The 9th Norwegian Conference on the History of Science

Trondheim Nov. 29 - Dec. 2, 2023

The conference is hosted by NTNU

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NTNU
Norwegian University of Science and Technology

UNIVERSITY OF OSLO

Museum of University History
Science Studies Colloquium

Dear participants,

We are pleased to welcome you to the 9th Norwegian Conference on the History of Science! This biennial conference aims to bring together scholars working on any topic or period in the history of science, technology and medicine to discuss historical, epistemological, political, institutional, and ethical issues of relevance both to a Scandinavian and an international audience. We welcome researchers of all nationalities and at all stages of their careers. This year, we are excited to present 49 papers and one round table involving speakers from all over Europe and beyond as part of this program.

The first Norwegian conference on the history of science was organized in Oslo in 2008 with the aim of establishing a national network for historians of science. Since then, conferences have been organized in Tromsø, Bergen, Trondheim and Oslo. This is the second time we meet in Trondheim, 13 years after we marked the 100th anniversary of NTNU as part of the conference. We are excited to revisit the topic of anniversaries this year with our conference theme "Short years, long years, and round years – Anniversaries in the history of science".

The Norwegian Conference on the History of Science has since 2015 been organized by a program committee. This year we are hoping to be able to establish a formal organization with a board that will be responsible for future conferences. You are all encouraged to attend the general assembly to contribute to this discussion.

This year's conference is hosted and co-organized by NTNU-Norwegian University of Science and Technology and the history of chemistry group of the Norwegian Chemical Society, in collaboration with the Royal Norwegian Society of Sciences and Letters, Museum of University History at the University of Oslo, and the program committee. We are grateful for financial support from NTNU Department of Teacher Education, NTNU Department of Historical and Classical Studies, the Science Studies Colloquium of the University of Oslo, and Thorstein Erbos Fond.

We are happy to welcome you at NTNU Campus Kalvskinnet, where the Department of Teacher Education and Department of Archeology and Cultural History reside. We hope you will enjoy the conference and the tours at the NTNU University Museum and the NTNU University Library.

The program committee:

Annette Lykknes (chair), Jon Røyne Kyllingstad, Peder Roberts, Magnus Vollset and Gregory Ferguson-Cradler

The local organizing committee:

Annette Lykknes (chair), Thomas Brandt, Mattias Bäckström, Ellen Grav, Magne Brekke Rabben

PROGRAM AT A GLANCE

Plenary session November 29th: Rådhussalen
Plenary sessions and A sessions November 30th and December 1st: Arkitekt Christies gate 2, A123
B sessions: Arkitekt Christies gate 2, A120

Wednesday, November 29th		
17:30-19:15	Registration and information, Rådhussalen	
18:00-19:15	1 Key note lecture Magnus Vollset	
19:30-	Social event: Visit to the pub Den Gode Nabo at Bakklandet	
Thursday, November 30th		
08:00-10:00 and during breaks and General Assembly	Registration and information, Arkitekt Christies gate 2	
08:30-09:30	2 Key note lecture Carsten Reinhardt	
09:30-10:00	*Coffee break*	
10:00-11:30	Session 3A	Session 3B
11:30-12:30	*Lunch, Canteen, Akrinn (Enga)*	
12:30-13:45	Session 4A	Session 4B
13:45-14:15	*Coffee break*	
14:15-15:15	General Assembly (open for all)	
15:15-15:25	*Break to move to parallel sessions*	
15:25-17:00	Session 5A	Session 5B
17:00-17:15	*Break*	
17:15-18:00	Session 6A	Session 6B
19:00-	*Conference dinner (registration needed).* *To Tårn (next to Nidaros Cathedral)*	
Friday, December 1st		
08:00-08:30 and during breaks and museum tours	Registration and information, Arkitekt Christies gate 2	
08:30-10:05	Session 7A	Session 7B
10:05-10:30	*Coffee break*	
10:30-11:45	Session 8: Plenary. Panel on Institutional Anniversaries	
11:45-12:45	*Lunch, Canteen, Akrinn (Enga)*	
12:45-14:15	*Tour of museums (3 options, upon registration)*	
14:15-15:45	Session 9A	Session 9B
15:45-16:15	*Coffee break*	
16:15-17:30	Session 10A	Session 10B
Saturday, December 2, 9:00-17:00 ***Excursion to Løkken (for registered participants) – See separate program***		

Museum tours on Friday 1st December 13.00-14.00

Please register at the registration disk, if you have not done so already

Option 1: Tour of The Knudtzon room of the University Library (30 minutes)

Site: The Gunnerus Library

15 + 15 places (the tour will be offered twice)

Short video from the room: (3) Knudtzonsalen - Et historisk bibliotek ved NTNU Universitetsbiblioteket - YouTube (3:49 minutes)

Broder Lysholm Knudtzon (1788-1864), a son of a merchant and mayor in Trondheim, was a person of culture. He was a travelled man, visiting, for example, England, where he was introduced into the circle surrounding Lord Byron, and Italy, where, through his brother, he became acquainted with Bertel Thorvaldsen, the sculptor. When Knudtzon died, his book collection and bookshelves, as well as sculptures by Thorvaldsen, were bequeathed to the Society. The books are kept in the Knudtzon Room of the University Library. The collection is notable for its quality rather than the number of volumes It contains many first editions of French, English, German and Italian classics as well as travel accounts. (text by Monica Aase.)

Tour guides: Stein Olle Johansen, Project Manager and Erlend Lund, Research Librarian, Library Section for Collections, Resources and Digital Services,.

Option 2: Exhibition tour: 1760 – Science at the Edge of the World (ca. 40 minutes)

Site: The University Museum, Trondheim (3rd floor)

20 places

In 1760, a small group of men led by Bishop Johan Ernst Gunnerus, took the initiative to form a science society in Trondheim, which also included the start of a natural history collection and a library. The exhibition displays museum objects from the early period of the science society and traces the Enlightenment origins of Trondheim and Norway's academic institutions. The exhibition was created in 2010 as part of the 250-year anniversary for the establishment of the Norwegian Society of Sciences and Letters. It remains relevant and interesting in how it demonstrates the circulation of knowledge in the Enlightenment "republic of letters" that extended to the Nordic edge of the world.

Tour guide: Thomas Brandt, Professor, Department of History and Classical Studies

Option 3: Exhibition tour: Neanderthal (ca. 40 minutes)

Site: The University Museum, Trondheim

20 places

Discover the world of the Neanderthals and get to know your closest relative among the human species. No one knows what happened when we, the modern humans, first encountered the Neanderthals, but we know that for thousands of years we lived alongside one another in Europe and Asia, and we know that we had children together. As a result, you probably have a piece of

Neanderthal in your DNA. The Neanderthals were intelligent human beings, and their empathy and collaborative nature might be the key to how the Neanderthals survived for so long – more than 300,000 years, living across a vast area.

The exhibition is produced by Moesgaard Museum (MOMU) in Denmark, and is on display in Trondheim until February 25th.

Tour guide: Ellen Grav, Archaeologist and Senior Engineer, Department of Archeology and Cultural History, NTNU University Museum

SHORT YEARS, LONG YEARS AND ROUND YEARS:

ANNIVERSARIES IN THE HISTORY OF SCIENCE

TRONDHEIM NOVEMBER 29-DECEMBER 2, 2023

PROGRAMME

Wednesday, November 29, 2023.

Rådhussalen, Trondheim Folkebibliotek (entrance from Kongens gate)

17:30-19:15. Registration, Rådhussalen

18:00-19:15. 1 Keynote Lecture with Q&A.

Chair: Gregory Ferguson-Cradler

Magnus Vollset, University of Bergen.
Leprosy and the biggest anniversary you've (probably) never heard of: on the 150th anniversary of Gerhard Armauer Hansen's discovery of the leprosy bacillus.

Thursday, November 30, 2023

NTNU, Arkitekt Christies gate 2

Registration and information, Arkitekt Christies gate 2:

Open 08:00-10:00 and during all breaks (closed 11:50-12:10) as well as during the General Assembly

Information/registration desk open upon request throughout the conference

08.30-09.30 2 Keynote Lecture with Q&A. Room: A123

Chair: Annette Lykknes

Carsten Reinhardt, University of Bielefeld.
A Strained Legacy: The Max Planck Society, 1911 -- 1948 -- 2023.

09.30-10.00 Coffee break

10.00-11.30 Parallel Sessions 3

3A Academic Workspaces as Sites of Production, Adaptation and Circulation of Knowledge.

Room: A123

Chair: Thomas Brandt

Roland Wittje, Department of Humanities and Social Sciences, IIT Madras, Chennai.
The Lecture Theatre as a Space for Knowledge Making

Magne Brekke Rabben and Annette Lykknes, Department of Teacher Education, NTNU-Norwegian University of Science and Technology.
Displaying Professional Identities: Symbolic Materiality in Four 20th Century and 21st Century Academic Offices at the Norwegian University of Science and Technology

Daniel Normark and Lars Fälting, Uppsala STS, department of economic history, Uppsala university.
Rationalized Buildings for Research or Education: Ideologies of BMC vs. Hum-C in Uppsala, Sweden, 1960–1980

Martina Wallberg, Department of Economic History, Uppsala University.
Negotiating Spatial Design: A Case-Study of Uppsala Biomedical Centre (BMC) 1955–2014

3B Technology that travels 1: IQ-testing in health care and the courtroom

Room: A120

Chair: Håkon Caspersen

Jon Røyne Kyllingstad, University of Oslo.
IQ-tests: Technology that travels. Some overarching perspectives.

Ageliki Lefkaditou, University of Oslo.
Intelligent testing between education and psychiatry: Johan Lofthus and the standardization of the Stanford-Binet intelligence scale in Norway, 1920s-1930s.

Svein Atle Skålevåg, University of Bergen.
Constructing intellectual disability in the courtroom: Early Intelligence testing in Norwegian forensic psychiatry (1915 –1925).

11:30-12:30 Lunch

Canteen, Building: Akrinn (entrance from Sverres gate), Room Enga

12:30 – 13:45 Parallel sessions 4

4A Academic Workspaces as Sites of Production, Adaptation and Circulation of Knowledge

Room: A 123

Chair: Magne Brekke Rabben

Mattias Bäckström, Department of Historical and Classical Studies, NTNU-Norwegian University of Science and Technology.
An Academic and Architectural Milieu of Ideas: Projecting and Building a University Campus in Trondheim in the 1970s

Mikko Kohvakka, Department of Geographical and Historical Studies, University of Eastern Finland.
University Campuses and Changing Geographies of Science

Thomas Brandt, Department of Historical and Classical Studies, NTNU-Norwegian University of Science and Technology.
Academic Office Work in Transition: The Re-Spatialization of Faculty Practices in Norwegian Academia in the Age of Digital Transformation

4B Technology that travels 2: IQ-testing of schoolchildren at the intersection of regular education and special education. Room: A120

Chair: Svein Atle Skålevåg

Christian Ydesen, Aalborg University, Brit Marie Hovland, VID Specialized University, Emma Vikström, Örebro University.
The Nordic space of IQ-testing and "intelligence" in education in the interwar years.

Kim Helsvig, OsloMet.
Change and continuity –Intelligence tests and psychometrics in Norwegian primary schools 1930–2020.

Håkon Aamodt Caspersen, University of Oslo.
There to test? IQ testing in the Norwegian pedagogical-psychological services today

13.45-14.15 Coffee break

14.15-15.15 General assembly (open for all): Establishing an organization for the history of science in Norway. Room: A123

15.15-15.25 Break to move to parallel sessions

15:25 – 17:00 Parallel Sessions 5

5A Weather, climate, and atmosphere. Room: A123

Chair: Gregory Ferguson-Cradler

James R. Fleming, Colby College.
The trans-Atlantic travels of Vilhelm and Jacob Bjerknes in 1924, with reflections on the development of hydrodynamics and the Bergen School from 1904-1944.

Robert Naylor, Centre for the History of Science, Technology and Medicine, University of Manchester/Department of Science Education, University of Copenhagen.
The Atmospheric Toolbox: The Use and Study of Atmospheres Within the UK Postwar Utilities Industries.

Jakob Maliks and Stein Johansen, NTNU, Department of Teacher Studies.
Gerhard Schøning (1722-1780): an anniversary and his theories of climate

Siobhan Moira Ryan, Trøndelag nettskole, Trøndelag fylkeskommune.
1783: The Year of the Yellow Snow.

Nina Kruglikova, Independent scholar.
Histories of Science Diplomacy: competition and cooperation.

5B History of physics. Room: A120

Chair: Roland Wittje

Floor Kamphorst, Department of Teacher Education, NTNU-Norwegian University of Science and Technology.
Using De Sitter and Michelson Morley in education on Einsteins Light Postulate

Tom Nurmi, Department of Teacher Education, NTNU-Norwegian University of Science and Technology.
The Physicist and the Librarian: Elmer Imes, Nella Larsen, and the Science of Black Modernism

Jonas Persson, Department of Physics, NTNU-Norwegian University of Science and Technology.
The Cavendish experiment - when worlds collide: Physics-history-didactics.

Filip A. Buyse, Royal Flemish Chemical Society (KVCV).
After 400 Years: On Galileo's Il Saggiatore (The Assayer)

Alessio Rocci, Department of Physics, VUB-Vrije Universiteit Brussel and the Solvay Institutes.
Celebrating the anniversaries of the Solvay conferences: Scientists vs historians in the proceedings of the Solvay Councils.

17:00-17:15 Break

17:15-18:00 Parallel Sessions 6

6A Representing science. Room: A123

Chair: Vera Scwhach

Michael Crawford, Biomedical Sciences, Philosophy, Centre for Research in Reasoning Argumentation, and Rhetoric, University of Windsor.
Edward Lear's Nonsense and the Evolutionary Debate.

Gregory Ferguson-Cradler, Inland Norway University of Applied Sciences.
Setting a price on science: applied science under the fall of communism

6B New science in old places. Room: A120

Chair: Daniel Normark

Matthew Holmes, Department of Cultural Studies and Languages, University of Stavanger.
The Making of the English Working Cat: Domestication, Genetics, and Socialist Homes in the Mid-Twentieth Century

Claudia Passarella, Department of Private Law and Critique of Law, University of Padova, Italy.
Little-Known Anniversaries: The Use of Fingerprint Technology in Early Twentieth-Century Criminal Trials.

19:00 Conference Dinner (registration needed). To Tårn (next to Nidaros Cathedral)

<u>Friday, December 1, 2023</u>

Registration and information, Arkitekt Christies gate 2:

Open 08:00-08:30 and during all breaks (closed 12.05-12:25) as well as during the museum tours.

Information/registration desk open upon request throughout the conference

08.30 – 10:05 Parallel Sessions 7

7A Anniversaries in chemistry, chemistry in anniversaries. Room: A123

Chair: Camilla Berge Vik

John C. Powers, Department of History, Virginia Commonwealth University.
Founding American Chemistry: Joseph Priestley and the American Chemical Society.

Hartmut Kutzke, Museum of Cultural History, University of Oslo.
150 or 190 years of research on polymorphism in organic crystals -a reflection on an almost forgotten anniversary.

Annette Lykknes, Department of Teacher Education, NTNU-Norwegian University of Science and Technology.
Marie and Pierre Curie and the far from clear-cut discovery histories of polonium and radium.

Frank A.J.L. James, Department of Science and Technology Studies, University College London.
The Power of Nought.

7B Organizing and funding science. Room: A 120

Chair: Magnus Vollset

Vera Schwach, NIFU, Nordic Institute for Studies in Innovation, Research and Education.
Funding and governance of research,1970–2020

Věra Dvořáčková, Czech Academy of Sciences, Masaryk Institute and Archives, Department of the History of Science; University of Chemistry and Technology, Institute of Chemical Education and Humanities,
An Image of the Continuity and Discontinuity of Science during the Establishment of the Czechoslovak Academy of Sciences (1953)

Ronny Kjelsberg, Department of Physics, NTNU-Norwegian University of Science and Technology.
How can the history of higher education in Norway shed light on the contentious relationship between political control and institutional autonomy?

10.05-10.30 Coffee break

10.30-11.45 Plenary Session. 8 Panel on Institutional Anniversaries

Room: A123

Chair: Jon Røyne Kyllingstad

The writing of university history is most often related to anniversaries, but how do anniversaries affect the writing of history?

Thomas Brandt, NTNU-Norwegian University of Science and Technology. Co-author of *Turbulens og tankekraft: Historien om NTNU* (2010)

Kim Helsvig, OsloMet, Co-author of the 9-volume anniversary history *Universitetet i Oslo 1811-2011* (2011)

Astri Andresen & Kari Tove Elvbakken University of Bergen: Co-editors of *Vitenskap og vitenskapshistorier*, bind 1-3, *Universitetet i Bergen 1946-2021* (2022)

11.45-12.45 Lunch.

Canteen, Building: Akrinn (entrance from Sverres gate), Room Enga

12.45.-14.15 Tour of museums (different options) including 15+15 minutes to move back and forth.

We will walk from the canteen to the museum and library (at the same campus)

14.15-15.45 Parallel Sessions 9

9A Anniversaries as a topic of analysis in the history of science and medicine

Room: A123

Chair: Mattias Bäckström

Michael Crawford, Department of Biomedical Sciences, University of Windsor; Adjunct Professor, Department of Philosophy, University of Windsor and Katharina Clausius, Associate Professor, Comparative History and Culture, Université de Montréal;Adjunct Professor, Department of Political Science, University of Windsor.
Generations Compressed: Bio-Archives, DNA Techno-Creep, and Anniversary Bottlenecks

Daniel Normark, Department of economic history, Uppsala university and Olof Ljungström, Unit for medical history and heritage (MHK), Karolinska Institut.
Anniversaries as strategy: using celebrations to build ordinary and extraordinary biomedical laboratories

Johannes Mattes, Department of Archeology, Conservation and History, University of Oslo,
Anniversaries as sites of self-representation: the celebrations of the Austrian Academy of Sciences during the political transformations of the 20th century

Karen A. Rader, Department of History, Virginia Commonwealth University.
Café Scientifique at 25: Reflecting on Anniversaries as Histories and Histories as Anniversaries.

9 B History of Chemistry. Room: A120

Chair: Alessio Rocci

Mary Virginia Orna, ChemSource, Inc..
Three Centennial Milestones in the History of Color in Chemistry: 1773, the birth of Thomas Young; 1873, the birth of Edward Waldo Forbes; 1973, Franco Brunello's publication of the monumental first inquiry into the history of dyeing

Mentz Indergaard, Trondheim.
The history of the term 'polymer' and its derivatives

Camilla Berge Vik, Department of Teacher Education, NTNU-Norwegian University of Science and Technology.

What is lost (and not) in the transformation of the law of Coulomb from 18th century natural philosophy to pupils reasoning about chemical bonding in 21st century classrooms?

Guillermo Restrepo and Jürgen Jost, Max Planck Institute for Mathematics in the Sciences.
Circularities in the historical unfolding of chemistry

15.45 – 16:15 Coffee break

16:15 – 17.30 Parallel Sessions 10

10A Milestones or Millstones: Specialisms, journals and the teleological imposition of anniversaries

Room: A123

Chair: Carsten Reinhardt

Jasmin Dierkes, Interdisciplinary Centre for Science and Technology Studies, Bergische Universität Wuppertal, Germany.
On dummies and dates: The advent of simulation-based training in medical education

Nora Schierenbeck, Interdisciplinary Centre for Science and Technology Studies, Bergische Universität Wuppertal, Germany.
About the classification of personality disorders: Transformation in the face of definable landmarks or incremental change?

Eleanor Shaw, PhD Candidate at the Centre for the History of Science, Technology and Medicine, University of Manchester, United Kingdom.
Red herrings and parroted phrases: The pitfalls of commissioned histories

10B Medicine, disease, and treatment. Room: A120

Chair: Ageliki Lefkaditou

Toine Pieters, Freudenthal Institute/History and Philosophy of Science, Utrecht University.
Paul Ehrlich and the co-construction of Magic Bullet imaginaries

Unni Eikeseth, Department of Teacher Education, NTNU-Norwegian University of Science and Technology.
A case approach to the discovery of the leprosy bacillus and nature of science.

Saturday, December 2, 2023 (for registered participants)

09:00 Departure with bus from Leuthenhaven, Trondheim

10:15: Arrival at Løkken. Visit to Orkla Industrimuseum (www.oi.no/eng)

12:00: Lunch at "Orkla Gjestebolig"

13:00: Visit to the Old Mine

15:00: Departure from Løkken

15:30: A short tour of the historic buildings at Bårdshaug, Orkanger (https://baardshaug.no/en/)

17:00: Arrival at Leuthenhaven, Trondheim

Please remember to wear proper shoes and warm clothing for outdoor walking and the visit to the old mine.

ABSTRACTS

Contents

Session 1: Magnus Vollset: Leprosy and the biggest anniversary you've (probably) never heard of

Public keynote at the 9th Norwegian Conference on the History of Science

Magnus Vollset, Department of Global Public Health and Primary Care, University of Bergen, magnus.vollset@uib.no

Earlier this year, the head of the World Health Organization, the pope, ministers of health from several countries, and others, celebrated a discovery by “Norway's most famous physician”. And you have probably never heard of it.

The discovery in question was Gerhard Armauer Hansen's observation of rod-shaped organisms in a tissue sample from one of his patients suffering from leprosy, on February 28, 1873. To some, this was a watershed moment, proving that leprosy is a disease like any other, disenchanting superstitions surrounding an ancient and misunderstood disease. Others see it as a scientific breakthrough in both bacteriology and epidemiology, the humble beginnings of how we today understand infectious diseases. Yet to others, Hansen's discovery justified stigma, cruel prosecution, and human experiments. While some countries have renamed 'leprosy' to 'Hansen's disease' to combat stigma and discrimination, other scholars argue this is an honor the Norwegian physician does not deserve.

The fight against leprosy is not over. In this public keynote, Vollset will discuss how a controversial anniversary is used to reflect on the past, take stock of present and create momentum for a leprosy-free future.

Session 2: Carsten Reinhardt: A Strained Legacy. The Max Planck Society, 1911–1948–2023

Keynote address at the 9th Norwegian Conference on the History of Science.

Carsten Reinhardt, Faculty of History, Philosophy and Theology, University of Bielefeld, Germany, carsten.reinhardt@uni-bielefeld.de

The Max Planck Society, arguably Germany's foremost research organization, has in its history accepted two founding dates, and has built up three different legacy narratives during its existence. Founded in 1948, the Society celebrated its 50th anniversary in 1961, according to the founding date of its predecessor, the Kaiser Wilhelm Society, in 1911. Only in the late 1990s, while facing its actions during National Socialism, the Max Planck Society focused on its own foundation, with the 50th anniversary in 1998. In the first decades of its existence, the Society attempted to relate to the early phase of the Kaiser Wilhelm Society, silencing its role during National Socialism, World War II, and the Holocaust. Three legacy narratives – the first referring to Imperial past and glory; the second acknowledging NS guilt and accountability; the third creating a new pathway in a liberal democratic state – were interwoven and often in conflict with each other. In my talk, I will sketch the strains in building and transforming these narratives on the levels of governance principles, research themes and methods, and assets and personnel.

Sessions 3A & 4A Academic Workspaces as Sites of Production, Adaptation and Circulation of Knowledge

Mattias Bäckström, Department of Historical and Classical Studies, *NTNU Norwegian University of Science and Technology*, *mattias.backstrom@ntnu.no*

Thomas Brandt, Department of Historical and Classical Studies, Norwegian University of Science and Technology, Trondheim. Thomas.brandt@ntnu.no

Ellen Grav, Department of Archeology and Cultural History, ellen.grav@ntnu.no

Annette Lykknes, Department of Teacher Education, Norwegian University of Science and Technology, annette.lykknes@ntnu.no

Magne Brekke Rabben, *Department of Teacher Education, Norwegian University of Science and Technology, magne.brekke.rabben@ntnu.no*

In this session, we will investigate academic work from an ontological assumption that place and space matter in how knowledge has been produced, adapted, and circulated by scientists, scholars, and students. The contributions zoom our analytical optics in on various scales of workspaces: we investigate the overall design of university buildings and campuses, ideas, and organizational principles that have shaped academic workplaces regarding the production, adaptation, circulation, and dissemination of academic knowledge.

The contributions cover a period from the late 19th century until the present, addressing a range of sites of knowledge production in Europe and India. Understanding the significance of academic workplaces through history complements the existing scholarship on the ‘spatial turn’ in the history of science, and contemporary studies in management and educational studies in informing current campus design.

Keywords: Academic workspaces, space-place, university building, university campus, spatial turn

The Lecture Theatre as a Space for Knowledge Making

Roland Wittje, Department of Humanities and Social Sciences, IIT Madras, Chennai, roland.wittje@gmail.com

Spaces of teaching science such as classrooms, lecture theatres and teaching laboratories have often been understood as places of passive knowledge dissemination in terms of reproducing established knowledge paradigms in which the students become socialized. In my paper I will instead explore the lecture theatre as a space where scientific knowledge is negotiated as well as new knowledge is created. I will draw on examples of the 19th century lecture theatre, the adaptation of a new way of physics lecture demonstrations and architecture of lecture theaters in interwar Germany, and the struggle of West German faculty at the Indian Institute of Technology Madras in the 1960s to establish German methods of teaching science and engineering in India along with a specific architecture of teaching spaces.

The ultimate failure of a linear transfer of German teaching spaces and methods to South India underlines the social and cultural embeddedness of scientific and technical education and its epistemic practices. Moving from the Wilhelmine to the interwar period and the Cold War, and from the postwar Federal Republic of Germany to post-independence India will allow me to show how the transformation of the lecture theatre as a knowledge space has been integral part of a larger narrative of political, social, technological, and epistemological continuities, changes, and boundaries.

Keywords: Lecture theatre, demonstration experiments, Germany, India

Displaying professional identities: Symbolic materiality in four 20th and 21st century academic offices Norwegian University of Science and Technology

Magne Brekke Rabben, *Department of Teacher Education, Norwegian University of Science and Technology, magne.brekke.rabben@ntnu.no*

Annette Lykknes, Department of Teacher Education, Norwegian University of Science and Technology, annette.lykknes@ntnu.no

How are professional and disciplinary identities displayed in office spaces? The academic office can be considered both a public and a private space, which makes it an excellent case to study the relationship between office use, disciplinary identity and a professional's public face. Contemporary studies of the significance and use of academic offices exist (e.g., Kuntz 2012; Ruth 2015), but historical studies are challenging to conduct since issues related to the individual academic office are rarely explicitly discussed in written source materials.

Inspired by semiotic studies and scholars who use images to tell stories texts are silent about (Kress 2010; Burke 2005), in this paper we use interviews and available private historical archives, combined with rich historical and contemporary photographic records to study the offices of four professors (historical and contemporary) working at academic institutions today known as Norwegian University of Science and Technology (NTNU). We discuss how offices, and their materiality became markers of professional and disciplinary identity and analyze how the objects kept in the offices were imbued with meaning and message. The professors chosen as cases for this study have been selected to provide a chronological spread through the university's history as well as diversity in scientific disciplines to illustrate chronological and disciplinary differences in spatial cultures and practices: Sigval Schmidt-Nielsen (1877 – 1956), professor of technical-organic chemistry at NTH; Sverre Pedersen (1882 – 1971), professor of architecture and city planning at NTH; Olav Smidsrød (1936–2017), professor of marine biochemistry at NTH; and Brit Mæhlum, current Professor of Scandinavian linguistics at NTNU.

Keywords: University history, academic office, disciplinary identity, photographic sources

Rationalized buildings for research or education: ideologies of BMC vs Hum-C in Uppsala, Sweden 1960-1980

Daniel Normark & Lars Fälting, Uppsala STS, department of economic history, Uppsala university, Daniel.Normark@ekhist.uu.se

In the 20th century expansion of universities, research and education moved from institutional buildings (according to the logic one professor, one institution, one building) into macro-buildings created to house the economics of scale in academia, exemplified by both BMC (1968) and Hum-C (1974). Created and planned at the same period, the two buildings followed radically different rationalities for structure and optimization of practice. BMC was envisioned as a flexible building, where walls could be moved, laboratories re-constructed and re-organized depending on shifting objectives and unexpected needs. The building was organized to improve research, leaving education to spaces unattended and ignored. Hum-C on the other hand utilized well-articulated generic estimations on the optimal size of teaching. Teaching was streamlined in accordance to a group dimension of 16; 32; 64 and 250 students, which were seen as optimal scales of teaching. Everything calculated in accordance to pedagogical studies and close experiments on the most effective desk-size etc.

While both buildings anticipated an expansion of the university it also accentuated a separation between research and education and a separation between humanities and life-science. By following the planning-process, design-phase, initial introduction and use this paper studies how research and education became dis-embedded from each other. These buildings were a response to a prolonged national discussion on how higher education should be organized starting in the early 1950's. Looking at the planning process and housing-committees notes (once the building was in use) a comparison regarding the different logics of flexibility or alignment can be made.

Keywords: economies of scale, building rationalities, organization of research and education

Negotiating spatial design: A case study of Uppsala Biomedical Centre (BMC) 1955-2014

Martina Wallberg, Department of Economic History, Uppsala University, martina.wallberg@ekhist.uu.se

Uppsala Biomedical Centre (BMC) was built in stages between 1966–1987 and was one of Sweden's largest investments in biomedicine at that time. Initially, the purpose of BMC was to provide a new building for the physiology department at Uppsala University and the, at the time, new discipline of molecular biology. However, in the aftermath of Universitetsutredningen in 1955, BMC transformed into a multifaceted economic solution to various challenges that arose, such as an increased focus on collaboration with industry; a reorganization of animal experiments; and a relocation of the pharmaceutical school in Stockholm. The design of BMC was largely guided by a vision of flexibility, reflected both in the physical design of the building and in the design and funding of research, making the building explicitly research-driven.

This project will combine archival material and oral history interviews to explore the negotiations preceding the spatial changes at BMC throughout its life course, focusing on key events. For example, the change in administration, maintenance and ownership of the building in 1993. One hypothesis is that although flexibility has been a defining concept of BMC throughout the years the meaning behind the concept has changed, which is partly reflected in the renovations initiated under the new administration, that were finished in 2013.

By studying the shaping and re-shaping of the spatial design at BMC through the negotiation processes, the aim is to increase the understanding of how we think about laboratories of the future today by exploring the ways we thought about laboratories of the future in the past.

Keywords: Negotiations, spatiality, laboratories, flexibility

An academic and architectural milieu of ideas: Projecting and building a university campus in Trondheim in the 1970s

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This paper explores the academic-architectural discussions, the architectural drawings and the technical solutions when designing and building the structuralist Dragvoll University Campus in Trondheim, which was first inaugurated in 1978 as a kind of university town with indoor streets and bridges (Larsen et al. 1971). The purpose of the paper is to investigate 1970s Dragvoll as a cognitive-material and social-material milieu, where scholars, architects and other key persons received, transformed and produced meaning and knowledge about the university campus and its activities, communications and structures. Discussing the above purpose, I will use and develop the key concept of "milieu of ideas" (Ambjörnsson 1983), as I explore it as an "interface of meaning and materiality" (Gumbrecht 2004). How did scholars, architects and other key persons in 1970s Dragvoll envision and incorporate ideas of academic knowledge production and meaningful relations in research and teaching in and by means of the discussions, the drawings and the building site with its many things? What are these ideas of meaning and knowledge, which they expressed verbally and architecturally? How did they shape 1970s Dragvoll as a milieu of ideas and interface of meaning and materiality? In order to limit the paper, I will identify and investigate some key cases in the discussions, the drawings and the building site at Dragvoll in the 1970s.

Key words: milieu of ideas, meaning and materiality, knowledge production, structuralist campus

University campuses and changing geographies of science

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Historians interested in geographies of science and higher education like to highlight the approaches covering the shifting and overlapping spaces within which academic people interact with their stakeholders and circulate academic knowledge. The ways people behave and relate to each other in these various spaces and places can be radically different. Let us take university campuses as an example. Who manages a given campus as a critical site or space? What are its physical and mental boundaries? Who is allowed access and develop a campus in an urban space? How does the academic knowledge produced in a certain campus find its way out into different public arenas, leading to an (un)even distribution of scientific information? For example, in Eastern Finland, there is the Lappeenranta University of Technology (LUT-university) which is located far from the city center and whose mental focus has historically been outside-oriented, stretching toward the Helsinki metropolitan region and even Western Finland. On the other hand, in Joensuu, which is also located in Eastern Finland, the university campus has been built near the city center and it has throughout its history been much more sympathetic and receptive to the characteristics and knowledge needs of local cultures. And if we look at the history of University of Helsinki, we can see a traditional multicampus university in the core region (capital city) where the “local” is often also the “global” and where university buildings play a key role in the continuity and change of the socio-cultural and politico-economic urban space. These examples provide an opportunity to discuss more broadly how different campuses in different times, in different places (cities) and with different scalar (local, national, global) orientations have made their mark on circulation of academic knowledge in different ways.

Keywords: university campuses, geographies of science, circulation of academic knowledge

Academic Office Work in Transition: The Re-Spatialization of Faculty Practices in Norwegian Academia in the Age of Digital Transformation

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This paper concerns the re-spatialization of faculty work practices in Norwegian academia in a period of digital transformation. How has technological change in digital communication systems since the early 1990s transformed how and where academic office work takes place? How have academic workspaces been shaped by increased mobility and connectivity within a global economy over the last decades? How have significant ruptures such as the Covid-19 pandemic contributed to a shift in academic work practices, with the normalization of distance work and new, virtual extensions of the academic workplace?

The paper will discuss these questions by first providing an overview of how technological and organizational changes in academic office work practices have been discussed in Norway. Issues such as remote work, home computing, and virtual workplaces serve as entry points for investigating shifts in the public discourse (e.g., campus newspapers and journals) and in organizational policies (as observed in the 'gray literature' of policy documents and reports on workspace technology).

Further, based on interviews with faculty members, the paper will contribute to understanding how academic work as an embodied, material, and situated practice has changed throughout the past decades of digital transition.

Keywords: Academic Workspaces, Office History, Digital Transitions

Session 3B Technology that travels 1: IQ-testing in health care and in the courtroom.

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IQ-tests were introduced more than a hundred years ago, and can be seen as a technology designed to fulfill a number of tasks in different parts of Norwegian society, such as in the health care system, the education system, and the legal system. Based on the research project “Historicizing intelligence” which was presented at the 8th Norwegian Conference in the History of Science, this session presents some historical perspectives and empirical findings about the use of intelligence testing in Norway, from the 1920s to the present. This session is connected to the session “IQ-tests as technology that travels 2: Testing of schoolchildren in the intersections between regular education and special education”. For more details see Kyllingstad’s paper abstract “IQ-tests: Technology that travels. Some overarching perspectives”

IQ-tests: Technology that travels. Some overarching perspectives.

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IQ-tests serve a number of societal functions, such as assessing the educational needs of school-children, diagnosing intellectual disability, or making decisions about an individual's legal rights and responsibilities. IQ-tests can thus be seen as a technology designed to address specific problems in various parts of society. IQ-tests travel. Not only across national borders, but also across boundaries between academic disciplines such as psychiatry, psychology, educational science, as well as across social "systems" such as the education system, the healthcare system and the legal system. They also travel through time: IQ-tests have been around for over one hundred years, and even though they have changed, there is also much historical continuity in the content of these tests, the type of knowledge they produce and the social roles they fulfill.

This paper presents some overarching perspectives on and questions about the history of IQ testing. IQ-tests appear as neutral and objective technology. But IQ-tests are also highly contested and there is no consensus as to what, specifically, it is that an IQ-test measures. Why do these tests have such strong staying power across time and contexts? IQ-test are a tool to sort people and help allocate rights and resources among individuals. But have this mainly been a tool for the efficient management of society or a tool that helps individuals to develop their potentials and have their rights fulfilled?

Keywords: IQ, psychometrics, education, medicine, technology.

With care and for control: Intelligence testing in the practice of Norwegian psychiatrist Nic Waal, 1930s–1950s

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While Nic Waal is almost a household name in Norway, she is most often remembered for her turbulent personal life, and less so through her role in the establishment of child psychiatry and her political vision for children's free development. This paper will seek to bridge this gap by exploring Waal's psychiatric practice through the lenses of intelligence testing.

In 1938, following a visit to the eugenics sympathizer and controversial Swedish psychiatrist Olof Kinberg, Waal was impressed by the amount and diversity of examinations he used in every single patient case. She decided, therefore, to address the question of the diagnostic value of intelligence testing in cases of patients with reduced mental capacities. Waal was already using the Norwegian standard of the Stanford – Binet intelligence scale by psychiatrist Johan Lofthus, most often in combination with a Rorschach test and in-depths interviews. Her conviction was that concepts such as IQ and mental age only showed a child's practical capacities during the testing situation but did not reveal anything about the causes of these reduced abilities. Despite her skepticism, Waal continued to use intelligence testing as part of her diagnostic practice throughout her work with children and adolescents.

In discussing how IQ-testing acted as a tool of care and control in the hands of Nic Waal, the paper asks how scientific instruments do not only travel across geographic and professional borders but may also transcend epistemological frameworks in the name of pragmatism.

Keywords: Psychiatry, IQ, psychometrics, diagnostics, children

Constructing intellectual disability in the courtroom: Early Intelligence testing in Norwegian forensic psychiatry (1915 – 1925)

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Certain intellectually disabled offenders have for a long time been considered to be not blameworthy, but the methods for identifying these defendants changed considerably with the introduction of intelligence testing. In Norway testing was implemented in the forensic psychiatric examinations in the mid 1910s, seemingly in an improvised way. Arguably, the practice of testing resulted in a reconceptualization of intellectual capacity, that was in the second half of the twentieth century enshrined in Norwegian law.

The paper examines the significance of intelligence testing in early twentieth century Norwegian forensic psychiatry, as a part of a larger endeavor to understand the significance of intelligence testing in Norwegian society. Intelligence testing is here seen as a “technology” and a “practice”, and close attention is paid to the concrete execution of them in this particular setting. The paper is based on forensic psychiatric reports, that is, assessment of individual defendants as part of the legal effort to address the question of criminal responsibility. A select number of reports were intelligence testing was first introduced has been chosen for a close examination that aims to shed light on the role of medical experts in criminal law as well as the significance of the legal setting for the history of intelligence testing.

Keywords: forensic psychiatry, IQ, criminal responsibility, expertise

Session 4B Technology that travels 2: IQ-testing of schoolchildren in the intersections between regular education and special education

IQ-tests were introduced more than a hundred years ago, and can be seen as a technology designed to fulfill a number of tasks in different parts of Norwegian society, such as in the health care system, the education system, and the legal system. Based on the research project “Historicizing intelligence” which was presented at the 8th Norwegian Conference in the History of Science, this session presents some historical perspectives and empirical findings about the use of intelligence testing in Norway, from the 1920s to the present. This session is connected to the session “IQ-tests: Technology that travels 1: IQ-testing in health care and in the courtroom.” For more details see Kyllingstad’s paper abstract in that session: “IQ-tests: Technology that travels. Some overarching perspectives”

The Nordic space of IQ-testing and “intelligence” in education in the interwar years

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This paper explores the rise and institutionalisation of IQ-testing as a transnational practice in the Nordic education space during the interwar years. Drawing on primary archival sources, pedagogical journals and historical publications from national and international archives, the aim of the chapter is to explore and understand the experimental work, interactions, exchanges, and inspirations between key actors engaged in IQ-testing in Norway, Sweden and Denmark. Such an analysis serves as a vehicle for understanding the rise and institutionalisation of IQ-testing in the intersections between regular education and special education in the three countries. The paper focuses on the uses of the Binet-Simon intelligence test in the first-moving interconnected centres of calculation in Oslo, Stockholm and Copenhagen. These three cities served as the cradles of IQ-testing practices and imaginaries about intelligence in education as they came to appear in the three countries respectively.

Empirically, our analysis explores the appearance and agency of key actors from the three countries as well as the budding institutionalizations and development of IQ-test practices as they emerge in Scandinavian journals Tidsskrift for Aandsvage- og Blindesagen i Norden (1931-1936), and Værneskolen (1923-1959) as well as newspaper articles from the period. We also draw on relevant publications from the period, archives from the progressive education movement with which many of the key actors were connected, curricula from early education psychology training courses, correspondence from archives of some actors and institutions, governmental reports and green papers [betænkninger], and the relationship between exploratory research, school policy and curriculum.

In this sense, the paper adds to our understanding of how IQ-testing and “intelligence” came to serve as a technology and an imaginary about the common good and meritocratic ideals which became a salient approach towards identifying and creating the right kind of people for the Nordic welfare state – the Nordic Model.

Change and continuity – Intelligence tests and psychometrics in Norwegian primary schools 1930–2020

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This paper will explore the uses of educational measurement in Norway in the inter-war period, in the classical social democratic era until the 1970's and in the neoliberal "knowledge age" from the turn of the century.

Intelligence tests and psychometrics were an integral part of the emerging progressive and child centered pedagogy in Norway since the early 20th century. The tests were intertwined with efforts to adjust educational methods and schools in line with differing abilities of school children. After WW2 educational research-politics cooperation was formalized, based on psychometric testing for selection and differentiation within the emerging social democratic school system. From the late 1960s, however, the psychometric tradition was widely dismissed as an irrelevant policy partner. But psychometrics has experienced a revival since the turn of the century in the wake of the first PISA study. This resurgence could be viewed as a continuation of the Norwegian tradition for educational testing since the 1930's, but also as a major change driven by an "international turn" in Norwegian educational debate and policy.

The two basic questions are: Has the for many years dormant, psychometric tradition been revived as a tool for managing school and teacher accountability within a more general bureaucratization of educational policy in the "competition state" (change)? Or should the increase in the use of psychometrics and "IQ-like" tests since 2000 rather be understood as a tool to empower children and adapt education to individual abilities and interests within the framework of the so-called 21st century skills (continuity)?

There to test? IQ testing in the Norwegian pedagogical-psychological services today

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IQ tests, like tests in general, exists as part of systems of expert knowledge. They have a long history and are institutionalized as an indispensable modern technology in diverse settings, with a wide range of utility value. The institutional and professional positioning of testing practice in the pedagogical-psychological services and wider educational system, and these tests role in the allocation of resources, provides a good example.

This paper introduces the role of IQ testing in Norway's pedagogical-psychological services today (PPT). It will do so through a closer look at the commonly used IQ test – the WISC-V. A test that is often employed as a central screening-technology in psychological-psychological counselling services. This means that IQ tests continue to play a key role when it comes to the identification of for instance learning difficulties and in the assessment of special educational needs. The paper will tentatively outline how this test is used and understood, based on interviews with councillors' with test-experience. By way of published material indicating earlier test-practice in the pedagogical-psychological counselling services, the paper will include a brief look at how this test technology has been perceived and used in the past, to identify potential changes or continuities of test-practice, as this technology has travelled across time.

Session 5A Weather Climate and atmosphere

The trans-Atlantic travels of Vilhelm and Jacob Bjerknes in 1924, with reflections on the development of hydrodynamics and the Bergen School from 1904-1944

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In late July 1924, Vilhelm and Jacob Bjerknes, along with three hundred or so delegates bound for the British Association for the Advancement of Science meeting in Toronto, Canada sailed from Liverpool on the RMS *Caronia* and arrived in Quebec City the following week. During the voyage, the Bjerknes's set up a small weather station on the deck and entertained the passengers with daily forecasts. In Toronto, Vilhelm lectured on and demonstrated "The Forces Which Lift Aeroplanes" and Jacob explained "The Importance of Atmospheric Discontinuities for Practical and Theoretical Weather Forecasting." After the meeting, Jacob headed east to visit the U.S. Weather Bureau in Washington, DC and Vilhelm headed west to lecture at Caltech on hydrodynamics. Such was the formal introduction of Bergen school theory and methods to the United States.

Twenty years earlier, in 1904, Vilhelm published his landmark paper, "Das Problem der Wettervorhersage, betrachtet vom Standpunkte der Mechanik und der Physik" in which he depicted weather forecasting as an initial-value nonlinear problem in mathematics. Because exact solutions to this system of equations were impossible, Vilhelm promoted the use of graphical methods, which Jacob and others developed into a widely-adopted practical system. By 1944 these methods were employed in the successful forecast for the D-Day invasion and the ultimate liberation of Norway from Nazi occupation.

This paper examines the period 1904-1944 as bookends for understanding the importance of the 1924 travels of Bjerknes, father and son.

The Atmospheric Toolbox: The Use and Study of Atmospheres Within the UK Postwar Utilities Industries

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Using industry archives, this paper examines the use of atmospheric information within the post-war UK electricity, gas, and water industries for the purpose demand and supply management. In doing so, I uncover a form of atmospheric study that existed outside the bounds of meteorological institutions—atmosphere-supply studies—that drew upon the atmosphere as a valuable resource in order to allow these crucial supply systems to function effectively. Across the industries in question, I identify three distinctive strands to this form of study, all closely intertwined with changes in economic policy. Firstly, the atmosphere became a diagnostic tool, where atmospheric information was used to identify and isolate trends is supply and demand that would potentially lead to system inefficiencies or failures. Secondly, the atmosphere became an optimisation tool, where atmospheric information was used to synchronise supply and demand, leading to the reduction of redundancies and their associated costs. Finally the atmosphere became a planning tool, where atmospheric information was used to normalise long-term demand forecasts that informed the development of these supply systems. I show how workers within these industries metamorphized atmospheric information that they received from the Meteorological Office or collected themselves. In doing so, I contribute to a larger shift in literature that deconstructs the divide between the atmosphere and societies, and question the view held by some within the World Meteorological Organization and the meteorological applications industry that greater quantities of higher-quality atmospheric information will emancipate the greater part of the population from the effects of climate change.

Keywords: applied weather information, weather optimization, large technological systems, infrastructural science, climate change vulnerability

Gerhard Schøning (1722-1780); an anniversary and his theories of climate

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In 2022 NTNU celebrated the 300th anniversary of Gerhard Schøning, one of the founders of the Royal Norwegian Society of Sciences and Letters in 1760. He was a headmaster of the Cathedral School in Trondheim and later became the national archivist in Copenhagen, Denmark. Schøning was not only a well-known historian in the late 18th century, but also a clever naturalist describing and explaining climate, geology and other natural phenomena. The paper gives the results of an analysis of Schønings publications regarding climate change and climate history during great time spans, its influences on our living conditions but also man's abilities to change the climate. We describe how his works and ideas are connected to 18th century discussions about economic development, climate, the concept of time, sustainable development and man's living conditions.

Enlightenment, Trondheim, Norway, history of climate, climate change

1783: The Year of the Yellow Snow

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Keywords [Laki, climatology, Enlightenment]

June 8, 1783 was a special day. It was the day the Laki volcano of Iceland erupted. Laki's eruption went on for eight months until February 1784. In that time, Laki spewed out sulphur dioxide and 42 billion tons of molten rock. Dangerous amounts of aerosol and sulphates were released from the Laki fissure, and the aerosol alone released in the two weeks after the eruption's start lingered in the troposphere for two-three years. The sulphurous aerosols that were scattered across Europe in the two weeks after the first eruption caused respiratory illnesses and a spike in mortality. In the wake of its eruption, Laki indirectly caused the death of approximately 25% of Iceland's human population and of most of its livestock.
For historians of Nordic science, of the environment and of the Western world in general; this eruption has special meaning. Not only has the eruption been advertised as a catalyst for the French Revolution. It also had far-reaching climatic impact, and causing a lowering of temperature in Europe.
The Laki eruption, along with other, violent natural phenomena like the Lisboa Earthquake of 1755; are not-so-gentle reminders of why many scientists of the 18th century continued to regard observational science as "hard science"-- to use modern jargon-- alongside the Baconian method of setting up experiments to manipulate nature.
News of the eruption took weeks to reach the British Isles. In Scotland, weather diaries provided crucial information about the eruption's impact and 1783 soon came to be known as "the year of the yellow snow".
One might expect that Norway's natural philosophers, whose cultural and geographical ties were closer to Iceland than were Scotland's scientists, would have shown even more interest in the eruption than did their Scottish colleagues. However, like their brethren in Europe—Norway's natural philosophers had to a large degree abandoned any professional interest in freak, atmospheric phenomena. Norway was well-integrated into a larger scientific community of weather observers and other climatatologists; disseminating data through meteorological networks, a Republic of Letters and scientific journals.

Histories of Science Diplomacy: competition and cooperation

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Abstract:

The presentation aims to focus on the concept of science diplomacy from a historical perspective. It will discuss the origin of the term, achievements and limitations in this field, as well as provide examples of (un)successful cooperation and competition during the Cold War era, specifically on climate change. The paper will also deal with scientific sanctions and explore their repercussions in the area of climate change studies against the background of the current full-scale invasion of Russia in Ukraine.

Keywords: Science diplomacy, Cold War, scientific sanctions

Session 5B History of physics

Using De Sitter and Michelson Morley in education on Einsteins Light Postulate

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In 1913, the Dutch astronomer Professor W. de Sitter, held a presentation titled '*proof of the constancy of the velocity of light*' at the Royal Netherlands Academy of Arts and Sciences. De Sitter presented an analysis on the light emitted by double stars that would support one of two competing hypothesis on light velocity. Ritz's hypothesis stated that light velocity would be affected by the velocity of its emitting source, while the hypothesis supporting by theories of Lorentz and Einstein stated that the speed of light is always equal to *c,* regardles the motion of its source. De Sitter concluded that '*the velocity of light is independent of the motion of the source.'* This finding offered, amongst other findings, support for Einsteins Special Theory of Relativity, presented eight years before.

Secondary students reason with one of two spontaneous light propagation models. In one of these models, light velocity is influenced by the motion of the source, similar to Ritz' hypothesis and earlier Newtons corposcular nature of light. Physics education could draw on the historical episode of De Sitter to foster students' in the transition from their spontaneous reasoning to a conceptual understanding of the light postulate. A similar case can be made for the other spontaneous light propagation model, that shows similarities to light propagating with a constant speed relative to a medium or absolute space and the Michelson-Morley experiment.

In this contribution, I will present how historical light propagation models can be employed by students to make predictions, and how students can subsequently draw on the findings of De Sitter as prove to dismiss their spontaneous reasoning and eventually formulate the light postulate. In addition, I will reflect on the dilemma between representing the history of science and reconstructing the science content such that it may promote learning.

Keywords: Light propagation, Special Relativity Theory, Educational Reconstruction, Physics Education, History of science in education

The Physicist and the Librarian: Elmer Imes, Nella Larsen, and the Science of Black Modernism.

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When American physicist Elmer Imes published "Measurements on the Near Infra-Red Absorption of Some Diatomic Gases" in the November 1919 issue of *The Astrophysical Journal*, he demonstrated for the first time quantum theory's application in rotational energy states and, more generally, the value of infrared spectroscopy in quantum mechanics research. But for Imes – just the second African-American to earn a Ph.D. in physics – the milestone was not the only exciting event of the year. Six months earlier he had married Nella Larsen, a Danish-Caribbean nurse and later librarian who would become one of the key writers in the 1920s and 1930s Black modernist movement. This paper examines the intersecting histories of quantum physics and literary modernism through Imes and Larsen's stormy relationship, set against the New York City backdrop of interwar racial politics. Juxtaposing developments in energy physics with innovative practices in literary arts allows us to glimpse the broader conceptual shifts that characterized early twentieth-century intellectual life, particularly related to the instability of observation and the processual nature of experience. With special attention to Imes's work on molecular structure and Larsen's most famous novels *Passing* (1928) and *Quicksand* (1929), the paper unfolds new intimacies between the history of energy science and the experimental capacities of literary form.

Keywords: history of physics, quantum theory, African-American history, black modernism, literary form, Nella Larsen, Elmer Imes

The Cavendish experiment - when worlds collide Physics-History-Didactics.

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The Cavendish experiment determining the density of the earth is an iconic experiment in physics which is presented in most textbooks, but it is often presented as an experiment where the gravitational constant was determined by Cavendish, as opposed to the encyclopedia. Historically, this is incorrect, but this presentation has been dominant during the 20th century.

This contribution will present the background and source of this incorrect history, and possible reasons for its prevalence and show that the “true” history has an interesting potential in physics education and the nature of science.

Keywords: Cavendish experiment, Gravitational constant, Textbooks, Physics education, Nature of science.

After 400 Years: On Galileo's *Il Saggiatore* (The Assayer)

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400 years ago, Galileo Galilei (1564-1642) published a book that is today less well-known than his *Sidereus Nuncius* (1610), his *Dialogo* (1632) and his *Discorsi* (1638) but was directly after its publication in November 1623 immensely popular in Italy. The anniversary of this book gives us an excellent opportunity to discuss some aspects of this work which Stillman Drake called “the greatest polemic ever written in physical science”. (Drake 1957: 227)

In the first section, this paper analyzes the context of *Il Saggiatore* (The Assayer). Among others the following questions will be addressed: What were Galileo’s motives? Why is it written in the form of a letter? What is the central thesis of this work? What was the role of the *Accademia dei Lincei*? And why is it written in vulgar Italian after his *Sidereus nuncius* had been such an international success?

In the second section, it will be demonstrated that Galileo’s central thesis, his views on the nature of comets, was basically wrong.

In the third section, it will be argued that, despite its incorrect thesis, the book is extremely important from a philosophy of science point of view. To highlight this point, the paper focuses on two key ideas that Galileo worked out and would be very influential. First, there is the distinction between primary and secondary qualities that states that bodies have only primary properties such as size, form, and motion/rest. In principle, these primary properties are mathematizable, so bodies and nature as a whole had to be studied in a mathematical way. This brings us to the second key idea which will be discussed: the fact that the Book of Nature is written in the language of geometry. An idea that indicated a fundamental step in the evolution from qualitative natural philosophy toward quantitative physics.

Keywords: Galileo, *Il Saggiatore*, The Assayer, Book of Nature, Qualities

Celebrating the anniversaries of the Solvay Conferences:

Scientists vs Historians in the proceedings of the Solvay Councils

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In 1961 and 2011, the Physics Solvay Conferences celebrated two anniversaries: fifty years and hundred years of the Solvay Councils. In both anniversaries, Quantum Mechanics had a prominent role because the first Council explicitly marked the status of crisis in Physics due to the recent discoveries in the microscopic world. The main difference between the two anniversaries is that 2011 a specific session was dedicated to the history, and one of the rapporteurs was John L. Heilbron, a historian. In our paper, we analyze the contributions of Niels Bohr (1961), David Gross, John Heilbron, and Murray Gell-Mann (2011) to compare the perspective of scientists and historians in celebrating this anniversary. In both cases, the public was the whole scientific community. Participation in the Council is by invitation only, so a limited number of participants was allowed to discuss the conference topic. However, the proceedings are invaluable historical documents because they contain all the reports and the registration of the discussions. These celebrations were an occasion for emphasizing the importance of the first Solvay meeting but also a moment to reflect on achievements and future perspectives. We chose these specific case studies insisting on the same event to address the following questions. What is the scientist's approach to the idea of "anniversary"? What is the perspective provided by historians? Are the two points of view complementary? Which image of the original event did they offer? Did the social context emerge? How was the link between past events and the imperatives of their present elaborated?

Keywords [Solvay Councils, quantum theory, crisis, history of conferences]

Session 6A Representing science

Edward Lear's Nonsense and the Evolutionary Debate.

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Edward Lear (1812-88), an eminent Victorian era artist and zoological illustrator, circulated among the first tier of the British scientific community during a period of intense interdisciplinary controversy and debate. Although we now remember him primarily for his immensely popular nonsense verse and associated cartoons (initially assembled for the children of the 13th Earl of Derby), Lear's professional work was so exacting and accurate that a new species could be identified from his illustrations. He attracted the praise and notice of Audubon, Darwin, and Queen Victoria. Modern commentators have noted themes in Lear's nonsense verse that could be construed to refer to Darwin's theory of Natural Selection. However, if we grant the written and visual grammar of Lear's nonsense collections the same close reading as his professional illustrations, explicit references to debates of the time can be uncovered. I will discuss specific cues evident in verses such as "Scroobious Pip" (left unfinished 150 years ago), and "Old Man of the Hague." These and other verses contain references not merely to works by Charles Darwin, but also to Erasmus Darwin, Huygens, Benjamin Franklin, and to Geoffroy St. Hilaire.

Keywords

Edward Lear, Charles Darwin, Huygens, Benjamin Franklin, Geoffroy St. Hilaire, evolutionary theory

Setting a price on science: applied science under the fall of communism

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Fisheries biology played a fundamental and unusually prominent role in Soviet state planning and diplomacy. Scientists and institutions of scientific research provided the a core component of the Soviet Ministry of Fisheries and their forecasts and recommendations of fishing regulation were a central element (though not the only one) in compiling economic plans for the industry. Internationally, biologists often led Soviet diplomatic delegations tasked with negotiating fishing and other maritime treaties. In the 1980s and the era of perestroika, however, expectations from the state and, crucially, funding patterns changed rapidly. While the collapse of state funding, impoverishment, and widespread emigration of Soviet scientists – particularly in the so-called “basic” sciences such as physics and mathematics – after 1991 is well known, this paper considers how already during perestroika the role science was expected to play in society and as an adjunct to state power was changing radically. These shifts were closely connected with fundamental reconceptualization of the role the state should play in society and the economy. In order to understand the changing role and nature of science in the post-Soviet sphere we must look closely at the broader crisis in state power in the period before, as well as after, the final collapse of the USSR.

Keywords: science funding, Soviet Union, perestroika, privatization

Projector for presentation requested.

Session 6B New Science in old places

The Making of the English Working Cat: Domestication, Genetics, and Socialist Homes in the Mid-Twentieth Century

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This paper shows how the boundary between modern biology and the domestic sphere was erased during a mid-twentieth century program to study the genetics of house cats (*Felis catus*). Recent scholarship has recognized the importance of 'companion animals' such as dogs in the history of heredity, physiology, and medicine. Yet more work remains to be done on how science is influenced by the domestic status of some non-human animals. During the 1940s and 1950s, the controversial British geneticist J.B.S. Haldane chose to study inheritance in cats. He quickly became entangled in the lives of his animal subjects and their human owners. On one level, this case suggests that scientists themselves can easily be 'domesticated' by choosing a domestic animal as their object of study. Yet on a deeper level, this act of domestication has profound implications for the nature of science. As a Marxist with a particular view of how science and society should be organized, Haldane repeatedly asserted that science should be 'democratized', opened to the participation of working people and tailored to their concerns. The enthusiastic reception of his cat project by the British public was, from a certain perspective, an unintended realization of his ambition for a socialist science. Outside of the home, non-human animals are far more easily translated into Western systems of capitalism and science. From within the home, however, close human relationships with animals exercise greater influence on science and scientists. Following the recent celebration of Gregor Mendel's bicentenary, which has reaffirmed traditional narratives of genetics, it remains important to situate studies of heredity in their domestic and animal contexts. Doing so provides an alternative perspective on who can participate in genetics and what they consider the purpose of that science to be.

Keywords

Cats; domestication; genetics; J.B.S. Haldane; socialism

Little-Known Anniversaries: The Use of Fingerprint Technology in Early Twentieth Century Criminal Trials

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In 2015 the International Association for Identification (I.A.I.) organised the centenary of its foundation which took place in 1915. From the very beginning, the Association chose as its emblem the portray of a fingerprint to celebrate the new technology used for identifying criminals. The study of fingerprints had begun in late Nineteenth century thanks, above all, to the research carried out by Francis Galton.

In early Twentieth century the technique was used before a court of justice to identify the perpetrators of a crime. This pioneer trial is known as the Stratton case by the name of the two brothers who were charged with a double murder committed in Deptford. During the investigation, a policeman found a fingerprint inside a metal box: this fingerprint proved to be the decisive evidence against the defendants.

In the following years, fingerprinting technique became the subject of an international debate. In Norway, an important role was played by Waldemar Hansen, the head of the *Signalementskontor* which was opened in 1906. The first criminal conviction using fingerprints as the decisive evidence in the Norwegian system dates back to 1910. In 2010, Lovdata celebrated this anniversary by making the judgment available to its readers.

In Italy a significant contribution was given by Salvatore Ottolenghi. In 1910 Ottolenghi published an important book in which the new technique was analysed from a theoretical and practical point of view. Five years later, the I.A.I. was founded: henceforth, fingerprint technology has become an essential tool in the history of crime.

Keywords: Identification; Fingerprint Technology; Criminal Trials; Early Twentieth Century

Session 7A Anniversaries in chemistry, chemistry in anniversaries

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Anniversaries in chemistry offer an opportunity to revisit the history of an institution, an event, a discovery, or the biography of a chemist, and their representations in previous history writing. Commemorations can therefore lead to new knowledge about the past and an increased awareness of how historians have understood events or their anniversaries in previous times. However, if approached uncritically, commemorations may also contribute to 'distorted' histories. Anniversary celebrations might even invoke new heroes, especially if they occur in a national context.

In this session, we will reflect about the role of anniversaries in the history of chemistry, and chemistry in anniversaries, through four contributions. They span a relatively short period of time, yet they demonstrate different aspects of anniversaries in chemistry and discuss questions such as the origins and reasoning behind commemorations of a person or a discovery, and reflect about the reasons why some anniversaries are forgotten while others are celebrated, what criteria apply, and who has the authority to decide about the history of chemistry – the historian or the chemist?

Keywords: history of chemistry, founding of institutions, discovery of chemical elements, forgotten anniversaries, role of the professional historian

The session is sponsored by the Working Party on History of Chemistry, European Chemical Society and the history of chemistry group of the Norwegian Chemical Society

Founding American Chemistry: Joseph Priestley and the American Chemical Society

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In the Summer of 1874, a group of chemists descended upon the town of Northumberland, Pennsylvania to commemorate Joseph Priestley's discovery of oxygen a century earlier. They met in the place where Priestley settled after his departure from England and, in the minds of the gathered chemists, brought modern chemistry to America. This paper will examine the origins and reasoning behind this commemoration of Priestley, specifically how Priestley was portrayed as a founder of American chemistry at a time when American chemists were constructing a professional identity for themselves both in relation to other scientific disciplines in the United States and in trying to compete with European chemical institutions. These chemists' lionization of Priestley and the American chemical tradition they associated with him set the stage two years later for the founding of the American Chemical Society (ACS), the first national, professional organization of chemists in the United States. At the inaugural meeting of the ACS in New York, Charles Chandler, in his address, justified the founding of the new society in part by pointing to this American chemical tradition as described in the Priestley commemoration. The new society would preserve this tradition and mark the achievements of American chemists, and in doing so unify the American chemical community, promote research, recruit new talent, and promote the profession of chemistry to the general public.

Keywords: Joseph Priestley, American Chemical Society, Charles chandler

150 or 190 years of research on polymorphism in organic crystals - a reflection on an almost forgotten anniversary

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Polymorphism of organic crystals is a widespread and in chemical industry often unwanted phenomenon. During the production of organic pigments or drugs other polymorphs as the ones aimed for may occur, which affects color or biological effectiveness, resp.

In the days of its discovery organic polymorphism seemed to be a mysterious phenomenon. Firstly Wöhler and Liebig mentioned the formation of crystals of benzamide in a metastable form (1832), and later further authors observed crystals of organic compounds which were assumed to be metastable polymorphs. However, none of these researchers followed the path to investigate the crystals and how they had been formed.

In 1871, the chemist Theodor Zincke reported the formation of a metastable phase of benzophenone. The observation initiated a rich research activity, both experimental and theoretical. Other compounds, as methyl benzophenone, showed a similar behaviour. From supercooled melt, metastable crystals could crystallize which transform back to the stable form by mechanical load, contact with crystals of the stable phase, or just spontaneously. In contradiction to most inorganic compounds, there are no conditions known under which the metastable phase is more stable than the stable one.

This mysterious behaviour led to many theoretical explanations. Schaum called the phenomenon ‘cryptochemical polymorphism’ because the difficulties to reproduce formation experiments and to find a suitable theoretical explanation. Although metastable organic crystals were a ‘hot topic’ in the period 1875 - 1920s, this early research is mostly forgotten.

In this presentation, the author will report the early historical research, describe the phenomenon from a todays crystallographer’s perspective, and discuss some questions related to anniversaries, using the history around organic polymorphism as an example:

The question of priority: is there really only one person who discovered organic polymorphism?

Why is the anniversary forgotten? Could traditions in chemistry/crystallography be the reason?

- The tendency to focus on persons who are well known and honour them again and again
  while others have been forgotten.

Keywords: Organic polymorphism, Benzophenone, Forgotten anniversary

Marie and Pierre Curie and the far from clear-cut discovery histories of polonium and radium

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In 1898, Marie and Pierre Curie discovered two radioactive substances which were substantially more ‘active’ in making air a conductor of electricity than uranium and thorium, the only known chemical elements that exerted this power. The Curies proposed that the two substances were yet undiscovered elements and gave them the names ‘polonium’ and ‘radium’. However, the new radioactive elements proposed by the Curie couple had not even been separated from the mineral fractions in which they were detected, and the main means of their identification was neither using the balance nor the spectroscope but their characteristic and unique radioactivity, as detected via an electrometer.

What constituted a ‘discovery’ in the era of radioactivity, when no balance could be made useful due to the lack of measurable amounts of the unknown substances and when samples were so impure that spectroscopical analysis was initially also difficult? At what point in the research process did the discovery of polonium and radium actually take place? And which year should they be celebrated? When the elements’ characteristic radioactivity was detected, when their unique spectra became visible or their atomic weights were eventually determined, when a salt of the element was separated from the mineral fraction, or when an amount of the metal had been produced? Polonium, which was much harder to detect by other means than radioactivity than radium, and which has therefore been less celebrated, will make a particular case in point.

Keywords: Discovery of chemical elements, polonium, radium, Marie and Pierre Curie, radioactivity

The Power of Nought

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Scientists, along with politicians, royalty, writers, journalists and many others, love anniversaries that end in a zero (or sometimes a five). Though some scientists, such as the Nobel Prize winning photo-chemist George Porter, expressed scepticism about the intrinsic meaning of such events, nevertheless he and many others have seen them as a way to celebrate and publicise science to a broad audience. Most scientific anniversaries celebrate or commemorate the birth or death of significant scientific figures – Lavoisier, Volta, Newton, Faraday, Davy, Darwin, Einstein, Liebig, Curie, Berzelius to name but ten. Sometimes the founding of institutions is marked – the Royal Society of London, the Académie des Sciences in Paris, the Chemical Society in London – and occasionally landmarks of discovery and publication (but do the celebrations make them landmarks?) – benzene, electro-magnetic induction, Einstein's 1905 papers, the determination of the structure of DNA. There have been numerous historical studies of many of these events, but what I want to do in this talk is to consider how the role of professional historians of science in such commemorations has developed over the century. This will allow us to explore the thorny issue of the relationship between scientists and historians over who has the authority to talk about the history of science.

Anniversaries; commemorations; historiography; scientific authority

Session 7B Organizing and funding science

Funding and governance of research, 1970–2020

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A public funding system lays the foundation for public research and has substantial implications on research activities and scientific results. I claim that transitions from exclusive direct institutional funding to a split funding mode represents a significant change in the governance of research. In a split funding mode, direct institutional funding is combined with thematic predefined project grants and programs: That is funds allocated for an institution and/or individual researcher(s) and made valid for a fixed period. Systematic project funding mainly started in the 1970s, was enforced in the 1980s and strengthened after 2000.

In general, research funding agencies can emerge as powerful intermediary organisations in the stages of change of funding systems. In this paper I explore the significance and role of the five Norwegian research councils and from 1993, the national Research Council, in these transition processes. In investigating shifts, I consider the overall goals for the government's research policy. In the 1970s to 1980s/1990s direct economic and societal relevance were announced as utmost key aims. For this period the paper discusses the emergence of (terrestrial) environmental research as an example for the research councils' project grant policy for relevance in this period. In the 2000s, scientific quality, understood as excellence and internationalisation, came into research policy's core. One way the shift was manifested, was the funding and founding of numerous Centres for Excellence for fixed periods of time. I point out how the Research Councils emerged as a significant agency in turning policy into practice.

The paper concludes by discussing concurrent tendencies in the funding system, and thereby in governance of research. Will the Research Council gain a less prominent role in the years to come? Does the government plan to increase the direct institutional funding and put effort on individual, institutional contract agreements to secure scientific quality, but also to amplify science's societal relevance?

Keywords: Funding, governance of research, research council, societal relevance, excellence.

An Image of the Continuity and Discontinuity of Science during the Establishment of the Czechoslovak Academy of Sciences (1953)

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At the end of 1952, the Czechoslovak Academy of Sciences (CSAV) was officially established, and at the same time, all previous large learned societies with a long tradition and extensive scope were abolished. On 1 January 1953, i.e. 70 years ago, most of the CSAV institutes began their work, expected to follow the model of the Academy of Sciences of the Soviet Union as closely as possible. In some respects, especially as regards the formalities, this was indeed the case; however, the situation in the individual scientific branches mostly developed with regard to the specific conditions of Czechoslovak research, and it would therefore be contrary to the truth to speak of a blind and uncritical adoption of the Soviet model. At the same time, different conditions prevailed in institutes that were already continuing in the activities of their institutional predecessors existing several years or decades before the establishment of the CSAV, compared to those in place in completely new institutes. Considerable differences can then be observed between how the institutes of humanities and the social sciences worked as opposed to the institutes of natural sciences and technology. In this article, the Institute of Theoretical and Applied Mechanics, the Institute of Organic Chemistry and Biochemistry, and the Institute of the Czech Language, which by 1953 could pride themselves in the long-standing continuity of their research, will be presented in greater detail for comparison. The newly emerging institutes will be represented by the Institute of Thermomechanics, the Laboratory for Electron Microscopy in Biology, and the Institute of Philosophy. All six examples will also illustrate how the political, ideological or economic circumstances of the time affected the scientific research itself, its continuous direction and new formation.

Czechoslovak Academy of Sciences, Continuity and discontinuity of scientific research, Science and politics

How can the history of higher education in Norway shed light on the contentious relationship between political control and institutional autonomy?

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After a previous, longer history of establishing new, independent institutions for higher education and research, the past 30 years have been a history of institutional mergers. After the last round of mergers from 2015/16 the traditional regional attachment was lost for many institutions, and this has caused the always-present tension between institutional autonomy and government control to burst out in the open around questions of who should have the final say in e.g., closing down campi and study programs.

The history of the development and establishment of higher education in Norway from a longer perspective can shed light on this issue. What considerations were made in establishing higher education institutions in Norway? What does research show about the societal consequences of such establishments? How does this reflect on the mandate of institutions vs. government?

A historical perspective shows strong government involvement in establishing and consolidating certain forms of higher education, including the geographical placement of these institutions, though, particularly in nursing there was initially a strong engagement from religious organizations. Research also shows relatively wide-ranging societal consequences for regions with higher education institutions, both pointing towards a legitimacy behind a certain political control, however, the demarcation between political control and institutional autonomy may be very different for different forms of higher education.

Finally, research on the past 30 years of mergers, which have been politically driven, do not show any signs of actually achieving the stated goals of the reforms, so there are definite arguments to be made in the recent history of higher education against these forms of government involvement.

University reforms, political control, institutional autonomy,

Session 8: Plenary session. Panel on Institutional Anniversaries

Thomas Brandt, NTNU

Kim Helsigv, OsloMet

Astri Andresen, University of Bergen

Kari Tove Elvbakken, University of Bergen

Session 9A Anniversaries as a topic of analysis in the history of science and medicin

Generations Compressed: Bio-Archives, DNA Techno-Creep, and Anniversary Bottlenecks

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**Communicating Author*

Anniversaries in criminal cold cases are deeply ambivalent. For investigators, they tabulate the years of failure to solve a serious crime. For victims, they quantify missed birthdays and personal milestones. However, they also mark hope that technological advances in science and medicine will bring resolution and justice. Our paper examines cold-case murder investigations as a case study of what we term the "anniversary bottleneck effect," where observing anniversaries entails re-evaluating the reservoir of the past in order to determine the flow of future investigations. As we show, this "bottleneck" has profound ethical implications in the way it compresses generational medical data and exploits advances in DNA technology with exclusive reference to the past and present without regard for "future histories."
With reference to several recent cases, we first document how science and medical technology – specifically DNA genealogical searching – allows investigators to probe not just material evidence but multi-generational genetic evidence stretching into the distant past. Second, we argue that although this bio-archive is celebrated as a technological tool for solving historical puzzles with today's scientific advances, analysing this archive poses significant bioethical risks to present and – more crucially – to distant future generations. Finally, we show that the rapid and continuous "creep" of investigational technologies compresses genealogical time scales into a decisional "bottleneck" in which the bioethical decisions we take today will have a disproportionate and inevitable impact on future generations.
Our multi-disciplinary approach combines our expertise in genetics, historiography, bioethics, and theories of time.

Keywords: criminal cold cases; genealogical DNA searching; anniversary bottleneck; bio-archive; techno-creep

Anniversaries as strategy: using celebrations to build ordinary & extraordinary biomedical laboratories

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The challenge of limited space and inadequate facilities have been a reoccurring theme throughout Karolinska Institutet's (KI) expansion in the 20th century. Extraordinary funding in conjunction to anniversaries became a strategy to expand, experiment and consolidate the built infrastructure for the biomedical research. Focusing on the buildings established between 1960-2010 we will compare jubilee-buildings with those constructed as part of ordinary state requests. In particular "lab 60" (the gift from Knut & Alice Wallenberg foundation to KI during its 150th anniversary); "lab 85" (a collaboration with the pharmaceutical company ASTRA initiated during the 175th anniversary) and "aula medica" (financed through fundraising in conjunction to the 200th anniversary where Stefan Persson, the head of the HM family, played a key role). These buildings were all initiated to distinguish the institute and its celebration but also provided an opportunity for KI to test and experiment with organizational structures; extraordinary needs; and internal power-struggles. In short, anniversaries were a tool to go beyond business as usual and implement something extraordinary. For example, lab 60 introduced an organizational flexibility that altered how disciplines in medicine grew; lab 85 consolidated and reorganized these expansions into large powerhouses (especially through the reorganization in 1993); and the Aula centralized the university administration and organization to main building. The aula at the campus in Solna was something in debate since the 1930s. All in all, the examples show the interrelationship between anniversaries and buildings – and how this facilitates transformation.

Keywords: Biomedicine, jubilee-buildings, Karolinska Institutet, spatially organizing

Anniversaries as sites of self-representation: the celebrations of the Austrian Academy of Sciences during the political transformations of the 20th century

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Established in 1847 as the supreme scientific institution of the multinational Habsburg Monarchy, the Academy of Sciences in Vienna has undergone profound transformations. After World War One, cut off from its traditional research areas, patronage, and membership, the Academy had to find its way in a new state territory reduced to one-tenth of its former size; in 1938, the institution was incorporated into the science organization of the Third Reich; and in 1945, it was reestablished as the main scientific body of the new geopolitical “buffer state” between the Western and Eastern blocs. The Academy's insistence on its status, research tradition, and public reputation was countered by a high degree of flexibility and resilience. Thus, the Academy was able to adapt its membership and research program to changing regimes and, by founding new institutes and taking over financially troubled research infrastructure, to become the largest extramural scientific body in Austria today.

This article examines the founding anniversaries of 1897, 1922, and 1947 as sites of self-representation. They provide insights into the Academy's institutional identity, i.e., the ideas about its tasks, its history, its understanding of science, and its relationship to the state bureaucracy. Special attention is paid to the changing interpretations of the Academy’s founding and its self-image as a scientific institution.

Keywords Academy, self-representation, anniversaries, political transformation

Café Scientifique at 25:
Reflecting on Anniversaries as Histories and Histories as Anniversaries

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2023 represents the silver anniversary of the Café Scientifique: Duncan Dallas staged the first such event at a wine bar in Leeds in May 1998 (Dallas 1999). In 2014, the year that Dallas died, science communication scholar Ann Grand remarked: "the café movement was central to Duncan's life; at his memorial, it was mentioned by almost every speaker…,but the news made scarcely a ripple in the wider café family. And that's just as it should be; a network that barely notices the removal of one of its founding nodes is surely the strongest and best kind of network" (Grand 2014, p. 278).

This paper will survey existing English-language accounts and assessments of the history of science cafés that have appeared in a wide range of print media, including (but not necessarily limited to): anniversary essays, science journalism, and promotional essays, as well science communication and science education research articles. It will analyze the tensions in these accounts between individual versus institutional agency, between local versus global effects, and between history and memory. Ultimately, it will offer some larger reflections on how such 'boundary spanning' anniversaries in science and public engagement shape histories and how these histories, in turn, shape the meaning of anniversaries.

References

Dallas, Dallas. Science in culture. *Nature* 399(1999): 120. https://doi.org/10.1038/20118

Grand, Ann.. Café Scientifique. *Science Progress (1916)*. 97, 3 (2014): 275-278. https://doi:10.3184/003685014X14098305289149

Key words: public engagement, science communication, history and memory

Session 9B History of Chemistry

Three Centennial Milestones in the History of Color in Chemistry: 1773, the birth of Thomas Young; 1873, the birth of Edward Waldo Forbes; 1973, Franco Brunello's publication of the monumental first inquiry into the history of dyeing

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1773: At the beginning of the nineteenth century, Thomas Young (1773–1829) obtained experimental evidence for the principle of interference by passing light through extremely narrow openings and observing the interference patterns. This experiment allowed Young to conclude that light had a transverse component, or in other words, his experiments could not be interpreted unless light was understood to have wavelike character. This interpretation eventually gave rise to the idea that light was electromagnetic radiation and has been foundational to our treatment of color ever since. **1873**: Standing at the nexus of the distant past and an undreamed-of future lies that Shangri-La of "cultural passion," the Forbes Pigment Collection at Harvard University. The brain child of Edward Waldo Forbes (1873–1969), Director of the Fogg Art Museum at Harvard from 1909 to 1944, the collection concretizes Forbes's credo that art and science are so firmly linked that a work of art cannot be understood without also understanding the materials from which it is made. With that statement, Forbes kicked off a new discipline, technical art history, thus following in the intellectual tradition of his maternal grandfather, Ralph Waldo Emerson (1803–1882). **1973**: In 1973, Franco Brunello's *The Art of Dyeing in the History of Mankind* appeared, the first inquiry into the history of dyeing that embraced its development from prehistory to the present day. This study opened up the hitherto unexplored field of technological evolution, and served to encourage and aid new studies in the History of Chemistry.

Keywords: COLOR, PIGMENT COLLECTION, TECHNICAL ART HISTORY, HISTORY OF DYEING, TECHNOLOGICAL EVOLUTION

Audiovisual need: Projector for Power Point Presentation

The history of the term ‘polymer’ and its derivatives

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Contrary to what almost all histories of chemistry state, the Swedish chemist J.J. Berzelius did not introduce the term ‘polymer’ in 1832, but the adjective ‘polymeric’. Berzelius himself actually never used the noun ‘polymer’. It took some time for this adjective to evolve into a noun, in fact various nouns, and some verbs. The order by which these terms were introduced might reveal characteristics of the evolution of chemistry: Discovering properties of chemical substances [adjective] → provision (by extraction etc.) of compounds with these properties [noun] → being able to produce (by synthesis) such compounds [verbs and process-related nouns]. As a possible example of grammatical linguistics in chemistry, I will trace the outlines of the terms connected to the century long evolution from Berzelius’ initial term ‘polymeric’ to the modern polymer concept.

Berzelius; isomer; polymer; chemical linguistics

What is lost (and not) in the transformation of the law of Coulomb from 18th century natural philosophy to pupils reasoning about chemical bonding in 21st century classrooms?

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An important phenomena in science education is chemical bonding (e.g. Taber, 2002). In learning chemical bonding, researchers (e.g. Joki & Aksela, 2018) as well as textbooks (e.g. Steen et al., 2018) suggest increased focus on electrostatic interactions and Coulomb's law in helping students reason about chemical bonding. The main parts of Coulomb's law, known as the "Fundamental Law of Electrostatics", was formulated in two memoirs by Charles Augustin Coulomb in 1785 and 1787 (Heering, 1992) - recently re-published and commented in English (Assis & Bucciarelli, 2023). Coulomb's law was published before the atomic theory of matter. Using the law of Coulomb to explain forces between particles such as atoms thus involves extrapolation beyond Coulomb's experiments. In this contribution I, as a chemistry educator, read the law of Coulomb in the context of history of science and ask: What is lost (and not) in the transformation of the law of Coulomb from 18th century natural philosophy to pupils reasoning about chemical bonding in 21st century classrooms?

Keywords: Coulomb's law, chemical bonding, history of science in education

Assis, A. K. T., & Bucciarelli, L. L. (2023). Coulomb s Memoirs on Torsion,'Electricity, and Magnetism Translated into English. *Apeiron*.

Heering, P. (1992). On Coulomb's inverse square law. *American Journal of Physics*, *60*(11), 988–994.

Joki, J., & Aksela, M. (2018). The challenges of learning and teaching chemical bonding at different school levels using electrostatic interactions instead of the octet rule as a teaching model. *Chemistry Education Research and Practice*, *19*(3), 932–953.

Steen, B., Fimland, N., & Juel, L. (2018). Aqua 1 Kjemi 1 Grunnbok (2. Utg.). *Oslo: Gyldendal Norsk Forlag AS*.

Taber, K. (2002). *Chemical misconceptions: Prevention, diagnosis and cure* (Vol. 1). Royal Society of Chemistry.

Circularities in the historical unfolding of chemistry

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By analysing the evolution of the chemical space, understood as the set of chemicals and reactions reported over the history of chemistry, we have found evidence of its exponential expansion, not even affected in the long run by social setbacks such as World Wars. Wondering about the reasons underlying the nature of such a growth, we found evidence of self-reinforcing processes facilitating the rapid expansion of the space on the basis of circular processes and traditions proper of the chemical practice. They include the selection of a few starting materials and classes of chemical reactions to conduct chemical experiments; the selection of theories, e.g. structural theory, to figure out and realise possible reaches of the space; the often use of a reduced set of chemical and instrumental technologies; the regularisation in the teaching and professionalisation of chemical practice; the lasting presence of self-fulfilling prophecies in chemistry, exemplified through a few rules of thumb to expand the chemical space; the politics underlying the adoption of standards and nomenclature systems in chemistry and the synergies proper of World War 2 efforts. These findings trigger questions on the evolution of scientific knowledge and on maturity of sciences.

Keywords: chemical space, self-reinforcing processes, historical circularity, computational history

Session 10A Milestones or Millstones: Specialisms, journals and the teleological imposition of anniversaries

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Anniversaries in the history of medicine have often been used to examine moments of change that are assumed to be both permanent and definable. The celebration of anniversaries contributes to the narrative of neutral scientific knowledge by suggesting that changing knowledge results in clear cut changes in practice. This panel questions the presentation of change as reducible to single moments, and instead seeks to excavate examples of slow incremental change and the long histories hiding behind anniversaries and other sudden demarcations in medical and academic practice. The panel will explore how scientific publications and medical journals have promoted a narrative of internal consistencies and external distinctions for medical knowledge within their specialist communities. This panel will therefore look at three distinct specialisms: psychiatry, medical education and anaesthesia medical histories, and provide an opportunity to explore the imposition of linear and teleological views of scientific change.

Keywords: History of medicine, specialisms, medical journals, incremental change, knowledge transformation

About the classification of personality disorders: Transformation in the face of definable landmarks or incremental change?

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The official classification of personality disorders changed from a categorical to a 'hybrid-model' which contains categorical and dimensional elements. In 1993, the tenth edition of the International Classification of Diseases (ICD-10) was published, and its systematization followed a categorical approach. After 20 years of defining personality disorders as distinct categories, a 'hybrid model' was introduced in 2013 in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). The publication of the revised diagnostic manuals DSM and ICD mark recurrent and definable milestones due to the resulting publication that also impact official policies in the health sector. The change from a categorical system to a 'hybrid-model' appears on the face of a 20 years anniversary. Nevertheless, it is promising to see what lies behind the curtain of attention-seeking anniversaries and how scientific knowledge about personality disorders actually changed.

I explore whether the change in the classification of personality disorders can be analysed by definable landmarks in the form of revised editions of the DSM and ICD or rather by slow incremental change in published knowledge in the scientific communities. Accordingly, I conducted a systematic literature review taking into account scientific publications that addressed the challenge of classifying personality disorders. Authors from psychiatry, psychology and related fields referred to the DSM and ICD revision processes and stated their position in an attempt to influence the expert committee. In addition to the obvious influence of the revision processes, the change from a categorical to a 'hybrid-model' occurred gradually, independently of defined anniversaries.

On dummies and dates: The advent of simulation-based training in medical education

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Celebrating anniversaries can serve two purposes: To recall tradition and to call for modernisation. In 2016, when the Journal for Medical Education's special issue on clinical skills celebrated '20 years of clinical skills training in German-speaking countries', they were referring to the establishment of a single institution. In my doctoral thesis, I explore the history of these institutions, called Skills Labs or simulation centres, which perform simulation-based training for medical education purposes. My analysis shows that there is no single incident at which one discourse on effective didactics replaces another. Rather, there is a layering of different positions on the need for evaluation and reform of educational programmes and institutions. Nevertheless, a subfield such as simulation-based training is prone to invent a tradition in order to maintain its reputation and to append itself to the wider discourse. The call to celebrate the 20th anniversary of clinical skills training in 2016 is used to illustrate that there have been many other instances and incremental changes that could also be used as indicators of the advent of simulation-based training before 1996 and since 2016. This is shown through a content analysis of the articles published in the Journal for Medical Education since its inception in 1984 and the discussions on competency-based medical education in Germany, which is the goal of clinical skills training. This allows for a different account on the history of medical education, while also reflecting the inherent claims that the medical profession capitalises on and needs to reproduce in its educational programmes.

Red herrings and parroted phrases: The pitfalls of commissioned histories

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In the face of constrained funding in UK academia for research on the history of medicine, commissioned histories remain an important source of funds for the sector. Often these commissioned histories are organised around anniversaries or public celebrations of another kind. In spite of their popularity, the potential pitfalls of this way of doing history remain relatively unexamined in the literature. In part, surely, this is due to a reluctance to publicly critique research funders and funding models that sustain historians' livelihoods. And yet when beginning my commissioned PhD on the history of an anaesthesia journal, this reluctance meant there was little conceptual or practical guidance on the impact of commissioned histories on my primary research method, oral history. By framing the project as a celebratory history connected to the journal's centenary, the project funders created expectations around permitted narratives and dialogue about the journal's past. These parameters enforced within some participants' oral history narratives an expectation of a teleological view of the journals past and the scientific development of anaesthesia, suppressed discussion of more negative or complex views of events, and led to the repetition of narratives deemed safe by participants, due to their being part of a well-rehearsed public history of the specialism. By examining the impact of commissioned histories and the use of anniversaries on my oral history narratives, I argue that well established consideration of the context of oral history research on the resulting narratives should be expanded to include examination of the impact of commissioned and anniversary centric projects.

Session 10B Medicine, disease, and treatment

Paul Ehrlich and the co-construction of Magic Bullet imaginaries

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On March 14 every year Paul Ehrlich's birth day is celebrated in St *Paul's Church in Frankfurt. Ehrlich (1854-1915) is highly regarded as the founder of chemotherapy and received the Nobel Prize for Physiology or Medicine for his work on immunity. Ehrlich proposed the now famous concept of molecules that specifically bind to cell receptors and only have an biological effect when they are bound: "Corpora non agunt nisi fixata". Based on this concept Ehrlich together with the Japanese researcher* Sahachirō Hata (1873-1938) *succeeded in developing an antisyphilitic therapy with the* laboratory code 606. From the moment Ehrlich publicly announced the successful test results in the spring of 1910, the news spreads like wildfire that a new Zauberkugel or miracle drug against syphilis was available. In the international media Salversan was redubbed as Ehrlich´s 'magic bullet' 606. Thus, Ehrlich is turned into the guiding star of the imminent 'golden age' of therapeutics as part of the new paradigm of specific cause and cure. The heroic media narratives reflect essential tenets of the 'magic bullet' imaginaries that, as I will point out have played an important role in shaping and dominating therapeutic practices and cultures right into the 21th century. The advent of new generations of effective therapeutic drugs indeed bestowed unprecedented powers of healing on physicians and helped to increase life expectancies dramatically around the globe. However, the popular post WOII belief that both infectious disease and most other diseases would meet their matches thanks to a continuously growing armamentarium of targeted drugs produced by a highly innovative pharmaceutical industry did not materialize.

Keywords: Ehrlich, Zauberkugel, magic bullet, imaginaries

A case approach to the discovery of the leprosy bacillus and nature of science

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Historical examples have been promoted as a motivating and engaging way to gain insight into the nature of science (NOS). The discovery of the leprosy bacillus, celebrated in the 150th anniversary in 2023, can provide a good case for learning about the nature of science.

Today, leprosy is an uknown disease in many developed countries, however the disease was widespread in Norway in the 17th Century, with especially many cases in the west of Norway. The disease was devastating and ruined the lives of the patients, and there was no cure. Thus, finding the cause of the disease was a hot topic that absorbed many of the best minds of the time. However, today most young people in Norway do not know that the cause of the disease is the leprosy bacillus nor that the discoverer was the Norwegian medical doctor Gerhard Armauer Hansen. Lack of prior knowledge makes the case of the discovery of leprosy a good starting point for studying. The case also covers observational, conceptual and sociocultural aspects of science, as described in the whole science model described by Allchin (2017).

An important principle when using examples from the history of science is that teaching must include explicit reflection. Inspired by a teaching approach developed by Rudge & Howe (2009), a student active and reflective teaching plan on leprosy and the nature of science was developed for pre-service teachers. In the teaching plan the pre-service teachers were introduced to historical data that the scientists had on leprosy at different times in history. Pre-service teachers were invited to study original historical data, formulate hypotheses, as well as participating in group discussions to share ideas and evaluate their own hypotheses. The teaching plan also included reflecting on what the pre-service teachers could learn about NOS from their own group work. For instance, pre-service teachers reflected on how and why the different groups developed different hypotheses from looking at the same data, and how their ideas changed with new knowledge and new ideas that were introduced in the society in the 17th century concerning the germ theory. The case of the discovery of the leprosy bacillus also opens up for discussions on the ethical dimensions of science, as Hansen was convicted of misusing his position of authority to intentionally try to transmit a disease to a patient without the patient’s consent.

Keywords: leprocy, nature of science (NOS), Gerhard Armauer Hansen

Literature:

Allchin, D. (2017). Beyond the Consensus View: Whole Science. Canadian Journal of Science, Mathematics and Technology Education, 17(1), 18–26. https://doi.org/10.1080/14926156.2016.1271921

Rudge, & Howe, E. M. (2009). An explicit and reflective approach to the use of history to promote understanding of the nature of science. Science & Education, 18(5), 561–580. https://doi.org/10.1007/s11191-007-9088-4

Notice of general assembly 2023 for the Norwegian Conferences on the History of Science

Agenda

1. Selection of meeting chair and secretary (responsible for minutes)
2. Approval of notice of general assembly and agenda
3. Discussion and decision item: Establishment of the Norwegian Association for the History of Science (NVF). Presentation of the conference's history by Jon Røyne Kyllingstad.
4. Discussion and decision item: Statutes of the NVF.
5. Discussion and decision item: Membership dues.
6. Discussion and decision item: Next conference venue. Suggestion: Bergen. Presentation from Magnus Vollset.
7. Selection of leadership committee members (committee chair to be elected separately). Candidates to each make a brief presentation to the conference.
8. Any other business.

Item 3: Establishment of the Norwegian Association for the History of Science (NVF)

For several years a history of science conference has been coordinated by a program committee chosen by conference participants to lead the organizational work for the next conference. The program committee proposes to establish the Norwegian Association for the History of Science (NVF) as an organization registered in the Brønnøysund Register with its own economic organization. One objective of the NVF is to represent Norway in the Division of History of Science and Technology (DHST) under International Union of History and Philosophy of Science and Technology (IUHPST).

Proposition for approval: The Norwegian Association for the History of Science (NVF) shall be established. The new leadership committee shall take responsibility for registering the NVF in the Brønnøysund Register and nominate as the Norwegian representative organization within DHST/IUHPST.

Item 4: Statutes for the NVF.

A proposed set of statutes is appended. For your information: Since 2018, the program committee has been working in line with the following set of temporary statutes (available in Norwegian only): The Program Committee for the Norwegian Conferences on the History of Science. - Museum for universitets- og vitenskapshistorie (uio.no)

Proposition for approval: That the proposed statutes shall be approved.

Item 5: Membership dues

Proposition for approval: The membership dues for each two-year period shall be NOK 300. Payment shall normally take place in association with registration for the conference (with the possibility to refrain from joining the NVF when registering for the conference), but it shall also be possible to join the NVF without registering for the conference.

Item 7: Leadership committee members

It is proposed that the following leadership committee be approved:

Chair: Annette Lykknes

Committee members: Magnus Vollset, Gregory Ferguson-Cradler, Peder Roberts, Roland Wittje, Solveig Siem. *It is hoped that one additional nomination will be received from a non-male person.*

Proposition for approval: The nominated persons shall be confirmed as the leadership committee of the NVF.

NORWEGIAN ASSOCIATION FOR THE HISTORY OF SCIENCE (NFV)

Proposed statutes, November 2023.

I The Association's objectives

1. The Norwegian Association for the History of Science (NVF) is an independent association based in Norway. The Association's objective is to gather and make visible the Norwegian history of science community.
2. The objective is furthered through:
   a) Organizing a history of science conference every second year
   b) Representing Norway in the Division of History of Science and Technology (DHST), within the International Union of History and Philosophy of Science and Technology (IUHPST).
   c) Contribute to information dissemination and other measures consistent with §1.

II The Association's membership

3. The Association accepts as members active researchers, advanced students, and others with interest and competence in the history of science and in related fields.

III The Association's functions and organs

4. The Association's main organ is the general meeting, held every second year in connection with the history of science conference. The meeting is open to all members of the Association who have paid their membership dues.
5. The announcement of the meeting, along with appended documents, shall be made available to members no less than fourteen days before the meeting.
6. The meeting approves the annual report and account and approves the budget for the coming two-year period. The meeting sets membership dues. The meeting chooses the local organizers for the next conference and considers other matters that may arise.
7. If necessary the leadership can call an extraordinary meeting outside the time frame of the conference.
8. The Association's regulations can be changed at either a general meeting or an extraordinary general meeting. Such a change shall require a two-thirds majority of votes cast.
9. The Association may be dissolved if a two-thirds majority of votes at a general or an extraordinary general meeting approves a proposition for dissolution.
10. The Association's leadership consists of a committee of five to seven representatives chosen at the general meeting. The committee shall normally consist of a chair, a treasurer, a secretary, a member responsible for the Association's website, and a representative of the local organizers for the conference following the election. The chair is selected by the general meeting while remaining members of the committee constitute themselves.
11. The term of office for all members of the leadership committee shall be two years or until the next election, should the period between conferences deviate from the standard two-year cycle. Committee members are eligible to serve for successive terms.
12. NVF shall strive to achieve gender balance in its leadership committee, with no more than 60% representation by any one gender. The Association shall further strive to achieve

representation from a diverse range of institutions, age groups, and disciplines. It is desirable that at least one PhD student shall be a member of the leadership committee at any time, and that at least one member of the committee shall represent the local organizers of the conference following the time of the election.

13. The leadership committee shall nominate candidates to serve on the committee in advance of every election.

IV The history of science conference

14. NVF shall strive to arrange a history of science conference every second year. The objective is to serve as a meeting place for researchers working with Norwegian history of science, Norwegian researchers working in history of science outside the geographic limits of Norway, and researchers working on topics of interest for the history of science in Norway.
15. The leadership committee shall serve as the program committee for the conference. The program committee shall have responsibility for the conference's academic content. The committee's primary objectives are to issue a call for participation in the conference, to ensure that this is circulated widely in relevant scholarly circles, and to compile a program in keeping with accepted academic norms.
16. The program committee shall ensure that sufficient resources are obtained to allow the conference to be held, including seeking economic support in conjunction with the local organizers.
17. Scholarly quality shall be the primary criterion for accepting contributions to the conference.
18. The language of the conference may be Norwegian or English. The program committee shall be empowered to choose the conference for each conference and whether to accept contributions in other languages.

Innkalling til årsmøte for de vitenskapshistoriske konferansene 2023

Agenda

1. Valg av møteleder og referent
2. Godkjenning av innkalling og agenda
3. Diskusjons- og vedtakssak: Opprettelse av Norsk forening for vitenskapshistorie (NFV). Presentasjon om de vitenskapshistoriske konferansens historie ved Jon Røyne Kyllingstad.
4. Diskusjons- og vedtakssak: Statutter for NFV.
5. Diskusjons- og vedtakssak: Medlemsavgift.
6. Diskusjons- og vedtakssak: Neste konferanse. Forslag: Bergen. Presentasjon ved Magnus Vollset.
7. Valg av styre for NFV (leder velges separat). Kandidatene presenterer seg kort for årsmøtets medlemmer.
8. Eventuelt

Til sak 3: Opprettelse av Norsk forening for vitenskapshistorie (NFV)

I en årrekke har arbeidet med de vitenskapshistoriske konferansene blitt koordinert av en programkomité som har blitt valgt av konferansedeltakerne for å lede arbeidet fram mot neste konferanse. Programkomiteen foreslår nå å opprette Norsk forening for vitenskapshistorie (NFV) som skal registreres som ny organisasjon i Brønnysundregisteret med egen økonomi. Det er et mål at NFV skal representere Norge i Division of History of Science and Technology (DHST) under International Union of History and Philosophy of Science and Technology (IUHPST).

Forslag til vedtak: Norsk forening for vitenskapshistorie (NFV) opprettes. Det nye styret får ansvar for å registrere organisasjonen i Brøynnøysundregisteret og melde den inn som norsk medlemsorganisasjon for DHST/IUHPST.

Til sak 4: Statutter for NFV.

Forslag til nye statutter i vedlegg. Til info har programkomiteen siden 2018 arbeidet ut fra følgende, midlertidige statutter: The Program Committee for the Norwegian Conferences on the History of Science. - Museum for universitets- og vitenskapshistorie (uio.no)

Forslag til vedtak: De nye statuttene vedtas.

Til sak 5: Medlemsavgift

Forslag til vedtak: Medlemsavgift for to år er kr 300. Innbetaling skal fortrinnsvis skje i forbindelse med registrering til konferanse (med mulighet for å velge dette alternativet bort), men det er også mulig å melde seg inn uten å delta på konferansen.

Til sak 7:

Programkomiteens innstilling til styre, som velges for to år:

Leder: Annette Lykknes

Styremedlemmer: Magnus Vollset, Gregory Ferguson-Cradler, Peder Roberts, Roland Wittje, Solveig Siem. *Vi ønsker gjerne et kvinnelig medlem til.*

Forslag til vedtak: Det foreslåtte styret velges.

NORSK FORENING FOR VITENSKAPSHISTORIE (NFV)

UTKAST TIL VEDTEKTER, november 2023.

I Foreningens formål

1. Norsk Forening for Vitenskapshistorie (NVF) er en frittstående forening basert i Norge. Foreningen har som formål å samle og synliggjøre det norske vitenskapshistoriske miljøet.
2. Formålet søkes praktisk oppnådd gjennom:
   a) å hvert annet år arrangere en vitenskapshistorisk konferanse
   b) å representere Norge i Division of History of Science and Technology (DHST), del av International Union of History and Philosophy of Science and Technology (IUHPST).
   c) Å bidra til informasjonsflyt og andre tiltak i tråd med §1.

II Foreningens sammensetning

3. Som medlem i foreningen kan opptas aktive forskere, viderekommende studenter og andre med interesse og kompetanse innen vitenskapshistorie og beslektede fagfelter.

III Foreningens organer

4. Foreningens øverste organ er årsmøtet, som avholdes hvert annet år i forbindelse med konferansen. Årsmøtet er åpent for alle medlemmer som har betalt medlemsavgift.
5. Innkalling til årsmøtet med sakspapirer sendes medlemmene minimum 14 dager før årsmøtet.
6. Årsmøtet godkjenner årsmelding og regnskap og vedtar budsjett for kommende to-årsperiode. Årsmøtet fastsetter medlemskapsavgiften. Årsmøtet velger lokal arrangør til neste konferanse, og behandler innkomne saker.
7. Ved behov kan styret kalle inn til ekstraordinært årsmøte
8. Vedtektene kan endres på årsmøtet eller ekstraordinært årsmøte. Vedtektsendringer krever 2/3 flertall av avgitte stemmer.
9. Foreningen kan oppløses etter minst 2/3 flertall av avgitte stemmer på årsmøtet.
10. Foreningens styre består av fem til sju styremedlemmer valgt av årsmøtet. Styret skal normalt bestå av leder, kasserer, sekretær, webansvarlig, samt lokal ansvarlig for neste konferanse. Leder velges direkte av årsmøtet, mens resten av styret konstituerer seg selv.
11. Foreningens styre velges for to år av gangen, eller for tiden fram til neste konferanse, dersom denne avviker fra den vanlige toårige rytmen. Styremedlemmer kan gjenvelges.
12. NVF tilstreber kjønnsbalanse i styret, normalt 40:60-fordeling. Foreningen tilstreber videre representativitet slik at ulike institusjoner, aldersgrupper og fagområder er representert. Det er ønskelig med minst én doktorgradsstudent i styret til enhver tid, og at arrangør av kommende konferanse representeres med 1-2 medlemmer.
13. Styret er valgkomite fram mot neste årsmøte og foreslår kandidater til neste styre.

IV Den vitenskapshistoriske konferansen

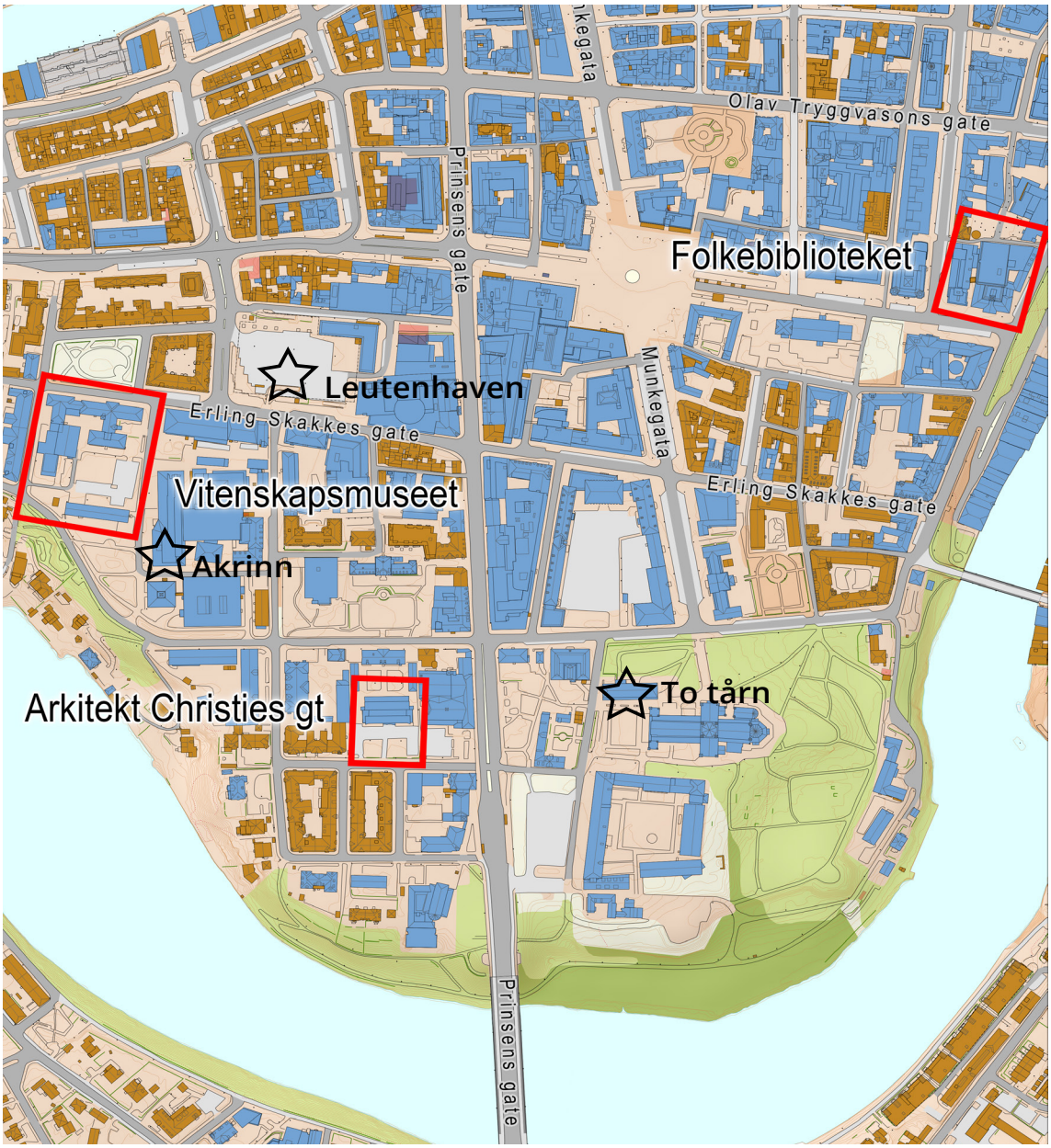
14. NVF skal tilstrebe å arrangere en vitenskapshistorisk konferanse hvert annet år. Formålet er å fungere som en møteplass for forskere som arbeider med norsk vitenskapshistorie, norske forskere som arbeider med ikke-norsk vitenskapshistorie og vitenskapshistorikere som arbeider med emner av interesse for norsk vitenskapshistorie.
15. Styret fungerer som programkomité for konferansen. Programkomiteen har ansvar for det faglige innholdet i konferansen. Komiteens primære oppgaver er å utarbeide invitasjon til deltakelse, sørge for at denne blir kjent i relevante fagmiljøer, og utforme et program i tråd med gjeldende faglige standarder.
16. Programkomiteen skal sikre tilstrekkelige ressurser til å gjennomføre konferanse, herunder søke om økonomisk støtte i samarbeid med det lokale vertskapet for den kommende konferansen.
17. Vitenskapelig kvalitet skal være det fremste kriteriet for å velge ut bidragsytere til den vitenskapshistoriske konferansen.
18. Konferansespråket kan være norsk eller engelsk. Programkomiteen står fritt til å bestemme språk for den aktuelle konferansen og inkludere bidrag på andre språk.

Name	Institution
Astri Andresen	University of Bergen (Norway)
Matthias Bäckström	NTNU
Thomas Brandt	NTNU
Filip Buyse	KVCV (Belgium)
Håkon Aamodt Caspersen	University of Oslo (Norway)
Katharina Clausius	Université de Montréal (Canada)
Michael Crawford	University of Windsor, Ontario (Canada)
Jasmin Dierkes	University of Wuppertal (Germany)
Věra Dvořáčková	University of Chemistry and Technology, Prague (Czech Republic)
Liv Katarine Edenborg	Student assistant
Unni Eikeseth	NTNU
Sophia Efstathiou	NTNU
Kari Tove Elvbakken	University of Bergen (Norway)
Gregory Ferguson-Cradler	Innland Norway University of Applied Sciences
Terje Finstad	NTNU
Matias Fjærli	Student assistant
Ellen Grav	NTNU University Museum
Alexander Haraldsvik-Lyngsnes	NTNU University Library
Kim Helsvig	OsloMet (Norway)
Matthew Holmes	University of Stavanger (Norway)
Brit Marie Hovland	VID specialized university
Mentz Indergaard	Independent scholar (Norway)
Stein Johansen	NTNU University Library
Floor Kamphorst	NTNU
Ronny Kjelsberg	NTNU
Mikko Kohvakka	University of Eastern Finland
Widar Kristoffersen	NTNU
Nina Kruglikova	Independent scholar
Hartmut Kutzke	Museum of Cultural History, University of Oslo (Norway)
Jon Røyne Kyllingstad	University of Oslo (Norway)
Ageliki Lefkaditou	University of Oslo (Norway)
Olof Ljungström	Karolinska Institutet (Sweden)
Erlend Lund	NTNU University Library
Annette Lykknes	NTNU
Johannes Mattes	University of Oslo (Norway)
Sarah Minuto	Ministry of Education (Italy)
Robert Naylor	University of Manchester (England)/University of Copenhagen (Denmark)
Daniel Normark	Uppsala University (Sweden)
Tom Nurmi	NTNU
Smita Odedra	University of Glasgow (Scotland)
Mary Virginia Orna	ChemSource, Inc. (USA)
Claudia Passarella	University of Padova (Italy)
Toine Pieters	Utrecht University
Jonas Persson	NTNU
John C. Powers	Virginia Commonwealth University (USA)
Magne Brekke Rabben	NTNU
Karen A. Rader	Virginia Commonwealth University (USA)
Per-Olav Broback Rasch	NTNU University Library
Carsten Reinhardt	Universität Bielefeld (Germany)
Guillermo Restrepo	Max Planck Institute for Mathematics in the Sciences (Germany)

Jon Anders Risvaag	NTNU University Museum
Alessio Rocci	Vrije Universiteit Brussels (Belgium)
Siobhan Moira Ryan	Trøndelag nettskole
Nora Schierenbeck	University of Wuppertal (Germany)
Vera Schwach	Nordic Institute for Studies in Innovation, Research and Education
Svein Atle Skålevåg	University of Bergen (Norway)
Linnea Soler	University of Glasgow (Scotland)
Camilla Berge Vik	NTNU
Magnus Vollset	University of Bergen (Norway)
Martina Wallberg	Uppsala University (Sweden)
Roland Wittje	Indian Institute of Technology Madras/University of Oslo (Norway)

Digital participants

Eleanor Shaw	University of Manchester (England)
Frank James	University College London (England)
James Fleming	Independent Scholar (USA)



”Rådhussalen” at the old city hall is located at the Trondheim Public Library (Folkebiblioteket), entrance from Kongens gate 2, the stairs up to the left

The conference venue is located at Arkitekt Christies gate 2, with lectures and sessions in Room A120 and Room A123

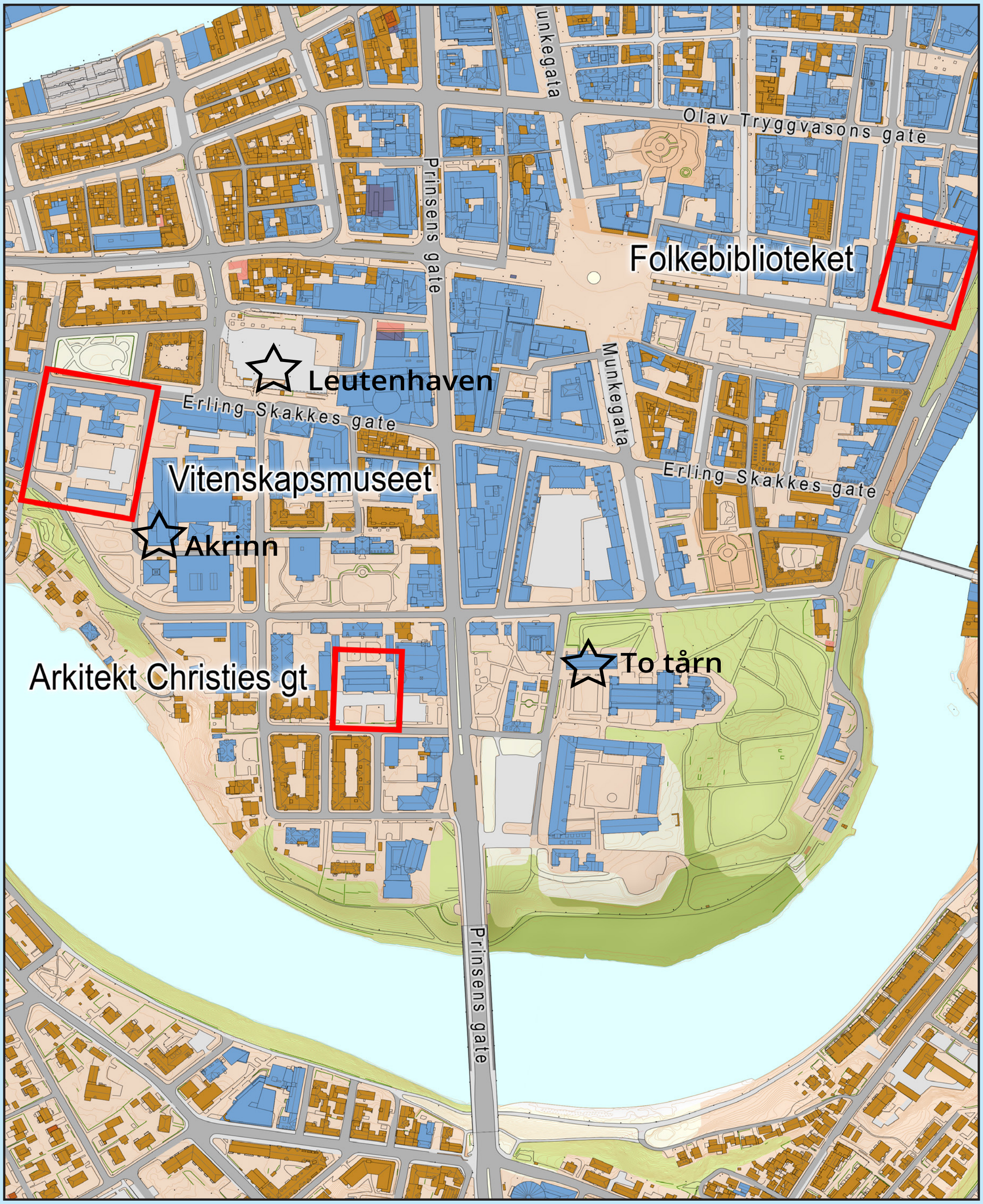
Lunch is served in the Cantina at Akrinn, NTNU

The NTNU University Museum (NTNU Vitenskapsmuseet) is located at Erling Skakkes gate 47

The NTNU Gunnerus Library (NTNU Gunnerusbiblioteket) is located at Kalvskinnsgata 1B, next to Vitenskapsmuseet

To Tårn is the restaurant where we have dinner on Thursday. It is located right next to the Cathedral

The bus to the excursion on saturday leaves from Leutenhaven, a parking lot next to the NTNU University Museum



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UNIVERSITY OF OSLO

Museum of University History
Science Studies Colloquium