



Title	ON THE TREMATODE SPECIES PHOCITREMA FUSIFORME GOTO AND OZAKI, 1930 AND CRYPTOCTOTYLE LINGUA (CREPLIN, 1825)
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**ON THE TREMATODE SPECIES**  
***PHOCITREMA FUSIFORME* GOTO AND OZAKI, 1930**  
**AND *CRYPTOCOTYLE LINGUA* (CREPLIN, 1825)**

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From Feb. 26 to Mar. 8, 1962, sixty-one stray dogs were dissected for the purpose of investigating echinococcal infection in Rebun Island, Hokkaido. The small intestines of these dogs were examined carefully and mucosal scrapings were collected for further detailed examination. From the scrapings two trematode species were found; *Phocitrema fusiforme*, 1 adult and 2 immature, and *Cryptocotyle lingua*, 1 adult and 2 immature. Whole mounted specimens were flattened in 70% alcohol and stained with DELAFIELD's hematoxylin.

1) *Phocitrema fusiforme* GOTO and OZAKI, 1930

Body small, fusiform, covered with minute spines, one 1.782 and one 0.923 mm long. Maximum breadth at the ovarian level, 0.518, 0.486 and 0.421 mm. Oral sucker subterminal, funnel-shaped, 0.070 mm long and 0.075 mm wide. Prepharynx 0.064 mm long. Pharynx rectangular, 0.056×0.042 mm. Esophagus 0.154 mm long. Ceca bifurcating and terminating in front of testes. Acetabulum globular or elliptical, just pre-equatorial, 0.132~0.159 mm in diameter. Testes subglobular or reniform, in the anterior portion of the last quarter of the body, nearly horizontal, 0.162~0.176×0.120~0.140 mm in size. Seminal vesicle lies between ovary and uterus. Vas deferens proceeding forward from the seminal vesicle and swelling in front of the acetabulum to form Pars prostatica surrounded by gland cells. Genital pore in front of the acetabulum. Ovary pre-testicular, in median line, nearly rounded, 0.154~0.162 mm in diameter. Receptaculum seminis anterior right oblique to the ovary. Uterus begins with ovary, and proceeds irregularly forward between the acetabulum and the testes, forming two large coils behind the acetabulum. Uterine eggs thin-shelled, with operculum, 0.024~0.028×0.011~0.014 mm in size. Vitellaria consists of 4~7 groups of small follicles on either side of the posterior half of the body.

2) *Cryptocotyle lingua* (CREPLIN, 1825)

Body stocky with blunt-pointed extremities, constricted at the level of the genital sucker and 2.839 mm long. Maximum breadth 0.972 mm at the level of the uterine coils. Oral sucker subterminal, 0.134 mm in diameter. Prepharynx very short. Pharynx subglobular, 0.095~0.104 mm in diameter. Esophagus 0.112 mm long. Ceca bifurcating, then passing along the lateral side of the body and terminating in the posterior end of the body. Acetabulum small,

subglobular, in front of genital sucker, 0.112~0.126 mm in diameter. Testes in last quarter of the body, diagonally placed, triangular or reniform, lobed,  $0.275\sim 0.324 \times 0.421\sim 0.480$  mm in size. Ovary pre-testicular in the left side of the body, subglobular, 0.243 mm in diameter (immature specimen). Receptaculum seminis just before the ovary. Ejaculatory duct opens into genital pore which is situated between acetabulum and genital sucker. Genital sucker large, near equatorial, in the median line, touching the posterior margin of the acetabulum, 0.196 mm in diameter. Uterus occupies the anterior portion of the posterior half of the body, extending between the genital sucker and the testes and forming two large uterine folds behind the genital sucker. Metraterm joins an ejaculatory duct at the level of the genital sucker. Uterine eggs light yellow, elliptical, with comparative thin shell and an indistinct operculum,  $0.039\sim 0.042 \times 0.020\sim 0.022$  mm in size. Vitellaria consists of small follicles on either side of the posterior three fifths of the body. Excretory canals were faintly observed as shadows in the parenchyma on the lateral side of the ceca.

*P. fusiforme* was first discovered by GOTO and OZAKI in *Phoca hispida* in 1930 and is commonly known as an intestinal parasite of marine mammals such as the *Enhydra lutris*, *Phoca vitulina richardi* and *Callorhinus ursinus*. This appears to be the first time that this trematode has been obtained from dogs. Infestation of dogs by this trematode may occur by: 1) Stray dogs ingest some intermediate host (presumably fish) which carries *P. fusiforme* larvae. 2) Accidental infection from ingesting the guts of the marine mammals which are the natural final host of *P. fusiforme*. The first route is, at present, doubtful, but may be conceivable if the life history of the parasite were known. The author would also like to note here that he obtained 28 specimens of *P. fusiforme* from the *Eumetopias jubata* (a hitherto unrecorded host) captured at Otaru, Feb. 4, 1963. It would seem therefore, that the second route is also probable, since many *Eumetopias jubata* live in the seas near Rebun Island and are frequently captured. At the present time, however, no definite conclusion can be made concerning the route of the infection of the dogs. Further experimental studies of *P. fusiforme* are necessary.

CREPLIN (1825) first discovered *C. lingua* in the intestines of *Larus marinus*. YAMAGUTI (1939) found this species from the small intestine of *Larus argentatus vegae*, and MOROZOV (1952) described the morphology of this trematode in detail. This trematode has been obtained from various fish-eating birds and mammals, and WIGDOR (1918) isolated it from the intestine of a dog and named it *Hallum caninum*. Later, STUNKARD (1931) described the life history of this species in full detail. STUNKARD (1931) and ROTHSCHILD (1939) demonstrated that the first intermediate host of *C. lingua* was *Littorina littorea*. However, the immediate cause of infection with this trematode is ingestion of the second intermediate hosts such as *Tautoglabrus*, *Tautoga*, *Pholis*, *Osmerus* etc. Encystment of the cercaria is carried out, as usual, in the skin of these fishes and the rate of infection with

those encysted metacercariae was especially high in the cunner and the tautog (LINTON, 1915). Consequently, it is conceivable that the occurrence of infection in stray dogs is due mainly to ingestion of these infested fish, especially since there are many opportunities for such ingestion on Rebus Island. Comparison of the present author's specimens with those LINTON (1915) obtained from the loon, and WIGDOR (1918) from the dog, shows that the specimens reported here are larger, not only in length and breadth but in internal organs. They are about twice as large as WIGDOR's, which contained fewer eggs and seemed to be somewhat immature. The size of adult specimens appears to vary greatly.

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## EXPLANATION OF FIGURES

- Fig. 1 *Phocitrema fusiforme*; adult, ventral view  
Fig. 2 Eggs of *P. fusiforme*  
Fig. 3 *Cryptocotyle lingua*; adult, ventral view  
Fig. 4 Eggs of *C. lingua*

