specimen of *Pseudecheneis sulcatus* was available in Paris for comparison. Subsequently I sent a specimen of the latter species to Dr. P. Chabanaud with a request to compare the two forms for me. Dr. Chabanaud took considerable pains in this matter and drew up a detailed description of the former species and a comprehensive table showing differences between the two forms. I have thought it advisable to publish here as part II the valuable note of Dr. Chabanaud on these interesting fishes. During my return journey to India I was able to compare the two forms myself and found that my observations corroborated Dr. Chabanaud's account. I take this opportunity to thank Dr. Chabanaud for the great trouble he took for me and for the valuable help he rendered to me during the period that I worked at the Museum National d'Histoire Naturelle, Paris. *S. L. H.*]

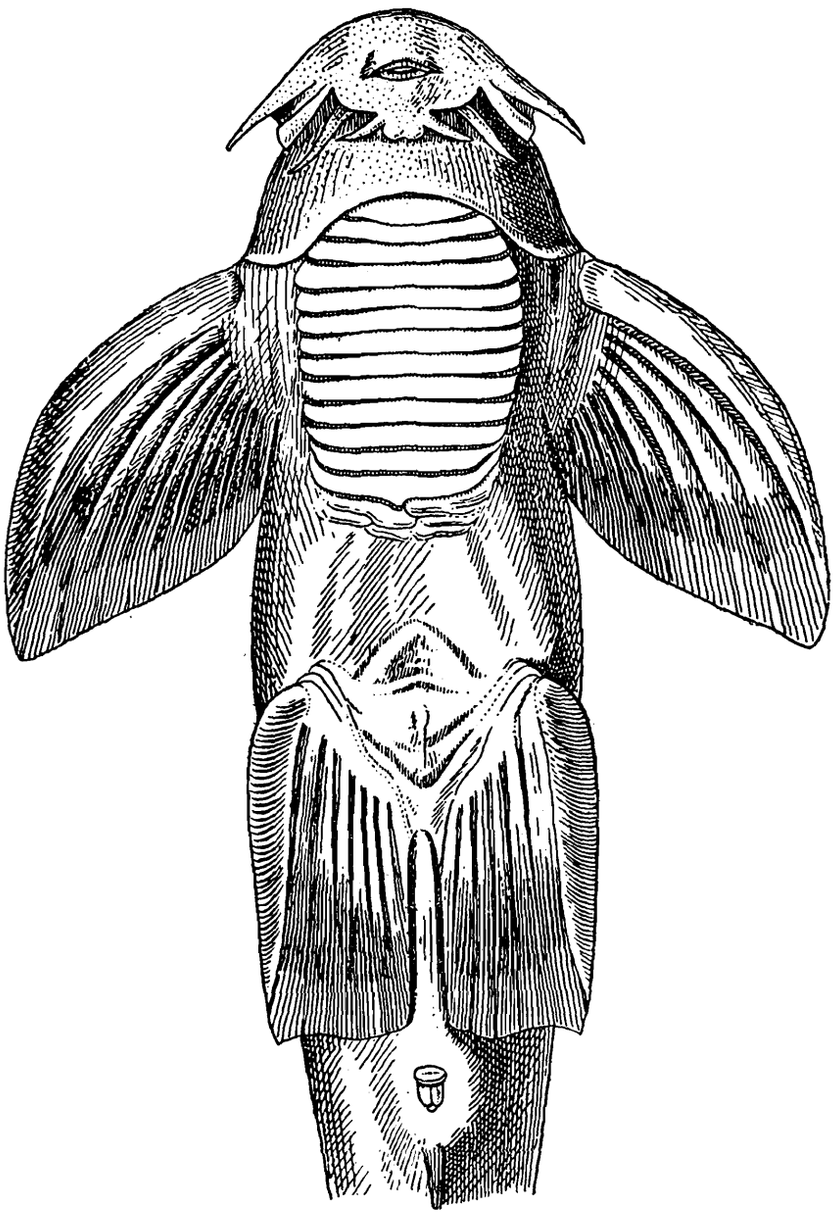
PART I.—ON A NEW GENUS CLOSELY RESEMBLING *PSEUDECHENEIS* BLYTH.

By SUNDER LAL HORA.

Of the assemblage of fishes referred to the family Sisoridae there are none more striking and abundantly distinct than those belonging to the genus *Pseudecheneis* Blyth. As the name implies the members of this genus are provided with an adhesive apparatus composed of a series of transverse lamellae resembling in superficial appearance and form the well-known adhesive disc of *Echeneis* or *Remora*. In *Pseudecheneis* the pad is situated on the ventral surface, partly in front of but mainly between the pectoral fins. The genus was erected by Blyth[1] to accommodate McClelland's species "*Glyptosternon sulcatus*"[2] described from the Khasi Hills, but since then investigations have shown that its range extends from the Darjiling Himalayas through the Abor Hills, Khasi Hills, the Manipur Hills to Putao Plains (N. E. Burma) and "Catcin Cauri" in the neighbourhood of Bhamo. Besides the genotype there is only one other species described in this genus, namely *Pseudecheneis paviei* Vaillant[3], which is known from a single specimen obtained at Lai-Chow in Tonkin.

[1] Blyth, *Journ. As. Soc. Bengal* XXIX, p. 154 (1860).
[2] McClelland, *Calcutta Journ. Nat. Hist.* II, p. 586 (1842).
[3] Vaillant, *Bull. Soc. Philom. Paris* (8) IV, p. 126 (1891-1892); *Miss. Pavie*, p. 464, pl. xxii, fig. 3 (1904).

In 1923, when I[1] discussed the various divisions of McClelland's composite genus *Glyptosternon*, the definition of *Pseudecheneis* was based on the material of *P. sulcatus* in the collection of the Indian Museum and

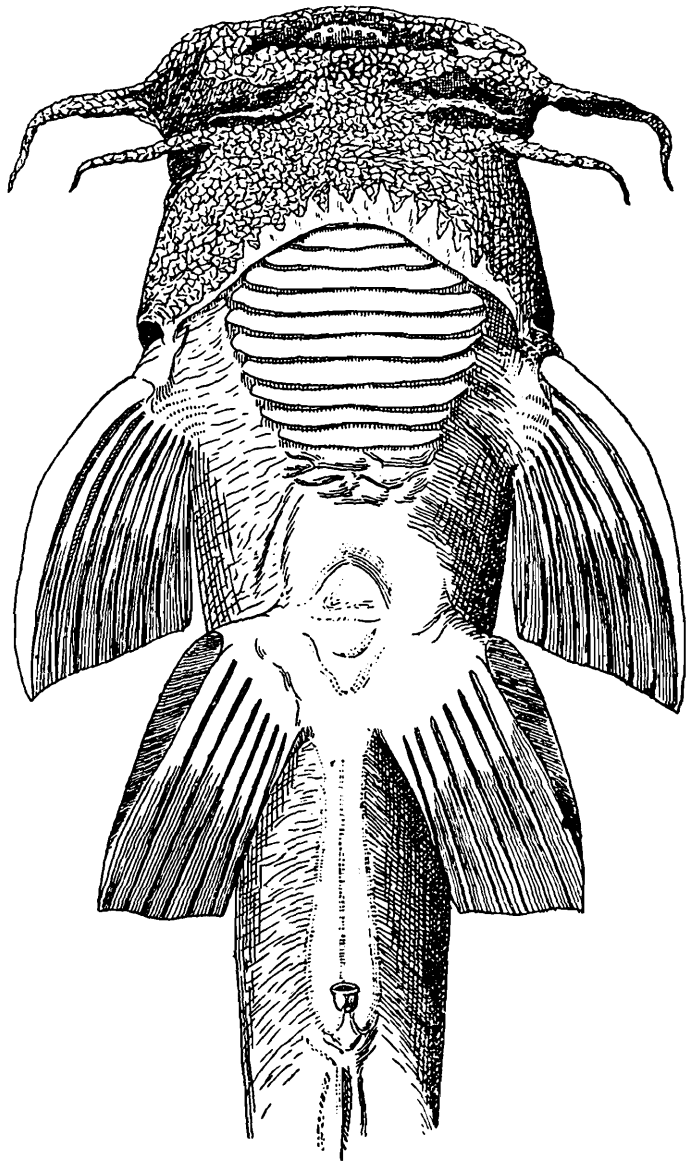


TEXT-FIG. 1.—*Pseudecheneis sulcatus* (McClelland). × 1⅔.

my knowledge of the other species was derived from Vaillant's two descriptions and figure. The two species are abundantly distinct (see Dr. P. Chabanaud's table of comparison in part II), but it was not realized until I had an opportunity of examining the unique specimen of *P. paviei* in the Museum National d'Histoire Naturelle, Paris, in 1928, that the two species cannot be considered as congeneric. In general facies the two forms are totally different; *P. sulcatus* is subcylindrical with the head obtusely conical, whereas *P. paviei* is greatly depressed with the head broad and almost truncate in front. The differences between the two are in my opinion sufficiently well-marked to warrant the erection of a new genus *Parapseudecheneis* for *P. paviei* Vaillant. The character on which they have been regarded as congeneric is the form and position

[1] Hora, *Rec. Ind. Mus.* XXV, pp. 1-44, pls. i-iv (1923).

of the adhesive apparatus, but this appears to have been evolved independently in the two genera under the influence of some similar factor



Text-fig. 2.—*Parapseudecheneis paviei* (Vaillant). × 1⅓.

or factors in their environment. Indeed, it seems to me that these two genera furnish a remarkable instance of convergence or parallelism in evolution. I shall briefly describe the probable line of evolution of *Pseudecheneis* and *Parapseudecheneis*.

I have referred elsewhere[1] to a remarkable series of Sisoridae, which in the degree of their modifications clearly illustrate the direct effect of the environment. For example, the fishes of the genera *Nangra*, *Erethistes*, *Laguvia*, *Glyptothorax* and *Glyptosternum* can be arranged in an evolutionary series showing progressive modifications induced by living in stronger and stronger currents. The evolutionary sequence of *Pseudecheneis* in the family Sisoridae has always appeared to me a

[1] Hora, *Rec. Ind. Mus.* XXV, p. 7 (1923); *Trans. Phil. Soc. London* (B) CCXVIII, pp. 236, 237 (1930).

very difficult point, but now I believe that both *Pseudecheneis* and *Parapseudecheneis* are probably derived from such members of the genus *Glyptosternum*[1] that live in calm and placid waters of the Highlands of Central Asia. The fact that in both these genera the pectoral fins are placed somewhat higher than the ventral surface of the body shows that they have taken to life in rapid waters comparatively recently. It also shows that their ancestors were probably well adapted for life in deep and calm waters. The transversely striated pad of *Pseudecheneis* is different from similar adhesive devices found on the chest, paired fins, etc., of other fish, in so far as the striae on the latter are always obliquely longitudinal in direction. It seems to me probable that the currents in the streams at the base of the hills are different from those that are to be found in torrents at high altitudes. The former have induced the development of pads with obliquely longitudinal ridges and grooves, whereas the latter have influenced the formation of discs with transversely arranged grooves and ridges.

The fishes of the genus *Glyptosternum* exhibit considerable diversity in form and structure and they have been justly divided into several different genera by Regan[2] and Norman.[3] *Parapseudecheneis* seems to have been evolved from such forms as *G. stoliczkae* and *G. maculatum* (*Parexostoma* of Regan), whereas *Pseudecheneis* is probably descended from forms like *G. davidi* and *G. hodgarti* (*Euchiloglanis* of Regan). It is clear from the above that the two genera—*Pseudecheneis* and *Parapseudecheneis*—are derived from two different stocks, but under the influence of a common factor—the current—have developed a similar type of adhesive apparatus. It is also to be noted that both the genera have retained indications of their respective ancestral build and general facies even up to the present day and this very character now distinguishes them so sharply.

Part II.—Description de *Parapseudecheneis paviei* (Vaillant) et comparaison de cette espèce avec *Pseudecheneis sulcatus* (McClelland).

By Paul Chabanaud.

Parapseudecheneis paviei (Vaillant).

Tonkin. Type: Mus. Paris, No. 1892-49.

Faciès batrachoïde. Tête très volumineuse, plus large que longue, déprimée en dessus. Corps progressivement comprimé d'avant en arrière, depuis l'attache des pectorales jusqu'à la caudale, plus fortement en arrière de la dorsale. Sillon labial, originaire de la base du barbillon maxillaire, ne se prolongeant pas, vers le plan de symétrie, au-delà du front du bord externe des narines. Narine antérieure presque aussi

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[1] I use this generic name here in the broad sense in which I recognise it (*Rec. Ind. Mus.* XXV, p. 30, 1923).

[2] Regan, *Ann. Mag. Nat. Hist.* (7) XV, p. 182 (1905).

[3] Norman, *Ann. Mag. Nat. Hist.* (9) XV, pp. 571-575 (1925).