Hermaphroditism in a Dolphin (*Prodelphinus caeruleo-albus*)

By

MASAHARU NISHIWAKI

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Although there are many reports on the hermaphroditism in mammals, it does not seem that any case has ever been reported in whales, I suppose. I report here a case which was recently by chance.

As a part of my study on the stocks of various whale species, I have been seeking for a method of determining the age of toothed whales. It is wellknown that the tooth of these whales shows in its section a peculiar structure comparable to the grain of the wood. The idea occurred to me that this structure might be utilized as the age mark. For the purpose of varifying the varidity of this idea, I selected the dolphin (*Prodelphinus caeruleo-albus*) as the material, and have been collecting in the field the data on body length, development of gonads, condition of teeth, etc. from large numbers of individuals. This species is caught in a great number in the coastal waters of Japan.

In the course of this study, I examined about 1,200 individuals of this dolphin which were caught by the "driving-in" method at Kawana, Izu peninsula, Shizuoka Pref., on December 6, 1952. It was among this material that hermaphrodite, 231 cm. in body length, was found.

It is my rule in the field survey to measure body length and determine the sex of every individual, and examine the gonads and collect the teeth of only those individuals for which such data seem necessary: the body length is read to the nearest 5 or 10 cm. and the sex is determined from the appearance of the external genital organs. According to this procedure, the individual in question was first recorded as a female of 230 cm. As this body length was considerably great for a female of this species and well exceeded the average at sexual maturity, I thought to examine its corpora lutea. Through a median incision made on its belly, I inserted my hand into the abdominal cavity and felt for ovaries. But what I felt were the testes, not the ovaries.

Fig. 1 is the photograph of the urino-genital system of this individual. The external genital organs are perfectly those of the normal female of this species: neither the clitoris nor the vulva show anomaly in their shape, size, and relative position to the anus.

The upper part of the vagina terminates in the normal manner in the uterus, which gradually shrinks towards the upper part. Ligaments suspend the uterus from a pair of gonads, which are the testes instead of the ovaries.

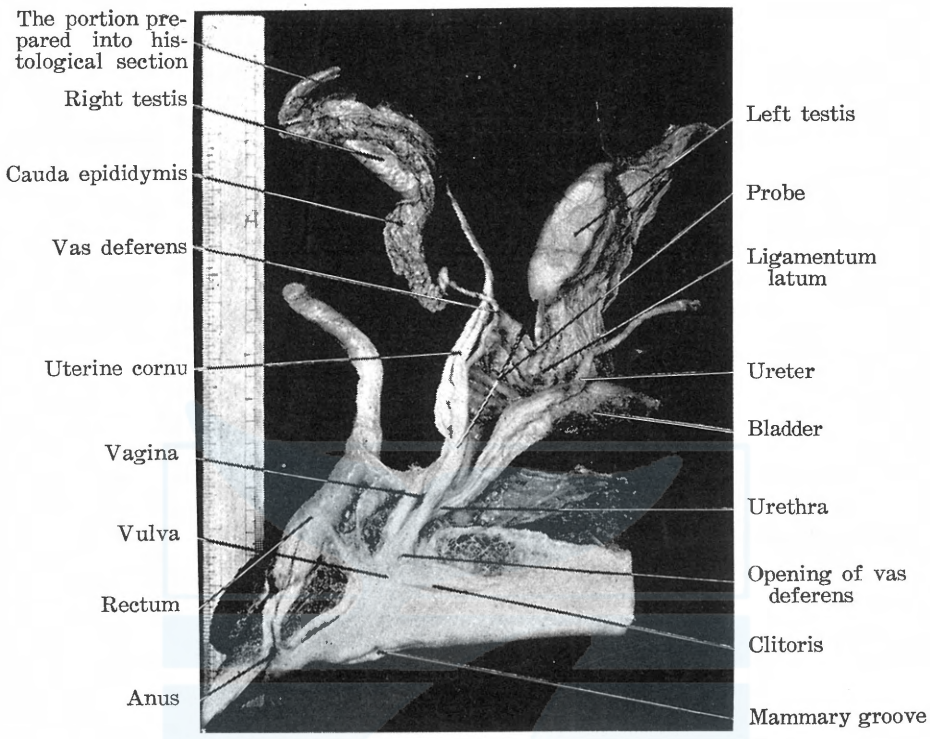

Fig. 1. Urino-genital system of a hermaphrodite of the dolphin.

The testes are more rounded in shape, having a somewhat longer minor axis and a much shorter major axis, compared with those of the sexually mature male of the similar body length. But they weighed almost as much as the testes of the normal male, i. e. about 50 g. each.

To either testis is attached the epididymis, which is longer like in the normal male, than the major axis of the testis. From this organ downward leads the vas deferens: via a course clearly apart from the passage of the oviduct in the normal female, it reaches the middle part of the vagina, to which it adheres for a short distance, then shifts anteriorly, adheres to the urethra, and finally discharges to the outside on either side of the opening of the urethra.

In order to determine the maturity of the testes, a small portion of the right testis was prepared into sections (Fig. 2). As is clear from this figurs, there were found many spermatozoa. This individual is, therefore, a male so far as the function of the gonad is concerned, while its external genital organs are those of the female.

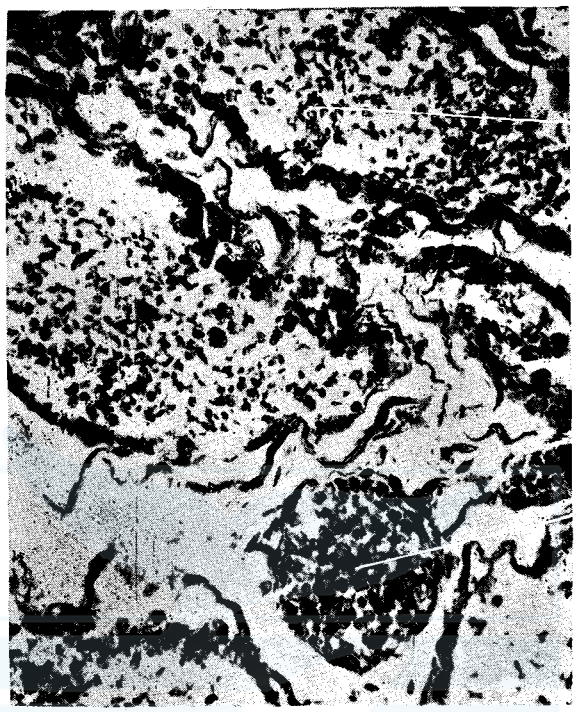

Fig. 2. A section of the right testis of a hermaphroditie of the dolphin; showing the presence of spermatozoa. (× 600)

The measurement of various external body parts of this hermaphrodite are shown in Fig. 3.

The body proportions derived from these data resemble the values of the normal male in the anterior part of the body (the head and thorax).

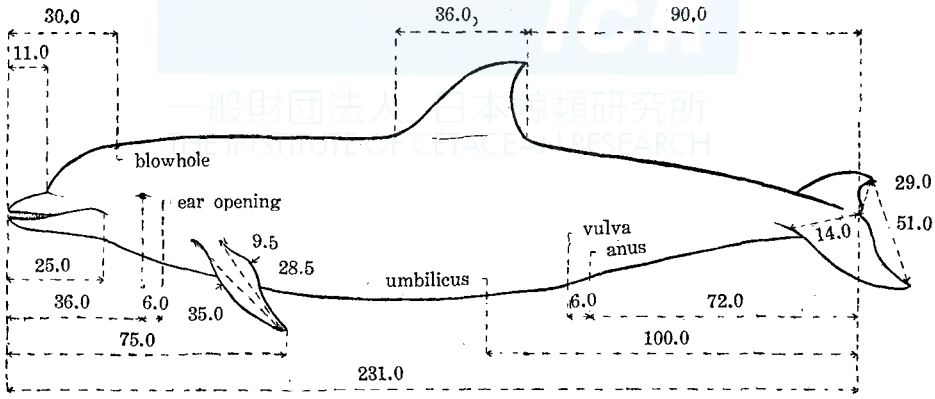

Fig. 3. Measurements of external body parts of a hermaphrodite of the dolphin (in cm.)

In the posterior part of the body (the abdomen and tail), however, they resemble the values of the normal female; this is particularly the case in the distances from the notch of tail-flukes to the anus and to the reproductive aperture. As body proportion data for normal individuals are still scanty, above statements may be subjected to correction when more data are accumulated.

It has been a common custum among the whalers of the world to distinguish the sexes of the whales they caught. But this is done usually by observing the external organs; the internal genital organs are examined only in those relatively few individuals which are handred in special biological investigations. Therefore, there is some possibility that the hermaphrodites of such a degree as the present case were captured but left unnoticed. Then, the hermaphroditism may not be very rare in whales, although no case has ever been reported until the present one.

In any case, the present finding has aroused my interest considerably, though it has little bearing upon the study of whale stocks. If any of the readers would kindly let me known of his observation on this sort of anomaly in whales, I should appreciate it very much.

ICR
一般財団法人 日本鯨類研究所
THE INSTITUTE OF CETACEAN RESEARCH