

BIBLIOGRAPHIE

1. AX P., Zool. Jahrb., Abt. Syst., 1951, **80**, 3/4, 219—232.
2. BRUNET M., Rec. Trav. St. End. Bull., 1965, **39**, 55, 127—218.
3. KARLING T. G., Arkiv för Zoologi, 1956, Serie 2, **9**, 7, 187—279.
4. — Zool. Anz., 1964, **172**, 3, 159—183.
5. MACK-FIRA V., An. Univ. București, Seria Șt. Nat., Biol., 1968, **17**, 27—33.
6. — Turbellariile din România (*Archoophora*, *Prolecithophora*, *Proseriata*, *Rhabdo-coela*, *Lecithoepitheliata*). Studiu sistematic, ecologic și zoogeografic. (Teză de doctorat), București, 1970.
7. WESTBLAD E., Arkiv för Zoologi, 1953, Serie 2, **4**, 23, 391—408.

Reçu le 5 février 1971

Faculté de Biologie
Laboratoire de Zoologie (Invertébrés)

A REVIEW OF THE SPECIES OF THE SUBGENUS
ONYCHOSTOMA S. STR. WITH DESCRIPTION OF A NEW
SPECIES (PISCES, CYPRINIDAE)

BY

PETRU BĂNĂRESCU

The subgenus *Onychostoma* s. str. includes eleven species, of which one, *O. leptura*, is intermediate between this subgenus and *Scaphestes*. *O. laticeps* Günther is a synonym of *O. sima* (Sauvage & Dabry), *Varicorhinus szechuanensis* Chang a synonym of *O. angustistomata* (Fang.). A new species from the Democratic Republic of Viet-Nam: *O. vietnamensis* is described which is closer to *O. gerlachi* from the Hsikiang drainage.

Onychostoma Günther, 1896 [2] (type: *O. laticeps* Günther = *Barbus simus* Sauvage & Dabry, 1874) is the right generic name for a group of 14 or 15 East Asian medium- to large sized Barbin minnows, included by many authors within the composite *Varicorhinus*. These species are characterized by the peculiar inferior and almost transverse shape of the mouth; the upper lip is thin, smooth and separated from the snout by a deep but narrow groove; the lower lip is completely fused to the jaw, except laterally; the edge of the lower jaw is sharp, trenchant, horny; the groove delimiting the preorbital (lacrimal) bone reaches to the corner of the mouth, it becomes very close to the groove delimiting the upper lip and parting in two branches, one reaching almost below the middle of the eye, the other delimiting the free part of the lower lip (Fig. 1).

Nichols [5] restricts *Onychostoma* to the species without barbels, ascribing those with two pairs of barbels to the composite *Varicorhinus*. I think that the presence or absence of barbels is a minor character, the barbels being comparatively well developed only in *O. angustistomata*; they are short in other species, while most specimens of *O. sima* lack

barbels, but a few have a small or rudimentary maxillary (never rostral) barbels. The presence of an ossified and serrated last simple dorsal ray (as against a slender one) is a more important character, yet in one species, *O. leptura* the degree of ossification of this ray undergoes great individual and age variations.

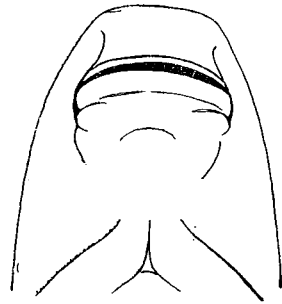


Fig. 1. — *Onychostoma leptura*, ventral view of mouth (original).

Nichols' *Varicorhinus* includes, besides 5 species of *Onychostoma*, representatives of four other genera: *Sinilabeo* (= *Altigena*), being the closest East Asian relative of the true African *Varicorhinus*, the monotypic *Rectoris* and *Parasinilabeo* and one species, *Kreyenbergi*, actually belonging to *Acrossocheilus*. Lin's [4] "*Varicorhinus*" corresponds exactly to *Onychostoma*.

The closest relative of *Onychostoma* seems to be the West-Asian group of so-called *Varicorhinus*, separated recently by Karaman [3] as *Capoeta*.

I divide *Onychostoma* in two subgenera: *Onychostoma* s. str., including the species in which the last simple dorsal ray is ossified and *Scaphestes* Oshima, 1919, including the species in which this ray is slender. *O. leptura* is intermediate between both subgenera, being closer to the former.

This paper deals only with *Onychostoma* s. str.; a revision of the subgenus *Scaphestes* is forthcoming.

MATERIAL

63 specimens were examined; they belong to the following collections: American Museum of Natural History, New York (A.M.N.H.); Academy of Natural Sciences in Philadelphia (A.N.S.P.); British Museum, Natural History (B.M.N.H.), Field Museum of Natural History, Chicago (F.M.N.H.), Muséum National d'Histoire Naturelle, Paris (M.N.H.N.), Naturhistorisches Museum, Wien (N.M.W.), United States National Museum, Washington (U.S.N.M.).

The number of anal rays being constant (A 2/5) is not indicated. Also many body proportions are more or less constant or are subject to strong allometry (head, snout, eye); of real value are only the body great-

est depth, length of the caudal peduncle and the least depth (all three expressed here in % of standard length).

SYSTEMATIC ACCOUNT

Onychostoma sima (Sauvage & Dabry, 1874)

Fig. 2, 3.

Synonyms: *Barbus* (*Systomus*) *simus* Sauvage & Dabry, 1874 (China); *Onychostoma laticeps* Günther, 1896 (Kansu, upper Hwang-ho drainage); *O. laticeps fontouensis* Tehang, 1930 (upper Yangtze); *Barbus gerlachi* (not of Peters), Rendahl, 1932 (upper Yangtze); *Varic. gerlachi* (not of Peters), Chang, 1944 (upper Yangtze).

Specimens examined: holotype of *B. simus*, M.N.H.N. 7952, "China" (probably Yangtze), 142.0 mm st. length; paratype of *O. l. fontouensis*, M.N.H.N. 34-17, Szechwan, upper Yangtze, 184.0 mm; M.N.H.N. 34-16, Szechwan, 262.0 mm; B.M.N.H. 1969. 4.5:105, Szechwan, 432.0 mm; U.S.N.M. 89164 (2 spec.), Suifu, Szechwan, 183.5-187.0 mm; U.S.N.M. 91774, Szechwan, 144.0 mm; F.M.N.H. 51118 (4 spec.), Suifu, Szechwan, 136.0-203.0 mm; F.M.N.H. 43771 (2 spec.), Tu Chandzu, Szechwan, 102.8-110.0 mm; A.M.N.H. 15286, Ya Wu, Szechwan, 144.0 mm.

D III 8; L. lat. (45) $47 \frac{8-9}{4-5}$ 48 (49); Sp. br. 31-37.

Body depth 26.8-31.2% (34.3% in the holotype of *O. laticeps*, according to Günther, 2); caudal peduncle 20.4-23.4%; least depth 10.0-13.0%. Usually no barbels, but in some specimens there are rudimentary or reduced maxillary barbels. Head and snout very blunt, dorsal profile strongly arched.

The holotype of *B. simus* (Fig. 2) proved to be the same species as *O. laticeps*; it has a somewhat lower body than most other specimens (depth 27.6%), L. lat. 46-47 (not 40, as indicated by Nichols!). The upper Yangtze specimens recorded by Rendahl [8] and Chang [1] as *Barbus*, respectively *Varicorhinus gerlachi* actually are *O. sima*, according to the number of scales and body proportions indicated by both authors.

Range: upper Hwang-ho and upper Yangtze drainages. There may be subspecific differences between *sima* (= *fontouensis*) from the Yangtze and *laticeps* from the Hwang-ho; the latter apparently has a deeper body, but it is known by a single specimen.

Onychostoma gerlachi (Peters, 1880)

Fig. 4.

Specimens examined: U.S.N.M. 94594 (2 spec.), Wuchow, Kwangsi, 182.0 and 217.0 mm; F.M.N.H. 47328, same locality, 153.0 mm.

D III 8; L. lat. $48 \frac{7}{4^{1/2}}$ 51; Sp. nr. 28-35.

Body depth 24.8–28.0%; caudal peduncle 20.8–23.4%; least depth 7.8–8.6%. No barbels.

Sides silvery, scales not bordered with blackish punctuations.

This species is close to *O. sima* from which it differs by a greater number of scales, a slenderer body, a longer and especially lower caudal peduncle, a less blunt head and snout. The general habitus of both species is rather different.

Range: Hsikiang drainage, South China.

Onychostoma vietnamensis nova species

Holotype: M.N.H.N. B. 2652, 228.0 mm st. length; paratypes: M.N.H.N. B. 2653, two specimens 143.0 and 157.0 mm.

Description:

D III 8 [9]; A 2/5; L. lat. $46\frac{7}{4}$ 48; Sp. br. 31–32; D. phar. 5.3.2–2.3.5; Predorsal scales 13–15; Circumpeduncular scales 14–16. Body rather deep, greatest depth (at the level of dorsal insertion) 27.4–28.0% of standard length; caudal peduncle length 23.1–23.9%; least depth 8.9–9.3%. Dorsal origin about equidistant between tip of snout and middle of caudal peduncle and between middle or posterior margin of pelvic well behind that of dorsal. Predorsal distance 41.7–45.5% of standard length; preanal distance 70.5–72.5%; preventral distance 48.5–50.5%; distance from pectoral to pelvic origin 27.2–28.6%; distance from pectoral to anal origin 23.0–27.4%; length of pectorals 18.1–19.1%; length of pelvics 18.4–18.8%; height of dorsal fin (e.g. length of its first branched ray) 21.0–22.2%; length of dorsal base 14.9–17.9%; height of anal 14.5–19.1%; base of anal 8.8–9.7%; length of head 20.3–21.1%; length of snout 6.5–7.9%; diameter of eye 4.7–6.2%. Length of snout 31.6–38.2% of head; eye diameter 23.0–27.8% of head and 51.5–68.2% of interorbital width.

Pectorals far from reaching pelvic insertion, pelvics far from reaching anal. Last unbranched dorsal ray strongly ossified on most of its length and denticulated; its top remains slender and articulated.

No barbels.

Sides silvery, most scales bordered with minute blackish punctuations. No median longitudinal stripe.

Range: Song-Koi drainage in the northern part of the Democratic Republic of Viet-Nam (former Tonkin); no other data are available as regards locality.

Remarks. The three specimens on which this new species is based belong to the same series as the 11 specimens of *O. leptura* (M.N.H.N.). They differ sharply from *leptura* by a strong and denticulated spinified ray in the dorsal, shorter and deeper caudal peduncle, absence of a longitudinal stripe on body and presence of fine darkish punctuations on most scales on the sides. *O. vietnamensis* approaches rather *O. gerlachi*, from which it differs especially by fewer scales, a lower caudal peduncle

and scales bordered with blackish punctuations. The habitus of both species is rather different.

Onychostoma elongata (Fang, 1940)

Fig. 5.

Specimen examined: Cotype of *Varicorhinus elongatus*, M.N.H.N. 40–137, "Kouang-Si" (probably Kwangsi Province, Hsikiang drainage), 1 specimen, 113.0 mm.

D III 7; L. lat. $49\frac{7}{4}$; Sp. br. 31; D. phar. 4.3.2–2.3.4.

Rather slender; body depth 22.8%; caudal peduncle 23.7%; least depth 7.5%. No rostral barbels; minute maxillary barbels present.

This is the only species within the genus that has only 7 branched dorsal rays. It differs from the sympatric *O. gerlachi* also in its much slenderer body and presence of maxillary barbels.

Onychostoma maeracantha Pellegrin & Chevey, 1936

Specimens examined: Holotype, M.N.H.N. 35.323, 216.0 mm, Muong Hum, Ngoi-Pho-Thao, Song-Koi = Red R. drainage; paratypes: M.N.H.N. 35–324, Kon Tum market, Vietnam D.R. (said to be from Srépok R., Mekong drainage, but probably from Tonkin Bay drainage); M.N.H.N. 35–325, Song Koi R. (length of paratypes: 153.0 and 110.5 mm).

D III 11–12; L. lat. $39\frac{7-8}{4^{1/2}}$ 45; Sp. br. 29–32; D. phar. 4.3.1–1.3.4.

Depth 32.0–35.5%; caudal peduncle 23.6–26.9% least depth 10.1–11.6%. No barbels.

This is the only species within the genus which has more than 8 branched dorsal rays and the lowest number of scales.

Song Koi drainage; its presumable occurrence in the Mekong is doubtful.

Onychostoma angustistomata (Fang, 1940)

Synonyms: *Varic. angustistomatus* Fang, 1940; *V. szechwanensis* Chang, 1944 (Loshan, western Szechwan).

Specimens examined: Cotype of *V. angustistomatus*, M.N.H.N. 40–138, Suifu, Szechwan, 140.0 mm; U.S.N.M. 91752, Suifu, 181.0 mm; out of U.S.N.M. 89164, "China" (surely Szechwan), two specimens, 154.0 and 163.0 mm; F.M.N.H. 43558, Kiating, Szechwan, 196.0 mm.

D III 8; L. lat. $48\frac{8}{5-5^{1/2}}$ 51; Sp. br. 32–35; D. phar. 4.3.2–2.3.4 or 5.3.3–2.3.4.

Depth 24.2–29.0%; caudal peduncle 20.4–23.0%; least depth 10.0–11.1%; both pairs of barbels present, longer than in other species.

Endemic in the upper Yangtze drainage.

Onychostoma rara (Lin, 1933)

Specimens examined: paratype of *Varic. varus*, U.S.N.M. 94855, 127.0 mm; A.N.S.P. 85115, 96.0 mm; A.M.N.H. 12762, 104.0 mm; all three specimens from the Linchow, Kwantung, Hsikiang drainage.

D III 8; L. lat. $44\frac{7}{4}$ 45; Sp. br. 31-33.

Depth 31.4-34.6%; caudal peduncle 22.1-23.2%; least depth 11.6-12.5%. Both pairs of barbels present, shorter than in *angustisomata*.

Differs from *O. angustisomata* especially in having fewer scales, a deeper body and a deeper caudal peduncle.

Endemic to the Hsikiang drainage.

Onychostoma lini (Wu, 1939)

No specimens available.

D III 8; L. lat. $47\frac{6}{4}$; Circumped. scales 16; Predors. scales 15-16.

Depth 11.2-24.4%; caudal peduncle about 19-22% least depth about 10-11%.

Closer to the sympatric *O. rara* but slenderer and with more scales. Li-kiang, an arm of the Hsikiang, connected also to the Yangtze.

Onychostoma rhomboides (Tang, 1942)

No specimens available.

D III 8; L. lat. $44\frac{7}{5}$.

Depth 35.6%; caudal peduncle about 16.5%; least depth 11.1%. Both pairs of barbels well developed. A series of longitudinal dark stripes; this is the only striped species within the genus.

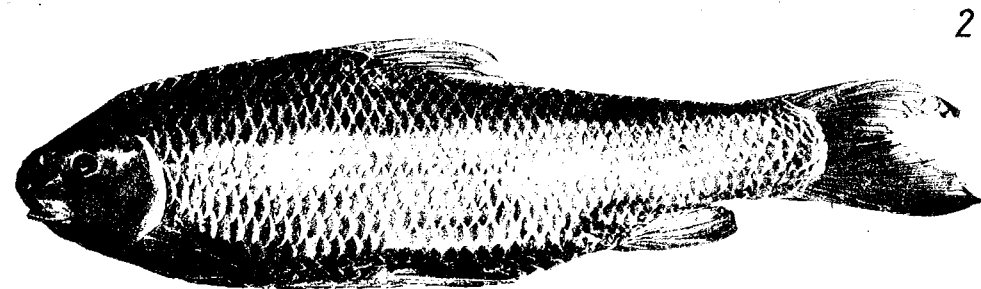
It differs from the Yangtze *O. angustisomata* in having fewer scales, a deeper body and a peculiar colour pattern. Apparently more similar to *O. rara* from which it differs in colour pattern and 5 scales between the lateral line and the pelvics.

Kweiyang, Kweichow, southern part of middle Yangtze drainage.

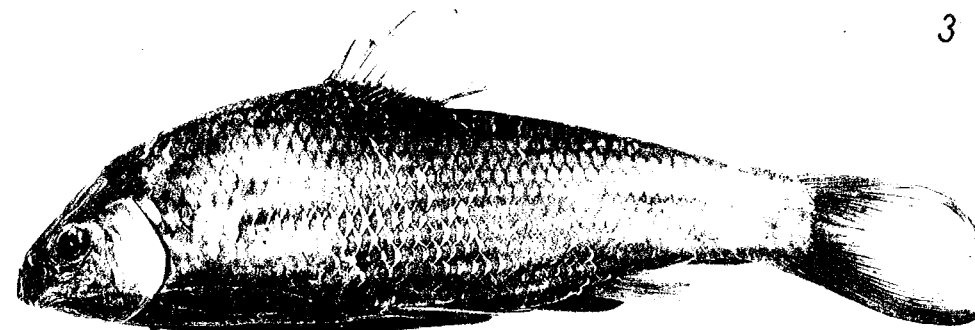
Onychostoma ovalis Pellegrin & Chevey, 1936

Specimen examined: Holotype, A.M.N.H. 35-322, Phû-Thô, Song-Koi = Red River drainage, 240.0 mm.

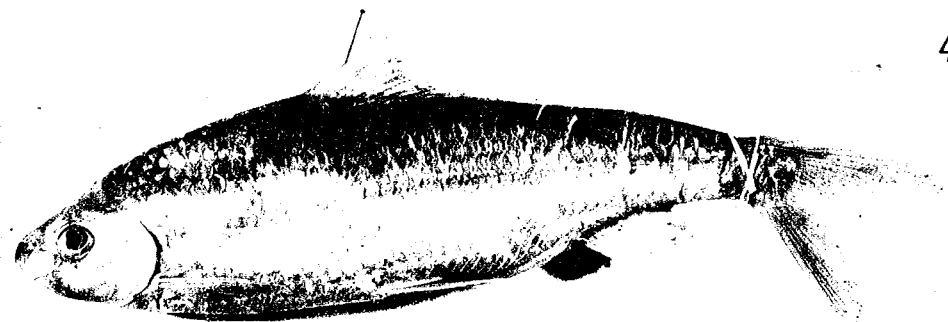
D III 8; L. lat. $44\frac{8}{5}$; Sp. br. ± 40 ; D. phar. 5.3.2-2.3.5.



2



3



4

Fig. 2. — *Onychostoma sima*. B.M.N.H. 1969. 4.5: 105. Szechwan.

Fig. 3. — *Onychostoma sima*. U.S.N.M. 89164. Suifu, Szechwan.

Fig. 4. — *Onychostoma gertachi*. U.S.N.M. 94594. Wuchow, Kwangsi.

Body exceedingly deep, its depth 41.5%; caudal peduncle 23.8%; least depth 13.3%. Both rostral and maxillary pairs of barbels present (in the original description [7] the rostral pair is said to be absent).

It differs from the three other species provided with barbels in having an extremely deep body and fewer scales.

Endemic to the Song-Koi drainage.

Onychostoma leptura (Boulenger, 1899)

Fig. 6.

Specimens examined: Holotype of *Gymnostomus lepturus*, B.M.N.H. 1889. 11. 30: 21, Hainan Isl., 159.2 mm; N.M.W. 10073, Hainan Isl., 145.5 mm; A.M.N.H. 10681, Nodoo, Hainan Island, 16 spec., 90.5—181.0 mm; M.N.H.N. 34—258, 34—259 and 1937—14, Song-Koi drainage, The Democratic Republic of Viet-Nam, 13 specimens in all, 125.0—227.0 mm.

D III 8; L. lat. $45\frac{7}{4}$ 48 (49).

Body rather slender, caudal peduncle long and slender; depth 22.4—28.0%; caudal peduncle 21.0—25.8%; least depth 8.1—9.4. No barbels. Last simple dorsal rays slender in some specimens, especially in younger ones, slightly to moderately ossified and serrated in larger ones, but never as strongly ossified as in the 9 already recorded species; the degree of ossification apparently increases with age. A longitudinal dark stripe on the sides, better marked on the caudal peduncle.

Lin [4] believes that the specimens recorded by Nichols & Pope [6] from Nodoo, Hainan, as *O. leptura* do not belong to this species, but to *O. gerlachi*. I examined in the American Museum of Natural History the specimens of Nichols & Pope: all belong to *leptura*.

Range Song-Koi drainage on the continent (The Democratic Republic of Viet-Nam) and adjacent Hainan Island (China).

★

The 11 species of *Onychostoma* s. str. can be ascribed to 4 groups: 1) *sima*, *gerlachi*, *vietnamensis* and perhaps *elongata*; 2) *macracantha*; 3) *angustistomata*, *rara*, *lini rhomboides* and *ovalis*; 4) *leptura*. The species of groups 1 and 3 are mostly representatives, yet I do not lump them as subspecies of polytypic species, because of the sympatric occurrence of *gerlachi* and *elongata* and of *rara* and *lini*.

Acknowledgements. The following curators lent the specimens and respectively facilitated the study of specimens under their care: M-me le Prof. M.-L. Bauchot, Paris, Drs. P. H. Greenwood, London, J. Böhlke, Philadelphia, E. Lachner, Washington, P. Kähnsbauer, Wien, D. E. Rosen, New York and L. P. Woods, Chicago. A visit to four museums in the U.S.A. and to the British Museum was financed by the Smithsonian Institute T.F.H. Fund, at the kind proposal of Dr. E. Lachner.

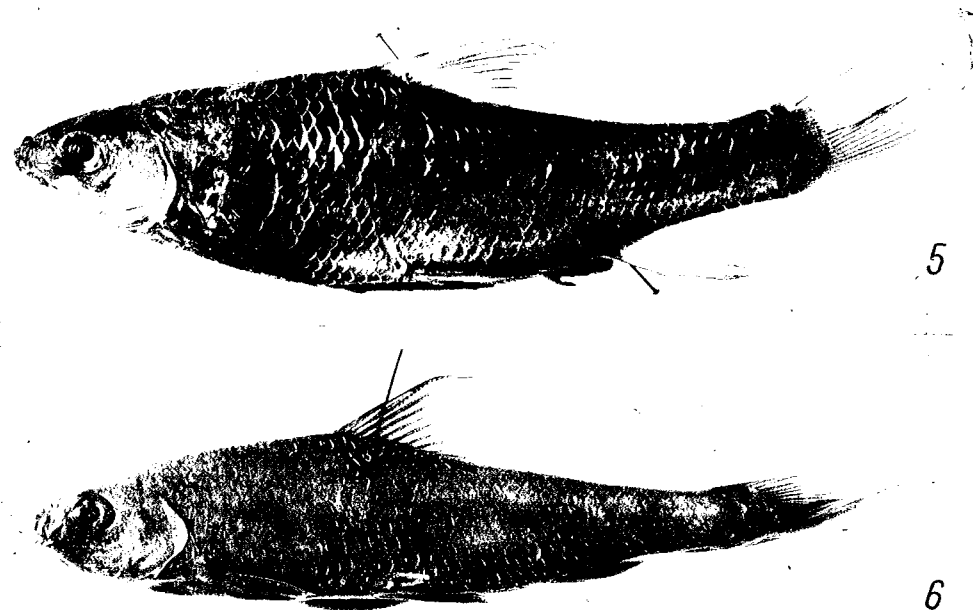


Fig. 5. — *Onychostoma angustistomata*. U.S.N.M. 91752. Suifu, Szechwan.
Fig. 6. — *Onychostoma leptura*. A.M.N.H. 10681. Nodoo, Hainan.

REFERENCES

1. CHANG H. W., *Sinensia*, 1944, **15**, 1-6, 27-60.
2. GÜNTHER A., *Annuaire Mus. Zool. Acad. Impér. Sci. St. Pétersbourg*, 1896, **1**, 199-219.
3. KARAMAN M., *Mitt. Hamburg Zool. Mus. Inst.*, 1969, **66**, 17-54.
4. LIN S. Y., *Lingnan Sci. J.*, 1933, **12**, 2, 197-215.
5. NICHOLS J. T., *The Fresh-water Fishes of China*. The American Museum of Natural History, New York, 1943.
6. NICHOLS J. T. & POPE, H. C., *Bull. Americ. Mus. Nat. Hist.*, 1927, **54**, 2, 321-394.
7. PELLEGRIN J., CHEVEY, *Bull. Soc. Zool. France*, 1936, **61**, 18-27.
8. RENDAHL H., *Ark. f. Zool.*, 1932, **24 A**, 16, 1-134.
9. WU H. W., *Sinensia*, 1939, **10**, 92-142.

Received March 17, 1971

*The « Traian Săvulescu » Institute of Biology,
Department of Systematics and Evolution of Animals*

L'INFLUENCE DU RAPPORT K/Ca SUR L'ABSORPTION INTESTINALE DU POTASSIUM ET DU CALCIUM

PAR

EUGEN A. PORA et ANA MUNTA

The loop of dog small intestine was perfused with normal Thyrode serum as well as with Thyrode serum containing 2 or 4 times higher K or Ca concentration than the normal serum. It was observed that in the blood of the perfused loop the concentration of both cations was increased, although the Ca was in a normal amount. It follows that the ratio between K/Ca tends to remain unchanged.

This phenomenon does not occur neither when the K of KCl is replaced with the K of KCN in the Thyrode serum (due to the blockage of the oxidative systems), nor when the loop is unnerved before perfusion with a Thyrode solution containing a different amount of cations and a changed K/Ca ratio towards the normal.

The results show that the intestinal absorption of K and Ca is dependent on the K/Ca ratio too, which in this circumstance might be considered as a medium factor like the osmotic factors, the oxidative systems, the integrity of innervation, and the functional integrity of the ionoreceptors.

Le transport actif des cations à travers la muqueuse intestinale a fait, ces dernières années, l'objet de nombreux travaux. On a montré que le Na, le K, le Ca, etc. peuvent passer à travers cette membrane même à l'encontre d'un gradient osmotique [1], [6], [7], [8], [9], [10], [26], [29]. Mais, à l'exception de quelques recherches [4], [26], la perméabilité de la muqueuse intestinale pour le K et pour le Ca, en fonction du rapport qui existe entre ces deux mêmes cations (K/Ca), n'a pas été étudiée. Nous considérons que l'influence du facteur rhopique (Pora, 1958 [13]) sur les phénomènes de transport cationiques est d'une importance au moins aussi grande que l'influence du facteur osmotique [12], [14].