Henning Bender

From Birth to Global Expansion

De Smithske

1834 - 2009

DESMI

Metallic Industries for 175 years

DESMI

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Foreword

With this book, *DESMI A/S* does not only want to celebrate our 175th anniversary as one of the oldest establishments in the Danish metalic industries. More importantly, *DESMI A/S* also wants to give our employees as well as other interested readers a unique insight into the industrial development the company has been a key player in for almost two centuries: The journey from the birth of the company as a local actor in the Northern part of Denmark in 1833 to the global activities that we know today in 2009, 175 years later. This tale is only made possible thanks to the company's incredibly well preserved archives from the very beginning in 1833 until now.

Fortunately, M.A. in industrial history Henning Bender, committed to writing the history of *DESMI A/S*. Henning Bender was the Chief Archivist for the city of Aalborg from 1974 to 2008. Among his many achievements was to protect the old parts of *DESMI A/S*' archives when the company moved from Aalborg to the present headquarters in Lindholm.

This book is one of a kind because it describes the company in good times as well as bad times. Unlike traditional jubilee publications or commercial promotion material it abstains from interpreting everything as yet another step in the right direction on a path of constant progress. Rather, this book deals with both the progress and regression of *DESMI A/S* in times of new markets, unknown structural challenges, and financial crises.

This approach makes it much more interesting for the reader to try to understand how *DESMI A/S* – despite the challenges on the way – succeeded in adapting to new markets with innovative and diverse products such as: all-night burners, steam engines, crosses for graves, ships, public baths, church bells, mechanical peat diggers, and pumps.
This is the story of the industrial revolution from its local birth to global expansion. From Henning Smith's royal privilege to set up an iron foundry in Aalborg on December 21st 1833 to the global market for pumps and oil spill equipment that *DESMI A/S* is known and recognized for today in 2009.

We hope that you will enjoy the book.

Jens Kampmann

Henrik Sørensen

Introduction

The industrial revolution in Denmark began in the 1830s. Before the 1830s, textile and tobacco producers gathered so much labour under one roof that it qualified for definition as a 'factory', but in the 1830's new methods of production and steam machines were brought to Denmark with inspiration from the United Kingdom which significantly increased the productivity of each single unit of labour. This remarkable contribution to the industrialization of Denmark was created mainly by the many iron foundries that were established at the time. *DESMI A/S* – or *Henning Smiths Jernstøberi* (Henning Smith's iron foundry) as it was known when it was established in 1833 – stands out as the only company that is still on the market today almost 2 centuries later. From 1857 the company was called *I/S Det Smithske Jernstøberi og Maskinværksted* (I/S Det Smithske iron foundry and machine shop). In 1875, when technically there were two companies the name changed to *A/S De Smithske Jernstøberier og Maskinværksteder* (A/S De Smithske iron foundries and machine shops). Only in 2003 did the group decide to change to the more idiomatic name: *DESMI A/S*.

The first iron foundries spread quickly across the country in the 1840s and 1850s. They all produced the same products for the same domestic market, so competition was very tough. The competition among the iron foundries got more serious as the financial crisis of 1857-1858 intensified and wiped out many new small businesses. *Det Smithske* however, survived the crisis due to strong support from one of Aalborg's most important business families: Simoni. The close ties to the Simoni family were already established when Henning Smith was still alive, and when he died in 1856 – one year before the crisis – the Simoni's took over the administration of the iron foundry.

In the 1860s and 1870s *Det Smithske* was known in the local newspaper as *'the driving wheel in the industrial revolution'*. The company was so successful that it was quoted on the stock exchange in 1875 when it also doubled the size of the factory. The name was also changed to *A/S De Smithske Jernstøberier og Maskinværksteder* (A/S De Smithske iron foundries and machine shops). Despite all efforts, all that followed was an economic crisis. This was a crisis that turned out to be especially tough on industries in Aalborg, where the collapse of the banks and the low level of trade wiped out almost all venture capital in the city. Consequently, the local newspaper changed its mind about the industries in Aalborg and Denmark as it announced that *'the Danes are neither equipped nor qualified to succeed with industrialized factories'*. The recession in Aalborg was largely caused by an outdated harbour. When the harbour was modernized in the 1890s industries in the city could take another leap forward. However, that was not the case for *De Smithske*.

Aalborg - also known as the city of the smoking chimneys - experienced the peak of the industrial revolution in the 1890s as the local cement industries gained in size. *De Smithske* did not take part in this economic upturn. First, capital and technical knowledge was brought to the city by the Copenhagen based engineering company *F. L. Schmidt* which meant that orders by-

passed *De Smithske* completely. Later, *De Smithske* failed to capture shares of the market for agricultural machinery – even in a country where butter and bacon were the main exports. However, through the old connections in the local government and with the Simonis, *De Smithske* still had enough orders for ship repairs, pumps for the waterworks and heating systems for schools and churches. The churches became a key factor in the tale of *De Smithske's* survival, because *De Smithske* discovered that no church was worth much without a bell!

At the turn of the century and throughout the first half of the 20th century, *De Smithske* was known as the leading producer of church bells. This praise did not help much with other parts of the production line. A new more flexible and dynamic administration combined with changes in demand structures under the occupation during the Second World War resulted in a number of new products: peat cutters, water turbines and pumps.

The pumps especially turned out to be a lucrative niche market. Throughout the 1950s and 1960s pumps became the company's main product. The export of pumps alone made up half of the entire production and contributed significantly to the general increase in Danish exports of industrial products, which overtook agricultural exports in 1961. More production facilities were needed to keep up with the demand. Unfortunately, just as the decision in favour of building a new factory was made in 1975, a new energy crisis hit the country. The energy crisis wiped out most of the heavy industry in Aalborg. Only *De Smithske* and one of the cement factories, *Aalborg Portland*, survived.

Whilst capital from some of the failed companies was invested in *De Smithske* and new facilities for the pump production were opened in Lindholm, all other activities were closed down: Bells, foundries, machine shops, steel division, and daughter companies in Stockholm, Aalborg and Nibe.

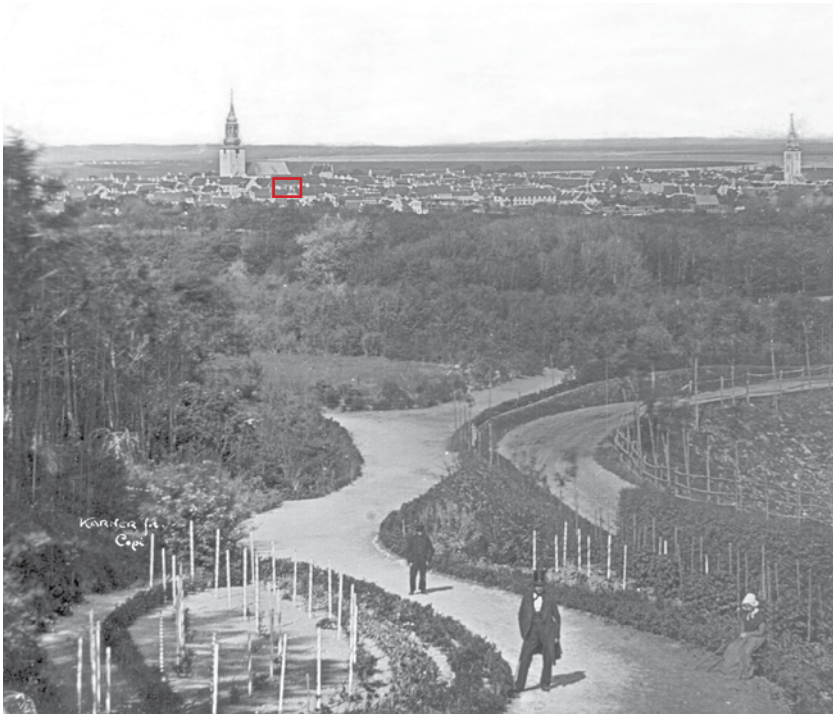
The entire Danish industry was suffering from the energy crisis, actually most of the industries suffered even more than *De Smithske*. Conversely this opened a window of opportunity for *De Smithske*, as it was now able to pick the best parts of the failed companies in order to improve its own production. Slowly, *De Smithske* expanded its pump programme by buying up intellectual property rights for marine and industrial pumps, pumps for supply systems and oil spill equipment. This was successful to such an extent that the management now owns the company itself just as was the case when it all started. However, much else has changed in the meantime.

DESMI started as a local iron foundry in Aalborg in 1833. Their headquarters are still in the Northern part of Denmark, but the markets today are truly global rather than merely local. *DESMI* has factories in both Denmark and China and has daughter companies and offices in the United Kingdom, Holland, Germany, Norway, USA, Ecuador, Indonesia and Korea. With the current financial crisis *DESMI* is facing completely different challenges than was the case earlier. However, it also means a potential window of opportunity to expand markets and capture new market shares has opened. However, this requires that the cards are played wisely, and with a bit of luck – as it has been the case for the company in previous crises.

Chapter 1

The Birth of Danish Industries 1833-1856

Henning Smith's Iron Foundry and the Mechanical Work Shop in Aalborg



This picture shows Aalborg as seen from the south, facing north, in September 1849. In the foreground is the 'forest hill'. As the photograph shows, the beeches are recently planted. In the background of the city are the two churches. On the left is the Budolfi Cathedral and to the right the church for Our Savior. The fiord in the far background, Limfjorden, had maintained Aalborg as the most important commercial town in the region for more than 1000 years and the most important city in the country aside from Copenhagen. If you wished to set up a business outside Copenhagen and were looking for skilled labour, Aalborg was the place to be. This also applied to Henning Smith from Randers who opened an iron foundry in buildings next to the Budolfi Cathedral. Here, he produced the most modern goods, cast iron and steam engines. The photographer Johan Bülow Birk set up his own photography business in Aalborg after ending his studies with Louis Daguerre – the inventor of modern photographs. He was joined by a number of the best photographers in the country because Aalborg offered a vibrant environment in the mid of the 19th century.

Summary 1833-1856

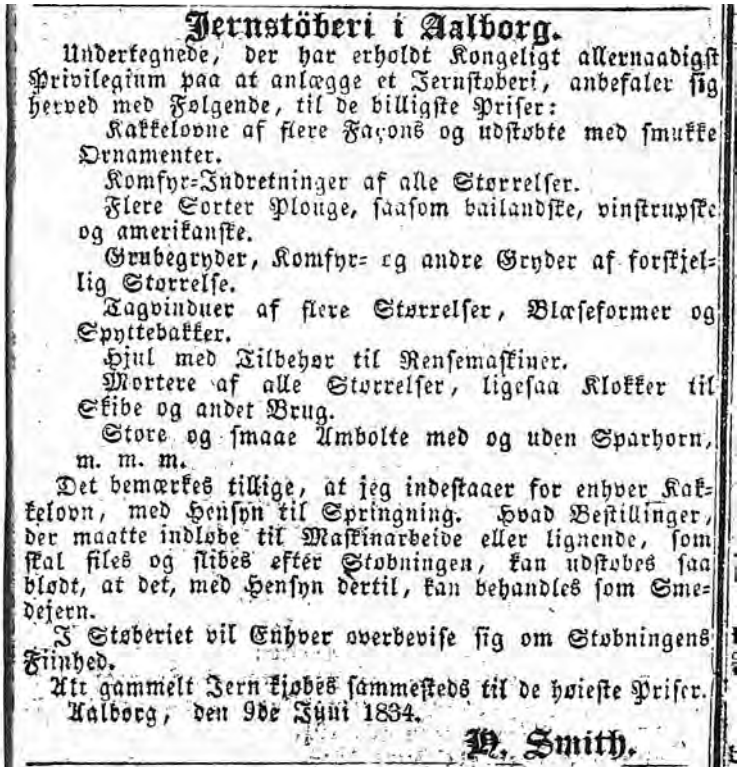
Danish industries originated in the 1830s with the establishment of a number of iron foundries across the country. Although there had been previous attempts to establish industrialized companies this was the first wave of industrialized companies with a long life span. For one company in particular had a very long life span indeed, as we can now celebrate the 175th anniversary of the opening of Henning Smith's iron foundry in 1833.

It is often said to be true that iron foundries, and hence Danish industrialization, were initiated as a result of demand for all night burners after separation from Norway in 1814. However, that is probably not the case. Rather, it was caused by a long and destructive economic crisis that was over around 1830, and because new methods of production of cast iron were coming from the United Kingdom. Instead of using wood, pit coal was used in a special furnace that allowed for continuous casting of liquid iron.
Inspired by the British, cast iron became popular from the 1830s – just like plastic is today. Before cast iron entered the markets, smiths formed all tools and machine components with hammers and anvils.

With the new cast iron and new casting techniques that followed, new windows of opportunity opened. Or, as it was noted already in 1811, '*anything that can possibly be imagined can be produced in cast iron*'. Also, using cast iron showed that you were modern and informed about what was going on in the big neighbouring country to the west with their large steam engines.

This chapter shows how Henning Jacobsen Smed (1792-1856), son of a metalworker in Randers, learned about new trends from the United Kingdom, decided to open his own iron foundry in Aalborg and found the necessary capital. His 'British' approach was apparent very early on when he decided to change his name from the Danish 'Smed' to the English 'Smith'. He started out by producing castings under licence in the 1830s, but in the 1840s he decided to expand his business to the production of steam engines and faced serious challenges as everyone wanted to benefit from the industrial revolution. Around 100 iron foundries and machine workshops were established in the country from 1855 which created high levels of competition in the 1850s.
It all started when Henning Smith applied for permission to establish an iron foundry in Aalborg. He received his privilege on December 21st 1833 and by June 9th 1834 Henning Smith was ready to present his products to the public in the local newspaper.

Advertisement in the new local newspaper, on June 9th 1834.



Jernstöberi i Aalborg.

Underkegnede, der har erholdt Kongeligt allernaadigst Privilegium paa at anlægge et Jernstoberi, anbefaler sig herved med Følgende, til de billigste Priser:

Kakkelovne af flere Façons og udstøbte med smukke Ornamenter.

Komfyr-Indretninger af alle Størrelser.

Flere Sorter Plouge, saasom bailandske, vinstrupske og amerikanske.

Grubegryder, Komfyr- og andre Gryder af forskjellig Størrelse.

Tagvinduer af flere Størrelser, Blæseformer og Spyttebakker.

Hjul med Tilbehør til Rensemaskiner.

Mortere af alle Størrelser, ligesaa Klokker til Skibe og andet Brug.

Store og smaae Ambolte med og uden Sparhorn, m. m. m.

Det bemærkes tillige, at jeg indestaaer for enhver Kakkelovn, med Hensyn til Springning. Hvad Bestillinger, der maatte indløbe til Maskinarbeide eller lignende, som skal files og slibes efter Støbningen, kan udstøbes saa blødt, at det, med Hensyn dertil, kan behandles som Smedejern.

I Støberiet vil Enhver overbevise sig om Støbningens Fiinhed.

Alt gammelt Jern kjøbes sammesteds til de høieste Priser.

Aalborg, den 9de Juni 1834.

H. Smith.

Iron Foundry in Aalborg

The undersigned, who has received a royal privilege to establish an iron foundry recommends the following products for good prices:
Stoves in different shapes and with beautifully cast ornament, various kitchen ranges, different ploughs, Bailandish, Vinsturp and American.
Pots in many different sizes. Small windows, bellows, spittoons. Wheels for cleansing machines. Mortars in all different sizes, bells for ships and small or large anvils.
In addition, I guarantee the quality of the stoves. When ordered, the cast iron can be cast so that it is softer, making it easier to shape. Everyone in the business is committed to casting and there is no mistake to be made over the fineness of the casting process.
Aalborg June 9th, 1834
H. Smith

Who was H. Smith?

Family background

Henning Smith, or as his birth certificate reveals, Henning Jacobsen Smed was born on January 1st 1792 in Trangsstræde in Randers. His father, metal worker Jacob Michelsen Smed (1742-1794), was left a widower in March 1786 with 4 children. In December 1789 he married Kirsten Hennigsdatter, who had been widowed the previous September. Together they had two sons – Lars Jacobsen Smed (born in 1789) and Henning Jacobsen Smed (born in 1792). Henning was therefore the youngest in a large family of half-sisters and half-brothers: Ane Kirstine Jacobsdatter (1770), Michael Jacobsen Smed (1771), Peder Jacobsen Smed (1773), Ane Jacobsdatter (1778) and his older brother Lars Jacobsen Smed – who died as an unmarried pauper in the 1840s.

Goldsmith Henning Smith was born in Randers in 1792 and died in Aalborg in 1856. On December 21st 1833, he received a royal privilege to open an iron foundry in Aalborg. This picture is a daguerreotype from around 1850.

Henning Smith was only 2 years old when his father died on January 30th 1794. This same year his mother married the skilled smith from Jacob Michelsen Smed's smithy, Niels Jørgensen (born in 1765). Niels and Kirsten renovated and modernized the smithy and doubled the number of employees from 3 to 6. At the same time Kirsten rented out rooms for 5 students from the local latin school. Henning Smith was raised here among latin students and smiths. This experience undoubtedly shaped him and provided him with some of the many skills he was praised for in his obituary from 1856: *'An Insightful Problem Solver'*.

Network

Being well equipped with a strong sense of practicality and a well developed network of friends from his early years in Randers helped Henning Smith pave the road to his business success in Aalborg. In Randers he got to know the two sons of metal worker Simoni, Daniel and Frederik. Like Henning Smith, both of them would later move to Aalborg, the largest city in Jutland until the 1850s and therefore the place to be for young dynamic men who aspired to be someone. Daniel established the wine import 'Simoni' which lasted for more than 150 years, while Frederik became a ship owner and a key figure in Aalborg's business life. Henning Smith, however, went to Copenhagen where he received his certificate of completion for his apprenticeship as a goldsmith in 1813. He then changed his provincial family name 'Smed' to the more international version 'Smith'. Just as Henning Smith was finishing his apprenticeship the Danish state went bankrupt and demand for goldsmiths was lower than ever. Therefore, he moved back to Aalborg with his fiancée, Anne Sophie Arentzen from Køge (1796-1845). Whether or not they were asked to return

Henning Smith left an impressive collection of silverware from his time as a goldsmith in Aalborg from 1816-1856. All pieces are marked HS and show the arms of the city of Aalborg. The silverware is from an exhibition at the Museum of History in Northern Jutland. At the top of the picture one sees 12 silver spoons. Shown from left to right are 3 bowls, a teapot, a writing set, chandeliers, and journals for the coopers and the hatters. In addition, there is a silver parrot Henning Smith created in 1840 for the shooting society in Aalborg. Today, the society still chooses a 'Captain of the Popinjay' each year that wears the parrot.

to Aalborg remains unknown, but the couple were warmly welcomed in Aalborg by Daniel and Frederik, the Simoni brothers from Randers. Both of them were best men when Henning Smith married Anne Sophie on April 20th, 1815 in the Church of Our Lady in the old city centre of Aalborg.

Henning's friendship with the Simoni brothers played a key role in *De Smithske Jernstøberier og Maskinværksteder* (De Smithske iron foundries and machine shops) for the rest of the 19th century and well into the 20th century. In 1833, Henning Smith had already borrowed money from Daniel Simoni to establish his first iron foundry. Also, it was the Simoni brothers' children, Christian, Henrik and Carl Simoni who financed 3/7 of the investments in the partnership *I/S Det Smithske Jernstøberi og Maskinværksted* (I/S Det Smithske iron foundries and machine shops) in 1857. In 1875, when *De Smithske* were established Christian Simoni and the widows from Carl and Henrik were responsible for 1/3 of the share capital. Finally, it was the businessman Christian Simoni who became the chairman of the board of directors from 1857-1888, while his son Jens Christian Simoni was chairman of the board of directors from 1890-1932.

Henning Smith's tomb in the public cemetery in Aalborg. The year of birth on his tomb is 1794 and not 1792 as it should be. The dates indicated for both his wives are true. His tomb is made of red granite from Bohuslen. He does not have any of the cast iron crosses he produced at his factory. Photo taken in 2008 by the author.

Life and death in Aalborg

On March 8th 1816, Henning Smith was recognized as a citizen of Aalborg as a goldsmith. He lived and worked in a small house in Algade 16. He bought the house – which is still there today – on August 22nd 1821, but sold it soon after in 1830 when he bought a much bigger house a few blocks down the street in Algade 54. This happened to be diagonally opposite the house in Algade 43 where he would open his iron foundry in 1833. Henning Smith was widowed on December 8th 1844, but quickly married Caroline Smith (1815-1891) on August 8th. Both of them lived in Algade 54 till they died. Henning Smith died early in the morning of January 29th 1856 due to heart failure. While it was certain that Henning Smith had died, there was disagreement over his age. According to his birth certificate he died at the age of 64, but his widow Caroline thought he was only 62 years old, which she also wrote on his gravestone and his death announcement - and finally the local newspaper reported that he died aged 65.

The obituary in the local newspaper was a big story. It was the story of the poor goldsmith worker who came to Aalborg with no be-

longings but managed to set up a successful company and build up private capital. He made his way by relying on hard work, knowledge of machine production and iron casting. When he died he was not only the owner of one of Aalborg's most important companies, he was also one of the most important ship owners in Jutland. Whilst there were more than 100 similar iron foundries across the country he was indeed among the most important ship owners in the country

Iron Foundries in Denmark and in Aalborg before Henning Smith

The cupola furnace

Around 1800 it was hard to distinquish big smithies from smithing industries. However, the 2 iron foundries were considered as industrialized: the canon foundry in Frederiksværk from 1756 and the Scottish Thomas Potter's foundry in Copenhagen from 1769-1813. It is highly likely that Henning Smith also knew H. J. Meldahls iron foundry from 1811-1885 on Vesterbrogade in Copenhagen. Meldahl of the iron industry in both Norway and England. He brought the cupola to Denmark. The cupola was a blast furnace in which the iron melted continuously. The furnace was invented in England in 1774 and it was the prerequisite for the production of cast iron until 1945, when the electric melting furnace took over. Cupolas already existed in Aalborg when Henning Smith arrived, as some of the first iron foundries outside Copenhagen were based there from 1807-1824.

Cupola furnace at Henning Smith's foundry. The pig iron and furnace coke are added from the top. Air is blown in from below on the left, while liquid cast iron is drawn out on the right. Watercolour from 1871.

F. W. Meyer's iron foundry in Aalborg 1807-1824

In 1820 Meyer's foundry on Vesterbro in Aalborg melted down approximately 5 tons of iron a year. 15 people were employed there. Meyer (1773-1843) was originally from Hamburg, but he was educated in Dresden and was recognized as a citizen of Aalborg in 1803 as a metal worker. In 1807 he expanded his smithy with modern iron casting facilities. Meldahl's in Copenhagen and Meyer's in Aalborg were the two largest iron foundries in Denmark in 1820. In the same year there were 6 foundries in the country employing 54 workers in total. Meldahl and Meyer each employed 15 workers while the rest were split between the other 4 foundries.

Thus the government was certain that Meyer in Aalborg was a factory, not just a workshop: '*Meyer's factory is far more important than a normal workshop as it has more employees and a significantly bigger turnover*'. Large purchases of bar iron and pit coal indicate that Meyer's factory made use of the same processes as Meldahl in Copenhagen. Some of the products from Meyer still exist today, for example the statue of Major General A. L. Moltke which is in between Aalborg Conference Center and Hotel Hvide Hus in the centre of Aalborg. It is also possible to follow his production of street lights, sun screens, chandeliers, tea pots and all night burners through his annual reports to the government. The

The prop for Moltke in the local park, Kildeparken, in Aalborg was put up in 1815 in remembrance of major general Moltke. The prop was raised by the first iron founder outside Copenhagen, the industrial artist F. W. Meyer (1773-1843) who managed an iron foundry in Aalborg from 1807-1824 which was the same size as the biggest iron foundry in Copenhagen. Contemporary picture.

production line reflected Meyer's saying: '*Anything you can imagine can be produced in metal*'. This was something that inspired Henning Smith, who was born and raised in a metal worker's work shop.

When king Frederik the 6th visited Aalborg in June 1824 he was shown around Meyer's iron foundry, which was considered to be the city's major attraction. It was presented to the king as *'the first iron foundry factory in Jutland'*. A crisis in the 1820s however wiped out Meyer's iron foundry which continued as a small metal workshop instead. The next time the king visited an iron foundry in Jutland it was in Hjørring and was presented as *'the first provincial iron foundry'*.

A. F. Heidemann's iron foundry in Hjørring 1830-1920

When Christian 8th visited the biggest iron foundry in Hjørring to celebrate the opening of the Park Christiansminde in Hjørring in July 1842, he also visited Andreas Frederik Heidemann's iron factory

A. F. Heidemann was born in Kongsberg. From 1820 he worked as village smith in Astrup, but in 1830 he could move into Hjørring, as he was allowed by the king to establish an iron foundry. Established by Heidemann, the company was continued by his son and his grandson – both of whom were conveniently named A. F. Heidemann, too. Originally however, the Heidemann senior wanted to move the iron foundry to Aalborg as he wrote in his application to the king: *'it is hard to maintain an iron foundry in Hjørring, as the infrastructure makes the transport of heavy materials to and from the city very difficult'*. The location of Aalborg was considered to be much better even though some of the locals here complained that: *'no factory can ever survive in the city'*.
Heidemann also wanted to establish a malt crushing factory, as he argued that one *'cannot make a living from an iron foundry alone'*. The executive in Aalborg supported Heidemann's application for moving the iron foundry from Hjørring to Aalborg. He thought Aalborg should definitely have an iron foundry and that *'one is surprised that Aalborg does not already have iron foundries and other similar factories'*. However a malt crushing factory with a metal roller was not needed according to

the executive who feared that would damage the water mills in Aalborg. In the end Heidemann did not move his iron foundry as he was not allowed to establish the malt crushing factory, too. As the rest of the book will reveal, there was another entrepreneur who did not make the opening of a malt crushing factory a condition for opening an iron foundry. We will now turn to Henning Smith and the story of the birth of what we know as *DESMI* today.

The Iron Foundry of Henning Smith in Aalborg 1833-

Privilege December 21st 1833

We, Frederik the 6th, King of Denmark and blessed by God, approve the application from goldsmith Henning J. Smith. H. Smith is now allowed to establish an iron foundry in Aalborg.

We recommend that Henning J. Smith may produce tools and machines, as most iron foundries do. H. Smith is allowed to hire skilled labour and sell his goods in small or large quantities.

Henning Smith must submit a detailed plan of the new furnace as well as plans for how it will be installed for fire brigades. He is obliged to follow the plan as approved by the fire brigade.

Henning Smith is required to respect his neighbours and he shall be responsible for any complaints to the local authorities.

To the extent that the content of this allowance is compromised, it will be suspended immediately without trial.

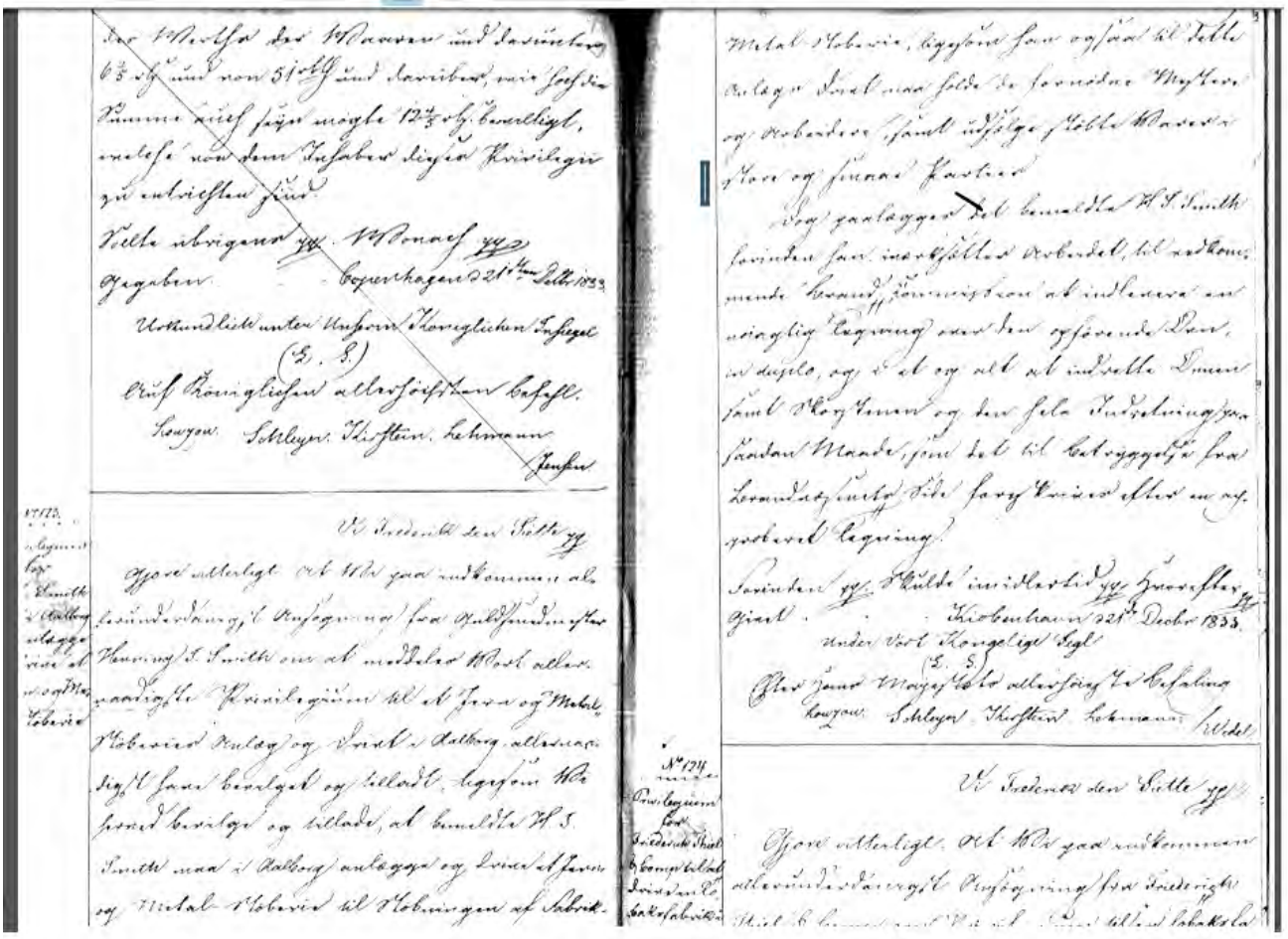
Issued in Copenhagen December 21st 1883

On behalf of the King by Lowsow, Schleyer, Kirstein, Lehmann/Wedel.

When Heidemann in Hjørring was not granted the right to open a malt crushing factory in Aalborg, he decided to stick to the iron foundry he already had in Hjørring. That made it possible for other entrepreneurs to take advantage of the lack of iron foundries in Aalborg.

On September 20th 1833, goldsmith Henning Jacobsen Smith sent his application for permission to establish an iron foundry in Aalborg to the government. He also applied for permission to hire whoever he found qualified to work for him. Even though this application was strongly supported by the local executives, who emphasized how important it would be for the economic development of the city, it was not passed by the government immediately. On October 19th 1833, Henning Smith received a dismissive reply from the deciding authority, the office of industries. He was not allowed to work as a smith or a carpenter outside the existing craft guilds. Conversely the craft of moulding was completely new and thus did not have a guild, so there were no restrictions on him hiring moulders. In the end, Henning Smith had to accept the government's demands that he would only hire skilled smiths and carpenters who were already organized in craft guilds. Finally, after having sent a reminder to the government on December 5th 1833, he received his licence on January 18th 1834, dated in Copenhagen December 21st 1833.

The copy book from the Commercial College's industry and factory office in Copenhagen where one can find a copy of the privilege from December 21st 1833. The original version that was sent to Henning Smith has been lost, but the copy can be found in the Royal National Archives.



Privileges for iron foundries in Denmark 1828-1833

Below is a summary of the government issued privileges from 1828-1833. All the privileges had identical wordings – only the names of the persons and places were different:

Recipient	Trade	Place	Date	Closure
P.F. Lunde	Blacksmith	Copenhagen	December 1829	1867
A.F. Heidemann	Blacksmith	Hjørring	September 1830	1935
Carl F. Weiss	Iron founder	Horsens	January 1831	1840 (1940)
Henning Smith	Goldsmith	Aalborg	December 1833	
Peter Allerup	Molder	Odense	June 1836	1977
Chr. A. Heegaard	Ironmonger	Copenhagen	December 1837	1898
D.F. Løwener	Carver	Copenhagen	April 1838	1970

The main sentence in the licence was that *'XX is allowed to establish and run an iron foundry in YY-city to cast factory tools, machines, rollers and similar products suitable for metal and iron foundries. XX can hire the skilled labour he requires and sell products'*.

Or in other words as Henning Smith was not a master smith himself, he was obliged to hire one - which he did immediately. Hence, at the census in February 1834, 2 employees were registered with 'the iron foundry'. Master smith Mathias Jørgensen, 36 years old, and worker Peter Jensen, 26 years old. The iron foundry was in Algade 43, where a small shop was also to be found, as Henning Smith announced in the local newspaper June 9th 1834.

By the end of 1834, Henning Smith reported to the government that the total production of 1834 was 32 tons of cast iron, smelted from 16 tons of old iron, and 16 tons of new iron. 300 barrels of coal were used, and on average the factory had 6 permanently employed workers and 8 day labourers for the casting. Thus everything seems to show that the factory had been operating from the very beginning of 1834, otherwise the opening of the shop would not have been possible June 9th 1834.

The photograph from 1849 shows all three wings of the factory just in front of the cathedral in Aalborg. On the left of the factory is the bishop's place and to the right Jens Bang's Stenhus. The original factory was built in 1753 and was used as a silk factory, an institution for forced labour and as a school before Henning Smith established his iron foundry in 1833. From 1838 all buildings were used for the iron foundry.
Photograph by Johan Bülow Birk, 1849.

Factory Buildings – Aalborg Factory Court

The factory was probably already operating by the end of January 1834, but production took place in rented rooms: Aalborg Factory Court. The factory court in Algade 43 was built in 1753 and had housed some of the most imaginative business adventures one can think of throughout the second half of the 18th century. By August 31st 1753 the silk manufacturer, Jens Jensen from Copenhagen, had not only received freedom from duty and a monopoly on the sale of silk in the whole of Jutland but also 12,000 rix-dollars from the government to establish his company. This was an enormous amount of money in 1753. Jens Jensen tore down all the houses in the area between Algade and Skolegade south of the cathedral. Here, he built a factory stretching over 850 square metres. In 1762 when the site peaked in size or production it housed 37 horse-drawn looms and employed 135 workers. The factory produced 3-4,000 metres of silk a year. Even though the factory itself was impressive, Jens Jensen could not sell much of his silk, as the quality was not nearly as high – nor the price nearly as low, as that available on the black market.

In the following years, 1763-1793, different stakeholders repeatedly tried to kick start production. None of them were successful until 1793 when the factory became a forced-labor institution for the municipality of Aalborg. From 1793-1812 more than 200 children and adults worked at the factory, and when production peaked more than 550 people were employed there. Yet still, silk manufacture was a bad business and the revenue could not even cover the expenses for food for the workers at the factory. In 1812 the original silk factory finally closed. The factory building was owned by the merchant Christopher Qvist, who owned shares of most of the factories in Aalborg. Therefore, he was engaged in industries as diverse as tobacco, soap, sugar and paper. Through his involvement in the old factory court, he was now about to meet Johan Georg Galster (1776-1848) who had also benefited enormously from Denmark's war against England from 1807-1814.

Johan Georg Galster (1776-1848) was originally working as an agent in Northern Europe for the company Boulton and Watt in Birmingham. It was this company that created the first steam engines that could power other machines. During the war between England and Denmark 1807-1814 he was interned in Aalborg, 'where not even the war could prevent his ideas from materializing' as it was phrased at his funeral in 1848.
Painting by Ole Rasch in Lindholm, 1824.

Johan Georg Galster

Galster was by far just a Mr. Nobody. He was the agent in Northern Europe for England's most famous steam engine factory *Matthew Boulton & James Watt* in Birmingham. It was at this factory in Birmingham that steam engines were first used to pull other machines. Just before the war with Denmark in 1807-1814, Galster replaced the first 'fire engine' in Denmark with a modern steam engine at the naval dockyard in 1804. In addition he introduced a steam driven machine from *Boulton & Watt* that produced coins at the Royal Mint in Copenhagen: a machine that was literally red-hot in the years following the Danish national bankruptcy in 1813. At the outbreak of the war against England, Galster was deported from Copenhagen to Aalborg – he was an English agent after all. After the war against England and the banning of goods from the English textile industries there followed a rise in the Danish textile industry.

In Aalborg, Galster established a stocking factory (1808-1814) with 124 employees, a canvas weaving mill (1809-1817) with 10 workers, a hat factory (1810-1813) with 6 employees and a glove factory (1809-1811) with 80 employees. He knew the war prevented him from buying the steam engines he wanted from England, and that water power was not very good in Aalborg, but he was convinced that everything would change once the war was over.

The city where no factory can ever survive

By 1814-1815 the war was finally over and a new modernized textile factory should have crowned Galster's achievements. Therefore, Galster moved his business to Aalborg factory court where he established a full blown factory with 8 spinning machines, 5 reel machines, and 2 spool machines. Galster's idea was to run all the machines using one big steam engine from England. While it was a good idea, it did not work out in the end, because Galster could not buy the steam engine from England. The English government did not want competition from the continent and therefore banned the export of steam engines. This forced Galster to run the machines by old fashioned horse power. Galster had 4 horses, but nothing worked as it was intended. Quist, who still owned Aalborg factory court, died on May 20th 1815. A year later Galster's textile factory was declared bankrupt. Most other factories in Aalborg shared the same destiny: thus Heidemann had reason to declare in 1833 that Aalborg was the city where no factory can ever survive.

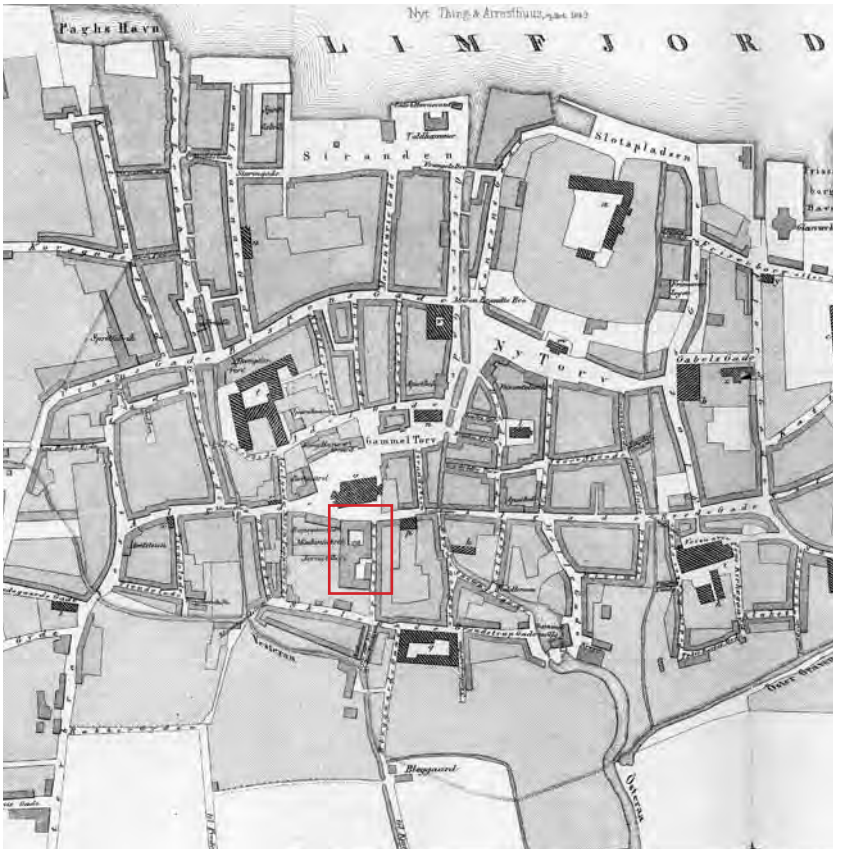
Henning Smith witnessed the bankruptcies in Aalborg, and also probably discussed the triple bankruptcy that took place in Aalborg factory court: 1763, 1812 and 1816. The court had become the symbol of unsuccessful attempts of industrialization. However, there were strong forces in the city who wanted to revive the industries of Aalborg and change the story of Aalborg Factory court into one of successful industrialization. In 1833 statistics from the government's office for industries showed that a new iron foundry was expected to have a net profit of 13.5%. This was a window of opportunity to change the pattern of industrialization in Aalborg. All that was needed was an entrepreneur who dared to take the risk and establish an iron foundry in Aalborg.

Photograph from Algade, 1930. The main building with 3 floors and 7 windows connects two other wings that each had 3 windows. It was in the left wing that the factory started in 1834. Today it is on the corner of Algade and Budolfi square.

Henning Smith and Aalborg Factory Court

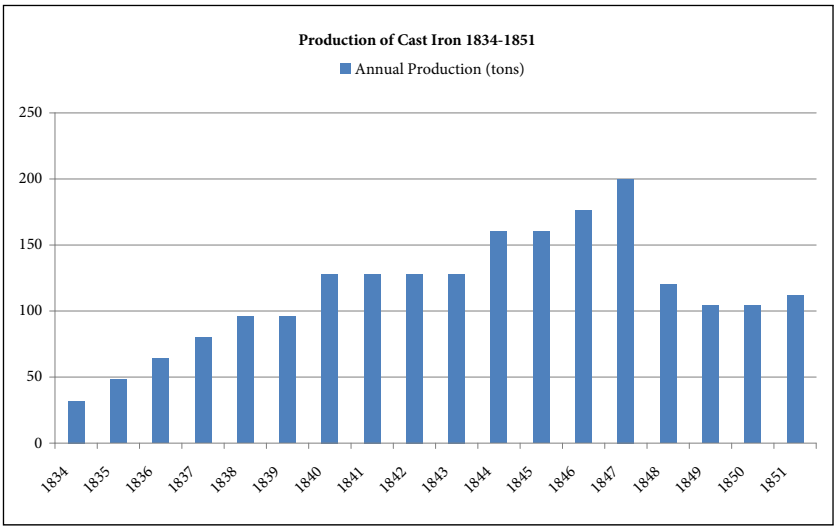
After 18 years of stagnation in Aalborg's industrialization, goldsmith Henning Smith revived Aalborg's Factory Court. The court had three wings. The east wing and the west wing were alike: two floors of 230 m². The two wings were connected by a newer two storey main building of 190 m². In the early years, Henning Smith rented the ground floor in the east wing, but he soon expanded to the rest of the east wing in the summer of 1836. In February 1838 he received the deeds for the entire complex. The total area was 1,300 m² (excluding the lofts) and the total site was 2,300 m².

Det Smithske iron foundry on a map of Aalborg from 1859.



The front of the factory facing Algade. On the left is the southern chapel of the cathedral and in front is the bishop's place in Aalborg. Unknown photographer around 1930.

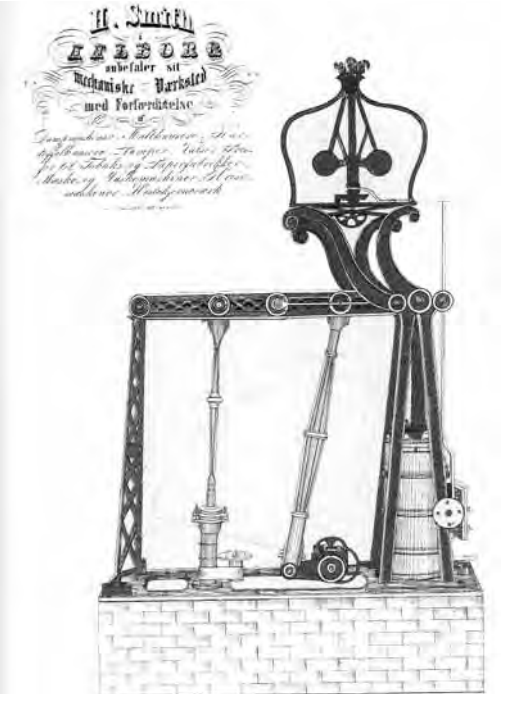
Production 1834 – 1856



The figures are from the annual reports for the Commercial College and from personal notes from Henning Smith to the city of Aalborg. In his personal notes it appears that Henning Smith himself defined December 21st 1833 as the first day of his factory.

The production of cast iron was carefully reported each year from 1834 to 1851 in terms of both raw material and final products. As shown in the chart, yearly production increased to 125 tons in 1840, when competitors began to enter the regional market. From 1843-1848 machine production was modernized significantly which is reflected in increasing production until the war broke out in 1848-1851 and competition from other iron foundries intensified, slowing growth rates.

Machine fabrication



It was steam machines like this one that Henning Smith produced in the mid 19th century. The advertisement, from 1844, emphasized machines for the production of spirits, tobacco, and paper – sectors that were all present in Aalborg. It is likely that the early mechanizing of the factories led to the establishment of the most important producer of liquor and tobacco in Northern Europe: De Danske Spritfabrikker (the Danish liquour factories) and C. W. Obel's tobacco factory. The factories grew so big that the machines were already replaced in the 1850s by machines from B & W in Copenhagen.

Whilst the figures for the total weight of production are certainly interesting, they do not reveal much about the machines. The local newspaper, Aalborg Stiftstidende, however, reports in April 1843: *'the enterprising and shrewd Henning Smith has expanded his factory with a machine workshop. The first of his new big machines is a high-pressure machine with 5 horsepower. Mr. Smith promises to deliver steam engines to factories with up to as much as 10 horsepower'.*

Two years later in January 1845, the newspaper reports that *'among the industrial plants in the city that are all constantly developing and facing rapid industrial development, Mr. Smith's iron foundry and mechanical workshop is led by persistent force and impressive skilled insight. Most recently, Mr. Smith has successfully produced his own steam engines with 10 horsepower. He is currently producing another 7 machines. Four of them will be transported to Randers, while the other 3 have been sold to local businesses here in Aalborg'.*

As for Randers, there were 7 steam burners in 1847. 4 of them acquired steam engines from Henning Smith. Of the other 3 machines in Aalborg, we only know of 2 steam burners in Thustrup and in Hals. Based on the description of the latter, it seems safe to say that Henning Smith had originally produced the steam engine that powered the crushing of potatoes and malt in Hals.

However, we only know for certain that Henning Smith delivered the engines to Peter Wibroe's steam burners in Aalborg and parts of the factory for the spirit 'Red Aalborg' from 1846. Thus, Henning Smith was engaged in expansion of the spirits industries in Aalborg in the 1840s. This also explains the stagnation of the business' turnover after 1847, when the establishment of new steam burners was stopped. Throughout the 1850s very few machine are reported to have been sold: only one to Chr. Simoni and a few to a local textile factory.

H. Smith falls behind B&W

While Henning Smith did not sell many machines in the 1850s machines were certainly produced, sold and bought in the region. Green's match factory, Wibroe's dye works, Obel's tobacco and Poul Pagh all invested in new steam engines for their various factories. However, the name of the producer had changed from H. Smith to B&W. During the 1850s B&W (Burmeister and Wain) in Copenhagen grew to be the biggest company in Denmark. The first pumps and steam engines for Aalborg waterworks were not locally produced, but imported from B&W in the capital in 1854. Even though the machines were not originally produced by Henning Smith, the company would make much money on the waterworks in the future as repairs and the production and installation of new steam engines were done by *De Smithske*.

The stagnation of H. Smith's machine workshop was caused by increased competition on the market during the new wave of industriali-

zation that swept over the country from the 1940s and onwards. If focus is kept on the companies that survived to the end of the decade, 43 iron foundries were established in addition to the 12 that already existed. During the 1850s another 48 foundries were established. When Henning Smith died Denmark had more than 100 iron foundries. Quite a few of them maintained their market shares for decades to come. The oldest of the surviving companies is *DESMI* from Aalborg (1833), but other companies are worth mentioning in passing: *Ørkil* in Svendborg (1838), *Helsingør* (1845), *Strømmen* in Randers (1845), *B&W* in Copenhagen (1846), *Hess* in Vejle (1847), *L. Lange* in Svendborg (1850), *Morsø* (1853), *Frichs* in Århus (1854), *Tasso* in Odense (1856), *Møller & Jochumsen* in Horsens (1857) and *Titan* in Copenhagen (1857). The development also included the region in Northern Jutland, where Aalborg is located. When Henning Smith died there were 14 iron foundries and machine workshops in the region: Frederikshavn (1), Hjørring (5), Løgstør (1), Løkken (1), Nykøbing Mors (1), Nørresundby (1), Sundby (Thy) (1), Thisted (1) and Hobro (2). Obviously this had a strong impact on production for *De Smithske*. The rise of suppliers was not matched by a similar rise in the demand for the products the iron foundries offered. On the contrary the Danish companies' production of both machines and cast iron items were challenged by the advanced industrialization in neighbouring countries: Germany, England and Sweden.

This cast iron all night burner was produced by Henning Smith's iron foundry in the 1840s. Today it is in DESMI's headquarters in Lindholm. Photography by the author, 2009.

Cast iron items

The cast iron items that Henning Smith produced were not fundamentally different from those his competitors produced. His initial advertisement from June 1834 showed standard products such as all night burners, stoves, window frames, and memorial crosses. Hardly any of the all night burners have been preserved. The company does have a few beautiful copies on display in their office today – both rectangular and cylindrical. The window frames are preserved in photos of the factory – even on a photo from 1862. When it came to crosses, Henning Smith dominated the region's markets completely.

In 1970, 157 crosses produced by Henning Smith's iron foundry still existed in Denmark. Most of them – 14 in total – were at a cemetery in Store Lyngby. The crosses were mainly produced in two periods: around 1840 and again from 1860-1878. The crosses are produced in different designs, but a butterfly is always to be found on them. The most famous one is probably the cross that tobacco producer C. V. Obel had Henning Smith produce in the 1830s.

The cross was for C. W. Obel's father 'the mild and Christian' pastor, Ole Frederik Obel. Even though the pastor had already died in 1809, his son wanted only the best for his father. Even though the business was going well locally, market shares were lost regionally. The most important rival was Gabrielsværk across the fiord in Nørresundby.

The oldest cast iron cross from Henning Smith's iron foundry that is known to exist today appears on the previous page. It honours pastor Ole Frederiks Obel in Gudum who died in 1809. His son, tobacco producer C. W. Obel, bought the cross for his father 25 years after he died. The butterfly on the cross is characteristic of most of the crosses that Henning Smith produced. The cross on the right is from November 1838 for Birgitte Svanfolk in Gudum.
Photograph by the author.

Julius Galster, son of Johan Georg, constructed workmen's houses in Nørresundby in 1856, but faced problems during the crisis in 1857.

Nørresundby iron foundry and machine workshop - Gabrielsværk
Gabrielsværk was established in 1847 by iron founder H. P. Jensen. In 1853 the factory was taken over by Julius Galster, who was the son of the Johan Georg Galster mentioned above. Galster changed production and specialized in cast iron machines for the agricultural sector. In the mid 1850s yearly production reached 160 tons of iron and 36 employees. Henning Smith produced 115 tons of iron and had only 33 workers. After the crisis in 1857 Gabrielsværk lost market shares and later became a supplement rather than a competitor to *Det Smithske*. Even though Gabrielsværk did not make it into history for its cast iron production, it established one of the first sick-benefit associations in Denmark and financed the construction of workmen's houses in 1856. In addition the establishment of the first co-op in Denmark was supported by some of the workers from Gabrielsværk in Nørresundby in 1866.

Management and employees 1834-1856

In the death announcement for her husband, Henning Smith, Caroline Smith regretted that many people also lost the person who had helped them in their daily struggle to make a living. She spoke directly to 40 of the 380 industrial workers who lived in Aalborg in 1855.

Bekjendtgjørelser.

† † †

Med dyb Veemod bekjendtgjøres for Slægt og Venner, at Herren idag Morges bortkaldte min elskede og virksomme Mand, Skibsrheder og Jernstøberieier **Henning Smith**, i hans Alders 63de Aar. Hans Bortgang vækker stor Sorg hos mig, og Savn hos dem, der ved hans Driftighed havde dagligt Erhverv.

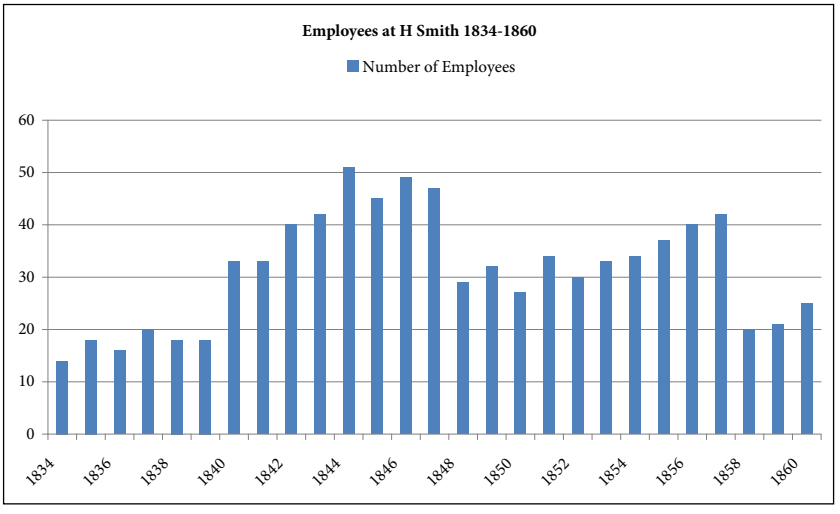
Aalborg, den 29de Januar 1856.

Caroline Smith,
født Christensen.

Begravelsen finder Sted Onsdagen den 6te Februar Kl. 11.

Of the 380 workers, 55 were women and 130 were children. However this group worked predominantly in the textile, match and tobacco industries. Henning Smith only employed adult men. If the 40 workers are seen as a fraction of all the adult male industrial workers in Aalborg, Henning Smith employed 21% of them. However, in the big picture, the metal industry in Aalborg was relatively small. Only 0.4 % of the population of 9,102 in 1855 was employed in the metal industry. With 1.5 % of the figures being more than three times as big in both Århus (8,891) and Odense (12,932). The relatively weak metal industry in Aalborg would prove to be a weakness in the following 100 years.

The size of staff closely followed the size of production. From 1834-1838, the factory employed approximately 20 workers. But when pro-



Figures are from the annual reports, the industrial records from 1855 and the records from Aalborg Custom House.

duction increased in 1839, it was reflected in the number of employees which increased to 50 from 1839-1843. In the years when the company produced steam engines the high level of employees was kept to around 50, but decreased to 30 in 1848, when the demand declined. In the following years it grew slowly to 40 workers in 1857, until it was halved to 20 workers in 1858 as a consequence of a global financial crisis.

That the company faced a serious crisis in 1857 could have been caused by the death of Henning Smith in 1856. That is however highly unlikely to be the case. He did indeed own the iron foundry, but he had already stepped down as daily manager in 1844. The 1833 licence had demanded that the foundry was managed by a skilled blacksmith who was a member of the guild. As Henning Smith was a goldsmith, he did not qualify. In addition to Matthias Jensen, who was mentioned earlier, the management position was given to a number of different skilled smiths. One of them was Anthon Julius Schmidt, who was born in Randers on June 26th 1816. Despite the name and the place of birth, he was not related to Henning Smith, but he was the first managing director of the company from 1844 till 1856. The title as managing director of the iron foundry appears for the first time when his oldest son was christened Henning Schmidt on July 2nd 1844, and the family moved into the manager's residence next to the factory in Algade 43. The owner of the iron factory, Henning Smith lived in his old house across the street in Algade 53. When Henning Smith and Caroline Smith got married in 1845 they agreed on a marriage settlement. It stated that whoever lived the longest would inherit everything, after having given 10,000 rix-dollars to Managing Director Anthon Julius Schmidt.

When Henning Smith died in January 1856, the company was drained of its liquidity. This happened just before the entire country was challenged by a serious international financial crisis in 1857, and just before the new owners were faced with the challenge of recapturing lost market shares for steam and agricultural machines. The only comfort was to know that the crisis hit everyone and that the real competition was over having the strongest network of influential and financially strong connections. This is what we consider in the next chapter that examines the period from 1856-1875.

CHAPTER 2

The Driving Force of the Industrialization of Denmark 1856-1875

I/S Det Smithske Jernstøberi og Maskinværksted

Summary 1856-1875

When Henning Smith died on January 29th 1856, the Simoni family took over the company. For many years the Simoni family had supported the company financially, but it was only now they became the owners and managers of the company. On November 11th 1856 the brothers Christian and Carl Simoni bought the company with their cousin Henrik Simoni and established the partnership *Det Smithske Jernstøberi og Maskinværksted* with 4 other persons.

It was a difficult beginning: the recession in 1857-1858 was a serious blow for the company. The new owners had raised several big loans and significantly modernized production, but the company was not yet fully consolidated. The liquidity crisis that followed made it very hard to develop production and capture new shares of the market. It was not until 1868 that the new owners were successful in turning the company into a profitable business. But from then on things developed fast for the *Det Smithske*. Like other iron foundries, the company prospered by selling to the local and regional markets.

The years from 1868-1875 can be characterized as a period of growth in most industrialized parts of the world. The local newspaper described the general economic growth in Aalborg and argued in 1870 that *Det Smithske* was the driving force in the city's impressive growth. It was predicted that *'Det Smithske would bring Aalborg's industries up to a level with industries in prosperous countries such as England, France, Belgium, Sweden and even the United States of America'*.

Aside from economic growth, this period was also characterized by workers' rights movements. After the establishment of the Danish Social Democratic party in 1871, workers demanded a share of the company profits. The workers wanted more than a minimum living wage. A brand new discussion of the relationship between wages and living conditions had begun.

In 1875 the partnership changed to a corporation, but by then a new crisis had begun. This is reflected in the local newspaper which changed its opinion about the company completely. Hence, by the end of 1875, the newspaper was complaining that capital intensive companies diverted money from other more sensible investments, as *'the Danes are not meant to run large businesses such as factories'*.

Winds of Change after Henning Smith Died in 1856

Caroline Smith, born Fjordbach Christensen (1815-1891) married Henning Smith August 8th 1845. The couple agreed on a marriage settlement that stated that whoever lived the longest would inherit everything. Caroline Smith became the richest person in Aalborg overnight when Henning Smith died. She lent the company money when it was necessary.
Unknown photographer.

The winding up of the estate of Henning Smith was very comprehensive and was not finalized until the fall in 1856. At that point, Henning Smith's widow, Caroline Smith, was the single wealthiest person in the entire city of Aalborg. Her fortune was three times as big as each of the three second richest persons in Aalborg: liquor producer Isidor Henius; tobacco producer C. W. Obel and businessman Christian Simoni. The impressive size of her fortune was especially due to her 7 ships that loaded more than 1,000 tons. As a ship owner, Caroline Smith was only surpassed by Christian Simoni who owned 14 ships at a cargo-carrying capacity of 2,000 tons. Their total of 21 ships could easily carry the yearly import of coal and iron not only to Aalborg, but to the whole of Jutland. Thus it is not surprising that Christian Simoni, as the leading importer of coal and iron, had an interest in the iron foundry which was the biggest purchaser of coal and iron in the Aalborg area. Caroline Smith kept the ships and the house in Algade 58, whilst she sold the factory buildings in Algade 43 to a partnership of 7 members for 100,000 Danish kroner (DKK). 75,000 DKK for the buildings and 25,000 DKK for the stocks. She received 30,000 DKK in cash, and lent the remaining 70,000 DKK to the buyers at an interest rate of 4%, secured on the buildings. Each of the 7 partners invested 6,000 DKK in the project. This only barely covered the charge to Caroline Smith, the first interest payments and repayments and the expenses for modernization of the factory. In order to make some fast money, the partners sold the stock for less than half of the valuation to the former managing director, Anton Julius Schmidt, who then opened a shop in Randers.

The Financial Crisis 1857-1858

Even under normal circumstances the financial basis for the company was fragile. However, the time of the global financial crisis was by no means normal. The number of partners grew from 7 to 8 and each partner had

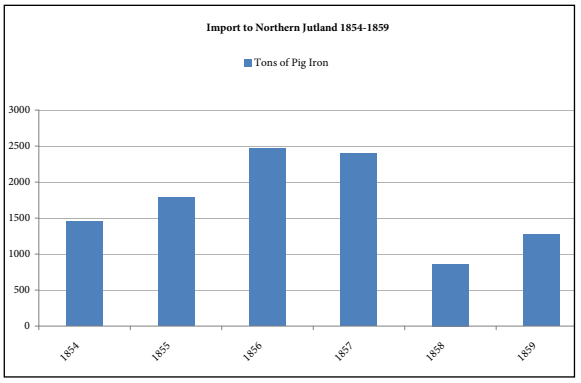
to invest another 1,000 DKK in the company. Furthermore, they had to ask a very reluctant Caroline Smith to postpone installments. In addition, the partners obtained an extra loan of 6,000 DKK and finally, hoping for miracles to happen, they invested in lottery tickets.
What happened in 1857 was very similar to what happened in the autumn of 2008. The New York branch of Ohio Life Insurance and Trust Co., one of the most significant credit institutions, collapsed in August 1857. After that the panic in Wall Street at the stock exchange in New York set in and another 5,000 American companies collapsed. The situation was aggravated when 14 tons of gold from the treasury in San Francisco, CA, disappeared without a trace after a shipwreck in the Caribbean in September 1857. The loss of confidence in the American credit markets had a significant impact on British investors and therefore the stock exchange in London. The consequences of this quickly spread to the rest of the world. Late in the autumn of 1857 the global financial crisis reached Denmark. From December 1857 to January 1858 229 companies applied for administration orders. It was not until the Danish Government passed the 'bank package' of DKK 10 million that economic development took a new direction. The bank package secured the stockbrokers in Hamburg, which was the most important credit institution in the Danish economy. With the help of C. F. Tietgen and his newly established 'Private Bank' the crisis did not hit as hard in Denmark as was the case in other countries, but the financial crisis did cast a shadow on the economic climate of the following decade.
Det Smithske made it through the crisis with the help of complicated exchange transactions. There were two leading acts in this play: the first was played by the stockbrokers Adeler in Copenhagen and Pontoppidan in Hamburg, the second by the partners' well developed network in Danish society.

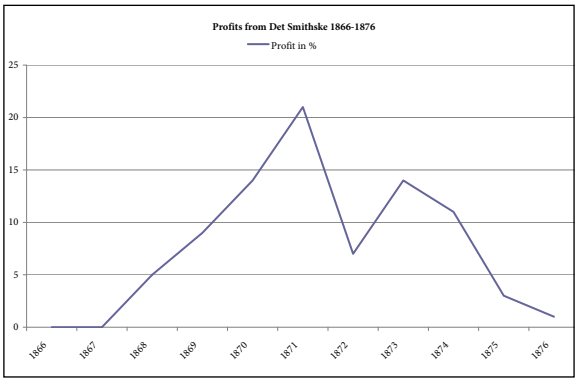
The First Difficult Years 1858-1860

The timing of the financial crisis was as bad as it could possibly be for *Det Smithske*. Rebuilding the factory, the backbone of the company, was started in the summer of 1857 in Algade 43. The purpose was to improve the company's 2 main activities: iron casting and the production of machines. A new main building was added to the complex with 3 wings. Whilst the main building was mainly for administration, the machine workshop was in the northern section and the iron foundry in the southern section after having invested in additional land.
The purpose of the renovation was to recapture shares in the market for machines that the company had lost when Henning Smith was still alive and to eventually expand the factory even more.

Despite conscious efforts to maintain the number of its distributors in the market, the company did lose a few. That led to the closing of a shop in Grenaa, but at the same time a new shop was established on the island of Læsø close to Aalborg. For the sake of controlling local distributors, the company invested in a carriage and two horses. When it turned out

to be cheaper to rent carriages, the carriage the company owned was immediately sold. In addition, the managing director, Carl Wendt, was sent on a trip to both Copenhagen and Hamburg in Northern Germany in order to buy single copies of machines, stoves and other products of cast iron that would serve as an inspiration for improving and develop-





The figures for import of pig iron are based on figures from annual reports from the regional custom house (1843-1878). Those for the profit for Det Smithske are based on the company's records.

ing the production process as well as the final outcomes. The company also bought a modern harvester from *Burgess and Key* in England to expand their scope for creativity.
Then however, in 1857-1858 the financial crisis hit the company. We do not know the exact impact of the crisis for the company, but judging from the authorities' specifications for import of iron to the region it is obvious that the crisis was severe.

Businessman Christian Simoni (1807-1888) had his photograph taken at Heinrich Tønnies studio in Aalborg in 1857. The photograph is taken during the financial crisis in 1857, which Det Smithske only survived thanks to Christian Simoni who was both Managing Director (1856-1858) and the Chairman of the board of directors (1856-1888). Christian Simoni was a son of Henning Smith's childhood friend from Randers, Frederik Simoni. The photograph is in Denmark's oldest photo album which is in Aalborg City Archives as a part of the Heinrich Tønnies archive, which includes photographs, negatives and records for the years 1856-1975.

Unlike many of the other iron foundries that were established in the 1840s-50s *Det Smithske* survived the financial crisis. The company's creditworthiness was built on a tight network of close personal relationships and it is likely that it was this network that saved the company.
The financial crisis also forced the partners to take significant personal risks with their investments. Even though some of them dropped out of the partnership, new partners were recruited and they had to accept that the company was not profitable until 1868. In order to fully understand the company it is crucial to know each of the partners.

Partners and Managing Directors 1856-1875

1. *Businessman Christian Simoni, Aalborg*
2. *Secretary of Justice Carl Frederik Simoni, Copenhagen. From 1872 his widow Sophie Simoni*
3. *Shipmaster Henrik Simoni, Aalborg. From 1862 his widow Kirsten Simoni*
4. *Businessman Michael Herskind, Aalborg*
5. *Engineer Carl Wendt, Aalborg*
6. *Shipmaster M. J. Faber, Aalborg – from August 1861 Engineer Peter Wendt, Aalborg*
7. *Businessman A. H. Wullf, Aalborg – from June 1858 the company F & A Decomyn, London*
8. *Captain J. Thorsøe, Aalborg – from August 1861 Captain Johan Gaarn, Aalborg*

1. **Businessman Christian Simoni** (1807-1888) was a key figure in the company's first 50 years. He was the son of Frederik Simoni from Randers who had been the best man in Henning Smith's wedding in 1815. As businessman, ship owner, town councillor from 1845-1860 and managing director of the local bank from 1847-1853 Christian Simoni had been one of Aalborg's most important figures for decades. He also played a leading role when Henning Smith established his iron foundry in the 1830s. Later he became the managing director of the *A/S De Smithske Jernstøberier og Maskinværksteder* from 1856 till 1875 and Chairman of the board of directors from 1875-1888. In addition, he worked as works manager from 1856-1858. Finally, as the owner of the biggest merchant fleet in Jutland carrying coal and iron he had an obvious interest in facilitating the metal industries in Aalborg. To serve that purpose he mobilized the rest of his family – most importantly his older brother Carl Frederik who was a prominent figure in Danish national politics.

2. **Secretary of Justice Carl Frederik Simoni** (1806-1872). In 1829 Carl Frederik earned his master's degree in law and shortly after he became head of section in the Danish central administration. In 1848 he became the first Permanent Secretary in the Ministry for Interior Affairs, and in 1856 was the Secretary of Interior Affairs, whilst he served as Secretary of Justice from 1855-1859. He later served as Prefect in Copenhagen and for the entire island of Zealand. Through Carl Frederik Simoni the company had a direct connection to the central administration in Copenhagen. When Carl Frederik Simoni died in 1872, his widow **Sophie Simoni** (1812-1896) took over his share in the company. She continued to be the primary shareholder from 1875-1890. From 1890 onwards their son Johan Christian Simoni took over and became member of the board of directors in 1890-1892.

3. **Shipmaster Henrik Simoni** (1805-1862), Henrik Simoni was a cousin of Christian and Carl Frederik Simoni. Until his death in 1862, Henrik Simoni was a partner and also the managing director. In 1862 his widow, **Kirsten Simoni**, continued as a shareholder.

4. **Businessman Michael Herskind** (1828-1900) was a successful businessman until he went bankrupt in 1879. After this he was a weigher & measurer in Aalborg. For a period of time he was the managing director of the local bank, Aalborg Diskontobank. With regard to the company, he was on the board of directors from 1857-1879 and director with Henrik Simoni from 1858-1862. After 1862 professional engineers who were skilled in the industry took over.

5. **Engineer Carl Wendt** (1928-1910) was a partner from the beginning in 1857 and technical director for 30 years from 1862-1893. In the late 1840s he had been an engineer at B&W in Copenhagen and then first engineer on the paddle steamer '*Iris*', which sailed be-

Christophine and Michael Herskind had their photo taken in December 1857 by Heinrich Tønnies. Michael Herskind was the Managing Director from 1858-1862 and on the board of directors from 1857 to 1879.

Carl W. C. Wendt (1828-1910) was Technical Director at Det Smithske from 1862-1893. He was originally trained as a mechanic by Burmeister and Wain (B & W) in Copenhagen. Before coming to Det Smithske, he worked on the passenger ship 'Iris' from 1855-1857. He became co-owner of the company from 1857-1893. The photograph is a copy of the original negative by Heinrich Tønnies, which was taken in the afternoon Sunday, March 11th 1883. This was when Wendt complained that it was too hard to find skilled labour in Aalborg. Therefore, he personally handled sales, marketing and developing of new designs.

The paddle steamer 'Iris' sailed a regular service between Copenhagen and Aalborg from 1843-1857. As the ship experienced many problems it was necessary to have a mechanic on board. From 1855 to 1857 the name of the mechanic was C. Wendt. Original daguerrotype from June 1849 by Johan Bülow Birk.

The picture of 'Iris' is the oldest picture in Denmark of a ship with an engine. Here, the ship is at the quay in Aalborg. In the background one can see Nørresundby, on the northern side of the fiord. DESMI's present headquarters were built 3 km west of the church that appears between the chimney and the mast to the left.

tween Copenhagen and Aalborg from 1842-1857. When the regular service came to an end in 1857, Carl Wendt was given citizenship in Aalborg and bought his share in the company. In B&W he was succeeded by his younger brother:

6. **Peter Nissen Wendt** (1834-1905). Just like his brother, Carl Wendt, Peter was a son of the master cooper Carl Andreas Wendt and Christine Maas Flensburg. Until 1861 Peter Nissen Wendt worked for B&W – except then it was B&B for Baumgarten & Burmeister. Peter Wendt married Baumgarten's daughter Emma, so when Baumgarten left the company in 1861 and the name changed to B&W, Peter also left. He moved to Aalborg with his wife, where he immediately became a partner in the company as well as foreman of the factory until 1891.

7. **Johan Gaarn** (1827-1911). Finally, we have Johan Gaarn who served as financial manager from 1861-1896. He was born in Århus in a sailor family from Læsø. He became a ship owner, shipmaster and later captain on one of Henning Smith's ships. When Henning Smith died he became a business manager in Caroline Smith's shipping business and that led him to become a partner and eventually the financial manager of the partnership.

Johan Gaarn (1827-1911) started as captain on one of Henning and Caroline Smith's ships. Later he became an accountant for Caroline Smith. At the same time he was the financial manager and co-owner of Det Smithske from 1861-1896. This photograph was taken in the afternoon of Sunday November 3rd 1878 in Heinrich Tønnies' studio. The cracks in the negative were caused by the binding material, collodium, which was not replaced by gelatine until 1883. After many good years for Det Smithske things were an uphill struggle from 1876 - that might have concerned the old sailor when he had this photograph taken in 1878.

8. **Fr. & A. Delcomyn** Fr. & A. Delcomyn was the only foreign partner in the partnership. Ernst Adolph Delcomyn was born in Odense in 1828 and died in London in 1913. In 1849 he was employed in the firm of stockbrokers, Pontoppidan, in Hamburg. Despite the war between Germany and Denmark in 1848-1851, this German company ensured Danish / British trade relations. Ernst Adolph was sent to London with his brother, Frederik, where they opened the company Fr. & A. Delcomyn in 1854. In the years to come the company was the most important actor on the British market for Danish agricultural export as well as for British export to Denmark. The company was also a useful partner and later primary stakeholder.

Progress from 1860-1875

Cast iron

The minutes of proceedings reflected a gloomy atmosphere in 1858-1859. The option of closing the factory was seriously discussed, but during the summer of 1860 things changed when an advertisement finally achieved a positive response.

On May 15th 1860 the company received its first significant order for all the cast iron used in Frederik 7th Canal in Løgstør – one of the bridges is still there today. The order was worth almost 16,000 DKK. But it got

even better. In 1864-1865 *Det Smithske* was asked to produce all the cast iron works for the Limfjord Bridge in Aalborg. This order was more than twice the size of the other: 34,000 DKK. It turned out to be very helpful for the company that the Technical Director, Carl Wendt, took part in the preparatory committee work leading up to both orders.

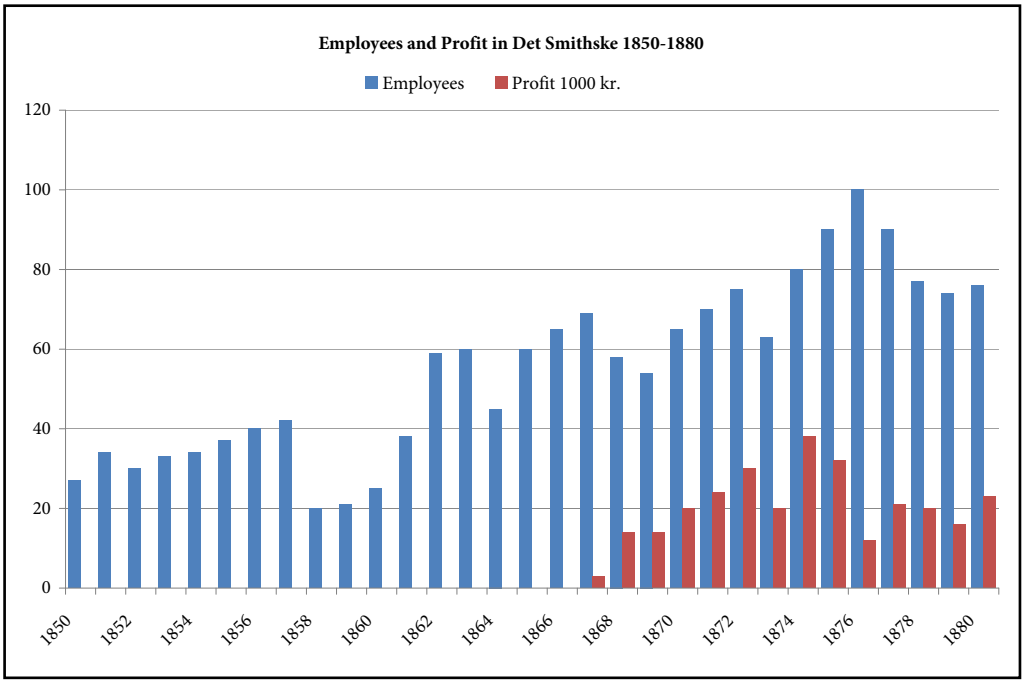
The pontoon bridge that connected Aalborg and Nørresundby was the first bridge across the Limfjord. The planned completion of the bridge in 1864 was delayed by the German occupation of the city, but in 1865 the bridge was completed and was not replaced until 1933. The bridge required much cast iron for chains and pontoons which were produced by Det Smithske. Here, the bridge is seen from Aalborg on the southern side of the fiord. Photograph by Heinrich Tønnies around 1885.

The orders above are just two of the first orders. From the end of the 1860s many other orders were to follow as the railroad in Jutland moved further north. While *Det Smithske* did not produce elements for the railways themselves, the company constructed most of the bridges that were required – most importantly the railway bridge across the Limfjord in 1872-1874.

These bridge building orders were so significant that the company had to expand their production site. The only possibility next to the factory was the square in front of the cathedral in Aalborg. An expansion was finally allowed on the condition that production stopped during church hours. At the same time in 1866, the foundry was expanded to Skolegade because *'we can sell much more cast iron than we are currently able to produce'*. 1868 was the first year that resulted in a significant surplus – 14,400 DKK. For the first time in the company's history the business was profitable for the partners and 5,600 DKK were distributed among the partners, with 700 to each.

The iron foundry is on the right. The picture shows the expansion of the factory to the south. This expansion was the last possible expansion. Unknown photographer (around 1930).

The railway bridge over the Limfjord was photographed by Heinrich Tønnies when it was constructed in 1875. This bridge connected the railway through Jutland with the railway north of the Limfjord. Even though the bridge was designed and constructed by a French company, Det Smithske produced many of the elements.



The figures are based on reports to the Commercial College up to 1854, then on reports to Aalborg custom house (1855-1878). From 1879-1880 it is based on the company's own minute books.

Steam engines second time around

The company had not produced any steam engines since 1850, but in 1866 production was resumed. The first one in 1866 had 4 horse power and was produced for the company itself. The production of steam engines went up significantly in 1870-71 when the company supplied a wide variety of customers with small steam engines. Among others Isidor Henius' liquor factory (12 HP), C. W. Obel's newly built tobacco factory (8 HP) as well as steam engines for the city's three water mills: the Old Mill, the New Mill and Kjær's Mill. Out of the 216 horse power industries in Aalborg used in 1875, almost half of them – 92 HP – were produced by *Det Smithske*. The remainder were produced by competitors in other Danish cities. All the different machines were on exhibit at the big industrial exhibition in Copenhagen in 1872.

The optimism and progress in the company were reflected in the local newspaper of July 28th 1867 when Aalborg Stiftstidende reported that it had *'always said that the location of Aalborg was ideal for the promotion of metal industries and that Det Smithske symbolized this as it expanded its production and production capacity. Optimism was prevalent and the newspaper continued its reporting in May 1870 after visiting the factory by nominating the company:*

'the driving force in the industrialization of Aalborg'.
The Local Newspaper's Description of Det Smithske in May 1870

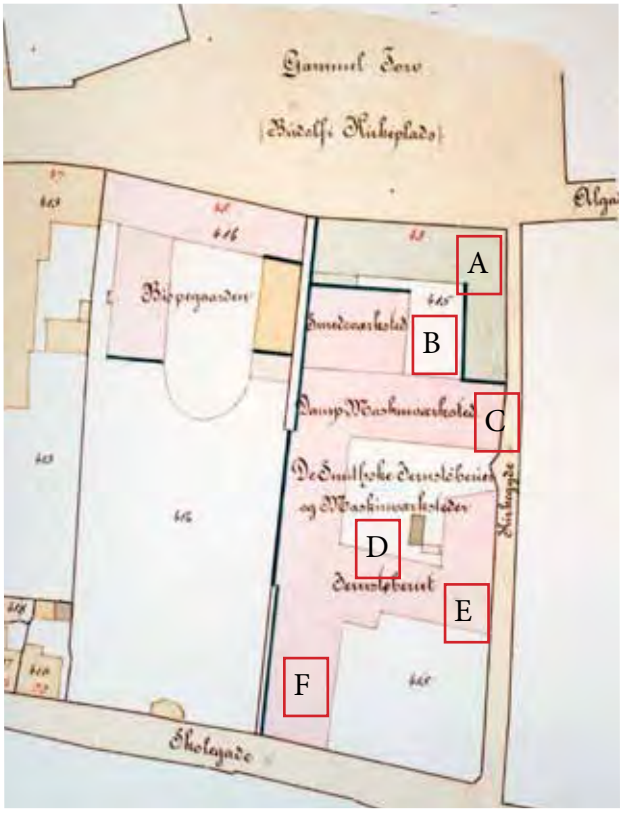
After an introduction about the important role of iron and machine production in the industrialization of prosperous nations such as United Kingdom, France, Belgium, Sweden and USA, the newspaper concludes that a similar development is taking place in Denmark. *'Danes are not fools when it comes to industrialization, rather Danes are widely respected for their works in the metal industries.'*

The newspaper continues *'this is especially the case in Aalborg where Det Smithske iron foundry and machine shop can compete with anyone'. 'The iron foundry was established by Henning Smith and when this entrepreneur died, the company was sold as a private limited company (Inc) by his widow. Since then, the company has made impressive progress and grown increasingly prosperous. Before 1856, the company was mainly engaged with cast iron, but today it is increasingly focused on the refinement of machines. The number of employees has also grown remarkably – from 20-30 to 80 employees today.'*

The article continues with a detailed description of the buildings and functions:

A. Main Building: *'The factory is right next to the Budolfi Cathedral. With the extremely high noise level, and the huge quantities of cast iron that are visible through the small windows, the factory does indeed fulfil all the expectations of what an industrial factory looks like. However, it is hard to*

imagine the restlessness that characterizes the atmosphere, once you enter the main gate from the street'.



A number of maps of Aalborg were drawn from 1880-1900. In 1885 and 1900 the maps were merged and formed complete maps of Aalborg. This shows Algade 45 and 43 which is where De Smithske iron foundries are.

For De Smithske the letters mark the following functions:

A.	*Front building, administration and shop*
B.	*The smithy*
C.	*The machine workshop*
D.	*The foundry*
E.	*The iron foundry*
F.	*The storehouse*

B: First Court Yard – the Smiths' Work Shop: *'In the first court yard from the street a group of workers are working on a huge steam boiler. It is made up of several iron plates that are heated in the wide stove in the smithy on the right. When the plates are red hot they are bent and holes are made in them. It is hard to imagine it is possible with these massive iron plates, but it is very easy. The plate is then riveted to the other plates. The noise is beyond imagination'.*

C. First Building in Between: *'Then you enter the building in the middle. There are workshops on both floors –and driving belts and wheels everywhere. For the outside visitor it is pure pleasure to escape the deafening noise and enter the quieter workshops. Here, the iron is treated like wood. One can turn it around, plane, and drill it'.*

D. Second Courtyard: *'In this second big courtyard the workers are working on a 25 m long bridge. In order to fit the bridge in they tore down an entire wall. While much can be finished in the factory, the rest of the work can only be done when the bridge is set up in Hjørring'.*

E. The Iron Foundry: *'After the second yard, you will enter the iron foundry. It is a huge room with a massive smelting furnace in the corner. When casting takes place, coal is thrown into the furnace, and slowly the iron will melt down and can be tapped from the furnace as a red-hot liquid to the moulds.'*

E. Third Court Yard – the Stock: *'Behind the iron foundry is another courtyard which is used for old castings and raw iron. In the building next to the court you will find an entire disorganized collection of old mill wheels, gear wheels, and flywheels, and a surprising number of all imaginable and unimaginable cast iron items and machines.'*

The journalist then leaves the factory amazed that so many different things can happen within such a small area. The main emphasis of the entire article is the obvious lack of room the company is suffering from – which was probably one of the messages the owners wanted to get across when they invited the journalist in the first place.

The foundry at Det Smithske 1870. The pig iron and furnace coke are added from the top. Air is blown in from below on the left while the liquid cast iron is drawn out on the right.
Drawing by V. Pacht.

Lack of room

The complex in Algade in the city centre of Aalborg did not offer sufficient options for expansion. The factory was surrounded by streets on three sides, and the bishop's place on the fourth side to the west. Several bishops had complained throughout the years about the coal dust that covered flowers and trees. In the 1860s the partners had already begun to discuss the possibility of moving production out of the city. It was considered to be unrealistic as they did not have the capital that would be required. In order to get more money out of the business it was – as it was modern to do in the early 1870s – turned into a corporation (Inc.). This process was sped up significantly when the Vang brothers established a competing machine workshop and iron foundry in Aalborg in 1874 supplying very similar products to *Det Smithske* iron foundry and machine workshop.

Other Metal Companies in Denmark

Nationally

The local newspaper was right in saying that metal industries were the driving force for the industrialization of Denmark – that was at least the case with regard to production of machines for other factories. However, the majority of companies had a rather fixed production of cast iron items that one could find anywhere: pots and pans, kitchen ranges, all night burners, pumps, tools for the agricultural construction sector such as columns and windows. There were only a few iron foundries producing machines in the 1860s and 1870s – most of them were significantly larger than *Det Smithske* in terms of their production, machine power and numbers of workers.

According to the public industrial records Denmark had 154 iron foundries and machine workshops with a total of 5089 employees in 1872. *Det Smithske* employed around 80 people (1.6%). 11 companies had more than 100 employees and another 11 had between 50 and 99 employees. Hence, *Det Smithske* was somewhere between number 12 and number 20 in the metal industries in Denmark in 1872.

Locally

On a local level the landscape of competition had changed. After the crisis in 1857-1858, *Nørresundby Iron Foundry* was eliminated as a real competitor to *Det Smithske. Zinck's* factory in Svenstrup was not considered a real competitor either. Because *Zinck's* produced small tools, in the long run *Zinck* and *Det Smithske* even developed a strategic cooperation on sales.

By contrast, the establishment of *The Vang Brothers Machines and Ships, Metal and Iron Foundries* in 1873 was considered to be a serious threat to *Det Smithske.* The name in itself was far too reminiscent of the main competitor in Copenhagen, *Burmeister & Wain Machines and Ships, Metal and Iron Foundries* with almost 1600 employees. The *Vang Brothers* imitation of contemporary companies was not limited to their name. The new company simply copied entire passages from the *Det Smithske's* catalogue that had to do with pumps, iron bridges, tools for the agricultural sector, and iron castings. And not only did the *Vang Brothers* offer their own steam engines and steam boilers which used less coal than the ones *Det Smithske* produced, the *Vang Brothers* also offered to repair and improve machines that were produced by other companies. *The Vang Brothers* quickly grew and after just a few years in the market they reached the same size with around 80 employees.

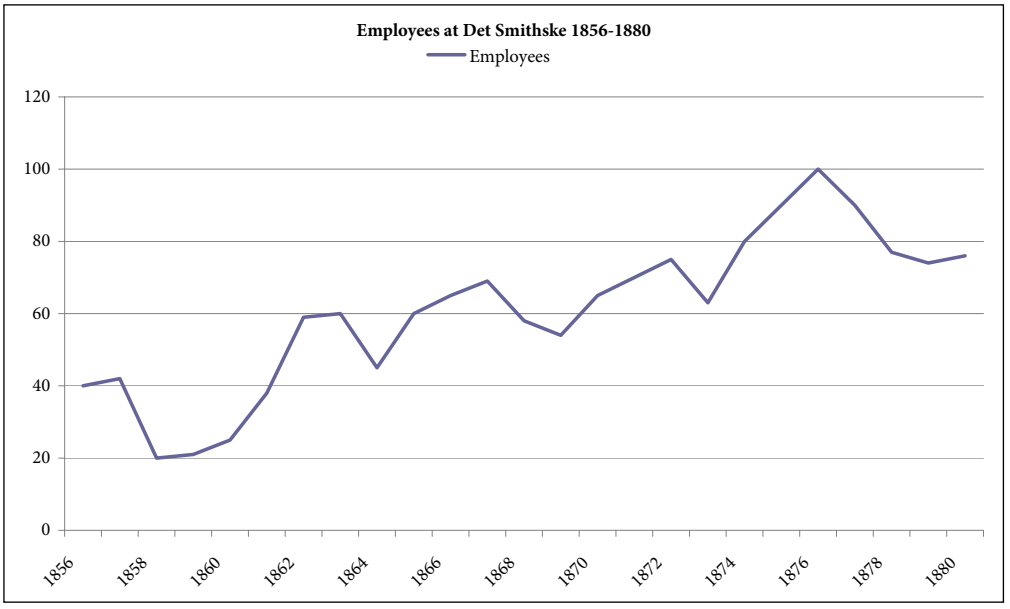
At the end of the day *The Vang Brothers* did not turn out to be a new B&W in Aalborg. After having launched the screw ship 'Panda' (325 tons) but not having finished the screw ships *'Rosenvold'* and *'Fulton'* their shipbuilding ended. Consequently, they attempted to sell both the ships and the rest of the company by auction in the spring of 1876, but no one – not even *Det Smithske* - seemed to have any interest in what

was left of the *Vang Brothers*. Hereafter, *De Smithske* once again was the only supplier on the local market. In May 1876 *De Smithske* announced that it would move production and the shop to the *'Parrot Garden'* just behind the central station in Aalborg. The new initiatives were reflected in the increased number of employees.

Staff, Salary and Working Environment

Ever since the low point of the company's growth in 1858 when there were only 20 workers at the factory, things had changed direction and *Det Smithske* experienced consistent unbroken growth rates until 1876 when they employed more than 100 workers. For some years therefore, the company was regarded as one of the most important outside Copenhagen. This was also apparent when socialism made its breakthrough in Denmark in 1871. In November 1871 the first branch of 'The International Workers' was created in Aalborg on the initiative of Poul Gjerulff. However, it only lasted for two years and was not repeated until the workers were unionized in the 1880s.

This photograph is likely to be the oldest photograph of workers in Aalborg. The photograph is taken in the courtyard. The men have their backs to the small church street where the iron foundry was originally started in 1834.
Aside from the products they are showing, like all night burners and cog wheels, the windows in the background are also made by Det Smithske. The workers are all dressed up for the occasion as having your photograph taken was still a very special thing to do.
The flag in the back is 'the workers' flag at Det Smithske June 20th 1862'. At the back, 1st from the right, is Johan Gaarn and next to him is Carl Wendt. The photograph was taken by C. A. Zehngraff, probably on June 20th 1862.



A trade association against socialism?

Det Smithske was warned before Poul Gjerullf arrived at the factory and founded 'the International Workers', as shown by the letter sent to the management of the *Det Smithske* by the director of the iron foundry in Holstebro. In the letter he wrote: *'Even though our moulders are paid by the piece and easily make 0.16-0.24 DKK an hour, they did find time to stop working in the peak hours of production and then demanded an additional 10%. I gave them 5% more and I do not intend to change this arrangement'*. The director in Holstebro concluded that the directors in the various iron foundries had to unite in order to prevent too many demands from the workers. This did not happen outside Copenhagen until 1895 when a number of iron foundries united in a trade association.

Wages and consumption

The restlessness in the labour market increased and brought about a government investigation into wages in Denmark. The purpose of the investigation was to examine the relationship between salaries and cost of living in the industrial sector. In Aalborg, the authorities used the following budget for an average working family (two adults and three children) as a guideline.

The figures are from National Statistics for 1872/1873 from the Royal National Archives.

Weekly Consumption	DKK	Yearly (DKK)
2,5 dark bread	1.20	65
750 g butter	0.96	52
250 g dripping	0.24	13
3 kg meat	1.68	91
Eggs and milk	0.88	47.66
Salt and spices	0.16	8.66
Beer	0.56	30.33
Vegetables	0.32	17.33
Fish	0.64	34.66
Groceries	0.64	34.66
40 pieces of turf	1.12	60.66
Rent	1.54	80
Clothes	1.16	60
Liquor and tobacco	0.90	47
TOTAL		**641.96**

At *Det Smithske* the average daily wage was reported as between 2.25-2.50 DKK and that a typical working day was 10 hours long. Apprentices would only earn half of this. Given that a worker could work 300 days a year, a typical adult male worker would make around 675-750 DKK in a year. In comparison, Henius paid 2 DKK a day at the liquor factory, and Harald Jensen paid 1.67 DKK a day – however he guaranteed free liquor and full compensation in the first month lost through illness.

Providing the family stayed healthy, a job at *Det Smithske* paid a reasonable wage for the cost of living, and even allowed for buying all-night burners (20 DKK) and pots and pans (2 DKK each). It was not until 1893 that the company would help its employees in the case of illness. The risk of unemployment remained a problem for the individual worker and not the responsibility of the company.

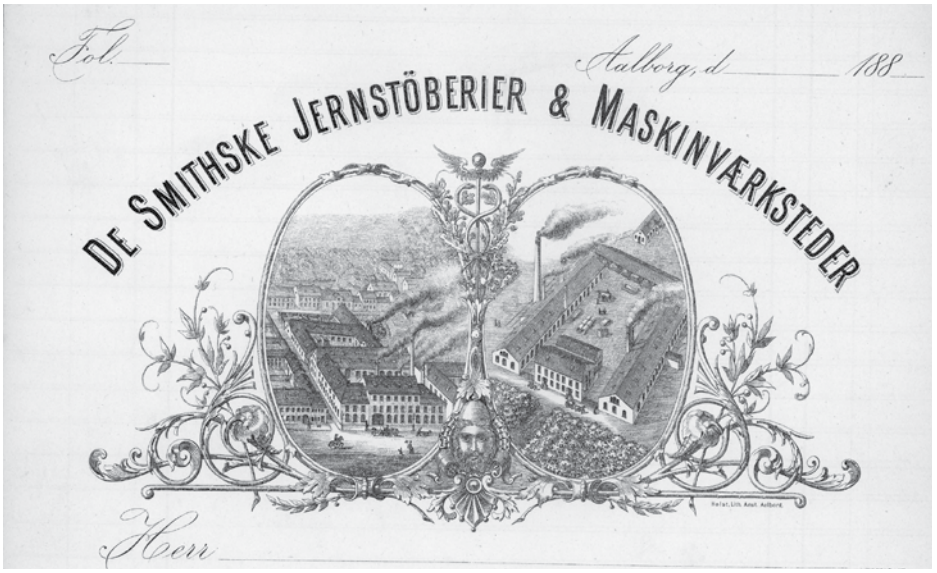
At the turn of the century, the population of Aalborg tripled as a consequence of industrialization: from 11,721 inhabitants in 1870 to 31,457 in 1901. This development was not reflected in the records of *Det Smithske* where the number of employees halved in the same period of time. Whilst the company employed 20% of Aalborg's industrial workforce in the 1840s, the number declined to 10% in the 1880s and only 1% in the 1920s. The end of the century was not a good time for *De Smithske*.

Eight scrapped cast iron crosses at Store Lyngby Cemetery near Terndrup south of Aalborg. They are all produced in the 1860s and 1870s by Det Smithske. Six other crosses are still on the actual cemetery.
Photograph by the author.

CHAPTER 3

Lack of Capital and Skilled Labour 1875-1900

A/S De Smithske Jernstøberier og Maskinværksteder



Summary 1875-1900

Around 1875 Henning Smith's old company reached its peak so far in terms of turnover and number of employees. The company was the most significant business in the metal industries of the region and among the 20 biggest companies nationally. Since the 1860s it had grown significantly and in 1875 when the emerging local competition was cut out, the monopoly was regained. It seemed easy to expand further, so later the same year the owners applied to register the company. The area of production was doubled with the opening of a brand new factory. Even the name changed from *Det Smithske iron foundry and machine work shop* to the plural form *De Smithske iron foundries and machine work shops.*

However, as it had happened previously, and would happen again, a major international financial crisis in 1875-1876 gave the company a hard time. The value of the company decreased tremendously from 200,000 Danish kroner (DKK) in 1875 to 90,000 DKK in 1900. The yearly profit turned into a deficit in the 1890s and the number of workers declined from 100 to 40.

The underlying plan of doubling the size of production was to give the production of machines priority and keep the iron foundry only as a sideline. In the years leading up to the expansion it was the machines that had been the main source of profit. But unexpectedly, the company did not receive anything near the number of orders they had initially anticipated, and the production of machines closed

down completely by the turn of the century. The reason was first and foremost that the company never managed to capture market shares in the growing market for agricultural machines, secondly because it missed out on the building of factories in Aalborg in the 1890s. Cast iron, that had served to keep the company alive, was by no means as fashionable as it used to be and from the 1890s it was replaced by steel. In 1897 the company gave up the general production of household items and limited the production of cast iron to elements for housing construction.

Most of *De Smithske's* competitors went through a similar process. The years between 1875 and 1900 are also commonly known as the long depression. This was also applied to the United Kingdom, that was overtaken by both Germany and USA as world leading industrialized nations. Denmark's challenge was to change its agricultural export. Danish cereal exports failed to compete with the larger quantities of better Russian and American cereals that were brought to the European markets by railways and steamships. Consequently, Denmark developed a profitable export of primarily butter and bacon throughout the 1880s. The establishment of dairies and bacon factories created a demand for machines that influenced the industries in the country.

Aalborg was clearly influenced by its location in the centre of agricultural Denmark. The opening of cement and tobacco industries in Aalborg also had a significant impact on the city. Unlike *De Smithske* these industries had their own capital, and had no difficulties attracting skilled labour to the city.

Share certificate for De Smithske Jernstøberier og Maskinværksteder from May 1st 1888 when the original shares worth 2,000 DKK were split into shares each worth 500 DKK. The share capital remained at 360,000 DKK from 1875-1954. Thereafter it was gradually increased, particularly in the 1970s when it reached 10.5 million DKK. This shareholder used his right of subscription many times until the shares lost value in 1981, when the share capital was lost. Most of the other corporations in the list disappeared after few years.

Corporations in Denmark 1872-1875

Denmark had had corporations (PLCs) since 1616, but there had only been a few of them and the corporation law was not passed until 1917. However, especially during the economic upturn after the French-German war in 1870-71 and the industrial break through in Germany, Denmark experienced a rise in the number of corporations. Most often this took place when companies merged or expanded – and as a rule the founder would receive a considerable commission. The rise in the number of corporations ended just as quickly as it had started. A summary of the most important of the corporations that were established in the beginning of the 1870s is shown below:

Company	Year	Share Capital
Danish Sugar Companies	1872	6,000,000
B & W	1872	4,000,000
Tuborg	1873	1,600,000
Maglemølle Paper Factory	1872	1,000,000
Hasle Clinkers	1873	1,000,000
Crome & Goldschmidt's Factories	1874	800,000
Aalborg's Chemical Factories	**1875**	**800,000**
Hellebæk Clothing	1873	750,000
Kastrup Glassworks	1873	700,000
Sulphuric Acid Factories	1874	600,000
Dalum Paper Factory	1873	460,000
Lyngby Oil Mill	1873	400,000
Aalborg Spirits (Henius)	**1872**	**360,000**
De Smithske Jernstøberier og Maskinværksteder	***1875***	***360,000***
Lundergård's	**1875**	**340,000**
Munk Mill in Odense	1873	300,000

De Smithske was one of the last corporations to be established. Many of the newly established corporations lost share capital and went bankrupt. In Aalborg that applied to both *Aalborg's Chemical Factories* and *Lundergård's,* while the local bank, *Aalborg Diskontobank*, lost more than half of its net capital and only survived due to the Danish central bank. The suspension of payments also hit *De Smithske* as they had to write off the machines and also felt the impact of the consequential credit squeeze on local businesses.

From I/S Det Smithske to A/S De Smithske

De Smithske had good reasons to apply for registration. The company had swelling order books and the return for the partners had increased from 5% in 1868 to 21% in 1874. The company could easily sell even more if only the production space allowed for it. *'The planned expansion of the factory proves to be more and more necessary for each year that passes by, as we are not able to meet the increasing demand from our customers*'. In August 1874 the partners bought the 'Parrot Garden' for 15,000 DKK. The site was located just outside the inner city, but immediately next to Aalborg's new central station from 1869. The new factory buildings were financed by share subscription.

The 8 partners were slightly concerned about this new way of financing the company. Even though it limited the individual shareholders' responsibility to their investment they were afraid that they would also lose some of the influence they had as partners. Therefore, they agreed to *'raise the share capital privately and only allow shareholders that have direct interest in the company. Primarily our important clients*'. As primary shareholders the partners had the last word and it also ensured

Ludvig Hartvigson (1825-1898) was a representative on the board of directors for the shareholders who formed a minority in the new corporation. The majority was formed by the initial shareholders from 1857 and their families. It was fashionable to form corporations and necessary if the planned expansions were to become true. Hartvigson was a draper, bank manager and member of the town council. Ludvig Hartvigson was photographed by Heinrich Tønnies in his studio on January 26th 1873.

that the corporation was run by the same people as before: Carl Wendt and Johan Gaarn as Managing Directors, Peter Wendt as Supervisor, Christian Simoni as Chairman of the board of directors, and Michael Herskind as the Vice Chairman of the board of directors. However, the partners hoped that the Bank Manager Ludvig Hartvigson (1825-1898) would gain a seat in the new board of directors.

The share capital was set at 360,000 DKK divided into a total of 180 shares. Thus each share was worth 2,000 DKK. The 8 partners immediately bought a majority of 136 shares. In other words each partner bought 17 shares plus they received a commission of 1,000 DKK. The remaining 44 shares were easily sold. Most of them were sold to close relatives of the former partners: especially Michael Herskind's older brother (1823-1906), who was a pastor on the island of Bornholm and the war hero Theodor von Freiesleben in Randers, who was married to Laura Elmquist, the cousin of Anders and Michael Herskind. The rest of the shares were sold as individual shares to different prominent citizens of Aalborg. On February 26th 1875 the statutory general meeting was held for *A/S De Smithske Jernstøberier og Maskinværksteder*. Everything went according to plan – except for the new corporation's net capital.

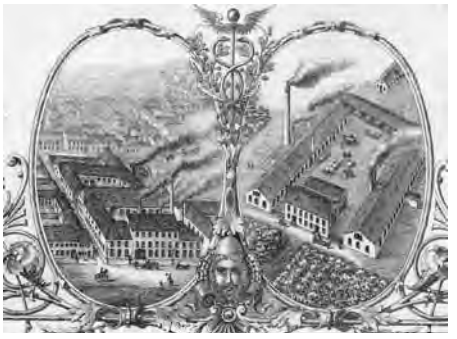
The Net Capital of the Corporation 1875-1900

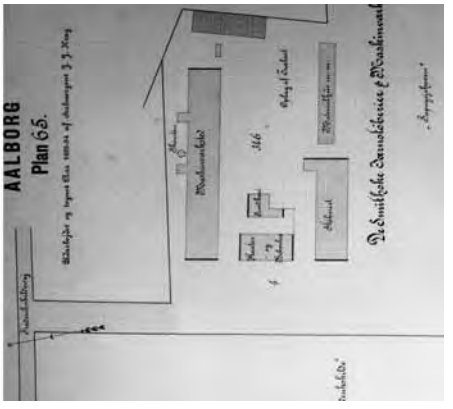
In reality, only another 80,000 DKK was injected, plus the corporation did not have any net capital. Therefore, the corporation had to raise 144,000 DKK to pay for the new factory buildings. The corporation raised a 4 year loan worth 20,000 DKK from the local bank, whilst the old loan from Caroline Smith from 1857 was raised with 44,000 DKK to the original 100,000 DKK again with an interest rate of 4.5 %. Finally, there was funding for building new factory buildings.

Even though nobody knew in 1875, it turned out to be Mrs. Smith and from 1891 her heirs that gained the most from the investments in the long run. In the short term there was not much of a dividend on the shares. The by-laws did oblige *De Smithske* to pay a minimum of 5% of the share capital to its share holders but it was impossible to comply. Actually, it only happened 5 times before the First World War: 5% in 1877, 5.5 % in 1882 and 1883, and 6 % in 1881 and 1890. We do not know the exact fluctuations, but when the primary shareholders, Michael Herskind went bankrupt in 1879, his block of shares could not even be sold at a quotation of 60. One of the main reasons was that *De Smithske* had problems coordinating the activities at the two parallel production sites in Algade and in the new 'Parrot Garden'.

Algade and the 'Parrot Garden'

Both factories appear on top of the official notepaper *De Smithske* iron foundries and machine workshops used in the 1880s. The upper left corner shows the factory in Algade (1834-1935), and in the upper right corner the 'Parrot Garden' (1876-1935). The plural form was legitimate, because both factories did indeed have both an iron foundry as well as a machine workshop. The picture on the notepaper is drawn in such a way that it appears as pretentious as possible. However, it is still easy to see what functions the different sections in the buildings serve.





J. J. Krag's map from 1893 shows a building with 3 wings. The machine workshop is on the left, the foundry to the right, and the residence in front.

Algade
In the picture of the factory in Algade, you see the main building with the shop, offices and the residence for the Managing Director Johan Gaarn and the Supervisor Peter Wendt. Behind the main building is the first courtyard with the smithy and the first building in the middle with the machine workshop – each with a smoking chimney. The iron foundry – also with a smoking chimney – is facing the second courtyard and finally there is a stock in the back.

The Parrot Garden
The picture of the Parrot Garden on the notepaper shows a closed complex with three wings, even though the original ground plan reveals that the four buildings were separate and not connected to each other. The main administration building and the Managing Director Carl Wendt's residence is west-facing. Just behind the main building is the cabinetmaker's workshop where casting patterns were made. The machine workshop was in the north wing, which was also characterized by a tall chimney for the steam engine. Two of the buildings were south-facing: The foundry and the stock. The last building facing east, right next to the central station, was rented out to *H. P. Springborg's cigar box factory.* H.P. Springborg often complained about the smoke from the railway engines that spoilt the pleasant smell of wood in his fine cigar boxes.

At the end of the day *De Smithske* had two parallel productions of both cast iron and machines. They even had two residences for the managing directors. With hindsight it is not a big surprise that there were signi-

De Smithske in the 'Parrot Garden' from around 1900. To the left is the machine workshop, in the centre is the residence for the managing director on the second floor, the shop on the first floor and to the right the foundry. The water tower by the central station is in the background. Photographer unknown.

Photographer Heinrich Tønnies and his children and grandchildren had photo studios in Aalborg from 1856-1956. They started early with commercial photography.
Here is a cylindrical furnace from De Smithske from 1881. It was brought to the studio on the second floor and then bought by the photographer to heat the living room. The photographer's family is seen in the photograph below.

ficant problems of communication between the two factories. By the 1880s the corporation had already invested in a private telephone line connecting the two factories. Communication however, remained a minor challenge compared to the international financial crisis which was about to hit the corporation again. Once again, this was reflected in the local newspaper. In 1877 praise for the company was replaced by the following dark conclusion:

'We Danes are Not Meant to Run Factories'

The reason for this statement was to be found in the financial crisis that started in the mid 1870s. For Denmark the main challenge was that the country's primary export, cereals, failed to compete with cheaper and better Russian and American cereals. Developments in infrastructure lead to a growing global market for cereals whilst steam ships and railways opened up European markets. In the case of USA it was even to a large extent the many Danish emigrants who were now exporting cereals back over the Atlantic Sea to the continent they had chosen to leave.

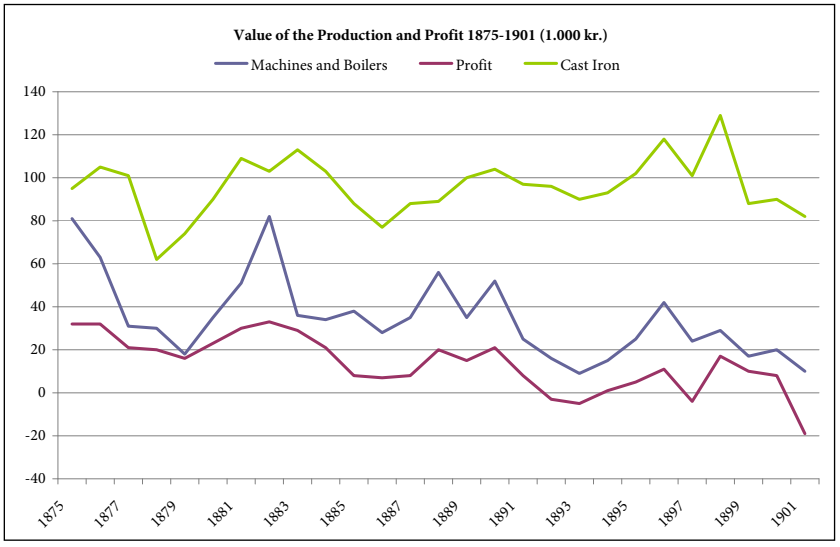
The local newspaper had a somewhat different interpretation of the situation however. According to the newspaper, the crisis was now caused by forced industrialization in Denmark. Exactly the same industrialization the newspaper had praised just a few years earlier. In particular, the newspaper found the crisis to be caused by the many new capital intensive factories that took money from conventional small entrepreneurs. Because, as the newspaper continues: *'Without offending our national character, it seems fair to argue that we Danes are not meant to run factories. We simply do not have the technical knowledge which is required to be successful in running an industrial factory. Furthermore, we do not have access to many of the essential raw materials such as pit coal. And one should never forget always to consider carefully if it is worth the financial risk to enter the market with big sums of money – even if the market conditions had been more favourable than is the case today.'*

Lack of credit in Aalborg
Market conditions were actually favourable in 1874, when the company was expanded and became a corporation, but that did not really matter for the corporation as the crisis swept over the country. The many bankruptcies in the city of Aalborg meant that it became much harder to get credit in the local banks. *De Smithske's* loans were called in and the corporation entered a period of several decades of chronic liquidity problems. These cash flow difficulties paralyzed almost all new activities the corporation could think of. The corporation was not even able to benefit from the massive industrialization of Aalborg in the 1890s.

Shortage of skilled labour in Aalborg
There may be some truth in the local newspaper's claim that the Danes simply did not possess the required knowledge to run an industrial factory successfully. At least in Northern Denmark where Aalborg is

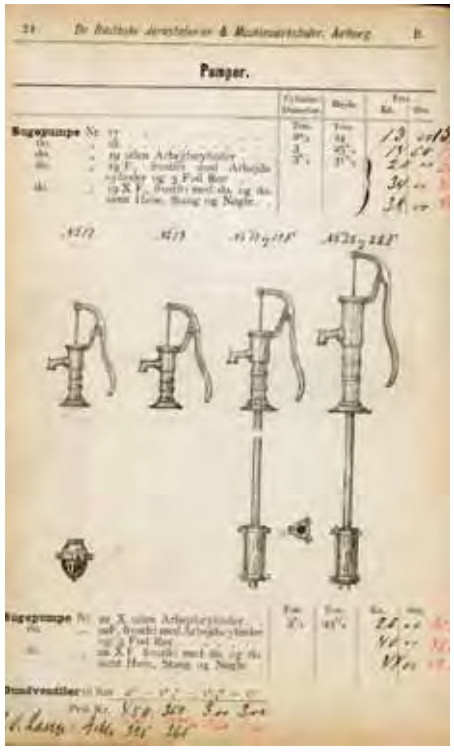
located. The managing director from 1862-1892, Carl Wendt, often complained that the factory was short of sufficiently skilled labour to develop constructions, do the drawings and take care of promotion of the final products. As he noted, he was not able to perform all his tasks when he was also expected to travel across the country and promote the corporation's products. From 1883 the board conceded to the managing director's complaints and advertised jobs in the national newspapers. However, they did not succeed in finding the desired skilled labour. Production was not developed and the products were obsolete, when the competition for building Aalborg's new factories stepped up in the 1890s. The decline is clearly reflected in the production and profit figures for 1875-1900.

Production 1875-1900



Figures are based on information in De Smithske's own archives. Machines and boilers from 1875-1900. Annual reports with appendices from 1882-1900 and minute books from 1875-1900.

The graph shows the production value per annum for cast iron and steam engines and boilers respectively from 1875-1901 together with the yearly surplus. It is clear that even though the production of cast iron was pretty stable, the profit of the corporation was completely dependent on the production of machines. The production of machines however, fell steadily over all years – as with the total profit. Because of the imbalance between the two separate productions it was not possible to separate them physically, with one in each factory. Whilst the factory repair shop was good for 20% of the yearly turnover in the period from 1875-1900, the balance between the foundry and the machine workshop changed throughout the period. The machine shop's share of the yearly turnover decreased from 40% to 20%, whilst the exact opposite was the case for the iron foundry that increased its share from 20% to 40%. This trend peaked as the century ended and the production of machines was eliminated. Thus, the foundry activities slowly spread to both factories.



Advertisement from De Smithske from around 1880 showing a small selection of cast iron – from spittoons to bread cutters to manual pumps.

Castings

There were several good reasons to be found for sticking to the castings and giving up the more risky business of the machine production. As shown in the graph above, production of cast iron made a good stable profit, whilst the turnover, profit and loss on the production of machines changed a great deal throughout the years depending on the number of orders in the order book. Also, the corporation had a very good reputation in the field of cast iron and it was therefore important to keep up with the market and maintain a broad supply of high quality castings. Catalogues provide us with a good insight in the impressive range of cast iron. It included everything from structural iron, ovens, kitchen ranges, windows, washbasins, banisters and handles and a vast number of other items. As for household goods it included pots and pans, irons, tables, chairs and benches. The same could be said of tools for agriculture and street furniture and a countless number of other items. While it is indeed an impressive range of castings, it was also this wide range of goods that made *De Smithske* vulnerable to competition from other minor but specialized iron foundries in the region with shops in Aalborg. Was *De Smithske* supposed to compete with all of them?

	1891	1892	Models	Prices
Circular Furnaces	451	512	43	10-95 DKK
Furnaces for Boiling	210	276	28	22-47 DKK
Kitchen Ranges	279	340	35	10-139 DKK
Kitchen Sinks	150	183	5	4-9 DKK
Pit Pots	108	108	21	4-16 DKK
Lattices for Tombs	17	25	15	4-8 DKK per meter
Stovepipes	12 tons	11 tons		

This year is not typical for the period as it shows the one year when production increased. In following years, annual turnover declined. It reflected the last year with joint production of both cast iron and machines. In 1897, the Managing Director Sørensen explicitly expressed his concern for the prospects of a continued joint production. Shortly thereafter, production was limited to cast iron closely related to the construction business, especially window frames. While *De Smithske* stopped its own production of all night burners they began selling burners and kitchen ranges for the company *Hess* from Middelfart.

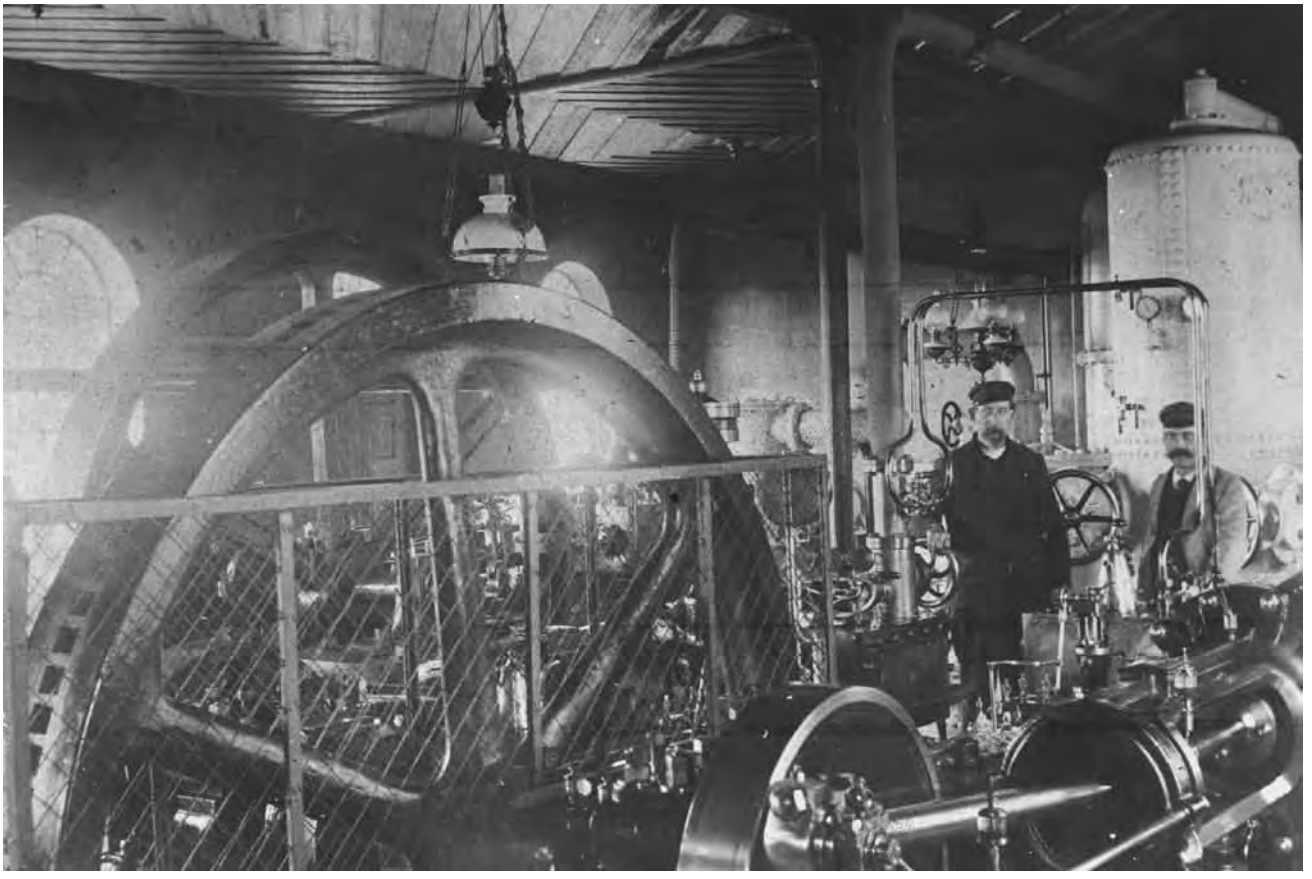
This is a round furnace number 17 from the catalogue of around 1880. Almost all the products from De Smithske were photographed by Heinrich Tønnies. The catalogues and pictures that could unfold were used by the agent when he showed the products to potential clients. The photographs impressed the customers as it was a very modern way of presenting products at that time.

Steam engines with boilers				
Year	Number	HP	Client	Price
1875	1	8	De Smithske – 'Parrot garden'	6,000
1876	1	14	Aalborg Tiles	3,800
1876	1	3	Løgsør Clothings	1,400
1878	1	16	Aalborg Waterworks	12,400
1879	1	3	Soap and Mineral Water Factory	2,000
1879	1	2	Dairy	340
1880	1	12	Old Mill, Aalborg	6,360
1881	1	4	Dairy	2,200
1881	1	12	C. W. Obel – Tobacco	4,000
1882	3	36	Wood Carver	13,280
1882	1	16	Jensen's Liquors	7,200
1882	1	16	Aalborg Waterworks	11,550
1882	3	7	3 Dairies	1,200
1883	2	45	Pumps	11,700
1883	5	23	5 Dairies	6,400
1883	1	6	Brewery Vendia	4,000
1884	1	4	Aalborg Abattoir	2,170
1884	4	12	4 Dairies	3,500
1884	1	4	Heating	2,000
1885	3	9	3 Dairies	6,050
1886	4	20	4 Dairies	8,020
1886	1	10	Spinning Mill	5,200
1886	1	16	Svenstrup	6,000
1886	1	6	Aalborg Dye Works	1,320
1887	8	32	8 Dairies	19,300
1887	1	40	Aalborg Abattoir	9,000
1888	16	74	16 Dairies	38,900
1888	1	6	Aalborg Abattoir	3,700
1889	1	6	Dairy	2,950
1889	1	8	Dredging Machine, Sæby	2,950
1889	1	4	Aalborg Straws	2,000
1890	7	30	7 Dairies	16,750
1893	1	6	1 Dairy	1,400
1894	1	60	Aalborg Waterworks	23,000
1894	1	6	Aalborg Gasworks	900
1895	1	10	Bindslev Tiles	2,000
1895	1	6	Sæby Dye Works	1,300
1895	1	6	Dairy	1,250
1895	1	16	Weaving Mill	4,000
1896	1	4	Bakery	-
1896	1	40	Aalborg Breweries	5,200
1898	1	4	Dairy	-
1898	1	23	Bakery, Aalborg	-
1900	1	3	Petersen's Tobacco, Hjørring	-
1903	1	-	East Harbor	-
TOTAL	89	680		

Record of steam engines and boilers 1875-1900.

Steam engines

There is a lot of information available for steam engines and steam boilers. The corporation managed to preserve a book from 1875 that carefully describes a steam engine and steam boiler.



Aalborg Waterworks with the new 60 horsepower engine which was delivered by De Smithske in 1895. In 1878 and 1882 the company had delivered small engines to the waterworks, but this one was the biggest De Smithske ever produced. It was not easy to meet expectations. The machine was supposed to be delivered in 1893, but was delayed for two years because of the lack of skilled labour and strikes. From the beginning of the 20th century B&W and Titan took over the production of machines.
Unknown photographer.

Boilers

Boilers were in great demand throughout the 1880s when 53 new dairies were established in the regions. In one of the preserved work books we find the production of boilers carefully described. The smallest of all the boilers, a boiler from 1882 for a dairy in Sæby, was only 106 cm long with a diameter of 53 cm. However, the production time for this type of boiler was 237.5 hours. A full working day was 10 hours. The production of the boiler alone was very time consuming. As the calculations below show, the majority of the time was devoted to hand work.

Calculation records for a boiler, 1882.

215 kg English plates and angle iron (0.24 DKK). . . . . 51.60 DKK
150 1,6 spikes (0.04 DKK) . . . . . .6.00 DKK
Smith Brandt – 7 days, 5 hours . . . . . .16.15 DKK
Smith M. C. Petersen – 5 days, 6 hours . . . .13.93 DKK
Smith Willadsen – 2 days . . . . . .4.50 DKK
Apprentice Christensen – 5 days . . . . . .5.00 DKK
Apprentice Hansen – 3 days, 6,5 hours . . . . . .1.82 DKK
Total salary . . . . . .41.40 DKK
Coal and paint . . . . . .5.00 DKK
10% payment of interest (tools). . . . . .10.65 DKK
TOTAL . . . . . .117.15 DKK

Production of boilers 1875-1900.

Year	Number	HP	Client	Price DKK
1875	2	127	Aalborg Liquors	19,550
1875	1	25	Lysholm, Norway	4,333
1876	5	15	Dairies	3,200
1876	1	18	C. W. Obel Tobacco	3,722
1876	1	10	Aalborg Tiles	2,500
1877	1	25	Ship – Hals	4,022
1877	1	10	Ship – Fulton	2,170
1879	3	9	Dairies	-
1880	1	15	Ship – Union	2,500
1881	1	30	Hjørring	4,858
1881	1	63	Ship – Aalborg	10,800
1881	5	5	Small Companies	750
1882	1	25	Cement Factory	6,280
1886	1	8	Sæby Iron Foundry	1,000
1887	1	40	Aalborg Abattoir	4,250
1887	1	-	Aalborg Public Baths	400
1888	1	16	Dredging Company	2,500
1890	19	50	Fishing Boats	10,000
1891	19	50	Fishing Boats	10,000
1891	1	12	Aalborg Oil Factory	2,360
1891	1	8	Public Steam Bath	2,100
1891	2	34	Aalborg Grinding	5,840
1892	5	12	Fishing Boats	2,571
1892	1	40	C. W. Obel Tobacco	7,546
1893	1	20	Ship – Phoenix	3,000
1893	3	12	Fishing Boats	1,544
1895	2	-	Aalborg Liquors	3,500
1896	3	-	Bakeries	-
1896	5	10	Fishing Boats	2,200
1897-1899	-	-	Cement Factory	-
1897-1899	12	-	Fishing Boats	5,280
1898-1902	15	-	Heating Systems	-

Even though *De Smithske* was involved with the spirits industries and later the dairies and fisheries in the region, it was still a market in which the demand for steam engines was slowly decreasing. Therefore, it was hard to make a profitable business out of it – and the rise of new and bigger competitors did not make it easier.

Is De Smithske for Sale?

By the end of 1896 rumours were that *De Smithske* was for sale because of a decline in profit. Many other companies had been growing and were therefore experiencing lack of production capacity. Hence, many of them expressed an interest in 'cooperation' with *De Smithske*. Other companies expressed themselves less diplomatically and simply wanted to buy the company. Of the many different offers, among others from the local king of tobacco, C. W. Obel, *De Smithske* chose to negotiate with *Poul Buaas Iron Foundry and Machine Shop* and *W. Schertiger's Machine Shop*. Both companies were based in Aalborg.

The employees at P. J. Buaas Machinery and Iron foundry at Annebergvej in Aalborg around 1900. P. J. Buaas is in the front just left of the centre.
Measured by the numbers of employees, this machinery is significantly larger than De Smithske. However, in the end it was De Smithske that bought Buaas in 1935.
Unknown photographer.

P. J. Buaas was from Norway. In 1885 he founded a small workshop for agricultural and dairy machines in the center of Aalborg. He quickly expanded and both his family and friends agreed that he was much better to run a business for the agricultural sector than *De Smithske*.

W. Schertiger established a machine shop in 1866 at no. 9 Vesterbro in the centre of Aalborg. In the following years he won a number of orders for steam engine systems that *De Smithske* were counting on. That caused great frustration in the administration at *De Smithske*.

W. Schertiger was a mechanic who opened his own machine shop in 1886 across the street from De Smithske in the 'Parrot Garden'. He quickly secured a number of contracts at the expense of De Smithske. While he offered to buy De Smithske in 1897, he went bankrupt in 1906. Photograph taken by Heinrich Tønnies March 15th 1895.

Both companies, Buaas and Schertiger, could make use of the capital from *De Smithske*, and in august 1898 they offered to buy the corporation. At first the offer was rejected with a certain level of hesitance, but when the accounts were presented at the general assembly in 1898 and showed a significant deficit, the board of directors recommended that the corporation should be sold. The board of directors saw a sale as the only way to turn the deficit into profit. However, the sale of *De Smithske* was voted down, with 519 votes against 128 votes. Soon after, the board of directors and some of the shareholders criticized the *'outdated and pathetic management of the factory'*.

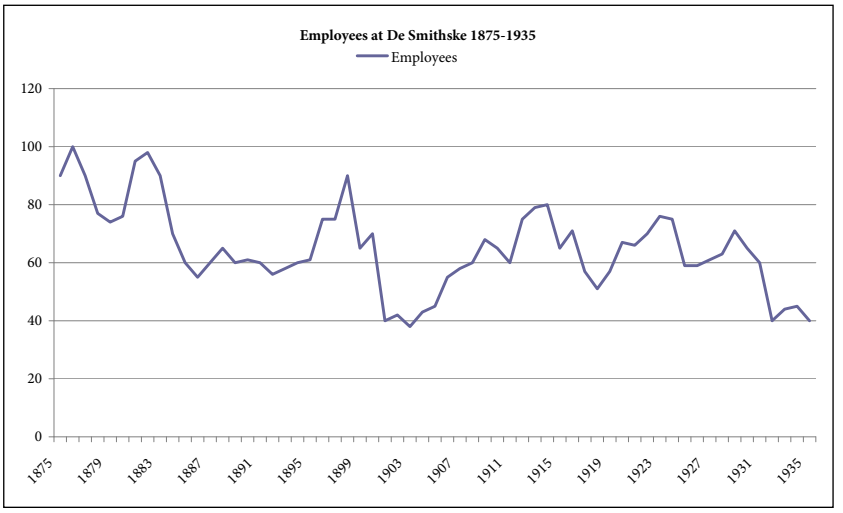
In hindsight the refusal to sell turned out to be the right choice. *De Smithske* still exists today, while W. Schertiger soon went bankrupt in

1906 as a direct consequence of the liquidation of Buaas the same year. Ironically, what was left of Buaas was bought by *De Smithske* in 1935. *De Smithske* did face serious challenges in 1897 – many of them were caused by the changes in the labor market.

Employment and Salary in De Smithske

The number of workers declined steadily throughout the years from 1875 to 1935. From 1875-1900 it fell from 100 to 40. Also the number of managing directors halved from 2.5 to 1.

The figures are taken from reports to the custom house up to 1878, annual accounts 1882-1897, and from employee records and official records of production.



New Managing Directors 1893-1896

Carl Wendt (1828-1910) stepped down at the end of 1893 after 30 years as the Technical Director in the company. In 1896 Johan Gaarn followed after 35 years as Managing Director. Peter Wendt had already stepped down in 1891 after 30 years as Supervisor. In April 1896 all of them were replaced by one person, Charles Frederik Leopold Sørensen (1860-1926). C. F. L. Sørensen bore the personal responsibility for the corporation on a day-to-day basis. He was also the first managing director to write the yearly status report - a tradition that all managing directors after him chose to follow.

C. F. L. Sørensen was born in Copenhagen in 1860 and became an engineer at the naval shipyard. After having worked in various shipyards in Glasgow he constructed machines in a big shipyard in Copenhagen from 1890-1893. It was at this factory that one of the first employers' associations in Denmark was founded in 1885. The association had been successful in keeping down the smiths' salary by using a lockout. This action could prove to mark the beginning of the strong union movement in Denmark.

Employees in De Smithske in 1899. Managing Director F. L. S. Sørensen is at the back, 2nd from the left. The apprentices are in the front row with the regulators that make sure the steam engine operates as it is supposed to work.

Conflicts in the labour market

A number of unions were established in Aalborg during the summer of 1885. The smiths, mechanics, and moulders all got their unions. Everything happened relatively slowly though. Workers at *De Smithske* noted that the working condition and wages were *'passable for most of the workers, but that a few of them made less than 0.25 DKK an hour'*. The first strike did not occur until almost a decade later, indicating a general satisfaction with the situation. The strike at *De Smithske* in 1894 was a continuation of minor actions that had taken place among small smiths in August 1893. As these first attempts did not lead to anything, the actions were extended to *De Smithske* and *Buaas*. Hence, in the days between May 1st and 9th, 1894, *De Smithske* experienced its first strike ever. The strike was carried out by 34 smiths and mechanics from the factory.

The reaction from the management was pretty intense. The Managing Director, C. L. F. Sørensen who had experienced fights on the labour market from his time in Copenhagen, thought of the workers' demand as out of touch with reality. He was more than willing to find unskilled and unorganized labour in both Denmark and Sweden. Before he got that far, the parties reached an informal agreement. The local iron industries reached an agreement with the smiths' union (established in 1888), and eventually the workers' demands were fulfilled: a minimum wage of 0.27 DKK, 0.29 DKK for workers who were already employed, a 10 hours working day and 50% additional wage if the workers did overtime.

De Smithske was actually under great pressure. Production of the biggest steam engine the company had ever produced, a large machine with 60 horse power and a full set of pumps for Aalborg waterworks to the value of 23,000 DKK, were already considerably delayed. The same was

the case for 10 turntables for the railroad in Copenhagen's harbor to the value of 21,727 DKK. The company's acute cash flow difficulties were handled with the help of short-term foreign exchange dealings. After an agreement with the workers was concluded *De Smithske* succeeded in fulfilling both of these important contracts. However, the corporation wanted to minimize the risk of ending in a similar situation later. In the following year they initiated the establishment of the *'Association of Iron foundries outside Copenhagen'*. During the lockout in 1897 the new association worked closely with its sister organization in Copenhagen. The two associations later merged and is known as the employers' organization *'Danish Industries'* today.

Lockout in 1897

When the rapid growth in at least parts of the iron industries swept over the country, the smiths demanded that wages were raised further. The agreement from 1894 terminated on April 1st 1897, but the smiths soon made their demands for the new agreement clear to the Managing Director Sørensen in January 1897. They demanded 0.33 DKK per hour and improved working conditions. When Sørensen declined to meet their demands it resulted in several months of work stoppage. While the smiths did turn up for work every morning, they left soon after each day. The same thing happened at many other factories across the country, and finally on March 16th to March 29th a national lockout was declared. In this first lockout the parties agreed to refer to industrial arbitration, however nobody could agree on how to proceed with the arbitration. Therefore, new strikes broke out and on June 9th to September 13th 1897 the entire country experienced a lockout. The managing director for *De Smithske* explained the deficits by saying that *'the people in the workshops became completely demoralized from the lockout as no one believed the peace would last anyway. As a consequence the workers were overcompensated compared to the value of their work'*. In all fairness it should be added that he also mentioned the company's separation of production as the real challenge at the centre which made *De Smithske* particularly vulnerable to conflicts on the labour market.

Lockout in 1899

When the next national lockout hit the country from May 24th to September 9th 1899 *De Smithske* was still very vulnerable. The end of this lockout provided the foundation for the labour law in Denmark and system of agreements in the labour market that has shaped the Danish labour market ever since. For *De Smithske* the agreement increased wages from 0.32 DKK to 0.34 DKK per hour. This turned out to be quite a challenge for the corporation. Not so much because of the numerical increase, but more because the corporation had lost vital market shares after several years of conflict. It was necessary to develop new products and identify new marketing possibilities if the company was to survive.

Status by the Turn of the Century

De Smithske did not benefit from the economic upturn that characterized the 1890s. When things started to slow down in the early years of the new century, it was especially hard for *De Smithske*. The workers' demand for higher wages was probably not as unfair as the company thought. Having said that, an increase in the hourly wage from 0.25-0.27 DKK in 1894 to 0.33-0.34 DKK in 1899 was indeed quite significant for a company that was highly dependent on the workers' hand work. Even though production and the number of workers halved in the same period, the proportion of expenses for wages to the complete costs for production increased from 27% in 1875 to 42% in 1900.

With reference to the conflicts on the labor market, the managing director argued that had it not been for the conflicts in 1897 and 1899, the poor results for the corporation '*would not have been as obvious – they might even have been completely avoided if the two separate productions had been merged*'. There were indeed many new challenges waiting on the near horizon as the new century commenced.

CHAPTER 4

Known Throughout the Country for Church Bells 1900-1935

A/S De Smithske Jernstøberier og Maskinværksteder

Summary 1890-1935

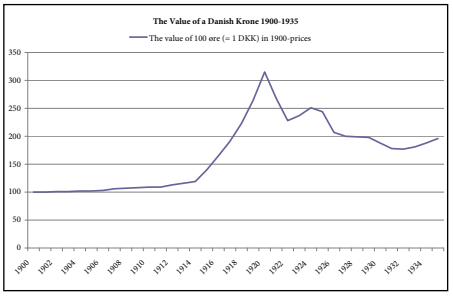
The future did not look too bright for *De Smithske* at the turn of the century. It was a matter of coincidence that the general assembly decided against selling the corporation in 1898. As the corporation continued to exist, so did the challenges it was facing: liquidity problems, drastically declining sales and production physically separated in 2 different factories. Hence, whereas the production of cast iron used to include a variety of different items it was now limited to elements for construction whilst the machine workshop was only allowed to do repairs.

The managing director, the board of directors and the general assembly at *De Smithske* all agreed that the corporation had to recapture lost market shares. In order to achieve this goal the production machinery had to undergo significant modernization and production had to be physically unified at one site. However, the corporation had neither the capital nor the skilled labour that was required to reach this goal, so it was necessary to think creatively in order to survive. New products were developed on the basis of the available production machinery and suddenly church bells and ship repairs were the main source of profit for *De Smithske*.

Whilst ship repairs had been a fairly integrated part of *De Smithske's* services, the production of church bells was brand new. The production of church bells for the regained parts of Southern Jutland was the primary reason that the corporation made it through the critical years that followed the First World War. For the first time ever, *De Smithske* had a unique product which made it known throughout the country. In addition, *De Smithske* finally unified its production

facilities in the mid-30s. The two existing factories were sold, whilst the corporation invested in and took over the facilities of one of their former competitors, *Poul Buaas* iron foundry and machine workshop – the company that almost bought *De Smithske* in 1898

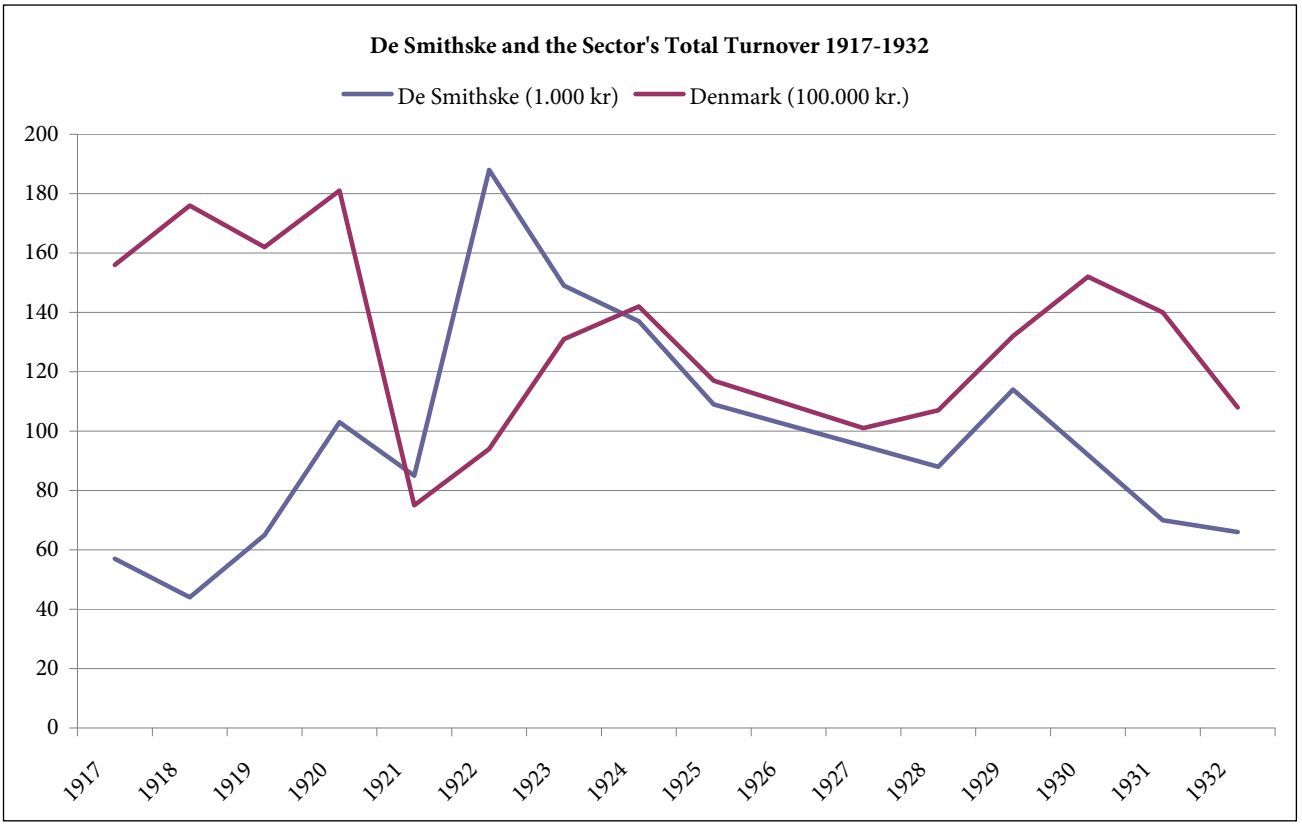
A comparison between the turnover measured in 1,000 DKK from 1916-1932 and the aggregated turnover for the entire metallic industries in 100,000 DKK. The sizes of turnover are all measured in 1914 prices because the deflation that followed would otherwise misrepresent real development.



De Smithske shows a much different pattern to the rest of the industry. Whilst it is lagging behind most years, the company experiences a huge growth in 1921-1922 when production for the rest of the country declines significantly. This growth is due to the production of church bells.

The Iron and Machine Industry in Denmark 1900-1935

Metal industries were the dominant and most successful industries in Denmark in the years from 1900-1935. In 1935 40% of the country's industrial shareholder capital and 33% of all industrial labour were in the metal industry. Even though Denmark's economy was still based on the agricultural sector, export from industries increased from 10% to 25% from 1913 to 1935. In 1935 there were 533 companies in the metal industry and they employed 21,103 workers in total. *De Smithske* only had 50 workers, so around 150 companies in Denmark were now larger than *De Smithske*. The government's comprehensive records enable us to compare *De Smithske* and other companies locally, regionally and nationally. In the graph below, the units are expressed in 1,000 DKK (fixed prices) for the revenue for *De Smithske* and in 100,000 (fixed prices) for the entire national metal industry. All values are expressed in fixed 1914-prices as the inter-war-period was characterized by significant inflation and deflation. *De Smithske* contributed with less than 1% to the total figures for the industry nationally.



The 3 biggest companies in the metal industry in Aalborg

Due to success with the production of church bells, the contribution of *De Smithske* doubled to almost 2% in 1922-23. However, the market for church bells did not create a foundation for maintaining the same growth rates: these slowly started to decline again when the downward trend in the economy that characterized the 1920s leading up to the economic crisis in the 1930s began. The 1930s proved to be very difficult years for industries in Aalborg in general, and *De Smithske* in particular. The city's economy was dominated by the tobacco and cement industries – not the innovative metal industry the city probably would have benefited from. The metal industry in Aalborg was significantly weaker at the time than was the case in other big cities across Denmark. Whilst the rate of workers employed in the metal industry nationally was 33%, it was only 12% of the population in Aalborg. The majority of these workers were employed at the shipyard in Aalborg. The second largest employer in the metal industry was *Buaas*, and *De Smithske* was only in third place. In terms of revenue the order was the same.

Yearly average from 1916-1933 for the 3 biggest companies in the metal industry in Aalborg:

1.	Aalborg Shipyard:	Employees: 337
	Value of production (DKK):	3.61 mil.
2.	Buaas	Employees: 117
	Value of production (DKK):	0.74 mil.
3.	De Smithske	Employees: 62
	Value of production (DKK):	0.24 mil.

The development of the 3 companies was mutually dependent. In 1913 the shipyard took over the buildings *De Smithske* had built and owned since 1903, and in 1936 *De Smithske* took over *Buaas*' factory buildings from 1898.

Buaas' factories

When *Buaas* went bankrupt in 1906, P. J. Buaas took over the company as the sole owner. He bought one third of the shares and was able to continue the production of a wide selection of different machines for the agricultural sector. In the years from 1907-1917 he captured 3% of the national market shares for agricultural machines and 9% for dairy machines. However, he was not able to survive the crisis in 1921-1923. His stocks were far too expensive in the war economy and because of a miserable export rate to Germany production was taken over by *B&W*. When the agricultural sector was under pressure in the 1930s, the production of machines for the agricultural market was closed and the buildings were sold to *De Smithske*. In the meantime Aalborg shipyard had also bought other buildings from *De Smithske*.

The new harbour in Aalborg where De Smithske carried out ship repairs in the marked buildings from 1838-1902. On the left of the photograph is the workshop; to the right is where the tar and the furnace coke were boiled. The ships are hauled up in the centre of the photograph.
The photograph was taken by Fritz Karner.

***De Smithske's* repair shipyard in the new harbour 1838-1902**

The first basin in Aalborg, the new harbour was built in 1817-1820. It had slips, workshops for smiths and carpenters, and special heated areas where the frames for ships could be made. In his position as one of the most important ship owners in Aalborg, Henning Smith had been involved since 1838. He used the facilities to produce furnace coke for the iron foundry from the coal that the ships carried. After 1856 *De Smithske* kept the site.

Ship repairs were not a significant part of the business before 1875. Occasionally, *De Smithske* would repair the boilers and steam engines on the ship running between Aalborg and Copenhagen. Close ties between the ferry service and *De Smithske* were built, so it probably was not a coincidence that the first engineer on one of the ships between Aalborg and Copenhagen, Carl Wendt, became the managing director for *De Smithske* in 1862-1893. In the 1870s and 1880s *De Smithske* increased the level of repairs and in the 1890s *De Smithske* installed steam engines in at least 51 fishing boats whilst expanding its dredging enterprise in the region. Meanwhile *De Smithske* also expanded the number of small repairs on a daily basis in the repair workshop in the new harbour. Even though *De Smithske* had a crane at its disposal, it was often out of order.

The records reveal that the local authorities asked *De Smithske* several ti-

De Smithske's repair shipyard in the eastern harbour. The workshop is on the left and the three slipways are on the right.
Photograph by Fritz Karner in approx. 1912.

mes to repair the crane as they were afraid it was a danger for workers in the harbour. The complaints from the local authorities stopped around 1900 when *De Smithske* established a steel shipyard – something that the local authorities had a strong interest in.

***De Smithske's* repair shipyard in the eastern harbour 1902-1912**

The local authorities had a strong interest in the establishment of a shipyard for steel ships in the city since the expansion of the fairway in the local fiord, Limfjorden. This link to the sea had been completed in 1900. The project started in 1883 when the shipping to and from Aalborg almost disappeared due to the shallow depth of only 3 metres in the fiord. The shallow depth had made direct shipping from the sea to Aalborg very difficult. In 1887 the depth of the water was increased to 5.7 metres which allowed access for significantly bigger ships to the harbour. The expansion of the harbour led to the expansion of local industries, most significantly the establishment of the cement industries in Aalborg in 1889-1891. Finally, in 1900 the depth of the fairway was expanded to 7 metres all the way from the sea, Kattegat, to Aalborg harbour. This qualified Aalborg as a real sea harbour. In the following years the local authorities strongly encouraged the establishment of any shipyards or repair workshops in the harbour that would attract more trade and shipping to the city. Modern shipyards and repair facilities were needed in the new basin in the eastern harbour – preferably a steel shipyard as in Copenhagen and Helsingør. *De Smithske* received the initial order

for 3 slipways with steam engines – 3 small ones and a large one. This order made it significantly easier for *De Smithske's* Managing Director Sørensen to present the plans for a shipyard around the slipways January 29th 1902.

Even though *De Smithske* built the repair shipyard, it was not particularly interested in using it. Both the managing director and the board of directors were afraid of involving *De Smithske* in the risky steel ship business, so *'the buildings were only taken over after strong pressure from the harbour authorities'* and because *'the local authorities are such important clients of ours'*. In other words, it was only after explicit pressure from the local authorities and with the prospect of orders from the local authorities that the board finally gave in and began using the facilities. We do not know the exact scope of the work in the steel shipyard but in the annual report from 1904 it is mentioned that *'we repaired and improved many steam engines'*. In the year of 1905, *De Smithske* repaired at least 12 steel ships, including 3 ferries from the national railways .

Repair work on steel ships in *De Smithske's* 3 slips in the eastern harbour 1905-1912							
1905	**1906**	**1907**	**1908**	**1909**	**1910**	**1911**	**1912**
12	24	26	27	30	27	24	30

The repairs of the ferries did not create a large stream of revenue for *De Smithske*. Hence, the enthusiasm for work at the shipyard from 1902-1913 remained minimal and did not fulfil the expectations of the local authorities either. Therefore, *De Smithske* soon leased out the facilities for a symbolic payment of 558 DKK per year, while they managed to secure preference on all public orders in the field of metal and machines. That was quite significant as it covered everything from boilers to pumps and pipes for central heating systems in the city's schools, churches and administrative buildings.
Despite the desires of the local authorities, *De Smithske* did not have an interest in establishing a complete steel shipyard in Aalborg.

De Smithske Did Not Establish a Steel Shipyard

If the corporation was supposed to *'live from the Sea'*, *De Smithske* wrote in a letter to the local authorities, it was necessary to establish a steel shipyard – *De Smithske* just did not have good experiences with shipyards plus the expansion of shipyards in other cities in the region had not been successful. Even though the new steel shipyard in Frederikshavn was based on an effective existing company and located in a harbour that was next to all the regular ferry services it had not been profitable. 6 years after its establishment in 1906 it was on the verge of bankruptcy. The same was the case in Helsingør where the yearly turn-over never even reached 5%. The location of Aalborg was not as strategically profitable as the other cities in any way, and *De Smithske* was not interested in

entering this risky business.

Aside from Aalborg's location, public ownership of the site would make any private initiative completely dependent on random majorities in the town council whenever the lease was to be renewed. *De Smithske* did not have the required capital. Therefore, it was necessary to attract a strong investor from outside, but then again potential investors were only interested in investing if there was already an effective shipyard at place already. If *De Smithske* decided to engage in the shipyard, the corporation would be extremely vulnerable to cyclical fluctuations, which could ultimately lead to the closure of the old corporation. In the end, *De Smithske* declined to establish a steel shipyard. Instead Aalborg Shipyard was established. Contrary to expectations, the shipyard was a success and became the most important company in the local metal industries for the following 70 years. All orders from the local authorities were taken from *De Smithske* and given to the new shipyard.

When De Smithske refused to establish a steel shipyard by the eastern harbour, P. Ph. Stuhr took up the challenge instead. In 1912 he founded the shipyard in Aalborg on public sites and with public slipways. The picture was taken in 1912, so the name of De Smithske is still on the end of the building but it is the steel ship 'Jens Riis' from Aalborg Shipyard that can be seen in the background.
Unknown photographer.

Aalborg Shipyard

The town council in Aalborg was determined to provide the city with a shipyard. When *P. Ph. Stuhr's* machine workshop offered to rent slipways and facilities in the eastern harbour and expand the business with a steel shipyard, Aalborg finally got a shipyard. The new company met with broad scepticism, but soon after in 1913-1915 the shipyard delivered 8 small steel ships with a total weight of 2000 tons. The first World War, from 1914 to 1918, with submarine wars and torpedoed cargo

ships changed the market completely for the new shipyard. Even though the company did not have significant net capital, it committed to produce 32 cargo ships with a total weight of 94,500 tons. Also, in 1916, the company expanded and bought the second largest machine shop in the country – *Frichs* in Århus. The next challenge was that steel could hardly be bought for money. While prices in general had doubled during the war, the price for steel was 15 times higher than before the war.

The Stuhr brothers' machineries in Danmarksgade produced bikes, sewing machines and typewriters, electric engines and cars. In 1912 the company started to produce steel ships. While it was a profitable business for the first couple of years the First World War changed this trend dramatically.
Unknown photographer

In order to get hold of some of the metal that *De Smithske* had on stock at 1914 prices, Aalborg Shipyard offered to buy and take over *De Smithske* at only one week's notice at the end of 1917. Despite a very favorable price twice the value of the corporation's estimated value of 240,000 DKK, *De Smithske* declined the generous offer. Thus, the shipyard was only capable of building 3 out of the 32 ships during the war and then another 5 ships with steel bought after the war in 1919. From 1920 the price of steel nose dived and the ships were impossible to sell: in 1921 the corporation's deficit was more than 8 million DKK. The share capital of 4 million DKK was lost and the bank involved had to write off more than 4 million DKK. The shipyard went bankrupt in 1922 and was then turned into a semi-public company with the municipality of Aalborg as the main shareholder until the shipping company *Lauritzen* took over in 1937.

The shipyard was the only business that failed in the 'peace-crisis' from 1921 to 1923 following the war. Paradoxically, these years turned out to be the best for a long time for *De Smithske*. The reason was church bells.

Church Bells

The first church bells

The story goes that it was the moulder Christian Frederiksen (*1848) who came up with the idea of casting church bells. He was employed at *De Smithske* for 40 years from 1877 to 1917. Christian Frederiksen happened to be Methodist and when the new Methodist church needed a church bell in 1894 he suggested that *De Smithske* cast a bell for the church. The church bell was successfully cast and installed in 1900. Unfortunately this church bell does not exist anymore. When the church was closed in 1986, the bell, which had cracked, was moved to the church's scout division hut, but unfortunately it was stolen in 2007.

The oldest preserved church bell from De Smithske iron foundry is at Hasle cemetery on Bornholm.
Photograph by the author.

The second bell that *De Smithske* produced in 1900 is preserved on the island of Bornholm. The church bell was originally bought by the Methodist church in Nexø, on Bornholm. After having served its function for many years in Nexø, it was moved to Rønne, and today it is in an independent church tower in the cemetery in Hasle.

Most of the other 430 church bells that were cast at *De Smithske* are still being used in churches across Denmark. If all bells are included, including the small ones in carillons, 466 bells are preserved today. In other words there are still more than 10% of church bells in Denmark that were produced by *De Smithske* in Aalborg.

Danish church bells

There are still 325 church bells preserved from the time before the reformation in Denmark in 1536. Also, an additional 700 church bells have been preserved from period 1536 to 1800. 33 of these bells were produced in Aalborg. In the years from 1800-1900 many of the new iron foundries cast church bells, though *De Smithske* was not one of them during the 19th century. At the end of the 19th century German church bell producers captured market shares in Denmark. The most famous

bells in Denmark from this year originate from Germany – among others the bells in the Copenhagen town hall. It might seem odd that *De Smithske* began its production of church bells so late. The explanation was probably not to be found in the Methodist church in Aalborg, but rather in the contracts with the churches for central heating systems.

Public baths, central heating systems and church bells

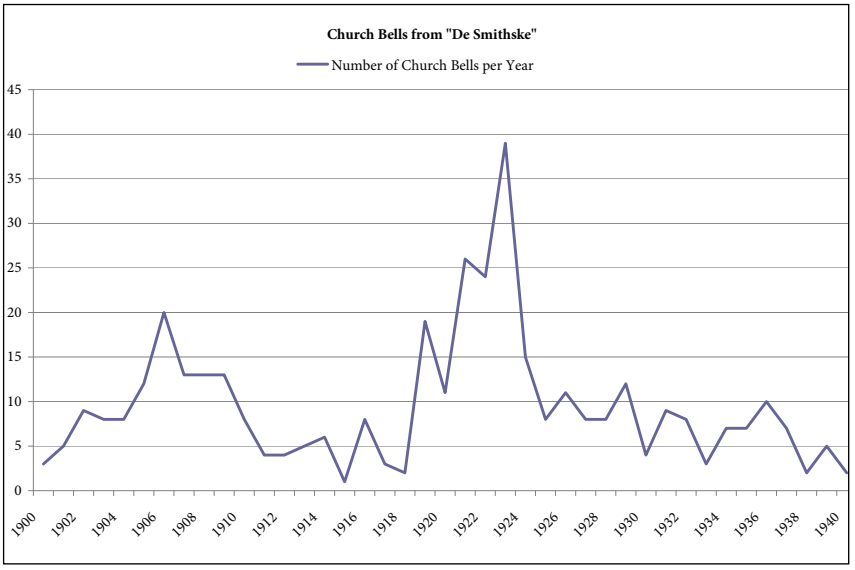
De Smithske delivered its first central heating system in 1887 to the new hospital in Aalborg. Immediately after, *De Smithske* delivered the heating system for the public baths and from 1898 to 1902 they delivered to a number of public schools. The first central heating system for a church was delivered in 1898 to the church just on the other side of the fiord in Nørresundby. After that followed central heating systems for the Budolfi Cathedral and the church in the old monastery. All of the churches above had church bells already, and it was only later that they changed to bells produced by *De Smithske*. However, not all of the many other churches that were built around 1900 had central heating systems or church bells – conveniently, *De Smithske* could provide them with both. *De Smithske* delivered central heating systems and bells to 2 churches in Aalborg: Our Savior's church in 1901, and Vejgaard Church in 1904. Soon after the business spread throughout the country. Even though *De Smithske* was far from the only company that delivered central heating systems on a national level, it was certainly the only company that combined the delivery of heat and sound. This was also how *De Smithske* captured virtually all market shares on the Danish church bell market.

The delivery of church bells in 1902 to the new church of Our Savior marked the breakthrough for the production of church bells. De Smithske became the leading producer of church bells in Denmark.

De Smithske obviously tried to make as much profit as possible from the church bell business. When 2 bells were delivered to Our Saviour's church as agreed, *De Smithske* chose to add another bell for free. By doing so they hoped that potential new clients would notice the beautiful trinity. All 3 bells were on show in Copenhagen before they were

installed in Aalborg. *De Smithske* had already delivered 3 more bells to the Church of Isaiah in Copenhagen in 1903. When the bells reached the capital, *De Smithske* could proudly present a quote from the Church Ministry stating that the bells from *De Smithske 'have a remarkably beautiful tone, pure and deep in a way that is not matched by any foreign church bell'.*

The death of Christian the 9th in January 1906 marked the next marketing event. But first all churches across the entire country rang their bells simultaneously. Undoubtedly it was beautiful, but many of the church bells split: *De Smithske's* order book quickly became very full. The graph shows a clear peak around 1906. The next peak was in 1921 when there was a strong demand for church bells in the regained southern part of Denmark.



Production records for church bells from 1900-1960 with client's specification, dimensions of the bell and price.

Church bells in Southern Jutland

De Smithske had been provident and donated 1,000 DKK to the National Foundation for Church Bells in Southern Jutland. During the First World War Southern Jutland was under German control, and most of the church bells had been melted down to make German military equipment. The Danish War Ministry donated 60 old guns to help with the casting of 44 bells in 38 churches in Southern Jutland, including the cathedral in Haderslev and the churches in Aabenraa, Tønder and Løgumkloster. As all German foundries were automatically excluded after the war, it was easy for *De Smithske* to get the order. While the rest of the industry was suffering from very hard competition from low prices from German competitors, *De Smithske* took advantage of the situation. The managing director commented: *'this order for church bells for Southern Jutland is the biggest order the foundry has ever had. Not only is it profitable, the purpose of the order automatically reflects credit on our corporation's name'.* However it was Sørensen, the Managing Director, more than *De Smithske* as a corporation that became known throughout the country for the church bells. Today, he is still known as the most important bell founder in Denmark and his connection to *De Smithske* is rarely mentioned at all.

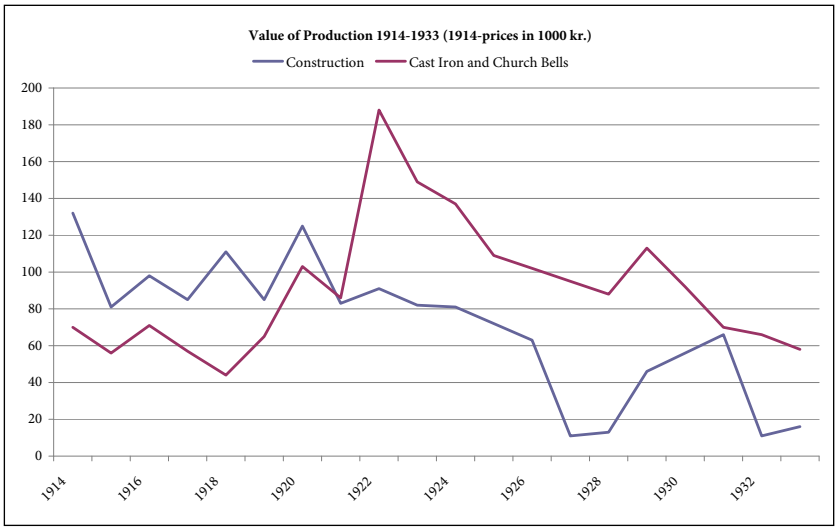
Managing Director C. F. L. Sørensen at De Smithske in front of a test of some of the many bells in the 'Parrot Garden'. Most of the church bells were sold to churches in Southern Jutland after the reunification with Denmark after 56 years under German rule. Whilst it was impossible for German producers to enter this specific market, the Ministry of War decided to help by donating old guns that could be recast as church bells.
Photograph by Heinrich Tønnies, 1921.

Bell for the cathedral in Haderslev. Photograph by Heinrich Tønnies December 16th 1931. Normally the church bells were photographed before delivery.

When Sørensen died in 1926 the bell foundry was isolated from the rest of the production. Thus, the bell foundry was not the personal responsibility of the new Managing Director Broe either. Instead responsibility was moved to the two sons of the former Managing Director, Sørensen. It soon became clear that it was not a good way to be organized: the Sørensen brothers received the orders, but complaints were directed to *De Smithske*. In March 1931 the problem was largely solved by the two Sørensen brothers establishing their own bell foundry north of Aalborg in Brønderslev.

The landmark church in Copenhagen, the church of our Savior illustrates this shift. The church ordered 3 church bells. While the first was produced by *De Smithske* in 1929, the remaining 2 bells were produced by 'Brønderslev Bell Foundry' in 1931. Despite this new competition, *De Smithske* continued to produce bells. The company produced 260 church bells until the production of church bells ceased in 1965. From 1965-1975 *De Smithske* cooperated with a Dutch bell foundry until the church bell business was removed from *De Smithske* when the independent company 'Danish Church Bells' was created in 1975.

In General 1900-1935



In fixed 1914 prices, the value of production fell for all products. The figures are based on reports to the Interior Ministry from 1916 to 1933 and annual reports 1914 -1916.

On the occasion of the 100th anniversary of the corporation in 1934, the local authorities in Aalborg ordered a carillon from *De Smithske* for the main cathedral in the city. While *De Smithske* produced the bells, it was the shipyard in the city that delivered the metal frame for the carillon. That was symptomatic of the relationship between the two companies. The shipyard got all significant orders in the city: Aalborg's landmark the Aalborg tower, the first congress centre in Aalborg and the new bridge that connected the southern and northern parts of the city on both sides of the fiord from 1933. There was no competition on the market: the orders went directly to Aalborg Shipyard as it was owned by the local authorities who placed the orders there in the first place. *De Smithske* still did some repair work, especially for the national railways and the cement industries in Aalborg. However, with the exception of the golden 'church bells' years from 1921-1923, the real value of the corporation was declining from 1900 to 1935.

Key Figures and Staff

Employees at De Smithske are photographed in the 'Parrot Garden' in 1922 – the year when the production of church bells peaked. In the circle are the Managing Director from 1893-1926, C. F. L. Sørensen to the left, and the future Managing Director P. Broe (1926-1935) to the right. Unknown photographer.

Managing directors

When Managing Director Sørensen died in 1926, he was replaced by N. P. Broe. Broe was born in Horsens in 1874. He earned his 'certificate of completion' as an apprentice to *Møller and Jochumsen* in Horsens in 1896, and soon after qualified as an engineer. In 1897 he became the Deputy Director and responsible for everything but the bell foundry, which seemed to be Sørensen's private business. In 1926 Broe formally took over responsibility for the company, except for the bell foundry which was now managed by Sørensen's 2 sons. Broe did not gain full responsibility for the bell foundry until 1931, when the Sørensen brothers established their own bell foundry. However, he did not stay in power for long. In 1935, after less than 10 years, he was already replaced by Poul Egenfeldt, who proved be the new key figure for *De Smithske*.

C. Th. Malling (1832-1905) was chairman of the board of directors from 1888-1905. Being involved with ships to and from Aalborg from 1857-1905, and as a member of the town council, he facilitated many orders for the factory for ship repairs, machines for the public waterworks and heating systems in public buildings. It was also Malling who tried to pressure the company into establishing the steel ship yard.
Photograph by H. Tønnies February 22nd 1895.

In the board of directors Christian Simoni had been replaced in 1888 by Ship Owner Carl Thorvald Malling (1832-1905). Like Simoni, Malling was central to Danish business. He was the stepson of the important ship owner Prior who managed the services on the Limfjord. From 1866 the company was known as DFDS – an important shipping company in Denmark that still exists today. *De Smithske* did much of the repair work for Prior's ships. Malling was also a member of the town council in Aalborg and one of the central figures behind the promotion of Aalborg's public baths and the central heating systems in public buildings in Aalborg. Malling's successor to the position of the chair of the board of directors was Customs Officer C. F. T. Christensen. He did not have any connections similar to his predecessors. That might be part of the explanation as to why the corporation experienced a significant decline when he took over the seat.

Employees

Employees at *De Smithske* were divided into 3 different groups: office workers, workers in the work shop, and finally workers in the foundry. The office workers received a fixed salary every month. From 1900-1935 there were 12 office workers on average. The managing director had the highest salary (5,400 DKK/year). Then there were 2 engineers who both made 3,600 DKK/year. The supervisor earned 3,000 DKK/year, the chief founder made 2,600 DKK/year, the bookkeeper earned 2,400 DKK/year, and the 3-4 clerks each made 480 DKK. Finally, the company had a travelling salesman who was paid 3,000 DKK per year. The 'drawing office' had 2 employees, the 'marketing section', the 'secretariat' and the 'book keeper's office' had 1 employee each. The 3-4 clerks helped all the different sections.

The bookkeeper's office at De Smithske in Algade. Photograph by H. Tønnies December 30th 1935.

The hourly paid workers were clearly separated into two different groups: the workers in the workshop and the workers in the foundry. Both of the groups consisted of approximately 30 workers each. In the workshop 2/3s of the workers were mechanics, 4 or 5 were joiners and 6-8 of them were unskilled workers. In the foundry most of the employees were moulders or moulder apprentices while there were only a few

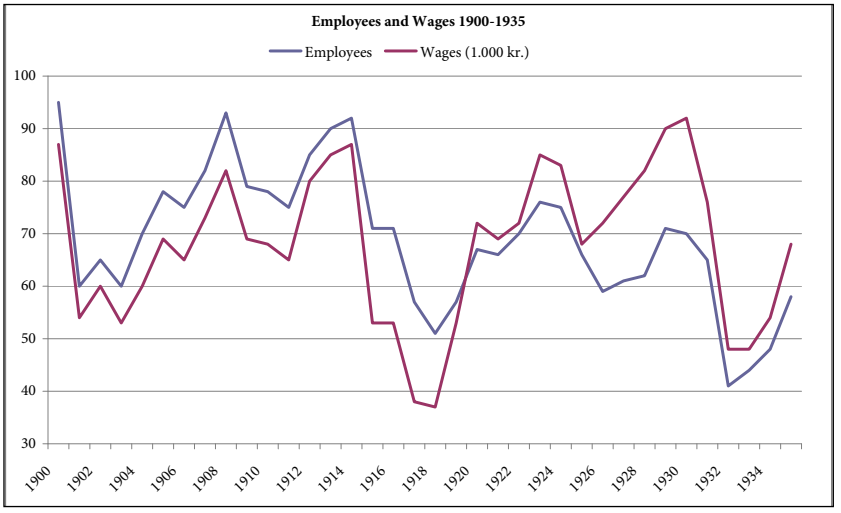
The managing director's office at De Smithske in Algade 1834-1935. One senses the cathedral through the windows. Above the couch is a picture of Christian Simoni, chairman until 1888. The very small frame over the couch contains a picture of Henning Smith which has been lost now.
Photograph by H. Tønnies December 30th 1935.

unskilled workers. In total the numbers of employees declined slightly in the years from 1900 to 1935. The total of all the wages is shown in fixed prices for 1900 and follows the number of workers closely.

Moulders and workers are waiting for liquid cast iron to come out of the furnace. They are ready to mould the cast iron just as people have done for 100 years in these buildings.
Photograph by H. Tønnies February 21st 1935.

Overall, the wages were slightly lower before 1920 when they did not follow general inflation rates. However, when the wages did not follow deflation after 1920 either, the real value of the wages increased slightly again. This created a challenge to the employers who also lost a conflict with the workers over the wages in 1925. All in all, these years were relatively stable though.

The number of employees was halved between 1900 and 1935 from around 100 to around 50. The worst years were around 1901, 1918 and 1932. The total of salaries follows the number of employees but is relatively higher after 1918 than before. The figures are based on annual reports.



Peace and No Conflicts

After 1900 the labour market was relatively quiet compared to the conflicts over wages and working conditions in the 1890s. In the yearly summaries it is mentioned that *'the relationship with the workers is very good'* (1901), *'as good as ever'* (1912), *'extraordinarily good – but that is always the case at De Smithske'* (1921), *'good as always'* (1932).

Even in difficult times during the war, the tone was very optimistic. Even though the war years were not without problems for *De Smithske* , the managing director did not seem to be too troubled: *'Labor markets all over the world are experiencing challenging times of change during the war. Wages have increased, but that is the case everywhere'* (1918) and *'constant strife between employer and employee is a way to create a society based on equality'*(1921). Even in 1925, the year of a strike that paralyzed *De Smithske* for more than 3 months, the managing director noted that *'it has been yet another year characterized by a good relationship between the management and workers'*.

Overall, the workers' demands were met by the management except when the moulders were striking from September 1930 to April 1931. Not all moulders participated, so the company was not paralyzed. The underlying conflict was not the size of the wage, but rather the introduction of machine production that threatened the moulders. Exactly the conflict between man power and machine power that would prove to be central in the years that followed.

The foundry in Algade just before it closed down.
The moulders are at work.
Photograph by H. Tønnies December 21st 1935.

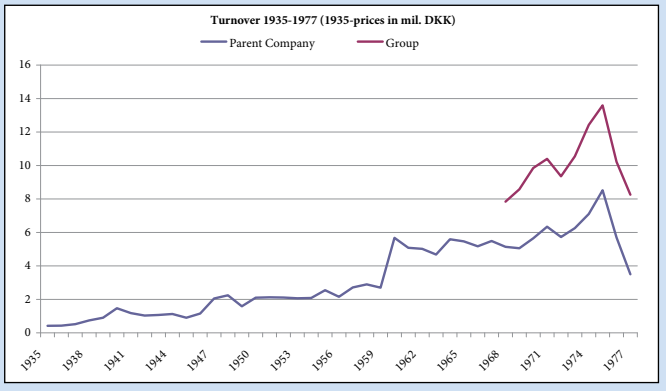
Chapter 5

Progress in Between Two Relocations 1935-1977

A/S De Smithske

Summary 1935-1977

In the 40 years between 1936 and 1976 *De Smithske* experienced continuous growth. The number of employees tripled from around 100 employees to approximately 300 in the mother company and almost 500 when all the employees in the entire group were included - affiliated companies in the group included *DESMI PUMPAR AB* in Stockholm from 1964, *Skalborg Maskinfabrik* from 1966 and *K. B. Hansson's Metalstøberi* in Aalborg from 1970. The turnover for the mother company alone increased 14 times in fixed prices, and for the entire group the turnover increased 24 times in fixed prices. It was the first time the company experienced such a significant growth for such a long time.



It was however a reflection of what was happening in the rest of Danish industry. Thus for the country as a whole, the growth in industry increased at a much higher rate than was the case in the economy as a whole. For the first time ever, the value of industrial exports also exceeded agricultural exports in 1961 and the industrial exports have been the primary driving force in the Danish economy ever since. In 1972 industrial exports already exceeded agricultural exports by more than 100%. This general movement from a local or domestic market to an international market also characterized development in *De Smithske*. From 1945 to 1975 the proportion of production exported from *De Smithske* grew from 0 to 30. In the 1960s exports developed quickly due to the production of pumps and made up 50% of the entire production by the end of the decade.

The continuous progress was made possible by the new machines that the new Managing Director Egenfeldt (1936-1970) had invested in. Thanks to these wise investments, *De Smithske* offered products

such as water turbines and mechanical diggers for peat banks. These were in demand due to the lack of energy sources the country was challenged with during the Second World War. The company also produced a wide selection of different pumps, and it was pumps that proved to be the most important commodity for *De Smithske*.

The new production was reflected in the balance between the departments. The foundry grew smaller and smaller, and in 1977 it was finally closed. By contrast, the machine work shop and the number of white-collar workers in both the drawing office and in accountancy expanded steadily.
The growth was expressed in capital expansions, new daughter companies and an increasingly growing need for expansion of the production machineries. In 1976-1977 the corporation moved to the other side of the Limfjord to the address it has today in Nørresundby next to Aalborg airport. Unfortunately, this coincided with a structural economic crisis. The glory days for Aalborg as the industrial centre of Denmark were over. Both the shipyard and the majority of the cement industries disappeared, but the money saved from the cement industries contributed significantly to the survival of *De Smithske*.

Poul Egenfeldt, who was the managing director from 1936-1970, sits in the middle of the first row in front of all the employees at De Smithskes' factory at Annebergvej in Aalborg. The photograph was taken in 1943 by an unknown photographer.

When the factory was built in 1898 it was far outside the city. When De Smithske moved to this location in 1936 there were only a few neighbours, but by 1960 the factory was surrounded by apartment buildings and the neighbours complained about the smoke and noise. In the following years, the neighbours demanded that De Smithske move away and in 1977 the company moved to brand new buildings in Lindholm north of the Limfjord. The photograph was taken around 1960 by an unknown photographer.

A New Direction in 1936

The new Managing Director, Poul Egenfeldt, was born on the island of Funen on April 3rd 1900. He became an engineer in 1925 and worked for machine factories in Germany and America. He came to *De Smithske* in 1935 and became the Managing Director by January 1st 1936. He stayed in this position for 34 years until 1970. The early years were difficult for Egenfeldt. Until 1939 he had to fight significant deficits. For the first time since 1903 the shareholders did not receive any return on their shares from 1937 to 1939.

However, the new Managing Director was still an optimist when it came to the future of the business. In 1936 he successfully united the separate productions, previously in the Parrot Garden and Algade, in the western edge of the city next to the cattle show field and the allotment gardens. At the same time the corporation revived the production of a wide choice of goods from the 19th century: machines, boilers, engineer work, castings and of course the bells, too. While the products were the same, the process of production was made much more efficient and organized much better than previously. Production was much more flexible, hence it was easy to change production when new profitable niche markets were identified. This tactic would prove to be very beneficial

The foundry in Algade after the factory moved. Photograph by H. Tønnies 1936.

in the following years during the Second World War when restrictions on imports characterized the market and forced companies to produce much of what had previously been imported.

The old premises

It was easy to tell that the factory in Algade had its roots back in the silk factory of 1756. It was so outdated that the idea of a thorough modernization of the factory had been abandoned many years earlier. In addition, a public debate over the future of the inner city of Aalborg had taken place even before the outbreak of the First World War in 1914. Dominant fractions within the city favoured a complete reorganization of the town centre. In 1909-1911 the western and the eastern parts of the city were connected by a boulevard. In 1922-23 another major street parallel to the new boulevard was constructed just west of *De Smithske's* factory in Algade. The city council of Aalborg however, wanted even more free space in the inner city, among other things an open square where the town centre factory had been since 1834, so the local authorities offered 210,000 DKK for the site with buildings ready to be torn down.

The demolition of the Bishop's palace next to the old factory in Algade. Aalborg's historical museum is in the background.
Photograph by H. Tønnies.

After 101 years in Algade this is the last cast iron that was cast on December 21st 1936. Lawyer Knud Grünwald who was a director from 1932-1960 is in the centre of the photograph wearing a bow tie. Verner Tønnies (1890-1951) has his back to the photographer. Verner Tønnies was the third generation in the Tønnies photographic business which had taken photographs of rooms, workers and products linked to De Smithske since 1857.

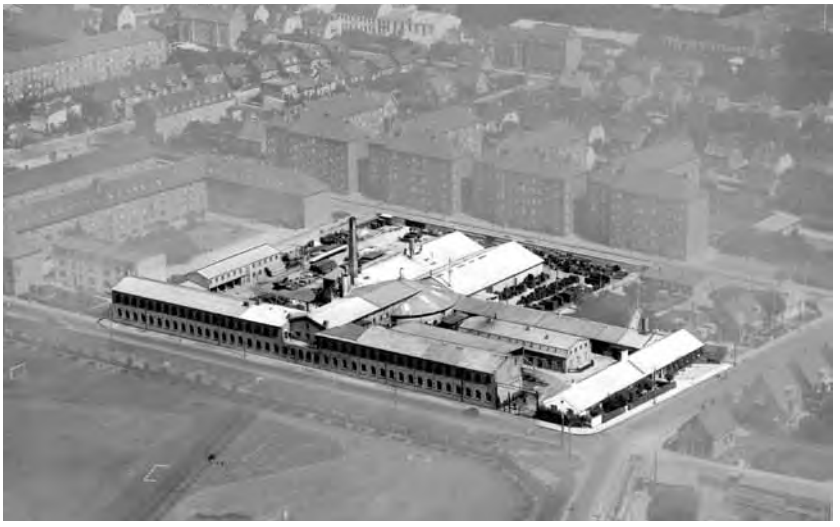
As for the factory in the Parrot Garden the site had become much more attractive because of the new streets in the city and was therefore easy to sell. Part of the site was sold to the local authorities for 100,000 DKK. In the early 1950s the city council built a congress centre where the factory had once been. Another part of the site was sold for 65,000 DKK to a local dairy. Today that is where you will find a big hotel and a car park just north of the congress centre.

De Smithske's administration building in the Parrot Garden was maintained until 1961 but was used as a shop once the shop in Algade had

closed. In 1961, the shop moved to the inner city on the new boulevard.

The new premises 1936-1977

De Smithske bought Buaas' old factory from 1898 in the western outskirts of Aalborg complete with foundry and machine shop. *De Smithske* had made 375,000 DKK on selling the two old factories, so when they could buy the new factory for only 175,000 there was still some money left even though the company had a deficit of 63,000 DKK in 1936. At the end of the year, the shareholders even received a return of 3%. The shareholders decided unanimously in favour of relocation. Production was now finally united at one location – and with 4,500 m² of production facilities there was plenty of room for new ventures.



This aerial photograph of the factory on Annebergvej from 1959 was taken on the occasion of De Smithske's 125th anniversary. The administration building to the right, the long machine shop in the foreground and the round foundry building all belonged to the Buaas' factory from 1898. From 1936-1977 De Smithske expanded the number of buildings. At the end of this period there was no space left for further expansion and the neighbours complained about smoke and noise.
Unknown photographer.

The picture shows the factory from the air. The street on which the factory is located is called Henning Smiths Vej, while the street at the far left behind the houses is called Poul Buaas Vej. Buaas built the factory in 1898, and Henning Smith and his heirs took over from 1936 until 1977. After plans for opening a museum about Aalborg's industries were unsuccessful, the buildings housed various business initiatives. Finally in 2005 it was transformed into a housing co-operative with 50 apartments called 'the foundry'.

The main entrance was on Annebergvej. A low building of 430 m² housed the corporation's administration as well as the residence for both the managing director and the supervisor. Over the years, the residences were abandoned and the whole building dedicated to administration. The long two-storeyed building facing Vester Fjordvej covered 1530 m² and housed several machine workshops. The foundry was in a circular building in the center of the site. It was surrounded by moulding workshops, a smithy and some store houses. The 3 big factory halls with the light roofs were new buildings from the 1960s. It was in these buildings that the construction of steel plates and later the production of pumps took place. However, despite this large factory *De Smithske* had to ex-

pand even further in 1965 when the corporation bought more land just west of the factory and built an industrial hall (1,100 m²) for the welding of steel plate constructions. This created more room for pump production. However, eventually *De Smithske* needed even more space and as expansion was not possible due to complaints from the surrounding residents, *De Smithske* had to move again, as will be described in the following chapter. The conditions for this growth that led to the need for further expansion were founded by the new strategy of production that was implemented in 1936.

A procession of carriages on the site for the local cattle show immediately west of De Smithske in 1939. Originally, the site had been used by the army as a rifle range. During the German occupation 1940-1945 the site was used by the Germans for huts for the army and for refugees. After the Second World War, the site was used for allotment gardens.
Photograph by Jørgen Anker Kirkegaard, 1939.

Egenfeldt's Strategy for the Future in 1936

'Out of concern for the future of the company it is essential to maintain a good relationship with our clients' Egenfeldt concluded in 1936. While this was not rocket science, his means to reach this end were more progressive. He defined flexible production processes that adapt to the demands of the market as the best way to satisfy the clients. Thus, as soon as the market changed, the factory would be ready to change its production, too. In order to make this happen it was necessary to improve the resources in the drawing office as well as the administrative capabilities so that there was a better balance between orders and production. This would serve to minimize the corporation's vulnerability to shifting market conditions. *De Smithske* produced and marketed a number of standard items. They were produced for the storerooms when the general demand for specialized products was low, and then sold when the demand for specialized products was high. In that way, the production capacity of the company was fully used. In order to capture a share of markets outside Aalborg, the corporation also began selling its commodities in other big cities in Scandinavia such as Copenhagen and Oslo.
The goal was simply to create a balance between the current production and specialized orders for commissioned work.

Managing director Egenfeldt in the western boat harbour in Aalborg in July 1939 with the new diaphragm pump. It was the first pump De Smithske produced in batches – but not the last one by far.
Photograph by Jørgen Anker Kirkegaard, 1939.

The current production included castings such as kitchen ranges, pots, window frames and elements for the construction of public sewers and trapdoors. Aside from the traditional castings the corporation still produced boilers, especially for bakeries, plus machines and engineer pumps for mills, road rollers, peat banks and water turbines.

Second World War and the German Occupation

The new business model proved to be even better than anticipated in 1936. When the Second World War broke out in 1939 *'conditions offered extraordinary opportunities for production'*. This was especially the case for machines for the production of peat, pumps, and water turbines. By the end of the year in 1939-1940, the corporation even introduced a night shift in order to meet demand. It was particularly the sudden shortage of coal that translated into a booming demand for machines for the production of peat.

A number of special products were developed during the Second World War. The photo above shows a potato boiler that runs on steam. Below is a special energy-saving kitchen range which ran on peat or other similar low-energy fuels. Photograph by Fritz Karner, 1941.

After the German occupation of Denmark on April 9th 1940 additional costs were added to the production. The price of iron and coal increased and it was more difficult to find. The number of employees in the administration was increased in order to find new ways to buy the necessary raw materials and deal with import permissions etc. At the same time a number of other measures were required such as blackouts, air-raid shelters, and plant protection. In addition, the company had to take into account the frequent suspensions of production during the air raids that had already begun during the summer of 1940. All in all, it made it difficult for *De Smithske* to meet the heavy demand for peat machines, mechanical diggers for peat and the pump systems that came with it.

Fuel rationing resulted in an increased demand for more energy efficient all-night burners. Even though *De Smithske* had stopped the production of all-night burners in 1897, the flexible production system allowed the company to produce 2-3,000 all-night burners per year during the war. Furthermore, the demand for industrial potato boilers and peelers for the newly established fish meal factories in Hirtshals, Sæby, Århus, Kerteminde and Gudhjem put an additional pressure on *De Smithske*

The production of water turbines and pumps began in 1939. The production was licensed by the Swedish company *Finshyttan Hydro Power*. In 1941 that led to an order for a pump that could pull 4,000 litres of water per second from the drainage facility in Southern Denmark. At the time it was the strongest pump in Denmark. Just as peat substituted coal, the water turbines were thought to remedy the lack of energy supply in the country.

However, as Denmark is short of hydro power the production of water turbines was limited to the war years, but the production of pumps themselves would prove to be a profitable business in the long run.
Cooperation with the German occupation power was not popular. When *De Smithske* had to repair two German locomotives, the Managing Director Egenfeldt personally assured the employees that the repair was the result of explicit pressure from the German military. As a result of the obvious resistance to work for the German occupation power, nobody was surprised when the two locomotives were blown up one night and then removed for *'repair at an unknown location'*. The incidents however, complicated things with regard to the supply of raw materials from Germany. Luckily, the local cement factory had just started its production of pig iron and that was a big help for *De Smithske*. As there was still a shortage of iron, *De Smithske* melted down old iron items to reuse the iron in new productions. Not only was *De Smithske* short of iron, there was also a shortage of coal. In 1944 production was exclusively based on peat. As this is a very inefficient fuel for iron casting, by the end of the war the foundry was only open once a week in an attempt to save energy resources. Even the electricity was produced by gas run emergency generators. When the gas supplies were depleted even the emergency generators were run on peat. Especially in the last months of

the war, it was virtually impossible for *De Smithske* and all other industries in Denmark to keep up production due to energy shortages.

Overall, *De Smithske* did pretty well during the war years from 1939-1945, even better than in the 1930s. The workforce, profit and return to the shareholders were small but stable throughout. What seemed to be even more important was the fact that *De Smithske* developed new areas of expertise and discovered new niche markets during the war.

De Smithske's peat forming machine in the bog Store Vildmose, northwest of Aalborg, in 1943. This machine was one of the most important export items to Finland, Holland and especially Ireland in the period 1945-1949. Photograph by Fritz Karner.

In 1946 it was mentioned for the first time that *'pumps and turbines are our most important products'*. Even though the production of turbines was phased out, pumps remained the most important products for the company.

Peat digger in the bog Store Vildmose in 1943. The diggers were used all over the country during the Second World War from 1940-1945. After the war the machines were exported to foreign markets.
Photograph by Fritz Karner.

The Postwar Year 1945-1959

The Liberation in 1945 did not lead to better conditions immediately. The energy sources for production were still very inefficient and the quality of the pig iron was very poor. Some of the castings split and other castings were too hard to mould. At the same time it was hard to get the necessary engines and dynamos for the pumps and turbines. *'We could have had orders for hundreds of pumps, had we only had the engines required – as of now we are not even able to meet the deadlines for the large pumps we have orders for already.'*

At the industrial exhibition in Copenhagen in 1954, De Smithske presented an expanded selection of self-drawing centrifugal pumps produced in batches. Photograph by Clausen, 1954.

However, one thing had improved significantly since the end of the war. As trade restrictions were lifted it was now possible to export to other countries again. In 1945 *De Smithske* had already begun to trade with clients in the Netherlands, Belgium and Finland. In 1947 the production of centrifugal pumps expanded to such an extent that it was considered as one of the corporation's most important goods in 1948. An agency was set up in Australia and the orders for pumps from *De Smithske* came from Sweden, Norway, Iceland, the Netherlands, Italy, Turkey, Iran, India and Chile. The most important country was Ireland to which *De Smithske* delivered 200 mechanical peat diggers and 20 complete peat sites including irrigation pumps.

The number and diversity of orders and nationalities of the clients were caused by Egenfeldt's many business trips. While he travelled across the world, he spent most of his time in the United Kingdom and Ireland. Here he spoke about *'Peat and the problems involved in producing peat fuel'*. The outlines for his speeches are preserved. They are very scientific. The audience is only told indirectly that the systems that *De Smithske*

offered were more efficient and profitable than the ones offered by competing producers. The outcome was nevertheless an impressive number of orders from United Kingdom and Ireland.

Outside the boiler workshop at De Smithske the large steel constructions were made under a shed roof. Here rail lines for the Danish state railways. Photograph by Clausen, 1960.

Even though *De Smithske* profited from the peat industry, it was the machine workshops that were the key to the future. The foundry did not give as much profit as expected even though the order book was full and production was increasing. This was reflected in the number of workers in the different sections. While the numbers of workers in the foundry was stable at around 50, it increased from 50 to 150 in the workshops. In order to increase profits, the iron foundry was modernized in 1952-53, and the functions were merged in order to make the process more efficient. It resulted in increased profits, and a number of very important orders such as the 135 km long oil pipe for the Danish army as well as steel constructions, and pumps and pipes for the new district heating station in Aalborg.

The Managing Director Egenfeldt's new business model from 1936 had worked successfully during times of war and peace. Production had

Year	Current value	Fixed prices (1900)
1875-1953	350,000	80,000 (1953)
1954-1960	450,000	101,000 (1954)
1961-1964	1,200,000	216,000 (1961)
1965-1971	2,400,000	350,000 (1965)
1972-1975	3,200,000	303,000 (1972)
1976-1976	6,800,000	427,000 (1976)
1977-1980	10,200,000	578,000 (1977)

Photograph:
In 1954 the local authorities in Aalborg started the construction of a district heating station. The construction work was followed by heavy demand for pumps and pipes.
Photograph by J. A. Kirkegaard.

Table:
The development of share capital from 1875-1980 in current and fixed 1900 prices. The figures are based on annual reports.

been modernized and the number of employees as well as the size of the profits and returns to the shareholders had increased significantly. Profits increased each year from 4% in 1940 to 18% in 1960, while the share capital increased for the first time since 1875 from 360,000 DKK to 450,000 DKK in 1954. All the new shares were bought by the existing shareholders.

Pressure test of the self-priming centrifugal pump in front of, and on the roof of, the foundry. The pump was the most important batch production in the 1950s. The pump was often used as a fire pump so that it was important that it could spray water on a burning house. Photograph by Clausen, 1958.

Casting in the machine shops. Photograph by Clausen, 1958.

The bell in the photograph has just been taken out of the mould and is about to be adjusted so it looks and sounds good. The mould, which is built into the wall, can be seen in the background.
Photograph by Clausen, 1958.

This is where the pattern makers made their models of the moulds for many different castings. Photograph by Clausen, 1958.

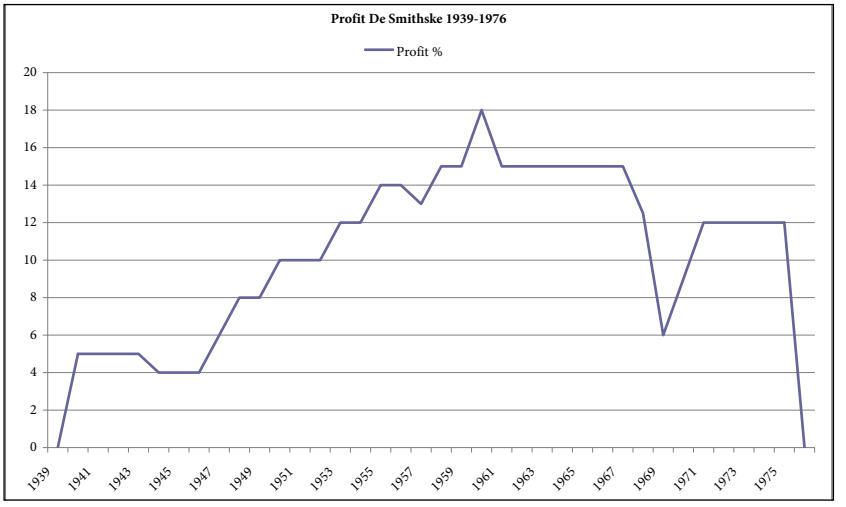
125th Anniversary June 9th 1959

In contrast to the 100th anniversary in 1934, the corporation had something to celebrate 25 years later in 1959. The corporation had allocated 80,000 DKK for the celebrations. The money was spent on a reception, a wreath-laying ceremony on Henning Smith's tomb, and a dinner for all the employees and their spouses. In addition all employees were given a free day off, an additional 50 DKK, and a jubilee publication written by Tyge Lassen (1899-1964). The publication was also sent to all clients and even had good sales figures in the local book shops. The book told a story of a continuous growth rate ever since the company was established, especially under the present managing director. While a graph in the publication showed a 15-fold increase of the turnover since 1935, it is actually only 6-fold when inflation is taken into consideration.

1960-1975 Good Times Become Even Better than Good

The heading paraphrases the Danish Social Democrats' slogan in the parliamentary elections in 1957: '*We Make Good Times Even Better than Good*'. Overall, that was exactly what happened in Denmark throughout the 1960s – and particularly for industries in Denmark. During the 60s the industrial sector overtook the agricultural sector and became the most important sector in the Danish economy. As a consequence the unemployment rate was also exceptionally low. A rapid urbanization was taking place the number of detached houses in the suburbs exploded, and the many new highways became an integrated part of the landscape.
The general progress in society was also felt in *De Smithske* so that in the 15 years that followed after the 125th anniversary *De Smithske* expanded its share capital. Interest in the new shares was high as both existing and potential new shareholders were interested in buying the new shares and benefiting from the returns that had increased consistently ever since the 1940s and remained at a high level of between 12-15% until 1975. The fact that there were no returns at all for the shareholders in the period from 1976-2000 is another story that will be analyzed in the following chapter.

Return in *De Smithske* 1875-1977



When calculated in fixed 1900 prices the increase in share capital was not significant during the years from 1954. Increases in share capital were based on a similar increase in the number of orders and the improved production machinery that followed from here.

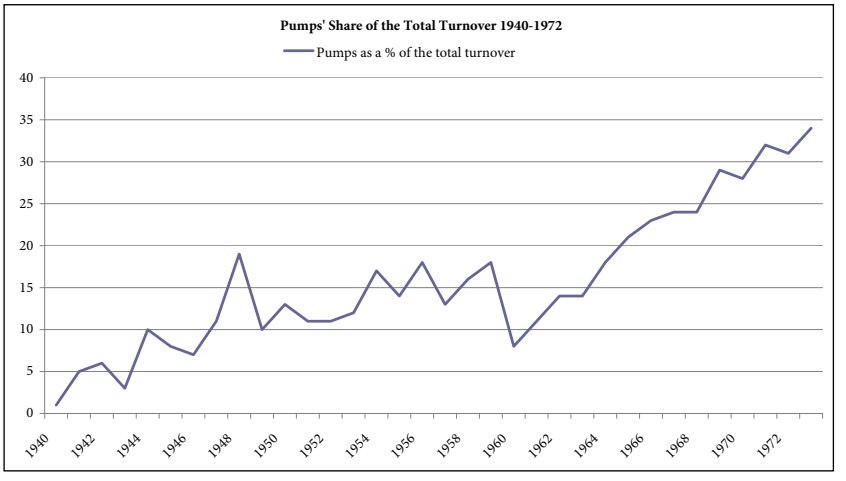
The rises in 1976 and 1977 however, were not because of the growing number of orders, on the contrary it was because *De Smithske* was short of money – not only for a new factory but even for the day-to-day business. This increase would prove to mark the end of a long golden era for the shareholders. In the 25 years that followed, the shareholders did not receive any return at all from *De Smithske.*

Production, expansion and daughter companies (1960-1975)

Centrifugal pumps

Each year the production of centrifugal pumps became increasingly important for *De Smithske*. Hence, at the end of the 1950s when the productive capacity could not keep up with the number of orders it was reflected as a decrease in the total turnover. Therefore, *De Smithske* expanded by buying the neighbouring site (909 m²) and building a

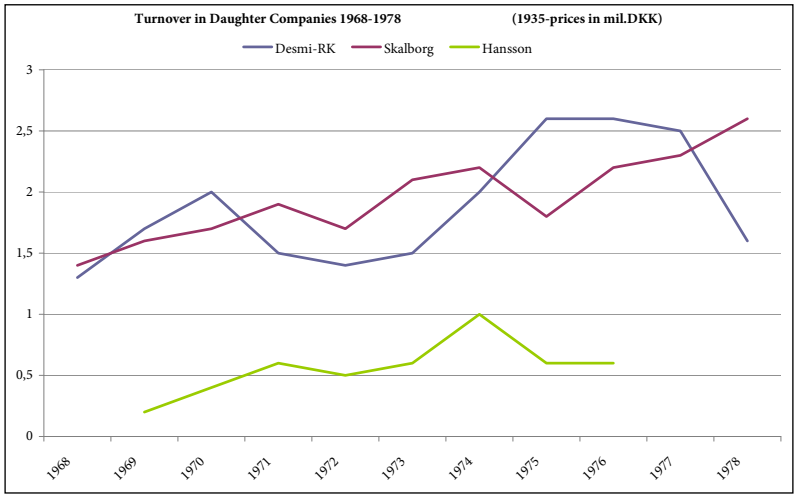
The total profits as shown in the annual reports, whilst the figures for the profits from the pumps are in a separate appendix to the annual reports.



modern two storey workshop for assembling, painting and testing of the pumps. Whilst *De Smithske* already exported 10-25% of all their pumps in the 1950s, exports increased significantly in the 1970s when 25-70% of all pumps were exported. The majority of the orders were from other NATO countries and Sweden. 24% of the total number of pumps were exported to the United Kingdom; 15% to the Benelux countries, 15% to Norway and 6% to Germany. The remaining 40% was mainly exported to the Swedish civil defence.
Due to the significant increase in export to the Swedish market, *De Smithske* decided to outsource parts of its production to Sweden. This resulted in the opening of the daughter company *DESMI PUMPAR AB* on July 1st 1964 in Huddinge near Stockholm.

Daughter Companies

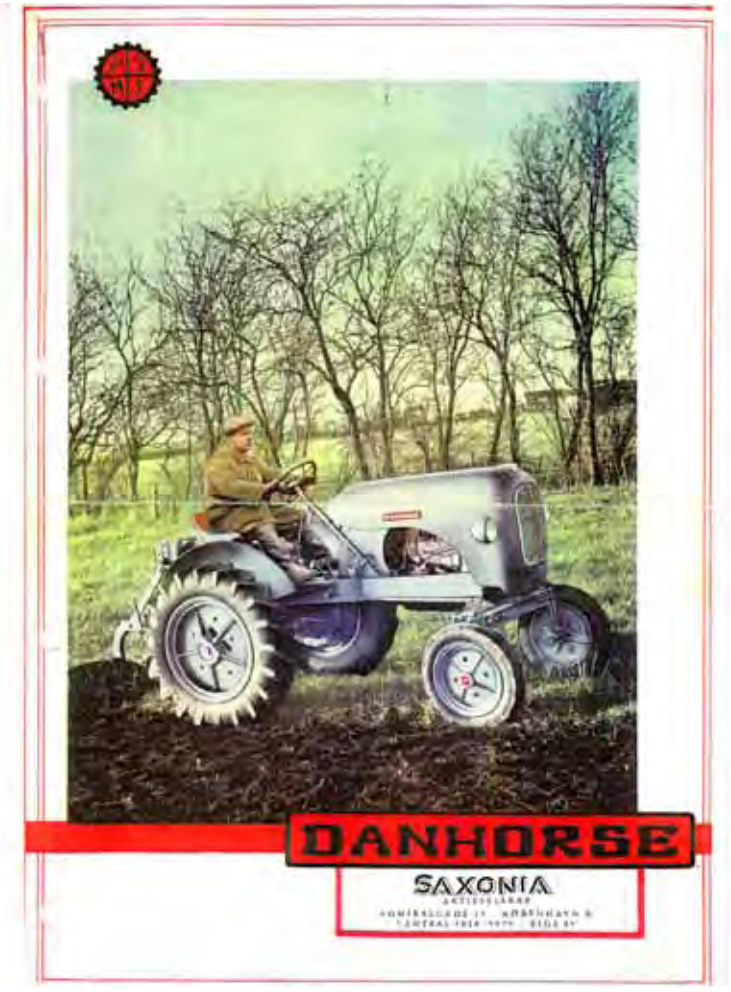
***DESMI-RK AB* 1964-1980**. The daughter company *DESMI PUMPAR AB* was responsible for the sales and service for *DESMI* in Sweden. However, in 1968, the corporation had already expanded as they invested the entire share capital in *AB RK-Verkstäder*. *AB RK-Verkstäder* was a factory in Tyresö south of Stockholm that produced couplers for plastic pipes from 1958. When *DESMI PUMPAR* took over production, the name was changed to *DESMI-RK AB* and production was changed slightly



so that the main production was now oil pumps for the Swedish Defence, irrigation systems and couplings for telephone wires. The factory was expanded in 1977 when a brand new building was opened. However, as *De Smithske* was facing difficulties at the end of the 70s the successful Swedish daughter company was sold in 1980. The company still exists today under the name Tykoflex AB.

***Skalborg Maskinfabrik A/S* 1966-1979**. *De Smithske* bought a local machine workshop in 1966 for only 550,000 DKK. This machine workshop specialized in the production of gearboxes and transmissions which fitted perfectly into *De Smithske's* plans for expanding pump production.
Ironically, the machine shop was owned by a former employee at *De Smith-*

ske, P. Jürgensen. After having worked 5 years *De Smithske* he started his own company in 1935 in the 'Parrot Garden', the old buildings *De Smithske*



PJMS or Peter Jørgensen's Maskinfabrik in Skalborg was established in 1954 as one of the few Danish tractor factories. The competition from the American Ferguson tractor, which was part of the American Marshall help after the Second World War, made it hard to produce tractors in Denmark. The Danish 'Danhorse' from Skalborg with 15 horsepower was very similar to the Ferguson.
Peter Jørgensen's Maskinfabriks, later Skalborg Maskinfabrik produced 323 tractors from 1954 to 1957. This provided the company with specialized knowledge of transmissions and gearboxes. A branch of the factory was bought by De Smithske in 1966. In 2001 this was sold to Randers' Tandhjulsfabrik, producing cogwheels.

had just sold. His plan was to capture market shares on the Danish market for tractors, but as he was not too successful the production was eventually changed and moved to Skalborg. When the son of the founder, P. Jørgensen, died in 1963 the company was facing serious challenges, so in 1966 *De Smithske* bought the company. Production continued using normal procedures, and none of the 100 workers lost their jobs when the machine workshop was turned into a daughter company of *De Smithske*. In 1979, when production was moved to the new factory, the machine workshop merged completely with the mother company.

A/S K.B. Hanssons Metalstøberi 1969-1977. The local metal foundry, *K. B. Hanssons Metalstøberi* was taken over by *De Smithske* as a daughter company in 1969. In 1973 the foundry was moved to Nibe, a small town south west of Aalborg with help from some public structural funds. Despite the relocation and improved production machineries the foundry was not competitive. A name change to *A/S DESMI Metal* in 1976 did not make much of a difference and in 1977 the foundry was sold to *DAC, Dansk Andels Cement*. The foundry was finally closed in 1982.

New pump programme

When the pump producer, *Myhrwold and Rasmussen* in Copenhagen was facing severe challenges in 1974, *De Smithske* bought the company's vertical pump programme. This pump programme was particularly useful in the production of pumps for ships. The remaining parts of the programme were bought by *Thrige Pumper* in Odense. However, none of the companies profited significantly from these new investments, as the country was challenged by yet another international financial crisis.

Change of Direction 1975

With new buildings, a new managing director and new products, 1936 proved to be a year of fundamental changes. The year of 1975 proved to be another year of fundamental changes. At first glance, the situations were similar: new buildings, new managing director, new products and even new owners. However, 1975 became the first in an era of 25 years to be characterized by transition, deficits and no returns to the shareholders.

New managing directors (1970, 1972, 1977)

Managing Director Hans J. Esmann Olesen (1970-1972)

After having been the managing director of *De Smithske* since 1936, Poul Egenfeldt hesitated before he stepped down in 1969. He wanted to make sure that his successor was an engineer who *'spoke the same language as other recognized managing directors'*. Egenfeldt found what he was looking for in Hans J. Esmann Olesen. Olesen was born in 1927 and educated as an engineer in 1951. After having worked in Chicago and California in the USA he returned to Denmark in 1960 to a position as supervisor and in 1964 technical director in the company Bukh that was owned by *A. P. Møller*. Olesen started at *De Smithske* at the beginning of 1970 and officially became the managing director 6 months later on July 1st 1970. Even though Olesen was formally the managing director, Egenfeldt could not let go completely so he continued to be part of the daily management and from 1972 to1975 he acted as the Chairman of the board of directors. At that point however, Olesen had already informed Egenfeldt and the board that he had accepted an offer to become the managing director of Helsingør Shipyard, beginning June 30th 1972. Even though Olesen was the managing director for only 2 years, he fostered significant changes, as he introduced computers to daily management: for the salaries and information on the employees in 1970, for the accounting in 1971, and finally also for materials and goods in 1972. Olesen was asked to appoint his successor as managing director and he chose:

Managing Director Finn Walther (1972-1977)

Engineer Finn Walther was born in 1936 and had been the managing director for Haslev Sawmill since 1968. On June 30th he had his first day as the managing director of *De Smithske*. It was a difficult position to hold, particularly in his last two years from 1975 to 1977. His resignation on October 20th 1977, took effect immediately seemingly in *'complete understanding with the board of directors'*. Walther was replaced by Hans Erik Frost who came from a position as the managing director of Dansk

Andels Cement. As will be dealt with in further detail in the following chapter, Hans Erik Frost was the managing director from 1977-1978 and again from 1980-1996.

Economic decline

Everything pointed in the direction of an economic crisis in the years from 1975 to 1977. Turnover declined by more than 50% and the impressive working profit turned into an operating deficit. It all accelerated in 1977 and in the autumn of that same year, the operating deficit was 1 million DKK per month! Expansions of the share capital did not help much and the corporation's acute need for additional financing was 10 million DKK. Needless to say, the shareholders did not receive any returns and the daughter companies were sold in order to cover the immediate deficit. At the same time, the company had committed to a project that was impossible to back out of: the construction of a new factory next to the airport in Aalborg. No wonder the board of directors expressed its deep concerns for the future of the company.

How could things change so dramatically in such a short time span? As always there are several determining factors. The international economic crisis hit the Danish export markets. The terms of trade were depreciated as a result of inflation, and as a consequence, both interest rates and the national deficit increased dramatically. At the same time the planning of future production at *De Smithske* was – at best – very poor and it seems valid to ask if it was even the right time to invest in new buildings and expensive productive facilities.

Planning 1972-1977

Finn Walther worked out the first 5 year plan for *De Smithske* in 1973. He outlined a plan that would maintain multiple branches of production. He refused to believe that declining sales were due to the quality of the products but insisted that the responsibility was to be found in the sales department for not making use of the available resources in the corporation. According to Finn Walther, the organization needed a fundamental reorganization that would only be possible by moving the entire company to new and better buildings. The chairman of the board of directors, Egenfeldt, disagreed. He was concerned that the optimistic hopes for the future did not match the actual performance – even though he *'appreciated that Walther was such an optimist'*. The next 5-year plan from 1974 presented a significant change in the goals that were also much more concrete.

1. Global production and sale of pumps, especially for ships
2. Global production and sale of briquette presses
3. Steel constructions and castings for own production
4. Gearboxes and transmissions for the Danish market
5. Expansion of retail trade of white goods

However, in 1975 the 5-year plan had already changed once again. The new strategy for *De Smithske* was now to concentrate on the production of pumps and gearboxes alone, while phasing out the commissioned work, the foundry activities and the retail trade of white goods. This new plan was to take effect as soon as possible in order to carry through the relocation of the factory as successfully as possible.

The casting of church bells has not changed since the middle ages. Each church bell is unique with an individual form and sound. Hence, church bells cannot be produced in batches and production was stopped as church bells only made up 2% of the total turnover. This photograph shows a bell in its mould.
Photograph by Clausen Foto, 1958.

The sales business for church bells is sold in 1974

Until the 1950s the corporation had a church bell as its logo, even though the production of church bells had been insignificant ever since the 1920s. From 1935 to 1974 production of church bells was around 2% of the total turnover per year. Some years it would be a bit higher, but never more than 5%. Until 1965 *De Smithske* produced the bells, but from 1965 till 1974 they were produced by other companies, and *De Smithske* was only responsible for resale. As this arrangement did not result in much profit, the bell resale business was given up and sold in 1974.

De Smithske's shop at Boulevarden in the centre of Aalborg with all the employees and the shop manager Erik Lyngø on the far left. He was the last shop manager. The shop opened in Algade in June 1834. In 1876 it was moved to the Parrot Garden on Frederikskildevej, and finally it moved to Boulevarden in 1961.
Photograph by Johnsen around 1975.

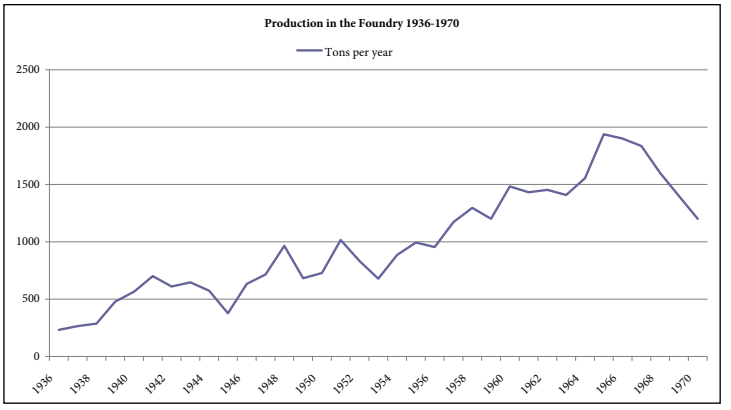
Sale of the shop in 1976

De Smithske had had its own shop ever since 1834 when Henning Smith opened the first factory. In fact, it was the opening of this shop that marked the founding of the entire company on June 9th 1834, when the company also had its first advertisement in the local newspaper.

Throughout the 1930s, the shop made up more than 40% of the company's annual turnover in total. The castings and stoves from *De Smithske* were especially popular, but the shop also sold goods from other companies. In the 1950s, the turnover of the factory outlet dropped significantly to 10-20% of the company's total turnover. The shop moved to a more prominent location on one of Aalborg's main shopping streets in 1961. The relocation and expansion of the supply of white goods that followed were directly reflected in the turnover that increased to approx. 25% of the total turnover in the company. The shop was further expanded in 1972 when it also gained monopoly on selling the popular washing machines from Miele. However, the shop could not compete with the new department stores in the city centre. The board of directors almost decided to open a huge discount store for white goods south of Aalborg, but the lack of liquidity and uncertainty about the market conditions kept the board of directors from taking the discussions to the next level. In 1976 the board of directors finally decided to sell the shop.

The big furnace at De Smithske in 1958 was built on the same principle as the ones that revolutionized the iron casting industries in the 1830s. In 1962 De Smithske established a brand new foundry, and even though the effect of the new foundry is clearly reflected in the graph to the right, it was not sufficient to turn it into a profitable competitive business. However, it was very picturesque through the lens of a photographer as can be seen in the photograph to the right.
Photographs by Clausen, 1958.

The foundry closes down in 1977



Like the shop, the foundry was one of the original foundations of the company when it opened in 1834. Whilst the profit of the foundry had

been increasing until 1968, it had grown increasingly disconnected from the other branches of production. In the 1950s modernization of the foundry had doubled its productivity as much of the production had been mechanized. At the end of the 1960s production declined gradually, and rapidly from 1973. A report from the Technological Institute concluded that the foundry was simply too small to obtain the required benefits of the economies of scale. As the necessary expansion was not possible due to lack of space, pollution restrictions and complaints from the foundry's residential neighbours the foundry was finally closed in 1977 after 143 years. Even though parts of the foundry production were continued by the local cement factory, 48 jobs were lost.

Sale of the steel division in 1981

Whilst pump production increased significantly each year and gradually replaced the foundry as the main source of profit for the company, the number of big, important orders was declining. The turnover was not stable and varied tremendously from year to year. Sometimes there were too many orders, sometimes hardly any at all. However, there were some spectacular orders in the 1960s and early 1970s: oil tank plants for several of Denmark's important cities, maritime systems for ferry ports, pontoons for tunnels and tracks for the Danish railways and finally the grandstand for the local sports stadium. However, the number of orders gradually declined and after having produced and delivered a crane to Ireland in 1981, the steel division was sold on May 1st 1981.

It was impossible to make large steel constructions indoors so they were finished outdoors in an open shed. The administration building can be seen in the background. From 1970 the division was expanded to include parts of the cement factories 'Norden' just west of De Smithske. However, at the same time the factories in the city disappeared – and so did the orders. Photograph by Clausen, 1958.

New Owner 1975 - DAC, Dansk Andels Cementfabrik

DAC was established in 1913 as a competitor to F.L.Schmidt's cement factories in Aalborg. In 1974 the factory was taken over by FLS. Here, DAC is seen in Lindholm surrounded by the houses of the factory workers. The free land was reserved for the exploitation of raw material. DESMI's factory was built on one of the sites on the far left in 1977. In the foreground is the northern shore of the Limfjord west of Nørresundby. On the horizon, one can see the coastline for the North Sea.
Photograph by J. A. Kirkegaard, 1938.

It was absolutely necessary for the corporation to slim the organization down in order to survive. It was even a requirement of the new owner: *DAC*. *DAC* was the local cement factory which obtained the controlling interest over *De Smithske* in 1975.
The energy crisis in 1973-1974 had fatal consequences for the energy intensive cement industries in Denmark. Cement production in Denmark was concentrated in a few production sites that had the capital to invest in the required energy efficient productive facilities. *DAC* was not among them, so cement production at *DAC* ended with the energy crisis. The funds were spent on obtaining the controlling interest in *De Smithske* in 1975. While it solved *De Smithske's* problems of liquidity immediately, the new owners also had a number of strict requirements:

1. *De Smithske* was required to limit production to pumps, gearboxes and transmissions
2. Aside from two employee representatives the remaining 6 members of the board of directors were to be appointed by *DAC*
3. *DAC* had a vision of an industrial park north of Aalborg

Relocation 1977/1978

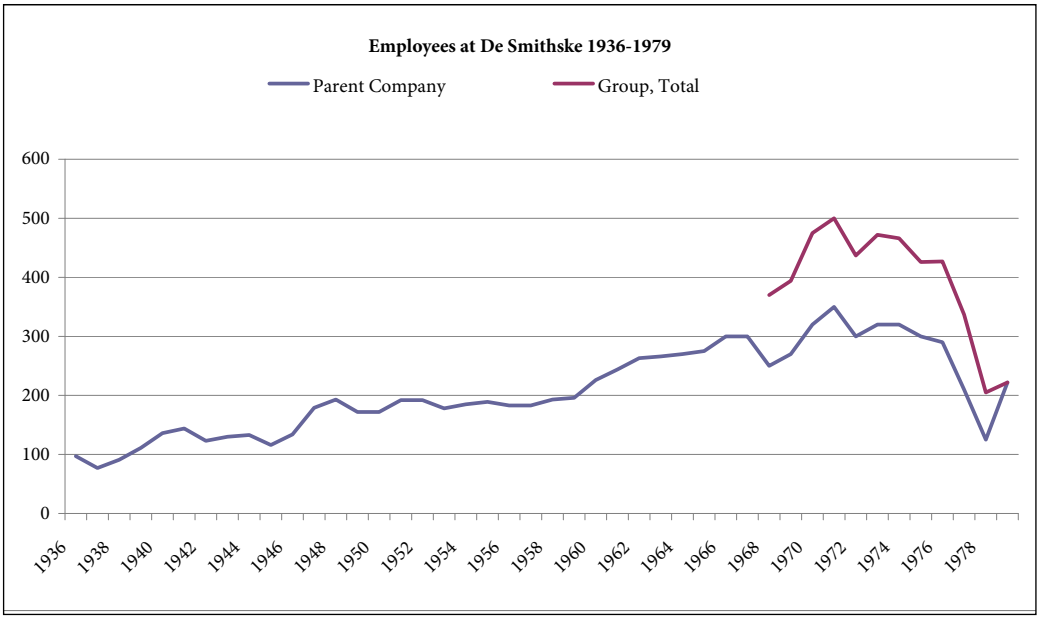
From the day he took up his position in 1972, the Managing Director Finn Walther had been convinced that it was necessary to move the entire production site. As a consequence, he quickly entered negotiations with the local authorities. When the liquidity of the corporation declined, Walther had to work hard to make his case in favour of relocation. These were his main arguments:

1. *De Smithske* had the oldest and most outdated production facility for pumps in the country. Even the appearance frightened off the customers.
2. Smoke, noise and bad working conditions created problems with their neighbours, the local authorities and the Factories Inspectorate that seemed impossible to solve.
3. The factory's survival was dependent on an increased efficiency of 30%. This was only possible if the production facility moved out of the city.
4. Furthermore, a relocation in bad times would prove to be a comparative advantage for *De Smithske* in the long run, as the company would then be one step ahead of its competitors once the situation changed.

The board of directors did not fully agree with the managing director. They wanted to make sure that the relocation would not threaten the survival of the company. Walther guaranteed that this would not happen. On September 10th 1975 the board of directors gave in and February 26th the following year the company invested in 60,000 m² of land north of Aalborg next to the local airport. Whilst Finn Walther participated in the topping-out ceremony, he was not present when the new buildings were finally opened on May 30th 1978. Unfortunately, he was not the only one by far to lose his job in the next few years.

The new factory in Lindholm under construction in the spring of 1976. The picture on the next page is taken later in the summer of the same year.

De Smithske's brand new factory was finished in the summer of 1978. In the centre is the large production facility, and by the car park is the cafeteria with the administration building to the right. The factory is next to the local airport in Aalborg as the hangar in the background shows. Unknown photographer, 1978.



The number of employees at De Smithske from 1936-1979, including daughter companies from 1966-1978. The number of employees increases gradually overall. From the end of the 1960s, the number of employees increases significantly when several daughter companies are added to the group. The total number of employees drops drastically in 1977-1979.
The figures are based on the annual reports.

The employees at De Smithske outside the main entrance when the company celebrated its 150th anniversary in 1984. The managing director is in the centre of the group.
Unknown photographer.

Employees

As it is shown in the graph, the total number of employees grew steadily from 90 employees in 1936 to more than 300 employees at the beginning of the 70s, peaking in 1971 with more than 500 employees in the entire group. However that trend changed drastically – especially in the fatal years of 1977 and 1978. Hence, when the company moved into the new buildings the total number of employees was halved, so that most

of the new rooms remained empty. In the years from 1935 to 1970 there was an overall increase in the number of employees in the machineries from circa 50 in the 1940s to around 200 in the 1970s. The foundry also employed around 50 people at the beginning of the period and remained relatively stable until its closure in 1977 (1982) when 48 jobs were lost. Conversely, the number of office workers had increased from 15 in the 1940s to 60 in the 1970s. The increase was mainly caused by a rise in the number of architects and engineers.

Works committee

Despite minor disagreements relationships between the different divisions in the corporation were good. The works committee that had been in place since 1947 contributed to a smooth cooperation. The committee dealt with the challenges that production faced, but also softer issues such as *'welfare, security, health and safety for the employees'*.

The first meeting of the works committee took place on November 11th 1947 in the office of the Managing Director, Egenfeldt. 12 staff-elected committee members participated. A wide variety of different issues were raised on this and the many following meetings: safety, work routines, work times over the holidays, heating, employees' showers and rules for smoking and drinking. Also, the managing director advised the staff-elected committee members on the general status of the company. After each of the bi-monthly meetings the rest of the employees were advised via notices in the lunch room, later via an employee paper.

Mechanic Poul Pedersen and his apprentices in front of a stock of transportable self-priming centrifugal pumps. The production of transportable self-priming centrifugal pumps was the most important batch production in the 1960s.

Mechanic Tage Mølgaard works with a press for briquettes which was once an important product for De Smithske.

Meetings of the board of directors

The first staff-elected board members were Kaj Poulsen and Verner Sørensen from the foundry and the machineries respectively. On April 17th 1974 they participated in their first meeting as members of the board of directors. The chairman of the board of directors, Egenfeldt, underlined the historic significance of welcoming the 2 new staff-elected board members but he also emphasized the importance of keeping the discussions confidential and only talking publicly about decisions when they were final. It turned out to work very well.

This new channel of information proved to be very important during the years of crisis in 1977 and 1978, when many employees lost faith in the company and many jobs were lost. The staff-elected board members eased the burden of conveying the difficult message. They were difficult times, but the new owners saw the light at the end of the tunnel.

Knud Harry Nielsen was the senior shop steward for Metal, club 4. The photographs here were donated by his son, Leo Briang Nielsen, who served his apprenticeship as a mechanic at De Smithske from 1965-1969.