SOME INFORMATIONS ON MINKE WHALES FROM THE ANTARCTIC

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INTRODUCTION

Williamson (1959, '61) already reported on the specimens of *Balaenoptera bonaerensis* Burmeister (1867) caught in the Antarctic whaling areas II and III. Though he did not made any conclusion on the taxonomical position of *B. bonaerensis* and *B. acutorostrata*, he considered that *B. huttoni* Gray (1874) is a synonim of *B. bonaerensis* and that *B. bonaerensis* will be common in the Antarctic Ocean.

Utrecht & Spoel (1962) reported a male *B. bonaerensis* captured in the area III in the Antarctic whaling season 1959/60. They pointed out a difference of the length of the flipper between *B. acutorostrata* and *B. bonaerensis* and concluded that *B. bonaerensis* is a variation of *B. acutorostrata.*

A Japanese whaling fleet, the Nissin-maru No. 3, captured 96 little piked whales in the area III and IV in the Antarctic whaling season 1963/64. The whalers say that all of the little piked whales caught by the fleet were another type of little piked whale, namely *B. bonaerensis*, and judging from a coloured picture and a collected baleen plate it is sure that some of them, at least 14 whales presented on the picture, were *B. bonaerensis*. So we can give some informations on these whales.

We acknowledge to Mr. Keiji Sasaki of the Taiyo Gyogyo Co., who showed us some data concerning these whales. Mr. Kaoru Yamada and Mr. Fusao Ozawa of the Japanese Fisheries Agencies, kindly presented us photographs and a baleen plate of whales which are included in this paper.

DISTRIBUTION

The captured positions of the little piked whales by the Nissin-maru No. 3 are shown in Table 1. The whales shown in Fig. 3 were captured on Jan. 6, 1964 and the position is 62°–54′S, 115°–19′E. This is the first record for *B. bonaerensis* captured in the Antarctic whaling area IV.

TABLE 1. POSITION OF CAPTURE AND SCHOOL COMPOSITION

Date captured	Position captured	Number			Ratio of male (%)
		Male	Female	Total	
Dec. 13, 1963	61°–55′S, 120°–44′E	1	0	1	100.0
Dec. 28, 1963	62°–42′S, 55°–14′E	0	1	1	0.0
Jan. 6, 1964	62°–54′S, 115°–19′E	15	3	18	83.3
Jan. 7, 1964	63°–00′S, 119°–35′E	50	10	60	83.3
Jan. 8, 1964	62°–56′S, 124°–05′E	12	3	15	80.0
Jan. 10, 1964	62°–21′S, 133°–17′E	1	0	1	100.0
Total		79	17	96	82.3

Fig. 1 shows the position where *B. bonaerensis* were captured including the position reported by Burmeister (1867), Gray (1874), Williamson (1961) and Utrecht & Spoel (1962).

From this figure it is suggested that *B. bonaerensis* distributes in the Atlantic and the Indian part of the Antarctic Ocean, and probably in the Pacific part of the Antarctic Ocean also.

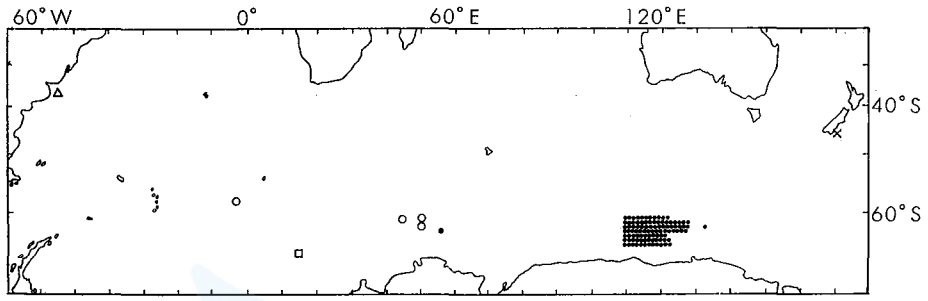

Fig. 1. Captured position of *B. bonaerensis*, each point shows one whale.
●: Nisshin-maru No. 3 □: Utrecht & Spoel (1962)
○: Williamson (1961) △: Burmeister (1867)
×: Gray (1874)

EXTERNAL CHARACTERS

The external characters of our specimens coincides fairly well with those reported by Williamson (1961) and Utrecht & Spoel (1962), particularly in the flipper without white band, baleen plate with darkly coloured external edge.

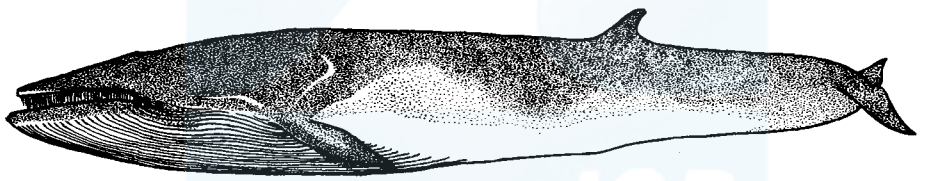

Fig. 2. Schematic figure of the pigmentation of *B. bonaerensis*.

But our photograph shows that the pigmentation of the left side of the head region exceed that of the right side. The darkly pigmented area of the jaw is broader in the left side and the white area on the upper rip is longer in the right. The number of baleen plates without the darkly colourd edge, which distribution seems to correlate to the presence of the white area of the upper rip, is smaller in the left side than in the right. This coincides better with Utrecht and Spoel (1962) rather than Williamson (1961). One of two pale streaks, which begin near the anterior insertion of flipper, extends toward shoulder and the other points to ear in our specimens. But these streaks also have the possibility to occur on *B. acutorostrata*. The dark dorsal pigmentation in *B. bonaerensis* expands toward the flank in front of the dorsal fin (Fig. 2).

The dorsal surface of tail flukes is pigmented darkly and the ventral surface is generally white except darkly pigmented anterior edges.

Fig. 3. *B. bonaerensis* captured by the Nisshin-maru No. 3 on Jan. 6, 1964.

BALEEN PLATE

One baleen plate at nearly mid point of the series was collected. Though it has slight deficit at the side of oral cavity, its assumed breadth is 14.0 cm and its length from the gum line to the tip of plate along the external edge except the fringes, is 23.5 cm. And the breadth / length ratio is 0.60.

Fig. 4 shows the relation between the breadth and the length of baleen plates of *B. bonaerensis* from the Antarctic and *B. acutorostrata* from the coastal waters of Japan. It is difficult to find out any difference of the ratio between *B. bonaerensis* and *B. acutorostrata* from these materials.

It is a plate from the nearly middle of the series, so the longest plate of the whale will be longer than it. Our longest baleen plate from the coastal waters of Japan is 19.9 cm. So the baleen plate of *B. bonaerensis* can be said to be longer than that of *B. acutorostrata* from the northern hemisphere which coincides with Williamson (1961) and Utrecht & Spoel (1962).

Fig. 5 shows a baleen plate of *B. bonaerensis* and those of *B. acutorostrata* which have baleen plates with dark band at the external edge, and they are found more often in the Japan Sea and the Okhotsk Sea coast than in the Pacific coast of Japan. But these dark edges are narrower than that of *B. bonaerensis* and brownish in colour.

The diameter of baleen fringes of one *B. bonaerensis* and five *B. acutorostrata* from the coastal waters of Japan were measured. The latter baleen plates are the longest plates of a series. The baleen plates of suckling calf was not used, for their fringes are more fine than that of the adult. From one third to one forth, from 84 to 114 in number, of fringes in a plate are selected at random and measured

their diameter at the base with a micrometer. These measurement are shown in Fig. 6 and Table 2. They suggest the larger diameter in *B. bonaerensis* than *B.*

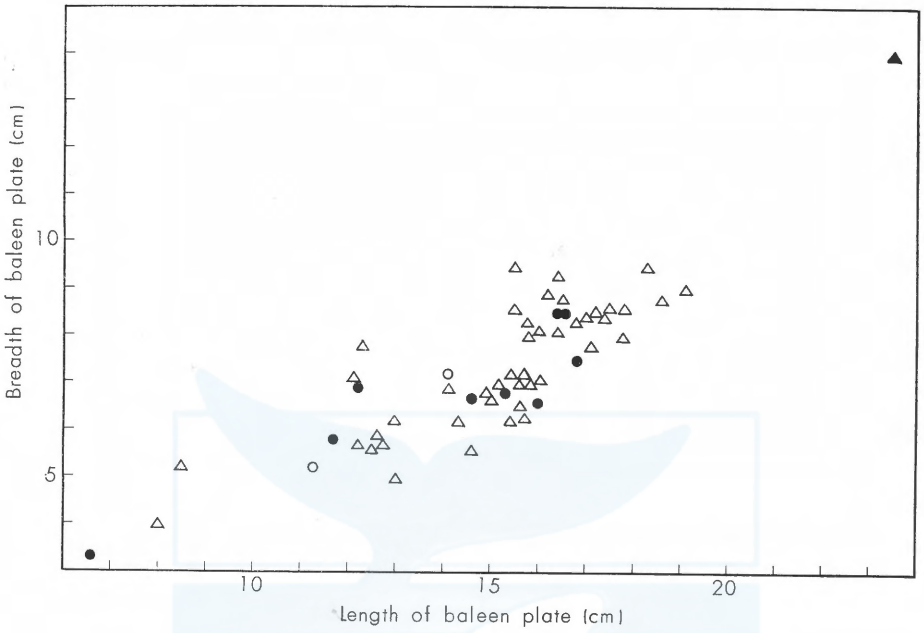

Fig. 4. Relation between the length and the breadth of baleen plate.
B. acutorostrata . . . ● male, ○ female, △ unknown
B. bonaerensis . . . . ▲ sex unkhown

Fig. 5. Baleen plates of *B. acutorostrata* (left three) and *B. bonaerensis* (right), ×0.22.

TABLE 2. DIAMETER OF BALEEN FRINGES (mm)

Specimen	*B. bonaerensis*	*B. acutorostrata* 1	2	3	4	5
Length of baleen plate	235	125	166	177	175	182
Number of fringes measured	84	95	86	115	98	93
Range of diameter	0.140–0.728	0.101–0.537	0.134–0.547	0.111–0.486	0.130–0.789	0.141–0.830
Mean diameter	0.354	0.211	0.274	0.225	0.293	0.279
Range of two standard error	±0.033	±0.016	±0.022	±0.016	±0.022	0.028

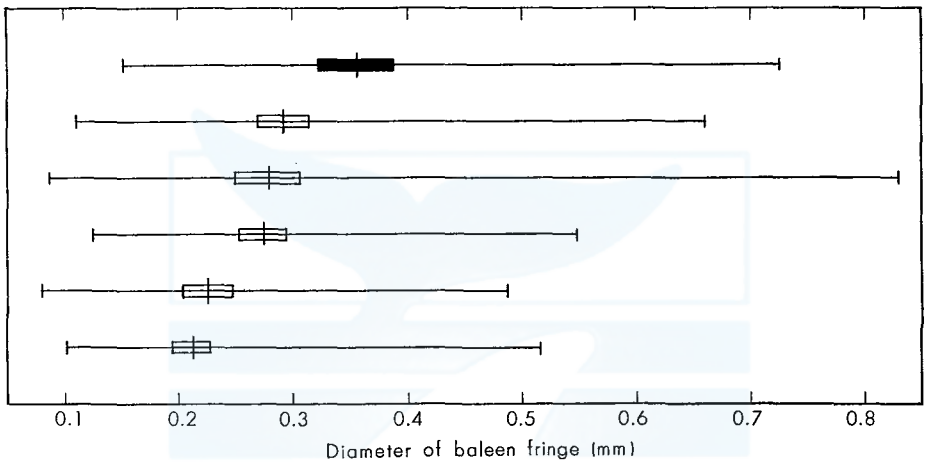

Fig. 6. Diameter of baleen fringes, range, mean and the range of two standard error. Top: *B. bonaerensis*, Bottom five: *B. acutorostrata*.

acutorostrata.

SCHOOL AND BODY LENGTH

Though the whaler says that all of the little piked whales caught by the Nisshi-maru No. 3 seemed to belong to the same type, it was not observed by any biologist. There is an evidence to suggests the occurrence of *B. acutorostrata* in the Antarctic (Taylor, 1957). During the marking voyage in the end of December in 1959, Ichihara observed three little piked whales swim around the catcher boat in area IV in the Antarctic. From the white band on the flipper, these whales were identified as *B. acutorostrata.* Therefore, we cannot conclude definitely that all the whales captured by the Japanese fleet were *B. bonaerensis.* But we present here the body length, sex and the length of foetus for the purpose of reference.

As shown in Table 1 the whales are caught on January 6, 7 and 8, 1964. It is said that the catches of each day belonged to one school respectively and nearly all of the component of each school were caught.

The ratios of male whales in the catches from the three schools show nearly same value 80 percent, which seems to suggest the dominance of male in the schools of *B. bonaerensis* migrating these latitude.

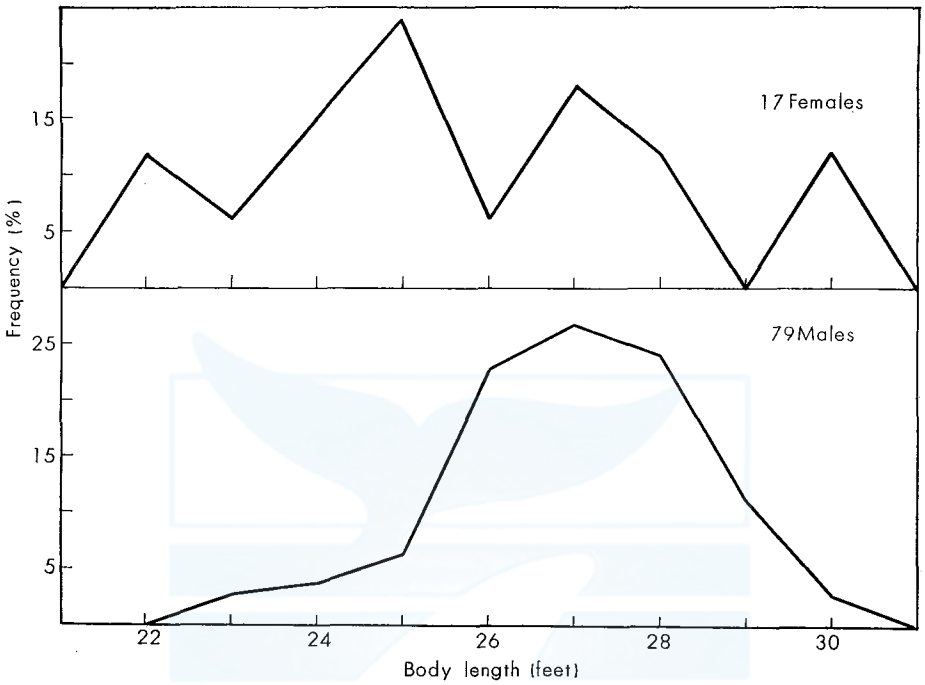

Fig. 7. Body length composition of the little piked whales caught by the Nisshin-maru No. 3.

TABLE 3. BODY LENGTH COMPOSITION

Body length (foot)	Male	Female	Total
22	—	2	2
23	2	1	3
24	3	2	5
25	5	4	9
26	18	1	19
27	22	3[1)]	25
28	18	2[2)]	20
29	9	—	9
30	2	2	4
Total	79	17	96

1) One is pregnant. 2) Two are pregnant.

TABLE 4. BODY LENGTH OF THE FOETUSES (cm)

Date captured	Body length	Sex
Jan. 7, 1964	45	Female
Jan. 8, 1964	19	Male
Jan. 8, 1964	18	Male

Table 3 and Fig. 7 show the body length composition. There is no whale shorter than 21 ft. Although we consider the selection of larger whales by gunners, it is safe to say that larger whales dominently migrate to the higher latitude as in the case of *B. acutorostrata* in the northern hemisphere.

The ovary and testis were not examined. But one and two pregnant whales were found, in the catch on Jan. 7 and 8th, and their body length was 27 and 28 ft. respectively. Willismson (1961) also reported a newly matured female of 27 ft. Our data will provide some information on the body length at the attainment of sexual maturity of female whales.

REFERENCES

ARSENYEV, R. K. (1960). Distribution of *Balaenoptera acutorostrata* Lacep. in the Antarctic. *Norsk Hvalfangst-Tid.*, 49 (8) : 380–382.

BURMEISTER, H. (1867). Preliminary description of a new species of finner whale (*Balaenoptera bonaerensis*). *Proc. Zool. Soc. Lond.*, 1867 : 707–713.

GRAY, J. E. (1874). On the skeleton of the New-Zealand pike whale, *Balaenoptera huttoni* (*Physalus antarcticus*, Hutton). *Ann. Mag. Nat. Hist.*, 4 (8) : 448–452.

JONSGARD, A. (1951). Studies on the little piked whale or mink whale (*Balaenoptera acutorostrata* Lacépéd) *Norsk Hvalfangst-Tid.*, 40 (5) : 209–232.

OMURA, H. & SAKIURA H. (1956). Studies on the little piked whale from the coast of Japan. *Sci. Rep. Whales Res. Inst.*, 11 : 1-37.

SERGEANT, D. E. (1963). Minke whales, *Balaenoptera acutorostrata* Lacépede, of the Western North Atlantic. *Jour. Fisheries Res. Board of Canada.*, 20 : 1489–1504.

TAYLOR, R. H. F. (1957). An unusual record of three species of whale being restricted to pools in Antarctic sea-ice. *Proc. Zool. Soc. Lond.*, 129 : 325–331.

UTRECHT, W. L. v. & SPOEL, S. van der. (1962). Observations on a minke whale (Mammalia, Cetacea) from the Antarctic. *Zeitschrift für Säugetierkunde*, 27 (4) : 217–221.

WILLIAMSON, G. R. (1959). Three unusual rorqual whales from the Antarctic. *Proc. Zool. Soc. Lond,*. 133 (1) : 134–145.

—— (1961). Two kind of minke whale in the Antarctic. *Norsk Hvalfangst-Tid.*, 50 (4) : 133–141.

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