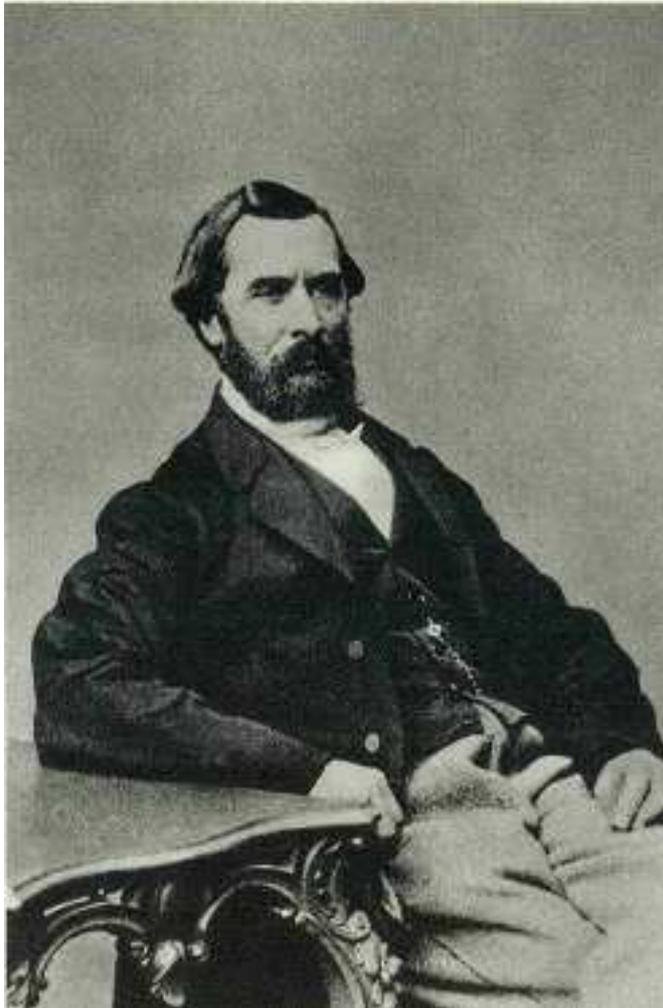


## Anton Henric Öller, a pioneer in Swedish electronics.

The Öller family immigrated from Nürnberg in Germany in the early 17<sup>th</sup> century with Johan Öller, a lieutenant in the Gustaf II Adolf's army, and city surgeon in Södertälje about 1639. A descendant, Carl Abraham Öller (1708-54), was a customs officer in Kalmar, and his son Göran Johan (1740-1803) became a postmaster in Nyköping and got ten children, of whom Anton Ulric (1779-1845) in 1807 bought the pharmacy in Strängnäs, and married Hedvig Christina Kjellman (1789-1818) there in 1815. On July 23, 1816, their only child, their son **Anton Henric**, was born in the same town.



Öller belonged to a family intellectual circuit which through inbreeding exhibited certain common characteristics. These were in addition to the dark grim look, a touch for the mechanics, lack of interest in economic matters, a hot temper and modest withdrawal, of which everything seems to have come to Henric's part.

A year and a half old he became motherless. At the age of eight he was enrolled at Strängnäs high school (fall 1824) and underwent classes 1-4 in the medieval bishop's house. 1828 his father resigned the pharmacy, and they moved in the fall of 1830 to Stockholm, address Svartensgatan 8. Henric continued his interrupted studies on September 29<sup>th</sup> at Stockholm high school on Riddarholmen, under the Nordstrom's rectorate. Here he got to experience the pennialism of Stockholm boys, who at that time was the worst. His father, former pharmacist Öller, who was a fairly well-off man, decorated a home for them in a small two-story house on the corner

of Björngårdsgatan 17 - Maria Högbergsgata. They moved there in the fall of 1831 and lived there until the death of the father in 1845.

The high school pupil Öller was examined on February 9, 1833 with the following grades: Theology and Church History AB, Philosophy and General Grammar B, Mathematics B, History B, Latin AB; Greek AB, Hebrew AB, diligence A and behavior A. The same year, he got employed as a clerk, and in 1835 he became commercial bookkeeper of silk merchant and Russian vice consul Claes Peyron in Schinkel House at Kornhamnstorg.

He stayed eight years at Peyron's trading office, where he always showed "the highest order" and in all respects behaved to Peyron's "complete pleasure". Peyron certainly told Öller that Peyron's grandfather by Fredrik I's request to Louis XV had moved in from France in 1740 in order to establish a silk weaving mill in Stockholm, and about the

benefits and successes that met him. Öller realized that he should try that track and began to eagerly plan and save.

On July 3<sup>rd</sup> 1843 he submitted an application to the National Board of Commerce for permission to establish and operate a factory for the production of silk and cotton fabrics in the city. He also appended a letter of recommendation from Peyron and his reputation certificate. On July 10<sup>th</sup> the permit was issued by the National Board of Commerce.

In September, the sailing ship Laura from Lübeck arrived with seven boxes, containing the machines and tools that Öller needed to set up his factory, among other things, three looms and four jacquard machines. On March 26<sup>th</sup> 1844, he received burghership in Stockholm as a silk manufacturer. He then employed eight workers and two apprentices at his workshop. However, at this time the silk profession was in decline. For example in 1818 there were 46 silk factories in Sweden, but in 1844 the number was just 18 and in 1846 only 15, all in Stockholm.

112,123 yards of various full and half-side textile was produced in Sweden in 1844, of which Öller's factory contributed 339 yards of Sarge de Soie; further 148,514 silk scarfs, of which 667 pieces came from Öller. The total production value was 582 518 Swedish Riksdaler for Stockholm in total, and 2,783 for Öller. He had one of the city's smallest silk factories. But at the beginning of July 1845, the company Schön & Co's steamship Svithiod arrived with three more jacquard machines and harness planks and other accessories. For his shipments Öller managed to get a lower customs duty (5 % of the value).

Like the telegraph director Bonelli in Turin, who introduced electromagnets into the Jacquard machines, we can imagine that the prospective designer Öller tried to improve his machines. The capacity of the factory in 1845 was 37 yards of Sarge de Soie, 190 yards of Gros de Naples and 2,863 scarfs, worth 8 812 Swedish Riksdaler. However, Öller found the business less profitable. He abandoned the factory in January 1846, and he dismissed his burghership February 17<sup>th</sup> 1848. Instead, he apparently devoted himself to raising mulberry trees for silkworm cultivation. On November 21<sup>st</sup> 1849, he purchased two properties from the spice stapler Johan Georg Pripp and his wife, one of which, Träskfloden 10 (now Jarlaplan), only was used for plantations. The other property, Stora Surbrunnsgatan 10 in the corner of Stora Badstugatan, was settled.

On August 4, 1851, the former silk industrialist A. H. Öller married his wife Mathilda Ericsson, born Bergholm in the Adolf Fredrik church. She was born on January 10<sup>th</sup> 1821 in the Björskog parish, Västmanland. Up to 1849 she was married to farmer Lars Ericsson in Källby, Västergötland but then moved to Stockholm. As married she then worked with wadding for a while.

On January 1<sup>st</sup> 1852, Öller sold the house at Stora Surbrunnsgatan, and resigned his plantations on January 19<sup>th</sup>, 1855. At that time a new phase in his life had already began.

Öller had the privilege to count the well-known inventor, former captain in the Navy Mechanical Corps, Anton Louis Fahnehjelm (1807-75) among his associates. It can be mentioned that his son, later the inventor of the gas filament lighting, Otto Bernhard Fahnehjelm (1846-1911), began his studies for silkworm cultivation and became a member of the 1830's Society for the promotion of domestic silkworm culture. He made

successful attempts to introduce the Japanese so-called oak silkworm and published several instruction books on the subject.

But Öller had long ago turned completely to Otto Fahnehjelm's father's great interest, the telegraph technique. Captain Fahnehjelm, who studied this subject abroad in 1850, co-operated with the optical telegraph line director, major Isaac Fredric von Heland, making propaganda with great energy for the introduction of the electric telegraph in Sweden. They had already in 1845 tried to construct a telegraph apparatus, though without success. Fahnehjelm succeeded to interest Öller to a great extent in telegraph research and assisted Öller with advice and management. The well-known physicist Erik Edlund (1819-88) also was a part in this circle, and Öller learned a lot from him. Öller was given the opportunity to develop his aptitude for mechanics, and he had quite a success.

When the Government's first electric telegraph line was decided to be built on February 1<sup>st</sup> 1853 between Stockholm and Uppsala, von Heland was appointed head of the line's construction, and Fahnehjelm would answer for the stations. The same month they went to Uppsala to get a room for a telegraph office, buy timber for posts etc. This telegraph station was commissioned to Öller to equip, starting at May 15<sup>th</sup> for a monthly fee of 50 SRd. According to Swedish Telegraph Administration's handwritten clerk's records, Öller also equipped Stockholm's telegraph station in July the same year, but there is no further evidence for this.

Öller settled with his wife in Uppsala in June and stayed there until the following spring. He was clearly considered fully competent for his mission, because he did the work quite independently, using the findings and experiences he had made during his attempts. Certainly he had also made a short study trip abroad.

The telegraphic apparatus used Morse's system. The equipment with relays and galvanometers was ordered from the instrument makers Sören Sörensen and Frans Johan Berg in Stockholm. Galvanic elements of Daniell's type Öller himself connected as the power source. He first shared the power from the battery to both the line and the registers, but when larger batteries came in use, he no longer considered common battery to be an advantage.

The population of Uppsala followed this work with interest, and the newspaper Correspondent hoped, "that the common people in this part of the country would show less hostility and distrust of the new institution, and the bad habit of cutting off the over-the-ground wire should probably - preferably with appropriate punishment - happen less often near the capital and university, than elsewhere in the country".

The historic moment when the telegraph connection with Uppsala was to be tested, took place on July 16<sup>th</sup> 1853. Fahnehjelm had arranged a provisional station in the master gamekeeper AH Kasten's garden at Stora Badstugatan 57 (now the corner Sveavägen 79 - Surbrunnsgatan 48), opposite Öller's former house, with intention to first get the contact ready in the city's northern outskirts. In the presence of the old general Carl Akrell, who was appointed head of the electric telegraph, along with von Heland and a few spectators, Fahnehjelm began to call Uppsala with beating heart, "because", Fahnehjelm writes, "there could be uncertainty if the line was ready, if the battery was strong enough, if the ground wire was satisfactory etc. The joy was then great, when everything went according to calculations, and my friend Öller answered from Uppsala".

According to His Majesty's letter of July 1853, Mr. Öller was appointed from August as the head of the Electric Telegraph office in Uppsala, while Fahnehjelm got the same position in Stockholm, both with equal pay - 75 SRd:s a month. But when these stations could operate without them, new tasks waited. Von Heland's sister-in-law, seventeen-year-old Hugo Bratt, was appointed as Öller's assistant. He had been appointed in the Optical Telegraph service from the age of nine. The Telegraph office could soon be used by the public experimentally and free of charge, while the staff received the required training. The Telegraph Administration museum owns a telegraphic dispatch dated September 8<sup>th</sup> 1853, issued by Öller, where the grain trader C. L. Lemke in Stockholm announces his family's health status to Mrs. Nanny Jacobson in Uppsala. This was well justified, because a cholera epidemic raged in Stockholm. The capital's gates were closed, but contact could be maintained thanks to the telegraph! Öller posted all notifications of the epidemic's progress at the entrance to his telegraph office.

November 1<sup>st</sup> 1853 the telegraph service was opened for public traffic, and by the end of the year 851 telegrams were exchanged. Öller started appointing telegraph students. Among these, during the period February to April 1854, were J. L. F. Bergman, appointed same year as director of Lund telegraph station, H. R. Rhen, appointed same year director of Uppsala station, C. F. Bergström, same year appointed as assistant for Öller in Vänersborg and later the inventor Carl Alfred Nyström (1831-91), They all were high school graduates.

Fahnehjelm was now director of the Stockholm - Uppsala line. When he was called on March 31<sup>st</sup> 1854 to the urgent work on the Uppsala - Grisslehamn line, Öller was assigned to replace him, while Bratt took over Öller's appointment in Uppsala.

This year the line was extended to the west and south. From June 6<sup>th</sup>, Öller was commissioned to furnish a main station in Örebro with the assistance of his student C. A. Nyström. On July 14<sup>th</sup> he was appointed to represent the Örebro station. Öller's next task was to equip the main station in Vänersborg, from where a line would then emerge to the Norwegian border, which Fahnehjelm among other things answered for. Because of that, Öller moved to Vänersborg with his wife in early August, and stayed there until the summer of 1855. As helpers for the refurbishing he got his former student Bergström and P. A. Nordencreutz. On August 10<sup>th</sup> Öller was appointed inspector of the station, and his helpers became both assistants at the turn of the year.

In December 1854 there was very little to do at the telegraph office in Vänersborg, why Öller had plenty of time for experiments. He had frequently correspondence with Fahnehjelm and complained among other things over the dull place. On January 5<sup>th</sup>, 1855, Öller wrote: "I am increasingly beginning to feel isolated here. No one to consult with, and no one to obtain any enlightenment from; I'm facing the greatest difficulty in getting acquainted, so it isn't quick to get any definite results". In the same month, however, Fahnehjelm visited Vänersborg, and he then gave Öller some tips. Nyström had now also successfully started his experimental activities, and Öller agreed with him to exchange ideas about methods and experiences via the postal coach service.

On February 26, Öller wrote to Fahnehjelm: "My mind is directed to the desire to follow the time in things that interest me, and to seek to make the greatest benefit". He now had hope for a move to Stockholm, "where I have you and Edlund available for advice and information, if I have any thoughts for which I, if not otherwise, during the winter months,

may well have some time".

July 1<sup>st</sup> 1855, Aller became director of the western and northern lines at Stockholm's telegraph station, then housed upstairs in the Storkyrkobrinken 2 house, where a couple of rooms, placed in the corner of the Brink and the square north of Storkyrkan, was used. In the Telegraph Administration Fahnehjelm himself was found as curator of the said district. Bratt alongside Anders Wassberg were 1856 appointed telegraph commissioners under Öller. On September 17<sup>th</sup> 1856 he was ordered to assist with the inspection of telegraph apparatus, which he did until December 14<sup>th</sup> 1857.

Öller continued experimenting all his spare time. In 1856 he worked on an idea to exchange the telegraph key's flat spring to a spiral spring. This made the key easier and quieter to key and less prone to wear. Together with watchmaker N. P. Lundström at Stora Badstugatan 6, Öller applied for a patent, which was granted for six years on October 17<sup>th</sup> 1857 with number 54. Lundström had meanwhile exchanged his profession to mathematical instrument maker, and moved to Bryggaregatan 7, where he and O. J. Gardell had a workshop under the name "N.P. Lundström & Co" until 1858. After that Gardell continued the mechanical workshop alone.

Another of Öller's designs involved some improvements and simplifications of relays. Through a handy format, these devices could advantageously be used in field telegraphs and for travel telegraphs when examining the telegraph lines. They could reside in a case and be carried in a coat pocket. You could use them to correspond on the lines with the stations, without having to carry several appliances. Öller alone obtained patent for seven years on October 28<sup>th</sup> 1857 with number 57.

Among Öller's other constructions, a current conductor for connecting the telegraph lines to the stations, a battery adjuster for current regulation during telegraphing at different long distances, and an improved type of lightning conductor is noted. His inventions were made known in foreign periodicals and attracted a flattering attention. Particularly during 1854-57 many telegraph stations were established, and large amounts of telegraph apparatus were needed. Several instrument makers in Stockholm then started such manufacturing. But when they had to compete by price with the foreign apparatus which came in without duty, and since the Telegraph Administration's need for new appliances gradually declined, production was neither profitable nor particularly inviting for them. They therefore stopped quite soon with this fabrication.

Out of pure interest in telegraph systems and at his own expense and risk, Öller founded a special workshop for the manufacture, repair and improvement of telegraph apparatus on October 1<sup>st</sup> 1857, first and foremost for the needs of the Telegraph Administration, but later also for the National Railways and most private railways. In the same year, Öller received burghership as a mechanical factory operator in Stockholm. He was on leave from the Telegraph Administration throughout October but kept half his salary to get started with the new company.

As a special workshop for telegraph apparatus, the workshop became the first in Sweden and you also may say that hereby the first seed was planted for a Swedish electrical industry. Öller clearly realized the importance for the Telegraph Administration of such a workshop, especially as the instrument makers in Stockholm at this time, according to Fahnehjelm, "had little scientific education and none at all regarding the telegraph field". Öller also wanted to have his own space and tools for his experiments and findings, and

not have to use his home for such things, or use Lundström's workshop and need to share the results with him. But Öller was probably aware that the company could not be economically profitable, especially as it was created too late, when the need for new appliances was significantly reduced.

The setup of the workshop lasted until the beginning of 1858. It was first housed in the house Profossgatan 9 in Ladugårdslandet, but was moved in October same year to the Klara parish, Stora Badstugatan 6, where N. P. Lundström had his workshop until 1856. However, Lundström apparently had no part in the company Öller & Co, which judged by the name should have had of more than one participant. Öller was stated already on November 19<sup>th</sup> 1857 and forwards as the sole owner.

His machines were mostly manufactured by his own workshop and operated by manual power until the early 1870's. The number of workers was two men 1857 and eight 1858, then the numbers increased almost every year. There was always a foreman in charge at the workshop. The first years Gustaf Adolf Joop was appointed, because Öller could not neglect his job at the Telegraph Administration.

The telegraph station had moved to Stora Nygatan 2, upstairs, on New Year's Eve 1857-58, where two separate stations for the northern and southern lines were established. For the latter Edvard Preumayr was director. He was hired as a co-assistant in Stockholm on December 31<sup>st</sup> 1853.

During Fahnehjelm's long-term absence the summer of 1857 and 1858, Öller was appointed as a curator. In 1858, Öller was awarded the knight sign by the Royal Vasa Order for his efforts for Sweden's telegraph service. The Öller & Co company 1859 rented more spacious premises for a 2,926 SRd yearly rate from associate professor A. Th. Bergius in the blocks Apeln 1 and 2 - a long, three-story house with 21 windows in a row, and two gates towards Apelbergsgatan. The office was furnished on the lower floor, entrance 58 B, where the current office of the Association of Clerks is today. Öller also lived in the house, but he never owned it. It changed owners several times during the time the workshop was active. In 1860, Öller was alone in the production of telegraph equipment in town. However, it was clear that the business could not operate without losses. Because of that, Öller applied to the Telegraph Administration for grants for the last year, and Fahnehjelm wrote a long recommendation letter for Öller, dated August 25<sup>th</sup>, where he pointed out that "In this workshop a large number of telegraph experiments have been carried out without any real cost for the Telegraph Administration, by which the Swedish Telegraph Administration materials to a large extent has gained and developed independently of abroad, and thereby our Swedish designs through foreign periodicals have become known and earned a known name by Öller in the field of telegraphy science, and the Swedish Telegraph Administration have kept pace with, and sometimes in one way or another, appeared before abroad development".

In August, the Telegraph Administration therefore ordered the Majesty of Sweden that an amount of 1200 SRd annually should be granted as a contribution to Öller's workshop, which was also approved for the years 1861-63, because the workshop was considered of such importance for the Telegraph Administration. In 1860, the engineer Joop ended

and was replaced by Fredrik Wilhelm Edholm, who stayed for twenty years and for some time lived in Öller's quarters.

On May 10<sup>th</sup> 1861 Öller was again ordered from May 12<sup>th</sup> until further notice take care of the curatorial jobs for the Northern District. On April 24<sup>th</sup> 1862 he was permanently appointed to be the director of the Telegraph Administration, but from August 5<sup>th</sup> the same year he was again extra ordinary curator. At the Practical Elementary School in Stockholm, Bryggaregatan 8 A, education was announced 1864 for those who intended to apply for employment at the Telegraph Administration. They were taught by the telegraph commissioners Wilhelm Recin and A. Wassberg. Öller was there examiner along with his old friend Edlund, physicist at the Telegraph Administration. Ten years later, the Telegraph Administration's own educational institution begun its activities with C. A. Nyström as director.

The Öller workshop's machine park comprised 1865 of 15 pedal driven lathes as well as 1 planer, 2 presses and 1 cutting machine for wheels and drives. The manufacturing value this year was 33,493 SRd. On March 8<sup>th</sup> 1865, Öller was laid off for six weeks. At the eleventh General Swedish Agriculture Meeting in Malmö the same summer, and at the General Industrial Exhibition in Kungsträdgården in Stockholm in 1866, Öller exhibited telegraph equipment, various other physical equipment and sewing machines. The workshop was awarded a silver and two bronze medals.

When the telegraph station in Stockholm for the northern and southern districts in 1866 was to be merged into Stockholm Central Station, Öller was closest to becoming the head of the common station. However, Öller did not consider himself able to handle both the workshop and this appointment. But he also said he had reservations about leaving his position at the Telegraph Administration in order to completely secure his financial welfare at the workshop. He was bold enough to suggest that, if he resigned, he would be allowed to keep the half of his salary, i.e. 1000 SRd on withdrawal state, and receive the other half as support for his workshop, as long as he carried out his work to the satisfaction of Telegraph Administration. The Telegraph Administration accepted the proposal, which was approved by K. May. F Preumayr was instead appointed as the head of the merged station.

Consequently, on February 2, 1866, Öller resigned from the Telegraph Administration and enjoyed the "expectance" fee until his death.

At the Öller workshop a staff of skilled instrument makers was trained, several of which later founded their own workshops, often in a competitive relationship with Öller. The most famous of these were Lars Magnus Ericsson (1846-1926), founder of Telefon AB L M Ericsson. "Accompanied by a gentle providence, I found a place at Öller & Co, a telegraph workshop", wrote this farmer's son from Värmland, who in 1866 came to Stockholm, and after a week of probation service received employment at Öller with 5 SRd in weekly pay.

Another of Öller's workers, Johan August Buckau (1844-99) opened his own mechanical workshop, whose manufacture mostly consisted of kerosene and gas oil lamps, kerosene kitchens etc.

In 1870, Öller had acquired another planing and a cutting machine. This year, Morse system telegraphs and dial telegraphs were manufactured to a value of 17,200 SRd,

electrical and magnetic school teaching apparatus for elementary education (including the Beskow school) and public schools for 1,340 SRd, manometers and vacuum meters for 3,930 SRd and hand operated sewing machines (Howe-Singers system) for 8,500 SRd. Furthermore, electrotherapeutic devices, such as galvanic batteries and induction electrical devices were sold or rented to among others Stockholm University's zootomic institutes and "physical cabinets", the Karolinska Institution's physiological laboratory and others. Electric alarm clocks with number indicators were delivered to Hotel Rydberg, Grand Hotel, Hotel Continental, W 6, Hotel Gustaf Wasa and to a large number of society persons' private homes (for example H. Th. Cedergren). Everything leaving Öller's workshop was of very good quality.

To sell small appliances, Öller opened a factory outlet in 1871 at Västerlånggatan 37, which later was housed in at Drottninggatan 22.

Öller's diligent and skilled worker L.M. Ericsson had studied drawing and languages at leisure. With an enclosed letter of recommendation from Öller, Ericsson applied for the State travel scholarship for studies abroad, which was also approved, and he left Öller and Stockholm in 1872.

At that time, Öller began to modernize his workshop and rented a 4 hp steam engine. He also acquired 5 lathes, 1 milling machine and 1 drill for steam engine power operation, while the original machinery park was expanded with 7 pedal operated lathes.

The entry at Apelbergsgatan 58 B had been converted into a entry gate in 1867, and in 1873, Öller erected a small stone building on the yard for a metal foundry, a forge and material storage.

The workshop was at its peak in 1875 with 58 workers, 36 work machines and a manufacturing value of 97,350 Swedish kronor of which telegraph machines were made for 93,250 Swedish kronor and sewing machines for 4,100 Swedish kronor. This year, no less than 11 new telegraph stations were erected compared to four in 1870 and none at all in 1880.

The personnel consisted of 1 engineer, 43 mechanical workers, 3 watchmakers, 5 carpenters, 1 blacksmith, 1 factory worker, 3 apprentices and 1 salesman. The latter, Mrs. Amanda Lindgren, born Löfving, was the head of sales during 1875-78 in Öller's outlet in the confectioner A. S. Davidson's house, Drottninggatan 22, entrance from Lilla Vattugatan. No office staff were employed.

Öller's' appliances were mainly made of brass from Skultuna Brass Mill, whose Stockholm sales representative was J.E. Åkerberg & Hellström's Metal Trading at Stora Nygatan 20. In September 1877 his debt to this company amounted to 40,777 Skr, but doubled within the next ten years. He also bought metals in the 1870's from the company Holmberg & Lindström, Brunnsgränd 4, forged steel from Storebro mill, iron staples from Axel Sifvert, A.L. Hedman and G.R. Feychting, and wood and veneer products from A. Pihlström, Drottninggatan 51. He used the F.E. Rosenvall's mechanical carpenter factory and English steam sawmill at Kungsholmen, and contracted J.W. Gundberg's factory for plating and painting. Castings were ordered from Faustman & Östberg in Karlsvik or W. Wiklund's foundry and mechanical workshop in Inedal. Optical

glass was obtained from Reijmyre glassworks. Foreign relations were F. Adrian and Keizer & Schmidt in Berlin, as well as A. Barbier and H. Lambert & Co in Paris.

L. M. Ericsson, who had worked one year at Siemens & Halske in Berlin, came back to Stockholm in the autumn of 1875 and was then recruited at Öller & Co, but was never a foreman. However, he quit in March the following year, after which on April 1<sup>st</sup> he started his own business on a modest scale. Ericsson appointed a former work colleague at Öller & Co, Carl Johan Andersson, who also studied abroad on scholarships. L. M. Ericsson already received orders from the Telegraph Administration in 1877 and consequently began to compete with his former employer Öller.

In addition to his own sales outlet, Öller & Co.'s appliances were largely sold in the end of the 1870's through the company Recin & Bratt at the Central Station, Skeppsbron 2, where W. Recin and H. Bratt served as telegraph commissioners. Before they formed Stockholm Bell Telephone Company with their colleague Gustaf Lybeck on August 13, 1880, they moved the direct sales of telegraph effects to Nybrogatan 30, and there also worked with installation of electric telegraph and bell lines.

Inventor Ph.D. Martin Wiberg was a customer of Öller. Öller probably manufactured his control apparatus for determining the speeds of railways. Wiberg's mechanical mailboxes were made by the bicycle pioneer Per Froms mechanical workshop and his match machine and separator probably by J. E. Erikson's mechanical workshop, both in Stockholm.

At Öller, inventions were also made by Lieutenant Wilhelm Theodor Unge, who invented a distance watch, an ingeniously gathered distance meter and a telemeter, which was adopted by the Swedish Artillery. Öller had such deliveries, to among others, Svea Artillery Regiment and the Service Battalion.

Other customers of interest were also the electric pioneer company Hjalmar Brunius in Jönköping, Nitroglycerin Aktiebolaget, the watchmaker company G. W. Linderoth and surgical instrument company J. A. Stille.

On November 20, 1874, the Royal Decree confirms the Limited Liability Company Öller & Co to be manufacturer and trader of telegraph machines, etc. with a share capital 250,000 - 750,000 Skr. However, the company appears to have been of short duration.

Although the workshop had its glory period around 1875, in 1877 it was found that Öller's debts amounted to SEK 81,485 Skr against 13,551Skr in receivables, of which 2,308 Skr was uncertain. However, the stock of finished goods and goods in production amounted to 41,139 Skr, materials for manufacturing were found for 6,783 Skr and work machines, tools and equipment represented a value of 15,431 Skr.

September 27<sup>th</sup> 1877 Öller became a widower.

In 1877, some of Bell's earphones from America came in through Numa Peterson Co., Hamngatan 32. Öller instantly acquired the news, and a magnetic telephone made by him the same year can be seen at the Telemuseum. Almost at the same time, Öller's former student, L.M. Ericsson, started to make telephones according to Bell's system. The Bell company in Stockholm (1880) was obligated to exclusively use American

appliances, and Stockholms Allmänna Telefon AB (1883) only used LM. Ericsson equipment, as well as the Telegraph Administration did for its telephone network (1881). Consequently, Öller never made telephones on a large scale. The telephone connection to Öller's own workshop was connected to the Stockholm Bell company network.

Two more of Öller's workers, Johan August Lindholm and Johan Leander Wikström, started their own business in 1878 with a small workshop at Apelbergsgatan 48 and Stora Badstugatan. Lindholm & Wikström became larger in size in 1885, when the workshop was moved to Holländaregatan 5.

Any new acquisitions of work machines does not seem to have been made by Öller & Co after 1875, but the machinery fleet was gradually reduced. The number of workers was about 33 until 1886, but the production value fell. Öller's economy is said to have been undermined by the fact that his supervisor received ample commissions on gross income.

In 1880, Fredrik Ferdinand Lundell was engaged as foreman engineer, who, after the death of mechanical manufacturer Martin August Rundlöfs in 1875, took over M. A. Rundlöf & Co, Apelbergsgatan 60 B, where mostly instruments were made but also sewing machines (from about 1868). Instead, Lundell transferred this company to one of Öller's workers, Frans Josef Ferdinand Lemcke, who learnt how to build sewing machines at the company. Company M. A. Rundlöf & Co was in close proximity to Öller's workshop. Lundell was recognized as a designer by, for example, an electric measuring bridge and an ignition device for blasting shots (1887).

At the beginning of the 1880s, Öller returned the steam engine he had rented, and instead bought a 4 hp gas engine. At this time among he among other things made P. J. Bäckman's calculator machines and guard control clocks and a local telephone unit (Siemens), which was delivered to Stockholm's magazine in Stadsgården.

In 1884, it was stated that Öller & Co "provided, for the most part, both the Royal Telegraph Administration and the State Railways and 44 private railways etc. with their need for telegraph apparatus". It should be mentioned, however, that other mechanics in Stockholm also manufactured telegraph apparatuses, among others J. E. Eriksson and J. W. Bergström.

In 1884, Lundell was succeeded as foreman by Aron Nicalaus Thorin, who, like Lundell, did some experiments at the workshop. Thus he designed for example an automatic phone exchange and a disc rotor for an electric DC generator (patent 1884), which were exploited by the company Öller & Co, but also by the electrical department at W. Wiklunds Verkstäder AB.

The latter company exhibited the same at the Electric Exhibition in Gothenburg in the summer of 1885; in which exhibition also the company Öller & Co participated.

For the second time, almost 70 years old, on May 31<sup>st</sup>, 1885, Öller married Mrs Augusta Mathilda Rubach, born Lindqvist, daughter of shoemaker Johan Fredriksson Lindqvist and Maria Sundqvist and born in Katarina parish, Stockholm in September 8, 1846. In 1867-77 she had been married to the wholesaler Arnold Joachim Rubach, the German congregation.

They moved to Drottninggatan 67, which was on the same plot as the workshop, but their home was pretty miserable, although they, despite the age difference, supposedly were happy. One asks, though, if Öller could, as before, see his distinguished friends on a party chess in a room, where the tiled stove was held together by a temporary iron ring device.

In order to acquire working capital and give new life to his backward going company, Öller teamed up with Carl Custaf Wallin, an engineer, later professor, at the University of Technology, who became the company's technical manager, and the former sea captain Ernst Mauritz Fredrik Rietz. Wallin had been employed at the Bell company since 1882.

Aller was not a businessman. His bookkeeping was now handled by the mountain engineer Petter Kjerrulf, who moved to Stockholm in the late 1870's and worked with auditing work for power companies, e.g. Ljusne-Voxna, Gravendals, Gima, Fredriksberg's and Sandviken. Captain Rietz, however, resigned on April 6<sup>th</sup>, 1886 and engineer Wallin on December 29<sup>th</sup> the same year. The latter became the Managing Director of Stockholm Electric Lightning Co. in 1890, which owned the Old City's first electricity plant.

Competition from Öller's former students, among others Lindholm & Wikström and F. J. Lemcke, but primarily L.M. Ericsson, became increasingly noticeable. As L.M. Ericsson's business grew, Öller's most talented workers were attracted as executives with salaries, that Öller couldn't pay. As Ericsson was able to make devices like Öller's, but cheaper, and to eventually improve them, Öller understood that his time was over, and he decided in 1886 to phase out his business in general, but continue on a small scale with repair work etc. In this final period he involved August Lindholm, one of the co-owners of Lindholm & Wikström, as a foreman. Öller refrained from one third of the workshop space. The gas engine was sold on October 8<sup>th</sup> 1887 for 1,185 Skr to J. A. Eilitz's pocket and pen knife factory in Eskilstuna, which until then had used 8 hp of hydropower. The company also bought a gear shift lathe. Most machines, such as iron lathes with and without pedal drive, cast iron bearings, pulleys, shafts, tool cabinets, etc., went to the company Lindholm & Wikström, but some also to J. E. Eriksons Mekaniska Verkstads AB and W. Wiklund's mechanical workshop.

1889, a young engineer, Eugene Öller, who was then employed by J.E. Erikson's electrical department lived at Kjerrulf's. He later became the head of Electric AB AEG's branch in Gothenburg in 1909. He was descending from a brother of Öller's father. Kjerrulf felt that Eugene should meet his relative, but when this meeting finally happened, Öller was already terminally ill. They hardly managed more than found their kinship.

Anton Henric Öller died as a result of pneumonia 73 years old. The funeral took place in Klara's new burial ground in the presence of a number of his former comrades at the Telegraph Administration. The officer described Öller's lifetime achievement with the words:

*"Through his solid knowledge and practical skills, he arranged the first telegraph lines in our country in 1853. By contributing to the propagation of this now so large telegraph network, he had, for his part, worked hard for the great goal of approaching the people to each other"*

Öller left no children. The widow, who died on May 13, 1891, continued the company until 1890, when a final auction was held. Inventories, valued at 2,571 Skr, were sold

remarkably cheaply. Öller's last foreman, A. Lindholm, who conducted the estate investigation, bought the main part of the workshop's remaining fixtures and tools, valued at 2,801 Skr for the Lindholm & Wikström company. The workshop premises were rented as warehouses by Danish engineer Carl Christian Clausen, founder of the current pipe company Clausens AB.

The Lindholm & Wikström company took over Öller's current orders and thereby indirectly continued Öller's business. The co-owners of this company separated in 1905. Wikström continued the company as before, but Lindholm opened an electric shop in his own name, which around 1923 was sold to Albert Löfgren, who also worked at Öller. Both companies still survive.

The Telegraph Administration started its own workshop in 1891 at Fiskargränden. The motive, which can hardly have been directed at Öller's company, was the inconveniences which arose when hiring individual workshops, like price by own discretion, delayed deliveries, contractual difficulties, etc., whereby the Telegraph Administration came into unpleasant intermediate position. They also wanted the opportunity for experiments and experiments on a larger scale, thus in a workshop similar to the original Öller one but now the goal was mostly to follow the rapid development of the telephone technology.

Author: Rune G: son Kjellander, year unknown.

Translation into English: Thomas Andersén / OH6NT



Landline telegraph keys made by the Öller factory 1857 - 1886.