

Per Østby

ESCAPE FROM DETROIT -

The Norwegian Conquest  
of an Alien Artifact

STS - Working paper 2/93

ISSN 0802-3573-68

arbeidsnotat  
working paper

POSTADRESSE:  
7055 DRAGVOLL

TELEFONER:  
Sentralbord: 73 59 17 88  
TELEPHONES:  
Switchboard: +47 73 59 17 88  
TELEFAX:  
+47 73 59 13 27

BESØKSADRESSE/VISITING ADDR.:  
Universitetsenteret på Dragvoll, Trondheim  
Bygg 6, nivå 4  
Dragvoll  
Building 6, level 4

POSTAL ADDRESS:  
THE UNIVERSITY OF TRONDHEIM  
Centre for Technology and Society  
N-7005 DRAGVOLL, NORWAY

---

## Introduction

In 1883 the Norwegian engineer, Paul Irgens made the drawings for a vehicle that was to be powered by an internal combustion engine. Irgens attempts to find financial support for the realization of his project failed. However, thirteen years later, in 1896, and through the support of a relative he completed his "car". Irgens never built more cars, turning to motors for boats and a steam-powered bus, Alfa. Alfa was referred to in the American chronicle, *Horseless Age*, but nobody wanted it, and the car ended its days slowly corroding behind his barn.<sup>1</sup>

The sad fate of Paul Irgens and his technological creations can possibly symbolize Norwegian car industry. Heroic attempts, exiting concepts and no luck. The most successful examples of a automobile industry of sorts, was the assembly of cars based on imported parts and the building of busses. In the 1930's this was a trade of some importance, but after 1940 it faded into insignificance.<sup>2</sup>

Today, the absence of a native automobile industry does not seem to have constrained the development of a Norwegian society heavily dependent on cars. If we compare with our Scandinavian neighbours, the density of cars in Norway in 1989 was 2.6 persons per private car. The corresponding figures for Sweden was 2.4, Denmark 3.2 and Finland 2.6. Even if Norway has a lower density than either USA with 1.7 or Germany with 2.1, it is safely esconced in the upper level of car-dependent societies.<sup>3</sup>

---

<sup>1</sup>Øistein Bertheau og Trygve Krogsæter: *Bilen kommer til Norge - Bind 1. Automobilens urhistorie og de aller første bilene i landet*, Norges Tekniske Museum, Oslo 1988.

<sup>2</sup>Øistein Bertheau og Christian Stokke: *Made in Norway - Historien om forsøk på bilproduksjon i Norge*, Oslo: Norsk Teknisk Museum, 1991.

<sup>3</sup>Opplysningsrådet for veitrafikken: *Bil og vei - statistikk 1991*, page 113 and 116.

---

*"Nearly 300 000 persons are living in areas where air pollution is well above internationally recommended standards. Cars are the heaviest contributor to this situation, especially in our cities".<sup>4</sup>*

This statement can be found in Stortingsmelding nr.46 (1988-89): *Environment and development*. Norway is therefore in the same position as other European countries in experiencing both the possibilities and the problems related to the extensive use of cars, and I am sure, Norwegian citizens love and hate their cars as much as any other people do. Norwegian authorities, both central and local, are confronted by the same dilemmas in trying to give form and coherence to car-related policies, as Swedish and French authorities are.

Is this uniformity which characterizes the development of mass-motorization and the use of cars across the frontiers, the final evidence that the concept of autonomous technology is something more than a scary metaphor? Should we all just leave our flexible technology and turn to theology instead? I hope not. My faithful statistics show that Peru has a car density of 54.4 and the dissolved Soviet empire had 22.4.<sup>5</sup> There might still be some hope though, both for the anti-car movement and for the odd cynical social scientist or historian gazing at motorized progress from the proverbial grandstand. Perhaps a depression would be handy?

The origin and development of mass-motorization has been analyzed and described in various ways. It has been described in local and international terms, according to causes and effects, as an industry,<sup>6</sup> in relation to social and cultural changes,<sup>7</sup> in terms of transport policies,<sup>8</sup> highway construction, the professions,<sup>9</sup> and the

---

<sup>4</sup>St.meld. no. 46 (1988-89): *Miljø og utvikling. Norges oppfølging av verdenskomisjonenens rapport*, Oslo 1989, page 95.

<sup>5</sup>Opplysningsrådet for veitrafikken: *Bil og vei - statistikk 1991*, page 116.

<sup>6</sup>David A. Hounshell: *From the American System to Mass Production 1800-1932*, Baltimore: John Hopkins U.P. 1984. James J. Flink: *The Automobile Age*, Cambridge, Mass.: The MIT Press, 1988. Alan Altshuler, Martin Anderson, Daniel Jones, Daniel Roos and James Womack: *The Future of the Automobile - The Report of MIT's International Automobile Program*, Cambridge, Mass.: The MIT Press, 1986. James P. Womack, Daniel T. Jones and Daniel Roos: *The Machine that Changed the World*, New York: Rawson Associates, 1990.

<sup>7</sup>Rudolph E. Anderson: *The Story of the American Automobile*, Washington: Public Affairs Press, 1950. Michael L. Berger: *The Devil Wagon in God's Country*, Hamden, Con.: Archon Books, 1979. James J. Flink: *The Car Culture*, Cambridge, Mass.: The MIT Press, 1975. Flink 1988.

<sup>8</sup>James A. Dunn: *Miles to Go - European and American transport Policies*, Cambridge Mass.: The MIT Press, 1981.

<sup>9</sup>Bruce E. Seely: *Building the American Highway System - Engineers as Policy Makers*, Philadelphia: Temple University Press, 1987.

---

transformations of cities.<sup>10</sup> The list could be extended indefinitely. Recent studies have tended to treat these developments as socio-technical processes, offering many possibilities to constructivist approaches. These may be mobilized in the investigation of the different aspects of the relationship of the car to its environment.

As we never have had a Norwegian automobile industry, we have depended entirely on imports. Norway represented a rather small market for the international car industry, and as a rule, few or no particular alterations were carried out by the manufacturers to suit their product to their Norwegian customers. Cars were developed and designed according to international standards and taste. It follows that "the Norwegian car" has been a foreign, technically "finished" artifact.<sup>11</sup>

It is therefore natural in the present analysis to concentrate on the user side. This is by no means a new or pathbreaking choice: Silverstone, Morley and Hirsch has focused on the user in connection with information-technology and the moral economy of the household.<sup>12</sup> In addition we should also mention Madelaine Akrich and Bruno Latour, even if their inquiries are more than just studies of the user of technology.<sup>13</sup> The new concepts, script programme and anti-programme, are to be understood in terms of the attempts to examine how technological artifacts, through their development and design, are charged with directives and values.<sup>14</sup> These attempts may be interpreted as one step towards a more comprehensive study of the user side of technology. However, these concepts are still restricted by their focus on the producer side. The starting point and the main focus are design and development.

Several studies have been made at the Centre for Technology and Society which have tried to give this direction of attention a slight twist. Micro-studies of

---

<sup>10</sup>Øyvind Thomassen: *Bil i by. Trafikkplanlegginga i Trondheim i 1960-åra*, STS-rapport, Senter for Teknologi og samfunn, UNIT, Trondheim 1991.

<sup>11</sup>The idea of a Norwegian car was presented by Knut Holtan Sørensen: *The Norwegian Car - The Cultural Adaption and Integration of an Imported Artefact*, STS-Arbeidsnotat 5/90, page 10.

<sup>12</sup>Murdock, G., P. Hartmann og P. Grey: *Home Computers: The Social Construction of a Complex Commodity*, Centre for Mass Communication Research, University of Leicester, 1987. Silverstone R., Morley D., Hirsch E.: *Information and Communication Technologies and the Moral Economy of the Household*, Arbeidsnotat, CRICT, Brunel University, England 1990.

<sup>13</sup>Madelaine Akrich: *Beyond Social Construction of Technology*, Unpublished paper, Centre de Sociologie l'Innovation Ecolè des Mines de Paris, 1991. Madelaine Akrich: "The description of Technological Artifacts", Madelaine Akrich and Bruno Latour: "A Summary of a Convenient Vocabulary for the Semeiotics of Human and Non-Human Assemblies", in Wiebe E. Bijker and John Law: *Shaping Society/Building Society*, Cambridge, Mass.: The Mit Press, 1992, page 205.

<sup>14</sup>Marit Hubak: *Den forførende bilen - en analyse av markedsføring som sosioteknisk handlingsfelt*, STS-rapport, Senter for Teknologi og samfunn, UNIT, Trondheim 1992.

---

different technologies have been effected to try to analyse how individuals and groups through use, handle and transform and thus domesticate what is seemingly finished technologies.<sup>15</sup>

In its initial meaning, the concept "domestication" is to train an animal to live with humans. This is a mutual process, both the animal and the tamer are affected by the process of domestication. The situation is not without strong similarities to the one which arises when new technology is taken into use and can metaphorically be seen as taming process or a process of domestication. Even if technological artifacts are "finished" when purchased, this does not necessarily imply that they are finished as social and cultural products. Individuals and regulating institutions "tame" or domesticate technology by integrating the technology into their own culture. We may speak of a transformation where technical products, through use, become cultural and social products, loaded with symbols and the identity of the user. The concept of domestication may be seen as suitable when analysing how design qualities and values embedded in imported technology are negotiated by individual, institutional and national actors. In this connection we shall stress the "mediators", the institutional links between individuals and national domesticators: between the individual user and the articulation of national car policies.

In the following presentation, I shall follow this technological "creature", from its first appearance in Norway and through its subsequent several phases of transformation. I shall stress the metaphorical side of domestication, using it as a general perspective and a focal point, but not as a model. My question is a simple one: How were these noisy collections of steel, wood, cotton, rubber, plastics, nickel, leather, and whatever, integrated into and given shape by Norwegian society? A secondary question is related to the mutuality of this process. What happened to the tamers, how were individuals, institutions and organizations transformed in the process of adapting the car to its needs?

---

<sup>15</sup>Knut H. Sørensen: *Informasjonsteknologi eller integrasjonsteknologi?*, STS-arbeidsnotat, Senter for teknologi og samfunn, UNIT, Trondheim 1991, Knut H. Sørensen and Tove Håpnes: *Constructivism and Feminism in the Study of Technology*, Upublisert paper, Senter for teknologi og samfunn, UNIT, Trondheim 1992, Margrete Aune: *Datamaskina i hverdagen, en studie av brukeres domestisering av en ny teknologi*, STS-Arbeidsrapport, Senter for teknologi og samfunn, UNIT, Trondheim 1992. Jon Sørgaard: *Bilens integrasjon i hverdagslivet - en teknososiologisk tilnærming til bilkultur*, paper presented ved Nordisk arbetssymposium, Tema T, Universitetet i Linköping, 18-19. Februar 1993. Per Østby og Nora Levold: *Teknologi på vandring*, paper presented ved Nordisk arbetssymposium, Tema T, Universitetet i Linköping, 18-19. Februar 1993.

---

### 1900-1920: Pioneers in the Mountains

The first Norwegian railways were built in the 1850's. This happened in a society in swift transformation. By the turn of the century Norway was characterized by a rapidly modernizing agricultural sector, a small, but dynamic and technologically advanced industrial sector, and rapid urbanization. Yet Norway was, as was most of contemporary Europe, a predominant rural society. This was the situation when king Carl of Norway and Sweden, in 1863, signed a law that permitted the use of locomotives not only on rails, but on roads as well.

*"The King gives his permission to use 'railless locomotives' on suitable roads and streets when public safety is not at risk".<sup>16</sup>*

In 1871, the engineer William Ludvig Rode imported a steam powered vehicle, Hercules, to transport people and goods. But, although Rode had high hopes of success with his impressive machine, both Hercules and the few other steam operated vehicles later imported into Norway, were flops: They were too heavy and too weak, and in all respects unsuited for roads made for horses and traditional carriages. Our sources tell very little about what happened to these vehicles, but there are some indications that they were rebuilt and used as stationary power sources. The locomotives for roads can be said to have been in all respects, tamed.<sup>17</sup>

Leaving these exotic anticipations aside, we find a kind of starting point for the motor-age in the years about the turn of the century. We can start by looking at the activities of the then Director of Highways, Herman Krag. In 1896 he wrote to the Norwegian Ministry of Public Works and claimed that initiatives had to be taken to establish a set of general rules regulating road traffic in the same way as this had been done for bicycles. The reason for his initiative was the possibility of the establishment of bus-routes. In 1899, the year the first car was officially registered, rules for road traffic were passed by most local authorities.<sup>18</sup>

The new rules gave the chairman of each municipal council the authority to emit permits to car owners to traffic on public roads within the local authority area. If a driver wanted to visit a neighbouring municipality he would have to secure the corresponding permit from that local authority - in advance. The application for a permit had to include technical information about the car, as well as a statement of

---

<sup>16</sup>Bertheau og Krogsæter 1988, page 88-89.

<sup>17</sup>Ibid, page 98-99.

<sup>18</sup>Joh. Skougaard: *Det norske veivæsens historie - med oversikt over Statens Veivæsens virksomhet i tidsrummet 1820 - 1914*, Bind II, Kristiania: S&Jul. Sørensens boktrykkeri, 1914, page XLII.

---

the purpose and the destiny of the trip. In addition the driver had to get a drivers licence from the chairman. These permits, both for the car and its driver could be recalled by local authorities at any time.<sup>19</sup>

Local councils were also empowered to issue their own rules. In Oslo, drivers had to make their presence known to other to other traffickers by continuously ringing a bell.<sup>20</sup> In Åndalsnes the local council was of the opinion that the use of cars should not be permitted at all. Since they found it impossible to completely avoid the presence of cars, one of the councillors suggested that one day per week could be reserved for driving. In Feiring, the councillors had a slightly more positive view. Driving could be allowed two or three days a week, on selected times of the day, but on known danger spots, always preceded by a bicycle so as to warn people.<sup>21</sup>

Car speeds were restricted by law. The speed limit for cars under 2 tons was to be 15 km/h, no faster than than cyclists or horse driven carriages. Krag criticized this restriction: the low maximum speed nullified the advantages cars had over other means of transport. The speed limit was changed to 30 km/h in 1903.<sup>22</sup>

The first regulations for cars, especially the restricted system of permits, made driving an involved affair. They obviously had a limiting effect on the use of the few cars that were imported. The rules evince an explicit distrust of and resistance to this new technological creature. Especially the rural population was of the firm opinion that the new contraptions should be kept behind fences. For most people they were seen as exotic objects and useless toys.

In contrast, the Director of Highways, Herman Krag, and his engineers had great expectations for the car. Krag himself was an eager promoter of new technology. In a newspaper of that time he was portrayed as a spider-like creature sitting in the centre of a web of electrical lines. The portrait referred to Krag's internal calling system which consisted of telephone lines connecting the divisions of the Directory. This was no usual device at the time, and gives an impression of what kind of person Krag was. In the 1860's and 70's he made several trips to Europe to study communications. Later he sent his engineers. In 1895 he ordered two engineers to

---

<sup>19</sup>Dag Bjørnland: *Vegen og samfunnet*, Oslo: Vegdirektoratet, 1989, page 105.

<sup>20</sup>Knut Kjeldstadli: *Oslo Bys historie - Bind 4, Den delte byen - Fra 1900 til 1948*, Oslo: J.W. Cappelens Forlag A/S, 1990, page 389. Hentet fra Forskrifter for brug af motorvogne, Kristiania 1889.

<sup>21</sup>Eivind Luthen: "Et folk på hjul", *Morgenbladet* 21.februar 1989, page 18.

<sup>22</sup>Skougaard 1914, page XLII.

---

Germany and France with the specific objective to study the use and technology of cars.

In 1899, when there were only two cars in Norway, he wrote to the Ministry:  
*"It would be positively harmful, if still for some time the nation, for lack of resources to improve its roads, should have to do without the great advantages associated with such a means of communication."*<sup>23</sup>

Strong words in 1899. Krag persuaded the Ministry of Public Works to propose that Parliament set aside 30 000 kroner for this purpose. But Parliament reduced the proposal to 5000 kroner which was granted for experiments with cars. No extra grants were allocated to improve road standards. This was to be the standard political response to the question of improved roads, right into the 1920s.

In addition to Krag's statements of principle and his work at the Directorate, he lived out his ideas of modern communication in practice. In 1901 he drove a Wartburg across the Dovre mountains, from Otta to Åndalsnes, on a primitive road made for horses. He was out for the demonstration effect, and he succeeded. The trip got a lot of publicity in the press, and automobiles were declared the new means of transport with a promising future.<sup>24</sup>

Even if Krag's dauntless trip got a lot of attention, it did not represent a breakthrough for motorized road transport. While other European countries were building roads suited for the car, the attitude of the Norwegian political elite can only be characterized as indifferent.<sup>25</sup> There are several factors explaining this lack of concern. With only a small handful of cars, the majority of which were located in the urban centres, there seemed to be no need for hurry, either in regards to better roads or for adequate regulations. In any case, Parliament was dominated by the rural sector. In their eyes the car was a toy for wealthy city dwellers. Transport in the rural areas was the domain of the horse: roads suited for cars were an unnecessary luxury.

It was not only the wealthy few who purchased cars. Firms wishing to advertise in a striking manner, were also in the market. Consequently the car owners association (The Royal Norwegian Drivers Association - KNA) founded in 1907, very naturally came to reflect the elite nature of the motoring public. It was in fact

---

<sup>23</sup>Skougaard 1914, page LI. The translation of this quotation is collected from Knut H. Sørensen: *The Norwegian Car - The Cultural Adaption and Integration of an Imported Artefact*, STS-Arbeidsnotat 5/90, page 10.

<sup>24</sup>Gunnar Kristiansen: *Bil, vei og meninger*, Oslo/Gjøvik: A/S Norbok, 1975, page 5.

<sup>25</sup>Skougaard 1914, page LXII-LXIII.



---

a club for wealthy people in Oslo, dedicated in these early years to a kind of "gentlemanish ideal" in the use of cars; they were toys, giving new qualities to life's leisure side.<sup>26</sup>

1908 marks a new important development: Individuals in the rural areas establish regular transport services: the motorvehicle was no longer solely an urban phenomenon. The initial period was however traumatic. The pioneers of the new trade bought used cars which were often too weak or were technically unfit to perform their intended tasks. The roads were narrow and their surfaces poor. In addition they had a running conflict with the chairmen of the municipalities who generally disliked their efforts.<sup>27</sup> However, these rural services were to be important in opening the minds of the public to the possibilities of the car. It showed that these could be something more than playthings for the well-to-do. These routes integrated more effectively the rural areas and linked them to railheads and urban markets. The growth of this trade clearly coincided with the social changes that had started before the turn of the century. Industrialization and a move away from peasant economy had created a need for transport which the car could fill.<sup>28</sup>

A growing number and the increased use of cars, the increased commercial importance, and the work of The Directorate of Highways, forced Parliament to consider new rules for road traffic. In 1912 Parliament passed a set of national regulations governing applicable to the main roads and supplementing local regulations. Local roads were still regulated by municipal authorities.<sup>29</sup>

On this occasion, the parliamentary debate showed a clear line of conflict between representatives of rural and central areas. This cleavage can be illustrated by two quotations from the debate, first the urban voice:

*"It is my opinion that it is a central task for the State, within certain limits, to adjust the environment to the use of these vehicles. I think that what we are witnessing is just the beginning. Cars will have an access to our country that the opponents never dream of."*<sup>30</sup>

A rural representative expressed his feelings in a less enthusiastic way:

---

<sup>26</sup>Kristiansen 1975, page 82-83. Kjeldstadli 1990, page 385.

<sup>27</sup>Kristiansen 1975, page 86-91.

<sup>28</sup>Ibid, page 98-101.

<sup>29</sup>St.forth. Lov om bruk av motorvogner. 7/2 1912.

<sup>30</sup>Ibid, page 285.

---

*"We have read the proposal, and we know the state of the roads in the western parts and the mountains of Norway are, (and) we also know what motor traffic is about. I have to testify to the sadness and scepticism with which the rural population awaits this development (...) We have had motor-traffic for some time, and we have seen these drivers: they do not even respect the old laws. They will set out into the rural areas as if they were masters of it all. They will force other travellers from the roads. Both farmers and travellers will now be driven from the road."*<sup>31</sup>

At the same time as the Highway Codes were written into the statute book, a new law regulating financing and responsibility for the construction and maintenance of roads was passed. Traditionally farmers were responsible for the upkeep of any public road passing through or by their property. In the new situation, farmers were showed little enthusiasm at having to improve roads for wealthy townspeople doing their Sunday excursions. The Director of Highways found that the extra resources for the financing of road construction was not to be charged the local communities. *"One could not expect the necessary sympathy and understanding for such demands from the local communities"*. The statement indicates a perception of the sensitivity of the conflict, and the potential conflict between central and local authorities.<sup>32</sup>

The new law embracing motor traffic offered a comprehensive set of rules. One innovation was a tax charged on cars to cover for the wear and tear of the roads. A second feature was that drivers had to deposit 1000 kroner as a security to cover for potential damages or casualties connected to driving. In addition new cars were to be controlled by the police and have registration numbers. The authority to issue drivers licenses was transferred from the chairman of the municipal councils to the police. Drivers had to go through tests to show their driving ability.

In 1917 the Treasury discovered the car. It then issued what was called the luxury-tax on cars. The term "luxury" relates to the war-time situation, with a new group of car owners, the war profiteers. The sole purpose of this tax was to get extra money to cover the state's escalating wartime expenses. Not an øre was used for the

---

<sup>31</sup>Ibid, page 289.

<sup>32</sup>Skougaard 1914, page LXIII.

---

roads. Initially the yield of this tax was a modest, but with the increase in number of cars in the 1920s it became an important source of income for the Treasury.<sup>33</sup>

The laws of 1912 made driving cars easier, even if it involved new regulations and even if we consider the new tax. Drivers no longer needed permits to drive on the main roads. This was a big forward step, making possible longer trips, and thus vastly increasing its practical use, becoming for example an essential tool to the medical doctor.<sup>34</sup> The new laws removed the formal restrictions for the more extensive use of cars. At the same time they introduced detailed regulations concerning the drivers, their cars, and their responsibility regarding accidents. The risk element involved was no longer a question of individual conduct, it increasingly became regulated by the state.

The laws of 1912, the Highway Act and The Traffic Codes were complementary. The authorities loosened and tightened their grip at the same time. Regulating authority and responsibility was transferred from the local authorities to The Directorate of Highways. The Directorate of Highways also strengthened its position as responsible for main roads and the traffic on these roads.

In this pioneer period, The Directorate of Highways acted as a driving force for the more extensive use of cars. Parliament was mostly indifferent when it did not not actively try to block development. The local councils were an obvious drag. In addition there were other obstacles of a more material character. In a Latourian perspective, the local councils and the farmers had strong allies in the primitive roads. The cars of the period were still technically unfit for them. Norwegian roads were steep, narrow, violently curved and stony. Gradients were a problem and the rubber wheels were torn by the surface. The road grants allocated by the state in 1901 was 2,2 million kroner. In 1914 grants had risen to 2,7 mill kroner. In all respects a very modest increase.<sup>35</sup>

In plain terms this means that the roads were instrumenteal in restricting and directing the use of cars. Even if the law of 1912 made motoring easier, the allocations earmarked for roads in the period 1900 - 1914 are evidence of how local authorities, Parliament and the material structures "tamed" the Norwegian car. Prior

---

<sup>33</sup>Bjørnland 1989, page 192.

<sup>34</sup>Bjørnland 1989, page 106, Skougaard 1914, page XLIV-XLV.

<sup>35</sup>Skougaard 1914, page XI.

---

to 1914 the use of the car was by and large restricted to the urban centres, the lowland areas and, generally, only for short trips.

### **1920-1940: A Breakthrough for Cars**

For Norway, the First World War was in many respects a watershed. The years which followed between 1920 and 1940 were characterized by economical, political and social turbulence. Financial problems and severe social tensions are part of a picture which includes rapid changes of an organizational and technological nature. New industry and new economic activities were created outside the traditional urban centres.

The breakthrough of the car as a means of transport took place in the decade after the first world war. This can be seen in different ways. From 1918 to 1926 the total number of cars in Norway rose from 3273 to 30352.<sup>36</sup> The number of drivers licenses issued in 1919 were 16000, one year later, in 1920, the figure is 31000.<sup>37</sup> The increase in the number of cars coincided with the growth of commercial transport. If we look at the capital of Norway, Oslo, in 1900 there were no companies registered in motor transport. In 1920 there were 125, in 1935, 544 and in 1948, 964.<sup>38</sup> In 1915 there were where 95 registered motorbus lines for passenger traffic. the corresponding figure for 1920 is 270.<sup>39</sup> The development was indeed rapid: in the beginning of the 1930's close to 10 percent of the workforce had, in one way or another, their income connected to the use of motorvehicles.<sup>40</sup>

Another indication of this breakthrough was the formation of associations related to both the private and the commercial use of cars. The Norwegian Drivers Association (NAF), later the largest and most influential drivers organization, was founded in 1924. The same decade witnesses the organization of the different branches of the trade: the importers, the dealers and the workshops. The motor coach

---

<sup>36</sup>Opplysningsrådet for veitrafikken: *Bil og vei - statistikk*, Oslo 1991, page 5.

<sup>37</sup>St.prp nr.1 Hovedpost I. Kap 6. *Om bevilgningene til veivesenet*, Oslo 1921, page 35.

<sup>38</sup>Kjeldstadli 1990, page 386.

<sup>39</sup>St.prp nr.1 Hovedpost I. Kap 6. *Om bevilgningene til veivesenet*, Oslo 1921, page 36.

<sup>40</sup>Bjørnland 1989, page 128-129. In 1930 the Norwegian "male" population between 20 and 60 year was approx. 724 000. An official count from 1934 showed that there were 42500 drivers and assistants in Norway. The total number of persons occupied with car-related activities were 54 000. In addition 19 000 persons were working with road construction.

---

owners established their association in 1929.<sup>41</sup> The increase in the use of cars is also reflected in the hectic activity of the The Directorate of Highways. It kept a continuous pressure on Parliament to secure bigger budgets, carping on the poor conditions of Norwegian roads which, if not remedied, threatened to retard the nations's development in relation to other countries. In 1929 Parliament debated a new plan for the improvement of the condition of the roads. In the Directorate's recommendation one reads:

*"Besides Iceland our country is the (only) European country that does not have a proper system of roads. We are 100 years behind."*<sup>42</sup>

The growth of traffic, the increase in the volume of commercial motor transport and the demand for bigger allocations for the national road system, gave rise to a conflict of principle between the railway and the motor interests. In 1932 this conflict had become acute, as an article in the newspaper Dagbladet indicates:

*"In the last years automobile traffic has grown. Many people without economical knowledge think that no harm is done thereby. Some may even look at this development as an opportunity to improve the economic situation. One talks of a change from railwaytransport to automobile transport. This is a misconception. The use of cars for transportation is one of the causes for the severe economic situation of this country. A further development in this direction will make the economic situation even worse".*<sup>43</sup>

But the supporters of railways as the one and only system of transport, were fighting a rearguard action. Both in number and in weight, the advocates of the car were on the offensive. In 1937 the Norwegian engineer Alfred Holter who was visiting Paris, wrote:

*"The automobile promises a more important change for transport and working conditions than were caused by the railway. A country that does not take this into account and neglects its road-systems will drop behind in its ability to compete with other countries".*<sup>44</sup>

---

<sup>41</sup>Ibid, page 128-129.

<sup>42</sup>The Director of Highways: *Innstilling til Stortinget nr. 1 - 1929*, page 50.

<sup>43</sup>L. Aslaksrud wrote two articles in *Dagbladet* 25/10 and 27/10 1932. The extract is collected fra, Kåre Fasting og Helge Hagerup: *Femti år for bilen 1916 - 1966*, Automobilimportørenes Forening. Utgitt 1967, page 47.

<sup>44</sup>Alfred Holter: *Vår veitrafikk og våre veier - en veiplan*, Oslo: Vegdirektoratet, 1937, page 1.

---

Here we see both views expressed, the car as a central element of progress, and, alternately, the car as an intruder that steals passengers and goods from the railway. This may well be seen as a conflict between two technological systems in their different stages of development, the one in still in full expansion (the case in Norway), the other in the process of creation.<sup>45</sup>

From the building of the first of the first railway lines, the country had invested heavily in a railway system that was to tie the different parts of the country together. The automobile posed two problems: Firstly, motor-transport increasingly captured passengers and goods from the railway lines. Secondly motor-transport demanded an alternate and costly infrastructure. This entailed a new, heavy burden for the state finances and the national economy.

A Parliamentary committee was set up as early as in 1920 to evaluate the alternate benefit of investments in railways as against the more extensive use of motor transport on roads. The committee concluded that several railway lines could be replaced by car transport. In 1923 Parliament followed some of the committee's proposals, deciding to replace certain planned railway lines with roads.<sup>46</sup> However, this did not solve the more fundamental contradictions, and a new committee was appointed in 1927. While the 1920- committee had come to an agreement, its successor was divided and presented two alternate recommendations. The minority, including The Director of the Highways, advised that motor transport be given a greater priority, while the majority saw the car mainly as a threat to the railway. They pressed for regulations which limited all commercial transport with cars. The minority wanted rules regulating transport on all concessionary routes, but saw no need for regulation of transport outside these.

The conflict between the partisans of these alternate means of transport was exacerbated by the general economical situation. The high level of unemployment served to push a lot of people into the motor-transport business. The resulting competition was harsh and drove down the prices of these services to next to nothing. The problems of orderly competition between the railway and the automobile were

---

<sup>45</sup>Thomas P. Hughes: *Networks of Power - The Electrification in Western Societies 1870 - 1930*, The John Hopkins Press, Baltimore 1983. Wiebe E. Bijker, Thomas P. Hughes og Trevor J. Pinch: *The Social Construction of Technological Systems - New Directions in the Sociology and History of Technology*, MIT-Press Cambridge, Mass. 1987.

<sup>46</sup>Bjørnland 1989, page 139.

---

compounded by the problems resulting from the fierce competition between individuals and firms in the motor-transport trade.

In 1934 a new committee was appointed. This time it was asked to evaluate the whole transport situation. It came up with the draft for what was to be the first comprehensive act covering the whole field of transport. While the commercial motor organizations begged the authorities for immediate guidelines regulating the trade before they all went bankrupt, the committee's proposal was not presented to Parliament before The Second World War. The work of this committee was to be an important premise in the shaping of post-war transport policies.<sup>47</sup>

The number of cars increased rapidly in inter-war period (1920 - 1940). Their use falls into two categories: leisure activities of the well-to-do and commercial transport of all kinds. The growth in the leisure sector was constrained by the poor economic outlook for the ordinary citizen, and this use of the car did not become a widespread phenomena before 1940. The commercial use was, as we have seen, an entirely different matter. This became the main target in the political debate. The intensity of this conflict is indicated by the committee's conclusions. While there was a kind of agreement in 1920, the conflicting recommendations of the committees of 1930's presented an insoluble problem.

While the focus before 1920 had been directed towards the regulation of the individual driver and his car, the attention now became directed to the car as a means of transport and its use and potentialities; the car as a competitor with the railways. This shift from the individual to the structural is evidence of the impact of the car on society, a shift the authorities for different reasons seemed unable cope with. The trade organizations appealed for regulations, "before they all went bankrupt", but Parliament chose compromises or non-involvement. This can partly be explained by the turbulent political situation, characterized by coalitions and minority governments.

While the period before 1920 had been characterized by attempts to limit traffic, in the inter-war period the authorities tried to figure out how to handle the opportunities and problems involved. The Directorate of Highways lobbied for more roads, the railway supporters for restrictions on car transport. Even if a kind of institutional build-up was carried out, no coherent policy for cars evolved. The best that can be said is that the authorities followed a hit and miss, or wait and see strategy.

---

<sup>47</sup>Bjørnland 1989, page 145-149.

---

### 1945-1960: A Problem for Planners

The historian Berge Furre has labelled the years between 1952 and 1977, the "The Socialdemocratic Order".<sup>48</sup> What happened to Norwegian society in the first post-war years may be summarized under the following headings: Reconstruction after the ravages of the war, the ideological and functional dominance of The Socialdemocratic Party (DNA), DNA's attempts to create a variant of a planned economy, the party's desire for rapid growth and the political breakthrough of a new profession, the economists.<sup>49</sup>

If we move from general politics to transport policy, we can recognize the same fundamental elements. The Government and The Ministry of Transport approached the area of motorized traffic simultaneously from two different angles: motor transport was a part of the system of production and exchange which was the central and strategic element in the comprehensive system which made up the planned economy. The Ministry also regarded private cars as luxuries and a burden on the national, and consequently perceived private ownership and use as something to be limited. The import and sale of cars for private use was restricted until 1960.<sup>50</sup>

The establishment of the Ministry of Transport in 1946 underlines the new weight assigned by the government to transport in the rebuilding of the country and the achievement of rapid economic growth. The new Ministry set about establishing a planning and guiding apparatus that was to coordinate, regulate and control all types of transport, at both national and local levels. This resulted in a comprehensive set of regulations for transport.<sup>51</sup>

In a contemporary information sheet from the Ministry we can examine the political visions of the Government:

*"One must seek to shape effective, smoothly functioning and economic unities to serve our transport needs. But only in the absolute necessary number. The communication sector competes with other economic activities for capital and labour, and it must not be allocated more*

---

<sup>48</sup>Berge Furre: *Vårt hundreår. Norsk historie 1905 - 1990*, Oslo: Det Norske Samlaget, 1991, page 248.

<sup>49</sup>Furre 1991, page 249-251.

<sup>50</sup>Bjørnland 1989, page 151-152.

<sup>51</sup>Stortingsmelding nr. 101. *Om samordning av samferdselsmidlene*, page 2-5.



---

*than it needs. To avoid harmful competition, one must coordinate and rationalize."*<sup>52</sup>

This quotation underlines the difficult situation caused by the war. But in addition there were more exciting aspects:

*"Coordination is necessary on all scheduled routes and on all distances. The timetable of the totality of the means of transport has to be coordinated. In addition, all rates and fares must be harmonized."*<sup>53</sup>

According to the Ministry of Transport all transport was to be regulated down to the minute details of timetables, fares and prices and the determination of means of transport:

*"The coordination of communications has as its (central) assumption that each means of transport has one optimal way to fulfil its task. If this proves not to be the case, the authorities have to choose the means of transport for each distance."*<sup>54</sup>

We can derive from our quotation a feel of the ministry's vigorous planning ambition and its wish to coordinate and literally and in detail, regulate all aspects of transport. Today this seems bizarre.

Taking a closer look at this Ministry handout to see if we can find indications of a policy covering the private use of cars, we find nothing. If we pursue our search and look through central political documents produced by the Labour Party in the years 1950 to 1959, the result is the same. In *the government's Long Term Programmes* and *The Working Plans*, the necessity and utility of an effective and suitable transport network is stressed, but we find also here very little about private cars. This is in itself remarkable as more than 10 000 new cars were sold each year, the demand for cars was high and growing all the time, and the press did not tire of describing the private car as the new and superior solution to the nations transport problems. This example is from 1954:

*"Owing to the Government's policy we cannot follow the development in other countries".*<sup>55</sup>

---

<sup>52</sup>Opplysningskomiteen for gjenreisningsarbeidet: *Norges gjenreisningsproblemer Nr. 11*, Oslo 1947, page 11.

<sup>53</sup>Ibid, page 14.

<sup>54</sup>Ibid, page 15.

<sup>55</sup>*Verdens Gang*, 4/11 1954.

---

In the party's working plan for the period 1958 to 1961 one can see some signs of change. In this large document, written in 1957, we find one line where the increased use of cars and the need for better roads is remarked upon.<sup>56</sup>

Between 1934 and 1960 import and sale of private cars was strictly regulated. In the years before 1940 the restrictions were partly prompted by the difficult economic situation of the country and also partly in order to protect a small car industry based on assembly. When these restrictions were continued after 1945, the reason adduced was the balance of payments situation. The country could not afford the costly import of private cars. The country's limited foreign currency reserves had to be used for more necessary of imports. However, restrictions on the import of other types of consumer goods were removed in 1952. Capital goods were gradually followed the same way. Lorries were "freed" in 1952. The restrictions on private cars were retained.<sup>57</sup>

Each year the authorities established fixed quotas for the maximum numbers of cars to be sold. To buy a car you needed a permit and to get a permit you needed a good reason. Medical doctors, senior civil servants and salesmen had no problem in getting their permits, while ordinary people would often have to wait for years to get theirs.<sup>58</sup>

While this restrictive policy caused few problems in the 1930's and 1940's, the growing prosperity among ordinary people in the 1950's changed this situation. People wanted to buy more costly goods, and they wanted cars. This vigorous demand and the restrictive policies pursued by the authorities, gave rise to an extensive black market, old wrecks were sold for high prices and cars were imported illegally. A newspaper expressed the general frustration in this way:

*"The Government's restrictive policies are turning the car into a luxury commodity."*<sup>59</sup>

The governments two approaches to motorized transport, as a part of the planned economy and as a private luxury must be related to the experiences of the inter-war years. Besides, the foreign currency argument was founded on what was for the

---

<sup>56</sup>The Socialdemocratic Party: *Arbeidsprogrammet 1953-57*, page 41. Stortingsmelding no. 67, *Langtidsprogrammet 1958-61*, page 62. The Socialdemocratic Party: *Arbeidsprogrammet 1957-61*. Stortingsmelding no. 62, *Langtidsprogrammet 1954-1957*, page 181.

<sup>57</sup>Bjørnland 1989, page 151-152.

<sup>58</sup>Ibid, page 195.

<sup>59</sup>*Norges Handels og Sjøfartstidende*, 26/8 1953.

---

government, a very real problem right up to 1960. The aid through the Marshall Plan eased the situation in the period 1948 to 1952. But there was a currency problem right into the late 1950's, then as a result of the very heavy industrial investments which characterize the period.<sup>60</sup> The currency problem in combination with the focus on industrial growth caused the government and their planners to restrict the import of goods and machinery that did not serve reconstruction in the immediate post-war period and the sustained, long term, effort to build a heavy industrial component to the Norwegian economy. However these vigorous attempts to regulate the economy, including the restrictions on the private car must also be related to another phenomenon.

We have already noted that the first decades after the peace have been labelled "The Socialdemocratic Order", and also that these years were to be a wonderful period for a new profession, with close connections to the Labour Party: the economists. During these years they moved into Norway's "corridors of power". They were formulators of public policies, they shaped political ideology, and were the executors of economical and social planning. The new political universe was the economist's universe. The historian Berge Furre characterizes contemporary thinking as follows:

*"(...) the right solutions could be found by professional knowledge. The belief in experts and expert guidance was typical for this political project. The economist would in principle find the appropriate economical policy. Society was like a machine functioning at its best when guided in the right way."*<sup>61</sup>

The Norwegian economic school was macro-oriented, much influenced by Keynes, and their tools were a mixture of long term planning, national budgets and econometrics. They held the firm belief that the economic life could be managed according to knowledgeable insight and rational calculation. In their eyes a new rationality had to be shaped, and this rationality had to put its stamp on politics and administration. And it really did. The Minister of Finance, Erik Brofoss, was one of the central economists of the Oslo-school.

---

<sup>60</sup>Tore Jørgen Hanisch og Even Lange: *Veien til velstand*, Oslo: Universitetsforlaget, 1986.

<sup>61</sup>Furre 1991, page 250.

---

For the economist cars were a part of the comprehensive planned system of "ins and outs".<sup>62</sup> By the beginning of the 1950s the dominant Labour party had plotted the course to be taken and decided both ways and means. However, other actors came to challenge their policies. We shall look at some of these.

In 1951 a conservative member of Parliament asked:

*"Has the Government made any inquiries related to the damages caused by the inadequate import of cars. And has the need for vans and private cars been analyzed?"*<sup>63</sup>

In 1956 Erling Pettersen, another conservative - also an economist, made use of the usual Labour rhetoric when he argued for more private cars:

*"The car is not only a consumer good, it is also a means of production. We have achieved a considerably higher rate of production in our country. That implies a more intense level of activity. More than ever, we are concerned with saving time, which engenders higher production. In this connection the car is a vital element."*<sup>64</sup>

However well founded their arguments may have been, the non socialist opposition was weak and divided, and, although their voices were no doubt heard, they were not taken into account.

Commercial interests lobbied continuously to "free" the car. They addressed the politicians and articles were written in the press. But they lacked a stable, encompassing organization that could coordinate the different trade associations. In addition, what we may call the motor interest was relatively small and lacked the economic clout which characterized the dominant pressure groups which sought to influence the politicians. James J. Flink has shown how the car producers in the USA were a crucial factor influencing federal car and road policies.<sup>65</sup> The lack of a substantial car industry explains in part the political weakness of the "car lobby". All things considered, the impact of the efforts of the trade to free the Norwegian car market seem to have been insubstantial.

---

<sup>62</sup>Stig Kvaal: *Drømmen om det moderne Norge - Automasjon som visjon og virkelighet i etterkrigstiden*, STS-Rapport, Senter for Teknologi og samfunn, UNIT, Trondheim 1992, page 28-29. Trond Berg and Tore Jørgen Hanisch: *Vitenskap og politikk, Linjer i norsk sosialøkonomi gjennom 150 år*, Oslo: Aschehoug & Co, 1984. Trond Bergh: *Arbeiderpartiets styringsfilosofi etter krigen*, LOS-senter Notat 87/10 1987, page 6.

<sup>63</sup>St. forhand. 1951, Spørsmål fra Granum til finansminister Erik Brofoss, Oslo 1951, page 2568.

<sup>64</sup>St. forh. 29.mai 1956: *Om avgifter ved overdragelse av tidligere registrerte kjøretøyer*, page 2034.

<sup>65</sup>Flink 1988, page 373.

---

The drivers associations on the other side, seem to have been more successful in their attempts to affect the policy. The most powerful of these organizations was The Norwegian Automobile Association (NAF). Its membership rose from 10 000 in 1945 to 100 000 in 1962.<sup>66</sup> These organizations used various means to promote their views. NAF's periodical, *Motortidende*, was one of them. Each member of NAF received it regularly, which made the periodical a vital medium for the propagation of information and influence. NAF fought the restrictive policies, also making quite clear their own views on the question of cars. In the January 1950 leading article we may read:

*"The Position of the car for Transport - A Lever for Material and Cultural development."*<sup>67</sup>

In November the same year:

*"Top speed in reverse - Norwegian Transport 1950 - "*<sup>68</sup>

In December 1955 the leader expressed:

*"It is Christmas - a time for good wishes, warm thoughts, reconciliation and peace. We, the members of NAF, wish each other a Merry Christmas. We are scattered all over the country, but tied together by common interests and duties which have the same overriding purpose: To make Norway a better country to live in. Motoring is not a hobby nor a luxury. For most of us it is part of our daily work and (our contribution to) our society's well-being."*<sup>69</sup>

*Motortidende* had, in addition to its political contributions, informative articles about the treatment of cars, the best routes for travellers, suggestions as to car use during holidays, insurance, highway codes, and so on. A large and growing part of the Norwegian population was thus unified and incorporated into a network and a motoring brotherhood. NAF acted both as a political instrument and a producer of ideology, the target of their assaults were the Government, The Ministry of Transport, and transport policy in general. NAF served to link the different car interests, building a common front. Thus the association came to be an unofficial spokesman for the car

---

<sup>66</sup>Jorun M. Stenøien: *Bilens forlengede arm - Norges automobilforbund og norsk bilpolitikk etter 1950*, STS-notat, Senter for Teknologi og samfunn, UNIT, Trondheim 1991, page 12.

<sup>67</sup>R. Åstrøm: "Bilens plass i transportapparatet - En løftestang for materiell og kulturell utvikling", *Motortidende*, Nr. 1, 1950.

<sup>68</sup>Hans Bull Øvrevik: "Full fart aktover - Landeveistransporten i Norge i 1950", *Motortidende*, nr 11, 1950

<sup>69</sup>*Motortidende*, nr. 11, 1955.

---

trade interest. Finally, a most important function of NAF was to be an tool in the education of the motoring public, teaching both car owners and the hopeful would-be owners the cultural codes and rules for motoring.<sup>70</sup>

There were other and more important actors in the field. In 1951 The Director of Highways, The Council for Highway Traffic and The Norwegian School of Technology jointly addressed the Government requesting that transport economics should be established as a field of study. A committee was set up, and in 1956 it concluded that there was a need for both education and research in the field. While no specialized education was initiated, the Institute for Transport Economics (TØI) was established in 1958. The economist Robert F. Norden from the Treasury was appointed as its first chairman. The institute was the first scientific body working in the field of transport and came to be central in the shaping of transport policies and planning in the years which followed.<sup>71</sup>

TØI became an expert milieu dominated by two professions, traffic-economists and traffic-engineers. Even if, in the early years, research and planning came to be dominated by the economists, the technological side of transport did gradually become the main focus of the work done there. This was due to a development which the Government for economical reasons, tried avoid. The number of all types of cars in 1946 had been 97 000, in 1960 there were more than three times as many, approx. 337 000. In addition one must consider the the more intense use the cars were being put to. Collective means of transport had in 1946 accounted for about 75% of all passenger traffic, in 1960 they only accounted for 52%. The simular figures for private cars were 24% in 1946, and 41% in 1960.<sup>72</sup>

The situation was therefore that the increase of cars in spite of the severe restrictions imposed in these post-war years had, nevertheless, proved too great for the system of roads which had been shaped in the pre-war years. The problem was now not only how to make new and wider roads. The quality of the roads, their surface, crossings, tunnels and bridges also had to be considered. In practice, this meant that specialist attention was increasingly directed to finding technical solutions to the problems of road transport, to the nitty-gritty of modern road construction.

---

<sup>70</sup>Stengøien 1991, page 14.

<sup>71</sup>Ivar Sørli: *Transportforskningen gjennom tre ti-år*, Oslo, TØI, 1988. Otto Chr. Hiorth: "20-års transportforskning", in *Samferdsel* no. 1, 1979.

<sup>72</sup>NOU 1984:6 *Personbilpolitikk*, Oslo: Universitetsforlaget, 1984, page 31.

---

We have seen how, in the pioneer years, roads had functioned as informal allies to the opponents of cars. Now they were, so to speak, allied to the forces that furthered the advance of motor-traffic. The Government had to face the new problems and deal with them adequately: how to achieve a better flow of the increasing traffic, how to remove bottle-necks in the road system, how to improve surfaces, and so on. The nature of the problems to be solved forced a gradual shift of focus from the economics of motoring to the technological problems posed by mass motoring. The day of the engineer had come.<sup>73</sup>

This shift had already taken place in the USA. By the early 1950's a new sub-profession, the traffic-engineer, had defined itself and achieved a central position. As there was no specialized education of this type in Norway, Norwegian specialists in this field were trained in America. The first was Arne J. Grotterød, an engineer employed by The Directorate of Highways. He had his education at The Bureau of Highway Traffic in 1955. Grotterød has described his stay in America:

*"I got several American friends. They had had their first car before the age of sixteen. I was surrounded by this milieu (...) was introduced, both practically and theoretically into a modern motoring society, (...) I saw at once that this was the way which the Norwegian society would go".<sup>74</sup>*

Later Grotterød became one of the most influential persons both at The Directorate of Highways and as a leader of several large planning projects. The type of expertise exemplified by Grotterød, became typical in the Institute of Traffic Economy. The specialists we found there were mostly first trained and socialized in America, for thereafter to find their place in TØI or at The Norwegian Institute of Technology.<sup>75</sup>

These experts, the traffic-economists, which was economists that had specialized in the field of transport, and the traffic-engineers came to be the new expertise to solve transport matters. They were to move into all types of committees, planning projects and all the way to the office of the Minister of Transport. In 1960, the first leader of TØI, Robert F. Norden was appointed Parliamentary Secretary for the new Minister of Transport, Trygve Bratteli. This new type of experts came to be the real agents of "modern transport".

---

<sup>73</sup>Thomassen 1991. Sørli 1988, page 2. Hiorth 1979, page 4.

<sup>74</sup>Interview with Arne J. Grotterød, Oslo 1990.

<sup>75</sup>Thomassen 1991, page 51-53.

---

This change of focus and expertise for transport matters can clearly be traced in documents produced in these years. In a workingpaper that was to shape the transport policy of DNA in the early 1960s one can read the following:

*"There is no doubt that it will be of benefit to put more efforts on investigating traffic and long term planning. The apparatus that is needed to carry out these functions must as soon as possible be established in the Ministry, in the directorates, in the municipalities and at the research institutions".<sup>76</sup>*

The period between 1950 and 1960 seem to represent an important phase in the development of the motor car as a domestic, mass-phenomenon in Norway. Initially the Ministry of Transport and the Government handled the complex using concepts inherited from of the interwar years. The car was to find its place in the government's model of a planned society. Cars were primarily to serve for transport in the service of trade and industry, they were a factor of production, an element in the national economy, a factor in the big sum of means and ends. Private cars were considered in this context. They were a luxury and a burden on the nation's balance of payments. It is possible to argue that the labour government did not have ideological or conceptual room for the private use of cars. However, even if the government did manage to uphold the restrictive regime until 1960, its whole understanding and management of cars was undermined during this decade. The general public's demand for cars was very strong. People wanted cars, and the restrictions were evaded in different ways. A black market was a result. People could increasingly afford to buy and use cars. Car-ownership was no longer an indication of wealth or a special addiction to motors. Labour's voters had also taken to motoring.

The motoring organizations and the trade associations actively promoted their product in their various periodicals and in the press. This promotion of the car as the modern means of transport was reinforced by the general cultural trends of the period as they are expressed in contemporary film, the glossy press, popular music and in fashions. Of greater importance was the creation of the new, specialized research institutions with their experts which challenged the hegemony of the economists in the planning process. The cooperation between economists and engineers at the TØI, and the influence of these on the Ministry of Transport, can be said to have

---

<sup>76</sup>Workingpaper to presented for the Panel of Transport(DNA) in connection with the creation of Working Plans for DNA 1962 - 1965, Oslo 1960, page 13.



---

established new parameters for the handling of the problems of transport and the possibilities opened by the private car. The regulating institutions were transformed according to the needs of the motor-age, and the new link between politicians, researchers and The Directorate of Highways gave shape to policies that included cars in their underlying model for a Norwegian society.

As I have already shown, the restrictive policies were kept in force until 1960, even if the pressures on the government to rescind these were becoming quite formidable. The steadfastness of the government's resistance was primarily due to its allegiance to a labour ideology.

### **1960-1970: The Good Life**

In 1960 the Labour Party regime was at its strongest. The government seemed to have succeeded in giving shape to a prosperous, regularly organized, industrialized, and modern, society. Which was what they had promised. The Labour Party's self-confidence is very evident in their political programs. In a pamphlet produced by the party in 1960, we find:

*"The decade we now are entering was baptized already at its birth. It was named the golden years. The car and the Television stand out as symbols of the new level of prosperity we are now in process of achieving."*<sup>71</sup>

With the 1960's we register a change in government car policies and attitudes. In October 1960 the restrictions on the import and sale of cars were removed. Soon it was evident that for Norwegian social democracy, the car, from being a luxury and a burden on the balance of trade, was now seen as beneficial and a positive symbol of modern society. The new policies were to adjust the environment to use of cars. Society was to be adapted so as to better serve traffic. This sea-change finds expression in three major departures: firstly, in the growth and transformation of the institutions regulating traffic; secondly, in the new laws passed by the Norwegian parliament, and thirdly, in the government's initiative to elaborate several comprehensive plans for highway traffic.

In 1962 The Directorate of Highways was re-organized. Two new departments were established, the planning office and the office for technical rationalization. In

---

<sup>71</sup>"Våre oppgaver 1962-65" - a note for discussion, The Labour Party, written for the party's annual meeting in 1962, page 7.

---

addition a new deputy director, the technical director, was appointed. The number of people employed at the Directorate doubled between 1948 and 1965.<sup>78</sup> These changes, with their weight on planning and technical matters correspond to the changes which we have already described. The problem now was not how to secure adequate financing for road projects, but the hard slog to find adequate technical solutions so that the national road system should be able to cope with the continuously increasing traffic. The new highways had to be built according to the standards of the motor-age. These standards were in part international but were also a product of the work carried out at TØI. The Highway Capacity Manual of the American Bureau of Public Roads, became a sort of "bible" for many of the engineers responsible for the technical planning of highways.<sup>79</sup> We see here an example of American influence in the shaping of the pattern of Norwegian motoring.

It could perhaps at this point be tempting to describe the engineers as agents of modernization with their visions of Norwegian social development evolving along the lines of American post-war society. "The Norwegian Dream" had many points of resemblance with "The American Dream".<sup>80</sup> We shall refrain from doing so.

The increase in number of employed and organizational changes of The Directorate of Highways had its parallel in the growth and the change in the professional composition of the personnel of The Institute of Transport Economics. The institute employed 3 in 1958, 37 five years later and over 100 in 1970. While the economists represented the professional weight in the first years, engineers came to be the dominant profession in the 1960's.<sup>81</sup> The institute got involved in both research and planning. The research covered transport of all types, but by the 1960's car use and highway planning came to represent the core activities. The institutional changes we have noted at The Directorate and at the Institute bore fruit in new codes and more comprehensive organizational regulations of highway traffic.

A new set of general laws and regulations covering all road traffic were issued in the period 1963 to 1965. the Highway Act of 1963 was followed by General Transport Act the year after and the Road Traffic Act of 1965. These three crucial

---

<sup>78</sup>Bjørnland 1989, page 235.

<sup>79</sup>Interviews with Arne J. Grotterød, Karl Olsen and Ragnvald Sagen, 1990 and 1991.

<sup>80</sup>Per Østby: *Tilfellet Comtec - Fra forskning til industri*, STS-repport, Senter for teknologi og samfunn, UNIT, Trondheim 1989. Thomassen 1991, Kvaal 1992.

<sup>81</sup>Ivar Haldorsen: *Transportøkonomisk institutt 30 år. transportforskningen gjennom tre tiår. 1958-1988*, Oslo, TØI, 1988.

---

pieces of legislation came to cover all aspects of road traffic and transport.<sup>82</sup> The Highway Act replaced the law of 1912. This law had been amended a number of times along the years, but the rapidly increasing investments in roads, the skewed structure of these investments, heavily favouring rural areas, and the stress on the technological solutions - essentially a transfer of power - had made the previous law outdated.<sup>83</sup>

The General Transport Act replaced the law of 1947. Its purpose was to soften the strict regulations covering motor transport. The old system based on the minute regulation of all aspects of transport of "old regime" had long outlived its usefulness. The user had to have the opportunity to choose the most appropriate means of transport. In 1968 Parliamentary Secretary for Transport, Ola T. Ruud said:

*"Experience has showed us that we can not detail-regulate us to efficiency, this is also an impossible task according to the resources needed".<sup>84</sup>*

The Road Traffic Act passed in 1965 had been under elaboration since 1951, and replaced the 1938 Act. According to Gunnar Simonsen, the law was framed to cope with the new traffic conditions and the general, empowering nature of the Act met with Parliament's wish to avoid dealing with the details of road safety.<sup>85</sup> Jorun Stenøien describes this development differently, and referring to the works of Ulrich Beck, characterizes the new law as a change in the regime of regulation.<sup>86</sup> The 1950s had been a period when we can register a general and a political concern with the problems of safety and risk in motoring. In the 1960s this concern was made the business of the administrative and planning locus coordinating work on road hazards and safety. This is so far only a conjecture which can only be verified by further investigation. The focus of attention in the 1960s was also directed at the possibility of building traffic-safety into the very structure of the communication system. Better

---

<sup>82</sup>Gunnar Simonsen: *Transportlovgivning*, Magistergradsavhandling i sosiologi, Institutt for retts sosiologi, Universitetet i Oslo 1972.

<sup>83</sup>Ibid, page 41-43.

<sup>84</sup>Ibid, collected from a speech made by Parliamentary Secretary Ola T. Ruud i Samferdseldepartementet, "Vår vei- og samferdselspolitikk", publikasjon nr. 69 - 1969, Opplysningsrådet for biltrafikken, Den norske veiforening.

<sup>85</sup>Ibid, page 49.

<sup>86</sup>Jorun M. Stenøien: *Å fare eller å frykte? - et regimeskifte i trafiksikkerhetsdiskursen*, STS-rapport, Senter for teknologi og samfunn, UNIT, Trondheim 1992. Ulrich Beck: *Risikogesellschaft. Auf den Weg eine andere Moderne*, Frankfurt 1986.

---

fashioned roads would improve safety standards.<sup>87</sup> The focus on the technical and physical aspects of traffic-safety brings us back to the new importance of importance of the traffic-engineers. In this case control had passed from the politicians and the lawyers in the Ministry. This brings us to our next central point, the attempt to integrate the car into society by means of the construction of an adequate infrastructure.

The initiative for the first comprehensive roadplan in the post-war period, The Norwegian Road Plan 1 (NVP1), was taken by a small informal group of traffic-engineers and traffic-economists cooperating with central personalities from the research milieu, the motoring organizations and the car dealers organizations. Their vision was the creation of a plan which was to improve the existing network and provide new roads for the period 1970 to 1990.<sup>88</sup> NVP1 was conceived as a masterplan, which it in fact also became. It was, at the time, one of the most comprehensive plans ever carried out in Norway. The planning started in 1964 and was finished in 1969.<sup>89</sup> When the actual work started, several of those behind the plan were appointed to direct the work. In addition to the planning committee of six, several engineers from The Directorate of Highways were involved in this work. However, there can be little doubt, that the most central participants in the work with the plan were researchers from The Institute for Transport Economics. They came to represent the professional expertise both in the elaboration of the plans and in carrying them out. Their visions and scientific insight was to be crucial to the plan.

The professional composition of the planning committee was very limited. Only two professions, the engineers and the economists, were represented. According to the chairman, Karl Olsen, planning in Norway had been too casual. It had been ruled by the politicians striving to secure local interests. Planning of the nation's main arteries required "a comprehensive solution". In Olsen's opinion politicians did not understand the needs of the motor age.<sup>90</sup> According to the planning committee, the selection of roads to be built or improved should be arrived at by the employment of rational and objective models. One can get an idea of the vanity and the

---

<sup>87</sup>Ibid, page 44-47.

<sup>88</sup>Interview with Karl Olsen, Arne J. Grotterød og Robert F. Nordén.

<sup>89</sup>Per Østby: *De gylde årene - Massebilisme på 1960-tallet*, STS-Arbeidsnotat nr. 10, Trondheim 1990.

<sup>90</sup>Interview with Karl Olsen, Oslo 1990.

---

overweening aspirations of these master-builders by quoting a statement made by the head of the TØI, when the work with NVP1 was about to start in 1963:

*"We are developing scientific methods that will make it possible to predict the total development of this society, and thus the need of transport in the future".<sup>91</sup>*

Although this has been taken out of a larger context, it does indicate the strength of the ambitions which powered the visions in this group, the belief that scientific methods provide an objective and rational answers to all the material questions and provide a solid basis for the planning and construction of new roads. The resemblance to the thinking of the economists of the 1950s is pretty clear. Mark H. Rose and Bruce E. Seely have encountered a similar attitude among American highway engineers during the early phases of the construction of the Interstate.<sup>92</sup> It was indeed a time of dynamic entrepreneurship and technological enthusiasm.

By 1969, when the Director of Highways (who was also the chairman of the planning committee for NVP1), Karl Olsen, presented the plan to the general public, the shaping of a Norwegian car-based society was in many ways finalized. By the same token, the institutions which had been established to regulate the mass-motorization of the country, had acquired the resources and the expertise they by and large required. The politicians had abdicated responsibility for planning, their role being reduced to countersigning the final product. Planning would be carried out in "the best way", that is according to estimates, cost-benefit analysis and technical evaluations. The planning committee was above politics and ideology, they perceived their work as "scientific" and "objective", above the rough and tumble of politics.<sup>93</sup>

The process which started around 1900 with Herman Krag and the new Directorate of Highways, was continued in the 1950's with economists at the helm and came to a sort of completion in the 1960's under the firm hand of the traffic engineers. We have seen how the approach to motoring changed from a juridical approach to an economic one, and ending up with a concentration on the technological solutions to the problems of mass automobilism. At the same time power to shape and regulate motorin as a social phenomenon passed from the politicians to the economists, and from them to the engineers.

---

<sup>91</sup>Erik Brand Olimb: *Norsk Vegplan - Innledning til diskusjon om et opplegg*, TØI 1963, page 2-3.

<sup>92</sup>Mark H. Rose og Bruce Seely: Getting the Interstate System Built: Road Engineers and the Implementation of Public Policy, 1955 - 1985, i *Journal of Policy History*, Vol. 2, No. 1, 1990, page 25.

<sup>93</sup>Ibid.

---

## Conclusion

From the first introduction of cars in 1900, to their "final" integration into society in the late 1960s, the car was transformed from being a toy for the well-to-do to a boon to most people. By 1960 the car had come to be an almost necessary constituent of the "the good life" of the common man, part and parcel of the "socialdemocratic order". It goes without saying that the imported car underwent in these years a long series of technical improvements. In Norway, the changes were largely of a social and cultural nature. The car was transformed from an alien technical creature to become an integrated part of Norwegian life, permeating all and shaping most: all economic activities, institutional development, the physical environment and social life - becoming at micro level the new "head of the of the family".<sup>94</sup> While Norway at the turn of the century had been a rural nation, it was now a modern industrialized nation, in the 1970s it could be said that it had become a society in the service of the car. The domestication of the car entailed radical changes of social and cultural structures which had been of extreme solidity.

In the introduction I introduced the concept of domestication as one feasible way of dealing with processes of the type we have described in the present paper. We have followed a process over a number of years, focusing on the motorists in a very broad context. It may be seen as an attempt to examine how different "actors" came to appropriate, shape and integrate the use of the car in accordance with their needs, visions and interests. The weight of my argument has directed itself to the institutional side of this process of domestication. Of course, institutions are in no way uniform entities. However, in our case, we believe there is reason to posit a certain uniformity and identity in the leadership groupings.

The process of domestication has been described by Silverstone et al with reference to four sub-concepts: Appropriation, objectification, incorporation and conversion.<sup>95</sup> Appropriation denotes the actual procurement of a car. Objectification, involves finding a purpose for the artifact in question. By incorporation we mean assigning a role to the artifact in everyday life. Finally, conversion is process through which the use of artifact also serves to communicate central values of the owner.

The present paper could well have been organized as a peregrination through through these sub-concepts. The period between 1900 and 1920 may be identified as

---

<sup>94</sup>Jon Sørgaard: *A head of the family? On Automobile's Participation in Shaping Family Life*, forthcoming, 1993.

<sup>95</sup>Silverstone et al 1990.

---

a period of appropriation, when the automobile is first introduced. The period 1920 to 1940 corresponds to the second concept, objectification, where the users learn how to employ the new technological artifacts. The period 1945 to 1960 can be identified with Silversones third concept, corresponding to a phase of incorporation: in these years Norwegian society defined and integrated the use of cars into the fabric of its social and cultural life. Finally the period 1960 to 1970, is readily recognized as a period of conversion: the Labour regime used the car and the television as a symbols manifesting their success and central qualities of the new society.

The usefulness of concepts that are operational at all levels of agregation is obvious, but for the present this set of sub-concepts seem to be more appropriate at the individual level, rather than for institutions, organizations or the nation state. If we consider the various "actors" we have dealt with here: the Directorate of Highways, its director, the Government, Parliament, the political elite, the Labour Party, the roads, the economists, the engineers, the balance of payments, the railways, the Institute for Transport Economics, the motoring organizations, and so on, the whole mixed lot, we can immediately see that the main "actors" are the institutions. They had vital roles as links between the processes of domestication carried out by individuals and the shapers of a national car policy. And conversely these "actors" were instrumental in converting political decisions into action, through planning and practice. To bring this discussion to an end, I will direct our attention towards the roles played by these actors as intermediaries.

At the present incomplete stage of our investigation, I would suggest we adopt labels which could apply to the roles pursued by these institutions in the process of "domesticating" the car. This is solely a prliminary exercise, and the "fit" is bound to be rough and ready at best.

The first obvious role performed by these institutional actors was to act as *initiators*. As we could see from the work of The Directorate of Highways, both under Herman Krag in 1900s and Karl Olsen in the 1960's, The Directorate kept up a level of activity well above what could be reasonably expected of a bureaucratic entity. In both periods The Directorate was, in effect, a dynamic promotor of automobilism. When Krag sent his application to Parliament, it was in part due to his own enthusiasm for motoring, as well as responding adecuately to the many indiviuals who had applied to the Directorate for permits to establish bus-lines. In the same way, when Parliament in 1964 decided to start NVP1, the work had allready been going on for a year at TØI.

---

Another, not so precisely defined role, was to be that of *interpreters* of technology. Both TØI, and NAF, "defined" the car, taught the political elite, the civil service and the general public the meaning of and possibilities inherent in cars. They had a good grasp of contemporary international developments and this insight was used with a clear eye for the special requirements of a Norwegian context.

A third function these institutions had, was that of *intermediators*. This role had much in common with the previous one. In addition to their educational activities, they transmitted necessary information. They established contacts between parties in the Norwegian transport sector and corresponding international organizations and institutions. Staff was sent abroad to collect information and scientific insights. As we have seen, in the early 1950s many traffic-engineers were educated in America. On returning, they not only were agents of technological transfer, but carried also with them visions of a social and cultural transformation.

Lastly they came to implement the important task as *regulators* of technology. This is the most common role associated with modern institutions. When Parliament passed The Road Traffic Act in 1912, it was, in effect, a move to control the new technology. Motoring was sought regulated by removing it from the competence of local authorities and placing jurisdiction with the central institutions. The adjudication between the conflicting interests of motoring and railroads was a new move in the same direction. But it was only in the 1960's that the institutions concerned with motoring and car transport had, in fact, got together organizations adequate to the task. It is only in the 1960's that most aspects concerning the ownership and use of cars finally find their place in a comprehensive national system of control and regulation.

We can end here, with an observation by the late Mr. Trygve Bratteli, a prominent Labour leader who was also to become Prime Minister of the country, which neatly gives expression to the optimistic attitude of the 1960's:

*"The car has given us a means of transportation that in a very substantial way has transformed our lives. It has given man the access to a new more free way of living".<sup>96</sup>*

---

<sup>96</sup>Samferdsel, no. 2, 1964, page 4.