Histological Observation on Skinfold of Rana Limnocharis

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INTRODUCTION

Observing the Japanese frogskin, Jimbo, G. (1951), one of the authors of this paper, reported that the sievelayer is thick in Rana catesbiana which is used to live in the water, moderately thick in those which live near the water and jump into the water now and then,—to this kind belong R. nigromaculata, R. japonica, R. rugosa, R. limnocharis—and very thin in the Bufo vulgaris, which lives in the grass.

In 1961, we caught in Okinawa Island, three Rana limnocharis, two of which were found to be provided with an abnormal skinfold in their chest regions. How are the tissues of the skinfold arranged and do they possess any sievelayers or not? Such were the problems which attracted our interest. Hence slicing the tissues into sections and their examination proceeded.

MATERIAL AND METHOD

Three Rana limnocharis were caught in Okinawa Island. After fixing the frogs in formalin, the authors took the pieces of the skin out of the fold in the chest region and in the middle part of their abdomen. The authors embedded them in paraffin, cut in 10μ sections and stained with hematoxylin and eosin.

RESULT

I. Macroscopic Observation

Two of the three Rana limnocharis were observed to possess an abnormal skinfold in their chest regions. The dorsal surface, side and abdominal surface of the first frog are shown in Figs 1, 2 and 3. As Figs 2 and 3 show, the skinfold is located in the middle part of the chest, assuming nearly a form of triangle 2 mm at the base and 2 mm in height.

As to the second frog, the dorsal surface, side and abdominal surface of it are shown in Figs 4, 5 and 6. Figs 5 and 6 show that the fold is located to the right of the middle part of the chest, assuming nearly a triangle in shape 1 mm at the base and 1 mm in height.

II. Microscopic Observation of the Abdominal Skin

The skin is distinguished in the epidermis, the corium and the subcutaneous fatty tissue. The epidermis is composed of cells of various forms of 5 or 6 layers. The outer surface is of cornified flattened cells and the other cells which are poligonal, have intercellular spaces among themselves. It is only the cells of the deepest layer that are columnar in shape.

In the corium, two layers of spongelayer and compactlayer can be distinguished. On the uppermost part of the latter is observed a sievelayer, which is stained beautiful with hematoxylin and its boundary between the former is well ponounced, whereas it shifts indistinctly over into the deeper tissues (Fig. 9). Perforating fibers, penetrating the whole compactlayer and the sievelayer, reach directly under the epidermis.

The spongelayer contains mucous glands which are wrapped up with the muscularis mucosae and connective tissue layers. The spongelayer contains a granular gland which is larger than the mucous gland and the cells of which consist of most thin protoplasm. In the glandular cavity, there are a great number of globular particles.

III. Microscopic Observation of Skinfolds.

The tissue of the skinfold consisted of two layers of the skin, in which the cavity was observed. Though any sievelayer was not observed in the tissue, there was nothing else abnormal (Fig, 10),

CONCLUSION

When we caught three Rana limnocharis in Okinawa Island, it was found, that two of them, had some abnormal skinfold in the chest regions. The tissue of the skinfold consisting of two layers, had cavity, while sievelayer none.

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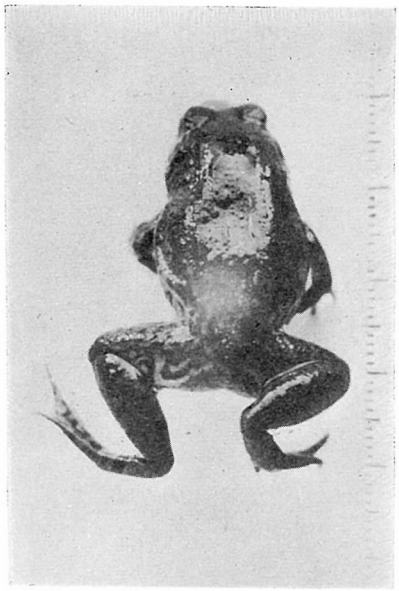
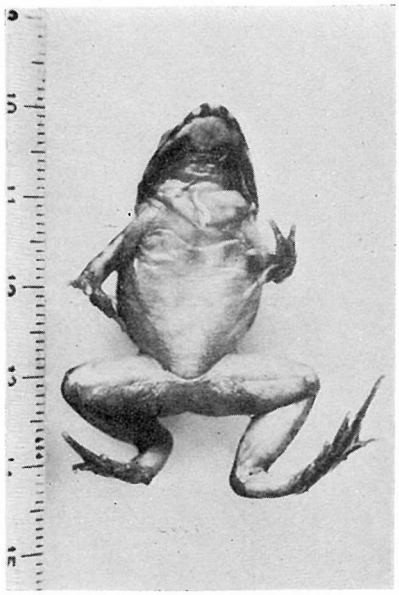


Fig. 1.

Fig. 2.



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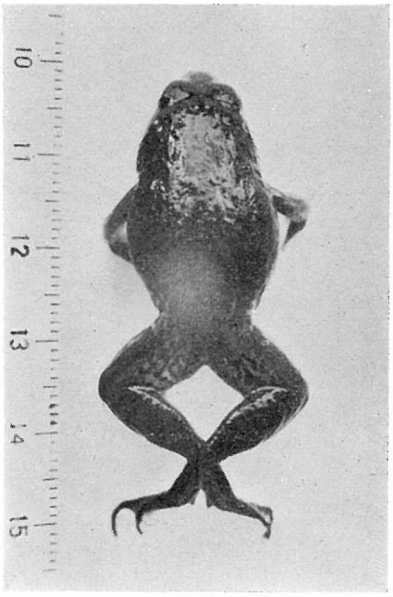

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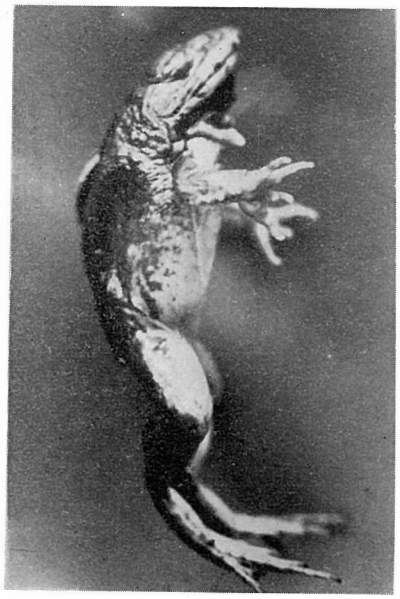

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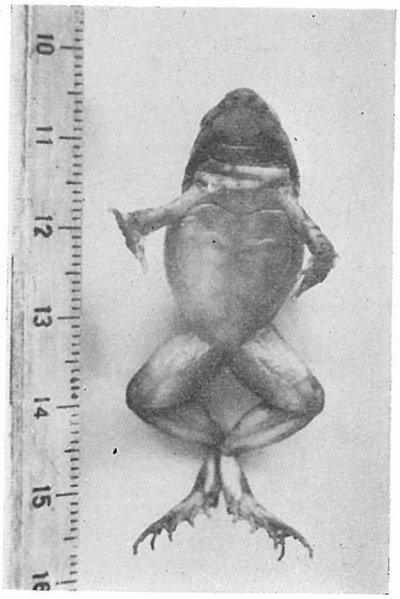

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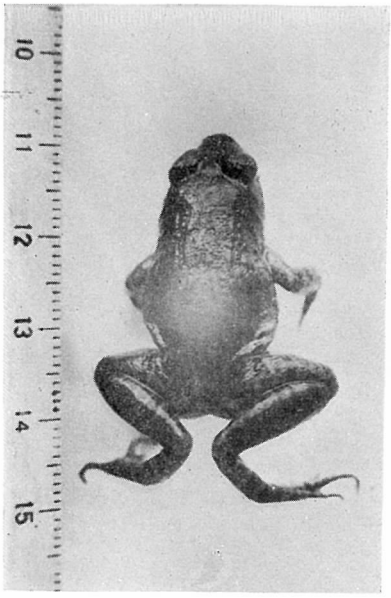

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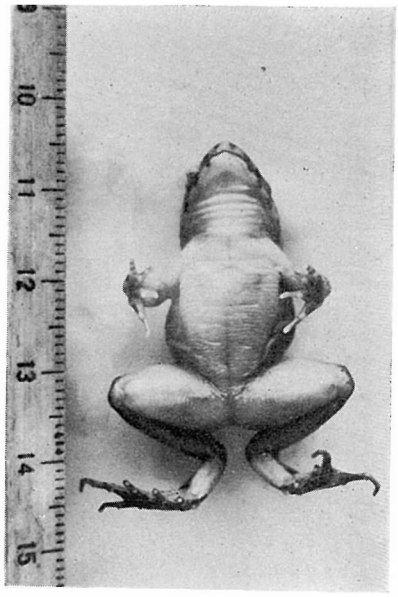

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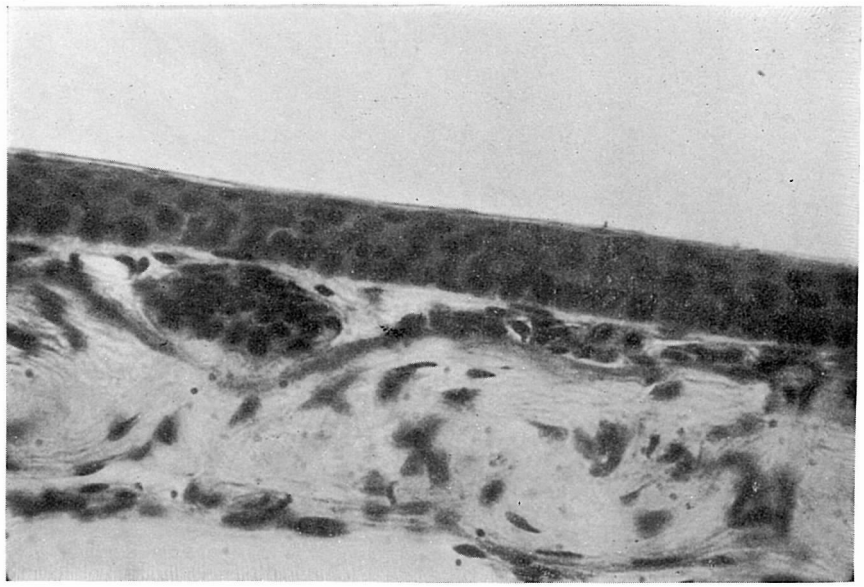

Fig. 9.

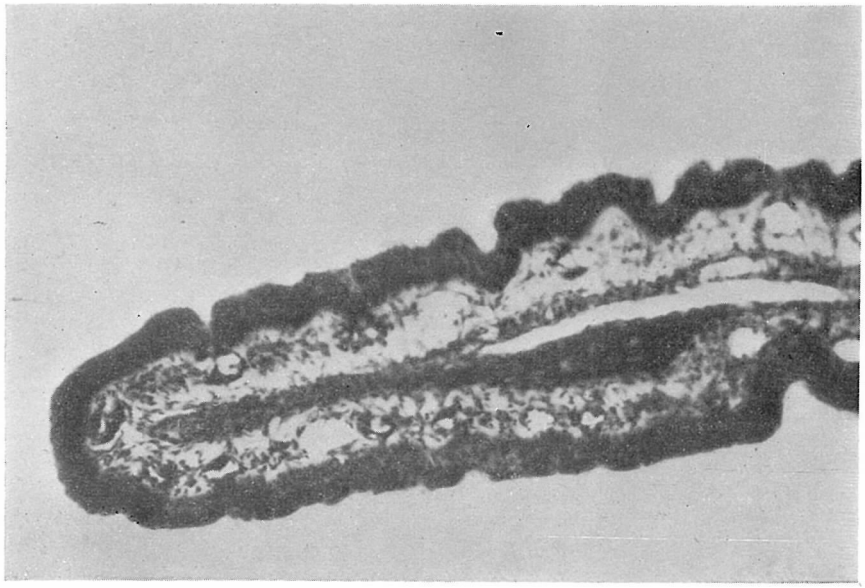

Fig. 10.