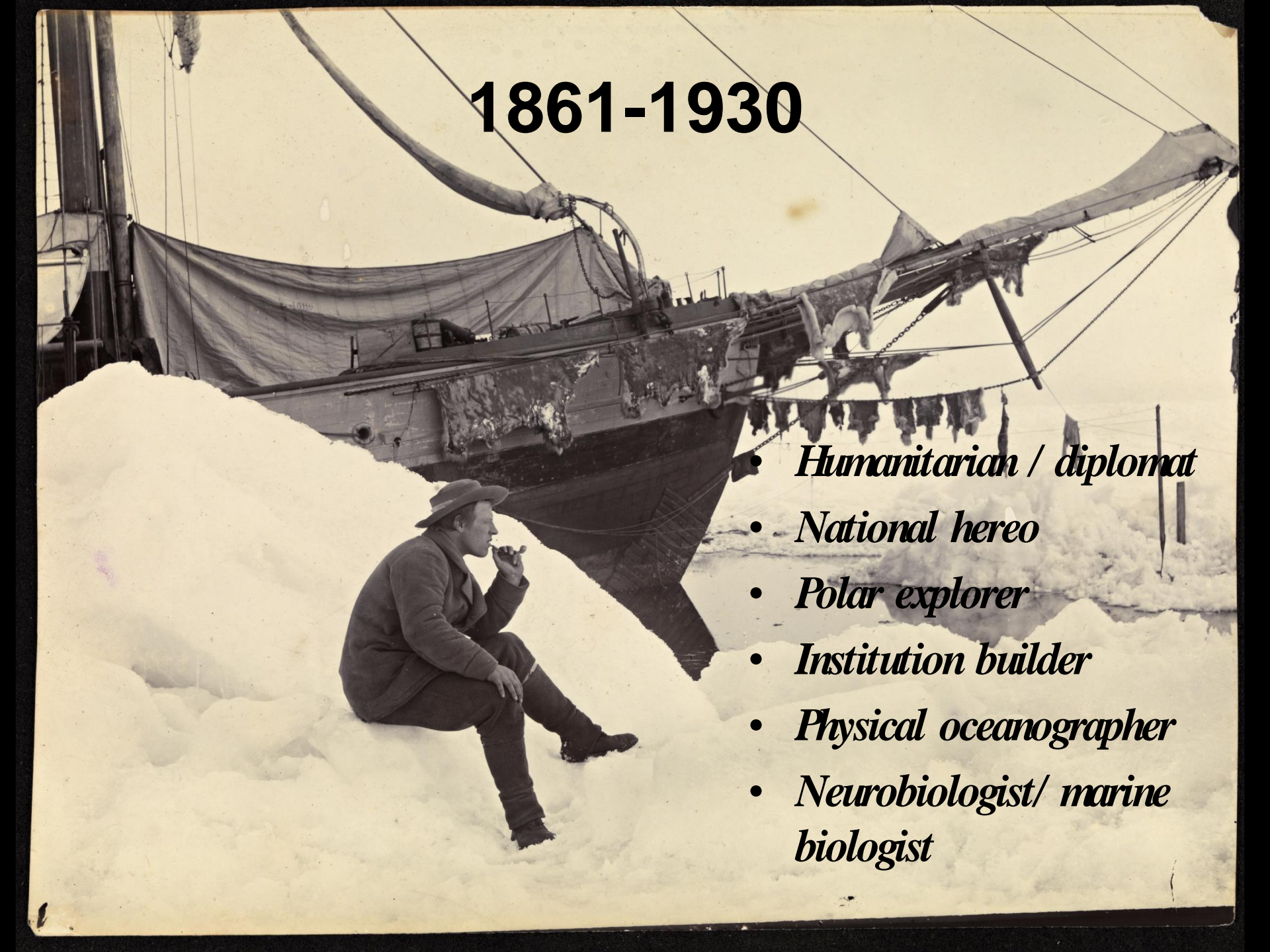


Fridtjof Nansen as marine biologist and physical oceanographer: Is he still a source of inspiration?



NORAD/EAF Nansen:
The legacy of Nansen in marine research:
Relevance to development cooperation in fisheries

Olav Sigurd Kjesbu



1861-1930

- *Humanitarian / diplomat*
- *National hero*
- *Polar explorer*
- *Institution builder*
- *Physical oceanographer*
- *Neurobiologist/ marine biologist*

Nansen as biologist



Christiania: Zoology course 1880-1881

Sealer 'Viking': spring 1882*

Bergen: Bergens Museum (conservator):1882-1887

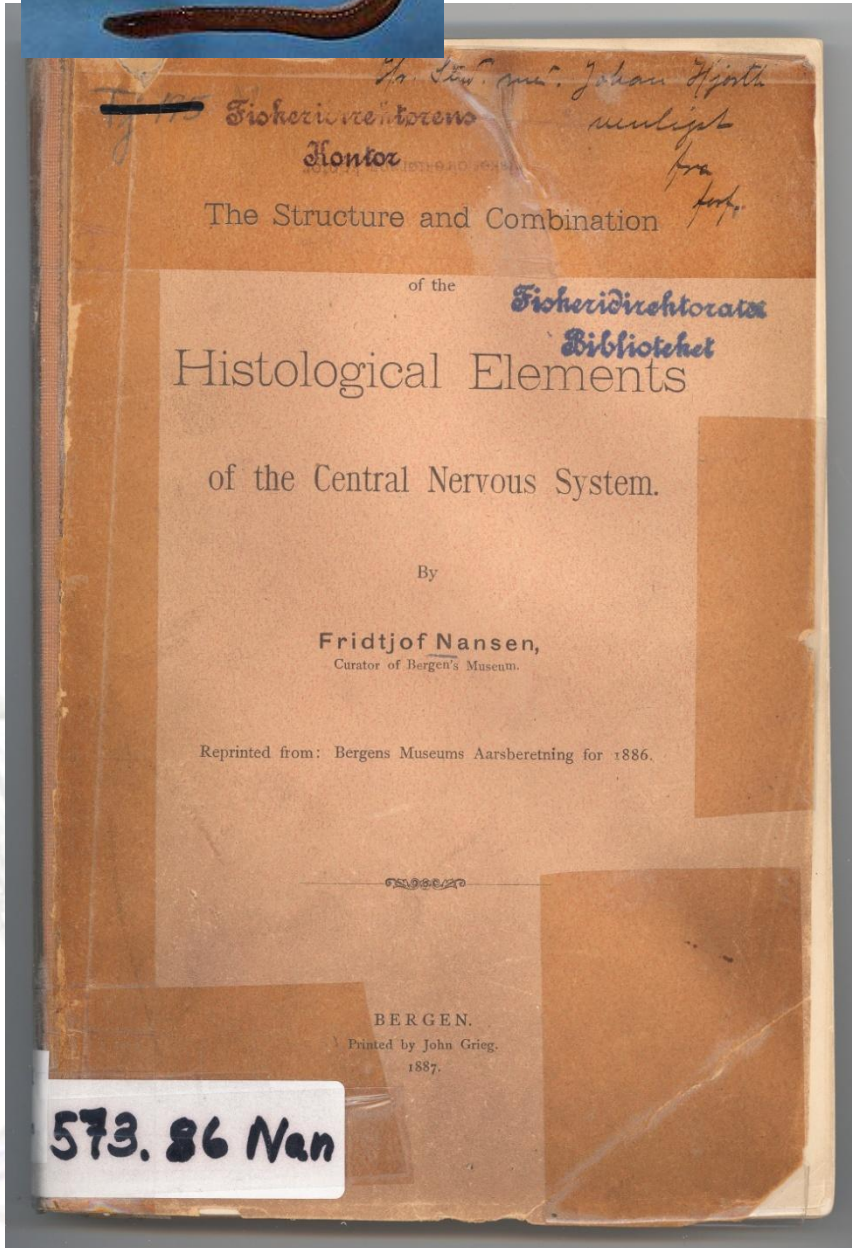


* - *"the first fatal step that led me astray from the quiet life of science"*



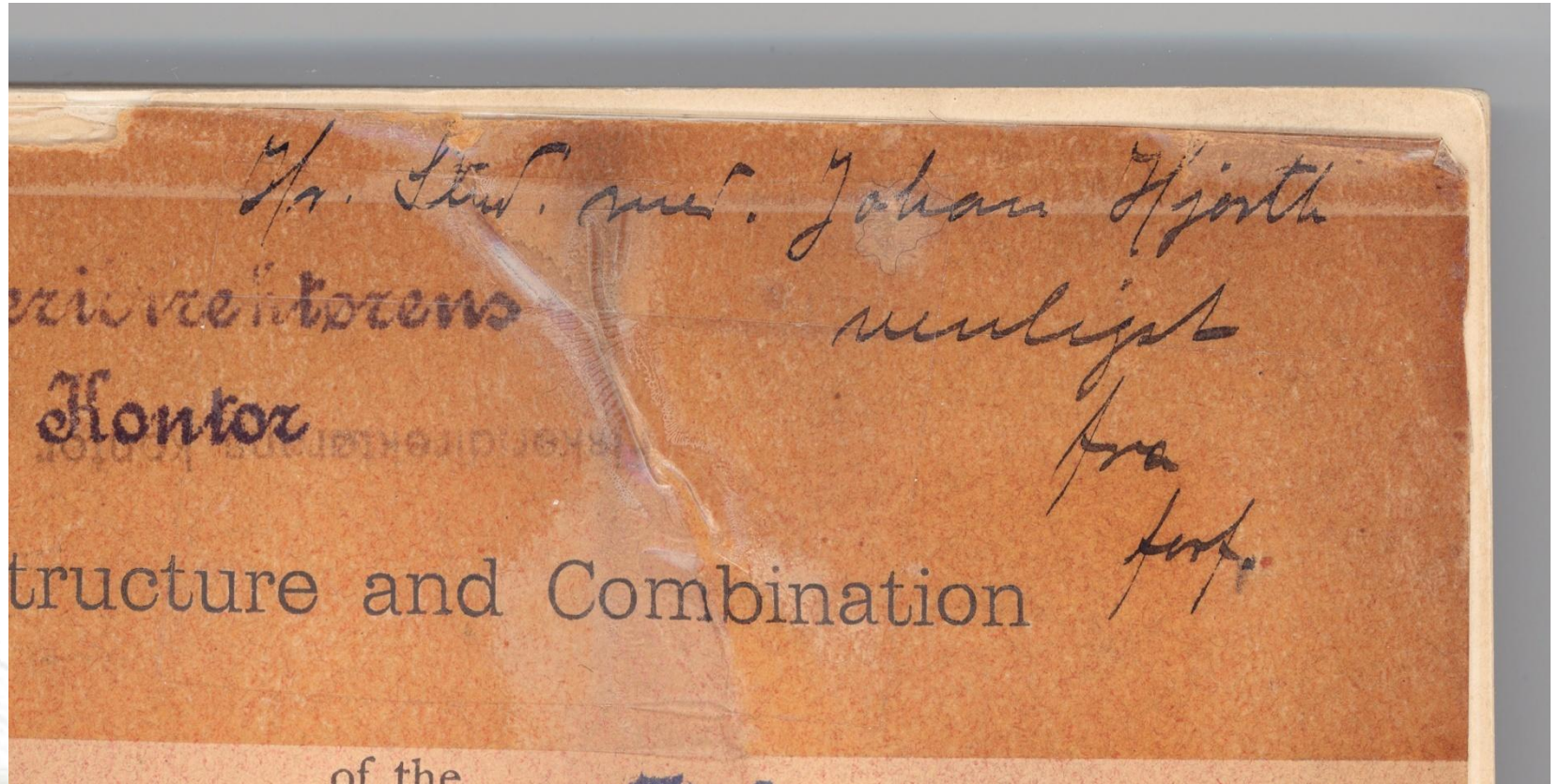


1882-1887 (in Bergen)



- Did not enjoy the life in Bergen but got insight in “practical fishery examinations”
- Worked up material from “Den norske Nordhavsekspedisjonen” (1876-1878) and was at the same time inspired by works of Henrik Mohn and Georg Ossian Sars
- Pre-studies on Atlantic hagfish
- Doctor defence 1888 (U. Christiania)
- Neuroanatomy on a high number of evertebrates incl. hagfish

Involved in recruiting Johan Hjort to marine research



Myzostoma giganteum (Nansen, 1885)



Denne art nærmer sig betydelig M. gigas, Lütken i udseende og bygning. Jeg antog den derfor først for at blot en varietet af denne; men efter omhyggelig undersøgelse finder jeg at maatte opstille den som en ny art, og har givet den navnet M. giganteum for at antyde dens slægtskab med M. gigas.



Some picked words from the doctor thesis (which was in support of the so-called neuron doctrine)

INTRODUCTION:

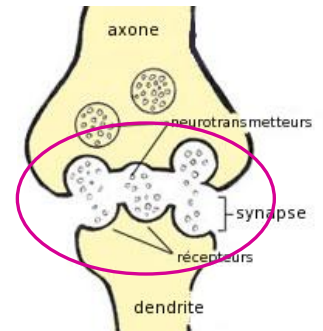
*The progressive history of our knowledge of the histology of the nervous system is **treated of so often**, and so, by previous writers....**repetition**...
I do not think it right to break with the custom*

SUMMARY:

*I am sure that my readers will very soon arrive at the conclusion, that the **more complicated the structure of dotted substance** is – the more highly is the **animal mentally developed**...*

; higher intelligence = more synapses (more dotted substance)

dotted substance



Institution builder



Nansen introduced experimental biology in Norway; he was most central in the establishment of Bergen biological station and Drøbak biological station



Marineholmen, 1892-
Marine zoology. International courses in marine research

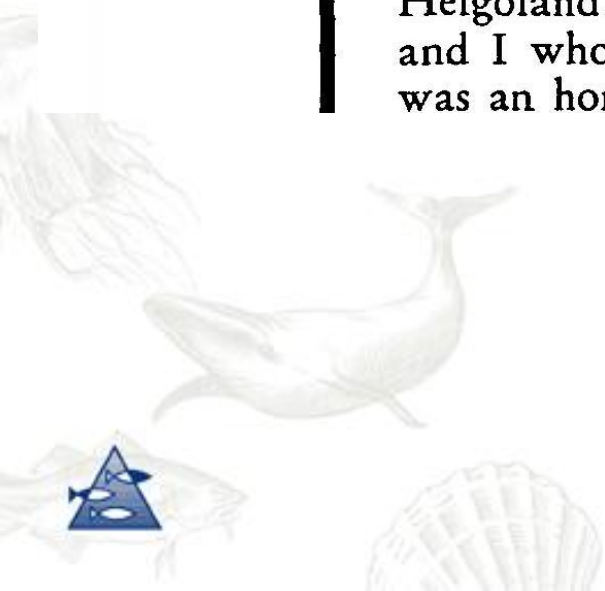


Contributed to the establishment of ICES in 1902

(Nansen became a member of the Bureau (1903-8))

world. The three Swedish pioneers, Pettersson, Gustav Ekman, and Cleve, shared their enthusiasm with Nansen in Norway, and with Martin Knudsen in Denmark. King Oscar I gave countenance and encouragement to the idea, and the first International Conference for Oceanography met in Stockholm in 1899. Svante Arrhenius was there, conspicuous among the other Swedes. Nansen was there, and John Murray, and Otto Krümmel; Victor Hensen came from Kiel and Friedrich Heincke from Helgoland; and Johan Hjort and Martin Knudsen and I who write these lines were among the younger men. It was an honour and an education to be there.

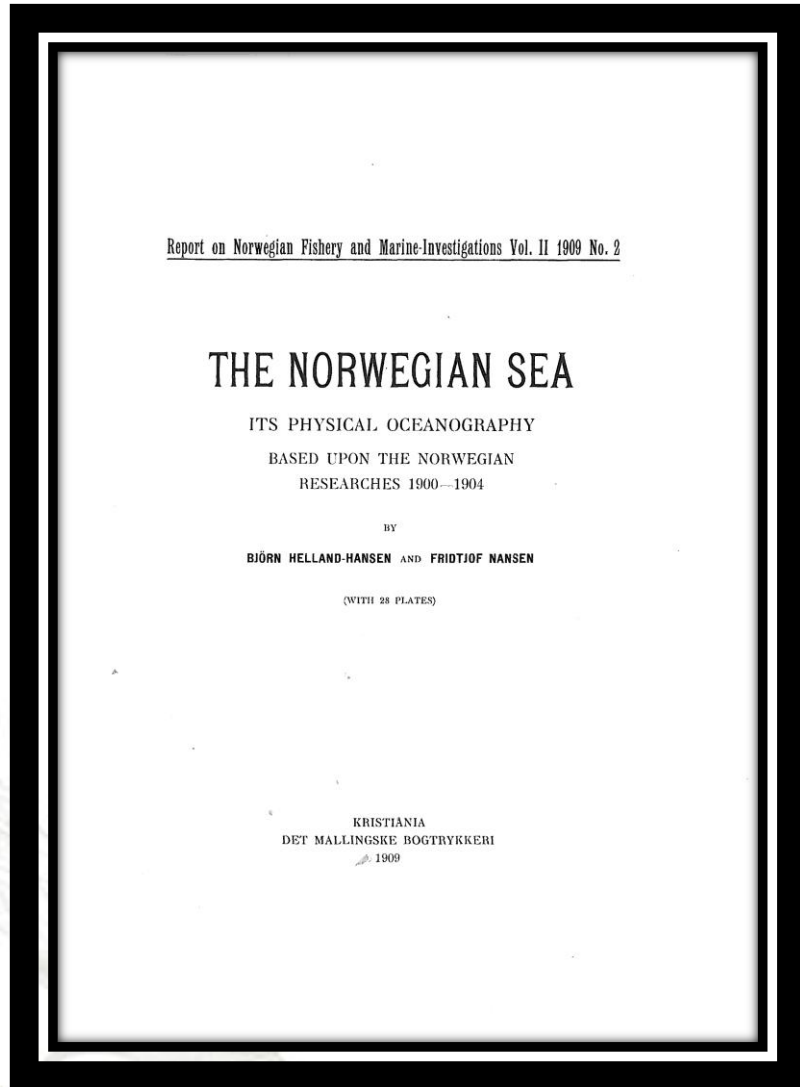
Obituary for Otto Pettersson
written by D'Arcy W. Thompson



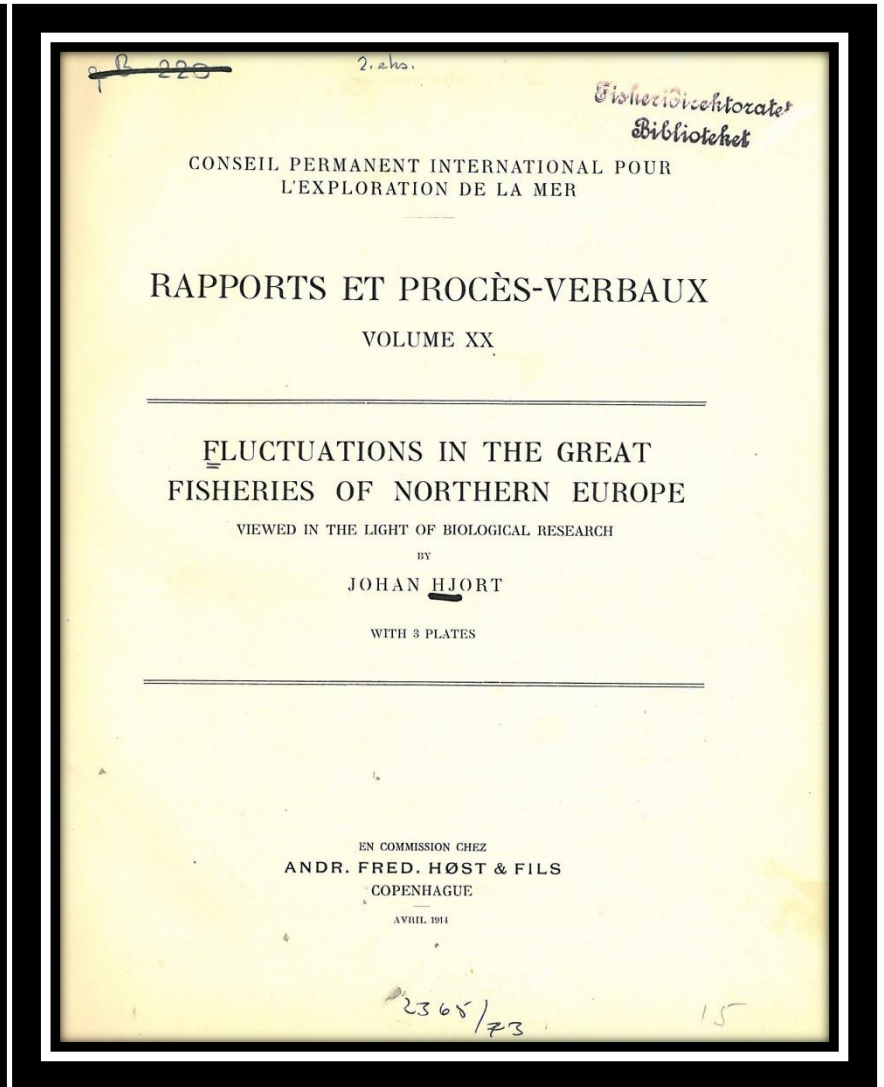
Linking physical oceanography and marine biology



The two master pieces of “The Golden Age of Norwegian Marine Research” (1900-1914)



Pages 204-234



Pages 183-186



*The great secret which has been the problem of the fluctuations in the quantitative yield of the fishery **is of an entirely different character** to that supposed by HELLAND-HANSEN and NANSEN.*

Hjort (1914): page 184.

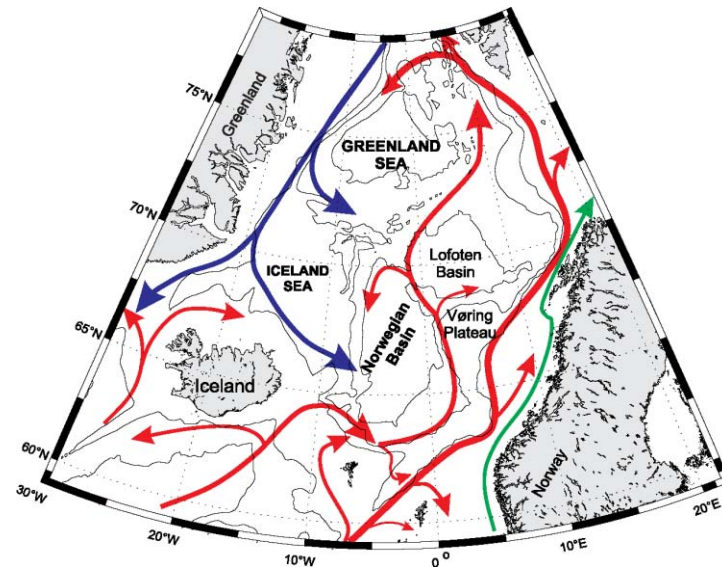


Norwegian Sea surface circulation:

For å sette det litt på spissen så kan vi si at senere forskning har tilført nyanser og flere detaljer men i hovedsak den bekreftet det bildet disse to pionerer gav for mere enn hundre år siden. Sætre (2011): Naturen, p. 122.



The Norwegian Sea (1909), p. 9

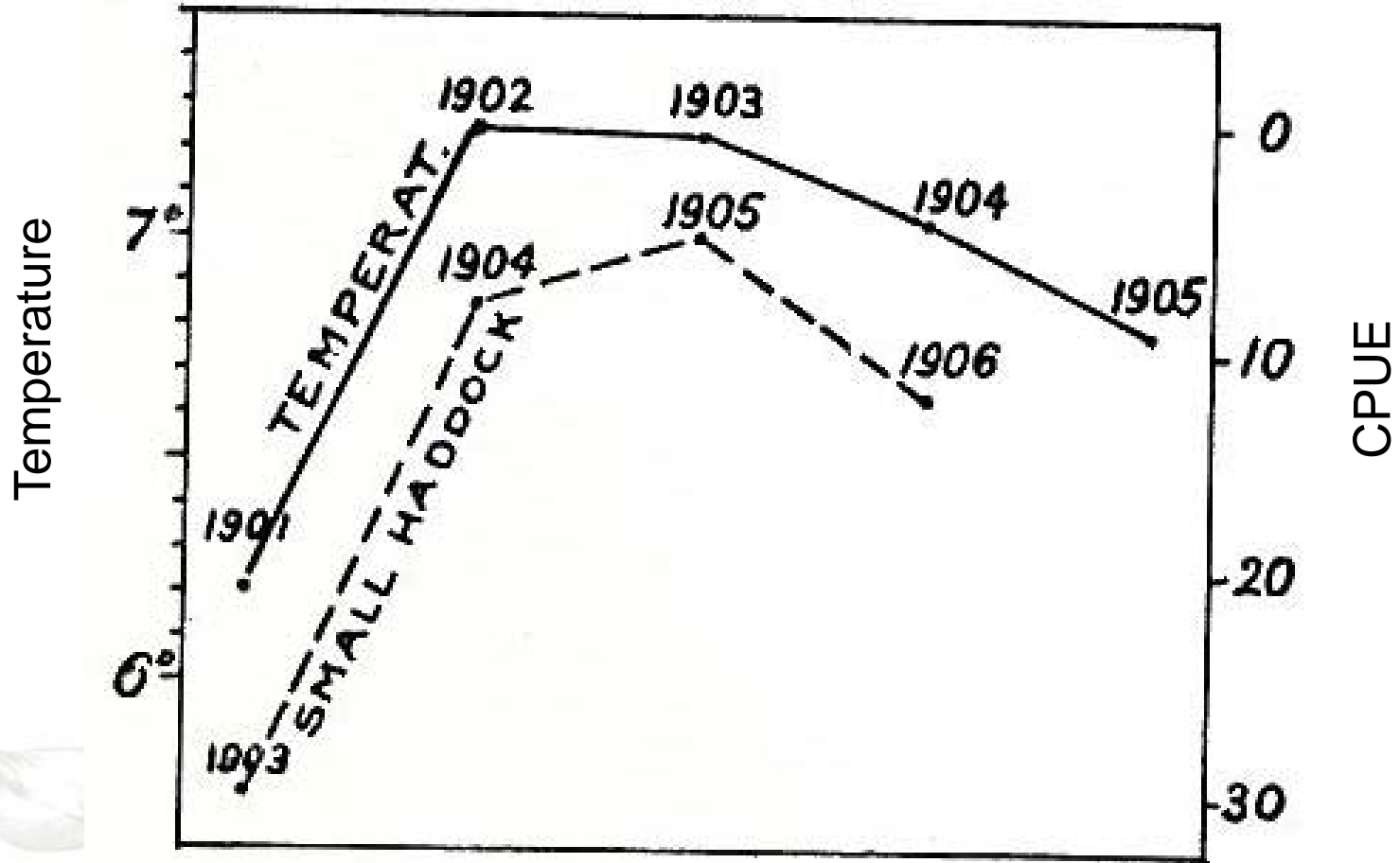


Today

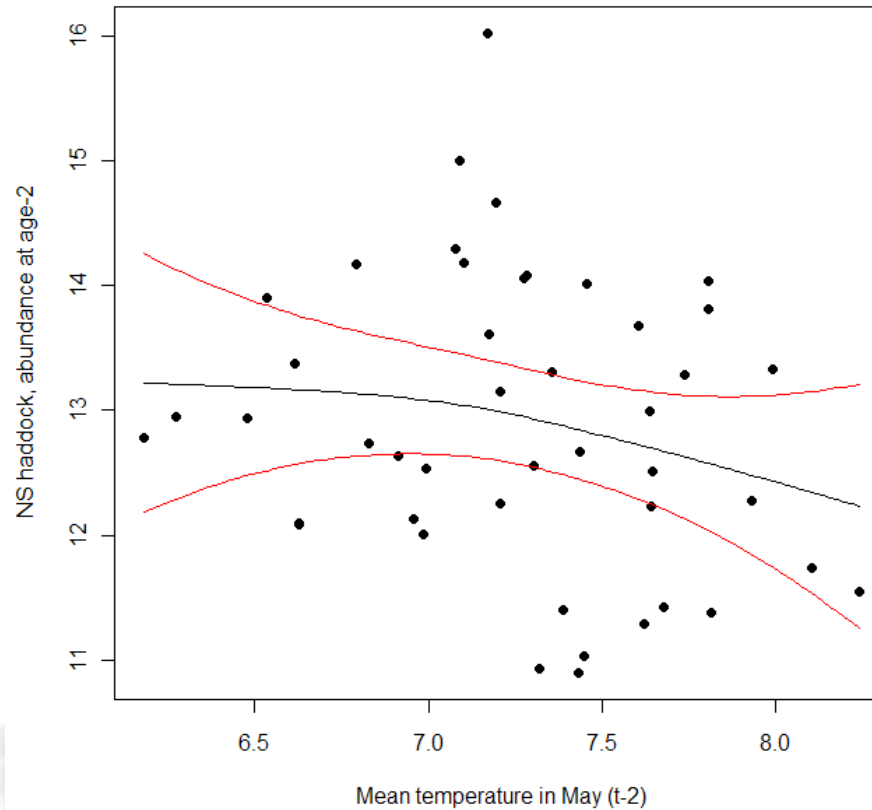


The first recruitment hypothesis (H-H & N: 1909)

ambient temperature (Sognefjord station, May) vs.
year-class strength of North Sea haddock (CPUE)



Redoing the analysis today:



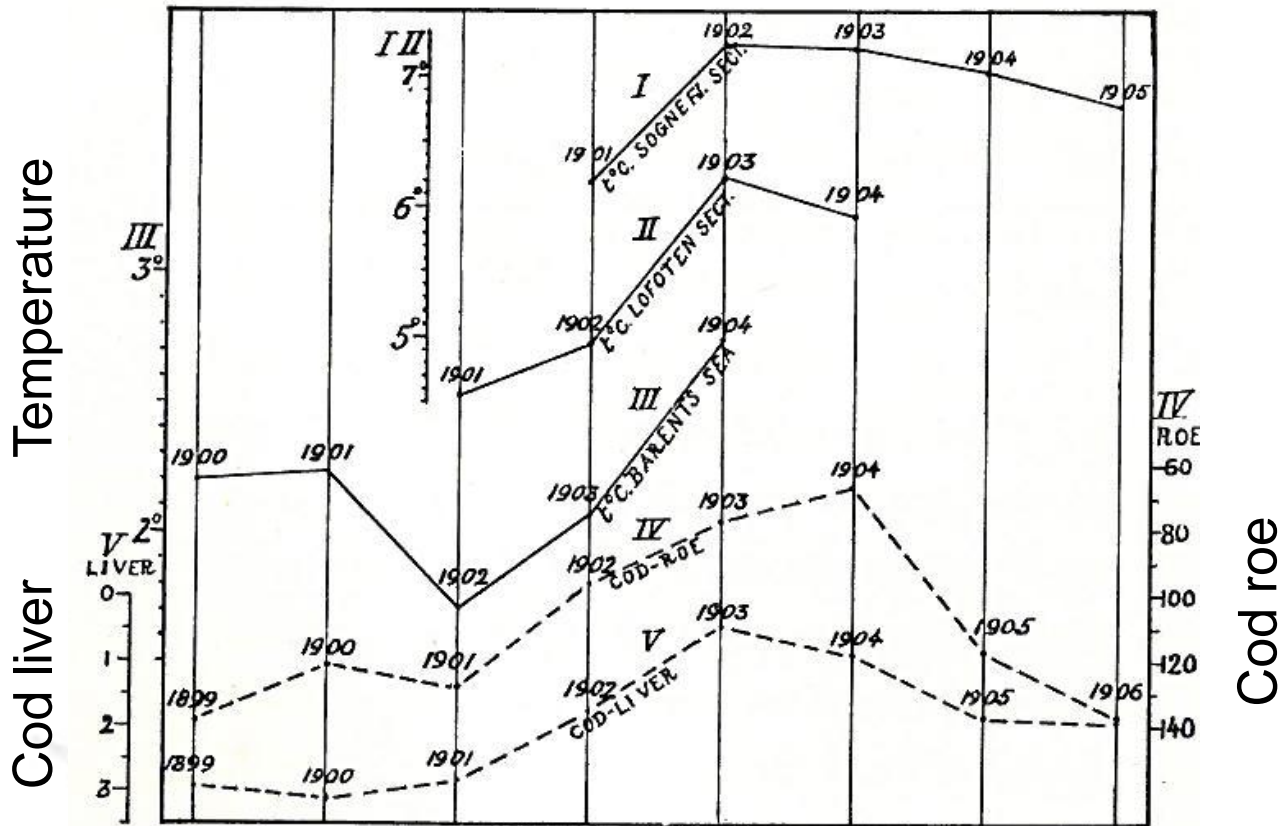
$P = 0.20$;
No significant
relationship

Gjert Dingsør, IMR



The first sign of ecological thinking (H-H & N: 1909)

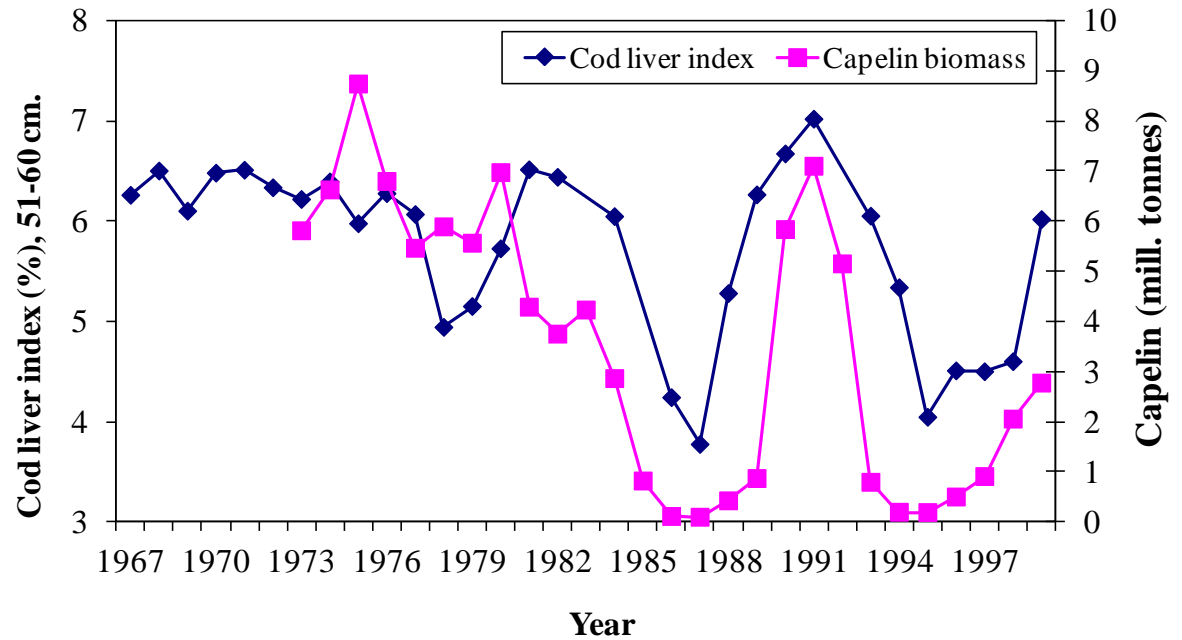
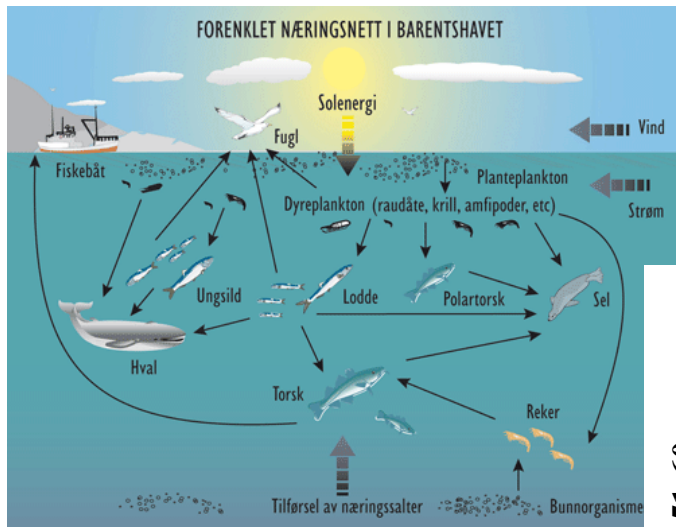
ambient temperature (Sognefjord, Lofoten, Barents Sea) vs. quantity of landed cod roe and liver during the Lofoten fishery



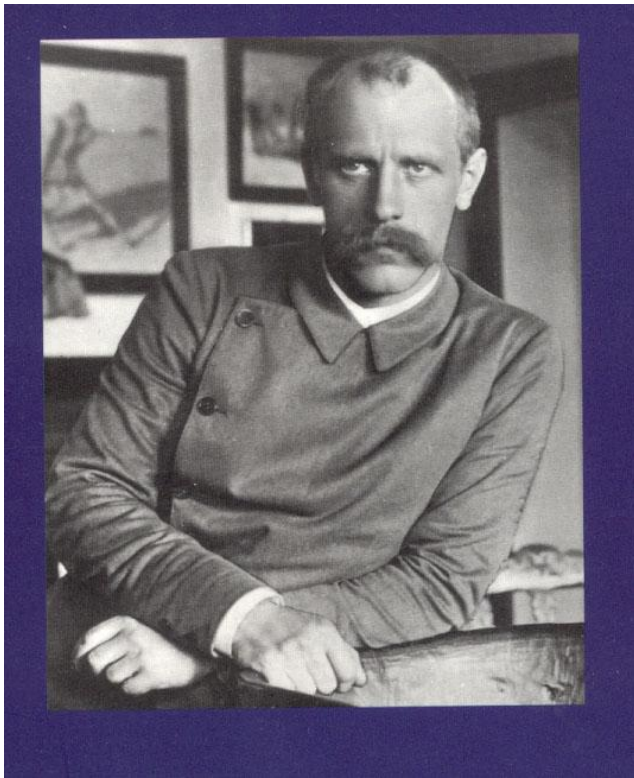
It is to be expected that variations in the physical conditions of the sea have great influences upon the biological conditions of the various species of fishes living in the sea, p. 204



Redoing the analysis today:



Marshall et al. 1998



CONCLUSION

- The main source of inspiration is the person Fridtjof Nansen: he had it all
- He is regarded as 'one of the cofounders of the modern view of the nervous system'
- His book together with Bjørn Helland-Hansen is regarded as a paradigm shift in modern physical oceanography
- He was a pioneer in bridging physical oceanography and marine biology
- He is one of very few that has 'scaled up' his research interests from the cellular level to the ecosystem level
- He was first of all a research scientist, of the unique type 'general specialist'

