



# EUROPEAN FEDERATION OF MUSEUM & TOURIST RAILWAYS

Fédération Européenne des Chemins de Fer Touristiques et Historiques

Europäische Föderation der Museums- und Touristikbahnen

## **International Heritage Railway Conference**

Helsingborg, Sweden

10-12/05/2012

## **Conference Proceedings**

**Published by:**

**FEDECRAIL – European Federation of Museum and Tourist Railways**

de Akker 25

7481 GA Haaksbergen

Netherlands

<http://www.fedecrail.org>

[contact@fedecrail.org](mailto:contact@fedecrail.org)

**Conference Sponsors:**



City of  
Helsingborg



Insurance Group



Text                   © individual Authors as identified 2012

This format       © FEDECRAIL – European Federation of Museum and Tourist Railways 2012

This document was produced on behalf of the European Federation of Museum and Tourist Railways by

John Fuller, Editor

Heimo Echensperger, Layout

## Content

Please click on the speaker's name to get directly to the presentation or script.

1. **Robert Sjöö** – Keynote  
Director, National Transport Museums of Sweden  
President, IATM International Association of Transport Museums
2. **Jonas Jacobsson Gjörtler, MP** – Keynote  
Deputy Member of Swedish Parliamentary Committee on Transportation & Communications
3. **Jean-Louis Balendraud** – Keynote (not included)  
Secretary-General, French National Tourism Council
4. **Magnus Axelsson** – Transport Infrastructure Planning  
Deputy Director, Ministry of Enterprise, Energy & Communication, Swedish Government
5. **Anders Johansson** – Lobbying and Campaigning for Railway Heritage  
Vice-Chairman JHRF
6. **Sten Erson-Wester** – FEDECRAIL Youth Exchange  
FEDECRAIL Council Member
7. **Christian Albers** – FEDECRAIL Youth Exchange – Past, Present, Future  
Organizer Youth Camp 2009, Germany; Member FEDECRAIL Youth Camp 2009 Working Group
8. **E Bertil Persson** – Conservation in a Cold Dry Climate  
Ex Chairman, Norbotten Transport Museum

**Fedecrail  
2012-05-11**



**TRAFIKVERKET**

### **Three topics**

- Introduction to International Association of Transport and Communications museums (IATM).
- Description of Swedish Transport Administration museum (including Swedish Railway Museum).
- Presentation of the current and burning museum politics concerning the Swedish transport museums.

## International Association of Transport and Communications Museums - IATM

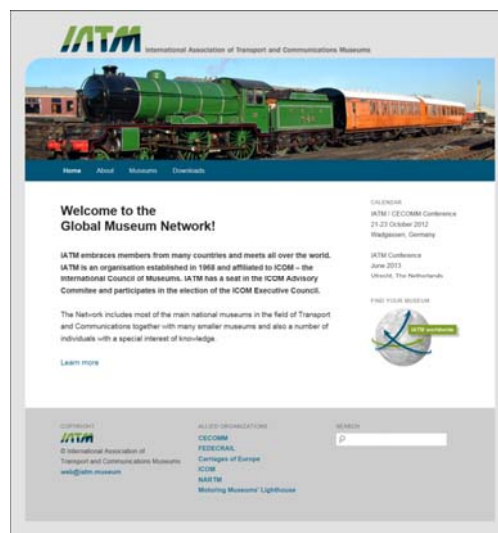


- **Global** Museum network.
- 120 Members from **30 countries**
- **Useful:** Promoting the professional development of staff – fellowship programmes / new website
- **Uniting:** Sharing best practice among member museums – workshops / conferences
- **Universal:** Strengthening the community of transport and communications museums – affiliation to ICOM / relation to Fedecrail

3 2015-04-20



## [www.iatm.museum](http://www.iatm.museum)



4 2015-04-20



## IATM Conference in Utrecht 3-5 June 2013

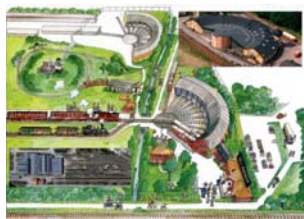
- **Place:** A heavily rebuilt museum on balance between criticism and success.
- **Theme:** The tension between ethics and audience / Museum or amusement park.
- **Three days** including sessions and visits.pre conference tour.
- **General Assembly.**
- **Pre conference tour** 1-2 June.



5 2015-04-20



## Swedish Transport Administration Museums 2011 - world class collections at four arenas



- **Swedish Railway Museum, Gävle**
- **Swedish Railway Museum, Ängelholm**
- **Swedish Road Museum, Borlänge**
- **Swedish Road Museum, Collections, Eskilstuna**

6 2015-04-20



## Main targets

### Collect

- to handle and develop a national collection of artefacts, vehicles and documents from the road and railway sectors.

### Know

- to increase the knowledge of the road and railway history and its importance for the development of society.

### Show

- to bring knowledge of and experience from roads and railways and its significance then, now and in the future.

7 2015-04-20



## Facts and figures

	Swedish Railway Museum	Swedish Road Museum
Turnover	ca 3,8 M EUR	Ca 0,5 M EUR
Employees	ca 35 full time + ca 20 extras	ca 5 full time
Visitor numbers	ca 90 000 (entrance fee)	ca 70 000 (including conference guests. Free entrance)
Collections	More than 400 vehicles ca 1 milj. photographs	Ca 100 vehicles Ca 200 000 photographs
Start	1915	1963

- The museum is a train operator with its own certificate
- Friends of the railway museum (1200 members) supports with work and money for a total value of about 0,5 M EUR

8 2015-04-20



## Strengths



- One of the best railway collections of its kind in the world
- Certificate to run trains
- Engaged staff
- Common interest in history and travelling
- Voluntary resources
- Large buildings and areas
- International reputation

9 2015-04-20



## Weaknesses

- Small and divergent within the Transport Administration
- Defective premises
- Small staff at five sites
- Uneven level of competence within staff
- Large parts of the collections are unregistered
- Too large collections



10 2015-04-20





## Possibilities

- Possible transport perspective
- Extension with civil aviation
- Could be one of the most visited public attractions
- Plans for a Swedish Transport Science Centre



11 2015-04-20



## Obstacles



- Changes of ownership (four in ten years)
- Indistinct mission from the Government
- Little interest from the owner
- Huge investments necessary for both preservation and development
- Internal competition on the resources
- Loyalty of staff is mainly limited to their own locality

12 2015-04-20



## Important 2012-2014

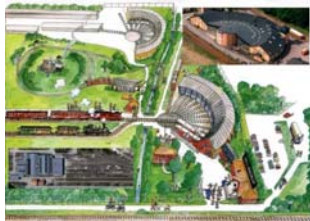
- Explicit mandate from the government
- Well suited premises for the collections
- Sorting out from the collections
- Decision on a long sighted investment plan
- Development of staff
- More obvious connections between history, present times and future
- The public museums must be arenas also for the industry
- Secure and customer oriented rail service
- Maintenance of national and international networks

13 2015-04-20



## Swedish Transport Administration Museums 2012

- From three museums on four sites to one open museum with store



- **Swedish Railway Museum, to be including road history, Gävle**

*Swedish Railway Museum,  
Ängelholm – run by Ängelholm  
municipality from 2012*



- **Swedish Road Museum, collections, Eskilstuna**

*Swedish Road Museum,  
Borlänge – will be closed in 2012*

14 2015-04-20



## Government commission February - April 2012

**long-term solution for culture historical collections from the  
transport field**

### Proposal

- Transfer to the ministry of Culture
- Concentration - As few locations as possible
- Large investments for protection and accessibility
- Transfer of grants and new grants
- Cooperation and external financing

15 2015-04-20



## Collections and museums in the field of transport

- **Railway and Road by Swedish Transport Administration**
  - Swedish Railway Museum in Gävle – world class collection, ca 300 vehicles  
Budget 2012: about 3,5 M EUR. About 30 person-years. 51.500 visitors 2011.
  - Swedish Road Museum from Borlänge to Gävle – collections still in Eskilstuna  
Budget 2012: about 0,5 M EUR. About 5 person-years. Included in STA head office.
- **Civil Aviation by Swedish Civil Aviation Authority**
  - Rent for collections 2012: 0,1 M EUR.
  - Collections, about 50 aircraft, taken care of by volunteers.
- **Maritime and defence history by separate museum authorities** – Swedish National Maritime Museums and Swedish Museums of Military History (The Air Force Museum)
- **The Foundation Science Museum** – Half financed by the state. High class collections of early aircraft and cars.
- **Museums of Working Life** (voluntary run) – Complementary. Museum Railways manage highly valuable collections from narrow gauge railways in particular.

16 2015-04-20



## Instruments for the museums

- **No Museum Law** in Sweden.
- The Heritage Conservation act only for **ancient monuments** and another act for **historic buildings**.
- Museums worldwide follow **ICOM's definition of museums**. Non commercial, long-term, connected to society, enjoyable learning.
- Swedish Transport Administration has not been given **either a heritage or a museum mission** from the government.

17 2015-04-20



## Facts and comparisons

- The majority of museums belonging to the state are financed by the **Ministry of Culture**.
- **The Transport Administration Museums** (ca 4,3 MEUR) together **cost less than the Swedish Army Museum** (ca 5,4 MEUR) which is a department of The National Swedish Museums of Military History.
- The **Swedish National Maritime Museum** is one of the museum authorities which get **most national grants** (ca 12,6 MEUR)

18 2015-04-20



## International overview

- **Transport museums** - Few (Germany, Switzerland and Hungary). Variation in size and quality. Space and speed factors of success.
- **Railway museums** - in most western European countries. Connections to national train service or manager of infrastructure. Many developments during last ten years.  
– Large collections. Popular and quite good visitor numbers. Many operate trains.
- **Road museums** - around the Baltic. Strong connection to national road administration. Small means. Relatively unknown and low visitor numbers. Norway is an exception.
- **Car museums** - Private. Often popular. Seldom interpretation or conservation of collections. Large brand museums in Germany.
- **Civil aviation museums** – over shadowed by the air force. No museums for civil aviation. Low interest from the audience for civil aviation history.

19 2015-04-20



## Reasonable protection for the transport heritage

- **A clear mission** – possible long-term plans and no risk for ad-hoc changes. – *missed today.*
- **Basic grants** – a guarantee for protection and basic access to the collections. – *not satisfactory today.*  
- Investments in buildings and new staff. – *possible after concentration of the operation within present level of grants from the Transport Administration.*  
- Rent of hangar for the aviation collection. New grants.
- **Buildings suited for their purposes** - controlled climate, fire safety, acceptable work environment, burglar protection – *not satisfactory today.*
- **Staff with special skills**, conservation, documentation, maintenance and use of the collections – Concentration of staff from railway and road, partly used for aviation. New staff for aviation – *too spread today and non existent for aviation.*
- **Decided plans for collecting and out sorting** – development of collections. *Started project for railways.*

20 2015-04-20



## Transfer to ministry of culture for better protection of the collections

- **Ought to be run as an authority.** Foundation, company or society is not suitable.
  - Foundation demands a huge capital.
  - Low percentage of own income unsuitable for a company.
  - Too large operation for a society.
- **Alternative for the Ministry of Culture**
  - **New museum authority** for the heritage from railway, road and civil aviation.
  - Extended mission for **Swedish National Maritime Museums**.
  - **Science Museum** run the operation for the state on agreement.
- If the operation remains or extends at the **Swedish Transport Administration** a **clear mission and exclusive grants** are necessary.

21 2015-04-20



## Concentration brings value for money

- **Curatorial responsibility and coordination** for the transport heritage based on the present organisation at Swedish Railway Museum.
- **Public museum for railway and road** history including cars as an extension of Swedish Railway Museum Gävle.
- **New museum for civil aviation** at Skavsta airport (Nyköping).
- **Accessible stores** for road in Eskilstuna and railway in Gävle.

22 2015-04-20



## Investments for long-term protection and extended access

- **Improvements and new buildings for road and railway** of about 11 M EUR brings an annual cost of 0,9 M EUR for writing off over c5-20 years.
  - stores for vehicles and objects
  - climate controlled archives
  - workshops for maintenance and restorations
  - new entrance and public spaces
  - new main exhibition
- **Properties and tracks will remain** within the Swedish Transport Administration.
- **Neglected maintenance** of buildings and tracks will be considered besides the investments for development and before possible change of owner structure.
- Investments for a **new aviation museum**.

23 2015-04-20



## Transfer of grants, new grants and possible external financing

- **Annual grant** about today's level, **4,5 M EUR**, transferred from the grants to Swedish Transport Administration for the transport heritage and a museum for railway and road.
- **New annual grant, 1 M EUR**, for a small museum for civil aviation
- Look into the possibility of **heritage fee**, as part of the fee for the infrastructure paid by transport operators.
- **External financing** only for the public operation.

24 2015-04-20



## Conditions for development, cooperation and added value

- **Development in Gävle / Regional Transport Science Centre**
  - extension from the Railway and road museum or partner. Cooperation with the regional and local authorities.
- **Agreement to use the collections from Science Museum**
  - cars can be shown in Gävle and aircraft at the new aviation museum.
- **Museums of working life (as the museum railways),**
  - a mission to support the voluntary run museums which also brings exchange of ideas, skills and resources.



## Fedecrail Conference Speech

*Helsingborg 2012-05-11*

Dear Sirs & Madams,

I thank you for giving me the opportunity to come here. And I would also like to seize the opportunity to welcome you warmly in Helsingborg.

In this town, transport, logistics and communications are very important, due to our position. Denmark is only 4 km from here, across the strait. We have a big harbour, the second largest container harbour in Sweden. We have a junction between two big European motorways, E4 and E6. We have the West Coast Railway, a railway line that links Oslo and Copenhagen.

There is a local airport 20 minutes away, and by train, we are able to reach Copenhagen airport, the biggest Scandinavian airport, in an hour. So Helsingborg is a turning plate for transports and there are good prospects for something that is currently much talked about – intermodality – the opportunity to switch between different means of transports.

My name is Jonas Jacobsson Gjörtler, I am Member of the Swedish Parliament. That means that I spend a lot of time in Stockholm although Helsingborg is my hometown. I got involved in politics at the local and regional levels, within Helsingborg City Council and Skåne Regional Council. In the 7 years before being elected in Parliament, I have however worked in the industrial sector, as a consultant.

In Parliament I am member of two committees. The Committee on Industry and Trade, which is my main committee, manages policies for Industry, Energy, Trade and other related subjets, as well as questions related to competition and Publicly owned companies. My main tasks in Parliament is to work with energy, competition and public companies.

The Committee on Transport and Communication, where I am a deputy member, manages all questions related to communications. This means that the Committee works on matters related to transport infrastructure, roads and railways, transport by sea and by air, traffic, vehicles, but also matters related to information technology, telecommunications and mail.

Matters related to the preservation of railways heritage are mainly dealt with by the Committee on Transport and Communications, but it is not always the case. Matters linked with cultural heritage, for instance, are managed by the Committee on Cultural Affairs and those related to tourism by the Committee on Industry and Trade.

I will briefly remind you the way by which railways developed in Sweden and Skåne, before dealing with some current affairs and infrastructure investments made by the government. I will speak of the many advantages of rail and railway transportationa from a societal

perspective and describe our view concerning railway preservation and some of the recent decisions by the Parliament in that area.

The infrastructure of Sweden has been, is and remains extremely important for the future of this country. Sweden's rather small population is spread over a rather large area and so are our natural resources. The many advantages of railways became obvious in the middle of the 19th century. The industrial revolution took off here at that period and the construction of railways in Sweden goes back to that period.

Railways made possible a quicker and cheaper freight of heavy goods over long distances, which further developed industrialisation. So from the second half of the 19th century and onwards, railways expanded in Sweden, as in many other countries. Some lines were built by the State but many others were built by private railway companies – especially here in Southern Sweden.

Railways have changed society in many ways. In the past, we used to have different time zones in this country, but with the improvement of the railway network, it was not convenient anymore. In 1879, Sweden was the first country to adopt legislation giving us one time zone, known as standard time.

People became more mobile and travelling was easier. New grounds were cleared to make way for the railways and natural resources such as wood, and iron could be carried over long distances.

Railways developed over several decades and the Swedish railway network reached its pinnacle in 1939. From then on there were decades of traffic reduction, of track closures, before new measures were adopted and traffic went up again during the 1990s.

Historically, Skåne, this region, enjoyed the densest railway network in the country. Many railways disappeared over decades in the second half of the last century. The last 20 years has nonetheless brought a renaissance of railways and for the first time in decades new tracks were built in Skåne: the West Coast Railway, which I mentioned before, benefits from a new line between Kävlinge and Helsingborg via Landskrona.

A new line between Malmö and Copenhagen was built together with the new bridge between Sweden and Denmark. Significant efforts were also made to develop regional railway services on the existing network.

In the 1990s, railways enjoyed a renaissance in Sweden, with newly renovated tracks and more players on the market. We want, from the political sector, more people to travel by train and that freight increasingly use railways. An increasing number of railway companies with access to the rail network increases opportunities for innovating transport solutions.

The role of the State must be to ensure that railway companies enjoy a high safety level, that traffic is smooth and safe and that the distribution of routes and time slots is made in an effective way.

Transport companies are best placed to develop traffic. Freight transportation was the first sector to deal with a competitive market but today competition is found in every area of the railway sector in Sweden. The objective is to boost the development of a railway solution that best answers the needs of the travelers.

Interest in travelling by railway is increasing. The development of our commercial exchange with the outside world goes together with the increasing need for transport. Railways allow people to find work further away, as well as go to school, visit relatives or travel to cultural and recreational activities further away.

To travel by rail is safe, efficient, quick and easy. It is also good for the environment. One example from that point of view is the line between Malmö and Ystad that was electrified in 1996. Two wind turbines next to the tracks provide the electricity that the trains need.

An increasing demand for railway transport raises the need for infrastructure. This is why the government works intensively on the consolidation of the capacity and robustness of railways.

We think that railway traffic in Sweden shall be characterized by its quality and its punctuality. We need to be able to rely on trains to leave and arrive on time. Since this Government, called "the Alliance", took over in late September 2006, we have made one of the biggest investments in infrastructure in history.

We invest nearly 500 billion kronor – or nearly 50 billion Euros – to upgrade the infrastructure system over 11 years – and we have especially increased investments in railways. They have been neglected for too long and the need for measures was huge. A large proportion of funds goes to the operation and the maintenance of the existing system. We have also increased preparation for winter difficulties and work hard on replacing old track items and eliminating bottlenecks.

Last year, the Government trusted the Swedish Transport Administration with the task of carrying out a big survey on infrastructure needs – a survey on capacity. In that survey, that has just been published, the Swedish Transport Administration underlines that the most important improvements can be achieved by investing in the current network. In the coming Autumn the Government will present a new proposal for infrastructure greatly inspired by the conclusions of that capacity survey.

Many people commute daily to their work by train, and Swedish industry and trade rely heavily on railways for importing and exporting goods and cargos. The demand for passenger and freight transport has increased in the last decades. Compared with previous years, we

now have altogether doubled the funds for railways investments and increased the operation and maintenance funds by more than 25%. And for 2012 and 2013, we inject an extra 5 billion kronor – that's half a billion Euros – for the running and the maintenance of tracks and railways.

Preservation societies of railway heritage have a special status. You keep alive cultural heritage while contributing hopefully to generate interest in the railways among younger generations.

Over 50 years ago, the first preservation society for railway heritage was created in Sweden. It was the third in the world. After a cautious start, the number of associations has kept increasing. Nowadays, there are about 20 such associations in Sweden. Those societies vouch for the preservation of heritage and knowledge whilst also contributing to the tourism industry in Sweden.

We see it as our task to provide the necessary conditions so as to ensure the long term viability of those associations. We want to keep encouraging volunteers by making their commitment easier.

One way to succeed in this is to make sure that associations are not under the common railway legislation, which implies that they are free from most of the rules and fees that plague ordinary railways. This means among other things that ERTMS and the pricing of the railways infrastructure do not apply.

For associations of preservation of railway heritage that use the main network, conditions are slightly different as the infrastructures are subject to the railway legislation. The Transport Council is currently considering the best way to design rules so that they do not entail negative consequences, but that work is however not completed.

Parliament has decided – before the current parliamentary session – on changes to the legislation following a European directive on interoperability of railway networks throughout the EU. Preservation societies are exempted from those requirements, which is beneficial for them.

Parliament has also made a decision, during this parliamentary session, regarding the costs of the Transport Council's activities. The Council has approved the exemption of railways preservation societies from the general rule of the principle of total costs in the payment of fees. This means that the Transport Council will take into account volunteer association, will invoice a lower hourly rate and there will be a maximum on the homologation of vehicles or infrastructure. Low costs contribute to making more secure the long term viability of railway preservation societies.

Another example of the ways of taking care of activities aiming at the preservation and the presentation of the cultural heritage of industrial society is the fact that non profit

organisations are able to ask for funding for work museums. Heritage preservation associations are an obvious player in that field.

As protectors of culture, railway preservation societies remind us of the history of our country and have therefore an invaluable role. A thriving cultural heritage is an important basis for tourism development in Sweden and it contributes to economic growth.

The Government have defended culture through two economic crises and increased the cultural budget with 730 million kronor between 2006 and 2012. The bill 'Time for culture' was adopted by Parliament in 2009 as the first of its kind in 35 years. Here, we give culture a partly new role in society – we speak of the vital role of culture in the future to create more well-being, more jobs and an increasing growth.

A rich cultural life preserves, and so do railway preservation societies. The knowledge and the historical approach provided by those associations are unique. This is made possible by volunteer work and great dedication.

Each year, Swedish railway preservation societies are visited by over 100.000 people - those associations thus play an important role in the tourism industry. Sweden must have a high level of attraction as tourist destination and be a long term competitive industry. This contributes to sustainable growth, increased job opportunities in all the regions of the country.

Railways have been, are and will remain very important for the Swedish population and industry. When memories are fading, railway preservation societies are a valuable source of knowledge and they remind us of our heritage. We need to protect it. I thank you for your involvement!

## Transport infrastructure planning

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



### The Swedish National plan for the period 2010-2021

- **Decision by the Government in spring 2010**
  - The national multi modal plan for 2010-2021
  - Economical framework for the 21 counties
- **In total the budget for the period is appr. 50 billion Euro**
  - Incl. revenues from congestion charges
  - Incl. expected revenues from track fees
  - Incl. co-financing from municipalities and private undertakings

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



## Budget Details

Billion €

	Road	Rail	Sea/Air	Sum
Operation and maintenance	13,6	6,4		20,0
Large investments	4,9	6,5	0,2	11,6
Interest and amortization	0,5	2,5		3,0
Smaller investment				3,8
Ec. framwork for Counties				3,3
<b>Summa nationell ram</b>				<b>41,7</b>
Medfinansiering + banavg	4,3	3,7		8,0
<b>Totalt</b>				<b>49,7</b>

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



## What was the next step?

- **Trafikverket (The Swedish Transport administration) was 1 March 2011 commissioned to investigate the need for more capacity in the railway system**
- **The commission was in Sept 2011 expanded into comprise all traffic modes**
- **Trafikverket delivered a report final in April 2012**

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



## The government directives to Trafikverket

### Steering towards:

- ✓ Efficient use of existing infrastructure
- ✓ Proposal for a long term development of the transport system
- ✓ Proposals for short term measures until year 2021
- ✓ Proposals for measures that increase efficiency until 2025
- ✓ Long terms potentials until 2050

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



## Where are we today?

- **the Government wants to emphasise**
  - Maintenance of railways and roads
  - Streamlining the use of the transport infrastructure
  - Optimising the transport infrastructure

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden





## The “four step principle”

- **“Think again! Think new”**
  - Incentives to influence traffic flows
  - Social community planning
  - Land use.
- **”Optimizing”**
  - Maintenance
  - Re-investments
  - Trimming the system

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



## The “four step principle” - cont

- **”Alter existing transport infrastructure”**
- **”New investments”**

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



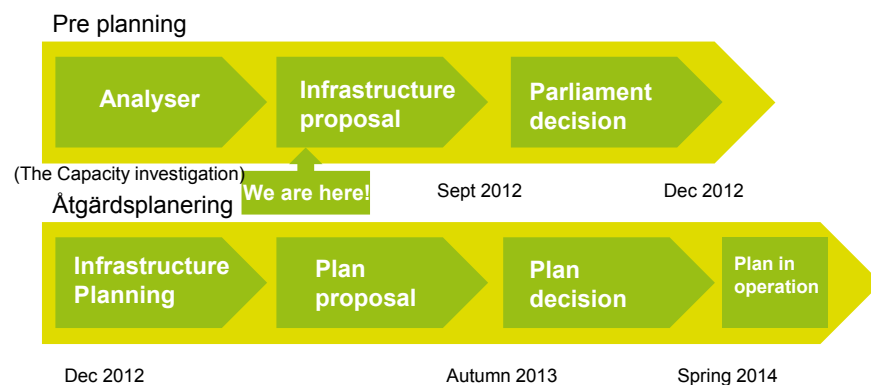
## New infrastructure proposal to the parliament

- Planned for Sept 2012
- Aiming for a new government decision about national infrastructure plan for the period 2014-2025
- Decision in spring 2014

Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



## Planning process



Ministry of Enterprise, Energy and Communications Sweden  
Government Offices of Sweden



## SUPPLEMENTARY PRESENTATION

### Foreword

A key objective of the 2012 conference was to include coverage of important issues of concern to our Swedish host organisations in the Business Session presentations. These concerns include Government proposals for a licensing system for heritage railways which - from initial indications - would require payment of very substantial annual fees. A further concern is potential impact of the introduction of ERTMS. During 2011 and 2012, FEDECRAIL has supported the lobbying efforts of our Swedish members JHRF and MRO to seek modification of the licensing fee proposals to reduce the potential serious financial burden on member railways.

It was decided to invite speakers to address these issues from Government, Parliament and the railway heritage sector. The original scheduled speaker from the Ministry of Enterprise, Energy and Communication had to cancel participation shortly before the conference due to another important commitment. We were very grateful that his colleague, Magnus Axelsson (Deputy Director of the Ministry) was able to join us in his place. The final presentation giving the heritage sector view of the issues was made by Anders Johansson, JHRF Vice-Chairman (next section of these Proceedings).

The main section of Magnus Axelsson's address outlined general principles of "Transport Infrastructure Planning" per slides reproduced on the previous pages. He kindly agreed to supplement his formal address with some comments on the issues of current concern (following the comments also made in the earlier address by Jonas Jacobsson Gjörtler MP, a Deputy Member of the Swedish Parliament Committee on Transport & Communication):-

**(a) Railway Licensing Fees** - Following normal practice in Sweden, the annual 'Instruction Letter' for the work programme for the year ahead (2012) was sent to the Transport Agency in December 2011. This included a direction to prepare a report on possible ways to reduce the license fees for small railway companies and heritage railways. An Initial Report was delivered to the Government on 1<sup>st</sup> March 2012 and it is envisaged that a final report will be delivered a year later in March 2013. Mr Axelsson explained that the March 2012 Initial Report will be distributed very soon to every heritage railway in Sweden and also to those societies who operate heritage trains on the main line network. The Report will be distributed as a Consultation Letter with an invitation to respond with comments.

He stressed that the Ministry is anxious to pursue fruitful discussions with the heritage railways and other bodies which will be affected by these proposals. He re-assured delegates that the Ministry is fully aware that fees must be kept at a level low enough to ensure continued viable operation of heritage railways (and special heritage trains on the national network). The broader picture is that it is currently planned that the Swedish Government will present a new bill about Railway Infrastructure issues to Parliament in September 2012.

**(b) Introduction of ERTMS** - Mr Axelsson explained that the detailed technical discussions should be held between operators of heritage trains on the main line national network and Trafikverket - the Swedish transport administration which owns and administers the national railway infrastructure. He stressed that there are no proposals that ERTMS should be made mandatory on independent heritage railways which do not form part of the national network. The Ministry of Enterprise, Energy and Communication would only become directly involved with this issue if major problems arise which cannot be resolved in negotiations between operators of main line heritage trains and Trafikverket.

*Summary prepared from notes provided by Professor Ragnar Hellborg, MRO Chairman*

Magnus Axelsson – Transport Infrastructure Planning

© FEDECRAIL and Author, 2012



**JHRF & MRO**

JÄRNVÄGSMUSEER | SAMVERKAN

## **Lobbying and Campaigning for Railway Heritage' - mitigating impact of new legislation**

**Anders Johansson**

**JHRF**

1



**JHRF & MRO**

JÄRNVÄGSMUSEER | SAMVERKAN

**The importance of, always being in the right  
place, on the right time and being prepared**

**Example: ERTMS in Denmark and Sweden**

2



**JHRF & MRO**

JÄRNVÄGSMUSEER I SAMVERKAN

It all started in 1856...

3



**JHRF & MRO**

JÄRNVÄGSMUSEER I SAMVERKAN

...actually, because the Swedish railway  
150 year anniversary 2006 is important for  
the story!

4

**JHRF & MRO**

JÄRNVÄGSMUSEER I SAMVERKAN

- The Swedish heritage railway societies started a close cooperation with the infrastructure owner Banverket and their department , The Swedish railway museum.
- One result was a promiss of support heritage societies when railway buildings where for sale or put on the scrapping list.

5

**JHRF & MRO**

JÄRNVÄGSMUSEER I SAMVERKAN

- During the aniversary discussions a member of the Banverket board, Lars Berggrund, was appointed contant person towards heritage railways.
- His support resulted in help for several societies with locomotive sheds, roudhouses etc, at low cost (very low cost...)

6



# JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN



7



# JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

- Trafikverket was founded 1 April 2010 as a merger of Banverket (rail infrastructure), Vägverket (road infrastructure), Sjöfartsverket (sea) and Luftfartsverket (air traffic).
- Transportstyrelsen, the Swedish NSA, was carved out.

8



# JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

- Lars Berggrund retired!

The first contacts about ERTMS for heritage vehicles was taken during his retirement party.

Morrgan Claesson, JHRF, confronted Trafikverkets chairman Gunnar Malm with a question about the future for heritage traffic on main lines, when ERTMS is introduced.

- Gunnar Malm realised the severity of the issue, and stated:

"We have to solve that, I will contact You!"

9



# JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

- A few month later, two member of Gunnar Malms staff contacted us, proposing a work group on the issue.

- The first group was created, with Morrgan Claesson, Anders Johansson and Rutger Friberg (former development manger at Volvo and CEO of NRSA, the US model rail society!)

- We soon realised that the most important person is Sven Håkan Nilsson, project manager for ERTMS in Sweden, and included him in the discussions.

10





## JHRF & MRO

JÄRNVÄGSMUSEER I SAMVERKAN

•At the first meeting with Sven-Håkan Nilsson, he realised that our problem is similar to the problem for the maintenance fleet, and recommended us to contact Jan Åström, project manager in NRSA, the Nordic reference group for trackbound maintenance vehicles, who struggled with the same problems.

•At then same time we met Anders Dørge from DVF, Dansk Veteranantogsfaellesskab , at the Fedecrail main line group meeting in Dresden last year!

11



## JHRF & MRO

JÄRNVÄGSMUSEER I SAMVERKAN

- With this, the working group was finalised.
- NRSA – Nordic reference group for track bound maintenance vehicles
  - Jan Åström
- DVF – Danish veteran train operators society
  - Anders Dørge
- JHRF – Swedish railway historical society
  - Anders Johansson
  - Morrgan Claesson

12


**JHRF & MRO**

JÄRNVÄGSMUSEER I SAMVERKAN

**Stakeholders:**
**Infrastructure owner**

- Banedanmark – Denmark  
Acting through "Signalprogrammet" – "Signaling project"
- Trafikverket – Sweden

**NSA's**

- Banestyrelsen – Denmark
- Transportstyrelsen – Sweden

**Other's**

- ERA – European Rail Agency

13


**JHRF & MRO**

JÄRNVÄGSMUSEER I SAMVERKAN

**Background Sweden**

- First main line already in operation (Bottnia line)
- Next line inaugurated 1 Dec 2011 (Probably delayed to April 2012)
- First main line in South Sweden 2014-15
- Secondary lines starts 2012
- Öresunds bridge 2013-15



14



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Background Denmark

- Öresund bridge 2013-15
- Continuous inaugurations -2021
- Complication:  
ERTMS on mainlines  
CBTS on S-bahn  
=Double onboard equipment!



15



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Cooperation

- The problems for maintenance vehicles and veteran trains are similar!
- Low number of vehicles of each type
  - Verification cost per type/vehicle is "enormous"
  - Installation differs between different vehicles
  - Development necessary for each type/vehicle.
- The driver's environment is normally noisy, dirty and uncomfortable
- The driver is fully occupied by operating the vehicle / maintaining the track etc.
- The major difference is the financing...

**but**

**A common solution simplifies life for all parties!**

16



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### A way to an economical solution

- The equipment must be standardised!
- The equipment verification must be on system level, not on vehicle level
  - In Sweden, the installation and verification must be similar to the ATC-system
  - The safety level must be at least the same as ATC
- The installation must possible to perform by maintenance or production staff / voluntary society members with electro-installation skills
- The system must fulfil ERA, TSI and EN-demands
- The system shall handle ERTMS level 3.0 Basic
  - Sweden requests level 2.3 today but can be upgraded by a software upgrade
  - Denmark will go for level 3.0 Basic direct

17



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Vehicle demands

- The vehicle must have an approved brake system
  - UIC approved air-brakes
  - EP-brake
- The vehicle must have an approved system for reduction of traction
  - SIFA
  - Electrical control or eq
- The maximum speed is low
  - Our proposal is <120km/h, equals demands for simplified ATC installation today
  - Can be nationally adapted
  - Speed can be increased after separate verification

18



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Verification

- The onboard system must be tested and verified by the supplier.
- The purpose of the verification on vehicle level is to:
  - Verify that the vehicle demands are fulfilled
  - Verify that the projecting of the installation is correct and follows the instruction from the supplier
  - Verify that the documentation is correct and follow NSA demands.
  - Verify that the installation is correct and that the systems is functioning.
- **No other verification demanded!**

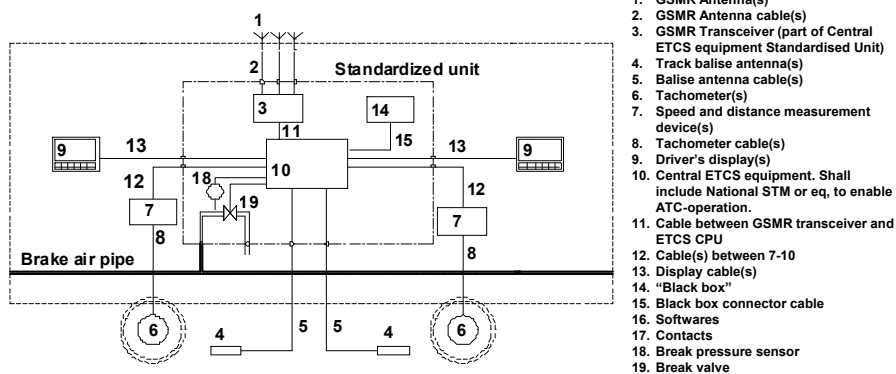
19



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Principal drawing:



20



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Status today

- Trafikverket supports the solution!  
They have realised that a simplified solution will reduce their costs
- ERA "supports" the solution  
A technical solution is possible to reach without too much development costs. The simplified solution is safe enough and the demand on interoperability is not valid for most maintenance and heritage vehicles.
- First contact with suppliers initiated.
  - Sweden: moving very slow, first installation should be finished in August but is probably delayed. Technically, the solution is too complicated and expensive.
  - Denmark: supplier is appointed, their solution is better adapted for heritage demands and first price indications are at reasonable levels.

21



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Next steps

- Meetings with Swedish and Danish NSA's
- Involve a NoBo (Notified Body = verification supplier)
- Get a frame agreement with one or more suppliers
- First installation! First "yellow vehicle" needed 1 Apr 2012
- Negotiate an agreement with national government about financing
  - First contacts with Swedish Infrastructure minister, and department taken.
  - Meeting during the autumn (David Morgan will meet some politicians on Monday)
- Finally:  
Convince ERA that this is a sustainable solution for EU!  
First contact taken by Trafikverket. Response not negative...

22



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Political lobbying:

- Almedalen 2011, meetings with the Swedish infrastructure ministry and other political stakeholder. Almedalen is a week with nearly 1500 seminars, etc with most important politicians and civil servants present.



23



## JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

### Political lobbying:

- Meetings with interested politicians in the parliament. (David Morgan present)
- Meeting with the Ministry of Enterprise, Energy and Communications
- Meetings with Transportstyrelsen.

24



# JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

## Status

- Common understanding of our problems.
- ERA is looking into a simplified solution, probably as a national exception.
- Suppliers are looking for a package solution
- We can lean back and let the maintenance fleet make the mistakes, we are participating in specification process but as referral body.
- The authorities has realised that financing this mode shift in the infrastructure, must be financed from the state, probably through the infrastructure spendings.

25



# JHRF & MRO

JÄRNVÄGSMUSEER | SAMVERKAN

**Remaining issues:**  
How do we solve this type of vehicles...?



26





**JHRF & MRO**

JÄRNVÄGSMUSEER I SAMVERKAN

**New campaigns:**

- **Proposal of new fees for inspections:**

- Fees for operators permission
- Vehicle registration
- Driver licence
- Etc

27



## **FEDECRAIL YouthExchange Introduction**

Helsingborg, May 11th, 2012

Sten Erson-Wester

## *Background FEDECRAIL international youth exchange*



- WHY?
- Encourage young people to continue and intensify the volunteer work at the home railway

## *Background FEDECRAIL international youth exchange*



- WHY?
- Learn from another country – about heritage railways, but also people, language and culture
- FEDECRAIL supported the idea from the start

Sten Erson-Wester

3

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- WHY?
- Increase understanding between young & adult HR-people in EU-countries (and later on also all Fedecrail member countries) – make new friends perhaps for life

Sten Erson-Wester

4

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- Started in 2007
- Tried out in a minor pilot project, during a summer week in August, between heritage railways in three countries

Sten Erson-Wester

5

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- HOW?
- Participants are heritage railways in Sweden, Latvia and Germany
- Young volunteers 15/16-24/25 years old  
- boys and girls

Sten Erson-Wester

6

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- HOW?
- In cooperation with national umbrella organisations – find appropriate railways
- Project group with participants from the involved parties
- Benchmarking

Sten Erson-Wester

7

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



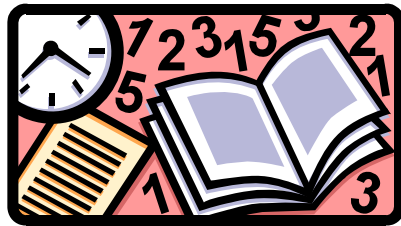
- PRACTICAL ISSUES
- Insurance (as example hosting railway association membership)
- Medical assistance = EU regulations (health care card)

Sten Erson-Wester

8

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- PRACTICAL ISSUES
- Supervision and training
- Accommodation and meals

Sten Erson-Wester

9

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- PRACTICAL ISSUES
- Financing questions
- EU-funding questions
- PR questions (big articles in local press, mayor's reception and so on)

Sten Erson-Wester

10

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- The very first pilot camp was ***made in Sweden August 2007 - and was a success!*** The second three-country camp in Latvia 2008
- Germany in 2009 - first camp open for all members
- all success stories!

Sten Erson-Wester

11

FEDECRAIL YouthExchange

## *Background FEDECRAIL international youth exchange*



- Hungary in 2010
- Poland in 2011
- all success stories!
- England in 2012
- 2013?
- 2014?
- 2015?

Sten Erson-Wester

12

FEDECRAIL YouthExchange



## *Background FEDECRAIL international youth exchange*



Sten Erson-Wester

13

FEDECRAIL YouthExchange

- GOAL?
- Successful outcome
- Possibility for further FEDECRAIL-members to take advantage of the experience
- The camps have prepared the track for future exchange activities - supported by FEDECRAIL

## Some statistics

Many participants from all over Europe:

Host country Year	Sweden 2007	Latvia 2008	Germany 2009	Hungary 2010	Poland 2011
■ Austria	-	-	-	1	1
■ France	-	-	-	3	-
■ Great Britain	-	-	-	2	2
■ Germany	2	4	11	5	2
■ Hungary	-	-	4	4	4
■ Latvia	4	4	3	-	-
■ Poland	-	-	1	-	3
■ Romania	-	-	-	2	2
■ Serbia	-	-	1	2	1
■ Sweden	4	2	3	5	3
■ Ukraine	-	-	-	2	2
<b>11 countries in TOTAL</b>	<b>10</b>	<b>10</b>	<b>23</b>	<b>26</b>	<b>20 = <u>89</u></b>

Sten Erson-Wester

14

FEDECRAIL YouthExchange





## FEDECRAIL YouthExchange past – present – future

Helsingborg, May 11th, 2012

Christian Albers

English version



European Federation of Museum & Tourist Railways

Fédération Européenne des Chemins de Fer Touristiques et Historiques

Europäische Federation der Museums- und Touristikbahnen

YouthExchange  
in the past

### Some impressions of YouthExchange 2009



Historic tram ride in Darmstadt




Visit at DB trial and examination centre  
(Minden) in front of first ICE

Christian Albers

2


FEDECRAIL YouthExchange




European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Föderation der Museums- und Touristikbahnen

YouthExchange  
in the past

**Some impressions of YouthExchange 2009**




Visit Bruchhausen-Vilsen  
with steam train ride



Participants are working  
at vehicles in Brohl

Christian Albers
3
FEDECRAIL YouthExchange



European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Föderation der Museums- und Touristikbahnen

YouthExchange  
in the past

**Experience in preparing and performing YouthExchange 2009 (1):**

- Uncertainty about Ukraine participants
  - Language and difficult communication channels and contact
  - Cyrillic typeface (translation costs and time to translate)
  - Uncertainty about visas of Ukraine participants (did they apply for on time?)
- Only a few people had misgivings against YouthExchange (people from local railway clubs)
- Starting preparing early is necessary for later success  
(recommended: starting in November/December if YouthExchange starts in August)
- Organising team should consist of participants from former YouthExchange (because of experience and know-how transfer)
- Cooperation between participants and organisation team was without problems
- Some participants will always complain about everything (no matter what you do)
- In the end every participant was nearly completely satisfied with YouthExchange

Christian Albers
4
FEDECRAIL YouthExchange



European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Federation der Museums- und Touristikbahnen

YouthExchange  
in the past

### Experience in preparing and performing YouthExchange 2009 (2):

- Manifold activity program is significant
  - every participant get something he/she likes
  - cultural activities and exchanges are necessary (philosophy of FEDECRAIL)
  - mixture of self-doing (working) and viewing (visiting) of railways is necessary
- Bigger time frames for individual time (e.g. shopping) in big cities should be considered in next YouthExchange
- Drinks with (for West-European) and without gas (for East-European) should be prepared in next YouthExchange

Christian Albers

5

FEDECRAIL YouthExchange



European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Federation der Museums- und Touristikbahnen

YouthExchange  
in the present

### Common problem

How to transfer experience and know-how to future YouthExchanges?

### Solution

#### ■ YouthExchange manual

- as guidelines how to organise and perform YouthExchanges
- will be created by working group "YouthExchange"



Christian Albers

6

FEDECRAIL YouthExchange





European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Föderation der Museums- und Touristikbahnen

## YouthExchange in the present

## Creating a YouthExchange manual (guidelines)

At the moment a manual for planning, preparing and performing of YouthExchange is in creation.

The following content is intended:

- Description of the “ideal YouthExchange”
  - Experience of past YouthExchange
  - Recommendations for future YouthExchange
  - YouthExchange and project management
  - Basics of project management
  - Presentation of some useful tools (organisation chart, milestone-plan, ...)
  - Introduction of an online knowledge-database (with all data from the past)
  - Introduction of a system how to transfer knowledge of “last-to-next” YouthExchange organisation teams
- 



Christian Albers

7

FEDECRAIL YouthExchange



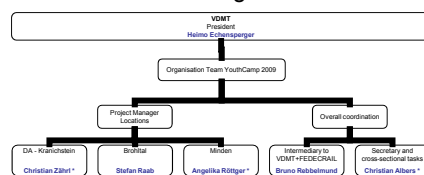
European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Föderation der Museums- und Touristikbahnen

## YouthExchange in the present

## Manual: Preparation of FEDECRAIL YouthExchange (examples)

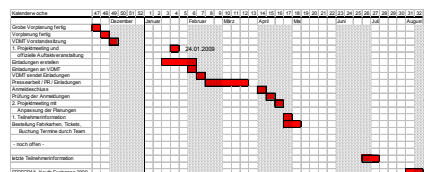
## How to structure organisation?

### Organisational structure of the organisation team



## How to make an overview over the whole project?


### The Milestone-plan as a guideline for the first steps of starting preparations ...



Christian Albers

8

FEDECRAIL YouthExchange



European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Federation der Museums- und Touristikbahnen

YouthExchange  
in the present

### Manual: Financing YouthExchange

How to finance?


- Participation-fees (100 Euro from each participant)
- National umbrella organisation funding (e.g. VDMT as host in 2009)
- Railway Museums (as the host)
- Preservation Railways (as the host)
- Private funding (private sponsors)

### Manual: Financial accounting

- How to keep overview? (4 cost centre table charts: detailed costs and incomes)

<b>Kostenstelle 1</b> Ort: Darmstadt-Kranichstein				Gültigkeit: 31.07.09 bis 04.08.09 (mittags) Projektleiter: Christian Zähl			
Ausgaben				Einnahmen			
Kostenart	Verwendungszweck	Datum	Betrag	Kostenart	Verwendungszweck	Herkunft	Betrag
...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...

Christian Albers 9 FEDECRAIL YouthExchange





European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Federation der Museums- und Touristikbahnen


YouthExchange  
in the present

### Manual: Performing YouthExchange


- Lanyard keychain with „FEDECRAIL“ and „YouthExchange“ imprint for passports

- Information folder for participants (hand out at the beginning)
  - Timetable
  - Participant list
  - FEDECRAIL Railway Terminology
  - City maps
  - Railway map Germany



Christian Albers ... 10 FEDECRAIL YouthExchange




European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Federation der Museums- und Touristikbahnen


YouthExchange  
in the future

**FEDECRAIL YouthExchange in the future** ... some "blue sky thinking"

**Guiding questions**


- Where are we now?
- What are current problems?
- Where can we go?
- Where should we go to solve the problems?
- What should be done to achieve the target status?





**Questions                      Analysis                      Result**

Christian Albers
11
FEDECRAIL YouthExchange




European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Federation der Museums- und Touristikbahnen

YouthExchange  
in the future

**Analysis of the current status**

Known problems:

- Less young participants, former participants getting older, concentration on only some and always the same participants
- Weak participation of specific countries (eastern, west and south: France, Italy, Spain...)
- Organisation by young people is difficult due to lack of organisation experience and self-confidence, know-how transfer from former organisation teams is difficult
- Language problem: many young people do not speak English fluently and professional → they have no self-confidence to communicate in English



**Analysis**

**Analysis of the target status**

Wishes and to-be situation:

- Continuous procedure of volunteering and selecting (new) host countries
- Know-how transfer within annual organisation teams is a running process
- Many young railway interested people all over the EU know YouthExchange and would like to take part → many participation applications

Christian Albers
12
FEDECRAIL YouthExchange



European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Föderation der Museums- und Touristikbahnen

YouthExchange  
in the future



**Result**

### Suggestions for YouthExchange future

There are several points to raise the success of YouthExchange, e.g.:

- Continuous person at FEDECRAIL who cares about YouthExchange (Sten)
- Use of the YouthExchange manual
- Introduction of a continuous organisation process (procedure) for host countries  
Process owner and initiator: FEDECRAIL
- Early start of organisation (beginning in autumn/winter before the year)
- Meeting of "last" and "next" organisation teams to enable a transfer of knowledge
- Recruitment of young railway interested people to gain future organizer
- Advertisement for YouthExchange (where, when, how...) → increase attractivity!
- YouthExchange website for general + current information & knowledge-database

### Next step on this path

→ Creating the YouthExchange manual and procedure for host countries

Christian Albers

13

FEDECRAIL YouthExchange



European Federation of Museum & Tourist Railways  
Fédération Européenne des Chemins de Fer Touristiques et Historiques  
Europäische Föderation der Museums- und Touristikbahnen

**Thank you for your attention**

Any questions?

Christian Albers

14

FEDECRAIL YouthExchange

## Norrbottens Järnvägmuseum



The museum of Transport and Industrial History  
in

Norrbotten

PRESENTS VEHICLES AND

RAILWAYMILIEUS

Conservation in a Cold Climate

Techniques for

mitigating deterioration of stored rolling stock

Former Head of

Norrbottens Järnvägmuseum

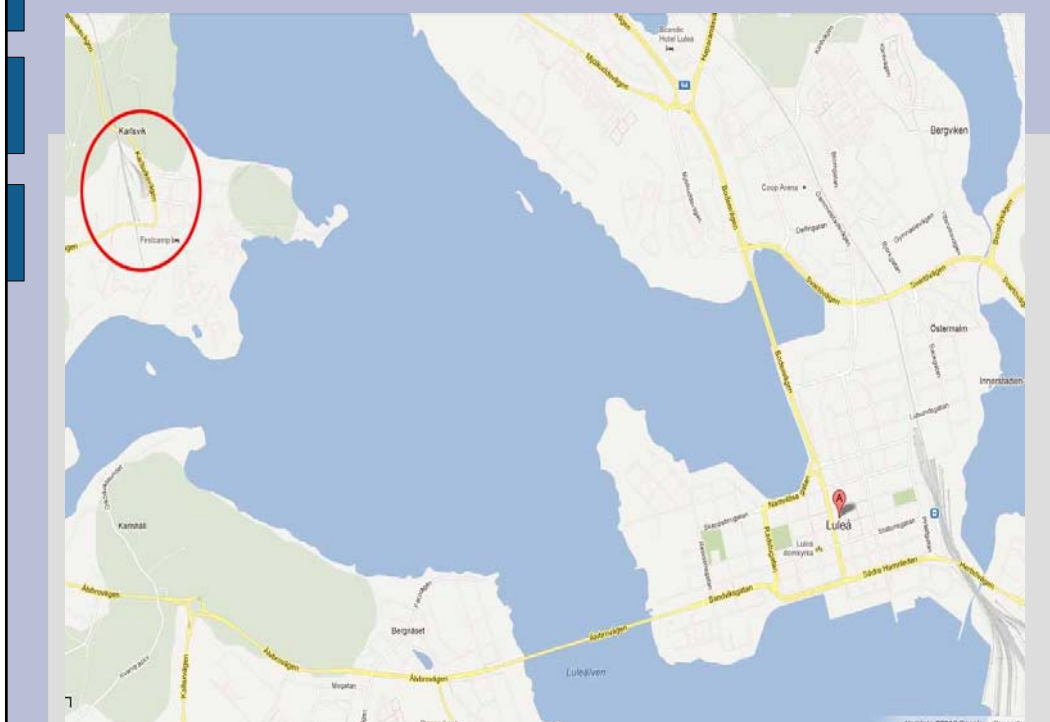
E Bertil Persson

### 1:1 Norrbotten and the ore fields.

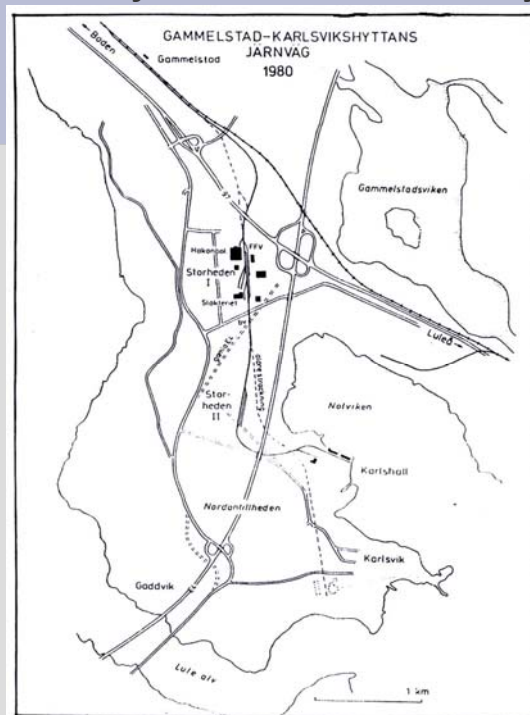




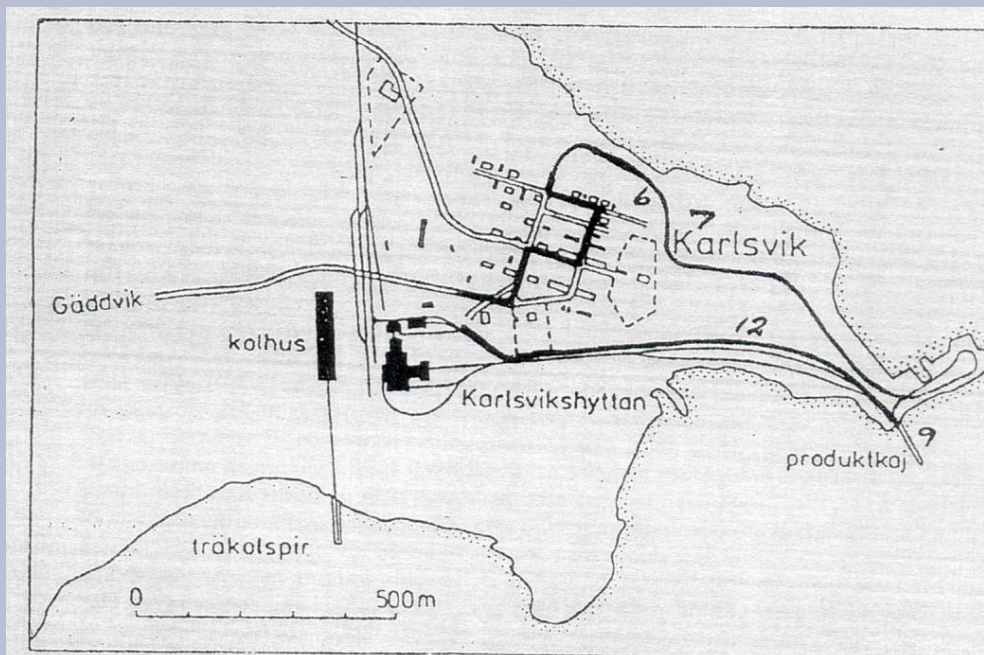
## 1.2 Luleå and surroundings.



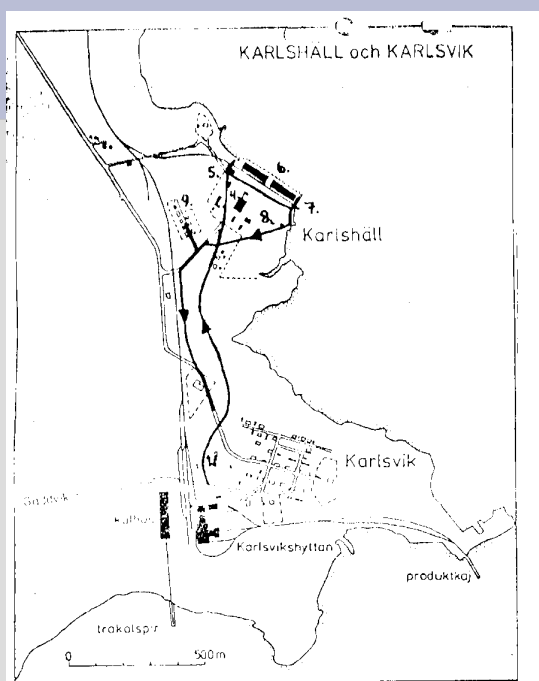
## 2:1 The railway Gammelstad-Karlsvikshyttan.



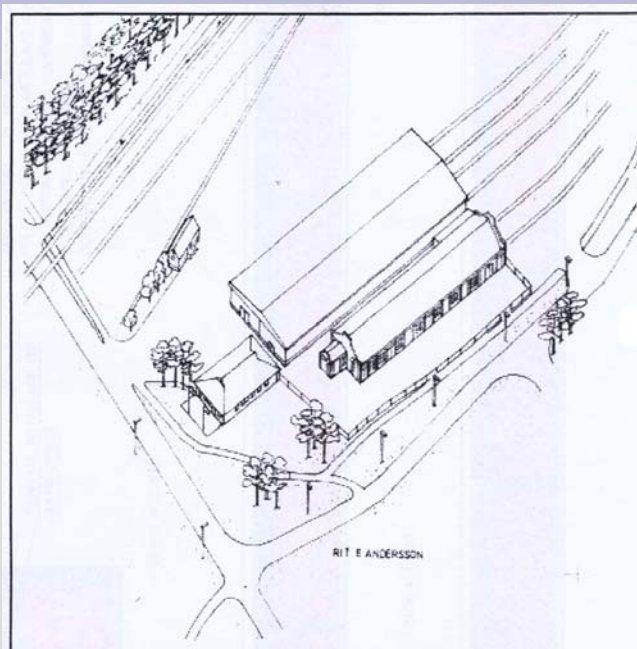
### 2:2 Karlsvik saw mill and pig iron plant.



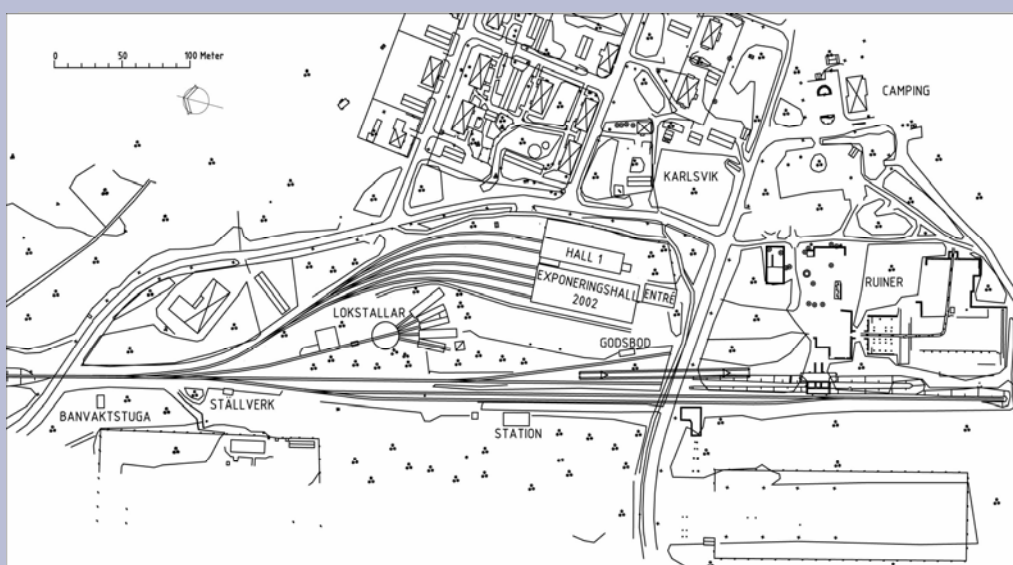
### 2:3 Karlshäll pulp mill.

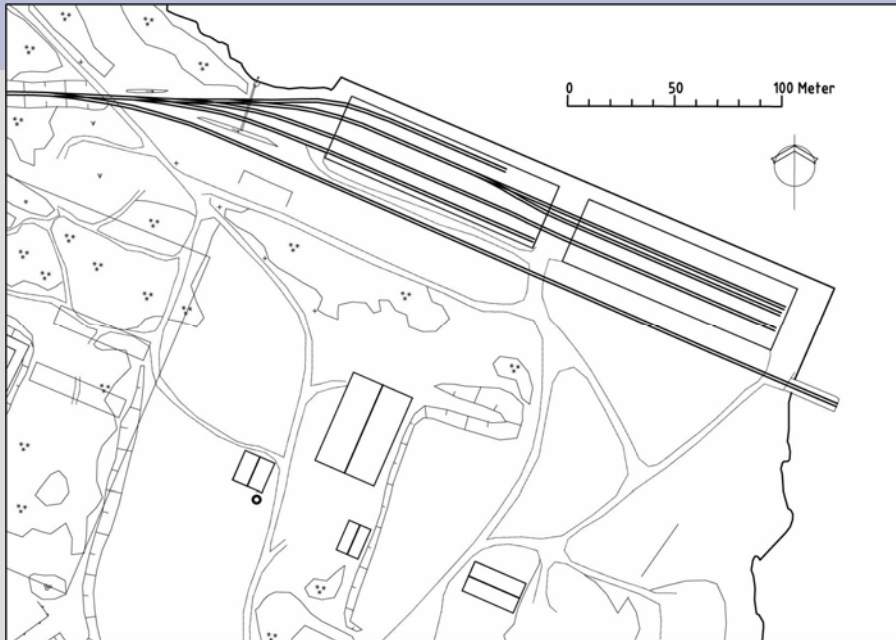
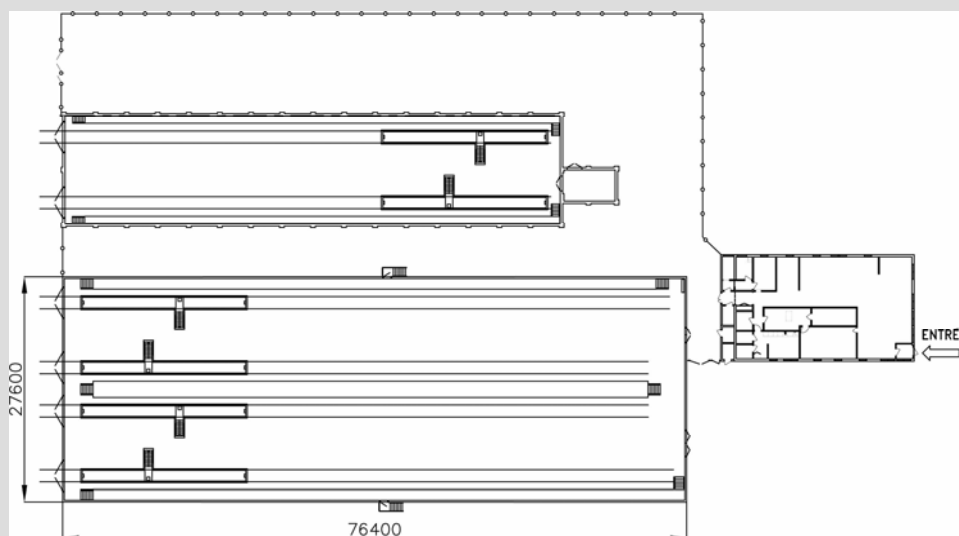


**3:1 A birds eye view of the Norrbottens Järnvägs museum.**

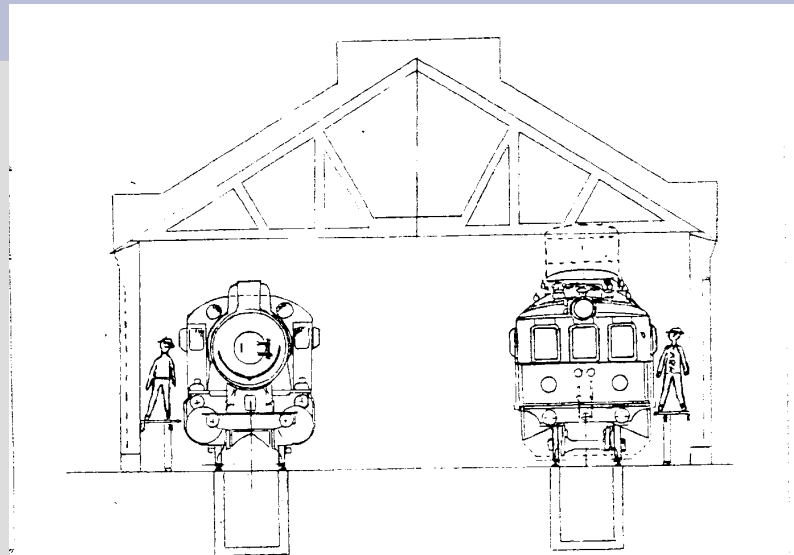


**3:2 Map of the Norrbottens Järnvägs museum.**



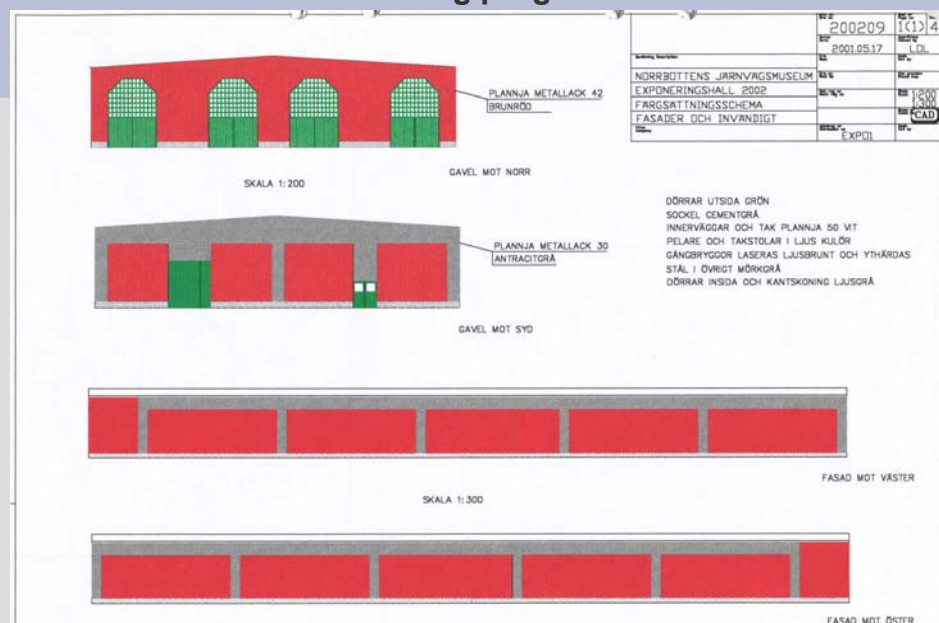
**3:3 Map of the Karlshäll storehouse.****4.1:1 Plan of museum complex.**

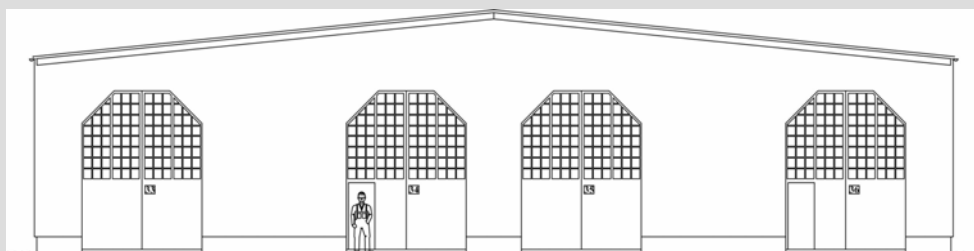
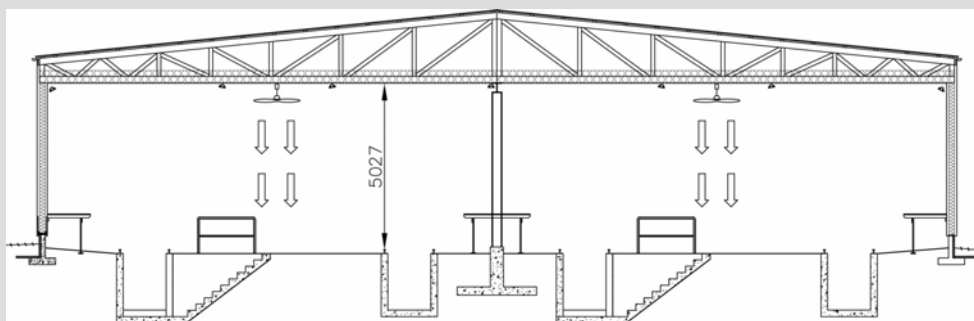
#### 4.0:2 The philosophy of hall 1990.



*Interiör från muse'et i Karlsvikshyttan. Besökarna ska kunna gå på såväl gångbryggor vid fordonen, som under dem!*

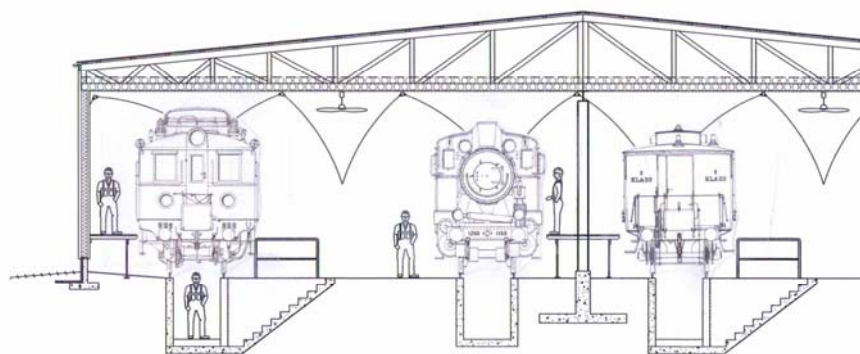
#### 4.0:3 Painting programme.



**4.0:4 Track door frontage.****4.0:5 Section through trenches and ventilation fans.**



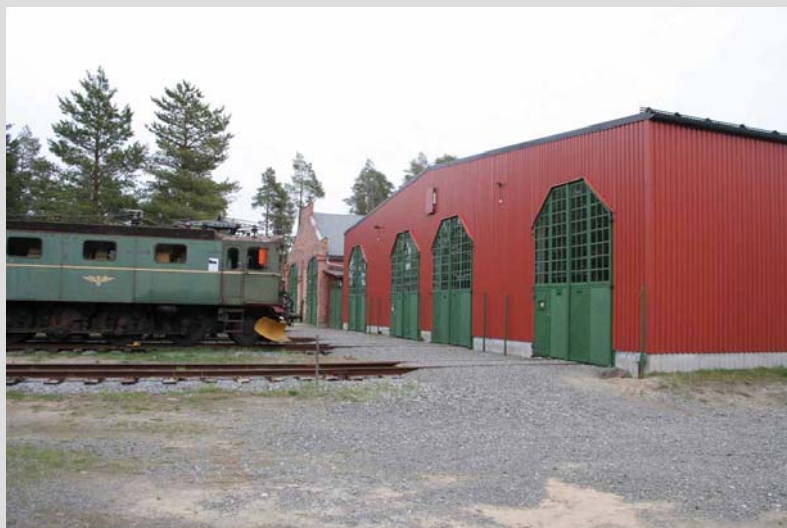
#### 4.0:6 Section with lighting and visitors.



#### 4.0:7 The north gable for Halls 1990 and 2002.



4.0:8 The north gable for Hall 2002.



4.0:9 The south gable for Hall 2002.





## 4.1 Centre pillars

### 4.1:1 Foundation casting.

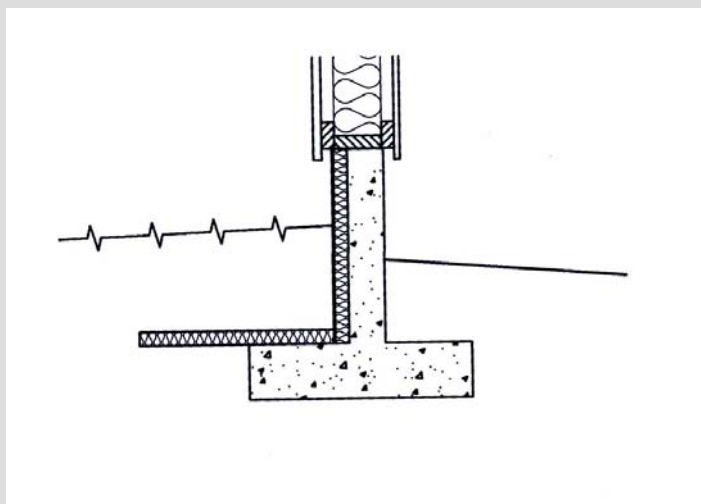


#### 4.1:2 Centre pillars with girder for carrying roof truss.



#### 4.2 Wall beam

#### 4.2:1 Insulation of wall sole plate and beam.



#### 4.2:2 Wall beam sole is cast.



**4.2:3 Wall beam base is added.**



**4.2:4 Wall beam with insulation ready for casting.**



## 4.3 Wall sections

### 4.3:1 Spiked element on fixture.



#### 4.3:2 Wall element erected.



#### 4.3:3 Outside wind protection is put on.





#### 4.3:4 Outside cladding is put on.



## 4.4 Roof Truss

**4.4:1 Roof Truss erected.**



**4.4:2 Erection of roof truss is following the walls.**





## 4.5 Lighting

4.5:1 Roof lighting in the hall.



## 4.6 Dehumidifying

### 4.6:1 Munters dehumidifiers, principle.

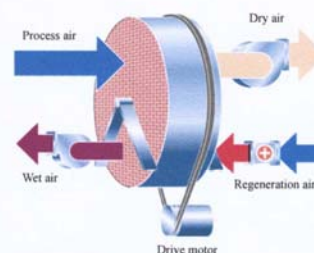
#### How the desiccant wheel works

The Munters desiccant wheel works on the principle of sorption, which is the adsorption or the absorption process by which a desiccant removes water vapor directly from the air.

The air to be dried passes through the desiccant wheel and the desiccant removes the water vapor directly from the air and holds it while rotating.

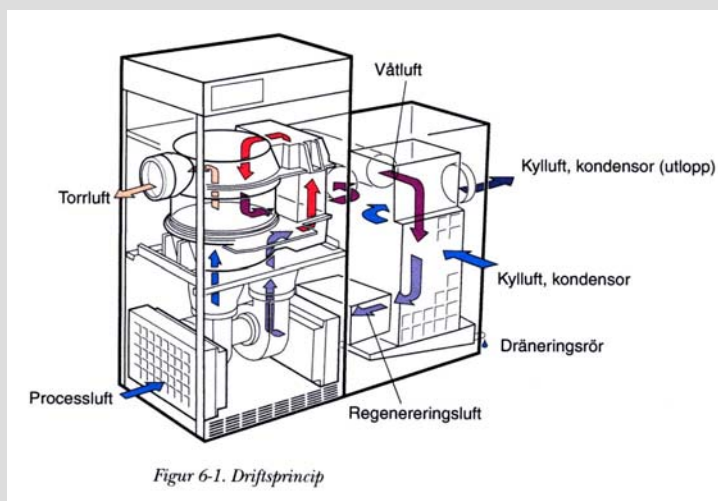
As the moisture-laden desiccant passes through the reactivation sector, the water vapor is transferred to a heated airstream, which is exhausted to the outside.

This process is continuous, allowing for highly effective and uninterrupted dehumidification.



Energy recovery sectors  
for enhanced performance available  
- saving up to 30% energy

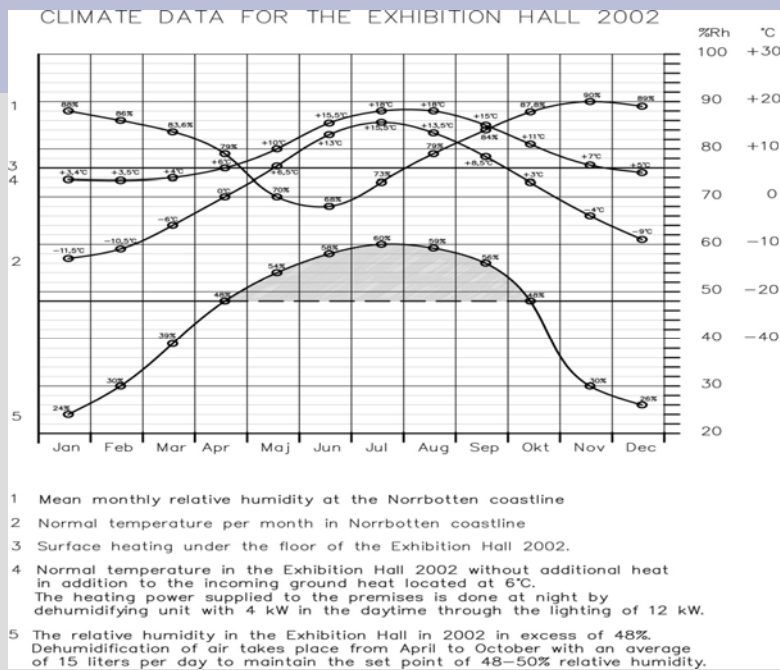
#### 4.6:2 Munters dehumidifier with energy recovery.



#### 4.6:3 Locomotive shed for conservation.

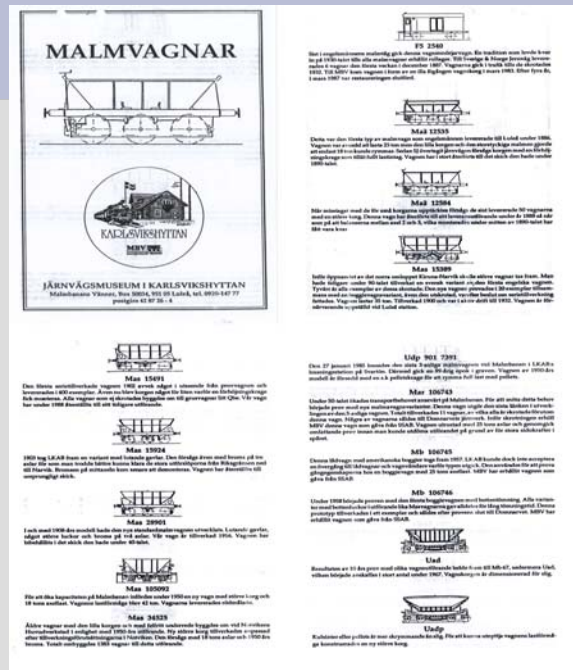


#### 4.6:4 Diagram for humidity in Luleå



## 5. The collection of vehicles.

## 5:1 The string of pearls.



## 5:2 The string of ore hoppers.





**5:3 Locomotive Ma 779 in Hall 2002.**



**5:4 Locomotives Dm3, Ma 779 & Rotary Snowplough A-3 in Hall 2002.**



5:5 Tank type S loaded on a Samp-v transport car.



## Norrbottens Järnvägmuseum

Thank you for listening – Now come and visit us!

