

History of the Danish Microbiological Society

It reminds you of a movie that depicts a celebrity's life from cradle to adulthood. In fact, the Danish Microbiological Society (DMS) was conceived five years before Watson and Crick began their work to clarify the structure of the DNA molecule. And the DMS was officially founded exactly 5 years after the structure was published in *Nature* in April 1953. Indeed, in the following decades, the "new" DNA structure quite directly decided the focus and efforts of DMS.

Well before the DMS was founded, several Danish microbiologists organized what they called the Danish Microbiologists' Association, in fact, in English, in order to host the Fourth International Conference on Microbiology. That was in 1946. This allowed them to get grants for such a congress. These microbiologists were already well-known in their fields of specialty, such as Sigurd Orla-Jensen (concerted use of lactic acid bacteria in cheese-making, Polytechnical Highschool), Øjvind Winge (genetics of yeast in the beer industry, Carlsberg Laboratories), Kai Adolf Jensen (tuberculosis and its bacterium, University of Copenhagen), and Jeppe Ørskov (single-cell pathogenesis and vaccination, Statens Serum Institut).

Then in 1958 several microbiologists in Denmark felt that there was a need to have a more permanent organization to support the rather varied activities in Danish microbiology. Therefore, some of the same scientists as above met to found the Danish Microbiological Society on April 28, 1958. The first board of the society consisted of several people who soon became world-renowned microbiologists: H.L. Jensen (soil microbiology and the degradation of pesticides, the Government Laboratory for Soil and Crop Research), Aage Jepsen (*Salmonella* and its distribution in the aquatic environment, Royal Vet. and Agr. University), Aksel Stenderup (mycopathology, Aarhus University), and Ole Maaløe (replication of the bacterial chromosome, Univ. of Copenhagen).

More DNA history than DMS history - until 2017

Time does fly, and when DMS should have celebrated its 50th anniversary, in 2008, no one realized it, not even the board of the Society. Five years later the board discovered that neither it nor anyone else had been archiving DMS' history. Therefore, those current and some former board members set out to document the life of the organization to be made public for all to know. In the Spring of 2017 the board has produced this documentation.

Invited talks reflect the Age

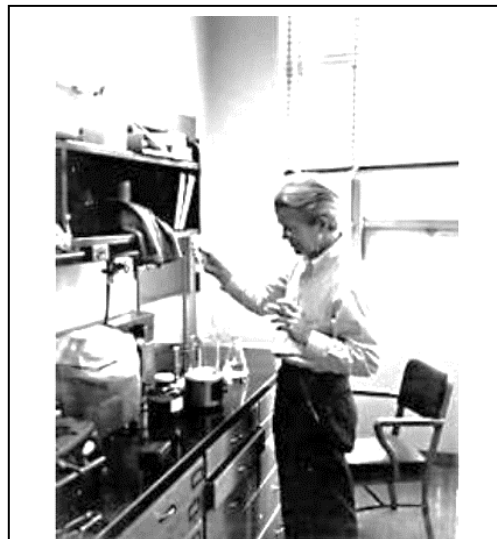
From 1958 and several years on, DMS hosted a number of talks on subjects that we today would consider as very fundamental and essential for our field, almost all of them held in Danish. For example:

- "Genetic relationships in yeast-fungi" (Øjvind Winge, 1958),
- "Chemo-resistant staphylococci" (Riewerts Eriksen, 1958),
- "Genetics of micro-organisms" (E.L. Tatum, 1958, who received the Nobel prize the same year),
- "Biological degradation of organic chlorine compounds" (HL Jensen, 1959),
- "On DNA synthesis in bacteria" (Ole Maaløe, 1960),
- "Water as the source of infection of nosocomial infections of *Pseudomonas aeruginosa* and other Gram-negative rods (Riewerts Eriksen, 1961),
- "On the methods for induction and isolation of mutants in bacteria and fungi and methods for the induction of forward and reverse mutations using alkylizing compounds and nitrite" (N.O. Kjeldgaard and H Malling, 1962)
- "Automatic recording of the growth rate of bacteria" (L. Tybring, Løvens kemiske Fabrik, 1968)

These talks were held in Danish, except for talks by foreign scientists, which most often were in English. The list of speakers for just the first twelve years of DMS' life witnesses the high level of science that the Society kept. Alone in 1961, only three years after the Society was founded, there were thirteen meetings for the members, and there were 210 paying members.

Nowadays, reading the list of talks from the 1970'ies and 80'ies provokes a strange feeling of déjà vue. Now, 30 or 40 years later, hasn't one just recently seen the same title for a talk announced on the digital media?:

- "The significance of disinfectants for the inactivation of viruses" (held by Prof. Ebba Lund, 1973)
- "The importance of biofilms for microbial processes" (in a DMS symposium, 1980)
- "Microbial transformations in sediments and deep soil" (in a DMS symposium, 1984).



Ole Maaløe in the lab in 1966, the last time he was spotted with a pipette in one hand - and a cigar in the other. (Photo: Niels Fiil)

In the 1960'ies, 70'ies, and 80'ies, DMS organized a number of excursions around Denmark to facilities that do research in or make practical use of microbiology. These ranged from

commercial research laboratories to municipal sewage treatment plants. Many of these excursions are listed on the adjacent document "Selected excursions for DMS members 1961-84" (only in Danish).

**Invited speakers at DMS meetings,
1958-1970**

EL Tatum, Rockefeller Institute, USA
RGE Murray, Canada
REO Williams, London, England
Mark H Richmond, London, England
VBD Skerman, Australia
V. Vinter, Czechoslovakia
AJ Salle, the Netherlands
RB Parker, USA
N Grecz, USA
Roger Y Stanier, USA
Gordan Edlin, USA
Donald Johnstone, USA
J Fabricant, USA
John L Ingraham, USA
Raymond Byrne, USA
U Henning, Germany
Yasou Takai and J Lasik, Praha,
Czechoslovakia
IL Schechmeister, USA

"Lectures and laboratories must be kept apart"

Attending talks at DMS meetings in daytime hours has not always been seen as appropriate. Until the 1980'ies talks were only held at evening meetings because it was not viewed as a proper use of workhours to sit and listen to them. Lab work and teaching responsibilities were to be tended to during daytime hours; other microbiological activities were to be fit into time after work. The board of DMS discussed these priorities at many of its meetings. Perhaps by the same token, DMS started having more than one talk at a meeting, as a means of making absence from the workplace more efficient. Thus, the board agreed to the concept of hosting single symposia with several talks of shorter duration.

DMS and international networks

In the 1960'ies many microbiologists in Northern Europe wanted a closer cooperation among the various national societies for microbiology. After some years' of negotiation, the North West European Microbiological Group, the NWEM, was formed in 1968. Its partners were from the UK, Denmark, Norway, Sweden, Finland, and the Netherlands. The national societies were, respectively, the Society for General Microbiology, Danmarks Mikrobiologiske Selskab, Svenska Foreningen for Mikrobiologi, Societas Biochamica, Biofysica et Microbiologica Fenniae, and Nederlandse Verenging voor Microbiologie. The first NWEM meeting was held in September 1968 in Edinburgh, and the sixth meeting was hosted by DMS in August 1974 in Copenhagen, chaired by K. Riwerets Eriksen, the president of DMS. NWEM was disbanded again in 1979 because the new Federation of European Microbiological Societies (FEMS) covered all of Europe so that a regional organization of microbiologists was superfluous.

The Federation of European Microbiological Societies (FEMS) was formed in 1973-75 at meetings in Paris and London, and the first FEMS symposium was held in Dundee, Scotland, in 1976. The thirty-third symposium was organized by Annelise Kjøller, president of DMS, Arne Helweg, Sten Struwe, Vagn Jensen and Henning Sørensen.

In 1974 DMS was contacted by the American Society for Microbiology on the occasion of ASM's 75th anniversary. The ASM archives wished to publish in *ASM News* a brief history of

microbiology in Denmark, including about DMS itself. Although never published by the ASM, N.F. Buchwald, one of the founders of DMS, wrote a very fine historical overview from 1877 to the founding of DMS. This document, in Danish, entitled "Danmarks mikrobiologiske Selskab," is to be found adjacent to the present one.

In 2004 FEMS contacted DMS for help in establishing a grant for young scientists. The grant of maximally DKK 74,500, or €10,000, was to support the young scientist's research at another laboratory for at least a half-a-year. The grant was to be named for H.L. Jensen (1898-1977), as a recognition of his ground-breaking research in the azotobacteria in root nodules. H.L. Jensen was, indeed, also one of the founders of the Danish Microbiological Society and a member of the board and active member for many years. For establishing the FEMS grant, a biography of H.L. Jensen was put together by Arne Helweg and Stephen Wessels, both former secretaries of the DMS. The biography was published by FEMS in 2005, and the grant was awarded for the first time the same year and about every other year after that.



HL Jensen's group in 1968

Kjeld Engvild, Minna Schrøder, HL Jensen, Fru Bach, Annalisa Hansen, Sten Struwe. (*Photo taken at Statens Planteavlslaboratorium, 1968.*)

Partnership with a labor union

From 2005 to about 2010 the board of DMS sensed a diminishing activity and interest for DMS among its members. The board suspected that the decreased activity was due to an increased work load on the individual board member, leaving less time for the voluntary work for DMS, which could result in fewer services offered to our members. In 2009-2010 the board discovered an interest for partnerships based on the natural sciences from the two Danish labor unions the Danish Association of Masters and PhDs and the Danish Society of Engineers. Both labor unions said they wished to strengthen their own profiles as being not purely labor organizations but also ones with a scientific element. Therefore, the board of DMS

inquired with both labor unions about a partnership.

In the Spring of 2011 the DMS board drew up a contract for cooperation with the Danish Association of Masters and PhDs (DM). The agreement was very favorable for DMS and continues today (2017). It guarantees DMS' continued independence, including right to administer our capital. The labor union does not require that our members are also are members of the union, or any other union. The agreement also ensures that we can maintain our memberships of e.g. FEMS and International Union of Microbiological Societies (IUMS).

The contract with DM contains the following elements:

- DM pays the wage of a student helper for 60 hours of work a year.
- The student helper could have a workplace at the DM office and would be trained to assist DMS in administrative functions and membership offers, such as a membership catalogue, dues administration, and updating of the Internet homepage.
- DMS may use DM's office facilities, meeting rooms, meeting catering, and IT systems.
- DMS received support by DM's meeting and conference center for our member meetings.

Annual conference as a "booster shot"

Just before completing the contract with DM, in November 2010, the DMS board had organized and held a large scientific meeting, in the conference room of the Univ. of Copenhagen, on Thorvaldsensvej on Frederiksberg. The attendance at the meeting was particularly large, and interest in the meeting was most probably sparked by the keynote speaker, Terry C. Hazen, who held a talk on the very current oil disaster in the Gulf of Mexico. In April of that year, the oil platform *Deepwater Horizon* had exploded, causing a massive leak of crude oil. Hazen described the microbiological metabolism of the oil and its partial degradation.

The intense interest at the 2010 conference instilled an organisational enthusiasm in the board. Many microbiologists had registered as new members, so there must be a greater potential for organizing microbiologists in Denmark. Therefore, the board decided to locate the next year's conference as the prominent Eigtved's Pakhus. This edifice is from 1750, right on Copenhagen's harbor front, and is the Danish State's Central Administration's meeting, conference, and representation facility. From November 2011 and at least the next 6 years Eigtved's Pakhus has been the venue for DMS's very large annual conference. Only the regulations on fire safety has limited the number of participants, at about 320. At the 2016 conference, this limit was invoked.

Annual meeting becomes a funds-generating "Annual Congress"

From 2012 the DMS received financial support from FEMS for the annual conference, and from 2013, from American Society for Microbiology (ASM). In order to grant finances to the meeting, the ASM required, though, that the meeting be termed "a congress," which met with immediate approval by the board.

The work to organize the annual congress soon proved to be more than the DMS board and student helper could manage. Therefore, the board contacted the company CAP Partner, located



Excursion to the State Veterinary Institute for Virus Research on island Lindholm.

June 9, 1980. Left to right: Annelise Kjølner, Ib Schneider, and Karin Vestberg.

on Frederiksberg in Copenhagen. This company specialized in both practical and financial assistance in organizing larger scientific meetings and in strategic counseling of organizations like DMS. In 2014 a contract was made with CAP Partner to assist with the DMS annual congress. The contract did not overlap at all with the assistance offered by DM, and it provided for a clear division of responsibility between the science (DMS) and the financial and organizational obligations (CAP).

The cooperation between the DMS board and CAP Partner was not only fruitful but also easy and efficient. The same individuals from CAP also participated in the DMS board meetings, as wished by both the DMS board and CAP. Communication was clear and direct about every activity and every change of activity in connection with DMS' meetings, development as an organization, and its finances.

A fundamental condition of the contract with CAP was that CAP virtually received a fixed percent of the income from meetings the members were to pay for such as the congresses. As a direct result of CAP's assistance, right away the congresses were a financial positive. However, more importantly, the cooperation with CAP gave the DMS board members more freedom to focus on the scientific aspects of organizing each congress, such as detailed definition of sessions and the subsequent planning of the science. This also went for the planning of smaller thematic afternoon meetings between the annual congresses.

DMS' financial assets and its membership as of 2017

By the end of the 1990'ies, DMS had accrued substantial capital as an organisation and decided to invest in Danish stocks. None of these have not yet been redeemed, and at the end of 2016 these stocks had a value of about DKK 116,000.

The first decades of DMS, there were very few women among its members. For many years the board consisted only of men, and external activities and lectures were carried out almost exclusively by men. This gender inequality reflected the tendency of the time in the Danish society as a whole. Fortunately, from about the 1980'ies more and more women have studied microbiology in Denmark. Indeed, at the end of 2015 DMS had a total of 410 paying members, of these 35 student members, and of the 410 members, 60.1% were women and 39.9% men.

Written by Stephen Wessels, with much assistance from the rest of DMS' former and current boards, Spring 2017. Special thanks to Annelise Kjølner and Sten Struwe.

Board of the Danish Microbiological Society - 2016-17

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