(c) In the lateral part of the morainic arc, the stones lie transverse to the ridge, suggesting that radial movements were strong when the moraine was formed.

(d) In the terminal part of the moraine, stones lie parallel to the ridge, suggesting accumulation by rolling and thrusting.

(e) The preferred orientation varies with depth, so that great caution is needed in interpreting results from shallow sections.

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A NOTE ON SNOW CRYSTAL TYPES IN THE FALKLAND ISLANDS DEPENDENCIES

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DURING a two year tour of duty with the Falkland Islands Dependencies Survey, I was able to make a visual study of snow-crystal types at two bases. These bases were at Admiralty Bay, South Shetlands (lat. 63° S., long. 58° W.), and Port Lockroy, Graham Land (lat. 65° S., long. 63° W.). The observations were made between 6 February and 30 November 1949 at the former, and between 3 February 1950 and 25 January 1951 at the latter. The Admiralty Bay notes are complete, but unfortunately shipped seas aboard the s.v. *John Biscoe*, flooded, and made illegible, the March 1950 notes and the March, May, June, weather notes for Port Lockroy.

Every endeavour was made to study each fall of snow during waking hours. At Admiralty Bay the base hut was submerged by snow during the Spring, hence the actual passage of weather systems was less easily observable and as a result the crystal type/weather analysis is not so full. Also for each station the exact weather pattern was not always clear.

The somewhat longer snow crystal classification used at the bases has been shortened to fit the tentative nomenclature chosen by the Commission on Snow and Ice[1]. Three types outside this were noted, and have been indicated in the accompanying tables by letters. X is Diamond Dust, which, at Admiralty Bay, gave a magnificent halo display. Y is a sort of spineless Type 5, perhaps akin to Shackleton's "sago-snow" [2].

The tables have been prepared on a basis of percentage distribution. In the temperature classification an entry opposite −3° would refer to an observation when the Stevenson screen temperature was between −2° and −3·9° C. I fully realize that the screen temperature may not

be representative of the air in which a crystal has formed, and that during its descent modifications will take place. However, although it is not possible to amplify these notes by any reference to upper air temperatures, it is felt that the quite well marked differences observed may be worth placing on record. An attempt has been made to show the changes of crystal type during the passage of a frontal depression. To do this the warm sector has been sub-divided and separate figures are given for (a) the period immediately after the passage of the warm front; (b) the main warm sector; (c) the period just before the passage of the cold front. The topography of the areas around each of the bases would tend to emphasize the "overhanging" effect of the cold front at the surface.

TABLE I. (*a*) PERCENTAGE ANALYSIS OF SNOW CRYSTAL TYPES WITH TEMPERATURE AND WEATHER. ADMIRALTY BAY. (TEMP.: 300 OCCASIONS. WEATHER: 148 OCCASIONS)

	TEMPERATURE ° C.												WEATHER TYPE						
	+1	−1	−3	−5	−7	−9	−11	−13	−15	−17	−19	−21	*Pre warm front*	*Post warm front*	*Warm sector*	*Pre cold front*	*Post cold front*	*High pressure systems*	*Snow shower*
Crystal Type																			
1. Plates	3	6	11		3		3	5	5	17			3	5	29	4	2	43	4
2. Stars	70	40	39	41	56	52	48	50	27	17	17		70	53	29	13	32	28	32
3. Columns	17	28	22	12	20	18	18	17	11	8	17		8	10	14	62	29		12
4. Needles			2													2			
5. Dendrites	8	24	16	39	15	24	31	25	46	50	33	50	17	27	14	15	34	29	40
6. Capped Columns			4	3	6											4	2		
8. Graupel		2	2												14				12
X. Diamond Dust									11	8	33	50							
Y. "Sago" Snow	2		4	3		6		3					2	5					

TABLE I. (*b*) PERCENTAGE ANALYSIS OF SNOW CRYSTAL TYPES WITH TEMPERATURE AND WEATHER. PORT LOCKROY. (TEMP.: 500 occasions. Weather: 374 occasions)

	TEMPERATURE ° C.													WEATHER TYPE						
	+1	−1	−3	−5	−7	−9	−11	−13	−15	−17	−19	−21	−23	*Pre warm front*	*Post warm front*	*Warm sector*	*Pre cold front*	*Post cold front*	*High pressure systems*	*Snow shower*
Crystal Type																				
1. Plates	2	6		2			7	32	17	25	25			2	6	14		3	21	
2. Stars	39	40	39	50	55	57	47	24	83		25			61	49	55	10	17	48	27
3. Columns	8	11	12	16	15	12	13	12			25						37	35		8
4. Needles				2																
5. Dendrites	31	24	28	22	22	19	33	32		50		100	100	25	18	25	47	25	19	32
6. Capped Columns	10	10	6	8	6					25	25			6	15	16	6	16	8	8
8. Graupel	6	5	4											4	9			3		19
X. Diamond Dust																				
Y. "Sago" Snow			1	2										1						3
Z. Granular Snow	4	4				6								1	3			1	4	3

It is not my intention to comment on these tables as they are presented solely as a small contribution to other investigations which may be in progress. However, it is worth while noting the apparent preponderance of plate forms in connexion with warm fronts, and of columns and dendritic forms with cold fronts.

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