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Distribution and number of fur seals, *Arctocephalus gazella* (PETERS, 1875) of King George Island (South Shetlands)

[with Plates XXI—XXII and 2 text-figs]

Rozmieszczenie i liczebność uchatek antarktycznych, *Arctocephalus gazella* (PETERS, 1875) na wyspie Króla Jerzego (Południowe Szetlandy)

Abstract. In the region of the mouth of Admiralty Bay the greatest number of fur seals was observed in February and March, reaching 33.09 animals/km of sea line. In relation to the entire sea coast of the bay (91 km) the number of fur seals varied in 1980—1981 between 4.72 and 9.00 animals/km. In April, with the arrival of great ice fields, this number suddenly decreased. In June and the first half of July some migrating seals appeared, at that time the winter peak in their number being observed, reaching 1.11 seals/km of sea coast (i. e. a density of 0.77 for 1 km² of ice field of the bay).

Some of these winter migrants remained till October, grouped near ice cliffs and rock islands where the ice was crushed. The hypothesis is presented that these seals migrate from the volcanic island Deception. The census of seals taken on King George Island during the peak in their number in 1981 showed the presence of 4400 adult specimens. The following rookeries were found: Stigant Pt., Tartar Pt., Penguin Island, Lion's Rump, and Low Head.

I. INTRODUCTION

The antarctic fur seal, *Arctocephalus gazella* (PETERS, 1875) was the object of intensive hunting in 1820—1890. During this period about 450 thousand of the animals were killed. This resulted in the complete extermination of the species in the South Shetlands. After some 50 years a second settlement of the South Shetlands took place, brought about by migration from the South Sandwiches and the South Georgia Islands. During the census of seals taken by the 20th Chile Antarctic Expedition in 1967/1968 the number of 457 to 507 fur seals were registered, but none was observed on King George Isl. (AGUAYO, 1970). The first reports concerning the presence of fur seals on this land near the Russian Station Bellingshausen (Fildes Peninsula) may be found in the papers of KRYLOV (1968), KRYLOV and MEDVEDEV (1972), SIMONOV (1973), and POPOV and KRYLOV (1977). Only the last-named authors estimated the number of fur seals in particular months. They did not observe the breeding

colonies, and the largest number of fur seals was noted in March 1974. Further observations in this area were performed by BANNASCH and ODENING (1981) from 20th December 1979 to February 1980. A total of 50 adult fur seals were observed plus 2 pups from the side of Drake's Straits on 25th January 1980. In the region of the Arctowski Polish Station fur seals were reported by PRESLER (1980), while those in the region of Admiralty Bay (between Thomas Pt. and Patelnia Pen.), were reported by BIRKENMAJER (1979) and MYRCHA and TELIGA (1980). The last-named authors described the fluctuations in the number of seals during the year, but the places of greatest concentration near Blue Dyke and Patelnia Peninsula were not observed by them. The first record of the breeding colony on King George Isl. (Stigant Pt.) was published by LLANO (1971). In January 1979 JABŁOŃSKI assessed the presence of 48 adults and 6 pups on Penguin Island in the region of King George Bay (JABŁOŃSKI 1980). Owing to the conservation programme for fur seals, their number has increased during the last 30 years, and their old locations lying south of the Antarctic Convergence have been recolonized (KING 1959, INGHAM 1960, BONNER and LAWS 1964, PAYNE 1979), and in 1983 even north of that line (Crozet Isl. — JOUVENTIN, STAHL and WEIMERSKICH 1982). At present the number of fur seals amounts to about 410 thousand, 396 thousand of them living on South Georgia Island and 6—7 thousand on South Shetland Island (STARCK and RAKUSA-SUSZCZEWSKI 1982). This last number is probably underestimated because no exact count of the species was performed there.

The present work reports the seasonal changes in the population of fur seals in Admiralty Bay, giving their number and distribution on the whole of King George Island.

II. MATERIAL AND METHODS

The observations covered the whole of King George Island including the surrounding smaller islands. The region of investigation on the Fieldes Peninsula was bounded by the sea line of King George Island, i. e. excluding Two Summit, Dart, Weeks Stack Islands, and Square End Island. The islands of Atherton were included (with the exception of Jagged Island).

The geographic nomenclature was adopted from BIRKENMAJER (1980a, 1984). Fig. 1 (Admiralty Bay) was made by Dr. K. FURMAŃCZYK, who based it on photographs taken from the air. Fig. 2 (King George Island) was provided by Prof. K. BIRKENMAJER (1984). The length of the sea line was deduced on the grounds of maps made by that author (BIRKENMAJER 1980b, 1980c, 1981, 1984).

Systematic observations on the distribution and number of fur seals in the annual cycle were made from 1979 to 1981 in the area of Admiralty Bay, on a 20 km long section from Italia Valley to Red Hill (Fig. 1). On the basis of their topographic differences, this section was divided into two smaller ones,

from Italia Valley to Demay Pt. (section No. 1) and from Demay Pt. to Red Hill (section No. 2). The first belongs to the inner part of the Bay, while the other is bounded by the open sea. Owing to changeable weather and limited time, especially in winter, with little daylight, it was not always possible to examine the entire 20 km section during one day, hence sections No 1 and 2 were exa-

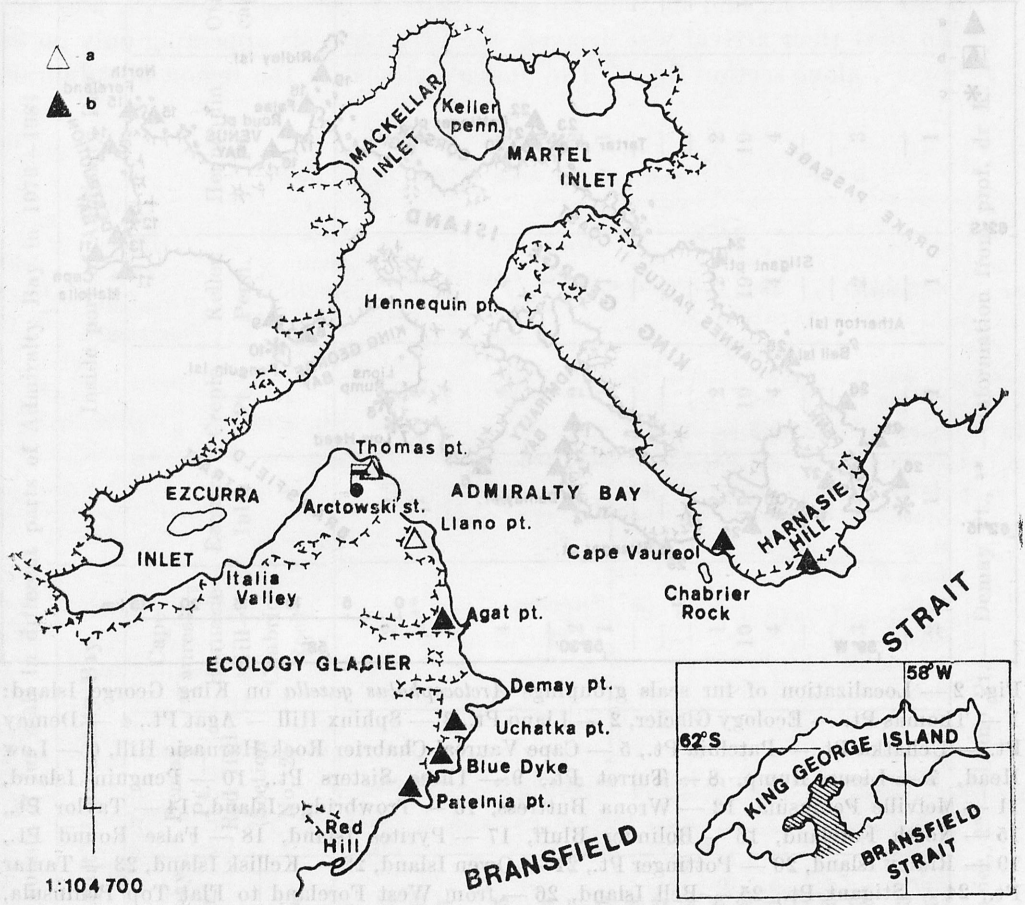

Fig. 1 — Localization of fur seals groupings *Arctocephalus gazella* in Admiralty Bay: a — places sporadically visited, b — places most frequently visited

mined separately. Besides, the more accessible section, No 1, was divided into two: from Italia Valley to Ecology Glacier and from Llano Pt. to Demay Pt. (sections No. 1A and 1B, respectively). Because the number of counts for particular sections differed, the average census of fur seals was recorded for each section (for section No. 1 it was the sum of averages for 1A and 1B). In the other regions of Admiralty Bay the counts were made less regularly. The numbers of counts from January to February 1979 and December 1979 to February 1981 are presented in Table I.

The census from March to November 1979 was taken once a month and only along sections No. 1 and 2. The total number of fur seals was recorded, with the localization of particular encounters. The census for the whole of King George Island was made in February and March 1981 (Table V), i. e. when the number of fur seals was at its maximum (this peak time had been noted in earlier regular

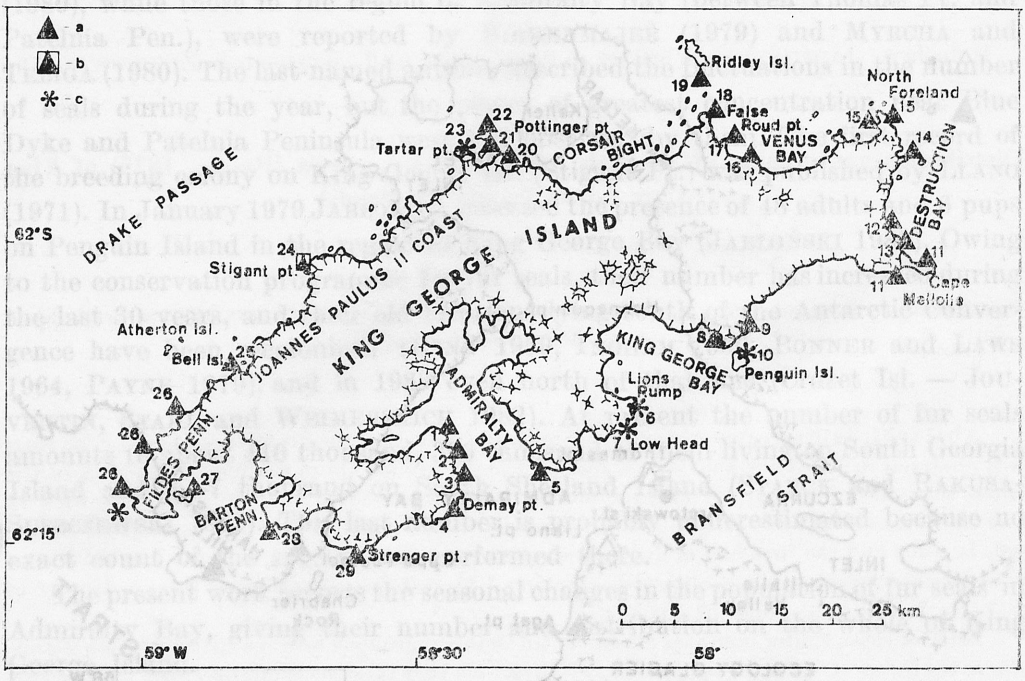

Fig. 2 — Localization of fur seals groupings *Arctocephalus gazella* on King George Island: 1 — Thomas Pt. — Ecology Glacier, 2 — Llano Pt., 3 — Sphinx Hill — Agat Pt., 4 — Demay Pt. — Uchatka Pt. — Patelnia Pt., 5 — Cape Vaureal-Chabrier Rock-Harnasie Hill, 6 — Low Head, 7 — Lions Rump, 8 — Turret Pt., 9 — Three Sisters Pt., 10 — Penguin Island, 11 — Melville Peninsula, 12 — Wrona Buttress, 13 — Trowbridge Island, 14 — Taylor Pt., 15 — North Foreland, 16 — Bolinder Bluff, 17 — Pyrites Island, 18 — False Round Pt., 19 — Ridley Island, 20 — Pottinger Pt., 21 — Owen Island, 22 — Kellisk Island, 23 — Tartar Pt., 24 — Stigant Pt., 25 — Bell Island, 26 — from West Foreland to Flat Top Peninsula, 27 — Ardley Island, 28 — Barton Peninsula, 29 — Pta Batiza-Stranger Pt. a — places most frequently visited by fur seal, b — a rookery observed by Llano (1971), c — the probable rookeries localization

observations on the settlement of the sea coast along sections No. 1 and 2) as well as in control counts outside the bay, from Stranger Pt. to Turret Pt. (Table IV).

The weather conditions during the winter censuses in 1979 and 1980 differed. In 1979 the winter was rather mild and Admiralty Bay was not covered with ice (though pack ice occurred temporarily), while in 1980 the bay was completely frozen over from July to October. In July even Bransfield Straits to Elephant Island were covered with ice.

Number of counts of fur seals in different parts of Admiralty Bay in 1979—1981

Year	Month	Mouth part of Admiralty Bay				Inside part of Admiralty Bay					Admiralty Bay (on ice, in winter)
		Italia Valley — Demay Pt. (Section No. 1)		Demay Pt. — Red Hill (Section No. 2)	Cape Vaureal — Harnasie Hill— Chabrier Rock	Ezcurra Inlet	Crepin Pt.	Keller Penn.	Hennequin Pt.	Other capes	
		A [1*]	B [2*]								
1979	January	2	3	1	2	1	1	1	1	1	—
	February	6	6	2	2 [3*]	1	1	1	1	1	—
	March to November	1	1	1	—	—	—	—	—	—	—
	December	4	5	3	4	4	4	4	4	4	—
1980	January	4	4	2	—	1	1	1	1	1	—
	February	5	5	5	2	2	2	2	2	2	—
	March	4	1	1	1	1	1	1	1	1	—
	April	18	4	—	—	—	—	—	—	—	—
	May	22	22	2	—	—	—	—	—	—	—
	June	29	29	2	—	—	—	—	—	—	—
	July	29	18	2	1	2	2	2	2	2	19
	August	31	22	9	19	19	19	19	19	19	24
	September	21	21	8	4	10	4	4	4	4	10
	October	17	17	3	—	—	—	—	—	—	5
	November	5	2	2	—	—	—	—	—	—	—
	December	4	3	2	3	4	3	2	3	1	—
1981	January	3	3	3	—	—	—	—	—	—	—
	February	13	5	5	2	1	1	1	1	1	—

[1*] — Italia Valley — Ecology Glacier, 2* — Llano Pt. — Demay Pt., [3*] — information from prof. dr K. B.

III. RESULTS

1. Distribution and number of fur seals in the region of Admiralty Bay

In 1979 the first fur seals were observed on 9th January in the region of Patelnia Peninsula and in 1980 on 15th January between Liano Pt. and Agat Pt. In 1981 their arrival was delayed, the first fur seals appearing only on 3rd February, along section No. 1. The animals stayed in the region of Admiralty

Table II

Census of fur seals in Admiralty Bay

Year	Month	Italia Valley — Demay Pt. (section No. 1)	Demay Pt. — Red Hill (section No. 2)	Cape Vaureal — Harnasie Hill — Chabrier Rock	Other capes (irregular meetings)	Admiralty Bay (on ice, in winter)
1979	January	8,5 (0—17)	25	0	0	—
	February	8,0 (0—34)	149,5 (26—188)	20 1*	0	—
	March	447	Sections 1 and 2 together	—	—	—
	April	88		—	—	—
	May	19		—	—	—
	June	14		—	—	—
	July	347		—	—	—
	August	47		—	—	—
	September	0		—	—	—
	October	1		—	—	—
	November	0		—	—	—
	December	1		0	—	—
1980	January	1,5 (0—4)	19,0 (13—25)	—	0	—
	February	13,9 (3—18)	337,6 (55—556)	148,2 (61—128)	0	—
	March	44,5 (12—52)	260	125	0	—
	April	3,6 (0—11)	—	—	—	—
	May	0	1	—	—	—
	June	0,1 (0—2)	35,0 (0—70)	—	—	—
	July	4,5 (0—6)	2,0 (0—4)	73	13,9 (3—20)	7,6 (0—50)
	August	0,6 (0—8)	0	0	0,6 (0—5)	6,4 (0—14)
	September	1,3 (0—5)	0	0	0,8 (0—3)	8,3 (3—21)
	October	0	0	—	—	2,1 (0—8)
	November	0	0	—	—	—
	December	0	0	0	0	—
1981	January	0	0	—	—	—
	February	27,1 (1—59)	634,8 (545—722)	157,5 (99—216)	0	—

1* — according to prof. dr K. B

(0) — no fur seals noticed

(—) — no count made

Bay over the moulting season, i. e. from the end of January to March. Most frequently occupied were the coasts near the mouth of the bay, and the maximum concentration was observed east of the Blue Dyke massif. The greatest number of fur seals was noted in February and March (Table II). After the moulting season, beginning in April, the number decreased as a result of their migration,

Table III

Distribution of fur seals during 1980

Month	Admiralty Bay				Total	
	on coast		on ice			
	%	specimens	%	specimens	%	specimens
July	53,5	136	46,4	118	100	254
August	24,4	49	75.6	152	100	201
September	20,4	27	79,5	105	100	132
Total	36,1	212	63,9	375	100	587

Table IV

Change in number of fur seals in south regions of King George Island in moulting season

Region of seaside	Number of fur seals	
	20—28 January 1981	February, March 1981
Lions Rump	5	212 *
Low Head	3	151,7(100—200) **
Stranger Pt.	1	50,0(47—54) 3***
Turret Pt.	1	102 *

* — count; ** — 4 counts; *** — 5 counts

in parallel with the appearance of ice fields. The different weather conditions in 1979 and 1980 resulted in different fluctuations in the number of fur seals. In 1979 this decreased gradually from the end of March till June, some individual animals remaining (till July) on the coasts of the bay. In contrast, in 1980 the number of fur seals suddenly fell — from 44.5 animals in March to 3.6 in April (these results concern the mean values for section No. 1), while in May only a single male was observed (till 11th May). No fur seals were noted till 15th

June 1980 along the examined section, and from 16th to 25th June the animals appeared irregularly. Before the next winter settlement (i. e. from July to October) a large group of 70 fur seals were seen once, with the appearance of ice fields. In winter 1980 the fur seals stayed mainly on the ice covering the frozen bay (Table III), some of them occupying its inner region (Ezcurra Inlet — near Goulden Cove, MacKeller Inlet and Martel Inlet), where frequently breaking and falling cliff ice crushed that covering the bay, thus making the water accessible. The large groupings of fur seals observed in the first half of July between Cape Vaureal and Chabrier Rock (Table II) were probably connected with the occurrence of crushed ice falling from the cliffs of Chabrier Rock, from the mouth of Admiralty Bay to Bransfield Straits. In 1979 these wandering groups left the bay in July but in 1980 they left earlier, in the second half of June and first half of July (Table II). This resulted in a reduced frequency of individual encounters of the animals: in August the frequency amounted to 81% of all observations, in September to 52%, and in October to 23% (results for 1980). In the second half of October the fur seals left the region of the Bay until the next moulting season, i. e. January and February.

2. Distribution and number of fur seals on King George Island in February and the first half of March 1981

The most numerous settlement of Admiralty Bay by fur seals was noted in February and the first half of March (Table II). As this observation was confirmed also in other regions of King George Island in 1981 (Table IV), a census of these animals for the entire island was taken between 2nd February and 13th March 1981. The maximum number amounted to 4688. The regions most occupied were: Mellville Peninsula, Wrona Buttress, and Trowbridge Island (i. e. the coasts of Destruction Bay — map No 2, Table V), where 1332 animals, or 30.6% of the whole population were found. The next most occupied region was section No. 2 (i. e. between Demay Pt. and Patelnia Peninsula), with 14.6% of all fur seals counted, while the entire region of Admiralty Bay amounted to 18.8%. In the north part of the island the following large groupings of fur seals were observed: Stigant Pt. (11,1%), False Round (8.4)%, and North Foreland (6.2%). Altogether along the rocky seashore from Melville Peninsula by North Foreland to Fildes Peninsula 2835 were counted, making 65.2% of the population of the island. It should be noted however, that large groups of animals were observed in the northern part of the island only east of Stigant Pt., while the northern part of Fildes Peninsula was far less frequently occupied (Table V), although the sea line in that region was similar in the other northern areas of the island (there are there narrow, sandy and gravel or gravel and stones beaches bordered from the side of glaciers by high rocky cliff). Southern coast line (west from Melville Peninsula) is characterized by several wide beaches bordered from the side of glaciers by moraines (region of Arctowski Station, Llano Pt., Potter Peninsula from Pt. Baltiza to Stranger Pt., Barton Peninsula). In the regions mentioned the number of fur seals was

Table V

Distribution and number of fur seals on King George Island

No.	Localization of groupings	Number of countings	Number of specimens	Characteristics of locations
1	2	3	4	5
	Admiralty Bay:			
1.	Thomas Pt. — Ecology Glacier	13	1,6(0—5)	Rocky blocks and plates on steps of cliff, less often on stormy walls
2.	Llano Pt.	5	1,3 (0—3)	As in 1
3.	Sphinx Hill — Agat Pt.	5	25,0 (16—57)	Narrow sandy and gravel beach at eroded blocks of cliff
4.	Demay Pt. — Uchatka Pt. — Patelnia Pt.	5	634,8 (593—722)	Lava streams eroded in columns and plates at Blue Dyke — narrow, sandy and gravel beach bordered by eroded cliff
5.	Cape Vaureal — Chabrier Rock — Harnasie Hill	2	157,5 (99—216)	Plates of lava chimney, eroded blocks of cliff, sandy and gravel beach sheltered by Vaureal Pk.
6.	Low Head	4	151,7 (100—240) +26 juv.	Narrow, sandy and gravel beach bordered by cliff
7.	Lions Rump	1	212	Rocky blocks at vertical wall of lava chimney
8.	Turret Pt.	1	102	Stony beach bordered by elevated terrace
9.	Three Sisters Pt.	2	43,5 (39—48)	As in 8, mainly near offshore remnant
10.	Penguin Island	1	169+3 juv.	Narrow stony beach bordered by cliff of ruins-like eroded lava
	Region of Destruction Bay:			
11.	Melville Peninsula	1	439	Sandy and gravel beach bordered by cliff
12.	Wrona Buttress	1	670	As in 11
13.	Trowbridge Island	1	223	Ruins-like eroded plates of lava streams
14.	Taylor Pt.	1	39	Rocky plates and blocks
15.	North Foreland	2	271,0 (266—276)	Gravel and stone beach bordered by elevated terrace of volcanic rocks
	Region of Venus Bay:			
16.	Bolinder Bluff	1	25	Stony beach

1	2	3	4	5
17.	Pyrites Island	1	17	Pyrite and quartz plates polished by glacier
18.	False Round Pt.	1	365	Gravel and stone beach bordered by cliff
19.	Ridley Island	1	32	Plates of lava streams and rocky block
	Region between Corsair Bight and Joannes Paulus II Coast:			
20.	Pottinger Pt.	1	10	Narrow stony beach, rocky block and lava plates
21.	Owen Island	1	42	Rocky blocks
22.	Kellisk Island	1	10	As in 21
23.	Tartar Pt.	1	153+3 juv.	Wide sandy and gravel beach with remnants
24.	Stigant Pt.	2	485 (484—486) +39 juv.	Narrow gravel and stone beach with offshore remnants; water canals between rocks
25.	Bell Island	1	12	Rocky blocks
	Region of Fildes Peninsula			
26.	from West Foreland to Flat Top Peninsula	1	54	Narrow stony beaches with offshore remnants
27.	Ardley Island	2	1	Wide beach with offshore remnants
	Region of Maxwell Bay:			
28.	Barton Peninsula	5	3,6 (1—6)	Blocks of cliff remnants in region of Narębski Pt.
29.	Pta Batiza — Stranger Pt.	5	50,0 (47—54)	Plates of offshore remnants and rocky blocks vast beach with stormy ridges
	Total		4400 (4220—4688)	

rather low (Table V): 5.8% of total number. The rest of fur seals were on the beaches bordered by cliff or on the shores shaped by lava streams or rocky blocks. In connection with the preference for moulding sites, as described earlier, the great number of fur seals seen on Lions Rump (Table V) should be explained, as there are rather vast beaches bordered by moraines. In this region the preference for environoment was evident: from 212 specimens 209 were found between Twin Pinnaces and Lions Cove, i. e. in the place characterized by torn off rocky blocks or narrow beach at feet of vertical wall of volcanic chimney.

3. Rookeries of fur seals on King George Island

Young fur seals were encountered in the following parts of the island: Low Head — between 29th January and 13 February 26 young seals were observed, and also one dead, few days old pup; Lions Rump — on 20th January one dead pup was found; Penguin Island — on 29th January three very young fur seals and one dead pup were noted, Tartar Pt. — on 9th March three very young pups were observed, Stigant Pt. — between 4th and 10th March 39 youngsters counted, amoung them also pups fed by cows. Also two dead pups were found here and sent to the collection of the Institute of Systematic and Experimental Zoology of the Polish Academy of Sciences in Kraków.

IV. DISCUSSION

The present authors' reports, as well as those of BIRKENMAJER (1979), PRESLER (1980), and MYRCHA and TELIGA (1980), confirm the fact that fur seals prefer the open sea coasts and avoid the inner part of Admiralty Bay (map 1). According to MYRCHA and TELIGA (1980), in 1978 the maximum number of fur seals was 220 to 280 along the 12 km seashore, from Arctowski Station to Uchatka Pt. However, the regions most occupied by these animals, east of Blue Dyke and Patelnia Peninsula, were not observed. On the basis of the results of 3 years' observation, the conclusion was reached that in these areas about 200 to 300 fur seals remained during the peak season. This makes an estimated total number of fur seals in 1978 of about 420—580 along section No. 1 and 2. In the following two years the number of fur seals in these sections varied around that of 1978, i. e. in 1979 it amounted to 447 and in 1980 from 498 to 574 (results from the peak season). In 1981, however a significant rise in this figure was observed, reaching 781 fur seals. Other parts of King George Island were also more densely occupied in 1981: Penguin Island in 1979 — 48 animals were observed, while in 1981 as many as 169; on Low Head the number rose from 100 in 1979 (personal information from Prof. K. BIRKENMAJER) to 240 in 1981 (all figures concern January).

On the basis of 4 years of observation it cannot be stated with certainty whether the rise in the number of fur seals was the result of continued recolonization, or an effect of cyclic fluctuations. However, a process of recolonization can be observed from 1968 till today in the region of Fildes Peninsula. From 1968 to 1970 only 3—10 fur seals were noted there, and only in the norhern part (KRYLOV, 1968; SIMONOV, 1973). In 1974 already 41 fur seals were counted here, among them also some individuals in the Maxwell Bay region (results for March; POPOV and KRYLOV 1977). In 1980 the presence of 50 fur seals was reported by BANNASCH and ODENING (1981), while in 1981 55 fur seals were seen (personal material). In the last 10 years a rise in number of the animals was observed also on Stigant Pt. — from 213 in 1970 (LLANO 1971) to 485 in 1981

Table VI

Seasonal changes in number of fur seals

Month	Number of fur seals in particular months and years							
	Fildes Peninsula (31 km of sea line) — according to Popov, Krylov (1977), investigations made in 1974		Admiralty Bay: Italia Valley — Red Hill (20 km of sea line) — own materials [1*]				Harnasie Hill — Red Hill (91 km of sea line) — own materials Year 1980	
			Year 1979		Year 1980			
	Number	Specimen/km	Number	Specimen/km	Number	Specimen/km	Number	Specimen/km
January	25	0,81	33,5 (0—42)	1,67	20,5 (0—29)	1,02	?	?
February	21	0,68	157,5 (26—188)	7,87	351,5 (58—574)	17,57	499,57 (119—702)	5,49
March	41	1,32	447	22,35	304,5 (272—312)	15,22	429,5 (397—437)	4,72
April	14	0,45	88	4,40	+[2*]	+	?	?

May	5	0,16	19	0,95	+[3*]	+	?	?
June	3	0,10	14	0,70	35,1 (0—71)	1,75	?	?
July	2	0,06	347	17,36	6,5 (0—10)	0,32	101,0 (76—153)	1,11 (0,77/km²/[4*])
August	0	0	47	2,35	0,6 (0—8)	0,03	7,6 (0—15)	0,08 (0,06/km²)
September	0	0	0	0	0	0	10,4 (3—24)	0,11 (0,08/km²)
October	0	0	+[3*]		0	0	2,1 (0—8)	0,02 (0,01/km²)
November	4	0,13	0	0	0	0	?	?
December	0	0	+[3*]	+	0	0	0	0

[1*] — Counts were made in January and February by B. Jabłoński and W. Krzemiński, from February to November by K. Zdzitowiecki; in December 1979 by B. Jabłoński and K. Zdzitowiecki; in 1980 by B. Jabłoński.

[2*] — Counts concern section No. 1, where averagely 3,6 (0—11) fur seals were observed.

[3*] — Single meeting with 1 specimen (no average given).

[4*] — When the Bay was frozen, the density in specimens/km² of the surface (131,3 km²) is given (data after Rakusa-Suszczewski 1980).

(personal material; Table V). Numerous reports of other authors allow the conclusion that further recolonization will take place through the settlement of new breeding places or rookeries (PAULIAN 1952; KING 1959; INGHAM 1960; ØRISTLAND 1960; BUDD and DOWNES 1964; WINSNES 1966; BONNER 1968; FELVOLDEN and SØMME 1977; PAYNE 1977; CROXALL and PRINCE 1979; JOUVENTIN, STAHL and WIEMERSKICH 1982).

On King George Island the first rookery was observed in 1970 on Stigant Pt. (LLANO 1971). The following results allow the conclusion that the next permanent rookeries will be established in the region between Low Head and Lions Rump and on Penguin Island: in 1979 between Low Head and Lions Rump one pup was observed by Prof. K. BIRKENMAJER, in 1981 JABŁOŃSKI observed 26 youngsters on Low Head, while in 1979 the same author observed six very young pups and also 3 in 1981 in Penguin Island. Besides Stigant Pt., in the northern part of the island, very young pups were observed by JABŁOŃSKI (3 pups on Tartar Pt. in 1981) as well as by BANNASCH and ODENING (1981) — 1 pup in 1980 on Fieldes Peninsula.

On the basis of 4 years of investigation some conclusions can be drawn concerning phenological fluctuations in the number of fur seals in non-breeding colonies. The greatest number of animals was observed in February and March, in 1979—1981. Similar results were presented from Fildes Peninsula in 1974 by POPOV and KRYLOV (1977), Table VI. In 1978 this peak was noted earlier, in the middle of January (MYRCHA and TELIGA 1980).

After the moulting season the fur seals left the island simultaneously with the coming of the ice fields in the second half of April and May. Very interesting were the observations in winter, in the second half of June and July, when the colonies of emigrating fur seals arrived (Table VI). Their density per 1 km² of frozen surface of Admiralty Bay (131,3 km²) was in 1980 as follows: July 0.77 specimens, August 0.06; September 0.08; October 0.01. According to STARCK and SUSZCZEWSKI (1982), these results are in contradiction to the generally accepted hypothesis that in winter the whole population of fur seals migrate beside the zone of dufting ice. It must be added, however, that the winter peak was observed at the time when the bay was frozen (In 1980 so also was Bransfield Strait). Perhaps this peak was caused by the emigration of fur seals from Deception Island, where underwater geysers appear (in the western part of the atoll), thus providing better conditions for the fur seals to prolong their stay there in autumn and winter. The census of fur seals taken along the inner coast of Deception Island (Port Forster) gave 1650 animals (on 20th March 1974), mainly concentrated between Furmarole Bay and Collins Pt. When the coastal waters froze the fur seals migrated in a northern direction. Migrations seemed to be the main cause of the observed irregularity in the appearance of large groups in winter and their later, gradual retreat from July to October. In the authors' opinion most of the fur seals migrate northward as a result of the moving in ice fields, while the smaller part of the population from Deception Island remain here throughout the winter.

In the region of Admiralty Bay no spring migrations were observed before the breeding season (with the exception of a single observation of 220 fur seals in November 1978 — MYRCHA and TELIGA 1980). It cannot be excluded that the breeding colonies from Livingston Island migrate at this time northwards from King George Island.

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STRESZCZENIE

Teren badań obejmował całe wybrzeże Wyspy Króla Jerzego wraz z sąsiednimi wysepkami. Systematyczne obserwacje nad rozmieszczeniem i liczebnością uchatek w cyklu rocznym prowadzone były w latach 1979—1981 w rejonie Zatoki Admiralicji na 20 km odcinku wybrzeża od Italia Valley do Red Hill (mapa 1). Liczenia w pozostałych częściach Zatoki Admiralicji odbywały się mniej regularnie (ilość liczeń została wykazana w tab. I). Liczenia zimowe prowadzone były w czasie odmiennych warunków atmosferycznych (w roku 1979 Zatoka nie zamarzła; natomiast w roku 1980 Zatoka była zamarznięta od lipca do połowy października). Ocenę liczebności uchatek na całej Wyspie Króla Jerzego przeprowadzono w roku 1981 w okresie najliczniejszego ich występowania, tj. w lutym i w marcu.

Uchatki przybywały do Zatoki Admiralicji na okres linienia, który w latach 1979—1981 przypadał na koniec stycznia, luty i marzec. W okresie letnim uchatki preferowały odcinki wybrzeża z wąskimi plażami piaszczysto-żwirowymi pod osłoną klifów w sąsiedztwie otwartego morza. Po zakończeniu linienia uchatki emigrowały w okresie nachodzenia pól lodowych, tj. w drugiej połowie kwietnia i w maju. W końcu czerwca i w lipcu stwierdzono ponowny wzrost liczebności, spowodowany obecnością osobników z zimowej fali migracyjnej. Na podstawie jesiennych obserwacji z marca 1980 roku wysunięto hipotezę, że zimowa migracja spowodowana jest późniejszym zamarzaniem podgrzanych wód w atolu Wyspy Deception. Część tych osobników migrujących zostawała na zimę aż do października (tab. II, VI). W zimie 1980 roku większość uchatek przebywała na zamarzniętej Zatoce (tab. III), w pobliżu obrywów lodowych klifów wnikając w głąb fiordu.

Na całej Wyspie Króla Jerzego wraz z przylegającymi wysepkami stwierdzono w roku 1981 obecność 4400 dorosłych uchatek, rozmieszczonych w 28 rejonach wybrzeża (mapa 2, tab. V). Najliczniejsze skupienia zlokalizowane były w rejonie Melville Peninsula, Wrona Buttress i Trowbridge Isl. (30,6% uchatek z całej wyspy) oraz między Demay pt. i Patelnia pt. (14,6%). Ustalono też następujące miejsca rozrodu: Stigant pt., Tartar pt., Penguin Isl., Lions Rump i Low Head.

Na podstawie wahań liczebności w rejonie Zatoki Admiralicji w latach 1978—1981 oraz piśmiennictwa wysunięto przypuszczenie, że obecny etap rekolonizacji *Arctocephalus gazella* (PETERS, 1875) na Wyspie Króla Jerzego będą charakteryzowały oscylacyjne wahania liczebności i należy się spodziewać powstawania nowych miejsc rozrodu.

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Plate XXI

Fot. 1 — Old fur seal male *Arctocephalus gazella* in typical environment (Blue Dyke Region) — Fot. B. JABŁOŃSKI

Fot. 2 — Fur seals *Arctocephalus gezella* in the group of elephant seals *Mirounga leonina* — Fot. W. KRZEMIŃSKI

Phot. 1

Phot. 2

Plate XXII

Fot. 3 — Young fur seals *Arctocephalus gazella* on Stigant Pt. (4th March 1981) — Fot. B. JABŁOŃSKI

Fot. 4 — Prof. K. BIRKENMAJER with young fur seal *Arctocephalus gazella* on Stigant Pt. (10th March 1981) — Fot. B. JABŁOŃSKI

Phot. 3

Phot. 4