



Title	FURTHER STUDIES ON THE TRUNCUS ARTERIOSUS OF RANA (Four Text-Figures)
Author(s)	PEELLE, Miles L.
Citation	北海道帝國大學理學部紀要, 1(2), 95-98
Issue Date	1931-06
Doc URL	http://hdl.handle.net/2115/26936
Type	bulletin (article)
File Information	1(2)_P95-98.pdf



[Instructions for use](#)

FURTHER STUDIES ON THE TRUNCUS ARTERIOSUS OF RANA

By

Miles L. PEELLE

Zoological Institute, Faculty of Science, Hokkaido Imperial
University, Sapporo, Japan.

(Four Text-Figures)

Since studying the *Truncus arteriosus* of *Rana* found in the eastern portion of the United States, I have had an opportunity to investigate two common species found in Japan, *Rana temporaria* and *Rana nigromaculata*. Both species have been checked with the findings made in the North American forms. As was to be expected, *Rana temporaria* as it exists in Japan was found to be identical with *Rana temporaria* of Europe. Consequently there is nothing new to report concerning this species in comparison to the European *Rana temporaria*. However, a slight variation occurs in checking it with *Rana pipiens* and *sphenocephala*.

A cross section of *Rana temporaria* (Fig. 1) shows the anterior bulbus valves presenting close similarity to *Rana pipiens*. The main difference is in relation to *Valve 1*.

In this series the valve is composed of a distinct dorsal portion (*Valve 1. B*); the ventral portion or *Valve 1. A* being fused with the *Septum bulbi* and the beginnings of the *Septum principale*. BOAS ('82) has pointed out the fact that *Rana temporaria* in some cases deviates from the normal condition, in that the *Septum principale* does not divide the valve into two pockets. It is to be remembered also, that *Rana catesbeiana* differs in this respect though in a slightly different manner, since, in that species the *Septum principale* fails to join up with the *Septum bulbi* and *Valve 2*.

1) Contribution No. 11, from the Zoological Institute, Faculty of Science, Hokkaido Imperial University, Sapporo.

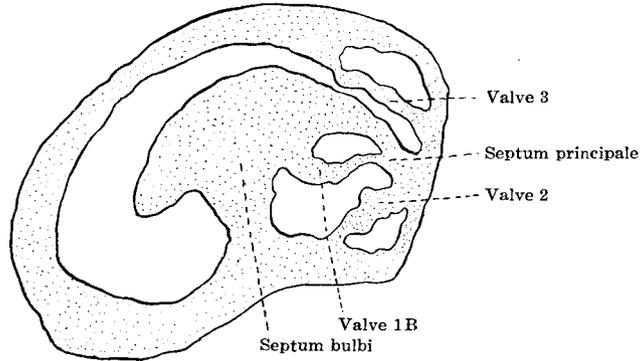


Fig. 1. Cross section through the anterior *Bulbus cordis* valves of *Rana temporaria*. ca. $\times 10$.

In *Rana nigromaculata* an apparently abnormal situation exists. (Fig. 2.) We find that *Valve 1* does not exist as a separate structure but is fused with the anterior margin of the *Septum bulbi* and the beginnings of the *Septum principale*. There is thus no bisection of *Valve 1*

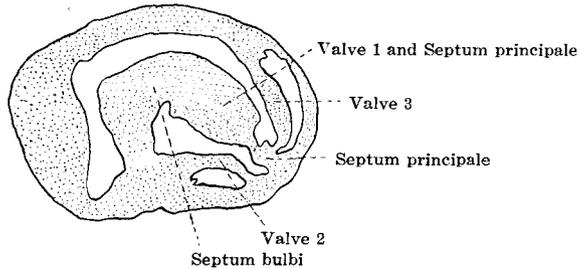
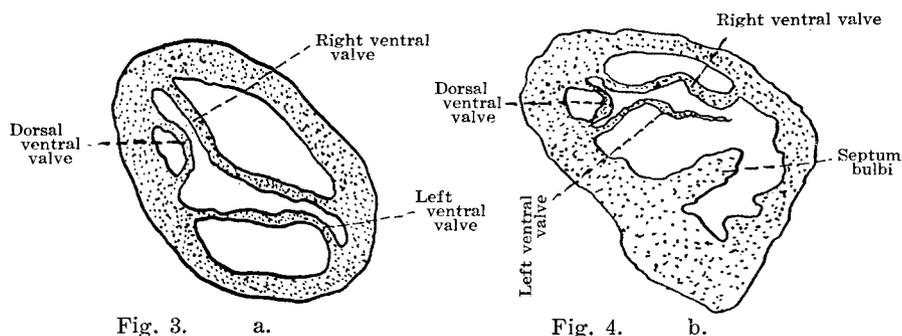


Fig. 2. Cross section through the anterior *Bulbus cordis* valves of *Rana nigromaculata*. ca. $\times 8$.

by the *Septum principale*. The structure appears thick and heavy in cross section; this being the only evidence for supporting a view-point that *Valve 1* is fused with the *Septum bulbi*, since it is far too heavy to be single.

The middle portion of the *Bulbus cordis* is normal in both species. The large *Septum bulbi* is the same in shape and size as in the American *Rana*. However, the posterior cordis valves are interesting in one or two respects. With *Rana temporaria* as found in Japan, one meets

identical conditions to those noticed by GAUPP ('96) in European *Rana* (Fig. 3). The *Dorsal ventral valve* appears strong and well developed between the *Left* and *Right ventral valves*. In *Rana nigromaculata* such is not the case (Fig. 4). The *Dorsal valve* is weak and does not make its appearance until the *Septum bulbi* is free and well developed. That is to say, the *Dorsal valve* appears more anteriorly in *Rana nigromaculata* than in *Rana temporaria*.



Figs. 3-4. Cross sections through the posterior *Bulbus cordis* valves.
a. *Rana temporaria*. b. *Rana nigromaculata*. ca. $\times 8$.

At this level also, the *Left ventral valve* is weak and has broken away from the bulbus wall. Otherwise the condition is similar to that found in American *Rana*.

This slight variation in *Rana nigromaculata* from the American *Rana* and *Rana temporaria* is interesting though difficult to explain.

Acknowledgments

For opportunity to make this study, the author wishes to thank Drs. OGUMA and INUKAI of this University.

Bibliography

BOAS, J. E. V. 1882. Ueber den *Conus arteriosus* und die Arterienbogen der Amphibien. *Morph. Jahrb.*, Bd. VII. pp. 488-572.

GAUPP, E. 1896. Anatomie des Frosches. Braunschweig—Druck von Freidrich Vieweg und Sohn pp. 253-285.
