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Catch of Harp Seal, Hooded Seal, and Bearded Seal at West Greenland 1793-1964

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Dr. Paul Hansen has requested the writer to give a short summary of his view of the heavy fluctuations in the occurrence of Harp Seal, Hooded Seal and Bearded Seal in West Greenland, and to draw a comparison to the fluctuations at Newfoundland. The writer has not, unfortunately, had the opportunity to discuss the material with experts, and would therefore welcome any comments which the Norwegians and Canadians may wish to add.

At the top of fig. 1 is shown a curve of the average drift-ice advance in Davis Strait for the months of May and August (A), i.e. the early and the late drift-ice, and (B) shows the sun spot curve. It appears that each sun spot maximum generally correlates with a drift-ice minimum. The heaviest drift-ice advances occur during the periods between the sun spot maxima. Each approximately 11-year drift-ice period is again divided into two or three smaller ice advances, i.e. one half or one third of the sun spot period, respectively. Most Greenlandic animal populations display much the same fluctuations (with averagely 3-4 or 5-6 years between the maxima).

In the middle of fig. 1 is shown a curve of the average drift-ice advance in Davis Strait for the months of May, June, July and August (in 31-year sliding averages). This curve falls in three stages, i.e. a stagnation stage (C), a pulsation stage (D), and a melting stage (E). After 1960, the latter appears to be succeded by another stagnation stage.

The existence of these drift-ice stages can be demonstrated centuries back in time, when they determined the size of the populations of land and sea mammals in and off West Greenland (and in the whole Atlantic-Arctic area).

During the entire stagnation stage the drift-ice does not advance far in Davis Strait, but then the Baffin Bay ice spreads far southeast. The Southwest Greenland climate becomes dry, Arctic-Continental. The Reindeer population of West Greenland strongly increases, and the Eider breeding fields are concentrated at Southwest Greenland. The greatest occurrence of Harp Seal is in Disko

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Bugt and farther south; the capacity of the production field is highest when it is situated here. Both at West Greenland and at Newfoundland the Harp Seal is extremely numerous, as is seen from the curves F and I, which include the catch of Hooded Seal (in West Greenland Bearded Seal and Harbor Seal, too; both are few in number). Probably the Hooded Seal, too, occurs sparsely at West Greenland during the stagnation stage.

In West Greenland the catch of Harp Seal follows the rhythm of the sun spot curve (1810-1860). During the succeeding drift-ice stages when Davis Strait experiences an Atlantic climate, the rhythm of the catch of Harp Seal at West Greenland is the opposite of that of the sun spot curve (with the exception of the period before 1910 and that after 1910 which coincide with the transition from drift-ice stage D to drift-ice stage E, when the amount of drift-ice is the same as during stage C).

During the pulsation stage (D) the catch of Harp Seal decreases strongly at West Greenland (curve G which only comprises Harp Seal) The Harp Seal becomes less numerous at Southwest Greenland, but then the population increases farther north in the Umanak Fiord. The reason seems to be the cold East Greenland Arctic water advancing into Davis Strait.

After 1900 the number of Harp Seal goes up again in Disko Bugt. The reason seems to be that the advance of the cold East Greenland Arctic water into Davis Strait moderates again. After 1920 and 1930 the catches increase further, and the Harp Seal shows up at Upernavik and Thule, too.

After that time, the catch has remained fairly large in West Greenland until 1950. During the period 1953-63 it was reduced to half, from about 19.000 to about 9.000 (curve H shows the total catch according to the hunting statistics). A natural increase during the sun spot minimum around 1960 was to be expected, but failed.

Hence the question arises whether the decrease in the catch of Harp Seal at Greenland may be caused by the large catches at Newfoundland during the years of 1962, 1963 and 1964.

Fig. 1 bottom curve shows the catches at Newfoundland according to Thor Iversen 1927 p. 18, (I) from sail ships and steamers, (J) from steamers. It appears that years with great catches at Newfoundland are followed by years with small catches at Greenland. However, it cannot be safely concluded that the decrease in the Greenland catches is due to the increase in the Newfoundland catches; it is possible that the Harp Seal stays away from Greenland under certain drift-ice conditions.

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The exceptional increase in the total catch at Greenland just after 1940 may be due to the discontinued catch at Newfoundland during the war, but on the other hand the increase correlates with the natural rhythm in relation to the sun spot curve, and may consequently just as well have a natural cause.

However, fig. 3 seems to demonstrate a close correlation between the size of the catch at Newfoundland and its decrease and and increase at Greenland. These curves show the actual number of Hooded Seals and Harp Seals caught. The catch at Greenland during the period 1st April 1952 - 31st March 1953 is registered under 1952, and so forth, i. e. the year when the pups were caught at Newfoundland.

With a catch of about 250.000 Harp Seals at Newfoundland, the Greenlanders' catch may reach about 20.000, but if the former rises to about 370.000, the latter is reduced to half. The falling trend at Greenland from 1954-1964 may indicate that the whole population is over-exploited.

Fig. 2 top shows a curve of the year temperature at Upernavik. The low temperatures until 1925 seem to be a direct consequence of the great drift-ice masses in Davis Strait during the pulsation stage (bottom curve). After 1925 the year temperature is at a higher level.

The curve of the August drift-ice advances demonstrates that each drift-ice advance is reflected in a temperature fall at Upernavik.

The curve of the purchase of Bearded Seal skins at Julianehåb (the domestic consumption is not included) shows that the catch is greatest when the drift-ice is at minimum. This is true also of the catch of Hooded Seal (purchase of skins in the whole of West Greenland from Julianehåb to Upernavik).

A comparison between the Hooded Seal curve and bottom drift-ice curve (the latter in 31-year sliding averages) may suggest that the Hooded Seal visited Davis Strait preferably during the drift-ice pulsation stage (1860-1910). The population began declining at West Greenland simultaneously with the decrease in the Davis Strait drift-ice.

After 1910 the Hooded Seal thus seems to prefer feeding grounds outside West Greenland.

The writer has not had opportunity to compare the Greenland Hooded Seal catch to the catch elsewhere.

Copenhagen,
May 24th, 1967.

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West Greenland

Upernavik-Julianehåb

Hooded Seal (Hunting statistic)		Harp Seal (Hunting statistic)	
1952	(1.018) (1/4 1952-31/3 1953)	1952	(18.526)
3	(1.158)	3	(18.726)
4	1.097	4	18.912
5	868	5	15.445
6	592	6	10.883
7	757	7	12.817
8	851	8	16.705
9	777	9	8.844
1960	962	1960	15.979
1	659	1	11.713
2	542	2	8.331
3	885	3	9.873
4	2.198	4	8.722

	Scoresbysund		Angmagssalik	
	Hooded Seal	Harp Seal	Hooded Seal	Harp Seal
1954/55	0	32	201	475
56	1	45	343	178
57	3	5	261	180
58	5	40	410	133
59	4	30	361	360
60	8	7	726[y]	168
61	4	15	1100[x]	350
62	2	13	346	219
63	2	10	324	211
64	2	20	314	215
65	2	7	543	122

y) 414 by KGH
312 by Greenlanders

x) 773 by KGH
327 by Greenlanders

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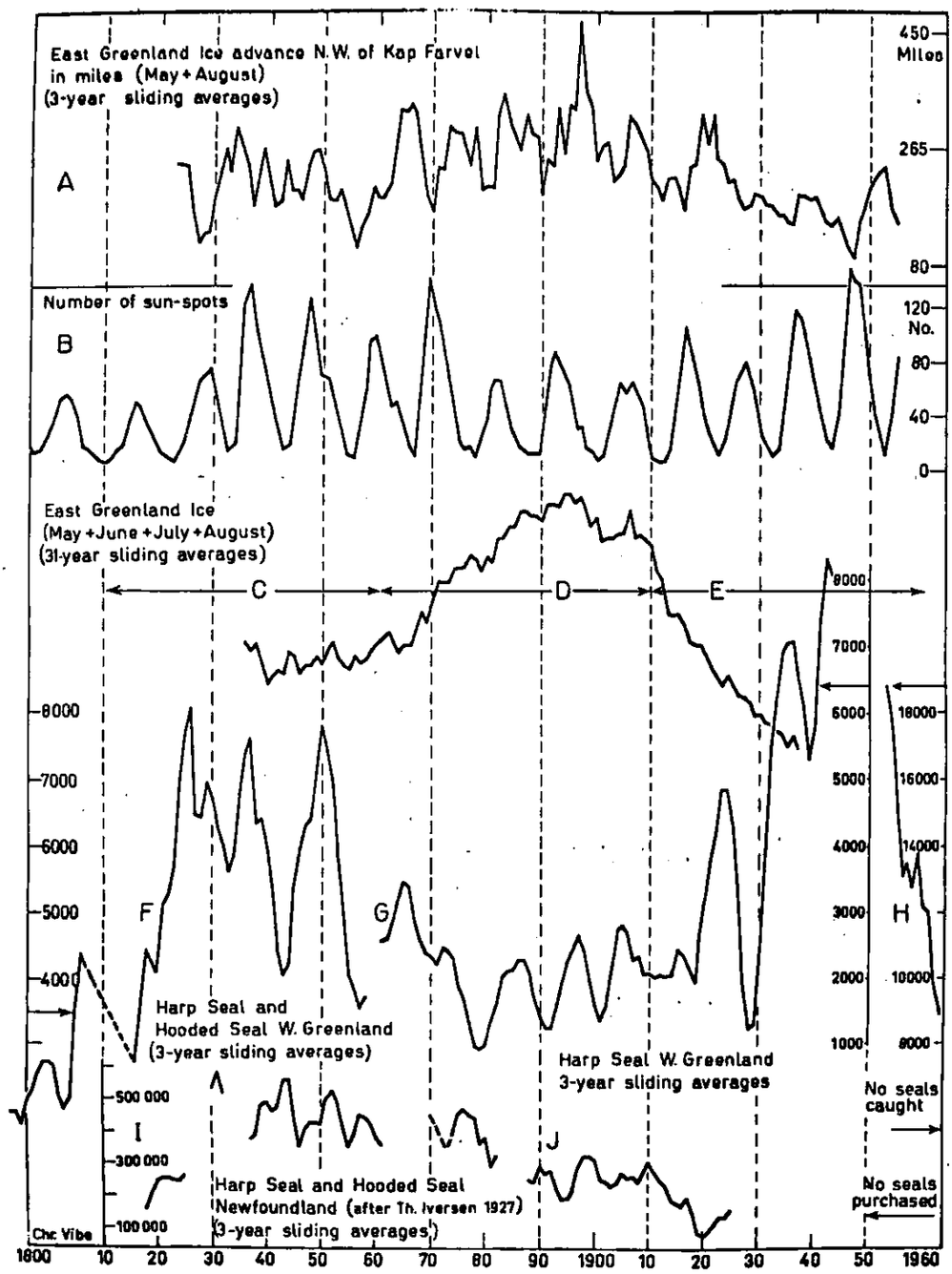
East Greenland Ice advance N.W. of Kap Farvel
in miles (May + August)
(3-year sliding averages)
A
450
Miles
265
80
Number of sun-spots
B
120
No.
80
40
0
East Greenland Ice
(May + June + July + August)
(31-year sliding averages)
C
D
E
9000
7000
6000
5000
4000
3000
2000
1000
18000
16000
14000
12000
10000
8000
8000
7000
6000
5000
4000
F
G
H
Harp Seal and
Hooded Seal W. Greenland
(3-year sliding averages)
Harp Seal W. Greenland
3-year sliding averages
No seals
caught
No seals
purchased
500 000
I
300 000
100 000
J
Harp Seal and Hooded Seal
Newfoundland (after Th. Iversen 1927)
(3-year sliding averages)
Chr. Vibe
1800
10
20
30
40
50
60
70
80
90
1900
10
20
30
40
50
1960

Fig. 1

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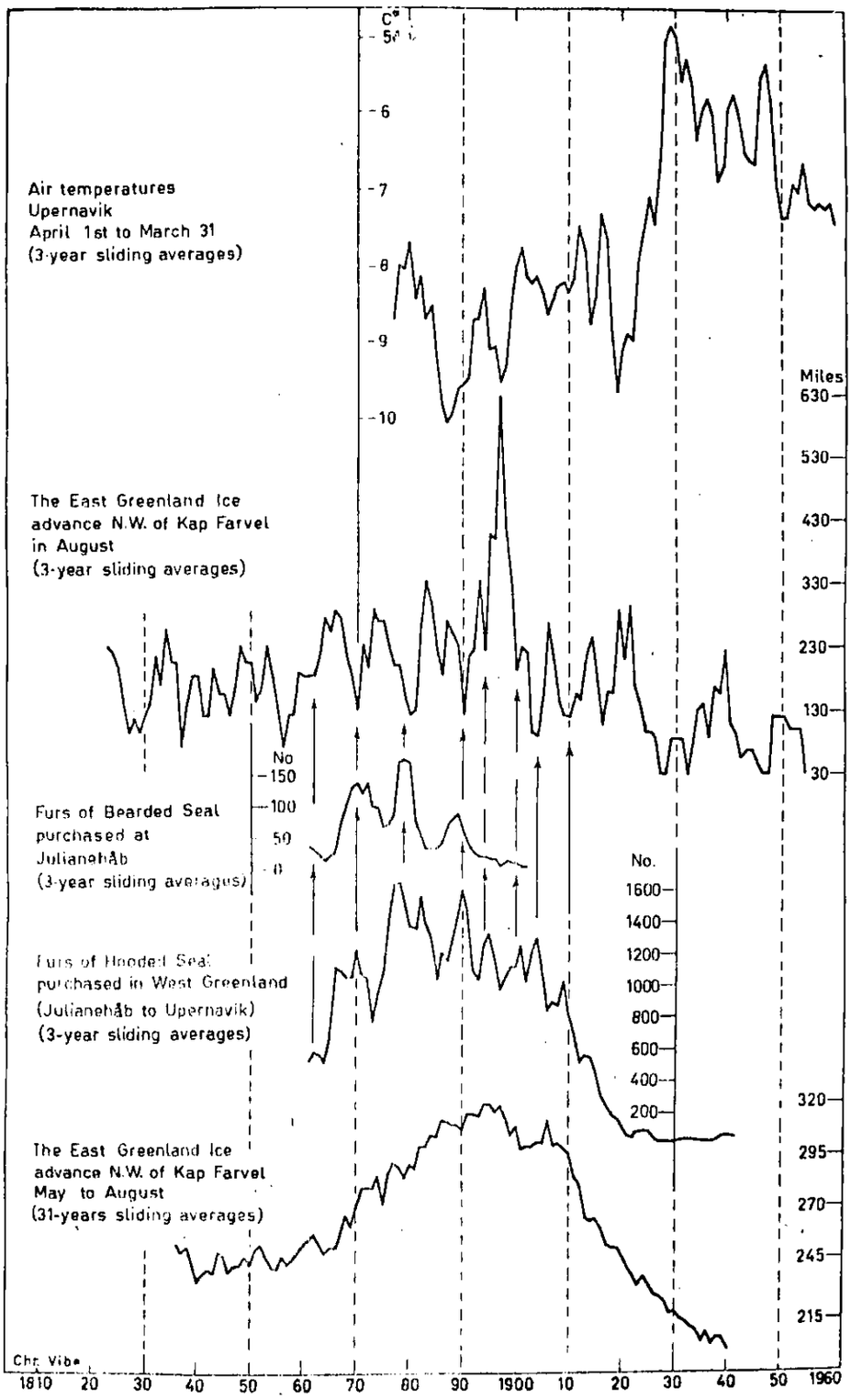
Air temperatures
Upernavik
April 1st to March 31
(3-year sliding averages)
C°
-5
-6
-7
-8
-9
-10
The East Greenland Ice
advance N.W. of Kap Farvel
in August
(3-year sliding averages)
Miles
630
530
430
330
230
130
30
No
150
100
50
0
Furs of Bearded Seal
purchased at
Julianehåb
(3-year sliding averages)
No.
1600
1400
1200
1000
800
600
400
200
Furs of Hooded Seal
purchased in West Greenland
(Julianehåb to Upernavik)
(3-year sliding averages)
The East Greenland Ice
advance N.W. of Kap Farvel
May to August
(31-years sliding averages)
320
295
270
245
215
Chr. Vibe
1810 20 30 40 50 60 70 80 90 1900 10 20 30 40 50 1960

Fig. 2

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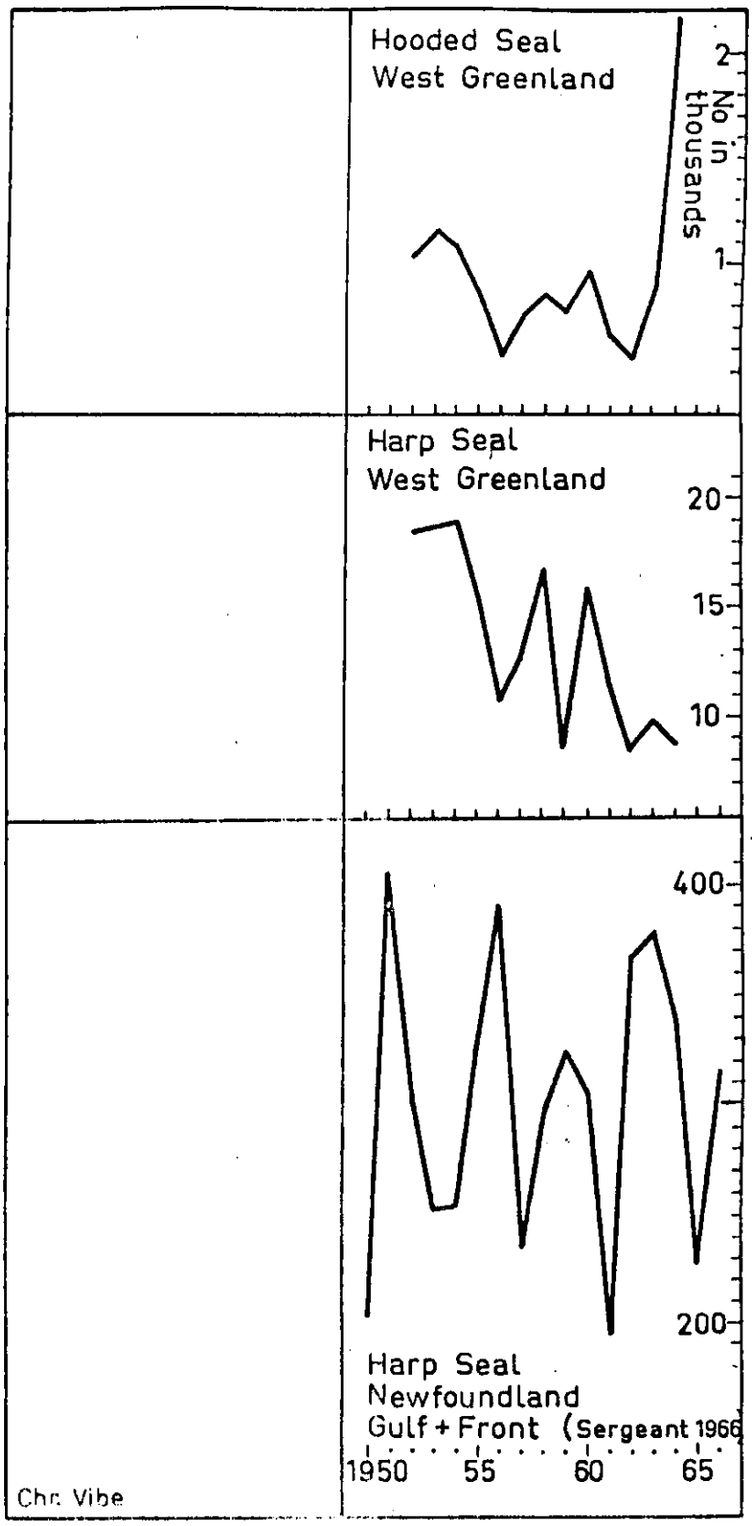
Hooded Seal
West Greenland
No in thousands
2
1
Harp Seal
West Greenland
20
15
10
400
200
Harp Seal
Newfoundland
Gulf + Front (Sergeant 1966)
1950
55
60
65
Chr. Vibe

Fig. 3