

Contextualizing the Second International Polar Year

Early Polar Aviation and Bergen School
Meteorology

Roger Turner
University of Pennsylvania

Polar Gateways Arctic Circle Sunrise
January 23, 2008

US National Weather Service Office, 1997

(Taunton, Massachusetts)

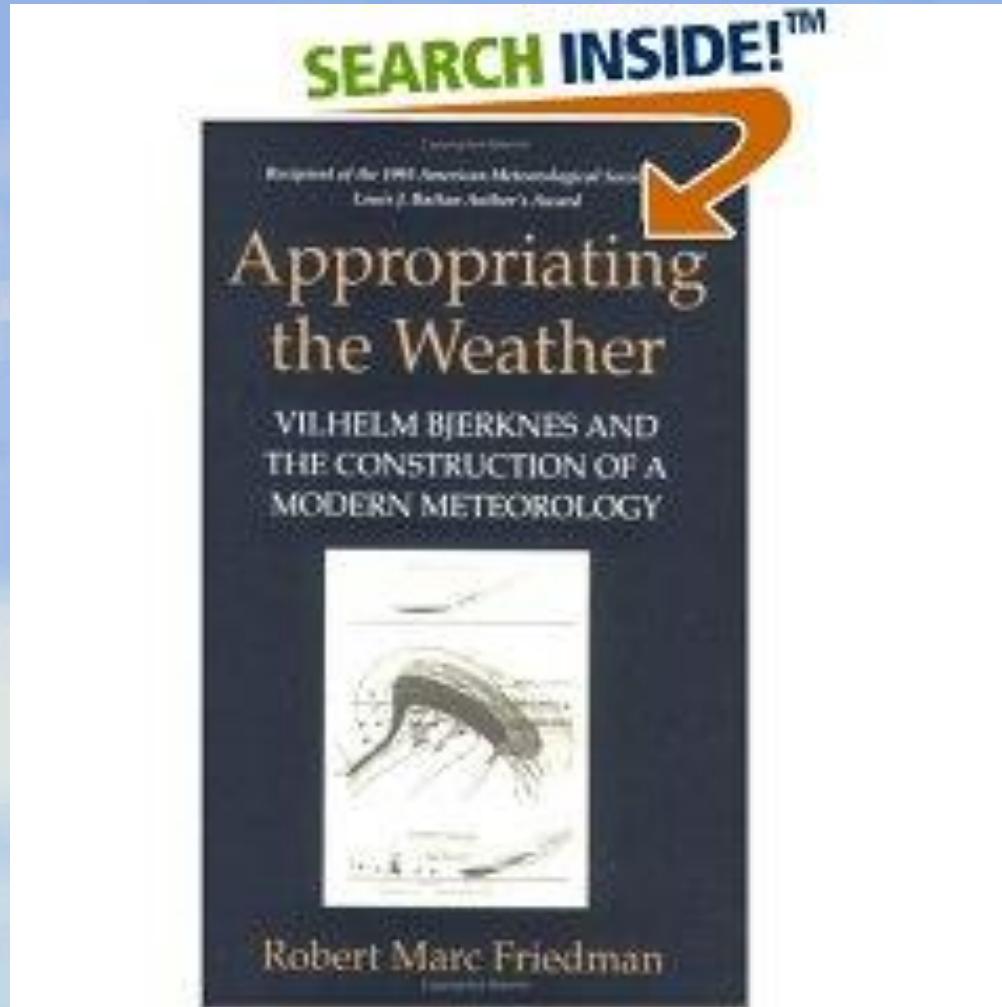


Source: NWS (<http://www.erh.noaa.gov/box/office2.html>)

Meteorology: A Global Science



Appropriating the Weather



Source: Amazon.com

The Bergen School



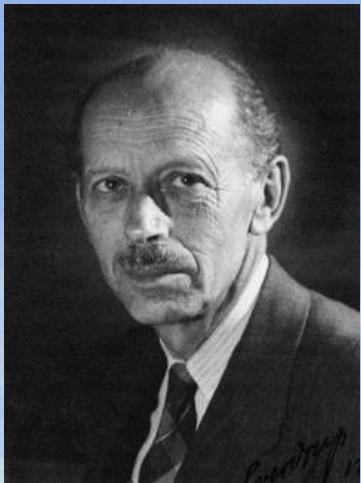
Source: Norwegian Museum of Science and Technology
(<http://www.tekniskmuseum.no/wormpetersen/hallde.htm>)

A Computational Science

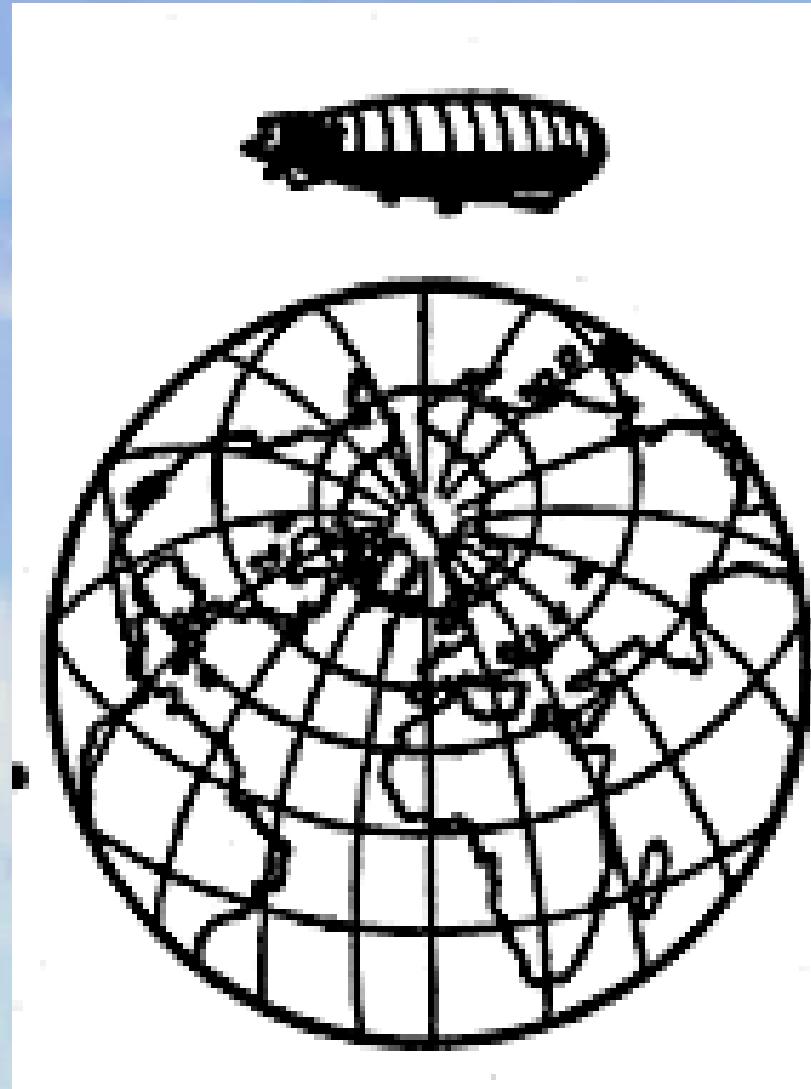


Source: NOAA Central Library (<http://www.photolib.noaa.gov/htmls/wea01830.htm>)

The Spitsbergen School



Aviation and Geopolitics

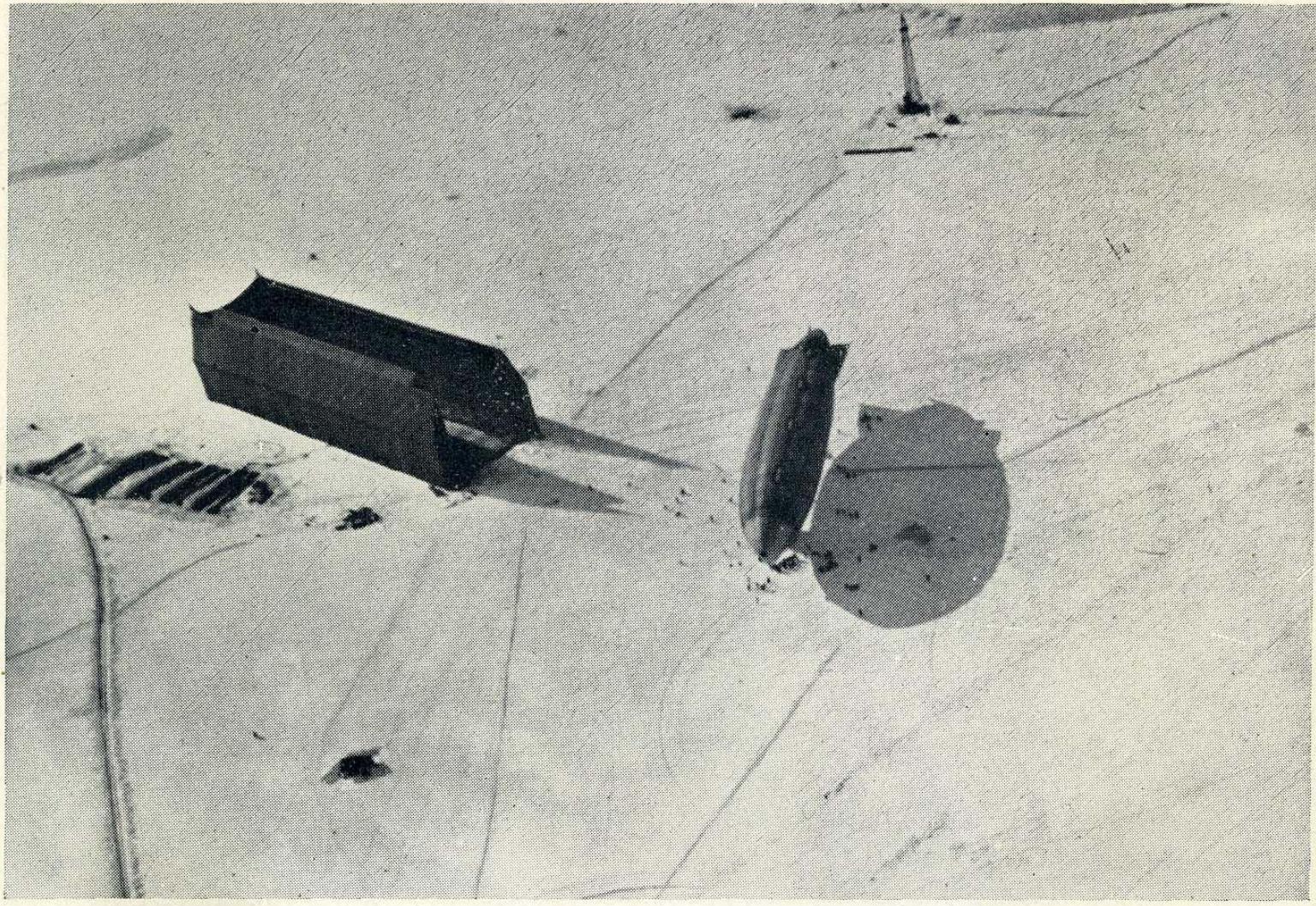


Frontispiece, *The First Crossing of the Polar Sea*, by Amundsen and Ellsworth (1926)

Aviation not yet robust

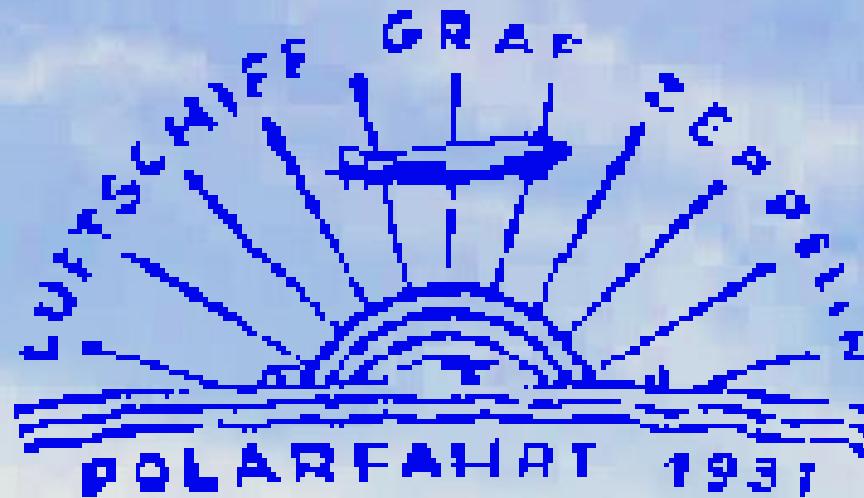


Was the Arctic good for flying?



Source: Amundsen and Ellsworth, *The First Crossing of the Polar Sea*,

AeroArctic Postage Franking



Source: John Dziadecki's website "Zeppelin" (<http://spot.colorado.edu/~dziadeck/zf/stamps.htm>)

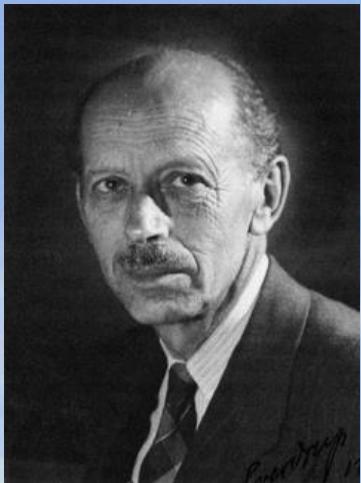
Wegener's Grave and Propeller Sleds



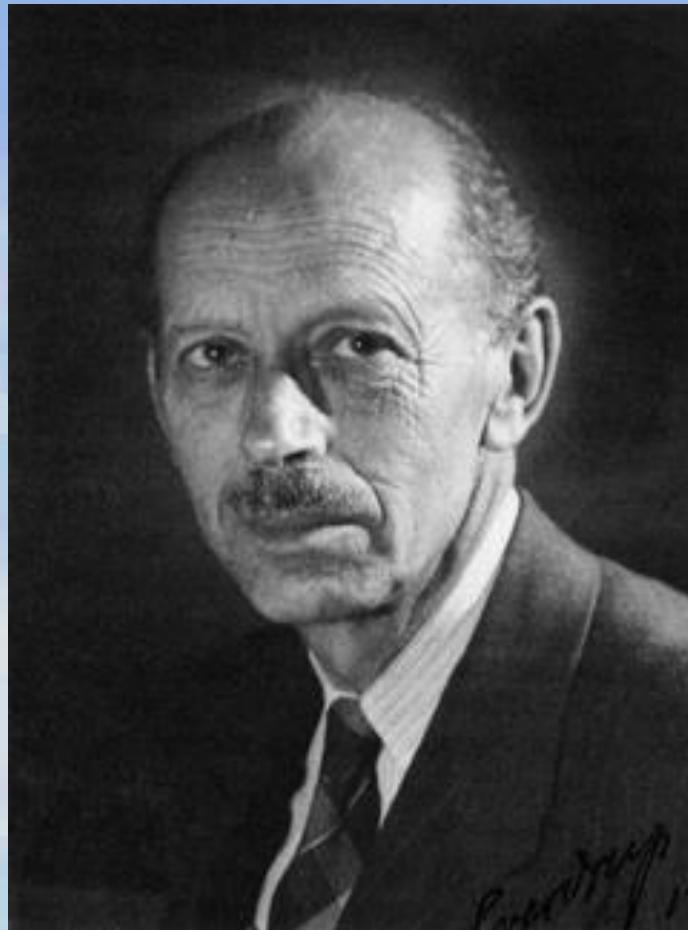
„Das Große Eis“
Aufnahme: Dr. Georgi



The Spitsbergen School



Harald Sverdrup (1888-1957)



Sverre Petterssen (1898-1974)



Petterssen during WWII



Finn Malmgren (1895-1928)



Norge in flight



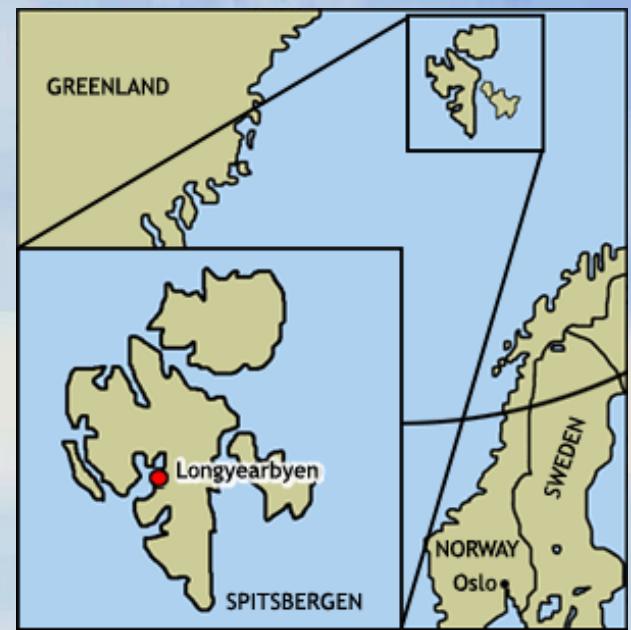
"NORGE" OVER FULHAM, ENGLAND.

Source: Amundsen and Ellsworth, *The First Crossing of the Polar Sea*,

Malmgren Memorial, Stockholm



Jorgen Holmboe (1902-1979)



Three Key Traits

- Experience living in the far north
- Passion for outdoor athletics
- Theoretical attention to the upper air

Petterssen's *Nordland* Home

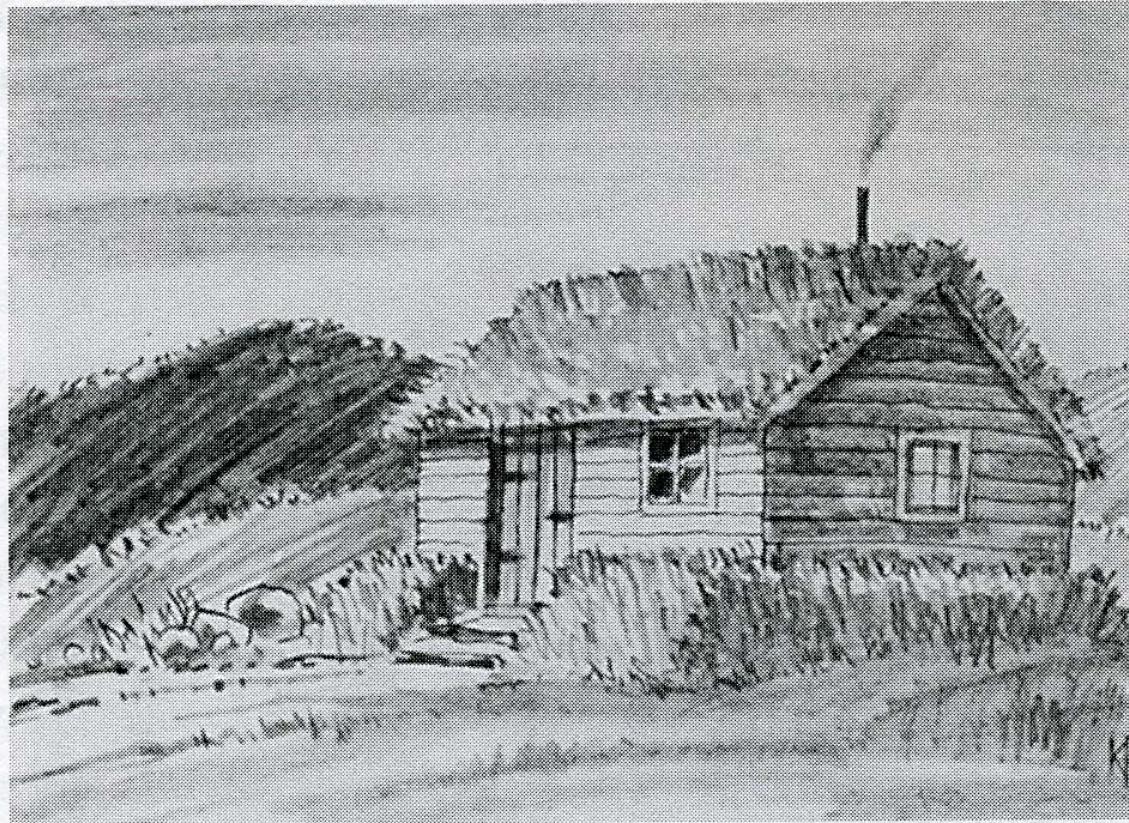


Fig. 1.2: Dear little cabin: our small house close to Reka.

Source: Fleming, *Weathering the Storm*

Capsized *Nordlandsbåt*



Fig. 1.5: The keel is useful, even after a *nordlandsbåt* capsizes.

Source: Fleming, *Weathering the Storm*

Amundsen Memorial in Svalbard



The Maud



Finn Malmgren

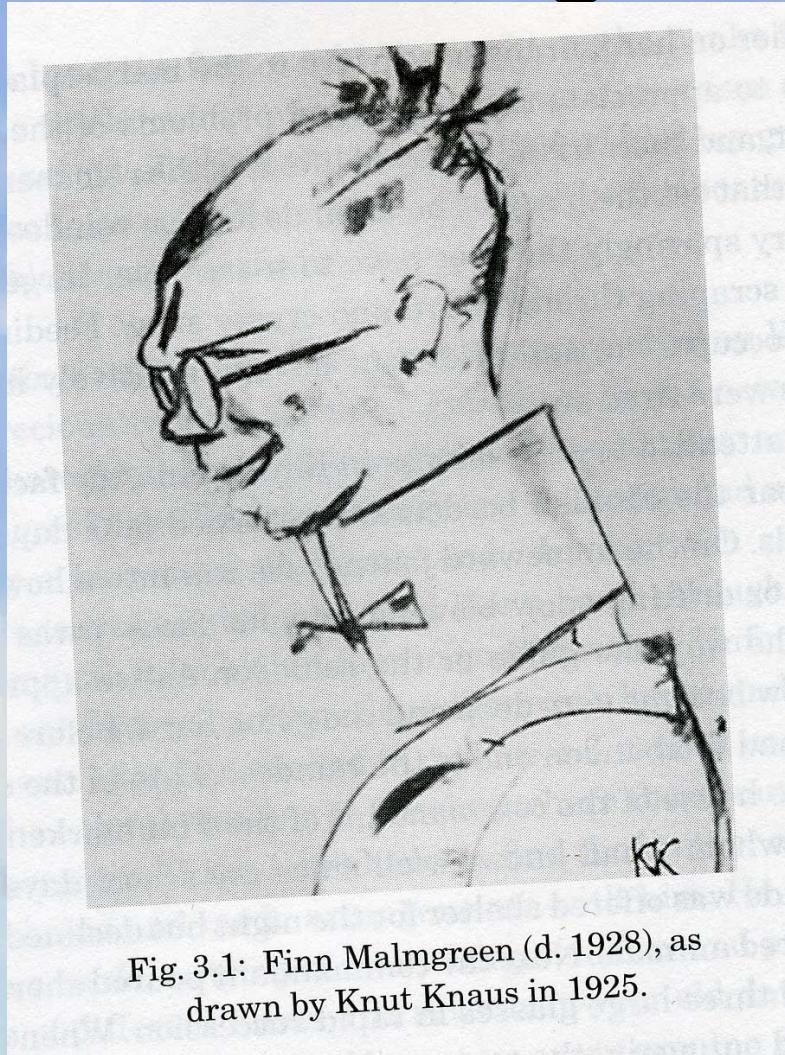


Fig. 3.1: Finn Malmgreen (d. 1928), as drawn by Knut Knaus in 1925.

Knut Knaus drew caricatures of several members of the Bergen School during the mid-1920s.

Source: Fleming, *Weathering the Storm*

Petterssen at Tromsø, 1928



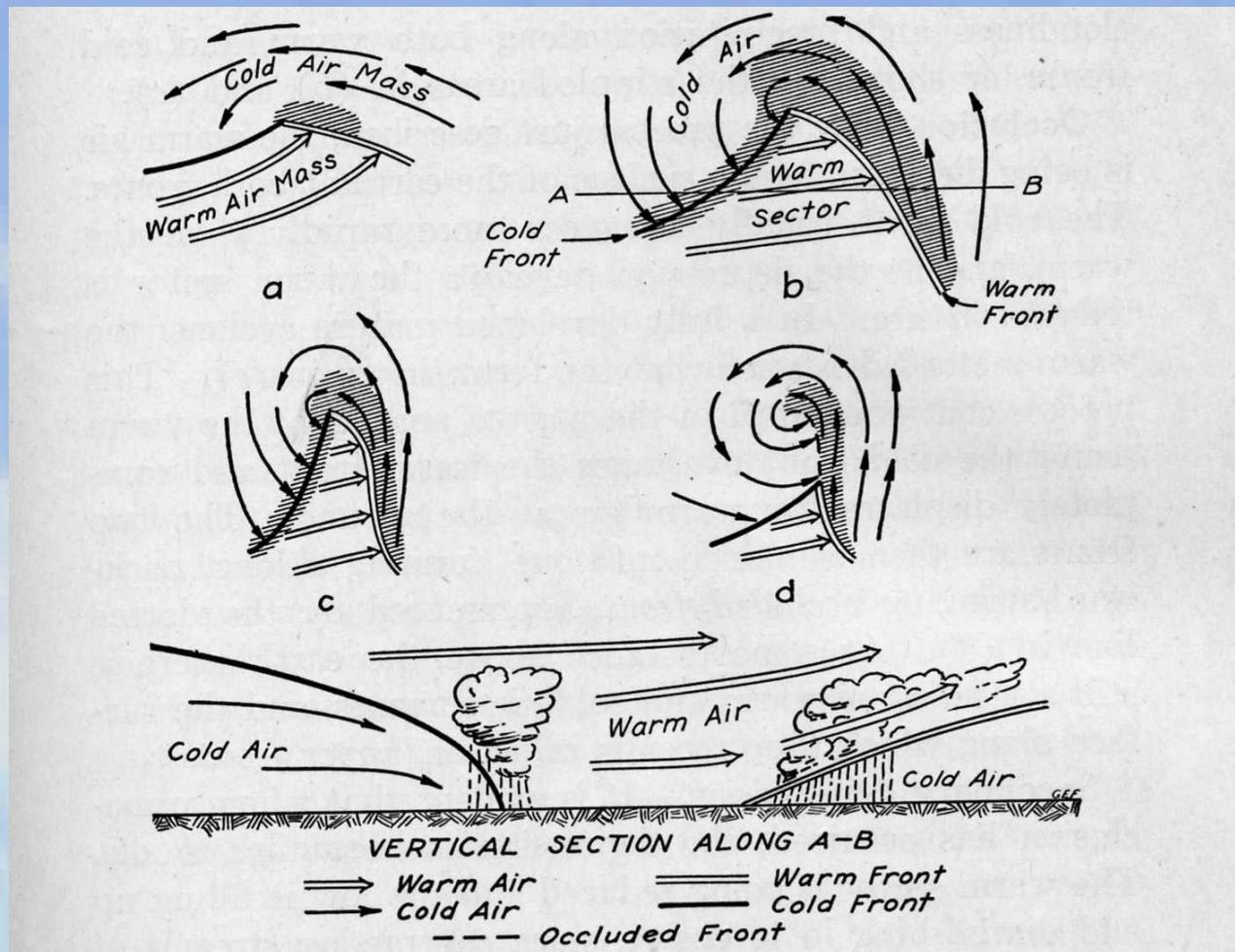
Fig. 3.3: Petterssen on holiday near Tromsø with his sister in 1928.

Source: Fleming, *Weathering the Storm*

Bergen Weather Office, 1918



The Air Mass Model of Cyclogenesis



IPY2 Commission, 1933



Harald
Sverdrup

Fig. 13. INTERNATIONAL POLAR YEAR COMMISSION: COPENHAGEN, MAY, 1933
Back row from left to right: Prof. M. Temm (representing Dr. L. de Marchi), Prof. J. Bartels (representing Dr. J. A. Fleming), Prof. S. Chapman (representing Dr. N. H. Heck), Dr. G. van Dijk, Miss M. Bruun de Neergaard (Secretary), Prof. J. Keränen, Prof. H. U. Sverdrup, Prof. Ch. Maurain.
Front row from left to right: Dr. G. C. Simpson, Dr. A. Wallén, Prof. H. Hergesell, Dr. D. la Cour, Prof. Adolf Schmidt (invited by the Commission), Admiral H. Dominik, Prof. C. Störmer (representing Dr. J. Patterson).

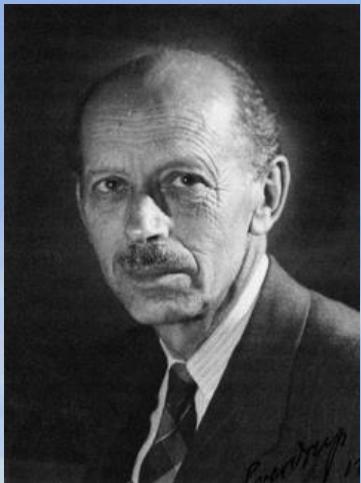
Source: *Annals of the IGY*, v. 1, p. 235

Launching a Radiosonde, 1936

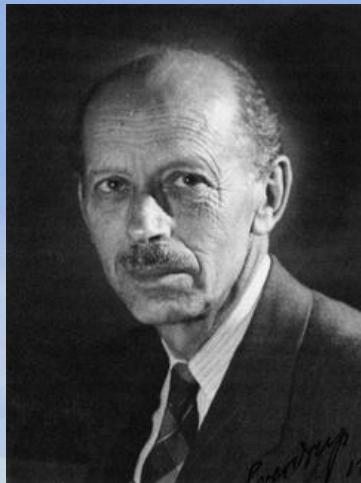


Source: National Bureau of Standards (<http://www.centennialofflight.gov>)

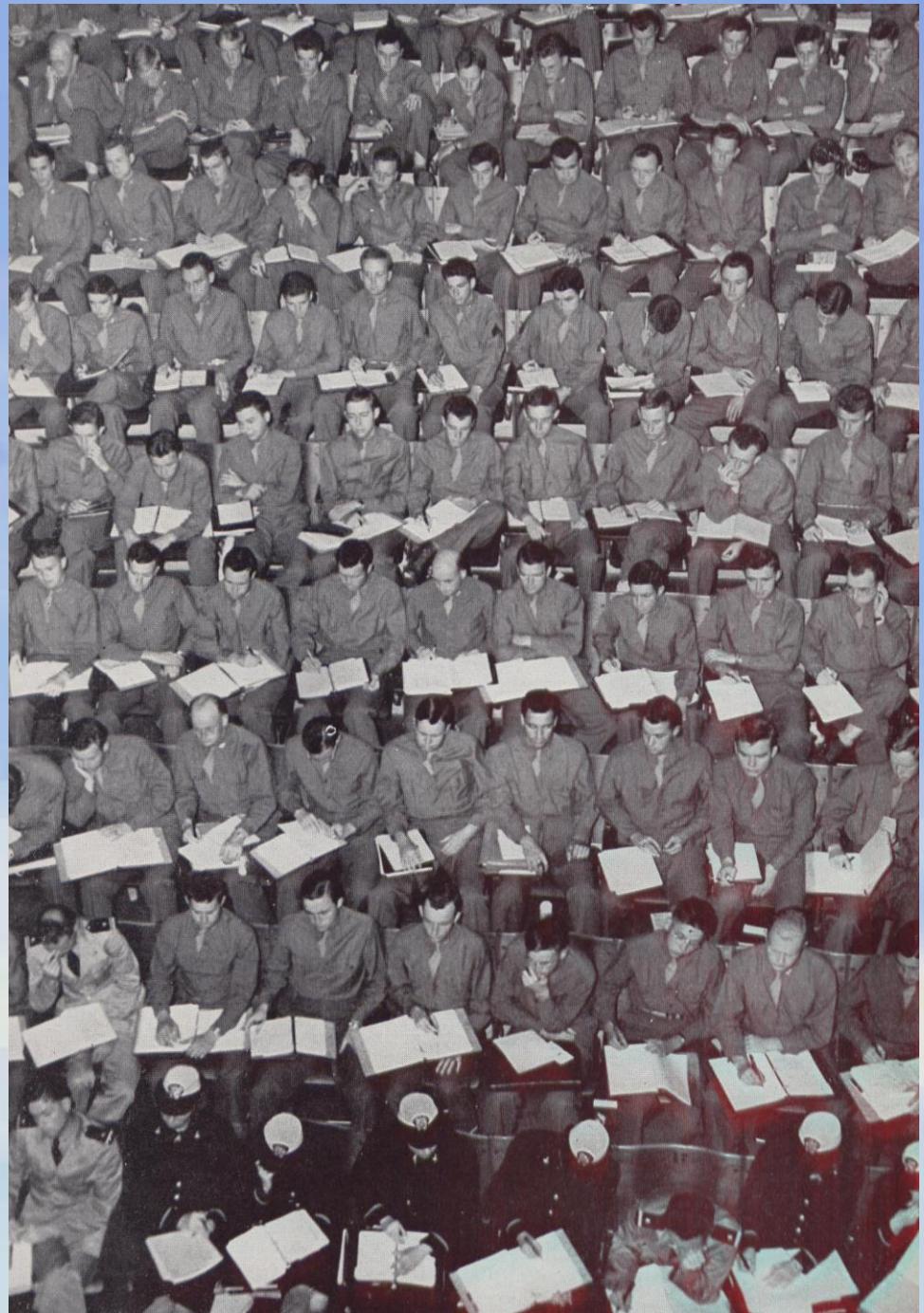
The Spitsbergen School



The Spitsbergen School



The Weather Cadet Generation



Physics Leads Forecasting

“It is clear that the ultimate goals of dynamic and synoptic meteorology can only be obtained simultaneously: the perfect forecaster would be the first man who could completely explain the physical behavior of the atmosphere, and vice versa. ... [I]t is already clear that an understanding of the atmosphere in physical terms is absolutely essential for the synoptic meteorologist.”

--Jorgen Holmboe, George Forsythe, and William Gustin,
Dynamic Meteorology, 1945, p. 1.

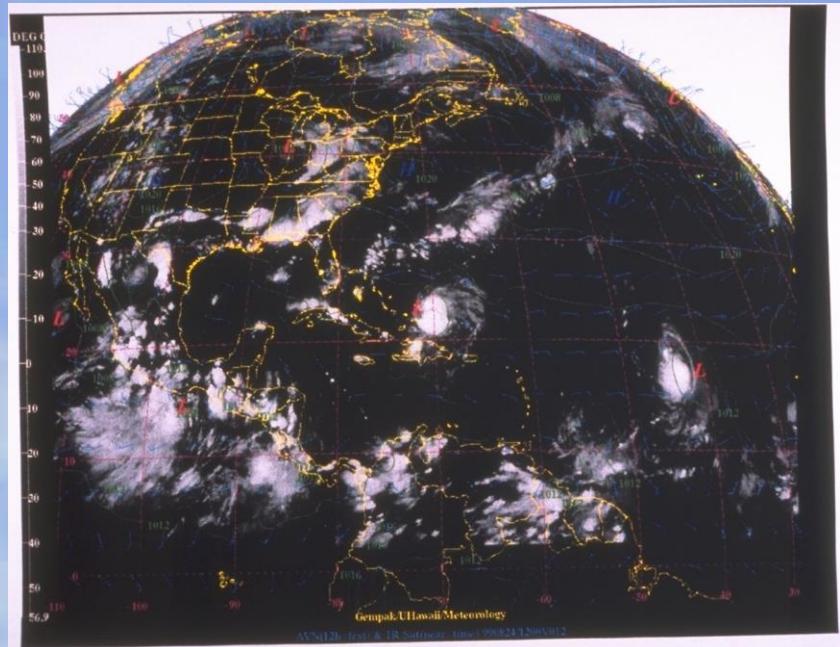
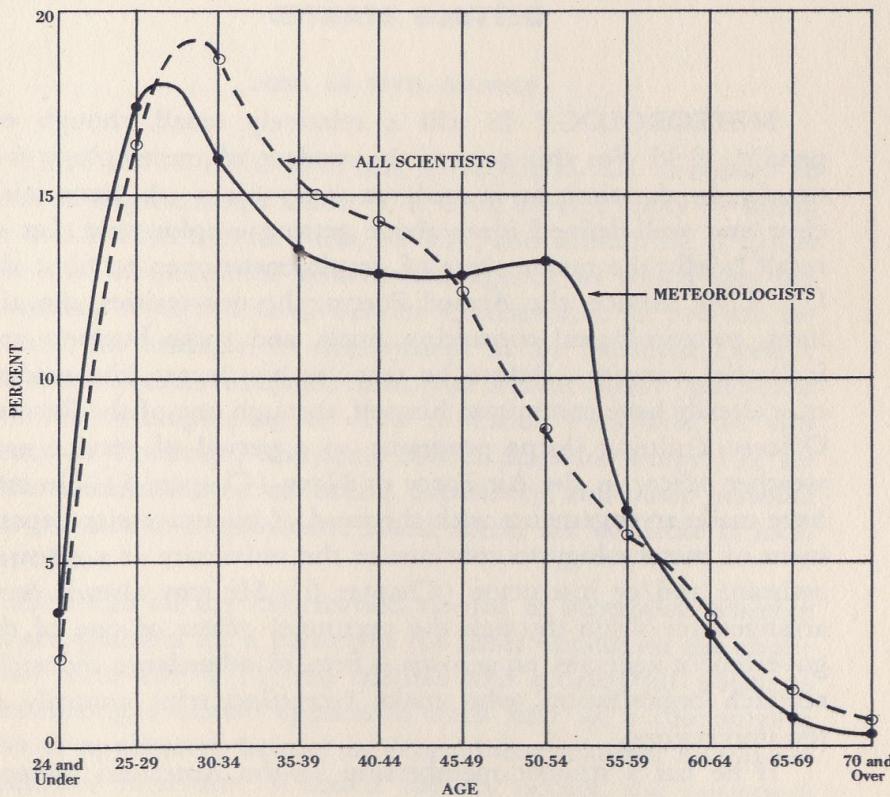


FIGURE 1

Age Distribution of Professional Meteorologists (Atmospheric and Space Scientists) Compared with Other Scientists, 1970



Source: Miles F. Harris, *Opportunities in Meteorology*.
(New York: AMS and Vocational Guidance Manuals, 1972), p. 155.

Weather Cadet Generation in 1970