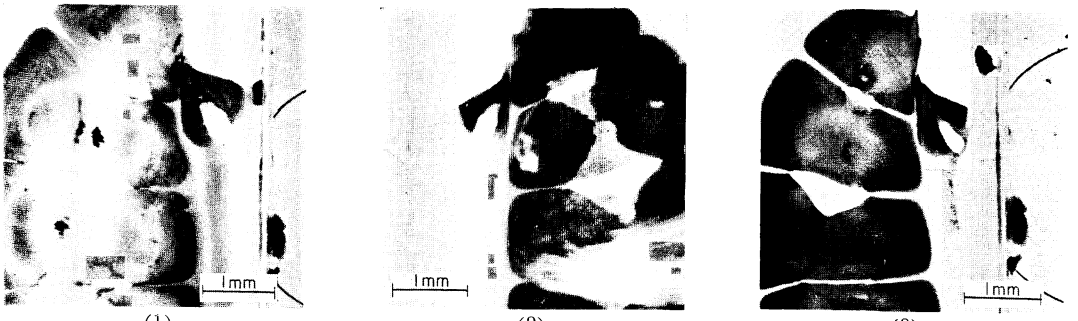
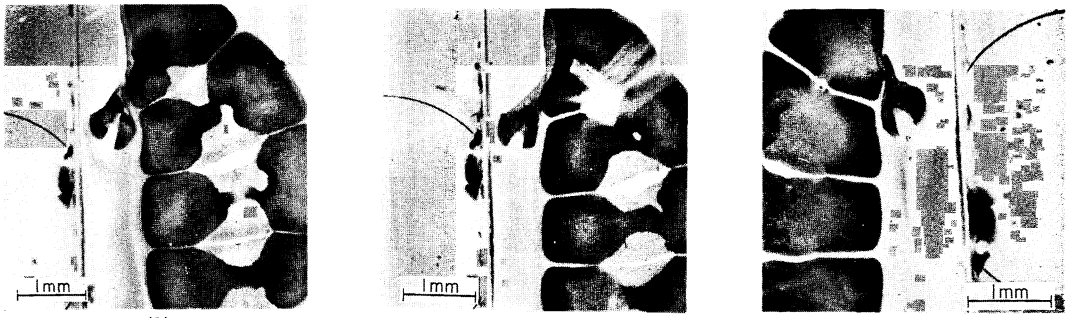


(1) (2) (3)

第 10 図 *Pterogobius zacalles* リュウグウハゼ

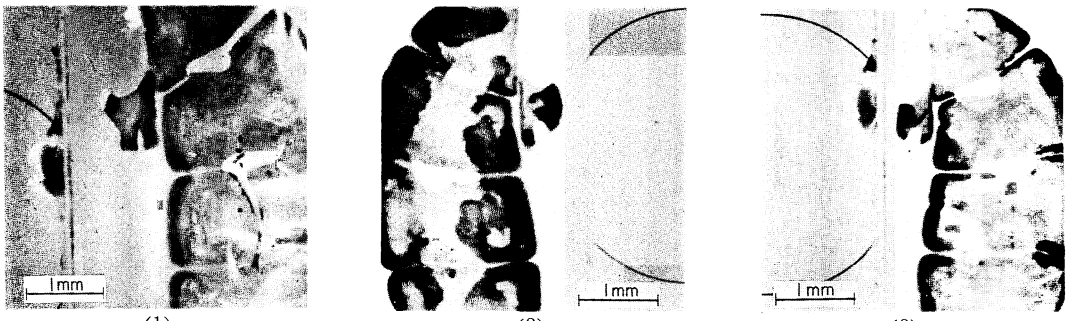
(1) ♂ 体長 69 mm 右肩帯外側 Right girdle, from outside
(2) ♀ 体長 61 mm 左肩帯外側 Left girdle, from outside
(3) ♀ 体長 56 mm 右肩帯外側 Right girdle, from outside



(1) (2) (3)

第 11 図 *Pterogobius zonoleucus* チャガラ

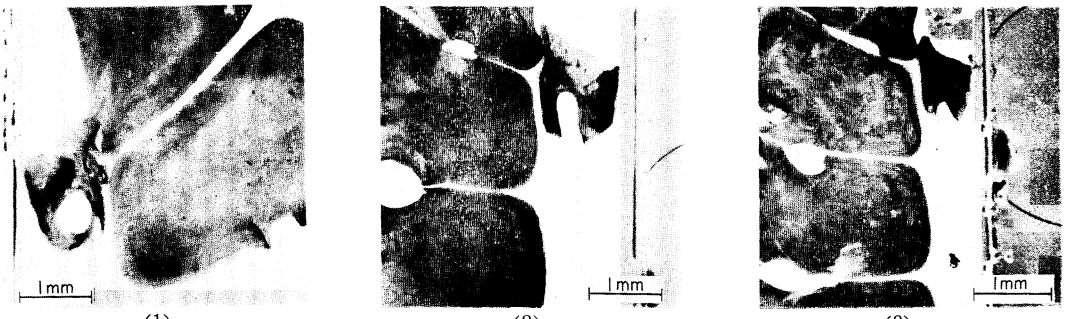
(1) ♀ 体長 55 mm 右肩帯内側 Right girdle, from inside
(2) ♂ 体長 50 mm 左肩帯外側 Left girdle, from outside
(3) ♀ 体長 43 mm 右肩帯外側 Right girdle, from outside



(1) (2) (3)

第 12 図 *Rhinogobius brunneus* ヨシノボリ

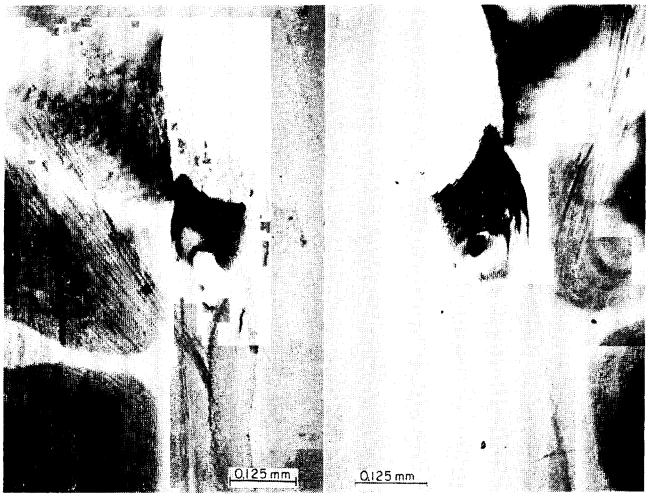
(1) ♂ 体長 50 mm 左肩帯内側 Left girdle, from inside
(2) ♀ 体長 43 mm 右肩帯外側 Right girdle, from outside
(3) ♀ 体長 40 mm 左肩帯外側 Left girdle, from outside



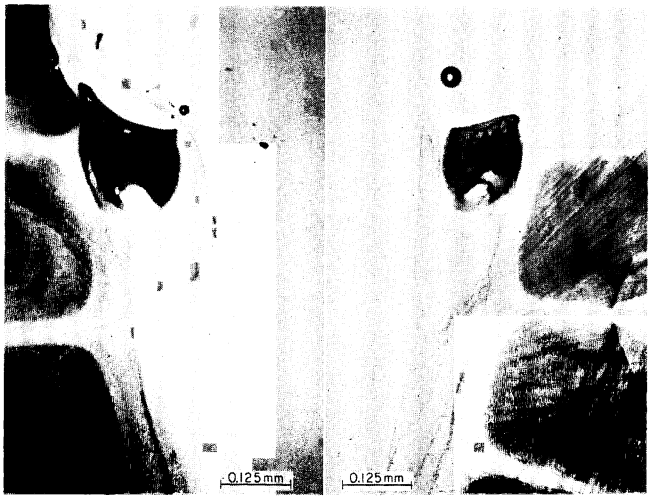
(1) (2) (3)

第 13 図 *Tridentiger obscurus* チチブ

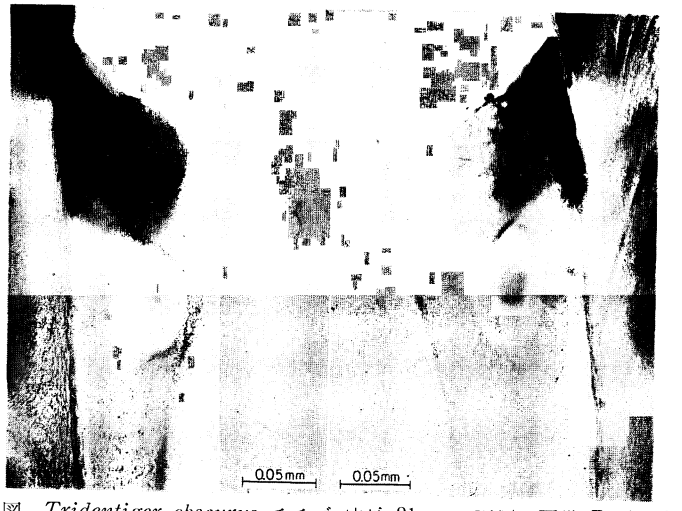
(1) ♂ 体長 78 mm 右肩帯内側 Right girdle, from inside
(2) ♀ 体長 72 mm 右肩帯外側 Right girdle, from outside
(3) ♂ 体長 63 mm 右肩帯外側 Right girdle, from outside



第 14 図 *Tridentiger obscurus* チチブ 体長 30 mm 両側の肩帯 Both girdles



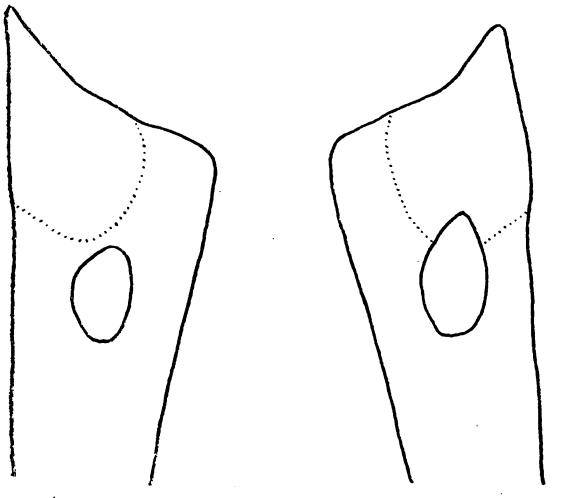
第 15 図 *Tridentiger obscurus* チチブ 体長 25 mm 両側の肩帯 Both girdles

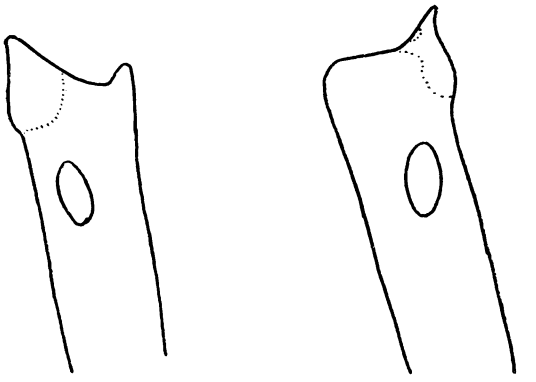


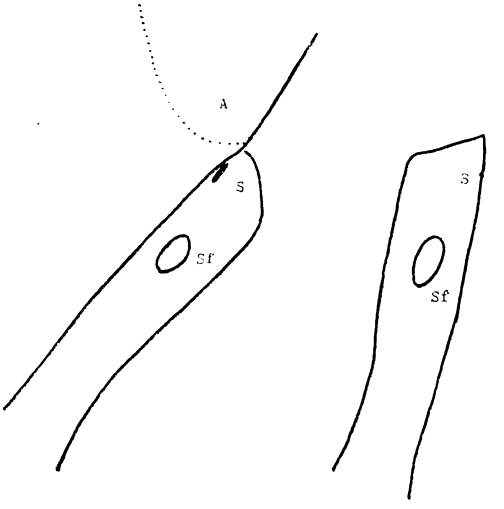
第 16 図 *Tridentiger obscurus* チチブ 体長 21 mm 両側の肩帯 Both girdles

第 17 図 *Tridentiger obscurus* チチブ 体長 15 mm 両側の肩帯 Both girdles

第 18 図 *Tridentiger obscurus* チチブ 体長 12 mm 両側の肩帯 Both girdles



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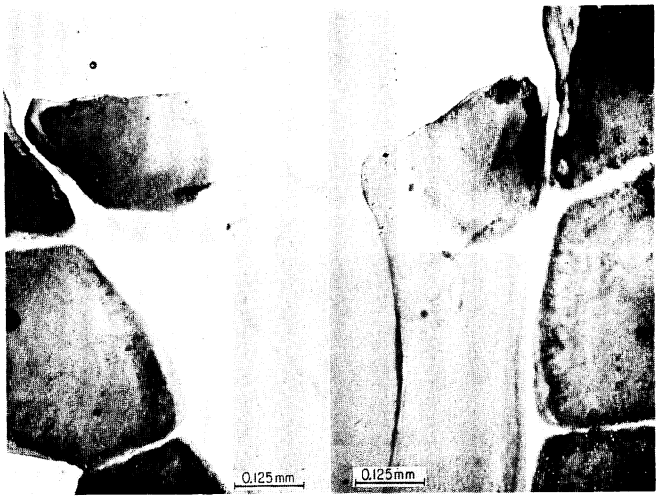
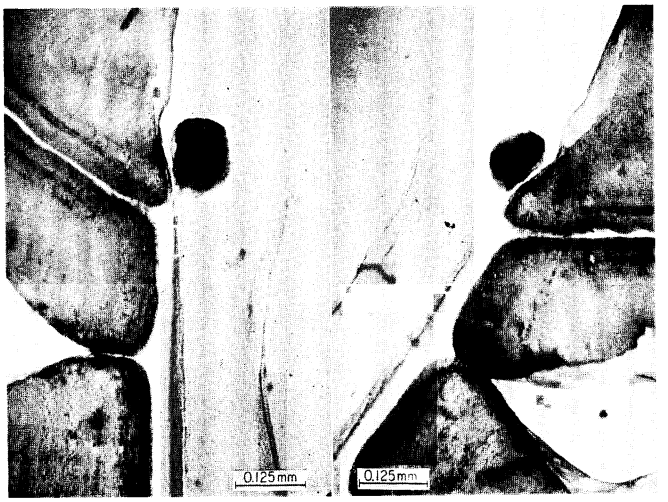
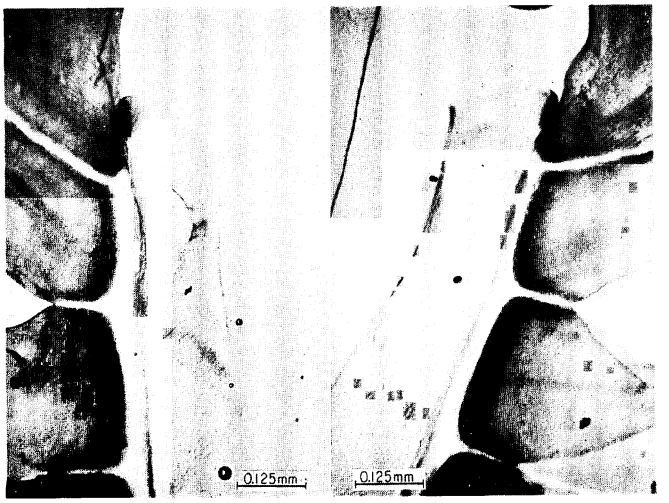


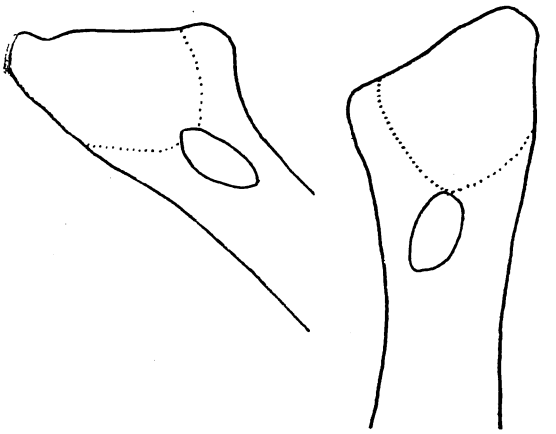
第 19 図 *Mugilogobius abei* アベハゼ 体長 48 mm 両側の肩帯 Both girdles

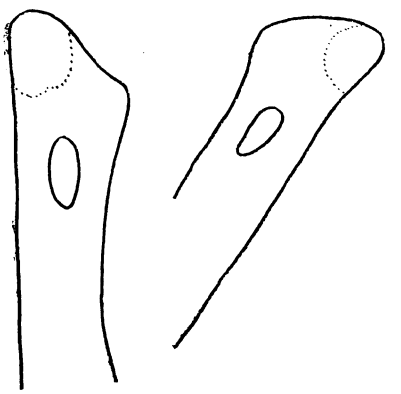


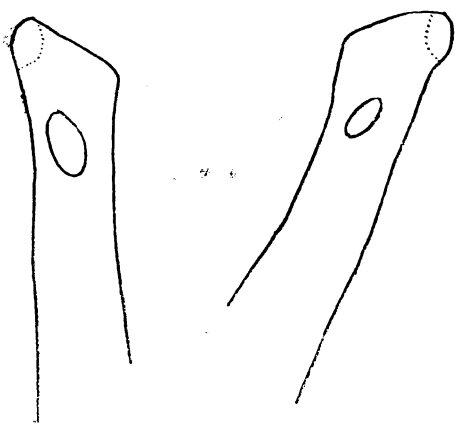
第 20 図 *Mugilogobius abei* アベハゼ 体長 40 mm 両側の肩帯 Both girdles



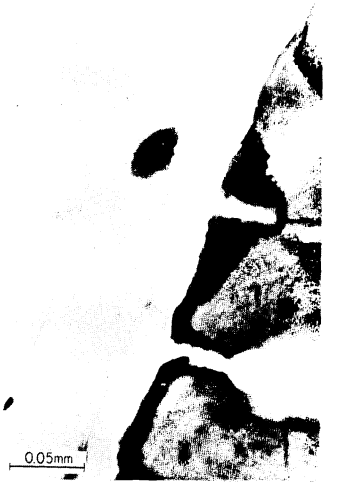
第 21 図 *Mugilogobius abei* アベハゼ 体長 35 mm 両側の肩帯 Both girdles



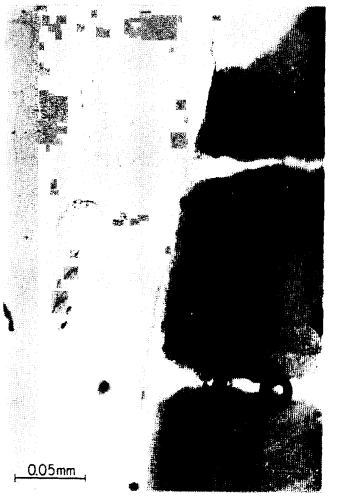




第 22 図 *Mugilogobius abei* アベハゼ
体長 20 mm

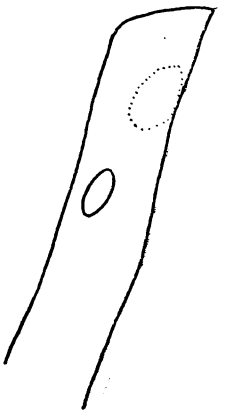


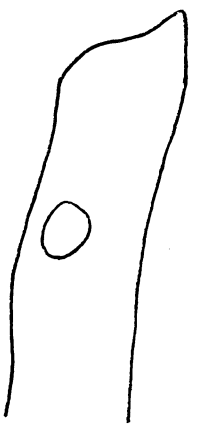
第 23 図 *Pandaka pygmaea*
体長 11 mm



第 24 図 *Berowra lidwilli* ゴマハゼ
体長 15 mm

第 25 図 *Rhinogobius pflaumi* スジハゼ
体長 67 mm





Summary

In the present study, the scapulae of sixty-seven species of gobies were examined. They were collected in Japan and some other countries. Although the material for study was far from sufficient for the purpose, it is hoped that the results presented here may help towards the classification of gobiid fishes, and that further reports will be published later dealing with additional material. The presence or absence, and the shape, of the scapula, if any, were determined by staining the bone with alizarin. The species studied have been placed in the following three groups (table 4).

I Type with scapula

Forty-seven species belong to this type. The scapula is forked ventrally, extending along the dorsal margin of the scapular foramen, but never embracing it completely. There seems to be no significant difference in the shape of the scapula from species to species of this group. Furthermore, this shape is subject to considerable individual variation, and at times exhibits bilateral asymmetry, thus rendering the distinguishing of the species by this character rather difficult (figs. 1-13). The only exception is the larger individuals of *Gobiodon histrio*, in which the scapula encloses the foramen nearly completely (fig. 7). The scapula appears as a dot or short bar already in the young specimens of 15 mm. body length (fig. 18). In these, the actinosts are still not distinctly stained.

II Aberrant type

This type is intermediate between types I and III. The scapula is not so well developed as in type I. This bone seems to be sometimes lacking, and, if present, not forked; the shape is the same as that of the young of type I (figs. 19-23). To this group belong *Mugilogobius abei* and *Pandaka pygmaea*. In *Mugilogobius abei* the scapula is invisible until the fish attains a considerable size (table 6). Also, the first appearance of the scapula is not as early as in type I. This may be seen in the fact that the actinosts at this stage are already well stained (fig. 22). In some adult specimens of *Pandaka pygmaea* preserved in formalin it was impossible to find the scapula. It is conceivable that some of the species which are here placed in type III might turn out to be members of type II, if more specimens were examined.

III Type without scapula

Eighteen species belong to this type. With the exception of *Leucopsarion petersi*, the coracoid and the actinosts are well developed, as in type I, the scapula being absent (figs. 24-25).

It may be concluded that the scapula is present in certain species and not in others, except for two aberrant species, and that the scapula is present in all the species of certain genera, and not present in those of others. The apparent excep-

tions to this generalization, *Acentrogobius* and *Rhinogobius*, may be explained in this way. Following the method of TAKAGI (1957) in studying the sensory canal pores, it was found that the pores of *Acentrogobius balteata* are different from the pores of *Acentrogobius campbelli*, as described by TAKAGI. This is parallel to the results obtained in the present study of the scapula. As for *Rhinogobius*, TAKAGI (1962) allotted three species, namely, *brunneus*, *caninus* and *giurinus*, to this genus. This allocation is in agreement with my findings with regard to the scapula.