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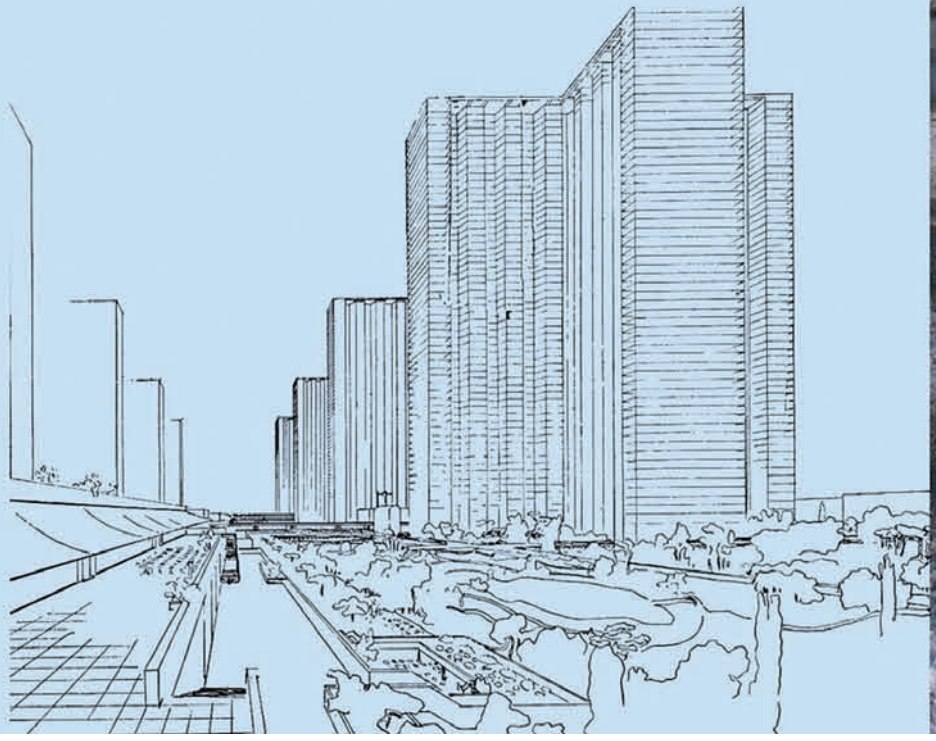
Modernism and Rationalization



KULTURARVSSTYRELSEN
OG
NORDJYLLANDS
HISTORISKE MUSEUM

MODERNISM AND RATIONALIZATION

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Introduction

Caspar Jørgensen and Morten Pedersen

The setting of the seminar was especially appropriate, taking place at Nordjyllands Kunstmuseum, a building designed by the great Finnish architect Alvar Aalto together with Elissa Aalto and Jean-Jacques Baruël and clearly inspired by industrial plants, especially the windows are like variations of windows of industrial sheds. And before the museum was built 1968-1972 the ground was used for the North Jutland Exhibition in 1933 of which the exhibition tower is still standing.

It was the 5th seminar in the row of seminars on Industrial Heritage initiated by The Heritage Agency of Denmark. The first tried to delineate the current status of Danish research in industrial history and industrial heritage. The aim of the second seminar was to present different approaches to the preservation of the industrial heritage in museums as well as on site. The examples were drawn from the United Kingdom, Holland, Norway, Sweden and Catalonia. The last two seminars have been more narrow and technical. One was about how to make local overviews and selections of the industrial heritage and the other was a discussion between architects and cultural historians about how to reuse industrial buildings.

The seminars are part of a programme by The Heritage Agency of Denmark to forward the preservation of the industrial heritage in Denmark initiated in 2004 and culminating in 2007, which have been designated the year of industrial culture.

The main aims of this programme are:

- To select and argue for the selection of 25 industrial environments, which together symbolize and tell the main history of Danish industry, and to preserve the selected environments in one form or another
- To select and interpret industrial environments, which are of regional interest
- To initiate investigations of industrial environments of selected industries combining different approaches like analysis of the built environment, technology and working culture
- To encourage electronic registration of the museums collections to make it possible to get an overview of the industrial artefacts collected and the research done thus far and to formulate a policy for future research and collection
- To start an ongoing debate among specialists and the general public about the values and interpretation of industrial society as a historic phenomenon, as well as a debate about which parts of the industrial heritage should be preserved. The debate is planned to culminate in 2007 with the presentation of the 25 industrial environments and a number of exhibitions, books, lectures and other activities at the Danish museums.

Further, the ambition is not to take the national frame for granted. The thought is that it will be rewarding to understand the industrial heritage in its local setting as well as in its North European context. For example most of the technology deployed in Denmark has been transferred from abroad and adopted to the national and local settings.

One of the conclusions of the first seminar was that the research done until now in Denmark concerning the industrial heritage has barely included the industrial environment after

1940. And further that there is a need for syntheses as well as for a multi-disciplinary approach. The situation in the other Nordic and Baltic countries seems to be the same. In fact the summary of the situation in Denmark looks like a copy of the conclusion reached by Marie Nisser and Maths Isacson in their article from 1998 on the present restructuring of industrial society in Sweden.[1)]

On this background the Heritage Agency of Denmark was delighted to support the seminar, although it should not be expected that a fully developed synthesis on modernism and rationalization will be presented in the following contributions.

The speakers were from Aalborg University and from a Nordic/Baltic research group. The researchers from Aalborg have, among other subjects, a special interest in the labour process as well as Taylorism, and have recently published a special issue of the journal Den Jyske Historiker 2003 on Denmark during the second industrial revolution. The Nordic/Baltic project is a 3 year research project supported by the Nordic Research Council. The aim of the project Industry and Modernism is to analyze the significance of industrial companies, their production systems and architecture in the development of the Nordic and Baltic societies during the high-industrial period (c. 1920-1980). And one of the hypotheses is that industrialists and their professionals (engineers and architects) were the driving forces in the development of modernism, directly through the built forms they produced and indirectly through the ideals and forms of organization these reproduced. The researchers from the Nordic-Baltic group have published some preliminary results in The Finnish Journal of Urban Studies 2003.

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1) Museernes arbejde med Industrisamfundets Kulturarv. Arbejdsrapport fra seminar den 28. august 2003 på Nationalmuseet. Caspar Jørgensen and Vibe Ødegaard (eds). København 2004. Isacson, Maths and Nisser, Marie: Industrisamhällets omvandling – en utmaning. Bebyggelsehistorisk tidskrift no. 36, 1998, pp. 21-42.

Before ending this introduction we will briefly mention some key concepts and rudimentarily sketch the framework on which the seminar was planned.

The point of departure is the concept of techno-economic paradigms developed by the economist Carlota Perez in the tradition of Joseph Schumpeter. Perez identifies five technological revolutions:

- The Industrial Revolution (with capital letters)
- Age of steam and railways
- Age of steel, electricity and heavy engineering
- Age of oil, automobile and mass production
- Age of information and telecommunication

A technological revolution is defined by Perez "*as a powerful and highly visible cluster of new and dynamic technologies, products and industries capable of bringing about an upheaval in the whole fabric of the economy and of propelling a long-term upsurge of development. It is a strongly interrelated constellation of technical innovations generally including an important all-pervasive low-cost input, often a source of energy, sometimes a cruel material, plus significant new products and processes and a new infrastructure.*" [2)]

And Perez notes that each technological breakthrough provides a set of interrelated generic technologies and organizational principles which spreads to the whole productive system. The new possibilities and their requirements unleash a profound transformation in "*the way of doing things*" across the whole economy and beyond. Thus according to Perez each technological revolution inevitably induces a paradigm shift.

If we adopt such an externalistic approach it is tempting to see modernism and rationalization as part of the changing

2) Carlota Perez, Technological Revolutions and Financial Capital. Edward Elgar, Cheltenham UK, Northampton MA, USA, 2002, 8.

techno-economic paradigms. Modernism could in that way be understood as containing the idea of rationalization in all aspects of life, entailing that any activity is subject to being assessed without the burden of past traditions and the historical context - on a tabula rasa – to determine the most efficient means of achieving the set goals. Universal principles and models are seen as ideal according to Stephen Toulmin.

To a certain extent modernism understood in this way can be traced back to the scientific revolution. On the other hand modernism is closely related to the idea of science and rational planning as the means to develop society as well as production, and these ideas are normally seen as typical of the second industrial revolution or to adopt the periodization of Perez the age of steel and the age of oil. You could say that the belief in science and rational planning culminated in the age of oil, an age where the impact of industry on society also culminated. Accordingly Maths Isacson has suggested calling the age the Highly Industrial Period.

The following articles are divided in three parts according to the programme of the seminar:

- The first theme is modernism and rationalization
- The second theme is planning and rationalization in different sectors and different parts of the Nordic – Baltic area
- The last theme is how modernism has been exhibited.

The seminar was arranged as a co-operation between the Museum of Northern Jutland, the Institute for History, International and Social Studies, Aalborg University and the Heritage Agency of Denmark.

Industrial Society as a Generator of Modernism

Anja Kervanto Nevanlinna

When the French historian Georges Duby was asked what, for him, constituted the most interesting evidence of the past, he replied that it is what a period has not said about itself. He suggested that what is most obvious of a period cannot be reached through contemporaries immersed in it, but only afterwards when the phase of time has ended, when the perspective has been irrevocably altered.[1)] Although it is uncertain whether we can define the era of modernity or its technological practice, modernism, as having reached an end, we have nevertheless seen major changes taking place in recent decades. The culmination point of modernism, its most glorious phase, coincided with the economic and political high-industrial period in post-war Europe. Due to processes of industrial and economic restructure, we have already achieved some distance, a change of perspective, towards modernism. It is within this frame that I wish to discuss issues of modernism.

Approaching industrial society as a generator of modernism I do not suggest that this is a cause-and-effect type relationship, even if the title may lead thoughts in that direction. It is more an issue of integrated processes of change in society where modernism – specifically built environments, architecture understood widely – is seen as a natural part of social life, as more natural than, for example, the neo-Renaissance, neo-Baroque or neo-Gothic architectural styles that preceded it. Industrial society, then, can be understood as a context which makes modernism possible.

1) F. R. Ankersmit, Historiography and Postmodernism, History and Theory. Contemporary Readings, eds. Brain Fay, Philip Pomper & Richard T. Vann, Oxford, 1998, 184.

We could also look at this from the opposite direction. Modernism can be perceived as the network of practices that makes individuals and communities that participate in it, gradually adopt the totality of the industrial society as self-evident and very natural: without conflict, without discussion, without argumentation, as part of something ordinary, very prosaically. This is an approach that owes its substance to Michel Foucault: the union of power and knowledge.[2)]

I prefer to see the relationship as a reciprocal one. The connection between the two parties is influenced both by the social processes of change, that is, consciously political programmes and their realization, and by the practices conveyed through built forms and the silent or hidden forms of power inherent in them. Societies produce the built environments and the built environments in turn produce societies.

Industrial society

What does the concept of industrial society or that of industrial culture refer to? The time frame of the Industry and Modernism Research project is the high-industrial era, approximately from 1930 to 1980. Its context is the era of industrialization that begins in the latter part of the 19th century, in different countries at slightly different times, in Central Western Europe such as France and Britain earlier, but in Finland only in the 1870s.[3)] This early phase could be described as the era of smokestacks and factories, a period when industrial production began radically to transform cities and urban life.

The concept of a high-industrial period refers to the peak of this historical era, reached at different times in different

2) Hubert L. Dreyfus, Paul Rabinow & Michel Foucault. Beyond Structuralism and Hermeneutics, New York, 1982, 163–166. See also, Anja Kervanto Nevanlinna, Interpreting Nairobi. The Cultural Study of Built Forms, Helsinki, 1996, 50–53.
3) See, for example, Maths Isacson, Den högindustriella epoken, Industrialismens tid, red., Maths Isacson & Mats Morell, Stockholm, 2002.

countries, although in Europe it is usually located within the frame of the years 1947 and 1975. The earlier year refers to the time when societies started to overcome the effects of war, the latter to the so-called oil crisis, with a slight delay. Typical of the high-industrial period was mass production, large scale as exemplified by gigantic industrial plants and major capital investments that ultimately produced well-being for the whole society, for all its social layers. In Northern Italy, this was the era of the economic miracle.[4] In this sense, industrialization has also meant the construction of the Nordic welfare societies.

This post-war period could be compared to the early phases of industrialization that, in a certain sense, developed as a response to European social uprisings in the early 19th century. E.J. Hobsbawm has described this history as that of "*the massive advance of the world economy, of industrial capitalism, of the social order it represented, of the ideas and beliefs which seemed to legitimatise and ratify it: in reason, science, progress and liberalism. It is the era of the triumphant bourgeois, though the European bourgeoisie still hesitated to commit itself to public political rule. … It was the drama of progress, that key word of the age: massive, enlightened, sure of itself, self-satisfied, but above all inevitable*".[5]

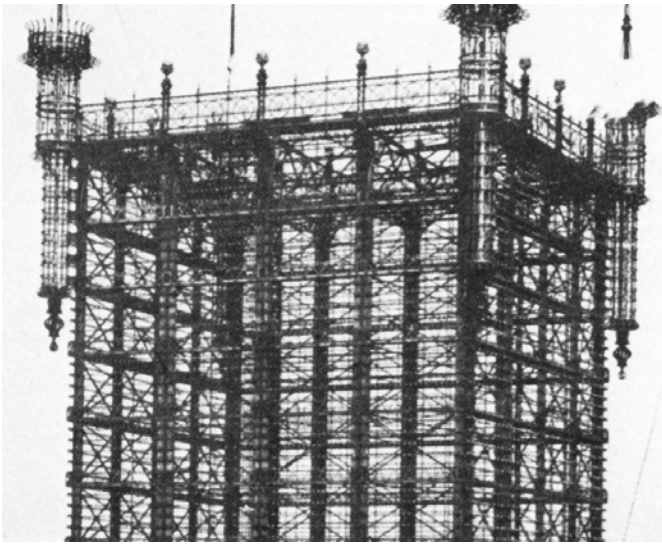
Industrialization, then, was very much about the values and approaches that it legitimized. Economic indicators tell only part of the story.

Socially, industrialization was the instigator of not only the working classes in the modern sense, i.e. the groups involved in mechanized labour in factories, but also the middle classes consisting of the administrators in public service, officials in private enterprises, professionals, and academics, all essentially

4) See, for example, John Foot, Milan since the Miracle. City, Culture and Identity, Oxford, 2001.
5) E. J. Hobsbawm, The Age of Capital, 1848–1875, 1975, 15–16.

contributing to the development of the civil society.[6] These two groups would comprise the main segments of society during the high-industrial period, both as its supporters and as groups benefiting from the exceptional economic growth.

The significance of industrialization was also connected to the political developments of the time. As Hobsbawm emphasizes, it was the era of constructing not only the industrial



Brunkenbergstorg Stockholm with telephone tower. From Eriksson, Eva, Den moderna städens födelse, Ordfront, 1990, 223.

economies but also nations. In the age of nation-states, the identity of the people was perceived to entail the logical, necessary, and, indeed, desirable transformation of the nation into a sovereign nation-state. However, this alone was not sufficient. The promoters of the idea of nation-states expected it to be "*capable of developing a viable economy, technology, state organization, and military force*",[7] that is, not only national with a relationship to the past, but also progressive with a relationship to the future.

6) On the industrial culture in 19th century Germany, see Jürgen Kocka, Industrial Culture & Bourgeois Society. Business, Labor, and Bureaucracy in Modern Germany, New York, 1999.
7) Hobsbawm, ibid., 107.

In the construction of the nation-state and its national identity on a more abstract level, technology was also useful. Technical systems held the potential for attaining national greatness, particularly when compared with the achievements of other nations. In Sweden in 1906, for example, a group of young politicians dreamt of the new period of greatness for the country, similar to that of the 17th century which had been attained through military successes. This time, however, it was to be reached by becoming a leading country in industrial development. In specific areas, this was not totally beyond reach; in 1897, for example, Stockholm held the world record in telephones per citizen.[8] By developing techniques that were exceptionally innovative also on a European or even world scale, the identity of the nation would be articulated for the other, competing nations.

When we compare the Golden Era of post-World War II Europe which partly corresponds to what we call the high-industrial period to the late 19th century phase of industrialization, what seems to have been common to both periods of time and to all (or at least most) countries, was that the significance of industries extended beyond the economic and technological aspects into other spheres of society. Industrial practices altered social structures, ways of life, world views, and values. Modernization transformed cities. We can use the concept industrial culture to describe the permeation of the fundamental ideas from industrial contexts into the whole society.

8) Mats Fridlund, "De nationalistiska system. Konstruktion av teknik och svenskhet kring sekelskiftet 1900", Per Blomqvist & Arne Kaijser, eds., Den konstruerade världen. Tekniska system i historiskt perspektiv, 1998, 80. See also, Anja Kervanto Nevanlinna, Two Interpretations of Nationalism: The Neoclassical Heart of Helsinki, Idée nationale et architecture en Europe, 1860–1919, Finlande, Hongrie, Roumanie, Catalogne, sous la dir. de Jean-Yves Andrieux, Fabienne Chevallier & Anja Kervanto Nevanlinna, Rennes, 2006.

Companies and industrial culture

The agents of these processes included, of course, the industrial companies; in the beginning particularly the large companies, but later on, all companies. At the turn of the 20th century, the systematization of industrial production was a burning issue. F. W. Taylor's major work, The Principles of Scientific Management, was published in 1911. As Stanislaus van Moos has emphasized, although the book came out in French almost immediately after the original edition, only a year later, France was receptive to Taylor's message only after the war, then out of necessity to replace war industries with other kinds of production to develop the country.[9] Similarly, in post-World War I Germany, Walther Rathenau, director of the big electro technical company AEG, saw rational planning towards common goals as the means to gather the different groups into a unified nation.[10] The political and the technological were intertwined.

City Center Building with the popular name "Makkaratalo" (Sausage House) with offices and shops, Helsinki 1967. From Nevanlinna, Anja Kervanto (ed.), Dangerous Liaisons, Helsinki, 2001, 146.

9) Stanislaus van Moos, Dans l'antichambre du 'Machine Age', L'Esprit nouveau, Le Corbusier et l'industrie 1920–1925, Museum für Gestaltung, Zurich, 1987, 17. Moos refers to Michelin's documents as one example of this.

10) Mikael Hård, German Regulation: The Integration of Modern Technology into National Culture, Mikael Hård & Andrew Jamison, eds., The Intellectual Appropriation of Technology. Discourses on Modernity, 1900–1939, Cambridge (Mass.), 1998, 46–56.

In Finland, members of professions such as physicians, educators, engineers, and architects had already in the late 19th century strong international contacts within Europe. Rapid urbanization and industrialization had emphasized the significance of adopting the latest innovations for developing the urban society. The City of Helsinki gave grants to its employees for study tours and participation in international conferences.[11] Also the ideas of rationalization and standardization of industrial production were well known among the Finnish professionals by the early 1910s; Taylor's book, for example, had been translated already in 1913.[12]

Cover from the book "Acceptera". Gunnar Asplund, Wolter Gahn, Sven Markelius, Gregor Paulsson, Eskil Sundahl & Uno Åhrén, Stockholm, 1930.

In practice, however, rationalization and standardization were still marginal during the 1920s among both workers and industrialists. The workers saw taylorism and fordism as American capitalism, while many industrialists were satisfied with improving the craft-based forms of production and its organization without the more fundamental changes that rationalization would have necessitated. The unfavourable situation towards rationalization altered dramatically only in the late 1920s with the spread of the world economic recession. The Great Depression resulted in similar consequences

11) Professionals employed by the City of Helsinki made 390 study tours and longer visits to different countries and institutions in Europe in 1875–1917, returning with the latest innovations and a comprehensive understanding of the recent developments in their field. Marjatta Hietala, Innovaatioiden ja kansainvälistymisen vuosikymmenet, Tietoa, taitoa, asiantuntemusta. Helsinki eurooppalaisessa kehityksessä 1875–1917, Helsinki, 1992.

12) Pauli Kettunen, Taylorismin tulo Suomeen. Geologi Sederholm ja työn tiede, Matti Peltonen, toim., Arki ja murros. Tutkielmia keisariajan lopun Suomesta, Helsinki, 1990, 362.

for Finland that World War I had affected on the leading industrial countries of Europe.[13] The rationalization of Finnish industries in a systematic manner gained momentum even later, only during World War II, then almost by force and largely through state intervention.

The most important plans for rationalization were made in the committee appointed by the government in 1942.[14] In the early 1940s, Heikki Huhtamäki, industrialist and founder of a major food company, promoted rationalization, emphasizing the differences between the American, the Soviet and the European forms of rationalization. According to him, rationalization was pursued in the U.S.A. merely because of company economics, to increase profits and exploit the workers. Huhtamäki also rejected the Soviet – as he defined, the "stahanovian" – version of rationalization as lifeless, technical and indifferent to human needs. In contrast to both, in Europe the main content of rationalization was to use science to harmonize the relation between the company and the rest of society.

According to the European concept of rationalization, the purpose was to increase general well-being and harmony in society. Huhtamäki indicated Sweden as a model where rationalization had developed into an element which strengthened national unity despite the earlier conflicts arising from tayloristic experiments.[15] Huhtamäki's ideas of the union between society and companies were widely shared in Fin-

13) Kalle Michelsen, Viides sääty. Insinöörit suomalaisessa yhteiskunnassa, Helsinki, 1999, 274–287.

14) Kari Teräs, "Yrittäjyys yhteiskunnassa – yhteiskunnallisuus yrityksessä. Heikki Huhtamäki ja nykyaikaiset työsuhteet", Turun historiallinen arkisto 47, 1992, 237.

15) Teräs, 1992, 247–248. Teräs also refers to Alf Johansson, Arbetarrörelsen och taylorismen: Olofström 1895–1925, En studie av verkstadsindustrin och arbetets organisering. Det svenska arbetets historia VI, 1990. At this time, Huhtamäki's choice of Sweden as a model was uncommon; Germany would have been the more typical model of rationalization. He traveled extensively all over Europe, and had visited Russia in 1917, the Soviet Union in 1934, and U.S.A. in 1937. Teräs, 239–241. Huhtamäki's orientation toward more general interests of society was

land, particularly after the war, no doubt because of the joint experiences of survival in the midst of war and the efforts for reconstructing society in the post-war situation.

In Sweden, issues of rationalization had been discussed more widely already in the 1930s. Industrial activities were seen as politically and culturally important both for individuals and for the society. For example, in the booklet "Acceptera", published in 1931 and also influential in other Nordic countries, the authors – architects, social planners, and researchers – presented a vision of an ideal industrial society of the future with the industrial-rational citizens in their modern urban homes. The built forms were to evolve as the logical outcome of the goals, materials and construction.[16] This was the basis from which what they saw as the natural style of modernism grew. For them, the new language of architecture was to be based on scientific study; therefore, it was also seen as objective.

A major element in the rationalization, industrialization and standardization of built forms was the idea of making quality accessible to the wider public. Housing was one of the key areas: writing in 1930, Alvar Aalto formulated the goal as the development of the "scientific basis for the normal dwelling in a classless society".[17] This referred particularly to the social groups involved in industries, the urban working class. Thus industrialization and standardization would benefit them not only at work, where new technologies improved working conditions and ensured steady salaries, but also outside of it, with better and cheaper dwellings, good standardized consumer goods, and security of well-being.

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indicated also by his economic input to culture: in 1943, he and his wife gave 51% of the company shares to the newly established Cultural Foundation of Finland (Suomen Kulttuurirahasto), securing its economic base into the 21st century; Vesa Saarto, Huhtamäki-yhtymän historia, 1980, 21; see also Teräs, 242–243.

16) Gunnar Asplund, Wolter Gahn, Sven Markelius, Gregor Paulsson, Eskil Sundahl & Uno Åhrén, Acceptera, Stockholm, 1930.

17) Alvar Aalto, Asuntomme probleemina (orig. published in Domus, 1930), Göran Schildt, ed., Luonnoksia, Helsinki, 1972, 28.

After World War II, the necessity of reconstruction in most European countries gave political support to the idea of rationalization and the development of the welfare state. In Finland, the project for the construction of the welfare state originated with the Social Democratic Party; the Nordic welfare state model was part of the programmes of all Nordic Social Democratic Parties.[18] In post-war Finland, from the 1940s until the mid-1960s, the Nordic model was furthered by the ruling coalition governments with Social Democrats and the Agricultural (later Center) Party, with criticism from the right-wing Coalition Party until the mid-1950s. Gradually also the political right developed more positive attitudes to the welfare policies and joined in the consensus towards the welfare state programme from the mid-1970s.[19] Thus the period of high-industrialism in Finland from c. 1947 to 1980 largely coincided with the development of the welfare state.

The concept of industrial culture during the high-industrial period involved not only the industries: the industrial companies, their managers, workers and professionals such as engineers and architects, the factories and industrial areas, and the company culture. It also involved the society as a totality within which the industries operated: the range of values, ways of life, and practices of the different social groups, the global and local aspects of industrial production, and its economic and political dimensions.

18) The concept of the welfare state and its Nordic model is theoretically and historically complex; for a discussion of it, see, for example, Jyrki Smolander, Suomalainen oikeisto ja "kansankoti". Kansallisen Kokoomuksen suhtautuminen pohjoismaiseen hyvinvointimalliin jälleenrakennuskaudelta konsensuskauden alkuun (The Finnish Right Wing and "Folkhemmet". Attitudes of the National Coalition Party toward the Nordic Welfare Model from the Period of Reconstruction to the Beginning of Consensus), Helsinki, 2000, 29–41, and its references; Tim Knudsen, "Tilblivelsen af den universalistiske velfærdsstat", Tim Knudsen, red., Den nordiske protestantisme og velfærdsstaten, Copenhagen, 2000, 20–64.

19) Smolander, 2000, 330–331. Smolander also notes that in relation to the welfare state, the politics of the right wing parties of Finland and Sweden developed into nearly opposite directions in 1965–1975, Smolander, 294–303.

During the high-industrial period, then, the agents of modernism included industrial companies, the state, and the local community with its various cultural groups. The forms of power differed: the public sector – the government – intervened not only through legislative operations but also through economic inputs and policies. Cities and municipalities with their autonomous position could develop their own policies, but their focuses were also controlled by the economic and legislative involvement of the central power, the state. In both, political parties with differing interests and supporting groups, could use the power networks to further their goals. In the public sector we could even include the companies where the government or the cities had all or the majority of shares; an example of this is Enso-Gutzeit, now part of Stora Enso.

In many European countries, the power of the government increased in the post-war situation, compared with the period of the interwar years; France and Finland could be mentioned as examples. The agents of modernism also – and perhaps we can even say particularly – included the private sector and its networks of power. That is, not only privately owned companies but also all representatives of economic power and its structures such as banks and insurance companies, trade unions of the companies (employers' side), cooperatives or societies of a specific sector of industries (e.g. Finnpap, the marketing and sales organization of paper industries). This also includes economic connections that we would today describe as global or international networks, effectively outside the control systems of the individual nation-state.

In the industrial society or the context of industrial culture, these agents did not operate alone or separately. The whole concept is based on the notion that it was a network of power where all the different agents had their own roles to play, a balanced totality that united all its parts to further the common goal. This, I think, is the core of the construction of the welfare state according to the Nordic model.

Industrial culture can be seen as a process of rationalization where the interests of both industrial companies and the society were united. To what extent this can be assessed as a truthful description of different countries, can, of course, be discussed. We will certainly find variations not only between the Nordic and Baltic country groups, but also both among the Nordic countries and among the Baltic countries.

The industrial roots of modernism in architecture

The title of this article is "Industrial Society as a Generator of Modernism". What do we mean by modernism? I would like to distinguish two concepts: "modernity" and "modernism". I have found Henri Lefebvre's definitions useful. According to him, modernity refers to the philosophical concept which is related to values and ways of thinking. Modernism, then, refers to the technological application of modernity, to modernity in practice: how the values inherent in modernity produced modern phenomena. The roots of the philosophy of modernity are in Enlightenment thinking, in the idea that at the fundamental level, all people are the same, that they share universal values. Furthermore, that progress – emancipation – is natural and inevitable, and that it can be directed rationally with science and technology and with expert knowledge.

These preconceptions have been at the basis of the huge scientific and technological leap that has occurred since the 18th century, particularly in the western hemisphere. Philosophically, modernity is oriented towards the future. The present is seen as its first phase. In this context, history has had no role to play. On a more concrete level, the idea of modernity has included the notion of planning and development as normal and necessary forms of promoting progress.

Modernism – modernistic architecture, for example – is based on the same preconceptions. Its prime characteristic is its orientation away from the past and towards the future. Already in the 17th century, the philosopher René Descartes wrote that curved roads which had come about during long phases of history, generate disorientation and should be replaced by straight ones planned by rationally thinking persons. In architectural modernism, geometric forms such as the straight line, the cube, the cylinder, and the sphere have been perceived as ideal forms: the embodiments of rationality and the perfect images of modern life. New built forms are seen as images of what is to come, as a tomorrow already here today. Sites were prefered to be vacant, so that the new could be freely planned. From this point of view, the newness of the architecture of modernism demonstrated its opposition against traditional forms, ways of thinking, and values – essentially against history. Modernism, then, was seen as a vehicle for reforming the society.

The cultural and political context of industrial production during the high-industrial period also influenced the perception of architecture. In the post-war situation, modernistic architecture was not only connected to the social goals of the welfare state, but also seen as the symbol of a more democratic and open society. The new technology that modernistic architecture both utilized and promoted, was perceived as beneficial to the large masses of people working in industries and in cities.

In her study Den rationella fabriken. Om funktionalismens rötter, Lisa Brunnström has shown how rational architecture in Sweden during the period 1900-1930 was primarily factory architecture. The development of the modernist idiom in architecture was based on engineer-designed factories more than any other kinds of buildings, and was influenced by both German and American models.[20] Typical of them were solid

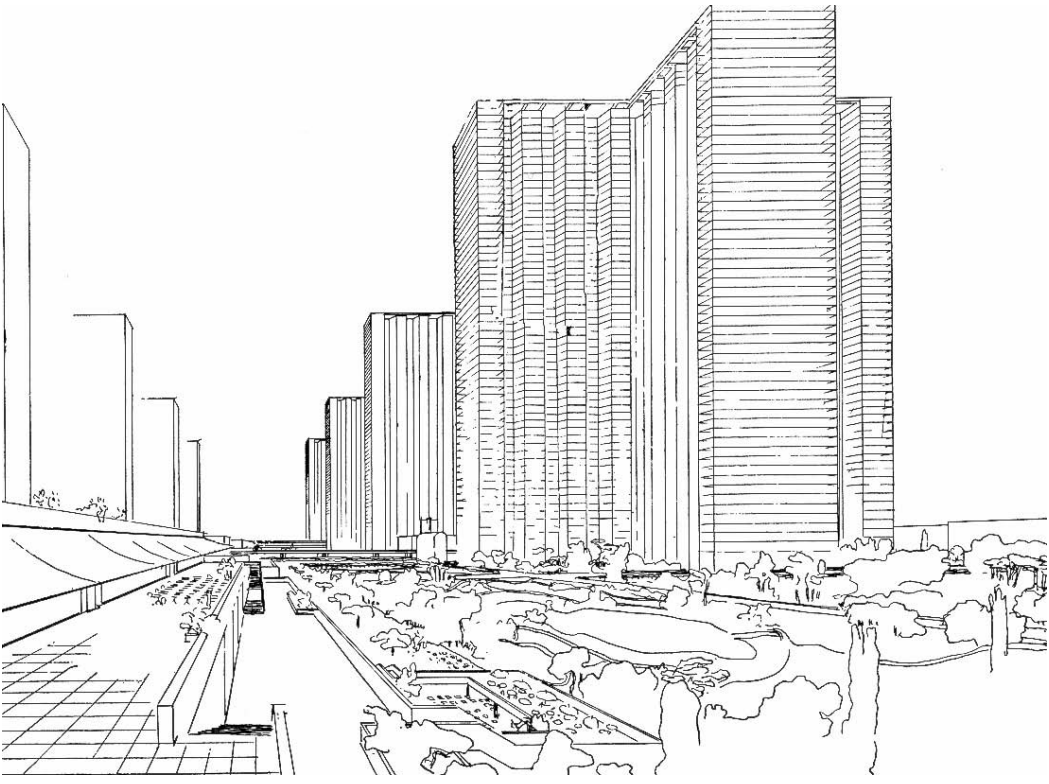
20) Lisa Brunnström, Den rationella fabriken. Om funktionalismens rötter, Umeå, 1990, 215.

reinforced concrete structures, extensive and flexible interior spaces, large window openings, flat roofs without attic space, and walls stripped of ornaments. One of the sources of this type of buildings was the idea to control fire. In the U.S.A., the Great Fire of Chicago in 1871 was not easily forgotten, although by the beginning of the 20th century, the rapidly growing industrial city had become one of the places where new construction techniques such as the skeleton structure were developed.

In the adoption of the new technologies by industries, the role of insurance companies was important. For example, in 1905 the Factory Insurance Association (of the U.S.A.) recommended their collection of building plans to companies.[21] The large spans, open plans and the standardized staircases that promoted fire control, also proved practical for organizing the production process rationally and economically.

A pioneer of industrial architecture, the Detroit-based architect Albert Kahn developed the innovative building types used not only for Henry Ford's automobile factory, but also for many other industrial plants; in this field, his architecture and engineering firm was one of many.[22] As the significance of industrial architecture of this time has been described, "*this stripped-down architecture responded to the desire of industrialists to have inexpensive, flexible workspaces, but also to the spread of a new aesthetics, one that represented a culture of modernity, efficiency, applied science, and trust in new materials. Hence, the seemingly generic architecture of industrial buildings in the twentieth century created objects of cultural significance that resulted from the changes that had come about in trade, architecture, and technology.*" [23]

21) Harold M. Meyer & Richard C. Wade, Chicago : Growth of a Metropolis, Chicago, 1969, 117, 130 et passim.; Louis Bergeron & Maria Teresa Maiullari-Pontois, Industry, Architecture, and Engineering, New York, 2000, 187.
22) Bergeron & Maiullari-Pontois, 2000, 100–107.
23) Bergeron & Maiullari-Pontois, 2000, 202.



Le Courbusiérs drawing "A contemporary city". From Le Courbusiér, The City of Tomorrow and its Planning, 1925, 245.

One of the early examples of urbanism and architecture was developed in France. The architect Tony Garnier's Cité industrielle not only presented a plan for an industrial city – the city with planned industrial areas[24] – but also a city organized in the manner of a factory, each urban function within its zone, isolated from the others, the traffic areas both connecting and separating them. The new materials, engineering structures and technologies also involved the systematic use of building prototypes, the aesthetics of an architecture unseen before. Charles-Edouard Jeanneret, later known as Le Corbusier, used Garnier's plans to demonstrate his ideas.[25]

24) Garnier's plan is from 1904, with the complete drawings presented for the first time in 1904, but published only in 1917. Françoise Choay, "Pensées sur la ville, arts de la ville", Georges Duby (dir.), Histoire de la France urbaine, vol. 4, La ville de l'âge industriel, 1983, 241.

25) See, for example, Le Corbusier, Vers une architecture (orig. 1923), 253, 38–41.

Garnier had tried to develop an urban plan in a systematic manner on the basis of the idea that where order reigns, also well-being is born.

Urban planning was seen as one of the fields that could benefit from systematic organization. In existing cities, the construction of various forms of infrastructure such as water, sewage, gas, electricity, and tramway networks called for systematic approaches. For Le Corbusier, the modern engineer represented the profession that could show the architect the way to a rational conception of design. In giving form to buildings, the architect was to use the elementary forms such as spheres, cubes, cylinders, horizontal and vertical lines etc., not only because of their ideal form, but also because they had different physiological and psychological effects.

The engineer uses these forms to resolve problems as economically as possible. According to Le Corbusier, both the architect and the engineer, despite their differences, pursue the same thoroughly rational goal. He also used industrial buildings such as grain silos and industrial structures, designed by engineers, as models for modern architecture.[26] Le Corbusier's enthusiasm for industry, however, was not unusual in the context of the interwar years; his celebration of automobiles, airplanes, and ocean liners was typical of the time. In Finland, our Alvar Aalto had similar interests: he was inspired by flying, fast cars, and the radio.

Historical context

We can, perhaps, understand the enormous effect modernistic architecture had in the post-war decades in Europe, if we pause to think about the reality of European cities at that time. War ended more than 60 years ago on May 8th 1945.

26) Thomas P. Hughes, 'Appel aux industriels', L'Esprit nouveau, Le Corbusier et l'industrie 1920–1925, Zurich, 1987, 26–28.

The industrial culture of the early 20th century had provided the instruments for the war: the technology of destruction was one of the consequences of the industrial society. Bombs had destroyed numerous cities in Europe, over a hundred only in Germany. In some cities, the destruction was total: Dresden, Rotterdam, Dunkerque, and Le Havre, just to remind you of a few examples. In hundreds of others, large areas in the centre had vanished into ruins and mountains of rubble. The devastation was so extensive that coping with it was possible only with almost inhuman efforts.

It also took sometimes years or even decades to rebuild. Because of the paths of history, Dresden's cathedral, for example, has only recently been reconstructed. Films from Berlin in 1951–1952 show large areas in the centre in ruins, the families living in the basements. Many people had lost their homes and had, perhaps, been forced to move to another city or another country. Because of the change in the borderline between Finland and the Soviet Union, my father's family could no longer stay in their home in Viipuri. They and the over 400 000 other Carelians were resettled in other parts of Finland. People who had lost everything may not have had any wish to think about their past. (My father was reluctant to talk about Viipuri, for example.) History was a luxury that they could not afford any longer.

We must also remember that in many European countries, events during the war did not necessarily make it easier for the different social groups to accept each other. In Germany, the past may have been an even more difficult topic to discuss than in other countries. In this kind of situation, to turn one's back on the past and start thinking about the future, may have been the only possible path.

War had wiped the table clean. In some cities, there were few places with a history to be preserved. With their optimistic orientation, the ideology of modernity and its technologi-

cal applications in modernism and modernistic architecture found a grateful audience among the Europeans. Americans who wished to present themselves as saviours of Europe also saw its potential for the commercial and ideological promotion of American culture. The economic inputs of Americans and the role of the Marshall Aid (which Finland did not accept due to our special agreements with the Soviet Union, the winner of our wars) also made modernism a useful export product.

It seems very clear that modernism was perceived in the postwar context as not only possible or useful but necessary, as an expression of a new way of life. From the historical perspective of today, we can pose the question whether it can be described as a success story in all respects. An analysis of the different historical consequences of modernity and modernism can give us a deeper understanding of this phenomenon which has dominated our lives for most of the past sixty years.

Society as a Machine. The Question of Technocracy in Danish History 1800-1940

Michael F. Wagner

"*The organisation of technical education and the national work (...) will only mean that the centre of gravity for the national funding is transferred from the National Bank to the system of tecnological education – Workshops of the state and schools with the polytechnical University in the lead*".[1)]

The one best way

Technocratism is a political ideology that requires a certain amount of intelligence. Likewise technocracy as a system of political governance requires an intelligentia to function. This is in short terms how the principle of scientific leadership is imbedded in modern society as a utopian ideology and as functional bureaucracy, mainly concerned with creating the perfect rational society under the leadership of an elite consisting of scientific experts. A technological society where an academic elite solves all economic, social and political problems and controversies in a purely scientific way.

While technocratism is mere political ideology, technocracy as a system of exercising political power is based on the implementation of an objective, scientific, matter of fact management in the state apparatus at the local, regional and national level. Technocracy presents itself as a harmonious system of political control in modern society. A vast bureaucracy led by academics, scientists and engineers who are managing a frictionless system without any social conflicts. All political questions are

1) Wøldike, P. Rosenstand: Fremtidsstaten paa Grundlag af Tekniken. Udkast trykt som Manuscript. Kjøbenhavn, 1893, p. 42.

transformed into matter-of-fact decisions based on objective scientific knowledge and technical competence leading to the social engineering of solutions "*the one best way*".[2)]

The ideology of technocratism expresses a wide range of manifest visions concerning the social instititions required for the proper implementation of scientific leadership. Ranging from Thorstein Veblens vision of "A Soviet of Engineers" promoted in 1929, to anarko-syndikalist strategies of workers-control with production and in a wider sense the whole industrial society, and from technocrat Walther Rautenstrauch's broader philosophy of an engineering ethic to supertechnocrat Howard Scott's insistence on a dictatorship of engineers that was expressed in the period 1933-35. Technocratism taken as a general ideology has its focus on the objective matter-of-fact administration of political issues executed by impartial technicians in line of duty or command for the development of modern society.[3)]

The term of technocracy is a neologism that originally was coined in 1919 by an American engineer William Smith. Technocratism had its heyday in the period between the two great wars, but the idea of scientism or the rule of an elite of scientists goes back a long way at least to the beginning of the 19th century. As a manifest political ideology it is a reflection upon the true nature of modernity and the dynamics and obstacles of modernisation. Technocratism or the technocratic ideology gained a firm base of followers in the 1930s, when a

2) The expression was coined by the mechanical engineer Frederick Winslow Taylor as a brand for his system of Scientific Management, cf. Copley, Frank Barkley: Frederick W. Taylor. Father of Scientific Management, Vol. 1-2. New York, 1923. (repr.) New York, 1969; Haber, Samuel: Efficiency and Uplift. Scientific Management in the Progressive Era 1890-1920. Chicago, 1964; Nelson, Daniel: Frederick W. Taylor and the Rise of Scientific Management. Madison (Wisconsin), 1980; Kanigel, Robert: The One Best Way. Frederick Taylor and the Enigma of Efficiency. New York, 1997.

3) Akin, William E.: Technocracy and the American Dream. The Technocrat Movement, 1900-1940. Berkely, 1977; Jakobsen, Kjetil, Andersen, Ketil Gjølme, Halvorsen, Tor, Myklebust, Sissel: Americanism and its Appropriation. Myklebust, Sisel (ed.): Technology and Democracy: Obstacles to Democratization - Productivism and Technocracy. Oslo, 1997.

group of reform minded American engineers under the leadership of Howard Scott attempted to and partly succeeded in creating a political mass movement. The reason for this popular response to technocratism was the great economic depression after The Wall Street Crash in 1929 that led to a loss of legitimacy for the industrial capitalist system which apparently had failed so utterly. The inspiration to formulate this anti-capitalism was found in the work of the prominent sociologist Thorstein Veblen who had criticized the wasteful economy of capitalism. His book The Engineers and the Price System from 1921 attracted great interest after the Wall Street Crash and then had a great revival.[4)]

The concept of technocracy covers two distinctively different notions, an institutional and an ideological. This has led some to speak of the Janus face of technocratism that can be defined in two different ways:

1. Society is governed by an elite of technically competent professionals forming a rule of expertise based on the legitimacy of science. This rule of expertise can be described as a technocracy to a varying degree according to the kind of political regime it is embedded in. Be it a totalitarian dictatorship as the Soviet Union, the Third Reich or Italian fascism, or in a democracy like the U.S. or Denmark for instance.[5)]

2. Society is embraced by a utopian vision of the perfect functional productivist rule by an elite of scientific experts, 'les

4) Bell, Daniel: The Engineers and the Price System. Horowitz, Irving Louis (ed.): Veblens Century. A Collective Portrait. New Brunswick, 2002, pp. 123-147.

5) Tens of thousands of American engineers worked in Russia on soviet contracts and in Germany on Nazi contracts between the great wars building industrial plants and infrastructure according to the command economy of the Soviet Union's five years plans and the German plan for 'Autarkie'. Hughes, Thomas P.: American Genesis. A Century of Invention and Technological Enthusiasm, 1870-1970. New York, 1989, pp. 249-294; In the reactionary modernist one-party states there would be a technocratic fraction in the party. In the Third Reich it was led by Fritz Todt and later by Albert Speer. In Italy the technocrat fraction was led by Alfredo Rocco and later by Guiseppe Bottai.C.S. Maier: Between Taylorism

savants', who administers the natural and human resources in society with a minimum of waste and the optimum satisfaction of needs for all its members. As a consequence productivism employed in this correct manner will mean the end of class struggle and social conflicts. This can be termed technocratism. An authoritarian political ideology consisting of the three elements scientism, elitism and productivism that more often than not lead to totalitarian and pathological visions for the future society.[6)]

The Founding Fathers of the United States expressed a faith in the possibilities of a political technology and the complementarities of technology and popular government, which has remained a persistent feature of American social thought and social science. In Denmark the development of a rule of expertise has been prevalent in the state apparatus back to the last period of absolutism (1784-1848) where the recruitment of public servants shifted from nobility to an emerging new middleclass of academics especially jurists. The process of professionalization was also carried through in the recruitment of officers for the army and the navy. Technocracy is so to speak traditionally embedded in the political administration of Danish society and has been so for several hundred years. This may be the reason why technocratism has played such a minor part in the political history, it was there for a fact and especially after the downfall of absolutism in 1848 this became evident in the management of the state.[7)]

The elitist technocratic ideology does not seem to mix well with the nationalistic mentality of the new democratic con-

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and Technocracy: Europen ideologies and the vision of industrial productivity in the 1920s in: Journal of Contemporary History, vol. 2, 1970, p. 27-61; Herf, Jeffrey: Reactionary Modernism. Technology, culture, and politics in Weimar and the Third Reich. Cambridge, 1984.

6) Fischer, Frank: Technocracy and the Politics of Expertise. London, 1990; Gunnell, John G.: The Technocratic Image and the Theory of Technocracy. In: Technology and Culture, July 1982, vol. 23, no. 3, p. 392-3.

7) Bagge, Povl: Akademikerne i dansk politik i det 19. århundrede. Nogle synspunkter. In: Historisk Tidsskrift, 12. Række, bind IV, hæfte 3, pp. 423-474.

stitution. Technocratism is the expression of a specific elitist and undemocratic political way of thinking incompatible with the "volkische" idea of nationalism and the democratic mentality of liberalism that were in full bloom after the fall of absolutism in 1848. Some Whig historians presume the existence of a profound Danish democratic mentality, but such a hypothesis would demand a higher degree of morality by the elite in Denmark than seems to exist in other democratic countries. And that certainly does not seem to be the case.[8)]

A more functionalistic explanation could be that technocratism is the manifest and frustrated expression of engineers, who have either lost access to power or are unable to gain access to power in the state apparatus for specific historical reasons. The few outbursts of technocratism in Denmark should then be considered an anomaly or deviation from doing business as usual and coming out on top in the long run. This type of explanation matches with the critical circumstances in Danish history the few times, where engineers stood out publicly with political demands of technocratism during the 19th century.

Recently this hypothesis was tested in a study of the powerful networks of Danish engineers with the conclusion that: "*The idea that engineers should manage other institutions than purely technological occurred in this country after WWI. The first time ideas of a technical management of society as a domain for the engineers appeared in public was presumably when the director of the polytechnic University, H. I. Hannover, in 1920 mentioned this in his annual address, but it was in the thirties the public breakthrough for technocratism occurred.*" Furthermore it is here stated that the followers of the only hardcore technocrat in the thirties, Paul Molde: "*Especially young ambitious engineers with disappointed expectations were receptive to these*

8) Recently such a construction of a hyperdemocratic danish mentality has been stated by Thomsen, Niels: Hovedstrømninger 1870-1914. Idélandskabet under dansk kultur, politik og hverdagsliv. Odense, 1998, pp. 143-46.


Paul Molde
Teknokrati
og Samfundsøkonomi
TEKNOKRATIET er Idéen om Teknikernes Ledelse af Samfundets Økonomi, saaledes at den tekniske Udvikling i Fremtiden kan føre til Velstand og Lykke, og ikke som nu til Arbejdsløshed og Nød.
Bogen indeholder en Redegørelse for den Udvikling, som har ført til den nuværende Tilstand, omtaler og kritiserer den amerikanske Teknokratisme, redegør for den tilsvarende danske Bevægelse og bringer endelig et positivt Forslag til Arbejdsløshedens Afhjælpning herhjemme.
RASTEDS BOGHANDEL, HELLERU

Paul Molde' first book 'technocracy and economy' appeared in February 1933. It was fierce in its attack and delivered a devastating critique of the capitalist economical system.

ideas of a society led by engineers, but the more moderate and broader minded industrialists were not supporting Molde."[9)]

According to this opinion technocratism was only introduced to the Danish public in the interwar years. In the strict sense of the word that is correct, because the term technocratism was coined in 1919. On the other hand, the scientistic ideology appeared in public much earlier. This makes it relevant to investigate the development of a proto-technocratic ideology in the period leading up to 1920. And as the following investigation will demonstrate, there is ample room for at least speaking of a proto-technocratic ideology developing all the way trough the 19th century, before it went into full bloom in the interwar years.

9) Harnow, Henrik: De københavnske ingeniører - et magtens netværk. Ingeniørernes kamp for anerkendelse, indflydelse og prestige 1850-1940. Söderqvist, T. (eds): Videnskabernes København. København, 1998, p. 135 and 137.

Science, society and power

The identity and status of the scientifically trained engineer is closely connected to and reflected in the massive impact engineering science has had on the development of modern industrial society. Basically it is the scientific institution that creates the identity and lends its credibility to the status of the professional engineer. Because science is considered the driving force behind economic progress, the engineer becomes the modern hero par excellence. The importance of the academic education is the main technocratic argument for leaving the political power with the engineers and it has been so for the last two centuries both here and abroad.[10)]

The 1930s may be considered the central and highlight period of the technocratic movement and ideology. But the roots of the scientistic ideology and the elitist principle of governance by technological competence goes back a long way in the history of modernity. Three distinctive philosophical turns can be identified during this span of time, and this development of the ideology can also be traced in a Danish context. Firstly, the notion that science should be in front because it would lead to the progress of society was already introduced in Denmark around 1800 along with romanticism. The German philosopher J. G. Fichte had claimed that the progress of mankind depended on the advance of science and that theoretically as well as practically educated scientists should be the guide to all mankind. The idea was appealing to many university graduates and flourished among the professional elite during the whole of the 19th century. The famous nationalist poet, politician and clergyman N. F. S. Grundtvig exclaimed in 1805 that "*Science is the kind of heroism that is saved for the*

10) Nolan, Mary: Poductivism and Technocracy in Historical Perspective. In: Myklebust, Sisel (ed.): Technology and Democracy: Obstacles to Democratization - Productivism and Technocracy. Oslo, 1997; Wagner, Michael F: The Polytechnic Breakthrough i Denmark 1780-1930. From Bildungsbürgertum to a Scientifically Skilled Class of Professionals. In: Christensen, J. et al. (eds.): Engineering Science, Skills and Bildung. Aalborg, 2006, pp. 21-42.

future generations and for us". An even more sophisticated inspiration came from the French philosopher Saint-Simon, who in his writings had formulated a consistent perspective on the progressive role of science in society. After his death in 1825 Saint-Simon would incarnate the vision of the rational society where an elite of engineers, scientists, city planners and industrialists would employ their systematic knowledge to solve all social problems and generally optimize the nation. After 1830 this type of ideology seems to have been accepted also by the Danish intelligentia.[11)]

The year 1830 marked a crucial turning point for scientism in a Danish perspective because two new schools for the scientific training of professionals opened in Copenhagen. In November 1829 the Polytechnical Institute began a formal scientific education of Danish engineers with the explicit purpose, that the state would be able to recruit civil servants equipped with the technical competence required to manage the dawning modernisation process in Danish society. The headmaster of this new institution, the famous physicist H. C. Ørsted, stressed this point in his opening speech: "*The national spirit will gradually gain a more practical direction, prosperity will flower, and patriotism and civility will be nourished and will grow*".[12)]

In the object clause of this new institution it was also stressed that the main purpose of the Polytechnical Institute was to educate the civil servants in the technical sciences. A couple of years later, in 1836, H. C. Ørsted further underlined this utilitarian perspective. As chairman of an appointed commit-

11) Wagner, Michael F.: Sjæl i Haandens Gerning være -Industrimyten og det teknisk-videnskabelige gennembrud i dansk historieskrivning. in Danmark under den 2. Industrielle Revolution -teknologi, videnskab og moderniseringsprocesser i internationalt perspektiv. In: Den jyske Historiker, nr. 102-3, Dec. 2003, pp. 190-220.

12) Ørsted, H. C.: Om den dannende Virkning, Naturvidenskabens Anvendelse maa udøve, en Tale holden ved den polytechniske Læreanstalts Indvielse, den 5. November 1829, i Kong Frederik den Sjettes Overværelse. In: Aanden i Naturen. København., 1849-50, pp. 202-212.

tee with a royal mandate to reform the antiquated cameralistic school in Sorø, he suggested that the reformed education should be based on the two years of polytechnical education supplemented with a third year of giving courses in political economy and statistics.[13)]

The other crucial event that year was the almost simultaneous opening of a new military academy. Finally the Danish officers would be introduced to a formal education based on science. Together with the growing body of civil servants who had taken law as their profession, these two new groups of professionals merged into an elite with a profound influence on the development of Danish society for the next hundred years or more. The various families of the elite married into one another, and many of their sons pursued a career in their father's footsteps. This new group of professionals was to a very high degree self perpetuating, and as the new middle class it rose quickly to a very dominant position in Danish public life. The academics were the initiators of the bourgeois revolution in 1848 and became the architects of the modern state apparatus.[14)]

The members of this powerful elite who were to become the new technocrats were very self-conscious, well aware and proud of their important position in the modernization of Danish society. After 1845 they began to formulate a technocratic programme to support their newfound powerful position in the state apparatus. The first step was the formation of a Polytechnical Society in January 1846 with the object clause to cultivate and promote science and mathematics.[15)]

Another important step was the political radicalisation of 'The Industrial Society in Copenhagen'. The society had been

13) Nielsen, Axel: Det statsvidenskabelige Studium i Danmark før 1848. København, 1948, pp. 92.
14) Wagner, Michael F.: Det polytekniske Gennembrud. Romantikkens teknologiske konstruktion 1780-1850. Oxford, 1999.
15) Fransen, Peter & Harnow, Henrik: Fra teknisk selskab til studenterpolitisk interesseorganisation. Polyteknisk Forening 1846-1996. Århus, 1996.

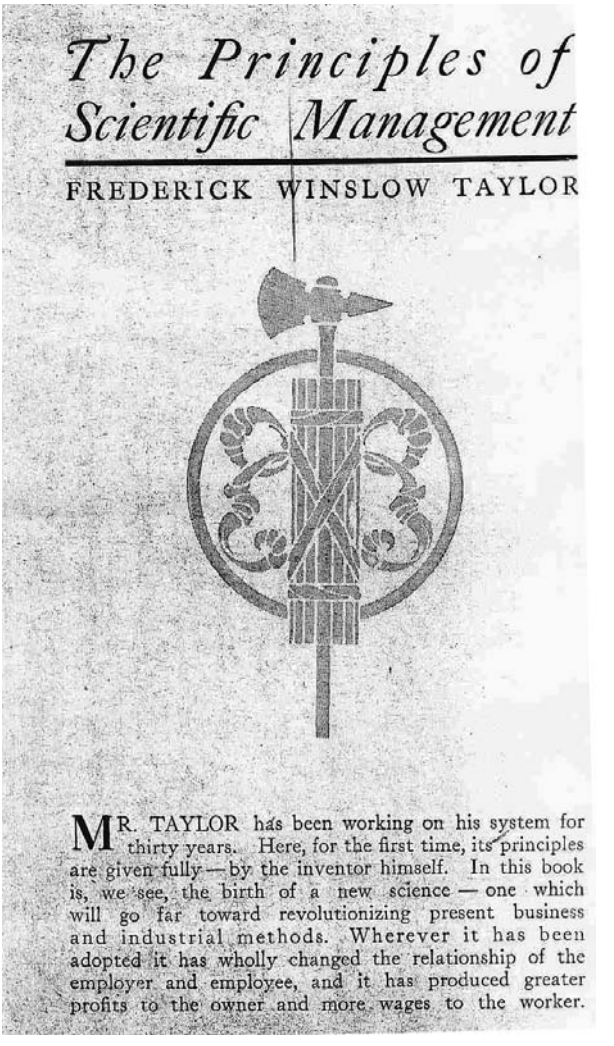
founded in 1838 as a platform for promoting liberal politics especially the abolishment of economic privileges. With the new found editor Julius Wilkens, who was an engineer and teacher at the Polytechnical Institute, the Quarterly for The Industrial Society began to promote proto-technocratic ideas. Wilkens also launched a furious attack on the antiquated system of education at the Institute that was published in the national liberal paper 'The Fatherland', this created a political discussion that would continue for several years.[16)]

The political ideology of the engineers was strongly influenced by the writings of the French sociologist Auguste Comte (1798-1857) a dedicated follower of Saint-Simon who discussed the "positive fact" that still more scientific methods were introduced in the management of society. This belief in the objective implementation of science in politics marked the second philosophical turn of technocratism.[17)]

The third philosophical turn included the ideology of productivism as seen in the writings of Thorstein Veblen. This was a goodbye to the traditional zero-sum perspective on prosperity where you could only enrich yourself by depriving others their share of the wealth. By eliminating waste and optimizing output in society using scientific methods of management you could 'get more out of less' so to speak and this meant a general increase of prosperity. The ideology of productivism was generally accepted after 1920. It developed among American engineers during the progressive era 1890-1914 and had shown many practical results in the management of the highly organized war economy during WWI. This general experience of 'efficiency and uplift' called for a managerial revolution to take place under the systematic reorganization of a peacetime economy.[18)]

16) Wagner, Michael F.: De politiske polyteknikere. -poltisering og ptofessionalisering under systemskiftet. In: Den jyske Historikser, nr. 83-84, maj 1999.
17) Pollard, Sidney: The Idea of Progress. Middlesex, 1968, pp. 117.

The front sleeve of Taylors famous book was a manifest for productivism. Also it was decorated with fasces a symbol of power for the roman liktor in antiquity. Here it was meant to symbolize the authority and total power of science and engineering. After WWI it became the symbol of power for Benito Mussolini and the Italian fascist party.



The bureaucratization of the organized economy was reflected by the German sociologist Max Weber who, around 1920, noticed that modern society was moving in the direction of an instrumental authority based on the rational-legal administration of political issues as things and matters. He pointed out three distinctive layers in the development of society where this

18) Haber, Samuel: Efficiency and Uplift Scientific Management in the Progressive Era. Chicago, 1964; Hays, Samuel P.: Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920. Cambridge, Mass., 1959.

became apparent. There was great advance in technical rationality inside the administration. There was a growing bureaucratic elite in the state apparatus. And finally there was a specific development and strengthening of the relation between the bureaucracy and the scientistic ideology. This situation he described as the definition of an idealtype of technocracy.[19)]

The three turns in the proto-technocratic discourse reflect the growing importance of science and technology in modern society after 1800. This has resulted in a new relationship between the spheres of science and politics, where the lines of demarcation are blurred and often unclear. In certain cases the distinction between these two spheres is so fine, that the political decisions come to lie with the scientists, while scientific decisions are made by politicians. This is the characteristic feature of a technocracy with its closely-knit relationship between science and politics in society. A development that after a take-off phase became irreversible in the state as well as in the industry after 1890.[20)]

As a way of thinking central elements in the idea of technocracy have been present in Denmark for the last two hundred years. But as a manifest political ideology of modernity it has very rarely been making a spectacular case of itself. In the sense that technocracy is a way of governance and exerting power by the technically competent in a rule of expertise, it has been the habit of public service to rule this way in the central, regional and local administration for many, many decades. But as a political movement or party advocating technocracy as a solution to all political problems in society it was relatively absent before 1920, and it is only in the 1930s that several attempts were made by engineers to mobilize a political mass movement around the ideology of technocratism.

19) Kumar, Krishan: Prophecy and Progress. The Sociology of Industrial and Post-Industrial Society. Harmondsworth, 1978, pp. 102.
20) Noble, David F.: America By Design. Science, Technology and the rise of Corporate Capitalism. Oxford, 1977; Gunnell, John G.: The Technocratic Image and the Theory of Technocracy. Op. Cit. p. 402.

Why is that? There may be two explanations to this phenomenon of a technocracy without technocratism. The absence of an ideological debate is explained by the real power of the technocrats in the state apparatus. Why yell out for more power to the engineers if you already have acquired that powerful position in society. Technocratism then is the frustrated political expression of individual or groups of engineers who for some reason find their social position threatened by marginalization or even proletarization due to economic crisis or other anomalies in society. With this type of explanation in mind we shall now take a closer look at the first public outburst of proto-technocratism that can be traced in Danish history.

An early outburst of proto-technocratism

The growing employment rate of the polytechnical candidates in public service helped them to create a professional identity as high-ranking engineers. Most of the engineers were very conscious of the importance the academic scientific education had to society. The majority of the candidates directed their career ambitions towards the public sector. They began to see themselves as modernists in a clear political opposition to the regime of absolutism. Several of the engineers entered into politics and formed a distinct fraction of the liberal nationalistic movement when it blossomed after 1838.[21)]

Through these political activities there was a weaving of political issues private, professional and scientific interests into a

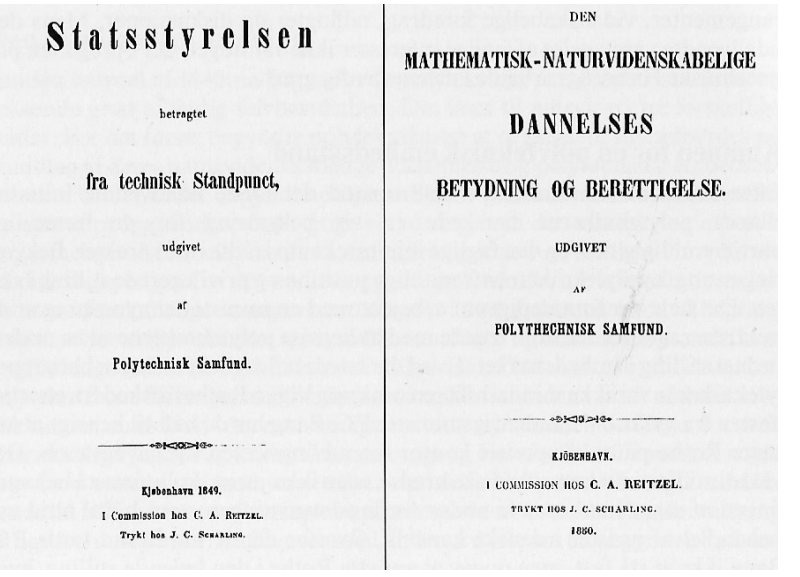
21) Polytechnic candidate no. 3: H.W. Jacobæus, elected to the Constitutional National Assembly 1848, Member of Parliament 1858-65; Polytechnic candiate no. 6: J. Wilkens, Member of Parliament 1849-54; Polytechnic candidate no. 22: C. Glahn, Member of Parliament 1854-58; Polytechnic candidate no. 37: A. Steen Member of Parliament 1849-52, 1854-58, 1864-69; Polytechnic candidate no. 49: H. H. Kayser, Member of the Constitutional National Assembly, Member of Parliament 1854-64, Royal appointed Member of Parliament 1879-95; Jfr. Jespersen, R.: Biografiske Oplysninger angaaende den polytekniske Læreanstalts Kandidater 1829 1929. Kbh. 1930.

web with a new objective, matter-of-factness, where science-based politics had a crucial modernizing mission as mediator between the many interests of conflict surfacing in the new democratic system. In short the engineers created a platform to promote their own particular interests. Disguised as an impartial third part the engineers ironically tried to capture the vacant absolutist position as defender of the common good against particularism. This was a modernist strategy for the transition of society from the rule of absolutism to the rule of technocratism that took shape after 1845.[22)]

After the fall of absolutism in 1848 a general reform of the whole central administration led to a struggle between the public servants who were law graduates and the engineers for power and competence. The influential position of several engineers especially high ranking civil servant Viggo Rothe was reduced as a result of the reform and this led a young engineer and mathematician, Adolph Steen, on the 18. December 1848, to form a Polytechnical Society with a clear and outspoken technocratic object clause: "*The main purpose of this society is to promote the use of natural science, mathematics and primarily of educated engineers in the state administration*".[23)]

Judging from the same protocol the enthusiasm was quite overwhelming from the outset but gradually it ceased during the next couple of years. The political upheaval in general and the civil war in the duchies in particular drew more and more attention from this political project of technocracy. But the society managed to publish two books on the issue before it disappeared. The author remained anonymous, but it was probably Adolph Steen who at the moment was in a precarious position as teacher at the Polytechnical Institute. The first book with the telling title, The Management of the State from

22) Wagner, Michael F.: De politiske polyteknikere -politisering og professionalisering under systemskiftet. In: Den jyske Historiker, nr. 83/84, maj 1999.
23) P.L.A./Protocol for Polytechnisk Samfund, 2. meeting, Jan. 4. 1849/Royal Archives.


Statsstyrelsen

betragtet

fra technisk Standpunct,

udgivet

af

Polytechnisk Samfund.

Kjøbenhavn 1849.

I Commission hos C. A. Reitzel.

Trykt hos J. C. Schærling.

DEN

MATHEMATISK-NATURVIDENSKABELIGE

DANNELSES

BETYDNING OG BERETTIGELSE.

UDGIVET

AF

POLYTECHNISK SAMFUND.

KJØBENHAVN.

I COMMISSION HOS C. A. REITZEL.

TRYKT HOS J. C. SCHÆRLING.

1850.

The front sleeve of the two books published by The Polytechnical Society.

a Technical Perspective, was published in 1849 as a political platform for a technocracy that had a clear reference to some of the ideas of Auguste Comte. With a manifest critique of the lawyers and metaphysicians still dominating society in the 'positive age' where supernatural and abstract forces should be substituted by scientific laws describing how, not why, things worked. And industrialists and positive philosophers should run society: "*If the highest administration does not possess the general technical and statistical knowledge required, but is only based in jurisprudence, it will act either at random and be exposed to the gravest mistakes, or it must mechanically obey the recommendations from subordinates. They will be in control and you will find the before mentioned conflict between the legal responsibility and the moral value... All together it should not be neglected, that the jurists' whole way of thinking does not lead him to reflections upon the material world at all... while the engineer is inclined to do this in many and different ways, according to his scientific and mathematical education in general and specifically to his technical knowledge*".[24)]

24) Statsstyrelsen betragtet fra et technisk Standpunct, udgivet af Polytechnisk Samfund. Kjøbenhavn, 1849, p. 3.

The following year another book with the title, The importance and Justification of the Mathematical-Scientific Education, was published by the society probably by the same author, who now was able to explain himself in much greater detail. The book was divided between four chapters, the first chapter contained general assumptions, the second chapter was concerned with education, the third chapter discussed the conditions for developing a liberal civil society, and the last chapter focused on the question of government. The book proposed a new kind of philosophy of science stressing the political consensus and social harmony that the correct implementation of science and mathematics would lead to in society: "*Science will be of the greatest importance for all practical purposes and everyday life will profit from the hard work in the study. The mathematical and scientific studies will build a bridge between the different classes who before were divided by a gap so wide as the gap between people who speak different languages; in nature they have found a book that they can only decipher if they fully co-operate*".[25)]

The book had a general political perspective, outlined a new strategy for the development of society and strongly advocated a radically improved system for the higher and learned education. It displayed the common Saint-Simonian vision of the grandeur, peace and prosperity that the progress of science in society would lead to if it was not impeded by conservative forces and traditional reactionary ways of thinking.

This incident caused only a ripple in the public debate. Very soon things went back to normal again and engineers kept pouring into new powerful technical positions in the state apparatus. After a couple of year's activity the Society closed and it is hard to find any traces of technocratism from the next four decades. The whole period was marked by political instability with a long period of reconstruction after the war with Prussia in 1864 and the political struggle against an authori-

25) Den mathematisk-naturvidenskabelige Dannelses Betydning og Berettigelse. Udgivet af Polytechnisk Samfund. Kjøbenhavn, 1850, p. 7.

tarian regime in the 1870s and 1880s as central questions. As a consequence the following generations of engineers withdrew from the political arena. They were focused on a career as civil servants in the state and municipal bureaucracies, and many reached top positions in the civil service in the period up to1890. The engineers began to occupy leading positions in the central and local technical administrations after 1850. And when the engineers formed a professional organisation in 1892, 17% of the founding members were highly decorated for their long duty in public service and education. Characteristically the object clause of the Society of Danish Engineers (DIF) specifically spoke of maintaining the great importance of the scientific-technical education in society.[26)]

The advent of technocratism

Around this time a young Danish engineer P. Rosenstand Wöldike returned after working with land reclamation for ten years in Siberia, only to find all doors and opportunities closed to him in private business and in the civil service. He addressed himself both as civil engineer and cultural technician and he appears to have been very well orientated in the international debate among progressive engineers. He might have been inspired in this by the populist progressivism of the engineering ideologies that were rampant in Germany and especially in America.[27)]

In 1892/3 Wöldike published a couple of books where he presented a rather original and sophisticated political programme demanding technocracy as a third way out of the class struggle between labour and capital that threatened to tear industrial capitalism apart. In his second book he even had a specific reference to the contemporary utopian writer Edward Bellamy and Austrian economist Theodor Hertzka, who actually tried to build a utopian state. Because Wöldike's books mark the

26) Love for Dansk Ingeniørforening, § 2. Ingeniøren, Vol. 1. No. 1., 2. Juli 1892, p. 3.
27) Hays, Samuel P.: The Response til Industrialism 1885-1914. Chicago, 1957.

crucial turning point for the advent of technocratism in Denmark his ideology will be discussed in greater detail.[28)]

In his first book with the telling title What the Class of Technicians is - What it Claims to Be - And What it Ought to Be, he displayed a clear scientism and elitism in his propaganda for the central position the class of technicians should occupy in a modern society.[29)] The second book The Future State on the Basis of Technique was an outspoken political treaty with a rather sensational programme of technocratism. Wöldike took an impartial third position in the 'destructive' class struggle between work and capital that was based in a positive science. The basic foundation for technocracy according to Wöldike was a general reform of the engineering education at the Polytechnical Institute, such a reform would: "... *not be limited to the technical field alone, but to the organized class of technicians by creating the foundations for the total organization of the entire work which would also be extremely influential in society in general as a regulator of the 'struggle for living', in this manner it would become a very important ingredient in solving 'the social question' at the hard core of the problem, which is nothing else but the absolute absence of any kind of intellectual management of work in society.*" [30)]

This marks a central shift from the moral position of saint-simonianism reflected by Adolph Steen fourty years earlier to a new position, with a definitive focus on work and the scientific management of work as the impartial solution to class struggle and conflicts in society.

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28) Bellamy, E.: Looking Backward 2000-1887. New York, 1887; Danish translation: Anno 2000-1887 i et Tilbageblik. 16. Opl. by Fr. Winkel-Horn. Kbh. 1887; New translation: Tilbageblik Aar 2000. by Jørgensen, Eiler. København. 1946; Hertzka, Theodor: Freiland: ein soziales Zukunftsbild Leipzig, 1890; Danish Translation: Friland: Autoriseret, kortfattet Bearbejdelse med en Oversigt over Frilandsbevægelsen/af Figgé, Victor. København, 1894.

29) Wøldike, P. Rosenstand: Hvad Teknikerstanden er - hvad den fordrer at være - og hvad den bør være. Kjøbenhavn, 1892.

30) Wøldike, P. Rosenstand: Fremtidsstaten paa Grundlag af Tekniken. Udkast trykt som Manuscript. Kjøbenhavn, 1893, p. 1-2.

The technocratic message is evident in the last part of the quotation where all social conflicts in society are reduced to "*administrative mistakes*" and explained by the "*consistent theoretical fallacy of the basic principles on which the present society is working*". From his explicit impartial third position Wöldike lifted himself and the class of engineers up above class struggle by declaring 'the end of politics'. It was a central point in the book that all work should be managed with rational and scientific principles. It was exactly this type of ideology that would make the mechanical engineer F. W. Taylor world famous twenty years later when he published the book Principles of Scientific Management in 1911.

After this general introduction to technocratism Wöldike took up the discussion of the social question in greater detail. He launched an attack on the 'levelling ideology' in socialism, which was characterised as both unreasonable and physically impossible, because "*the spiritual heritage, personal intelligence and scientific skills of mankind could not be shared on an equal basis, even if the uneven distribution of al material goods should be levelled at a given time*".[31)]

At the same time he found that the ideology of socialism seemed a bit ridiculous and mentally retarded. Wöldike pointed to liberalism as the direct and major threat to society because of its idiocy: "*Similar damaging effects have the great 'economic' slogans: the 'free' competition, freedom for industry and free trade resulted in. The senseless labelling of the modern principle of freedom to every activity in society as a universal method has promoted a disastrous development of a total anarchy in the economy; this has resulted in a total degeneration of society with tumours of a great variety. These new and unexpected phenomena have contributed to the confusion even among the most intelligent representatives of modern national economy*".[32)]

31) Op. Cit. p. 12-13.
32) Ibid.

The modern principle of freedom embedded in the principle of 'the invisible hand', had led society from the "planned economy" of mercantilism and absolutism directly into devastating economic anarchy. Likewise the idea of equality was stupid because it was based on the lowest common denominator. Wöldike sought out a philosophical third position from where he could explain "*the curious deformities of society that are only simple disruptions produced by our own stupid interventions in the natural order. In this way the individual has been cut off from the natural conditions of living produced by work in a steadily growing abundance*". It is remarkable that he pointed to the class struggle as the major threat to productivism and in this way also to the whole future of modern society because the two classes were unable to co-operate: "...*because the physical workforce and the means of production (capital) in community would not be able to produce the now so abundant necessities in society because the third element is still lacking: Intelligence. It will first be under this leadership that the other factors will be able to produce the necessary return, and it is therefore obvious that after the acquisition of the means of production, the question of the unification of intelligence with the mentioned factors of production will apparently be the objective for the reformatory striving in the coming and last crisis*".[33)]

Wöldike then suggested a historical shortcut as a quick solution to the problem of getting rid of capital. As a productive force it was not on the level with the two other factors of production: work and nature. Capital should be replaced by intelligence as the true match in both 'age and principal value' of work and nature by implementing another kind of administration than traditional government, this would initiate a process of social healing: "*That instead of showing only a negative, for all factors restrictive and disturbing activity, it would, at the proper moment be able to seize the work initiated by capital and thankfully continue it in its own right with the optimum positive result for the whole of society, whose interest it must be*

33) Op. Cit. p. 14-15

a vocation to manage. Ergo, the real producing forces are Nature, Work and Intelligence, but these three factors have been separated by the existing anarchy".[34)]

It was modern science-based technology Wöldike had in mind, when he spoke of a common, collective and important foundation for society created by intelligence through *"the intellectual control of the basic forces of nature*". This was his intellectual reflection over the on-going second industrial revolution and it made him talk of the socially organizing role of intelligence, which he imagined should be managed through a new Reform Society to develop a strong and sufficient intellectual initiative. This society would "*develop a collective programme on the basis of a full mutual understanding to further the work for a fundamentally new order in society with the common goal to fulfil everybody's needs and unite the many different interests*". The rationality of this programme was based on productivism with its promise to leave the zero-sum game in society, or as Wöldike elegantly put it: "*The governing principle up till now has been: 'To take from one and give to another*". *Instead of this the new programme would be based on a new and exceeding principle: "to give everybody without taking from anyone. This has only become possible in our days, since we learned to 'rule' over the forces of nature and out of this create new values in unlimited measure instead of – as until recently – just fighting over the distribution of already existing value*".[35)]

The utopian perspective of the intellectual leadership and technical government was that it would transform society into a total state with a profound control of the economy exercised by the public management. Quite a totalitarian draft for the future society was sketched by Wöldike, who even imagined a total surveillance of the individual through the control over work: "...*all work will be in the service of the state – in its workshops and under its guidance – this will mean a total control of the individual, each and every person will be monitored through the*

34) Op. Cit. p. 18-19, 22-23.
35) Op. Cit. p. 122-3.

data files of the technical administration or through his book with personal files... Because the organization of the work means nothing else than the total control and domination".[36)]

With the incorporation of 'the productive element' in the civil services of the state the social reformation would be total, and the result would be "*the perfect ideal society that is in every aspect fulfilling the current existing needs*". Wöldike, at the same time, came close to revealing his own frustrated professional ambitions, when he demanded a regulation in the numbers of technicians to avoid "*the now existing overproduction of authorized intelligence, so that the whole intellectual proletariat, whose precarious position in society is the least enviable of all, will be abolished for all future*".[37)]

Nothing more, apparently, were to come out of this furious ideological attack on the establishment. When the engineers had established a professional organisation, the Danish Engineering Association (DIF), only a couple of years earlier one of the purposes had been to tame the impatient young engineers. The Danish engineers as a professional group had no need for a revolt or even a manifestation of technocratism at that time. As a professional interest group and an informal political movement everything still seemed to be going right down the engineers' way.

The industrial turn

After the First World War Denmark was rapidly transforming from an agrarian to an industrial society. The new science based technologies were introduced and soon spread into many industries. With this industrial turn the engineers gained access to a growing number of companies, where they got the responsibility for managing the research, development and production of a variety of capital and consumer goods. Their position between the owners of industries (capital) and

36) Op. Cit. p. 45, 47.
37) Op. Cit. p. 110.

organized labour in trade unions led many engineers to formulate a third political position based on productivism.[38)]

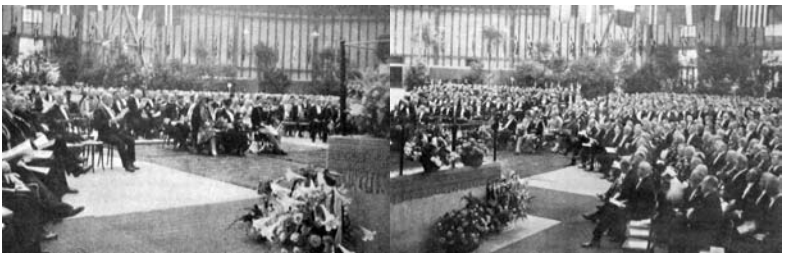
The technocratic ideology had primarily been focused on the rationalization and administration of the state with objective scientific methods; now the rationalization of industry with the same methods became a new focus for technocracy. F. W. Taylor formulated the productivistic ideology of Scientific Management just before the war. This techocratism soon gained a lot of attention from engineers and politicians all over the world and it also attracted a lot of attention in Denmark.[39)]

As a result of this industrial turn Danish engineers educated at the Polytechnical Institute, came to occupy leading positions in all parts of Danish society from the private industry to the public works, as managers of different industrial interest groups and trade organizations or as civil servants in public service and higher education.

In this way technocracy had expanded its field into the private sector, and engineers having similar school ties and the same worldview would to a large extent manage the co-operation and negotiation between the public and the private sector. This kind of professional unity between engineers was taken for granted in the daily business and was only celebrated loud and clear at every possible anniversary.

The attendance at the 100 years anniversary of the Polytechnical Institute, which was arranged in co-operation with the Danish Engineering Association and held in Copenhagen in august 1929, was demonstratively celebrating the potent, important and powerful positions Danish engineers had acquired during the intervening period. The celebration had the

38) Foss, Alex: Danmark som Industriland. In: Tidsskrift for Industri 1912; Danske Ingeniører i Indland og Udland. Juni 1912. Samlet af Dansk Ingeniørsforenings Oplysningsbureau. København, 1912.
39) Hansen, Søren Toft: Den voksende kage - cand. polit'erne og ideerne om vækstsamfund og produktivisme 1920-1947. In: Den jyske Historiker, p. 102-3. Århus 2003.



Some of the prominent guest with the king and queen in front to the middle and Headmaster P. O. Pedersen to the left celebrating the 100th anniversary of the Polytechnical Institute in the Forum a functionalist exposition hall built in 1926.

king and the queen as the most prominent guests along with the most prominent politicians of the government. But the celebration was also attended by almost 1400 guests coming from all the Nordic and many other European countries.[40)]

In several of the speeches given to the whole audience a tribute was paid to technocracy in the modern sense. The role of the technician was described as indispensable in modern society, but there was room for some moderation too. One of the keynote speakers at the banquet pointed to the fact that other form of scientific competence was also needed in the proper administration of society. It is an illusion to believe that you can make good results in society just because you are an engineer. The technical expert, who is a charlatan in cultural and social science, will achieve nothing and have very little impact and influence where the decisive decisions are taken.[41)]

Also the headmaster of the institute professor P. O. Pedersen expressed great concern for the future development of technocracy. If the different scientific professions, and by this he was explicitly referring to the two cultures of professionals, were unable to co-operate in the critical years to come, the whole political construction of a technocratic regime could very easily drop to the floor. "*Where society is governed by words – the printed and the spoken – in the world of technique only facts matter. This fundamental difference in language is complicating*

40) Vinding, P. (red.): Beretning om Det nordiske Ingeniørmøde i København 28-31 August 1929 samt om den polytekniske Læreanstalts 100-Aars Fest. København, 1930.
41) Op. Cit. p. 253.

the co-operation; but the two parts must come to an understanding, if the future of mankind shall be glorious". As a consequence of this predicament he called for the correct "*alloy of technique with economy and sociology*".[42)]

As it turned out these concluding remarks from the headmaster of the Polytechnical Institute were almost prophetic in their nature. Three months later came the Wall Street crash. It sent the whole industrialized world into a deep economic recession that took more than a decade to overcome. The cry for technocratism as a solution to all problems in the western world would soon become louder than ever heard before.

A decade of technocracy

In the beginning of 1933 when the depression of the world crisis was taking its heavy toll, a Danish engineer, Paul Molde, published two books with political propaganda advocating for a new technocracy. It was more or less a direct import of the radical ideology that originated in the American movement for technocracy led by the engineer Howard Scott. Molde refused to accept the more mysterious parts of this American ideology. But at the same time he stressed the healthy core in this way of thinking. To him technocracy could mean two different things. Either it was technology's rule over mankind, and that was a bad thing. Or technocracy could mean the engineers' supreme political rule in all matters of society and that was a very good thing.[43)]

Molde followed Scott in his critical analysis of the way society really functioned based on the conversion of energy: "*Energy is the only thing that can perform a work. The task of technique is to convert energy to physical work*" It was a show down with the Tayloristic conception of technocracy that had

42) P.O. Pedersen also wanted "*the correct blend of technology with economy and sociology*". Vinding, P.: Op. cit., s. 129.
43) Molde, Paul: Teknokrati og Samfundsøkonomi. København., 1933, p. 19.

The front page of Molde's second book The Functional Society from 1933.

all its focus on the mismanagement of work. Molde put up the second law of thermodynamics as governing principle instead of the Principles of Scientific Management. It was a functionalistic conception of society with a pure analogy to nature and Molde also advocated a radical showdown with parliamentary democracy. He claimed that in itself the word democracy was merely rubbish. The problem was that parliamentary democracy was dysfunctional and out of tune with the way things worked in nature: "*It has been one of the biggest mistakes mankind has ever made. In ten years or less it will be gone forever. Instead of democracy a true dictatorship would come to rule. And this will be the best thing that could happen to the world because it would enhance productivism and put an end to the world crisis*".[44)]

44) Molde, Paul: Det funktionelle Samfund. Hellerup, 1933, p. 155.

Teknokratiet vil derfor afskaffe den lille Kapitalgruppes Ejendomsret til Produktionsmidlerne og overføre denne Ejendomsret til Samfundet som Helhed.

Istedetfor det kapitalistiske Systems snærende Baand og Bremseklodser - Aktionærudbytter, Tantiemer, Profitbegær og Kapitalopsparing - vil det tekniske Produktionsapparat som Samfundsejendom faa frit Løb til Massefabrikation af Forbrugsvarer, og dermed tjene Samfundet som Helhed og i alles Interesse.

I Modsætning til det kapitalistiske System, vil Teknikken som Samfundsejendom, ved fortsat teknisk Udvikling **ikke fremkalde Arbejdsløshed, men derimod forkorte Arbejdstiden for den enkelte Arbejder -**

„Maskinen til Arbejdet - Mennesket i Frihed!"

Det sande Demokrati begynder med Ophævelsen af den private Ejendomsret til Produktionsmidlerne - og med Indførelse af almindelig Arbejdspligt for alle. To Ting der tilsammen umuliggør en Overklasses fortsatte økonomiske Diktatur og Snyltertilværelse paa Samfundslegemet.

Teknokratiet's Fordeling af Samfundets arbejdsskabte Værdier sker paa Grundlag af Fællesskabets Idé. - - -

Samfundet har Plads til Alle, har Brug for Alle og Alle, der gør sin Pligt, har samme Ret og Andel til Samfundets Varerigdom.

Samfundsrenten er det kapitalistiske Lønsystems Afløser.

Samfundet er blevet Alles Arbejdsgiver, og udbetaler Alles Løn. Derved er det privat-kapitalistiske Lønslavesystem ophævet - og Fællesskabet indført.

Den tekniske Udviklings stigende Produktionsevne vil bestandig forøge Samfundets Vareridgdom - og da Samfundsrenten automatisk maa vokse i samme Forhold, vil den tekniske Udvikling komme Samfundet som Helhed tilgode.

Den tekniske Udvikling er da, under det teknokratiske Samfundsprincip, fra at være en Forbandelse blevet til en Velsignelse for Menneskeheden.

En Samfundsorden, der er bygget paa disse Hovedgrundsætninger vil hæve Menneskeheden fra Arbejdets Trældom - til Frihedens og Lighedens Tinder - til Kulturens højeste Maal.

Menneskeslægten har underlagt sig Naturens Kræfter og gjort dem til sine lydige Slaver - og fra Lønslaver af Kød og Blod er Menneskene blevet til Herrer over Maskinslaver af Jern og Staal.

Et fuldendt Samfund venter Menneskene ..

Bliv Teknokrat!

Teknokratiets Ideologi og Grundsætninger.

Dette Blad har først og fremmest til Opgave at oplyse og fremme Forstaaelsen af vor Tidsalder, Maskinalderdiden, og den deraf følgende nye Verdensanskuelse »TEKNOKRATISME«.

I dette, som i de følgende Numre af Bladet vil Kronikken give Udtryk for den videnskabelige og teoretiske Udformning af **Teknokratiet's** Idé, Program og Organisation.

Advertisement for a public meeting in the second edition of the revived magazine Teknokraten 15. February 1940.

Molde's political activities could be seen as extreme and bizarre, but he was supported in this work by the professional engineering association DIF. As an editor of the chemical section of their weekly journal, Ingeniøren, Molde was able to publish several articles in the magazine presenting his political ideas to his colleagues. DIF also hosted several public meetings on this new movement of technocracy. But nothing really came out of all this fuss in the way of a political mass movement. Molde soon had to turn to other activities. Actually he ended up as a successful writer of do-it-yourself books after the German occupation. But that is quite another story.

The end of the technocratic movement

A couple of years later in 1937 a new technocratic movement began to publish a magazine, The Technocrat that was referring to the same type of ideology Molde had propagated. The paper claimed to be the organ of the Danish section of the international cultural movement Technocracy. Much of the

Maskinen til Arbejdet – Mennesket i Frihed

Teknokraten

15. JAN. 1940
1. ÅARG. NR. 1

PRIS: 10 Øre

Produktion – for Destruktionens Skyld!

FRA FABRIKEN —
DIREKTE I HAVET

Ordet »Destruktion« er ved at blive et af de mest kendte og mest benyttede Ord i Produktionslivet.

Det er ikke længere et isoleret Tilfælde, hvor en midlertidig »Overproduktion« tilintetgøres for at forhindre et Prisfald. Saa langt er den tekniske Udvikling nu naaet, at den moderne Fabrik, i sin Kalkulering af Produktionsomkostningerne, ogsaa omfatter Destruktion, i større eller mindre Omfang, til Regulering af Vareprisen.

Fra et privat-kapitalistisk Synspunkt er enhver Manøvre til Fordel for Rentabiliteten uangribelig, ogsaa naar Destruktionen af Fødevarer og andre Livsfornødenheder foregaar i et Samfund med Hundredtusinde af fattige og nødlidende Mennesker, der har haardt Brug for disse Varer.

Her raaber vi Teknokrater: Stop!

Vi stempler det som en ondsindet Forbrydelse imod den arbejdende Befolkning og de fattige Lag i Samfundet.

Det er os ligegyldigt, at Socialdemokratiet i Danmark, som andre Steder, tager Destruktionsmetoderne i Forsvar og medvirker til Oprettelsen af Destruktionsanstalter.

Vi finder det lige afskyeligt.

Vi giver derfor Parolen:

Stands Destruktionen. Lad de mægtige Varelagre komme Befolkningen tilgode.

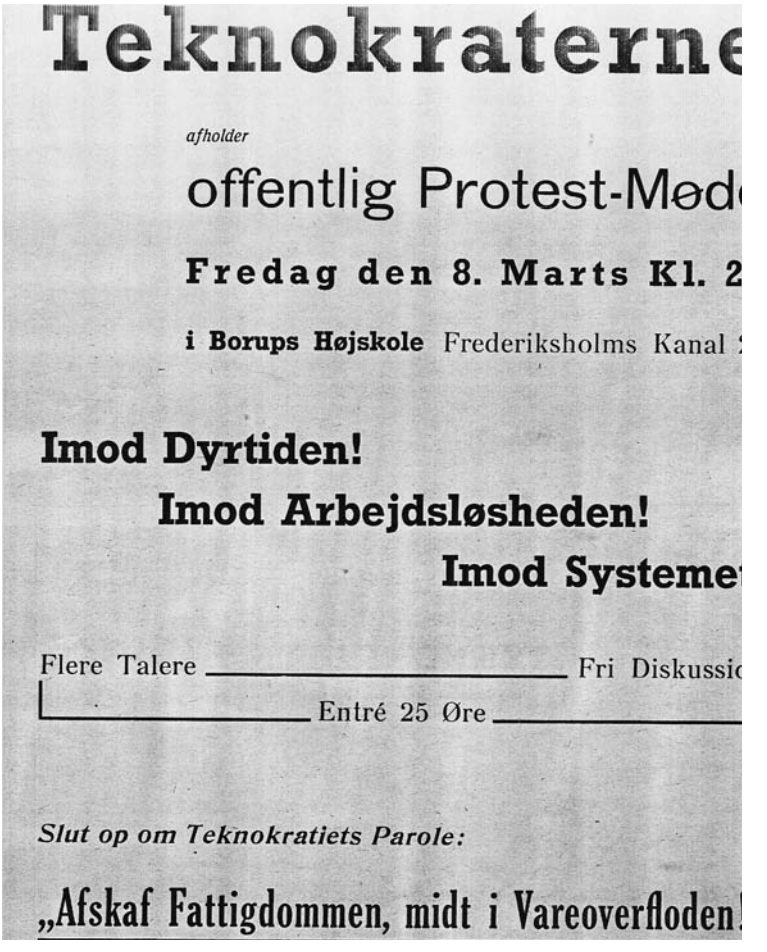
Vi motiverer det med, at det er dog Arbejderne og kun dem, der har skabt Fundamentet for VOR TIDS enorme Produktionsmuligheder — lad saa den enkelte Kapitalist gaa tilgrunde, men lad Befolkningen leve.

HUSK MØDERNE!

The front page of the first edition of the revived magazine Teknokraten 15. January 1940.

inspiration was still from Howard Scott's technocracy mingled with ideologies of some other American movements of technocracy. Fundamentally this new movement displayed a very radical anticapitalist ideology. Also it was very antisocialist and -communist. Basically it was very pacifistic in its rhetoric. The main political concern was with the vast unemployment, and most of the articles in the magazine were discussing this terrible problem.

It is very difficult to assess the actual size of this 'popular mass movement' in numbers of members. Only four or five names appear in the magazine. A lot of public meetings are announced and some seem to have been held. But not very



Advertisement for the 'mass movement' from Teknokraten no. 3. 1. Vol. May 3 1938.

much is heard of these meetings afterwards. After a couple of issues the magazine disappeared just to surface again with two issues one in January and one in February 1940. What happened to this movement a couple of months afterwards under German occupation is totally obscure. But the conclusion is that the political importance of this movement for technocratism was wholly insignificant.

It appears that as a political ideology with aspirations to mobilize a political mass movement, technocratism as well as proto-technocratism were more exotic political phenomena than they were successful attempts to conquer the power in

Danish political life and change the direction of society. This must be the overall conclusion.

In Denmark we seem to have a long historical tradition for implementing technocracy without technocratism. But the advent of technocratism was not with Paul Molde's activities in 1933, it can now be dated back forty years to the activities of Rosenstand-Wöldike in 1893. He must be considered the first full-blown ideologue of technocratism as an early propagator of productivism in Denmark. But the other central elements of this ideology, scientism and elitism can be traced back at least to the beginning of the 19th century. These elements along with productivism are still working to promote technocracy in society today, not as a social mass movement but as a powerful system of governance designed for the 21st century.

Planning the Rational Soviet Baltic Society: Industry and Built Environment in Lithuania in the 1960s

Marija Drėmaitė

Industrialization was a tool to modernize and rationalize society not only in the Soviet world. However, in the Soviet Union industry was also used as a strategic tool for integration of the new territories into the net of the USSR. The basic task of the Soviet authorities was the transformation of the Baltic societies predicated on the collectivization of agriculture and accelerated development of industry. These measures were believed to integrate the economies of the Baltic States into that of the Soviet Union, and would also promote socialist internationalism. The text will examine how the Communist Party concepts of urbanization[1)] and industrialization[2)] that were developed in the 1930s were implemented in the newly incorporated Baltic republics in the 1960s.

The text will focus on the industrialization of Lithuania in 1957-1965, representing the attempts to modernise socialism that was started by the new leader Nikita Khrushchev (1953-1964). The decade of liberalization, known as "Khrushchev's thaw" is also known as a rapid industrialization of all fields of activities that was meant to foster the construction of the progressive socialist society.

Modernization and acculturation of an economically backward Lithuania is still controversially perceived. Positive and negative consequences are contradicted, meanwhile the question – how deliberate were the activities of local leaders and industrialists in the context of Soviet imperialism – is still

1) Aiming at bridging the gap between town and country.
2) Aiming at even distribution of industry and population all over the country.

open. I shall base my arguments on the examples of economic reform, industrialization and architecture in Soviet Lithuania. The objective of the text is not to tell "how it really was", but to discuss the actual questions of the contemporary society about the heritage of the Soviet era in the built environment and social relations.

The industrialization of Lithuania was thoroughly researched in the Soviet institutes. As a matter of course all the works had to be written according to the certain distorted Soviet Marxist methodology[3)], yet the statistics of the later studies is quite reliable.[4)] The industrialization of the Baltic States in the context of Sovietization has also been thoroughly researched by emigrant authors. Three major works on the issue represent the scale of interest:, the most comprehensive being the book by Lithuanian and Estonian authors[5)] first published in 1983 and updated in 1992. Other sources available are the dissertation written by Benedict Maciuika (1963) especially concerning economic development; and a study by Thomas Remeikis (1980) with the emphasis on religious and national dissent; he also edited some issues of LITUANUS – an emigrant cultural journal. Various questions of Sovietization[6)], industrialization[7)], and nationalism[8)] were discussed in LITUANUS and other journals. Lithuanian authors have only in recent years started summarising the history of the

3) Bumblauskas, 1999, 75.
4) Meskauskas, 1994, 7.
5) Misiunas & Taagepera 1993
6) Mačiuika, Benedict V.: Acculturation and Socialization of Soviet Baltic Republics. In: LITUANUS, Volume 18, No.4 - Winter 1972.
7) Idzelis, Augustin e: Branch-territorial Dichotomy and Manifestations of Republic Interests in Lithuania. In: LITUANUS, Volume 29, No.2 - Summer 1983; Industrialization and Population Change in the Baltic Republics. In: LITUANUS, Volume 30, No.2 - Summer 1984; Locational Aspects of the Chemical Industry in Lithuania: 1960-1970. In: LITUANUS, Volume 19, No.4 - Winter 1973.
8) Idzelis, Augstine: Comentary on "Institutional Nacionalism" in Lithuania. In: LITUANUS, Volume 29, No.2 - Summer 1983; Stanley, Vardys, V: Modernization and Baltic Nationalism. In: Problems of Communism 24 (September-October) 1975.

Soviet period.[9] Another group of sources was the archival material of the design institutes and professional periodicals of the 1960s where ideas, problems and discussions were most articulate and revealing.

Introducing Sovnarkhoz in the USSR

The industrialization of the Baltics, in the first socialist decade (1946-1956), was designed to provide a more effective utilization of local material and labour resources, primarily to meet the economic needs of the USSR and at the same time to achieve a closer integration of the Baltic industry into the All-Union economic structure.[10] De-Stalinization in 1956 was an important turning point for the changes associated with Nikita Khrushchev (1953-1964). One of his most significant reforms was the establishment of Sovnarkhoz or the Regional Economic Councils in the Soviet Union in 1957.[11] The reform was inspired by the inefficiency of centralized economy, although the official rhetoric denied it. Reacting to western criticism Nikita Khrushchev said in 1957: "*Soviet economy is not in the crisis and will never be, because it is socialist and planned economy, and it does not experience antagonisms that are tearing the capitalist economy apart*".

The main objective of the reform was to shift economic organization from branch to territorial centralization. This lead to the foundation of 92 regional economic structures (68 in Russia, 11 in Ukraine and a council in every remaining republic) that became separate units of planning, industry and construction.

As a main tool of improvement, industrialization was especially highlighted at the 21st Congress of the Communist

9) Lithuania in 1940-1990: History of Lithuania under Occupation], Anusauskas, Arvydas (Chief Editor), Vilnius, 2005 (in Lithuanian).
10) Maciuika, 1963, 284.
11) Khrushchev, N: About the development of management in industry and construction, Vilnius, 1957. p. 57.

Party in 1959, which announced that the USSR had entered the "High Period of Communist Construction". The Congress introduced the seven-year plan (1959-1965) for the development of industry, agriculture and housing in the USSR. The imperative of the plan was not only the "grandiose construction of communism", but also the renowned competition with the "capitalist world", accompanied by the slogan "to overtake the developed capitalist countries by the average output for one person".

Lithuania started the seven-year plan being an industrially backward country. While Estonia and Latvia were developed as industrial regions already in the 19th century, Lithuania was still an agrarian country. During the 20 years of independence (1918-1940) the State managed to create its own food, textile and forestry industry, but yet, in comparison to other Baltic States it remained very little industrialized. On the other hand, the industrial backwardness of Lithuania had some beneficial points if we compare it to the harsh post-war industrialization of Latvia and Estonia.

The later start of the industrialization allowed the national sovnarkhoz to regulate the process according to local needs. The strategy was designed to modernise the structure of industry, concentrating primarily on developing complex machine-tool production and metal-working industry that required a large supply of qualified labour and little imported materials. In 1957-1965 factories of instruments and tools, small electric motors, and electronics and automatic equipment were built, many of them in the periphery. To employ the local labour from the countryside was a strategically driven tool against the labour immigration. The notorious experience of the neighbours (Latvia and Estonia) showed the alarming proportions of Russian immigration, largely due to labour shortage, threatening the ethnic identity of the republics.[12)]

12) Reimeikis, 1980, 83.

Many historians (Misiunas & Taagepera, Rudokas) emphasise the strategic point of Lithuanization of the local Lithuanian top people, executives and engineers. Sovnarkhoz nominated young Lithuanian engineers to direct newly built enterprises. These directors collected local personnel and workers, so in this way Lithuania also avoided a mass labour immigration from Russia. Together with industry and construction an important period of Lithuanization of the Lithuanian Communist Party started. "*The important question was whether Moscow or Vilnius will decide where and what kind of plant would be built or expanded*", remarks Thomas Remeikis.[13)]

The establishment of sovnakhoz affected the three Baltic States more than other regions of the USSR. With the still present nostalgia for an independent economy the Baltics formulated specific economic policies and far-reaching locally-oriented strategies that were most successfully implemented in Lithuania. We can state that the sovnarkhoz economic councils of 1957-1965 marked the peak of economic autonomy for the Soviet Baltic republics and encouraged the institutional nationalism.

Industrialization of Architecture

The "thaw" period of the late 1950s also represents the substantial change in architecture. The face of modern socialism was conceptualized at a meeting of Soviet architects, engineers and builders in December 1954, which became the first official platform where Stalinist architecture was disposed of as backward-looking. The traditional brick construction required much labour and time; meanwhile the Soviet Union needed to speed-up the construction works (especially in housing and industry). The Soviet neo-classical architecture was also treated as dangerous, because it could raise the nostalgia for the "old times" that was not relevant to the progressive outlook of the socialist society.

13) Reimeikis, 1980, 81.

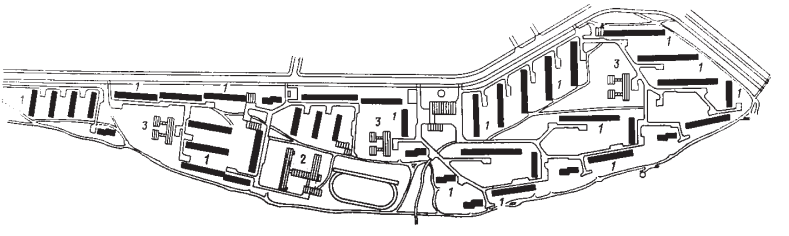
A view of Zirmunai residential micro-rayon in Vilnius, 1962-1967, architect Birute Kasperaviciene (Vilnius Institute of City Planning).

The industrialization of construction works was officially prescribed as a means of building communism faster[14]. In 1955, the Communist Party and the Council of Ministers generalized the ideas of the meeting by passing two acts on building and architecture that made a radical impact on the built environment: "*Development of the Means to Improve, Industrialize and Reduce the Cost of Construction" and the prominent "Removal of Excess in Architecture and Construction*". At the Second Congress of Soviet Architects (1955) in Moscow Khrushchev declared: "*We are not against the beauty – we are against the excess*".[15] The main principles of modern Soviet architecture were set: 1) mass construction of buildings and a standard design 2) urban development 3) industrialization and improvement of construction quality 4) standard design of industrial buildings 5) construction in rural areas, and 6) education of specialists. A new aesthetic programme followed: simplicity, austerity of form and economy. One must also take into consideration that the resolutions of the meeting did not bear the recommendatory character – they meant that all the architecture must now follow the new rational principles.

The State Committee for Construction soon implemented the new order. In 1955 the famous SNiP[16] – Building regula-

14) In August 1954, CP and CM passed an act "The Development of the Mass Production of the Assembled Reinforced Concrete Structural Features".
15) General History of Architecture, 1963, 582.

tions – were released and became a long-lasting watch-dog of all architectural and construction work in the USSR. The unification of construction parts, based on the module of 30 centimetres had to make a base for quick assembly of houses and factories. The first step in the industrialization of architecture was the construction of factories producing building materials all over the USSR that had to guarantee the supply of reinforced concrete parts. In 1957 an act "Development of housing in the Soviet Union" was released that promised to eliminate the shortage of flats in 10-12 years. The era of prefabricated panel houses of small-size apartments started. According to the Soviet economists the most economical was the five-storied house (later known as Khrushchevka) – this type has covered the whole USSR from Vilnius to Vladivostok.



Site plan of Zirmunai residential micro-rayon: 1 – housing blocks, 2 – a school, 3 – kindergartens.

The rationalization process also made impact on the factory design. Whereas in the 1950s industrial enterprises were composed of several separate buildings known as the pavilion system), then in the 1960s, engineers proposed to use the more rational and economical universal single storey factory block. In 1961 the Construction Committee of the USSR approved the normative reinforced concrete construction parts and the unified schemes for industrial buildings based on the module of six. Unified schemes regulated not only the height, the width of the nave and the step of columns, but the wall panels, the constructive type of the

16) In The Soviet union state planning norms were in use according to which the regulatory level of all technical and planning parameters in building was extremely high. The slow renewal of norms (the versions only from the years 1955, 1962, 1971) was the main reason for the moral ageing of the housing types, Ojari, 2004, p. 67.

building and the capacity of transverse cranes as well. The most effective column system was approved for the small (6 x 12 or 18 meters), for the large (6 x 24 or 30 meters) and for the universal (12 x 18 meters) industrial building.

In 1959 Lithuanian sovnarkhoz established a design institute for the industry "Pramprojektas" (Industrial project). In 1960 a department of standard design was founded in it, which had to adapt standard Soviet factory designs for Lithuania; at the same time the institute designed about 50 per cent of all new enterprises in Lithuania. The main task of all the institutes was to prepare the cheapest possible project. In this situation Lithuanian designers shifted to the supplementary areas of architecture to beautify the factory building. They started to improve the interior and landscape design together with applying monumental arts, such as mural painting, sculpture, stained glass and decorative metal.

Lithuanian sovnarkhoz also initiated and supported organisations of planning, design and technology. A crucial step in the modernization of technology was the establishment of the Specialised Design and Construction Bureaus that had an important role in helping to establish new enterprises in peripheral areas.[17] The shift towards labour-intensive production was facilitated by co-operation between enterprises and educational and scientific institutes. The "thaw" period also saw the rehabilitation of management science, which had been dismissed as a bogus science during the Stalin era. Also, a number of professional magazines ("Science and Technique", "Construction and Architecture" and "National Economy") appeared in 1959.

It might look as if the dream of pioneers of modernism about rational and assembled architecture, and universal aesthetics came true. But the Soviet reality showed major distortions. The control of the SNiP was sometimes des-

17) Rudokas, 2002, 200.

perate. Instead of composing buildings of the prefab segments the designers had to use the standard designs: an upsetting fact was that a standard design could take from 2 to 4 years to prepare. During that time the construction technologies changed, not to mention moral ageing of architecture.

Industry and Urban Planning

As elsewhere, industrialization made a big impact on urban planning in the Baltic republics. In the 1960s it was declared that industry is the main factor of urban growth. The nationalization of private property allowed Soviet planning organizations to generate gigantic reconstructions of cities and towns, and to plan and locate new industrial areas.

Elektrenai power plant by night, 1969.

During the sovnarkhoz period and liberation of architecture one can see the substantial change in the concept of settlement planning. New concepts of settlement planning were introduced at the Congress of the International Union of Architects in Moscow in 1958, following the theme of recon-

A view of a modern school and a housing area of Elektrenai industrial town [picture from the magazine "Construction and Architecture", 1966]

structing cities.[18] Finnish urban planning concepts had a big influence on the Lithuanian planners after a group visit to Finland in 1959.

The main feature of modern planning was that the zoning was implemented, separating industrial zones and housing areas. A new phase of socialist life organization in urban environment was the concept of micro-rayon – a Soviet version of neighbourhood. Micro-rayon for 9,000-12,000 inhabitants consisted of prefab houses, a school and several kindergartens, playgrounds, and a shopping and public service centre. This had to strengthen communal rather than individual identity and promote complete social and national assimilation.

In the planning of industrial towns the city-forming scheme was designated: first the industrial enterprise is built followed by housing, and only afterwards service and cultural facilities are established. An industrial town Elektrėnai[19] that was erected together with a huge power plant in 1960-1968, is an example of the new modern planning. The design and construction of Elektrėnai became the site where open urban planning was implemented and the first prefabricated houses assembled. Attracting workers and engineers of more than 40 nationalities from all the USSR, Elektrėnai became a showcase of a modern socialist town. The planning was done in the Vilnius Institute of City Planning. A giant construction site provided Lithuanian planners and architects with finances and the opportunity to propose modern planning ideas.

18) Ojari, 2004, 69.
19) Meaning "electric-town".

The natural relief and the trees were preserved as in Vällingby (Sweden), and the town centre combined cultural, shopping and recreational activities, while widely spaced apartment blocks were scattered throughout the woods, as in Tapiola (Finland). The first three pre-fabricated concrete housing blocks of 4 stories (64 flats) were assembled in 1960 and 15 other - later. A two-storied department store, a public service building and a club were built in the centre of the town. A modernistic school of individual design, kindergartens, and a technical college were built nearby. A good combination of volumes and assorted landscape design made Elektrėnai an example for the planners of the industrial towns of the USSR. In 1975 the population of the town was 8.000.

Industry and Regional Planning

Big scale regional (and urban) planning was possible in the Soviet and Socialist countries because of the specific command economy, and the absence of private property. The Council of Ministers of the USSR released the first official document concerning regional planning in 1955 which stated that the planning of industrial towns, must follow the regional planning schemes.[20] Progressive urban planners of socialist countries, especially Czechoslovakia, saw it as a way to create new methods for urban nets, settlement systems and localization of industries. Lithuanian regional planners worked in the same direction, but developed their own model of regional planning.[21]

Whereas in Estonia and Latvia the capital cities were most industrialized and developed, the Lithuanian planners followed the new concept of equal development of the regions. Lithuania also succeeded in creating a local construction industry that was an important factor in building enterprises in the

20) "Act on the order of city planning and building projects".
21) Šešelgis K. Rajoninio planavimo projektų sudarymo organizacija ir jų turinys Čekoslovakijoje. Pranešimo mašinraštis, 1960-08-17. Lithuanian Central State Archive, F. R-370, A. 1, B. 47.

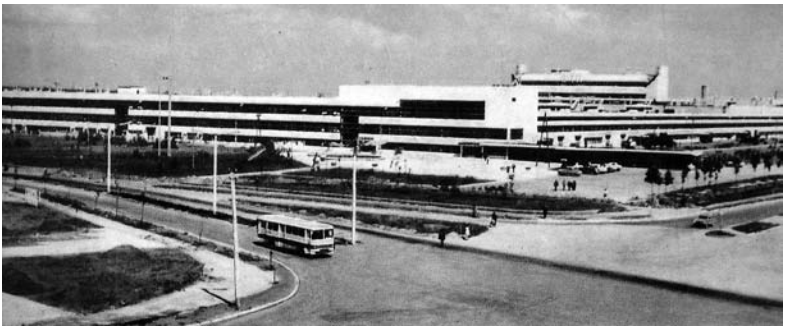
periphery. With the help of Lithuanian sovnarkhoz the first official master-plan "The Location of New Industrial Enterprises in Soviet Lithuania in 1959-1965" was made in 1959 and was developed into the official document in 1964.[22]

As an alternative to the highly top-down and hierarchical Soviet urban system, Lithuanian planners proposed a sustainable and equal distribution of cities and towns, giving priority to regional centres – small and mid-sized peripheral towns. The proposal was made to stop the industrial development of Vilnius and Kaunas, while developing smaller regional and industrial centres. The cities, towns and rural settlements were treated contextually as a net or a complex. The base of the system was a region: a group of functionally connected different settlements and towns. According to the urban researcher Jurgis Vanagas the Lithuanian model was exceptional in the context of the USSR and met with both positive and negative responses.[23] As an alternative to the highly top-down and hierarchical Soviet urban system, Lithuanian planners proposed a sustainable and equal distribution of cities and towns, giving priority to regional centres – small and mid-sized peripheral towns.

Imaginary or Real Rational Socialist Society?

During the seven-year plan (1959-1965) 77 new industrial plants and 66 large shops were built in Lithuania. 3.8 million square meters of living space were built in cities and towns and 21.600 houses in rural areas together with 167 schools. The use of prefabricated concrete and synthetic building materials increased. However, the poor quality of construction, and unification of environment produced by standardisation were not exposed. By 1968, Lithuania exceeded the Soviet

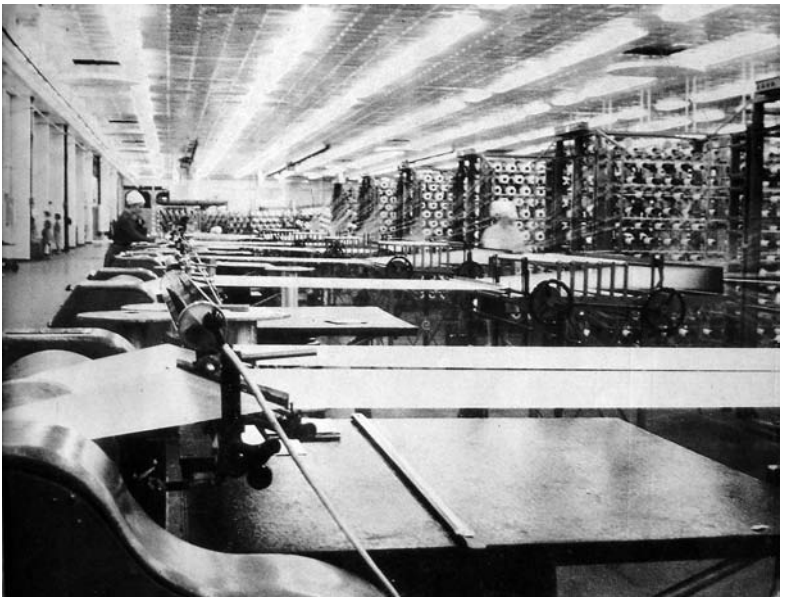
22) 30 March 1964, Central Committee of Lithuanian Communist Party and Council of Ministers of Soviet Lithuania made decision No.155 "About the long-term development of towns and location of industry in Soviet Lithuania in the period of general outlook".
23) Vanagas, 2003,140-145.



A building of "Pluostas" factory in Kaunas, 1971. [picture taken from an advertising booklet Kaunas Factory of Artificial Fibre, 1971]

average of income per capita by 15 percent, (Latvia by 42 and Estonia by 44 percent). In 1970 already 50.2 % of Lithuanian population lived in the cities and towns.

The representation of the modern socialist industrial society might be observed in the organization of one of the biggest chemical-textile factories in the Baltics – the Kaunas Artificial fibre factory "Pluostas". It was the first factory in the USSR for the production of triacetate yarn together with the scientific research institute to analyse the specific properties of triacetate. The technological processes were fully mechanized and automatized. The modern design of a universal single storey building with a flat roof was covering the area of seven hectares besides the other 34 buildings. For the first time the 30 meter long reinforced concrete trusses were used in the construction of the gigantic factory. The spacious and clean cloak-rooms were provided with showers, wash rooms, and photarii. A dining-room and two canteens (one of them open 24 hours a day), and the medical service were at the service of the working people. Flowers and greenery were planted in the shops and the landscape design decorated the environment of the factory. The workers of every single shop were provided with specially designed colourful and practical garments that were fully adapted to the specific work of that very shop. The design and equipment of the factory was praised in the Soviet press and was compared to the industrial cultural house as the following poetical description unfolds: "*Seeing the glazy floor of plastic concrete and beautifully coloured walls in the il-*



"Pluostas" factory: a shop of triacetate yarn, 1971. [picture taken from an advertising booklet Kaunas Factory of Artificial Fibre, 1971]

lumination of fluorescent lamps fitted in to the suspended ceiling and breathing the conditioned air one can think he is in the house of culture. But the long rows of spinners and twisters, the humming of thousands of electro motors, and the girls watching the tiny threads of triacetate bring you back to the reality – this is the biggest industrial enterprise in the republic."[24)]

Alongside the factory a modern housing area Dainava was erected in 1960-1965. Five-storied prefabricated apartment blocks offered the workers modern facilities. Besides, a school, a kindergarten, a shopping centre and a cultural house were built. Each year the administration of the factory paid much attention to the leisure of the workers: the factory had set up the camping cottages at the Kaunas Lake, and the workers were involved in various amateur talent activities – singing in chorus, taking part in dancing and drama circles, playing in the brass band or the variety ensemble "Oktava", or sporting in the factory club "Pluostas" (Fibre).

24) Periodical Construction and Architecture, 1966, No 3, p. 1-2.

These optimistic lines did not mention that economically the enterprise was too large for Kaunas and its location in Lithuania was far from optimal.[25] Approximately 70 per cent of the output was shipped outside the republic; the remainder was utilized by the local textile industry – special factories to process (weaving and knitting) triacetate yarn were also built in Kaunas. The acetyl cellulose was shipped to Kaunas from Vladimir and Yerevan, so on the basis of production costs, the most suitable location for an acetate yarn plant would be somewhere in the North Caucasus. These facts show the strategic but not rational intention of the location of industry in the Baltics.

Conclusions

In the long run, the sovnarkhoz system proved especially beneficial to Lithuania which, unlike its two northern neighbours, had not been subjected to rapid, centrally directed industrialization during the Stalin years.[26] The ability of local authorities to disperse new plants and opting for labour intensive industries, as well as maximizing local labour resources and management made the industrial profile of Lithuania somewhat different from those of Latvia and Estonia. In this case we can talk about a modernization of Baltic nationalism, which turned from the military resistance to the field of economy, making invisible boundaries for the labour immigration, developing necessary industries within the country, or producing consumer goods for the local inhabitants.

On the other hand, Thomas Remeikis remarks, that "*social revolution, produced by industrialization and intensified by collectivization, has radically altered the traditional relations of basically rural populations*".[27] So, the industrialization can be considered as a tool for the introduction of Soviet norms, weakening

25) Idzelis, 1973.
26) Misiunas & Taagepera, 1993, 185 & 187).
27) Reimeikis, 1967, 29.

the traditional culture and denationalizing peripheral republics as we could see from the examples of Latvia and Estonia. The environmental problems created by the industry were also painful. If Lithuanian authorities succeeded in creating and dispersing mid-sized industrial enterprises in peripheral towns, then they failed to avoid gigantic Soviet projects.

The Soviet policy of rapid industrialization and conversion of local productive capacities primarily to serve All-Union needs has resulted in significant changes in Baltic urban settlement, employment patterns and pollution of the environment which have left indelible marks on the local population. The economic growth and urban development created the base for modern transformations in the society: a rapidly rising educational level, an expanding middle class of technical and cultural intelligentsia, intensifying social mobility, rapid urbanization, and regional planning.

The processes described in this text were not unique in a European context. All the political systems in the 1960s had taken similar actions of rationalization: industrialization, standardization of architecture and construction. However, the main difference between the systems can be marked by the one-sidedness of the Soviet built environment.

Planning the Rational Society in the North

Maths Isacson

The topic in this article is planning as an essential feature in the industrial countries during the 20th century. Planning was an ideology among politicians, industrialists and civil servants. The overall idea was a planned rational society with clear rules and regulations and a functional division of tasks among people on all levels of society. Planning was a guiding-star not only for business and public life, but also for private life, something the rational citizens should learn and follow at home and during leisure time. To be understandable this idea has, however, to be put in a contemporary context. The goal in the modern industrial society in the East and West was to increase the living standard and welfare among the inhabitants, to liberate people from poverty and diminish social differences. This would limit the tension between classes and nations and prevent devastating civil wars, as well as wars between countries. The principal means was to increase efficiency, first of all in the production of goods and services, but also at home and in public space. The production of goods and services, and everyday life, had to be planned and handled rationally at all stages over a longer period of time. In public life it was also important to plan everything on a large scale. This would speed up economic growth. Through democratic decisions the surplus would be transformed into welfare institutions and a better society for the people. The society should be planned and organised like a machine, a Planning Machine, and people should trust an abstract system ruled by irreproachable civil servants and political leaders.[1)]

1) For the concept "planning machine", see Hall, Peter: Urban and Regional Planning. 4th ed. London: Routledge, 2002, p. 55.

The drawing office at Hedemora Verkstäder 1958. Not only the system of production had to be planned. Of great importance was, and is, the construction of the products. From the beginning of the 20th century the drawing offices expanded at every larger industry. Engineers planned each product in detail. the drawings were sent to the planning office where the planners decided how the production should be organised, which workers should have the tasks, when different tasks should be performed and the cost of each task. Photo from Hedemora Verkstäder.

This was the common perception, the discourse so to speak, in the highly industrialized societies during the 20th century.[2)] But as we very well know, there were different opinions in most Western democratic countries about this planned rational society, both over time and regarding how much of private life the public society ought to intervene in. Opinions also differed in regard to who should decide and carry out the planned rational ideas. Was it primarily a question for private interests and individuals, or was it mainly a question for politicians and the public society? The answers differed between countries, politicians, and individuals according to social classes, gender, age and experiences.

My main question here is the implementation of this idea in the North, which first of all means Sweden. I will start with the concept of planning and give a brief historical background to this superior idea of a planned rational modern society. My focus is on construction and industrial production.

2) For the concept "highly industrialised society", see Isacson, Maths: The Highly Industrialised Period in the Nordic and Baltic Countries. In: The Finnish Journal of Urban Studies 2003, p. 3.

The concept

What do I mean by planning? Today the word is applied to nearly all-human activities. Here I will somewhat limit the definition and borrow the concept Peter Hall uses in his book Urban and Regional Planning: Planning as a general activity is the making of an orderly sequence of action that will lead to the achievement of a stated goal or goals.[3)]

Planning means that there has to be a plan of action, with explicit steps that will end in the specified goal/goals. When discussing plans and goals on a social level in modern society, the plans also have to be expressed in written form, or at least codified in some kind of common document. The codification can be done by the board of a company or an association, in the parliament or in a municipal council. You need a specified and, preferably, a written plan when you build, introduce a new organisation, start up a new product or change something in the company or in the society. When the goal involves a lot of people, a written plan is surely highly important, both in a democracy and in a dictatorship, although the scope for personal initiatives is usually wider in a democracy. On the other hand, planning also requires instruments for a gradual and assured control. The sequence of action has to be measured against the plan and the necessary corrections performed. The "Machine" includes a control apparatus with controllers, investigators, prosecutors, courts and means of punishment.

The highly industrialized societies during the 20th century (c. 1930-1980/90) were, to slightly different extents, controlled societies. The control was, especially in the companies, carried out with scientific methods. Social science was one crucial base for the "planning machine."[4)]

3) Hall, 2002, p. 3.

4) The question of control within the industrial companies from the beginning of the 20th century has been an object for investigation and discussion among researchers. The same applies to the introduction and degree of scientific manage-

When the demand for exact measures increased it became very important to develop techniques and methods to test the products. This became a speciality. Measurement at Hedemora Verkstäder 1958. Photo from Hedemora Verkstäder.

Background

It is only partly correct that plans are a product of the industrialized modern society. In pre-modern times, that is before the scientific, industrial and capitalistic revolutions, when the church and priests had a strong hold on the way of thinking and acting in society, you were to leave the future to God and its representatives on earth. You were to work hard according to the norms and traditions and pray to God.

The planning of cities is, however, nothing new. It has been practiced as far back as in classical antiquity. In Rome, with a population of one million, the authorities had great prob-

ment. For an overview, see for instance Thomson, Paul: The Nature of Work. An introduction to debates on the labour process. 2 ed. London: The Macmillan Press Ltd, 1989.

lems with the water supply and the traffic. To solve these, the authorities had to develop plans. When cities in Europe, such as London, grew, the authorities also had to plan for a regular supply of food, water, coal and other essential goods from the countryside and from abroad. During the Middle Ages, many European towns were laid out according to formal city plans. This became very common, especially in continental Europe, but also in Sweden during the seventeenth and eighteenth centuries.[5)]

The Enlightenment, the intellectual currents during the second part of the 18th century, first of all in France, was also important for the growing interest in the physical planning of society and the production of goods. With science and rational thinking the philosophers of the Age of Enlightenment wanted to create a coherent rationalistic conception of the world. The idea of improvement, which could be achieved through science, rational thinking and hard work, influenced the new bourgeoisie, of whom many were involved in trade and industry. Work and diligence were embraced. Time had to be allocated and utilized according to need and used in a rational way.[6)] In 1776 Adam Smith published the epoch-making book, the Wealth of Nations, where he analyses the rational division of labour in the factories. To realise this, the owners of the factories had to understand and plan the production process. This was a radical thought and it took a long time before the owners had enough knowledge and tools to plan and control the production according to these ideas. The practical knowledge in handicraft shops and the first factories was mostly unavailable to owners, managers and technicians,

5)Ahlberg, Nils: Stadsgrundningar och planförändringar. Svensk stadsplanering 1571-1721. Uppsala: Swedish University of Agricultural Sciences, 2005. Hall 2002.

6) Hobsbawm, Eric: The Age of Revolution, chapter 13. London: London: Weidenfeld & Nicolson,1962; Sörlin, Sverker: Världens ordning. Europas idéhistoria 1492-1918, pp. 324-330. Stockholm: Natur och Kultur, 2004.

who had not by themselves practiced on the shop floor. For them technical schools became a tool to create a reliable labour force with the "right" knowledge.[7)]

The Industrial Revolution after the middle of the 18th century speeded up the demand for urban planning, as well as for plans that could increase the efficiency in factories and during large building projects, especially of channels, railroads and harbours. When coal had replaced water as the principal source of energy for the industry (after the 1780s), the factories could be located at places with good communications. The location and the increased output placed a demand on planning to enable the distribution of goods and to solve the housing question and the organization of work.[8)]

Fredrich Winslow Taylor was not the first one who tried to open up the "closed shops", but at the beginning of the 20th century he introduced scientific tools that, at least on paper and under good circumstances, could be of great help to obtain the desirable information that the owners badly needed to plan a rational, efficient production.[9)] Furthermore, this kind of picking up of information and planning can also be seen as "*a rational answer by the owners of the capital to the problem of management during a period when the labour unions systematically began to control (and negotiate about) the workers' collective job performance*."[10)] I will leave the planning inside the factories for the moment and continue the history of the birth of the rational, planned society in the North during the 20th century. In the end of this chapter I will come back to the rationalization of the industrial production.

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7) Torstendahl, Rolf, Dashkevich & Ustiantsev, Sergei: Knowledge: Its Transfer and Reproduction in Occupations. In: Iron-Making Societies. Early Industrial Development in Sweden and Russia, 1600-1900. Ågren, Maria (ed.), Providence/ Oxford: Berghahn Books, 1998.
8) Hall, 2002, pp. 11-13.
9) Regarding the introduction of the ideas of F.W Taylor, see for Sweden De Geer, Hans: Rationaliseringsrörelsen i Sverige. Stockholm: SNS, 1978.
10) Johansson, Alf: Arbetarrörelsen och taylorismen: Olofström 1895-1925, Lund: Arkiv förlag, 1990. p. 101.

The planning of the modern society

In the modern industrialized societies, planning became an instrument within an increasing number of activities. The First and the Second World Wars doubtless increased the passion for plans and an efficient "planning machine" in modern society. This did, however, also cause political reactions and debates. To a great extent this was a consequence of the widespread use of five-/seven-year plans by the Communist regime in the Soviet Union and the demand for a greater state intervention by the left-wing democratic parties in many democratic countries in Europe. However, those who argued for limited state restrictions on production and other kinds of business very often argued for and practiced a strict rational planning and control inside their own factories and offices. The politicians were not, however, to intervene in the economic activities of factory owners and capitalists through plans, restrictions and heavy taxes. But the latter accepted urban planning and other kinds of planning as long as this furthered their economic activities.

At a congress in 1944 the Swedish Social Democratic Party decided to approve a programme with 27 paragraphs for the post-war period.[11] The work with the programme was hurried on by the common fear of a deep economic slump after the war. To prevent this depression and limit the expected high unemployment, the Social Democrats, who were the ruling party, wanted to continue the restrictions that had been put on economic activities during the Second Word War. Their solution was an economy controlled by the state.[12] In part the Social Democrats in Sweden followed the same linetype of policy as in many other Western countries (with foreign exchange controls, price controls and import restrictions), but the party also further developed its policy to ensure full em-

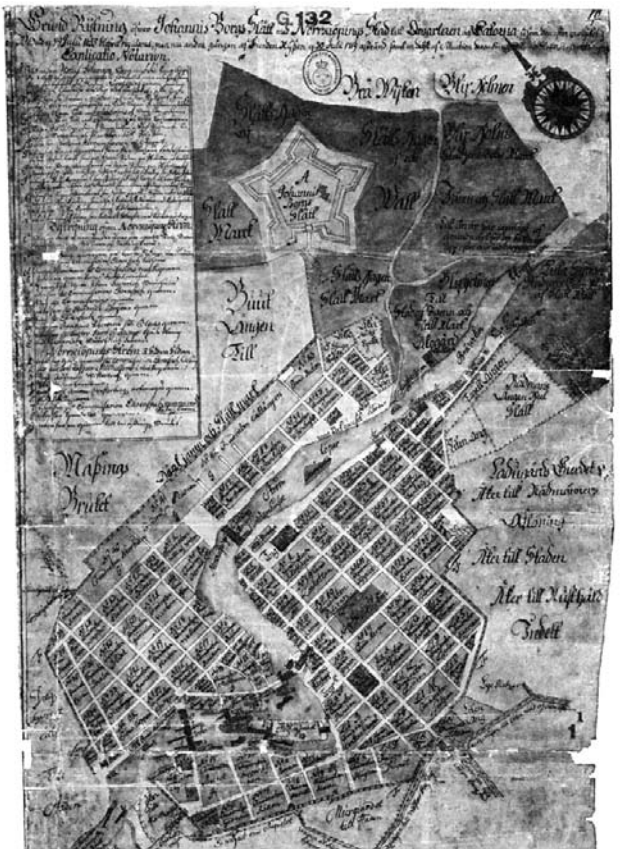
11) Arbetarrörelsens efterkrigsprogram. De 27 punkterna med motivering (written by a committee within the Swedish labour movement with Ernst Wigforss, Alva Myrdal, Gunnar Myrdal and others influential persons). Stockholm, 1944.
12) Magnusson, Lars: Sveriges ekonomiska historia, pp. 410-412. Stockolm: Rabén Prisma Tiden Athena, 1996.

ployment and continue the building of the welfare state. The programme was followed by an inflamed ideological-political debate, a debate that had started before the war, but which got new fuel with the programme for the post-war period.[13)]

However, an economic slump did not follow and the programme for the planned economy was never completely implemented. Instead a long period of rapid economic growth began, which in the end provided an opportunity to continue the building of a welfare state. The critics from the non-socialist parties also prevented the implementation of a democratic, full-scale planned society. As long as the private economy proved to be efficient, Sweden could continue to be a capitalistic market economy, but with widespread state invention.[14)] Some spheres of the economy were, however, more politically planned than others: one was agriculture and another was social services, as well as social insurances, the labour market and construction. The production of goods and services was mostly left out untouched by legislation and state intervention. Instead general agreements between the Swedish Employers' Confederation (SAF) and the Swedish Trade Union Confederation (LO), which were followed up with more specified agreements during the forties, were to deal with questions inside the factories and the offices. The parliament and the state formulated the general rules, supervised and, through taxes, reallocated the resources from production to the growing welfare sector.

The building sector was seen as most important for economic development and the creation of a welfare state. Good homes for working class families were put high on the political agenda. In the fourth paragraph of the Post-war Program,

13) Lewin, Leif: Planhushållningsdebatten. Stockholm: Almqvist & Wiksell, 1967. For an overview of the planning system after 1945 in Western Europe and USA, see Dillard, Dudley: Economic Development of the North Atlantic Community. Historical Introduction to Modern Economics, chapter 34. New Jersey: Prentice-Hall, Inc, 1967.
14) Magnusson, 1996, p. 411.



The city plan of Norrköping 1719 made by the land-surveyor Sven Ryding shortly after the Russian troops had burned the pre-industrial manufacture town. Original in archive of the Land-surveying board.

the Swedish Social Democrats explained the importance of a "*far-reaching plan in order to increase our housing standards*". To increase the construction capacity and the standards of the construction, the programme recommended towns, city and regional plans. The municipalities were given an important role in the practical handling of the construction programmes. This was also implemented from the end of the forties.

Urban and regional planning

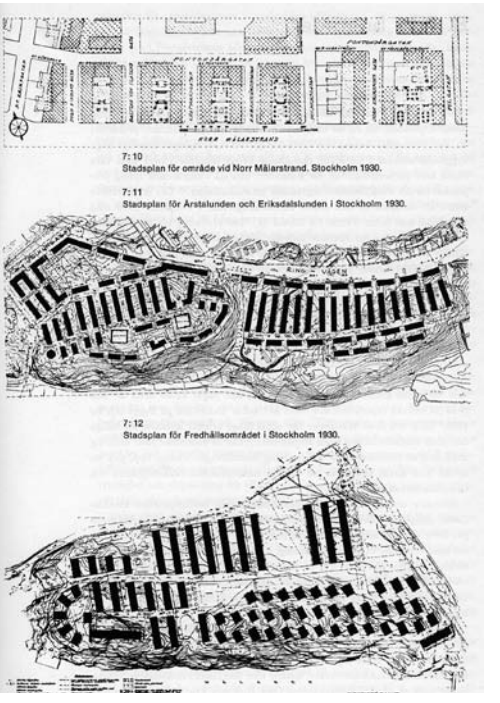
Urban and regional plans were elaborated and came into use all over Europe after WW II. But urban planning was not new, although the medieval towns in Sweden, as elsewhere, often developed from the old market, "*organically and with-*

out any plan impose from above".[15] At the beginning of the 17th century, during the regime of king Gustavus Adolphus, a more efficient public administration was introduced. An important part of this streamlining was a systematic foundation of towns. A centrally regulated town planning system was introduced with the purpose to create a "*military well-arranged society, where the town people were put into the regular square of blocks*".[16] Due to the widespread founding and rebuilding of towns during the 17th century, this type of regulated towns became, and still is, the most common type in Sweden.[17]

From the end of the 17th century and especially during the second half of the 18th century architects planned the new big ironworks, especially in Uppland. The buildings were laid out in a symmetric way. The ironworks were located on a stream, near a forest, with arable and pasture land, and with the buildings arranged in a way that elucidated differences between social groups and functions.[18] To some extent it is possible to argue for a link between these old ironworks and their organisation and the welfare state (the so-called People's Home) that the Swedish Social Democrats built from the end of the 1930s.[19]

The industrialization and rapid urbanization from the end of the 18th century soon gave rise to unregulated slum districts, fires and great problems with transportation and public health. As a consequence, the local authorities, or private organisations, started to collect statistics about the urban settlements and health. This increased the demand for a legislation that gave the local authorities power to plan the urban settle-

15) Paulsson, Greger: Svensk stad. Del 1, p. 109. 2nd ed., Lund: Studentlitteratur, 1972 (1950).
16) Paulsson, 1972, p. 112.
17) Paulsson, 1972, p. 114; Ahlberg, Nils, 2005.
18) Hellspong, Mats & Löfgren, Orvar: Land och stad, chapter 5. Lund: CWK Gleerup Bokförlag, 1972; Nisser, Marie: De bergshistoriska miljöerna. Från Kulturdagarna i Bonäs bygdegård den 23-25 juni 1975, Uppsala 1976.
19) Isacson, Maths: Bruket och folkhemmet. In: Häften för kritiska studier 2 1991.



Cityplans of a couple of areas in Stockholm 1930. Drawings from Göran Råberg, Funktionalistisk gennembrott, Sveriges Arkitekturmuseum, 1970.

ments.[20] In Sweden the concept of the city plan came into use in the legislation from 1874.[21] However, it was not before the beginning of the 20th century that urban and regional planning became more common in the Nordic countries. Legislative acts regarding physical planning were passed in Norway and Denmark in the middle of 1920s and in Finland and Sweden at the beginning of the thirties. At the local level, town plans were discussed before that, however, and put into use in some places.[22] If we turn to Denmark, a Town Planning Act was passed by the parliament in 1938. On the other hand, there was no system of national and regional physical

20) Hall 2000, pp. 12-18 regarding an early and important collection of statistics in the slums of Chicago, see Addams, Jane: Twenty Years of Hull-House, chapter 10. New York: Signet Classic, 1981.

21) "Stadsplan" (city plan), Nationalencyklopedien. Höganäs: Bokförlaget Bra Böcker, 1995.

22) See for instance Lähteenmäki, Marja, By the power of industry. Nevanlinna, Anja: Industry & Modernism. 2007 (forthcoming). Larsson, Bo: Stad i förvandling: stadsplanering, stadsbyggande och stadsförnyelse i Lund 1945-2005. Lund: Fören. Gamla Lund, 2006.

planning before the 1960s, although Copenhagen got a so-called "finger plan" (after the model, the hand with its five fingers, used by the chief planner) earlier. This plan regulated the co-operation with the surrounding smaller municipalities.[23] In the other Nordic countries, national and regional physical plans became very important from the end of the sixties and the beginning of the seventies.[24]

The Planning Machine

After 1945 the real "planning machine" was introduced in many industrialized countries.[25] The Marshall Plan (1948-1952) became an important instrument in the difficult and costly project to rebuild Western Europe immediately after the war. Without this large military and economic aid that the USA offered Western Europe, it would probably have been impossible to create an economically and militarily strong liberal Western Europe in such a short time.[26] Rebuilding the villages, towns and infrastructure was one goal. Another was to re-start production, increase productivity and increase the standard of living in Western Europe.

The Marshall Plan involved 16 countries, but not Sweden (neutral and standing outside the war) and Finland (due to demands from the Soviet Union). Planning was, however, no less important in these countries. In Sweden urban and regional planning became a crucial part of the development

23) Kerndal-Hansen, O: Retail planning in Denmark. In Davis Ross. L. (ed): Retail planning in the European Community. Farnborough: Saxon House, 1979.

24) See for instance, Rådberg, Johan: Drömmen om atlantångaren. Uutopier & myter i 1900-talets stadsbyggande. Stockholm: Atlantis, 1997; Elmlund, Peter & Glans, Kay (red.): Den välsignade tillväxten. Tankelinjer kring ett århundrade av kapitalism, teknik, kultur och vetenskap. Stockholm: Natur och Kultur, 1998.

25) Hall, 2002, p. 55.

26) Hobsbawm, Eric: The Age of Extremes. The short twentieth century, 1914-1991, chapter 8. London: Joseph; Sörensen, Vibeke: Denmark`s Social Democratic Government and the Marshall Plan 1947-1950. Copenhagen : Museum Tusculanum, 2001.

of the welfare state. The new Act for Planning and Building from the forties put the responsibility for planning and the provision of dwellings on the state through the municipalities. The Act also established a functionalistic way of planning. Different interest groups were co-ordinated through referral proceedings and the assistance of specialists. Moreover, the industrial employers were most active in the building of the new modern industrial towns and villages through the Industrial Federation (Industriförbundet). This organization also took part in the criticism from the right against the complicated building system.[27)]

The "planning machine" after the Second World War was very strong and powerful with a swelling numbers of civil servants with great ideas about how to construct a new, better world. Through this machine, which was based on a close co-operation between private and public interests, the old towns were modernised without much respect for history. This is especially true in Sweden. Many old and shabby town centres were completely changed, and old dwellings were demolished. New modern settlements of high standards were created, but the housing areas were separated according to function. Housing areas were located apart from other areas with working places, shopping centres, schools etc. This separation was supposed to be the most rational way to meet the rapidly increasing requirements in the modern industrialized society. The housing standard also increased, as did the living standard.[28)] The planning machine promised a bright future, and this was something most people appreciated and could see was gradually realized. The critical voices were few and feeble, except the regular complaints from the right-wing parties about the complicated building system and the high taxes. From the end of the sixties, however, the criticism grew among the public, as well as among the civil servants and the construction

27) Vikström; Eva: Bruksandan och modernismen¸ pp. 33-40. Stockholm: Nordiska Museets Förlag, 1998.
28) Wikström 1998; Brunnström, Lisa: Det svenska folkhemsbygget. Om Kooperativa Förbundets arkitektkontor. Stockholm: Arkitektur Förlag, 2004.

companies, and the planning system gradually changed. It became more decentralized, involving the local inhabitants in the planning process. Simultaneously the physical planning on a national and regional level developed, dividing the country into different regions devoted to special purposes.[29)]

Taylor and the rational production

The industrialists did not like the state interventions that the Swedish Social Democrats proposed verbally and in various publications from the twenties, for instance in the Post-war Program from 1944. Inside the factories, on the other hand, they had already, at the beginning of the century, tried to introduce an efficient rational planning system according to the scientific ideas of F. W. Taylor. The Industrial Federation published Taylor's book The Principles of Scientific Management in Swedish already in 1913.[30)] Many leading industrialists, especially those who owned large engineering industries, tried to implement Taylor's scientific ideas from the 1910s. Few of them succeeded. It was much more complicated than they had thought to introduce time and motion studies in order to discover, plan and lay out the most efficient way of working on the shop floor. The resistance was hard, both from the workers and the foremen. The latter lost their traditional role and power and fought back. The workers' union struggled to retain control over the wage system and the recruitment of workers.[31)] The industrialists lost the battles during the 1910 and 1920s.[32)] Taylor's ideas had to be modified and the trade unions become weaker, which they did at the be-

29) Kerndal-Hansen, 1979. Hall 2002.

30) Regarding the flow of management ideas to Sweden from F.W, Taylor and onward, see De Geer 1978, chapter 4. See also chapter 4 for the significance of Taylor's ideas for the Industrial Federation.

31) Johansson 1990; Magnusson, Lars, Arbetet vid en svensk verkstad: Munktells 1900-1920. Lund: Arkiv förlag, 1987; Wikander, Ulla, Kvinnors och mäns arbeten: Gustavsberg 1880-1980, chapter 3. Lund: Arkiv förlag, 1988.

32) See Johansson, Alf: En energi hade vi innerst inne. In: Dagsverken. 13 essäer i arbetets historia. Johansson, Alf, Lundin, Susanna & Olsson, Lars, Lund: Historiska Media, 1994.

ginning of the twenties and thirties, after the two depressions. From the middle of the thirties, the trade unions also became more and more convinced that the workers could benefit from the rational, planed efficient system of production.[33] Furthermore, the broad and diversified production that was very common in Sweden (and the other Nordic countries) at the beginning of the 20th century had to be replaced by a far more limited production. From the beginning of the thirties, a modified form of Taylor's principles (human relations) was implemented in big factories with standardized mass production (engineering workshops, the textile and clothes industries, and furniture factories). In the Nordic countries, the breakthrough for assembly lines, time (and motion) studies and planning did not, however, come until after the Second World War. At that time, a growing number of industrial companies had developed such a large market that they demanded to be able to change to a specialised production. In Sweden in 1938 SAF and LO also concluded a general agreement which opened the door for a rational planned and controlled labour process in order to increase the speed and diminish the cost of production and achieve higher profits and wages.

The rationalization of production also included other kinds of questions that had to be solved through planning: where should the production be located, how should the premises be designed, what technique was available and possible to use, who was the ideal worker and what education did he/she need, how should the labour market be designed to minimize the lack of labour, etc? These were questions that the industrialists and managers tried to solve after 1945, and in the North they did so in close co-operation with the labour unions and the authorities, both on the national and local level.

33) Johansson, Anders L.: Tillväxt och klassamarbete – en studie av den svenska modellens uppkomst. Stockholm: Tidens Förlag, 1989; Isacson, Maths, Från strid till samarbete. Samförståndets framväxt under mellankrigstiden. Arbetarhistoria nr 3/1987.

Questioning of the Planning Machine

The planning machine went ahead at full speed and worked very well for a couple of decades, both inside the factories and in the construction of the new modern welfare society. The number of planning and controlling departments and employees increased at a rapid rate. But before long, from the end of the sixties, the sound of complaints began to grow in the modern, well-planned society among the industrial workers as well as among women and the radical youth who reacted against the planning machine with its points of departure and representatives. The Machine and the latter were criticized for neglecting important things, such as the working conditions, the distribution of power in all forms (between classes, gender, ages, and ethnic groups), poverty, both at home and in other parts of the world, and the pollution of the environment. Furthermore, they were criticized for over-emphasizing some things, such as the consumption of goods and obedience to traditional norms, and of limiting other things, such as the variations in style of architecture and way of life.[34)] During the next decades, the criticism increased even more and a reconsideration started in large industrial companies and in the public sector which, together with the Internet, globalization and the fall of the Soviet Union, opened up for a more flexible production and way of thinking and living.[35)] Planning is, however, still on the agenda. Contemporary society, technologically, economically and legally more and more complicated, cannot function without a sophisticated planning which includes all levels of society. The presentation of this planning is, however, more integrated and hidden in the technological and political systems today than in the 20th century modern society.

34) Many articles and books have been written, and will be written, about the critique and radical movements from the end of the sixties in the Western world. See for example Hobsbawm 1994, chapter 11.

35) For an analysis of the transformation of the industrial societies, see Manuell: The Information Age. Economy, Society and Culture. Three volumes. First edition. Malden, Mass: Blackwell, 1996-1998; Magnusson, Lars: Håller den svenska modellen. Arbete och välfärd i en global värld. Stockholm: Nordstedts Akademiska Förlag, 2006.

The North Jutland Exhibition 1933
An Example of Modern Advances in Aalborg in the 1930s

Bente Jensen

In the 1930s, the town council and business life in Aalborg wanted to brand the city as modern, progressive, and at the forefront of industrial development.[1] They were proud and regarded it as a positive branding to be "*the City of the Smoking Chimneys*". The image was especially due to the cement industry and the enormous consumption of coal related to the production.[2]

Like other Danish towns, Aalborg suffered heavily under the economic crisis and unemployment that characterized Denmark in the 1930s. Nevertheless, public and private initiatives in that same period led to the construction of many of the buildings and the infrastructure that transformed Aalborg into a modern town. The architectural and urban planning results of the 1930s are very visible and dominant even in the contemporary town plan. When Aalborg's praises were sung in the 1930s, both locally and more widely, the same themes were repeated again and again and were found in the fields of architecture, infrastructure, and urban planning: the bridge across the Liim Fiord, which was inaugurated in 1933 replaced an old pontoon bridge from the 19th century and the extension of the street, Vesterbro, was lined with buildings in the new "functionalistic" style of architecture. Town planning in Aalborg in the 1930s consisted of efficient total clearance of the land and laying out straight streets to give room for a

1) I have analyzed the development in: Jensen, Bente: Moderne Gennembrud i Aalborg i 1930erne [Modern Break Through in Aalborg in the 1930s], Aalborgbogen, Aalborg 2003.

2) 90% of the coal consumption in Aalborg in the interwar period was due to the cement industry according to Bender, Henning and Pedersen, Morten: Aalborg og Cementen [Aalborg and the cement industry], Aalborgbogen 2006, Aalborg 2006.

Aalborg Portland cement plant 1937. The photo illustrates why a slogan named Aalborg as the "The City of the Smoking Chimneys". Photo J. A. Kirkegaard.

rational, healthy style supported by the removal of the factories out of the town centre.[3)]

The political strategy of the local social democratic government was to reduce the impact of the economic crisis and unemployment by creating jobs. From April 1925 and throughout the 1930s, Aalborg was governed by the Social Democrats. This government was headed by the energetic mayor, Marinus Jørgensen, whose convincing political rhetoric and actions lay behind many of the initiatives taken to modernize the town. In contrast, the opposing conservative fraction appeared defensive and critical, and because the Social Democrats had a safe majority, it was difficult for the opposition to effect changes or even to influence developments. As a matter of principle, the more conservative politicians were opposed to seeing the city in the role of employer. They argued that taxes would increase to a ruinous level, but this did not happen. In fact, during the 1930s, the city's debt was reduced in relation to its 1925 level, when the Social Democrats came to power.[4)]

The North Jutland Exhibition

Efforts were also made to solve the economic crisis by the use of ideological and cultural means and here the Nordjysk Ud-

3) According to 20ernes og 30ernes byplanhistorie (History of City Planning in the 20s and 30s), Byplanhistoriske Noter 10, Dansk Byplanslaboratorium, 1986 the method used in Aalborg followed the general trend in Denmark.
4) Christensen, Per Bo og Topholm, Jens: Aalborg under stilstand og fremgang fra 1814 - 1970, In: Aalborgs Historie 5, 1990.

The front-page of the exhibition catalogue where history meets the future. History was represented by a Viking ship with the exhibition logo as decoration on the sail, in the background a modern funkis motive, which symbolized the entrance portal of the exhibition. The intention was to symbolize action and activity using references to a historical context: The Vikings went out to new markets to gain money and honour. Now the people of North Jutland would do the same. History was employed to tell about expectations and recommendations for the future.

stilling [The North Jutland Exhibition] plays a part. The exhibition, which was held in Aalborg in June and July 1933, had two aims according to the programme: one was to inspire a feeling of optimism and keep the crisis from becoming worse by creating jobs. Secondly, it would showcase modern Aalborg to the rest of the world. At the opening ceremony in June 1 1933 it was proclaimed that: "*We want to show to the whole Denmark that Aalborg is a city of progress – at city of results*".[5)]

The content and organization of the North Jutland Exhibition have not previously been an independent topic of research. The ideology and aims of the exhibition have been studied as part of the modern advances in Aalborg in the 1930s and the exhibition architecture has been documented as part of the functionalistic setting and influence in the region.[6)] In Sweden Habel, Ekström, Rudberg, Houltz, and Alzén[7)] have analyzed the exhibitions during the period as agents of modernity as well as creators of national identity and as part of social engineering. It is fruitful to analyze the North Jutland Exhibition using the same concepts except for the fact that the term, national, should be replaced by regional as the project is focused on the creation of a regional identity in North Jutland. The relation between the periphery and the centre of the nation is questioned by the ideas behind this exhibition and one could claim that it is only possible to create an exhibition with a regional theme of this kind far from the centre of the nation.

5) Aalborg Stiftstidende, June 1, 1933

6) The ideology and aims of The North Jutland Exhibition 1933 have been analyzed as part of the modern advances in Aalborg in the 1930s, Jensen, Bente. bid. 2003, the exhibition architecture is described in Smith, Claus M. og Iversen, Erik, Funkis: Det nordjyske gennembrud, 2003.

7) Habel, Ylva: Modern Media, modern audiences, mass media and social engineering in the 1930s Swedish welfare state, 2002, Habel, Ylva; Så är Sveriges folk ett folk av is og sol, catalogue from the exhibition Swedish Hearts 2004, Moderna museet: web version: http://www.modernamuseet.com/v4/templates/template3.asp?id=2366&bhcp=1, Ekström, Anders, Den utställda världen. Stockholmsutställningen 1897 och 1800-talets världsutställningar, Nordiska museet, Stockholm 1994, Houltz, Anders: Teknikens tempel: Modernitet och industriarv på Göteborgsutställningen 1923, 2003 and Alzén, Annika: Fremtidstro i Svea Rike. Historia och framtid på Stocholmsutställningen 1930. p. 11- 46 in: Palmquist, Lennart og Beckman, Svante: Museer och framtidstro. Stockholm 2003.

Another interesting aspect of the exhibition is to understand how the structure, architecture, and setting interacted with other major exhibitions in the same period of time. Where did the organizers, designers, and architects find their inspiration and through what kind of networks and media? Which kind of medial and pedagogic methods did they use to communicate with the visitors and the rest of Denmark? Turning to the content of the exhibition it is interesting to investigate what kind of ideological messages the exhibition communicated and how they were related to the context: Aalborg in the 1930s as well as terms such as modernism, belief in the future, and functionalism in general. Finally I will ask the question – what is the benefit of analyzing modernity at a local level?

The Inspiration Behind NU

The North Jutland Exhibition (NU) was the brainchild of the local artist Viggo Vagnby. Vagnby (1896-1966) started out as a painter and artist with relation to Asger Jorn from the COBRA group. Soon he became a pioneer within public relations and exhibition design after he started an advertising agency in Aalborg in 1926. Vagnby's inspiration to initiate NU went beyond the local level. His original idea was to create an exhibition with a theme like the House and Building Exhibition organized by the Association of Academic Architects in Forum, Copenhagen in 1929. The architects Arne Jacobsen and Flemming Lassen showed "the House of the Future", which was the first showcase in Denmark on how to build a house in the functionalistic style, but unfortunately it was demolished after the exhibition. The purpose of the intended Aalborg exhibition was inspired by the national exhibition and planned to be educational: to teach especially young people in Aalborg how to decorate their homes in a modern functionalistic style and show the ideal of a new and modern lifestyle through realistic life size affordable examples. Interior decoration and exemplary architecture expressed in other words the functionalistic way of living and it was the idea that the exhibi-

The exhibition planning office with an advertisement for the exhibition. Photo J.A. Kirkegaard.

tion media should teach the audience to improve its taste and show them a healthy, hygienic way into the future.

Vagnby co-operated closely with two architects, Carlo Odgård and E. Glahn developing the design of stands and the temporary and permanent buildings in the exhibition area. It is not documented whether Vagnby visited the Stockholm Exhibition in 1930, but it is evident that it must have inspired him. Also the Turku Exhibition 1929 designed by Alvar Alto and Erik Bryggman to commemorate the 700 years town jubilee was a well known reference to him. Carlo Odgård is known to have visited the Stockholm Exhibition. Vagnby, Glahn, and Odgård had experienced how strong the exhibition was as a media – a condensed three dimensional landscape that at the same time could show landmarks of architecture, art, modern technology, and trade of the region – contending different approaches simultaneously e.g. educational, aesthetic, and entertaining approaches. Vagnby had already gained experience from the design of several more traditional exhibitions. Glahn had earlier in the century designed the legendary "Landsudstilling" (National Exhibition) in Aarhus in 1909, and Odgård was the architect behind a vast majority of the functionalistic buildings on Vesterbro in Aalborg, so he was familiar with the new style.

The Phase of Planning and Preparation

Viggo Vagnby convinced the town council, the local industry, and trade associations of the necessity to supplement the economic actions and remedies with ideological and cultural means which an exhibition would be. The project was only practicable because the local council secured the exhibition with DKK 400,000. In the end the idea was supported by a co-operation of the council, business, as well as the state.

Vagnby created a total concept and mastered perhaps one of the most important expressions of mass culture: advertising and public relations. An elaborate advertising campaign was planned. The campaign included everything from a strategy of public relations to a total graphic solution consisting of a logo, posters, stationery, stickers, and a special design for the exhibition of egg cups, flags, spoons, needles, uniforms, etc. all in the functionalistic style. Possibly inspired by the Stockholm Exhibition[8)] a special sticker was made and used on all letters posted from Aalborg municipality from a year before the opening of the exhibition to reinforce the brand.

Half a year before the exhibition opened, posters and information brochures were handed out to target groups. A number of press conferences were arranged to inform about the development of the exhibition in the same period, and during the exhibition advertising material and articles were distributed to nationwide and local newspapers as well as Norwegian as Swedish newspapers in the Skagerak area.

Functionalism also involved an unprecedented legitimization of advertising as it became an integral part of the architectonic expression of the buildings. Vagnby knew how to use this artistic effect to promote the North Jutland Exhibition in the townscape and in the design of stalls in the exhibition area.

8) Habel, Ylva, ibid, p. 35.

The connection between functionalism and advertisement using modern typography was a frequently used expression in the Turku as well as the Stockholm Exhibitions, where it dominated the surface of buildings and towers together with neon light effects.[9] The functionalistic architects did not work with ornaments, but the advertisement became an integrated part of the clean-cut idiom. Also in Stockholm the architecture of stalls and the message were merged. Eva Rudberg refers in her book about the Stockholm Exhibition to the inspiration from the Bauhaus Bücher, where Herbert Bayer in 1924 had launched drafts of kiosks and exhibition pavilions formed as the very products they promoted e.g. a cigarette kiosk with a cigarette as chimney and the newsstand above. In 1925 Bayer became leader of the new advertisement and print workshop Bauhaus in Dessau.[10] Vagnby was inspired by international references and as a pioneer within public relations and familiar with avant-garde art references, there is every possibility that Bayer and Bauhaus were a part of his sources of inspiration. Also in Carlo Odgård's private archives German architectural magazines are found with references to Bauhaus. Functionalism was an international idiom.

View from the exhibition area with an ice cream kiosk designed by Vagnby at the right. Advertising was an integral part of the architectonic expression in funktionalism. Photo: J.A. Kirkegaard.

9) Rudberg, Eva, ibid, p. 79 f.

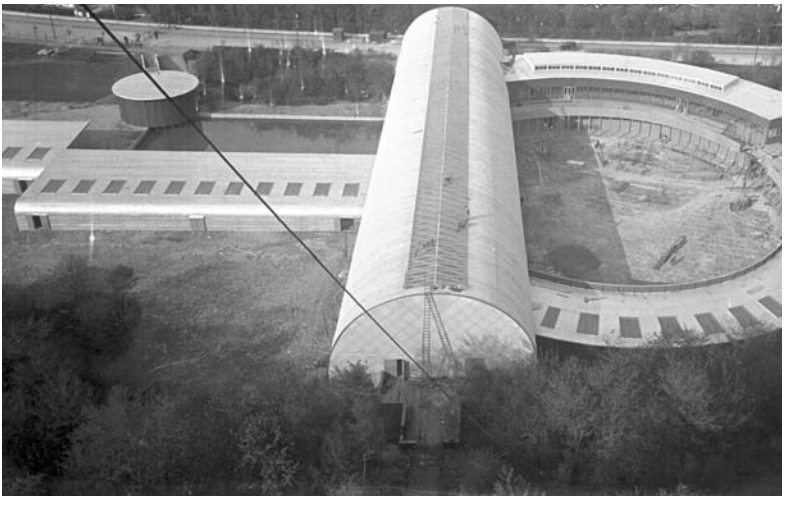
10) Herbert Bayer and Bauhaus: http://www.bauhaus.de/bauhaus1919/biographien/biographie_bayer.htm on the website of Bauhaus-archiv und Museum für Gestaltung.

The visitor was welcomed by an entrance portal which consisted of three minimalist towers, which had strong resemblance with the Alvar Alto and Erik Brygmann towers from the exhibition in Turku (Åbo), Finland 1929. The entry towers served as ticket offices. Unlike the Turku towers that were covered by advertisements, they were left undecorated. The only ornaments were flags on the top. The flag theme was also very strong in the Stockholm exhibition. Unknown photographer.

NU: Architecture, Framework, and Setting

In 1932 the design of the exhibition area was presented, and the final exhibition in 1933 seems to have followed the first published plans. The location was a defunct gravel pit of about 6000 square metres, and the plan was designed in a geometrical idiom as the functionalistic idea prescribed.

The exhibition was a huge success, and over a period of two months 390,000 visitors marvelled at commercial, historical and cultural innovations.



The exhibition halls seen from the Aalborg Tower. The halls were constructed with a circular yard called the Sun Yard: The main hall was 2000 m² and was preserved for permanent use after the exhibition. The three small temporary exhibition halls were displaced from each other. The plan was as reflected in the entrance polygons planned in a geometrical order. Photo: J.A. Kierkegaard.

The effects of light together with water in the exhibition area – the Mirror Lake The architects played with the effects of water and light e.g. the Mirror Lake) seen here by night. In the evaluation report from the exhibition committee, they explicitly regretted that the budget did not allow a more extensive experimental use of neon lights.[11] Unknown photographer.

11) En beretning om Nordjysk Udstilling i Aalborg 1933.

The Aalborg Tower was the landmark of the exhibition, 50 meters high with a restaurant on the top connected to exhibition area with the first escalator in Jutland decorated with modern red neon light. The tower was a well known symbol of progress. The purpose of the tower presented in the exhibition programme was: "To tear all the drifting clouds apart that darken the Sky over the exhibition town" and even "spread the economical storm clouds that for a long time have brood over the country". In the itinerary of the exhibition the tower was placed as the very last activity. The audience was supposed to watch the exhibition from the top "in full control of the area", but only after they had experienced the exhibition from ground level. Photo: J.A. Kirkegaard.

The Ideology of NU

The ideological purpose of the North Jutland Exhibition developed in its final form into a gigantic urge to bring Aalborg over the dead point one experienced the city and region was stranded in as a consequence of the recession of the 1930s and the huge unemployment that was higher than the average level in Denmark.

The concrete aim of the exhibition was in other words to create new jobs NOW, the abbreviation NU means "now" in Danish and at an ideological level the message of the exhibition was to reintroduce the belief in the future among the inhabitants of North Jutland. The logo symbolizes the urge to work NOW, the blue lines were symbols of the waves of

the Liim Fiord – symbols of the location and the region. The use of functionalism in the exhibition design was meant to underline the idea of modernity and progress. The ideological message of the exhibition corresponded very well with the political aim of the innovations of the social democratic town council which was, as already mentioned, the creation of jobs in order to reduce the impact of the economic crisis.

In the rhetoric of the exhibition optimism was introduced as a driving force to get out of the economic crisis immediately – now. A cocktail of work, productivity, optimism, and belief in the future was the solution. I quote from the introduction to the exhibition: "*NU is not an Aalborg initiative only. NU is the people of North Jutland's challenge to the ghost of crisis that haunts and makes people loose the courage. NU is the symbol of that now the happy and light optimism, the belief in that all wheels will roll again soon is allowed to rule*."

Or another example: "*NU it sounds like a flapping shout of command, an appeal, and that is what it is, NU is the way of Aalborg and the time, now we will regain belief in the future*."

It was even recommended in a self-confident tone that the message should be spread all over Denmark and at an individual level the visitor was recommended to take action and regain the belief in the future. The message was followed up by the symbolic meaning of the land mark of the exhibition: the Eiffel Tower like the Aalborg Tower, which was supposed to spread the economic clouds in times of crisis.[12)]

The rhetoric behind the exhibition expresses an urge to act both as a regional collective and as an individual to change the situation. The visitors were spoken to as active persons who could make a difference by acting. The organizers wanted to stimulate the self esteem of the population – to create a new

12) The quotations are from the exhibition programme and promotion newspapers in Aalborg City Archives.

active and modern identity. Here you can identify similarities with the use of language and the messages to the visitors in the Stockholm Exhibition.[13] Simultaneously keywords from the construction of a regional identity based on the locality were used to reinforce the message: People in North Jutland are not passive! - "*it is not a part of the regional character*". The messages were constructed as categorical imperatives and invited to interactivity since the audience were strongly urged to interact with the message and join the way into modernity. The national/regional discourse was a strong and well known ideology and was deliberately used to reinforce the message.

Another parole of the exhibition was: "*Know yourself and be known*", which in this case meant: get to know your history and it will help others to recognize you in the future. It was one of ideas behind the exhibition of products. I will return to the slogan later.

The Structure of the Exhibition

In many ways the North Jutland Exhibition was a traditional exhibition of products. The products of the region were presented in various stands. But Vagnby had learnt from the Stockholm Exhibition how history and art in a combination with trade reinforced the message. The exhibition: Svea Rike, where the development of Sweden and the Swedes from prehistory to the present (industry) was shown with the use of different media, seems to have been his inspiration on how to structure the indoor exhibition. In Svea Rike the future industrial Sweden was visualized with the help of history[14] like the way Vagnby showed the development towards the future in North Jutland in NU. Vagnby did not reveal his source of inspiration according to the sources – on the contrary he stated that it was the first time ever (as far he knew) that an

13) Alzén, Annika: Framtidstro i Svea Rike. p. 27.
14) Alzén, Annika, ibid, p. 15.

The red thread through NU telling the visitors to follow the itinerary into the future. Photo J.A. Kirkegaard.

exhibition was structured following a line of progress.[15] Even the previous mentioned slogan: the request to: "*Know yourself to enable progress*" Vagnby had found in the author Ludvig (Lubbe) Nordström's text from the introduction to Svea Rike. Later in another campaign in Aalborg in 1939, where the aim was to regain optimism and self-confidence in difficult times, he reused the other slogan from Svea Rike: "*Don't hide your light under a bushel*".[16]

Like in Svea Rike the visitor was guided following a red thread around the North Jutland Exhibition since it was based on linear progress that had to be followed to get the message. One step was supposed to take another into the future – to illustrate the development through time. The idea was repeated in the programmes and even in the press coverage.

In Aalborg the linear idea was extended to the entire exhibition area as it was not only the indoor exhibition like in Stockholm that was based on a linear progressive idea. The visitor was literally supposed to follow a red thread in the

15) Aalborg Stiftstidende, June 1, 1933, Udstillingsnummer (special issue to celebrate NU).
16) Rudberg, Eva, ibid, p. 137 a Alzén, Annika, ibid, p. 27.

indoor section. In Svea Rike the red thread was a frieze on the wall with text written by Ludvig Nordström which summarized the essence of the exhibition as a suggestive guide in a living language which Vagnby adopted in the texts from NU.[17)]

An exhibition hostess, dressed in a striped NU uniform designed by Viggo Vagnby, presents a model of the "Ønskevilla". Photo J.A. Kirkegaard.

In NU the message of progress was only conveyed properly if the viewer took the assumed positions or literally followed the read thread or the given itinerary. The entire exhibition was planned and organized around a guided route with a message, where the visitor started being educated through the indoor exhibitions and a real size functionalistic villa (the "ønskevilla), and a lecture hall, then entertained by culture in the art and literature section, and then at last the visitor was supposed to recuperate himself in NURA, the restaurant of the exhibition, and in the amusement park. It was stressed in the introduction of the programme that this was not a common exhibition and the itinerary was not incidental. There were in other words no room for the visitors' own choices and preferences if they intended to get the intentional message of the exhibition, they would have to follow the disciplined way. The idea of combining entertainment, education, and propaganda was intended to be the condition for success and was revealed to the visitors in programmes, media coverage, interviews etc.

The Indoor Exhibition: North Jutland from Past to Present

The educational indoor exhibition started with a sketching of prehistory back to the mammoths and an introduction to the geological and biological conditions of the area shown as panoramas. The idea behind the structure was explained in the exhibition programme: "*History shall tie a knot between past and future, from stone to steel as a background for evolution. The exhibition shall be an artistic wandering through the archives of history*". Prehistory was the precondition of the products from

17) Alzén, Annika, ibid, p. 21 ff.

the cement to the Liim Fiord oysters to the aquavit. History was seen through the development of technology from the stone ages to the present (the 1930s); the steel age was illustrated by a woman in a functionalistic setting and a "techno film" showing running gear wheels. This was typical and could be seen in other exhibitions and interpretations of modernity in this period of which the woman was the communicator of change towards modern society.[18] She was a the same time housewife and on her way out on the labour market which gave her a powerful role as at the same time consumer on the market and in charge of the home which made her an evident communicator of the new messages.

Vagnby developed the idea further in the exhibition NU 2 in Aalborg in the summer 1936. NU 2, Bo Bedre [Better Living] was a 10-day exhibition organized together with Aalborg Husmoderforening [Aalborg Housewives' Association] in June and July of 1936 at the same site as the North Jutland Exhibition was held. Modern living was the focus of this exhibition, and its aim was to introduce the modern housewife to the newest advances in science, economy, hygiene, eugenics, health, interior decorating, nutrition, and industry to enable her to create a better, happier home to house a healthier family.[19]

The Red Thread of NU

The exhibition of products at NU was divided in themes that followed the historical development: fishery (as the oldest form), then agriculture, handicraft, industry, the press, and tourism.

Then the public was led to the "ønskevilla," a functionalistic villa, which it was possible to win in a lottery. The villa was in

18) Habel, Ylva, ibid, p. 223 f.
19) NU 2, B. Jensen, B. ibid, p. 53 f. The documentation and photos of the exhibition have for a long time been confused with NU in 1933, as the exhibition was forgotten. NU 2 was followed in 1938 in Aalborg by the international exhibition "Mother and Child", which had the same message. Even to that exhibition there was designed a local section especially to attract the Aalborg visitors.

a realistic scale an exhibition that taught the visitor how to build, decorate, and garden in a functionalistic style as it was seen in the House and Building Exhibition in Copenhagen in 1929 and in the Stockholm Exhibition, which showed a large number of examples of flats and villas designed for various groups and needs.

The villas as well as the indoor panoramas are examples of how the exhibition was built up with authentically rendered milieus. The historian of ideas Anders Ekström has demonstrated in his analysis of the 1897 exhibition in Stockholm how the visual rhetoric of the exhibition coincides with the viewer pedagogy from the late 1800s to the early 1900s. The idea was that teaching should include objects and illustrations rather than texts – so that the pupil could be taught through the eyes – learning by viewing, at the same time the spectator underwent change and civilization. In that way, according to Ekström, the exhibitions became ideal places for teaching the audiences a new way of living including modernity – they were so to speak supposed to step into the panoramas.[20] The media researcher Ylva Habel claims this pedagogic approach also characterized the successive exhibitions of the 1930s including the Stockholm Exhibition, but was supplemented with an even stronger imperative to the vistitors to step into modernity and to interact with the exhibition and transform themselves into modernity. It was intended that everybody could adopt the new functionalistic lifestyle through the educational real size examples.[21]

When e.g. the "ønskevilla" was reviewed in Arkitekten it is possible to see how this pedagogic method based on real experience was internalized. H.E.L. commented on the fact that the furniture had to be removed during the exhibition period because it was broken by the visitors. After the removal the reviewer found it difficult if not even impossible for "the undressed version of the villa" to catch the visitors' attention as it only presented itself "as a type". The villa would only attract the

20) Ekström, Anders, ibid.
21) Habel, Ylva, ibid. p. 31.

visitors if they could "pull out the drawers and sit in the chairs" – in other words experience the house with all their senses.[22)]

The Art Meeting and Amusements

The art section of NU, which was organized as an art "meeting" or exhibition of the drawings, paintings, and sculptures followed after the "ønskevilla" according to the guide on how to experience the exhibition. The condition for the selection of the works was that motives should either derive from the local area or the artist should be born or have moved to North Jutland. This meant that it was not only a collection of modern paintings that was exhibited. The style varied from romanticism to realism to abstract art. The function of the art theme was to reinforce a regional identity in North Jutland, but did as such not follow the modernist theme of the exhibition.

The art section had another vital message to the visitors: it claimed that it was necessary to combine practical results of work with culture. If not the population would be lost in materialism and regress. In the local interpretation of the way to progress culture, art and literature are seen as played together with production as yin and yang to get a balanced situation that moved on to better conditions.

When the visitors got exhausted being educated they were allowed to recuperate themselves in an amusement park at the very far end of the exhibition area. The intention of the remote location was to underline the seriousness of the rest of the exhibition. The amusement park was very popular and stayed on after the exhibition and strengthened the idea of establishing a permanent amusement park in Aalborg. It was not discussed whether the amusement park disturbed the seriousness of the concept as a whole as it was at the Stockholm Exhibition. Here the planning committee did not look kindly at the amusement

22) N.U., Nordjysk Udstilling v. H.E.L. Arkitekten XXXV 1933, p. 133 -134.

park, as it competed with the more prestigious festivities even if it was given a marginal placement on the grounds.[23)]

Events

The interest of the visitors was kept by special arrangements or events organized by the various trades and they had character of cultural events or meetings. There were days planned for children and for women, days where Danish work was celebrated, days for folk dancers, sports events: a regatta on the Liim Fiord etc.

One day was outstanding. June 21 1933 designated "Chicago Day"; a speech by Prime Minister Stauning to the Danish emigrants was transmitted by radio across the Atlantic to the World Exhibition in Chicago on "Denmark Day". This was the first direct radio transmission from Denmark to the United States. Stauning could not leave the country because of the political situation – and the solution was to try the new technology. In the early plans of the exhibition the committee

Prime Minister Thorvald Stauning's speech to the Danish emigrants, June 21. 1933. Photo J.A. Kirkegaard.

23) Habel, Ylva, ibid. p. 35.

even played with the idea of using television. The arrangement emphasized the urge to act modern symbolized by the contact to the USA, the ideal when it came to technological ingenuity and speed. The expression "American speed" was popular in the 1930s when a new initiative should be honoured for courage – as Prime Minister Staining did when he praised Aalborg's move into modern times – here even combined with the use of brand-new media technology which now was a visitor attraction. Here it is also possible to make a comparison with the Stockholm Exhibition where the opening speech of King Gustav V was the very first Swedish sound newsreel in the radio.[24)]

NU was very much a social democratic project and the prime minister took over the position as "king" at the opening ceremony and special representative events. First in the middle of the exhibition period and after the exhibition had proved to be a success King Chr. X and Queen Alexandrine visited Aalborg and the exhibition.

The pattern was altered in 1936 at NU 2. Here the royal visit was a part of the attractions as the planning committee did a major media scoop when they invited Crown Prince Frederik and the Swedish brand new Crown Princess Ingrid, to whom he was newly married, to open the exhibition. She played the part as housewife no. 1 in the kingdom and could be seen as a role model for the rest of the housewives in the country.

The Reception of the Exhibition

In 1931 people in Aalborg had gathered in front of the first Odgård designed functionalistic house on the street Vesterbro, and exclaimed their horror. They found the building extraordinarily ugly and were concerned about the future with buildings that looked like that. Among people it was called the "layer cake house" because of a line effect in the use of

24) Habel, Ylva, ibid. p 36.

bricks on the facade. In 1933 the modernistic style was accepted as a new architectonic idiom even locally. Another interpretation could be that they now had the cultural competences to understand the new style and they did recognize the message behind the idiom and actively responded to it. People did not rush to the exhibition to comment on the architecture, but because of the great adventure, and not least entertainment.[25)]

The exhibition was reviewed in various specialist journals – the reactions were positive. Nyt Tidsskrift for Kunstindustri found it worth the visit and even impressive seen from a local point of view – but was not impressed with the use of functionalism. The journal called the use of the style "surface functionalism" like a decorated "negro". Possibly inspired by Le Corbusier who, the very same year, had criticized Norwegian functionalism using the same expression. He found that the Norwegian architects did not know that funkis was more than a style, according to Le Corbusier it was a total transformation of architecture as well as of society and town planning.[26)] The reviews of NU also found the area too crammed. On the positive side professionals praised the exhibition for combining culture and trade.

In Aalborg the North Jutland Exhibition is a legend even today and when you go through memories from the 1930s in the archives it is very often mentioned as a point of memory – a summer where everything was like a big party. And when people looked back they felt that it brought optimism to the city – the local statistics also tell about less unemployment in 1933 and 1934 – so one can say the year of the exhibition was well chosen. The Aalborg Tower remains as a symbol of the town. Today it is partly a replica since it was rebuilt in 2004, but it still has a strong ideological message and plays a part in

25) A 3377 memories and newspaper coverage.
26) Hals, Anne E.: Fra idealisme til realisme – endrede syn på bolig planleggning 1932-36. p. 52–60 in: Bing, Morten and Johnsen, Espen Boligmiljøer i mellomkrigstiden, Norsk Folkmuseum, 1998

the contemporary branding of Aalborg – even in times when the city intends to change the image from a city based on industry to a city of knowledge.

The town council ensured that the steps taken to make Aalborg a modern town in the 1930s were well documented. All changes were celebrated by well staged ceremonies, and the construction of Liim Fiord Bridge and Vesterbro, and the opening of the North Jutland Exhibition were filmed and photographed by commissioned photographers. The town council was ironically very much aware that it was creating history for the future, and was very deliberately using the visual genres to document its ability to move Aalborg into modern times. The social democratic slogan in the election campaign in 1937 was: "*We created the new Aalborg!*"

Why Analyze Modernity at a Local Level

The case of "Aalborg in the 1930s and the North Jutland Exhibition" shows how modernity was expressed as a cultural and political discourse outside the centre of the nation in a local context in the provinces. It was understood by everybody as a reference. The press and the audience had developed competences that demonstrated that they understood the message – and the idea was challenged by the opponents. Political dispute was e.g. expressed in the ongoing debate of aesthetics and style. Unlike the Social Democrats the Conservatives in the local council in Aalborg were not fascinated by functionalism and used every opportunity to discuss the fact. Also at a local political level style and architecture was a battle field between traditionalists and modernists expressed in discussions about whether one preferred historicism and ornaments or the clean functionalistic style and what was beautiful or not.

"Modern" is a very broad term in this context. The Social Democrats, who held a majority of the seats in the town council, were particularly adept at describing projects initiated

Aalborg by day: Industrial work, smoking chimneys, factory buildings, functionalistic houses, cars, a sculpture with workers as a motif. Only in the background you find a single historic icon, Budolfi Cathedral. All icons are signs of efficiency, rationality and industrial production and absence of nature and romantic parks.

By night: Jazz music was introduced in Aalborg in the middle of the twenties to the disgust of the more traditionally orientated people, illuminated advertising signs, shows and the very popular dance restaurants designed in modern style, and the boat to Copenhagen. The branding consists of icons which symbolize action, people on the move not looking back at history.

in the 1930s in modernistic terms, and the local politicians made a conscious effort to deal with things in a modern way. There was a genuine willingness to make changes; it was time to look to the future. The desire to create something new in all aspects of society flourished particularly in six areas, those of: architecture, town planning and infrastructure, communication, daily life, and housing.

This willingness to make changes also meant that whatever was old was held in low esteem. The future looked bright, rational and promising; in contrast, history was considered backward looking, nostalgic, and irrational. In all areas there was great faith in science, rationality, progress, reason, and simultaneously an almost romantic fascination with speed and machines. This is the content of the modernistic ideology as a general or universal idea. When it comes to a local level the idea is expressed and repeated in the same form as at the universal level - here as promotion for the planning and the changes by the social democratic dominated town council in phrases in the local press and in the discussions in the council.[27)]

The two collages Aalborg by Night and Aalborg by Day from the 1930s found in the archives of the Tourist Association in Aalborg illustrate very distinctly which icons in the townscape were chosen to symbolize modernity and values connected to the idea by the contemporaries to brand Aalborg as a modern town minded for progress:[28)] The Danish Prime Minister Thorvald Stauning expressed the spirit of the times in Aalborg in the 1930s in a speech held at the inauguration ceremony of the Liim Fiord Bridge in 1933: *"when everybody agreed where the bridge should be located, they demolished everything, big and small, what got in the way. There is something American, something pleasant about this … I think it is honourable that the citizens of Aalborg planned the road straight ahead,*

27) Based on an analysis of the local newspapers: Social-Demokraten, Aalborg Amts Tidende, Aalborg Stiftstidende 1929-1940 and Aalborg byrådsforhandlinger 1929-1940 (Negotiations of Aalborg Town Council).
28) Aalborg Tourist Association A 1726, Aalborg City Archives.

come Hell if there were 100 years old houses in the way. There is something fresh and swift about that." [29]

In Aalborg the citizens (and the social democratic dominated town council) did not let history get in the way of progress, which seemed to please the social democratic prime minister.

It also demonstrates how the region and the city regard and express themselves within these frames. It seems that the fascination of modernity, the strong belief in the future was an accepted way of thinking on which the local decisions were based.

In other words the empirical study shows the interaction between the local and the national level and even the international level when it comes to communicating modernism - not in ways rather than in spins or networks of professional, political, cultural or economic kinds. Vagnby, Glahn, and Odgård's interpretation of functionalism is based on international inspiration gathered through travels and reference reading. In the concrete example it is demonstrated by examples connected to the North Jutland Exhibition, how they were influenced by structure, architecture, and lay out from the Turku and Stockholm Exhibitions and of the Bauhus movement. It fits well into the idea that functionalism was thought of as a universal democratic international idiom, not a national style.

A fact is that the development in Aalborg harmonized very well with the growing ambition of the Social Democrats developing Denmark into an industrial society. And the correspondence between the political majority on a national and local level initiated the speed of the development in Aalborg.[30]

29) The archives of Prime Minister Thorvald Stauning in the Labour Movement Archives in Copenhagen, manuscripts and speeches November 1932 – May 1933, box 10, 22.

30) Documents about the preparation and planning of the North Jutland Exhibition are found in the archives of Aalborg Municipality. The reception of the exhibition is well documented in memories from the 1930s and as well as in contemporary films and photos. The archives are held in Aalborg City Archives.

Modern Accounts of Past and Present: The Gothenburg Exhibition of 1923

Anders Houltz

In 1915, while the First World War was raging in Europe, Gothenburg City Council decided to celebrate the city's tercentenary with a big exhibition. The event was to take place six years later, in 1921. The Jubilee Exhibition in Gothenburg was to surpass everything previously seen in the city or anywhere else in Sweden. Preparations began at once.[1)]

The Viking ship and the Atlantic steamer: the first page of The Times' thirty-six page special supplement on Sweden interspersed views of the Gothenburg Exhibition with an almost over-explicit historical contextualization (The Times, 29 May 1923).

1) Resolution of 21/1 1915. Stadsf:s Handl. 1915, n:r 22.

When the gates of the exhibition opened on 8 May 1923 – two years late – the results of many years of intensive preparation could be inspected. Expectations were high, because this was the first significant exhibition that had been arranged in Europe since the Great War. It attracted more than 4.2 million visitors during the five months for which it ran, and was the largest exhibition that had ever been staged in the Nordic countries.[2] However, it was not a world exhibition – no such exhibition has ever taken place in Scandinavia. Apart from a number of minor parallel events, no foreign exhibitors at all were invited. On the other hand, visitors from near and far were all the more welcome. The Gothenburg Exhibition was a national manifestation that showed the world a city, but also a nation, its assets and its capacity.

The exhibition contained extensive sections presenting the latest in Swedish technology and industry, branch by branch. It also included an amusement park, almost de rigueur at exhibitions, in the form of Liseberg which later became a permanent leisure attraction. The core of the exhibition, however, consisted of a series of culturally themed sections dealing with the history of the city from the earliest times until the present, and also with the development of the Western Swedish region and the country. These sections were based on newly collected material and scientifically organized investigation in a number of disciplines. The work of collecting the exhibits was financed largely by the exhibition, although done in collaboration with established cultural and scientific institutions such as the National Heritage Board, the National Museum of Fine Arts and, not least the Nordic Museum. The scientific direction was entrusted to established specialists such as the ethnologist Sigurd Erixon and the art historian Axel Nilsson, while the practical fieldwork and physical presentation of the exhibits was in the hands of students and young researchers. All in all, the exhibition represented an exercise in the scientific collec-

2) See for example: Linn, Björn & Thunander, Britt: Göteborgsutställningen 1923. In: Nationalencyklopedin, Bd 8. Höganäs. 1992

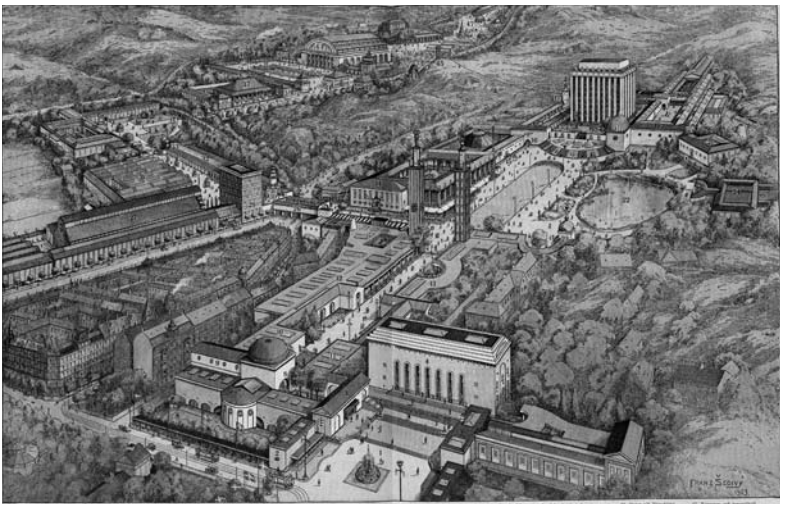
tion of material unparalleled in Swedish history, and came to foster a new generation of museologists and academics.

In this paper I shall be discussing the role of the Gothenburg Exhibition as a cultural heritage institution, with particular focus on the Industrial History Section that was included in the programme. The argument is based primarily on my doctoral thesis in the field of industrial heritage research, Teknikens tempel: Modernitet och kulturarv på Göteborgsutställningen 1923 [A Temple of Technology: Modernity and Industrial Heritage at the Gothenburg Exhibition of 1923] (Gidlunds förlag, 2003). In the thesis I discuss use of history and view of technology as factors in a critical phase of the modern project in Sweden. I analyse preparations for and the implementation of the exhibition project in the political and cultural context of early twentieth-century Sweden. I wish to understand the reasons for staging this large and expensive project, which individuals and groups worked to bring about, and what message the exhibition was intended to convey. [3)]

The division of the exhibition site by function

The Gothenburg Exhibition was held adjacently to what was intended to become the new cultural centre of the city – Götaplatsen, linked to the seventeenth-century city within the moats by the most fashionable street in the city, Kungsportsavenyn. This was the city's new showplace, bespeaking an elite with cultural pretensions and with roots in Gothenburg's recently developed industry, with mechanical engineering and shipbuilding at the forefront. After years of discussion, Götaplatsen, with its new art gallery, had been completed in time for the opening of the exhibition. The architects, Sigfrid Ericsson and Arvid Bjerke, were those principally responsible for the actual exhibition site.[4)] The main entrance to the

3) Houltz, Anders: Teknikens tempel: Modernitet och industriarv på Göteborgsutställningen 1923 2003, pp 16ff.
4) Ericsson, Sigfrid & Bjerke, Arvid: Utställningens arkitektur, Stockholm. 1930.



The main exhibition area, divided into three parts: the Field of Memory (right), the Field of Export (left) and the Field of Amusement (Liseberg, upper left) (Hemmets Journal).

exhibition was at Götaplatsen; the place marked the transition from the city proper to the temporary city within a city that was the exhibition.

The exhibition was divided into three parts. The first, known as the Field of Memory, was on the slopes directly south of Götaplatsen. This was the main exhibition area – a monumentally designed site surrounded by buildings in twenties classical style. The place was dominated by two minarets, the Lion and the Crown, and by a temple-like background building called the Hall of Memory. The buildings around the Field of Memory housed the exhibition's cultural history sections. A bridge across busy city streets linked the Field of Memory with the modern sections and Swedish export industry at what was known as the Field of Export. This area was dominated by a Machine Hall, which was the biggest building in the exhibition. The architecture was still largely classical, but unlike that on the Field of Memory made distinct allusions to modern industrial architecture in a design language akin to the coming functionalism. The third and final section of the exhibition was the Field of Amusement, and this, too, was clearly separated and defined. The Field of Amusement was reached from the Field of Export by a footpath under a temporary bridge carrying

The fun of the fair, roller coaster and roundabouts at the Gothenburg Exhibition amusement park, Liseberg (Allers Familje Journal).

Örgrytevägen. Here the buildings were executed in a playful style with bright colours and gingerbread style.

To sum up, the exhibition area was characterized by a high degree of functional separation: the historical material was clearly distinct from the modern, which in turn was kept apart from the lighter form of entertainment and amusement. The division was geographical, clearly emphasized by such means as the bridge between the Field of Memory and the Field of Export, but it was also reinforced by the difference in architectural design of the different areas. The design was such that what was expected to be the most attractive section, the Liseberg amusement park, could only be reached by passing through both of the other two sections. At the same time a kind of geographical hierarchy can be detected: the "finest" part of the exhibition, with historical material and scientific pretensions, came first and occupied the most representative place in the exhibition. This part did not need to be tarnished by the modern and commercial industrial part. The Field of Amusement, finally, with its popular and frivolous amusements, was consigned to the remotest part of the area.

The exhibition as a cultural heritage institution

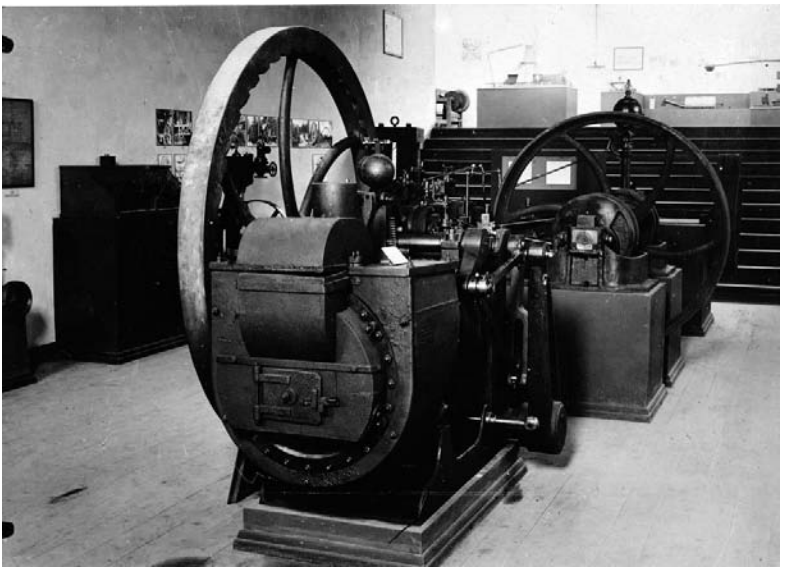
The historical sections of the exhibition, gathered around the Field of Memory, may be described as a temporary museum of cultural history. It was assembled in a relatively short time and was only meant to exist for a few summer months, although it contained all the ingredients expected of a museum and claimed in every respect to have the scientific character of one.

The museological nature of the exhibition was pointed out by Anders Billow and Sigurd Wallin in an article in the journal Rig: "… *when one, now that the exhibition is open, looks to draw comparisons, one finds to one's surprise that the historical sections of the Jubilee Exhibition together make up one of the largest museums in Scandinavia and definitely the most modern of them all*".[5)]

The historical sections were arranged in more or less chronological sequence, from prehistoric times, via, for example, the early local settlements of Gamla Lödöse and Nya Lödöse, military history, religious history, personal history, the culture of the gentry and the culture of the peasantry. From peasant culture the visitor was led to the history of handicrafts and, finally, industrial history. In total the Field of Memory expressed a linear and evolutionary view of history in a spirit of modernism, illustrating a progression from the simple and primitive to the advanced and, finally, the industrialized.

Among the many sections of the Field of Memory I have dealt in particular with the comparatively large section devoted to industrial history. There are several reasons for this. One is that industrial history was at this time a new subject for research and in exhibitions and museums. Although there were precedents, this was a first attempt to formulate a national industrial heritage and to place it alongside other more established expressions of cultural heritage. The indus-

5) Billow, Anders & Wallin, Sigurd: Kulturhistorien på Jubileumsutställningen i Göteborg, 1923, p 155–188.



The industrial history section presented technical artefacts as monuments, placed on podiums. Among those arousing most interest was a hot-air machine designed by John Ericsson, manufactured at Åkers styckebruk in 1860 and until recently used in Strömstad's heated baths (GSM).

trial history section is also particularly interesting by virtue of its position as the terminal point in the series of historical sections making up the Field of Memory. In the timeline of progress presented by the exhibition "the industrial" represented the end point.

It is tempting to regard the Field of Memory as an integral unit, a cultural heritage institution in its own right. However, this is not enough: the Field of Memory had various counterparts in the other, admittedly separate, parts of the exhibition. This is especially striking in the relationship between the historical Field of Memory and the modern Field of Export. Here the idea was that the visitors would first view the historical exhibitions and then cross the bridge to the displays of modern technology in the Field of Export. In this way the effect of the contrast would help both to emphasize the antiquity of the historical exhibits, and to underline the progress and superiority represented by the new technology. It was of course no coincidence that the last part seen by the visitor before going over to the Field of Export was industrial history.
The collecting of the items to be displayed in the exhibition received a lot of attention in the daily press. The fact that

New technology for documenting the past: Filming of ropemaking at Hyssna in southwest Götaland. Old crafts and industry were filmed for the Gothenburg Exhibition in collaboration with the newly created AB Svensk Filmindustri (GSM).

officials were travelling round collecting worn out industrial objects in large areas of Sweden caused surprise. Was worn-out scrap going to be shown in a museum? Was this really history? Was it culture? Or, as a journalist from Göteborgs Dagblad wrote concerning the historical objects that were shown: "*However, I have no hesitation in saying that for most of us a flint axe is like an old acquaintance compared with, for example, an ore rake from the last century. Because the flint axes have become the subject of interested study by quite a few people, whereas the ore rake has only recently been deemed worthy of any significant attention*".[6)]

The industrial history section proclaimed that technology and industry were culture. The history of industry merited a place alongside the more established manifestations of Swedish culture. The section may be described as a genealogical table of industrial technology. It showed the predecessors of modern technology, thus helping to make the latter less incomprehensible, alien and threatening. By freezing a picture of the past, the section formed a counterweight to the perception of the rapid change of technical progress. If something

6) Sign "S", "Industrihistoria på utställningen", Göteborgs Dagblad, 23/5 1923.

has a history, people can understand and relate to it. The pedigree of technology was a sign of its domestication.[7)]

The exhibition lifted the industrial artefacts out of their previous context, elevated them and displayed them as articles of value. The process was assisted by the whole architectural setting from the classical temple-like idiom of the buildings to the fastidious white rooms of the interior with podiums for the most significant objects. A temple enhances the status of its contents, but the dependency relationship also worked in reverse: without altar, icons and holy relics the temple becomes nothing more than a strange and meaningless shell. The Gothenburg Exhibition may be described as a site for a secular temple with the religious symbols replaced by earthly ones. The antiquated technical artefacts were placed on the high altar beside modern technology. Together they spelled out the message that Swedish industry had roots deep in the Swedish soil but was also moving towards a new Swedish age of greatness based on technical aptitude and development.[8)]

The Gothenburg Exhibition and the institutional cultural heritage

A project such as the Gothenburg Exhibition falls somewhere midway between the institutional cultural legacy and different forms of counter culture and free culture. The exhibition was an institution, but it was not created to last. As a transient or, rather, temporary cultural heritage institution, the Gothenburg Exhibition existed under peculiar conditions. With sub-

7) Cf for example Hård, Mikael & Jamison, Andrew (eds.): The Intellectual Appropriation of Technology: Discourses on Modernity, 1900-1939, 1998.
8) Cf Mosse, George: The Nationalization of the Masses: Political Symbolism and Mass Movements in Germany from the Napoleonic Wars through the Third Reich, Ithaca. 1975. the question of a new Swedish great power period has been dealt with by many historians, see for example Kylhammar, Martin: Sveriges andra stormaktstid: Från välfärdsstat till folkhem,In: Den Väsignade tillväxten, Stockholm, 1998. See also De Geer, Gerhard: Svreiges andre stormaktstid: Några ekonomiska och politiska betraktelser, 1928

stantial financial resources and a decidedly historical orientation it offered an opportunity in various ways to influence the institutionalized cultural legacy. The temporary nature of the exhibition also offered opportunities not granted by other permanent cultural institutions. New forms of display and educational method could be tested. It was neither burdened nor guided by existing collections or, for that matter, staff. The work done and the items exhibited were also more or less guaranteed to attract attention and publicity on account of the news value of the exhibition itself.

In one respect this involved influencing the institutional cultural heritage in a very concrete sense: by creating collections and exhibitions that could later be developed in the form of permanent museums. The example that comes most immediately to mind concerns the long-considered plans for a national Swedish museum of technology and industry – a dream that looked likely at last to be realized as a result of the exhibition.[9] In such aspirations as these the academics and experts in museums who were engaged could join with the industrial and economic elite on whose initiative the exhibition had been arranged. In this symbiosis industrialists and politicians could emerge as the benefactors of research and the creative culture.

In another respect it was a matter of influencing the cultural legacy in a more abstract sense – by a partial reformulation of the great story that formed the basis of the Swedish cultural heritage of the early twentieth century. This story had previously been, to a great extent, formulated and articulated against the background of, and in reaction to, the violent industrialization of the nineteenth century. The story acquired scientific legitimacy from recognized scholars such as Hans Hildebrand and Oscar Montelius; and was repeated and diffused in popular terms by museologists such as Artur Hazelius. The story was strongly nationalistic in tone and based

9)Houltz, Anders: Plats för historia I ingenjörutbildningen, Stockholm, 2003.

on the conception of a cultural and racially homogeneous peasant population with a historical and geographical continuity since the end of the ice age. This continuity and the cultural expressions and values with which it was associated constituted genuine Swedishness. This was threatened by industrialism and had at all costs to be preserved. The industrial was in other words the direct antagonist of culture and something that, almost by definition, was opposed to history.

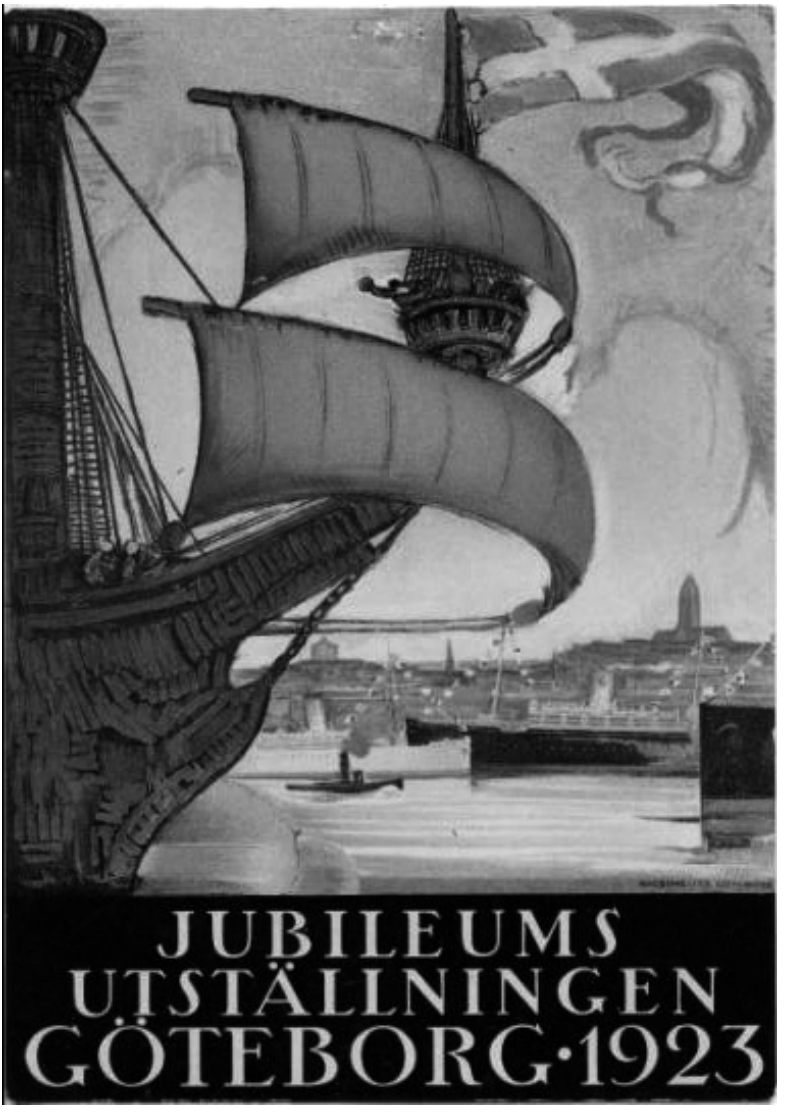
By the end of the First World War, however, conditions were greatly changed. The first phase of Sweden's industrialization had long since passed. A second phase had begun with the comprehensive process of electrification that began in the final decades of the nineteenth century and was now reaching completion. This phase of technical change had created the potential for new forms of production and industrial siting, and thus for greater prosperity. But progress had a price, and it demanded loyal support. It had become possible, but also important, to look back at industrialization as something now accomplished and completed – as a part of a shared cultural heritage. Industry had become history.

Exhibitions as expressions of modernity

This paper has mainly dealt with exhibits representing the past. Why, one may ask, speak of modernity in relation to an exhibition that was so occupied with bygone times? The answer is simple: to be obsessed by the past is essentially a modern feature.

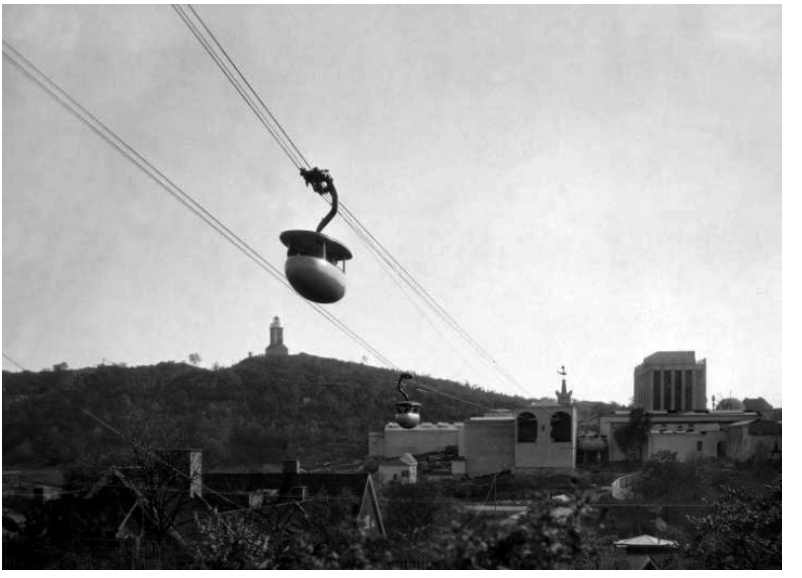
Modernist key figures like the architect Le Corbusier and the industrialist Henry Ford – both frequently referred to in this volume – dismissed history as useless, or to use Ford's well known words: "*History is more or less bunk*".[10] Regardless of

10) *"History is more or less bunk. It's tradition. We don't want tradition. We want to live in the present and the only history that is worth a tinker's damn is the history we made today."* Henry Ford, interview in Chicago Tribune, May 25th, 1916.



The official poster of the Gothenburg Exhibition: symbols of a glorious past are employed to support expectations of a bright future. The poster of the Aalborg exhibition 1933 offers an interesting rhetorical comparison (see Bente Jensen, this volume.)

such rhetoric, the modernists were not left in peace by the past. To Le Corbusier the classical Greek temple remained an optimal ideal for modern architecture; when visiting Stockholm he suggested the demolition of the old city but was enthusiastic about the open-air museum of Skansen. Henry Ford spent a fortune creating an open-air museum of his own in Greenfield Village outside of Detroit, celebrating the rural past that he himself had helped to destroy. In other words, the



As a concrete and, for its time, high-technology link between past and present, the exhibition's cableway carried visitors between the Field of Memory and the Field of Amusement (GSM).

modernist attitude towards history was, and is, problematic to say the least. The urge to leave the old behind is countered by a state of more or less unwilling dependence on the past. If nothing else, the past is needed to prove the radical progressiveness of the present.[11)]

In many ways to express modernity can be said to be the main, uniting theme throughout the history of the great exhibitions. Still, the actual expressions are very much subject to context; the means to articulate modernity in one place and time may look very different from those employed in another. In Gothenburg the past was indeed highlighted, but as a part of a complicated process of commemoration and identity construction: the artefacts were placed on podiums, and thereby taken out of their authentic context. The past was carefully delimited from the present both geographically and thematically. The demarcation was then bridged anew, recreating a link between the "foreign countries" of past and present, pointing out a specific path to the future.[12)] By presenting the past, the exhibition spoke of the future.

11) See for instance Connerton, Paul: How Societies Rembember, 1989.
12) Lowenthal, David: The Past is a Foreign Country, 1985.

A cathedral of utility? The gun-carriage of a 135 ton coastal howitzer gun being mounted in the middle of the Machine Hall (GSM).

Comparing the Gothenburg Exhibition for a moment to the North Jutland Exhibition in Aalborg a decade later (see Bente Jensen's contribution to this volume) provides an illuminating contrast. Both events were staged in periods of serious economical crisis, and with the background threat of social unrest. In the Danish case the local political establishment supporting the exhibition was social democratic, in the Swedish case conservative-liberal. In both cases the aim was to create

a new optimism in hard times, as well as conveying the image of a modern, industrialized and forward looking organizing city. Still, the modes of procedure were very different. Aalborg chose to express a forceful "NOW" (echoed in the abbreviation of the Danish exhibition name: N.U. – Nordjysk Udstilling). This meant embracing a functionalistic aesthetic and banishing all historical style references. Gothenburg used another strategy, placing past and present side by side, the two images mutually confirming one another. Both strategies were aimed at the future and both were modern in essence.

The legacy of the exhibition

In October 1923 the dismantling of the Gothenburg Exhibition began. One by one the temporary buildings – minarets, arcades and halls – were demolished. Soon the Hall of Memories was itself a memory. What remained were permanent buildings such as the art gallery at Götaplatsen and the amusement park Liseberg. The great Machine Hall was spared and became the premises of the Swedish Industries Fair until the 1940s, by when it had had its day and was replaced by a new building on the same site.

Most of the buildings disappeared, but the exhibition left its mark in other ways. Among the inhabitants of the city it became a historical watershed – for two generations of Gothenburgers it became natural to refer to events as "before the exhibition" or "after the exhibition". The Gothenburg Exhibition also came to change the museum landscape of Gothenburg – new museums appeared on the foundations laid and the older institutions acquired large additions to their collections.

Moreover the actual area of the exhibition shows a continuity that relates less to buildings than to activities. The site of the Field of Memory is today occupied by the University's Faculty of Humanities, together with the University Library.

Illuminated by torches and electric lighting, the exhibition offered a suggestive night-time view (GSM).

The site of the Field of Export is still filled, in spacious buildings, by the Swedish Industries Fair. Finally, Liseberg has an unquestioned position as the city's amusement park and one of Sweden's biggest tourist attractions.

Interestingly enough, the last ten years have seen new developments in the area, with museums to some extent different in emphasis from the earlier ones. In 2001 the scientific and ecological museum Universeum opened. The building is on Mölndalsvägen, adjacent to Liseberg, roughly where the Gothenburg Exhibition cableway passed between the Field of Memory and Liseberg. The new Museum of World Culture was opened in the winter of 2004 just beside Universeum – this, too, in a new building. Even if they cannot be compared in size with the exhibition that was held on the same site eighty years earlier, the two institutions represent a significant cultural investment focusing on the environment and nature and on cultural diversity, ethnicity and internationalism respectively. What new stories will these museums express? To what cultural heritage will they give expression?

Concluding remarks

Marianne Rostgaard

The title of the seminar links 'industry' and 'modernism', and the first session was simply termed 'Industry and modernism'. Anja Kervanto Nevanlinna was given the task of framing the discussion by presenting the general outline of relations between industry and modernism. She raised a discussion that came to run like a red thread through the day about how ideas, originated in industry regarding rationalization, economization and scientism, spread to other sectors in society, and whether we can or cannot speak of scientism and rationalization as defining criteria of modernism.

The second session was 'Planning and rationalization 1930 – 1970 in east and west'. The issue highlighted here was national styles or differences, but talking about national styles or differences, of course, cannot be discussed without discussing what the universal traits of modernism were or are. The third session was titled 'Celebrating the future and the past – modernism and exhibitions'. Exhibitions displayed not only artefacts but also ideas, and the issue at stake was therefore on a more general level the promotion and propagation of modernism in different political and cultural settings.

Speakers were a mix of historians, specializing in economic history or the history of technology, and art historians, specialising in the history of architecture and town planning. One of the ideas of bringing these two groups together was, of course, to start building bridges between the more general economic and industrial history of the 20th century, and the build environment of the 20th century, which has gradually attracted the attention of historians as well as architects as part of our cultural heritage.

Industry and modernism

In the high industrial age (chronologically speaking c. 1920 – 1980) ideas of rationalization and standardization that had originated in industry spread to other areas and became part of a general thinking about how to design not just the built environment but society at large, according to Anja Kervanto Nevanlinna. Modernistic architecture developed in the late 19th century in order to construct rational factory buildings planned for an efficient production. Another rationale was to economize on building expenditures. These ideas about rationalization and economizing were transferred to other sectors in society and became instrumental in planning a rational living in the modern urban society in the 20th century.

Anja Kervanto Nevanlinna refers to Lisa Brunnstöm's study of Swedish factory buildings in the period 1900 – 1930, Louis Bergeron's and Maria Teresa Maiullari-Pontois' study of Henry Ford's automobile factory and French architects, among them the most prominent of them all Le Corbusier, to document how modernistic architecture was promoted as the architecture of the modern industrial society. Anja Kervanto Nevanlinna thus neatly sums up our general notion that there are links between the coming of the second industrial revolution and the idea prevalent in those days, that standardization and rationalization could be utilized to create a society better able to cater for the industrial masses.

I will not try to argue that those links between developments in industry and ideas about how to design and organize society at large did not exist. They certainly did, a huge number of sources testify to that. But I will argue that we, in future research, need to inquire much more into what kind of linkages and in which ways the idea of rationalization and scientism became instrumental in creating modern society.

Anja Kervanto Nevanlinna speaks of 'the era of modernity' and its technological practices, where these practices together

constitute 'modernism' ("*modernism can be perceived as the network of practices*") and also about industrial society as a generator of modernism. We are dealing then at least with three entities; society at large (modernity), modernism, and technological practices. As I understand it, Anja Kervanto Nevanlinna argues that these three entities are all part of a kind of seamless web. The technological practices and modernism have permeated society to such a degree that we all have accustomed ourselves "*to adopt the totality of the industrial society as self-evident*".

The paragraph just cited ends with a reference to Foucault. To be very brief Foucault's research method regarding history is genealogy. Tracing features in today's society back in time, to the roots. As a method it will call our attention to the fact that the root of modernistic architecture was 19th century factory buildings. Tracing the roots and thus creating a link between industry and modernism may be part of the explanation why modernistic architecture was built the way it was. But is tracing the roots the same as an explanation? Or the whole explanation?

This is neither the time nor the place to go into a long debate about historical explanations and other theoretical debates. So let me just very briefly state, that I prefer to define and look at the interconnectedness of modern society, modernism and technological practices in another way, and I will then, when I come to the end of these remarks, hopefully have clarified why.

I suggest that we define 'modernism' as an ideology (like liberalism or socialism or nationalism), like other ideologies promoted by its protagonists as a promise of a happier life for mankind, in this case arguing that if society was developed and designed on a scientific basis it would create a society better able to cater for the people. If we define it as an ideology – a political programme - the next question, of course, is

to what extent this ideology or programme was in fact carried out in real life.

Like so many other grand ideas, their spokesmen tried to advocate or propagate these ideas, while others just used parts of the vocabulary and perhaps bought into some of the ideas. The crucial question is, of course, to what extent the ideas where in fact carried out in real life. We have a number of showcases, the prominent and famous architects and their buildings. But what about the ordinary houses and ordinary factory buildings, the great bulk of 20th century building, buildings which were and are not icons of modernistic architecture? These buildings are also part of modern society (without being modernistic architecture). To define modernism as an ideology explicitly arguing for a break with the past or tradition, a political and cultural movement with a belief in scientism and rationalization as foundational pillars in creating a society able to provide a better living for all, is in my view a clear and operational definition. What I suggest is therefore, that we differentiate between modernity (the actually existing modern society with its mix of traditional and modern features) and modernism as an ideology.

My second point is that we also ought to be very careful and much more precise if and when we try to relate technological practices to modernism and modernity. I would in fact suggest that we treat the two of them, rationalization and economization, and modernism, as separate entities or separate idea-complexes. Of course, they are in some ways related. It is, to a certain degree, like the belief in God's providence before the Enlightenment, when it was a general idea each and every member of a society believed in. Parallel to that, a belief in scientific ways can maybe be said to have permeated 20th (and late 19th) century society, but we have to become more specific and ask how this general idea was transformed and used by different agents or group of agents in different societal settings in different physical settings. We definitely

need more comparative and much more specific studies, like some of the studies presented here today, before we can make sound generalizations.

Anja Kervanto Nevanlinna quotes Alvar Aalto for saying that industrial production and management has become "the scientific basis for the normal dwelling in a classless society". Historians would classify this as a normative statement. The questions a historian would normally ask are in what context is he saying that? And what exactly does he mean by "the scientific basis"? Which sciences is he referring to? Does he refer to industrial buildings as a model or an ideal for other types of buildings? Or does he refer to building as an industry, where industrialization of the building process promised new opportunities for building affordable houses? To pose the question in more general terms, I think we have to look much more into what different agents meant when they referred to the terms like "scientific basis" or "rational" etc.

"Rationalization" is certainly part of the discourse in the 20th century, but instead of seeing it as an overall determining discourse we should perhaps regard this discourse as part of political and cultural conflicts in the 20th century and look much more into the different meanings of this key concept.
In the following I will therefore focus on how the different papers presented may provide some clues for further research on linkages between scientism, modernism and modern society.

Michael F. Wagner spoke of the idea of society as a machine and technocratism as a political programme or an ideology. According to Michael Wagner it is possible to speak of a technocracy without technocratism, or to phrase it otherwise, the professions, and prominent among them the engineers, in some ways came to govern 20th century society albeit in a quite different way than the technocrats had fancied.

A question not asked in Michael Wagner's paper is whether technocratism should be regarded as a deviant variety of 'modernism' or not? Technocratism is largely a pre WW II phenomenon, at some points quite close to other totalitarian ideologies of the inter-war period, as one of the founding ideas of technocratism was that technocrats (engineers and other scientifically trained people) were best suited to govern society. Thus technocratism was or came in conflict with other kinds of modernism. In Western societies and perhaps especially the Scandinavian countries modernists aligned themselves with the social democratic movement. But 'modernism', defined as an ideology heralding scientism is not necessarily democratic, as the development in Italy or Germany in the inter-war period or Eastern Europe after WW II testifies to. Both East and West wanted to build a better society for the people, and both East and West claimed to build new rational and scientifically based societies after WW II.

As I see it, the advocacy of technocratism in Denmark in the inter-wart years, as Michael Wagner talked about, is an example of the political and cultural conflicts related to modernism as a political programme, if we by modernism mean the utilization of advances in science and technology as a basis for creating a new type of society.

Another interesting point in Michael F. Wagner's paper is his focus on new groups of professionals as central agents of modernization and the professions, engineers, architects and economists among other groups, as an interesting object for analysis of the modernization process and the conflicts connected to this process. Debates among engineers, economists etc. and the gradual evolvement of a new group of professionals working with rationalization were very influential in determining the meaning of 'rational'.

In my view we need more research on the different role of the different professions and the conflicts that evolved when

'scientism' and 'rationalization' were carried out in real life. It is at least a possible way to proceed if we want to take a closer look at how ideas were in fact carried out in real life and how the different conflicts around modernization and rationalization came to influence the actual historical development in different sectors of different societies.

National styles – comparing east and west in Northern Europe

Maths Isacson's topic is the rational society in the North and the case of Sweden.

Maths Isacson rightly points out how crucial planning was in the creation of the Nordic welfare societies, and talks about "the planning machine" as the motor of the welfare society. Maths Isacson discusses how town planning after WW II differentiated itself from earlier types of planned cities. As he remarks, the planned city in itself was no news. He highlights two types of differences. Firstly, that planning now became instrumental in the creation of a better society for the people. Secondly, that planning became an integrated part of politics and administration on a scale hitherto unforeseen; codification and control/management became central features of planning. "The planning machine" is coined as a concept that denotes a new type of very close co-operation between private and public and between different interest groups in societies. Perhaps one may say that "the planning machine" is another name for the welfare state, the welfare state seen from another perspective so to speak. According to Maths Isacson it had its heydays in the 1950's and 1960's after which belief in the specific kind of scientific or expert planning, which characterized this period, started to dwindle. The new suburban towns in Sweden built after WW II are thus intimately linked to the rise of the Social Democrats in Swedish politics and to a certain period in the history of the Swedish welfare state. In other words, a time and place specific type of modernity.

Likewise Anja Kervanto Nevanlinna, whose example is Finland, stressed in her introduction that "the Finnish model", although inspired by the US as well as the USSR and Sweden, nevertheless had its own specific national traits, formed by Finnish history in the 20th century.

Maths Isacson's periodization is in my opinion an important point. Although we today have limited ourselves to talk about "the high industrial age", it may prove fruitful to differentiate further between distinct periods, especially if planning is seen as a system of governance spanning politics and planning practices. If we want to go ahead it is, in my view, clear that we have to look much more into what Maths Isacson calls "the planning machine" encompassing ideas, regulations, procedures and practices, moulding them into specific time and space specific regimes.

Whereas Maths Isacson spoke about the rational or planned Nordic Society and town planning on a more general level, the topic of Marija Dremaite's paper is national building styles. Marija Dremaite in her presentation showed how Lithuanian architecture was influenced very directly by Soviet style architecture after Lithuania became part of the Soviet Union.

National building styles are an interesting approach to comparative studies of modernism and modern society. It shows that even if we can discern some universal principles in modernism, national building styles point at different interpretations of modernism related to the specific national histories. We can, so to speak, read part of the different national histories if we look at the buildings and the way the universal principle of modernism was interpreted in the different national contexts. But we can also reverse our gaze and see the built environment as a product of a specific history.

To mention a rather well known example (not part of Marija Dremaite's paper) East and West Berlin came, during the cold war, to function as showcases for the two compet-

ing regimes where a number of buildings were raised very consciously to propagate the two conflicting regimes. In East Berlin the apartment buildings on Stalin Allee (today Karl Marx Allee) were built as a new kind of representative buildings, that is the buildings are very visible, as representative buildings should be, although they are not public or representative buildings in the traditional sense (e.g. buildings for government, churches/temples or museums); these apartment buildings were consciously built for ordinary people to live in, thus signalling that the new regime was a people's republic.

In West Berlin apartment buildings (Hansa Viertel) were also erected as icons, in what we today will call a classical modernistic style (with some of the most famous western architects of these days as designers). The basic idea is the same, to use buildings built for "ordinary" people to propagate one's own system. But the styles are very different. The apartment buildings on Karl Marx Allee were built in what was termed a national style, what we would call a kind of neo-classical/functional architecture where elements from historical buildings in Germany were consciously mixed in (the international style of classical modernistic architecture was seen as 'foreign' or alien, and the regime in East Berlin tried to strengthen its credentials as custodians of the German, national heritage vis-á-vis the American governed Western zone by building in a 'national' style). The West Berliners (and the Americans who donated the money) on the other hand wanted to legitimize themselves exactly by staging a break with history and tradition and to show their progressiveness by building icons of modernistic international style architecture.

I mention this example because it is a very clear example of how style in this specific, historical context became part of an overall international conflict (the cold war) and how buildings where utilized very consciously as icons. It may at one and the same time explain and illuminate why the built environment in East and West differed in style and the different interpretation of modernism in East and West.

Both Isacson and Dremaite point, in my view, to specific studies of planning processes and national building styles as fruitful research areas if we want more and better knowledge about the built environment of the 20th century as part of our cultural heritage from the industrial society.

Celebrating the future and the past – modernism and exhibitions

Bente Jensen's paper demonstrated how the exhibition in Aalborg was styled to show off Aalborg as a modern town, modern here denoting industrial expansionism, entrepreneurship, efficiency, and a will to strike out a new path. The exhibition was the brainchild of a local artist, Viggo Vagnby, in co-operation with a number of prominent architects, who designed an exhibition area in the new functional style. Besides, the exhibition celebrated new technological advances in industry, in household equipment etc. The Social Democrats held the majority of the seats in local government and it suited their political purposes well to show off Aalborg this way, although their main concern definitely was workplaces not modern architecture. The 1933-exhibition went hand in hand with other initiatives taken by the local government to modernize Aalborg like the break through of a new main thoroughfare, Vesterbro, in connection with the building of a new bridge across the Liim Fiord. The new thoroughfare was consciously built in the functionalistic style.

New infrastructure and modern housing was both a real modernization and symbols of modern living. And in this specific case the symbolic and the real went well hand in hand as an example of how different interests may combine in a powerful alliance.

Anders Houlz talked about the Gothenburg Exhibition in 1923 and especially how past and future were linked at the exhibition. The themes chosen, the organization and the layout

were, according to Anders Houlz, designed to create a historical link between "old Sweden" and its technical capabilities and the "new Sweden". The exhibition was thus designed to show that modern Sweden was a direct heir to "old Sweden" and the link claimed between old and new was technological capability, a kind of essential Swedishness that went into building Viking ships as well as modern machinery.

Comparing the exhibition in Aalborg in 1933 and the Gothenburg Exhibition in 1923 it is interesting how different the two cities chose to present themselves. Aalborg cast itself as a modern city, although it could have claimed a Viking heritage if it had wanted to do so, where modern implied a break with the past. Gothenburg on the other hand tried to reconnect to its past, made visible by the Gustav Vasa 1600s look alike ship in the foreground of the poster advertising the Gothenburg Exhibition.

I am not sure we can generalize from Aalborg and Gothenburg to Denmark and Sweden. Maybe it is not so much a difference between Denmark and Sweden as a difference between a social democratic local government in Aalborg and a conservative local government in Gothenburg?

At least in Denmark the Social Democrats advocated modernism as a break with the past, the past here denoting the old industrial society with its labouring poor, and a promise of a new and better society. As Maths Isacson also argued, the Social Democrats are a key to Scandinavian modernism.

Summing up

In order to discuss where to proceed from today I would propose that we, as a starting point, try to become much more specific and look more at practices or how ideas were carried out. Until now it is my impression that the main bulk of studies have drawn on normative sources and studied ideas and

discussions about ideas. If we start to look at practices or how the ideas were carried out in real life, I also think we need to differentiate between an instrumental rationality (ends and means rationality) and 'rational' as understood by the philosophers of the Enlightenment, the governance of reason or scientism, as a break with the past and a new way to structure and design society; we may also call it ideological rationality. There is, in my view, a difference between the more mundane type of rationalization, where engineers make a new factory layout or organize a cheaper and more rational way to produce e.g. windows or other pre-fabricated elements for buildings, and rationalization as an ideology promising a new and better life. It may even clarify what we talk about, when we talk about the built environment and architecture, if we differentiate between promises of a new and better life, and the iconic buildings related to this ideological programme, and just building practical and in this sense functional buildings, what I here call the more mundane bulk of the built environment erected in the 20th century.

If we look at Aalborg, or on every other city in North-Western Europe, and the buildings built in the 20th century we can certainly find what may be termed modernistic icons or "programmatic buildings". Buildings that were built to tell a story or advertise something like the new semi-high rise houses, built in the functional style, along Vesterbro here in Aalborg. But we also have a lot of dull 20th century buildings that were built for sheer practical purposes. They do not have a modernistic look; the key style-elements connected to modernistic architecture are absent. But they are still "modern" and "rational" in the pragmatic sense. Rational production methods were utilized, cost-efficiency and new building techniques and new building materials were used. Nevertheless, they do not qualify as modernistic icons.

One may perhaps describe it as the difference one can always find if we look at the built environment. A difference between

e.g. manor houses or churches and other representative buildings with symbolic meanings besides their practical functions, still standing in their original place, classified as part of our cultural heritage, and the houses built for practical purposes, used by ordinary people, cottages, farmhouses and old workshops, we can find at our open-air museums, buildings that, of course, are also part of our common cultural heritage.

The "programmatic buildings" or icons are interesting, if we want to study how different societies or systems wanted to present themselves, whereas the more mundane buildings perhaps can be read more as signs of how society, in case modern 20th century society, really were or functioned.

I do not know if we one day will have to or should create open-air museums presenting some of the ordinary houses, built of pre-fabricated elements as standard houses spread out in housing estates, complete with a father, a mother and two children, or ordinary factory buildings from the 1960s and 1970s, to preserve and present these buildings. But they were definitely part of the rationalization movement and modern life in the 20th century and will or should become part of our cultural heritage just like the modernistic icons we mainly have talked about today.

What I want to point to is that we, today, have talked very little about how the ideas propagated by politicians and professionals of many sorts were in fact implemented. Likewise we have not talked much about what actually happened after the 1930s and 1950s, the decades where most of the programmatic speeches where held and most of the modernistic icons built.

Maths Isacson touched upon implementation, and he also noted that something happened in the late 1960s and early 1970s, when the expertise of the experts started to be questioned. As we all know this did not diminish the role of the experts, but their role and their ideas in some ways changed.

The seminar today has reminded all of us how the high industrial age with its technological potential promised to create a richer and better life for the common people cf. the references to creation of a classless society. How this potential was utilized varied according to a number of political factors ranking from local government to international politics.

My concluding remark shall be that we have been presented with a number of clues in today's papers for further research. National comparisons are definitely one way to move ahead in order to clarify the specific national styles and receptions of modernism. It will definitely also be illuminating to inquire more into trans-national inspirations or loans inside and outside the Nordic countries. We still know too little about this issue, as we all have tended to stay within our national boundaries in our research. Both national styles and the conscious use of an international style may also be telling if we want to inquire more into different receptions or interpretations of modernism.

I am also convinced that we ought to study the role of the different professions much more thoroughly and also a wider set of professions and their contributions to the construction of modern urban life. The closer we get to the processes where rules and regulations of moderns society were formed by different agents, the better we will be able to connect the built environment and the history of modern society.

Modernism was part of all this, and the discursive construction of modernism and the use of modernistic icons as signifiers in political and cultural conflicts is definitely one of the more intriguing parts of the process that created the modern 20th century society. It should, however, not lead us to forget that rationalization in a more mundane sense, as economising played an equally decisive role, both if we speak of factors creating the modern society of the 20th century and the mass of buildings still standing.

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Modernism and Rationalization

Modernism and Rationalization was the title of a seminar in 2005 arranged by the Museum of Northern Jutland, the Institute for History, International and Social Studies, Aalborg University and the Heritage Agency of Denmark.

The themes were Modernism and Rationalization, Planning and Rationalization and Modernism Exposed. The speakers were from Aalborg University and from the Nordic/Baltic research group Industry and Modernism.