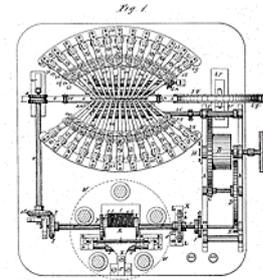
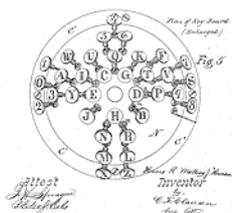
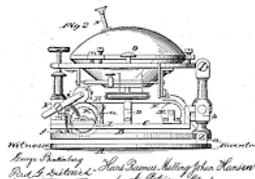
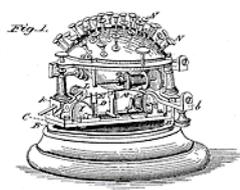
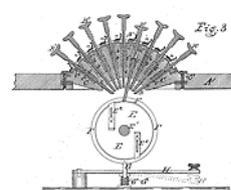
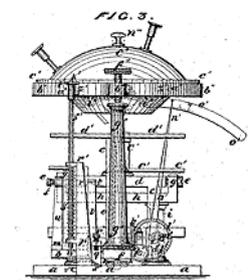


Who was Rasmus Malling-Hansen?

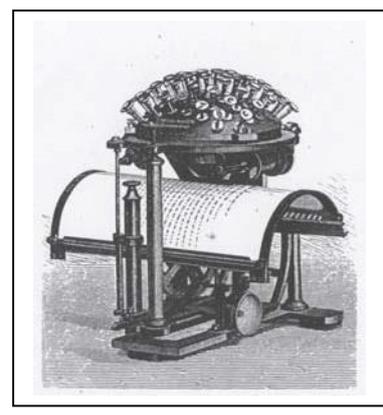
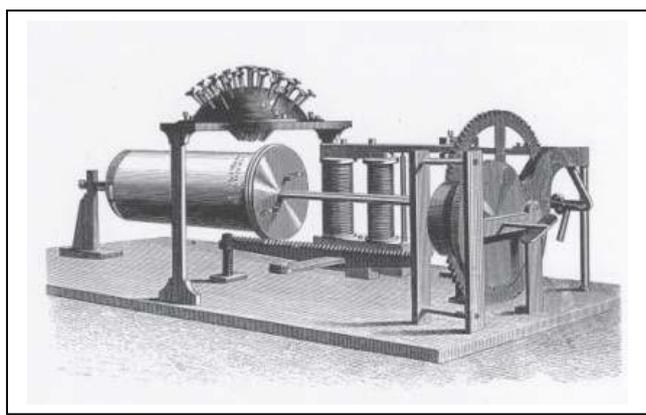
A biography by Sverre Avnskog



R. Malling-Hansen

”It is by no means easy to describe Malling-Hansen’s personality; white on black turns out too dull, one needs colours of fire, something living and breathing instead of the dead letters.

Malling-Hansen is first and foremost a *Scientist*. He possesses the imagination of the scientist as well as the urge to follow the trail until the very end. His scrutiny never stops before reaching the horizon. And he has the thoroughness of the scientist. Nothing is too small for him. On the contrary: Behind all the tiny details he sought and found the great synthesis. What is more: He had the fortunate hand of the scientist. Many great discoveries apparently are caused by coincidences. Malling-Hansen possessed the hand that could seize fortuitousness and hold it, turning it into a valuable discovery” (LLD C. Goos in his book about the first centenary of the Royal Institute for the Deaf-Mute, published in Copenhagen in 1907, page 227)



The above photo, drawings and quotation serve as my initial presentation of Rasmus Malling-Hansen. The picture was taken just a few months before his death in 1890, only 55 years old, but the colours are from our time. The drawings around his portrait are from the countless patent applications of his inventions, and at the bottom are two versions of his most well-known invention – the so-called writing ball. To the left the first model, but without the wooden case, patented in 1870. The drawing to the right shows the well-known shape of the version from 1878, and this - the first commercially produced typewriter - went successfully from strength to strength at expositions in Copenhagen, Vienna and Paris in the 1870s. Very rightfully Rasmus Malling-Hansen is today considered the father of the typewriter, and in collectors' circles and among museums his writing ball is much coveted and reaches exceedingly high prices. Word has it that a member of the direction of the Microsoft company paid 1 million kroner for a writing ball, but a price level at around 200.000 is more commonplace.



The old school in Hunseby (Photo: Otto Hemmingsen, The Local Historical Archive, Maribo)



Malling-Hansen's mother, Juliane Hansen, 1809-1885. Photo: Private

But let's go back to the beginning and find out from where this gifted inventor originated and where he lived during his first childhood years. Malling-Hansen was born on the 5th of September 1835, under rather poor circumstances in Hunseby, Maribo. His mother was Juliane née Matzen, the daughter of a tenant farmer Matzen at the Knuthenborg Estate. Her mother is not known, and she grew up as a foster daughter with the schoolteacher and cantor Rasmus Malling and his family. While still a young woman, Juliane kept house for the family in the house of Hunseby old school, where he lived and taught.

Then the young assistant teacher Johan Frederik Hansen came to Hunseby, they married in 1834 and a year afterwards their first son, Hans Rasmus Malling Johan Hansen, was born. They had two more sons, Thomas Jens Jørgen Hansen (b. 1837) and Johan Frederik Oluf Emanuel Hansen (b. 1839).



Hans Rasmus Malling Johan Hansen. 1835-1890. Photo: The Royal Library



Thomas Jensen Jørgen Hansen 1837-1919. Photo: Private.

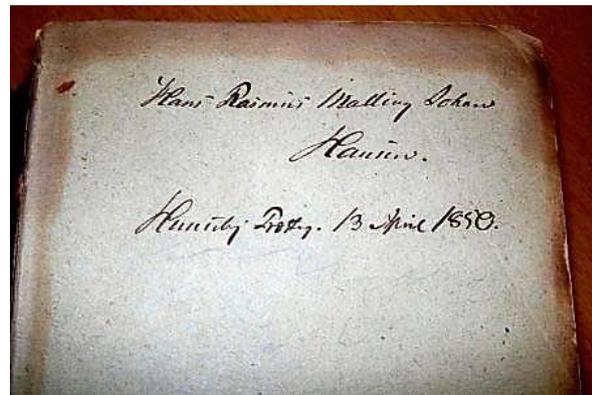
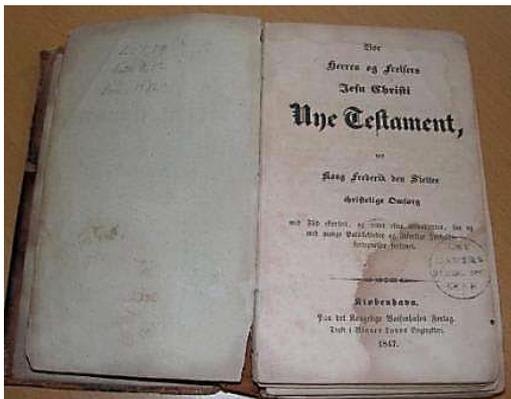


Johan Frederik Oluf Emanuel Hansen 1839-1912. Photo: Private

However, shortly after having been appointed for a teaching position in Havlykke, the father died of typhoid fever in 1839, and all of a sudden Juliane found herself alone with three boys aged 1, 2 and 4.

In "The Lives of the Inventors", part one, published in Copenhagen and Kristiania in 1914, p 348, Fritz Bech writes about Malling-Hansen's childhood: "These were difficult times for the young widow, and she had to adapt to strained circumstances, even if the foster father, in whose home she had born her children, immediately assumed the responsibility for supporting the family, while the daughter – as had been the case all the time – continued to keep house. Rasmus Malling, who in this way also became the foster father of Malling-Hansen, was a neat and graceful elderly gentleman with good manners, who in his youth had been brought up at Løvenborg Estate together with the young barons. The mother was a loving and extraordinarily able woman, and the upbringing through these two individuals quite naturally left its stamp on the boy: Throughout his life Malling-Hansen found it easy to mix with people and, at the same time, assert himself and his opinions without any trace of aggressiveness, thanks to a harmonious combination of humility and self-esteem."

Through the many letters from the adult Malling-Hansen to his mother and brothers, the picture emerges of a family with unusually loving and close ties. Malling-Hansen continued to be very close to his family in spite of having left his home at a young age, and he continued to nurture a warm and loving care for his mother throughout his life until her death in 1885. Both brothers became school teachers, Johan at Skjelstrup school – in addition to becoming an organist -, and Jørgen became head teacher at Ringsted Public School. Jørgen also worked as a translator and in this respect was an important advisor and cooperating partner for Malling-Hansen in his correspondence, since Malling-Hansen did not master the English language.



Malling-Hansen's copy of the New Testament. His name, the place and the year are easy to read - Hunseby 1850. Curiously, Malling-Hansen had the habit of adding a dot above the letter 's' in his handwriting. The book belongs to the family. Only from 1883 did Malling-Hansen write his name with a hyphen – we don't know the reason why. Photo: Sverre Avnskog.

In his obituary in the members' magazine of the Danish Teachers' Union, Christian Brøchner, after the passing away of Malling-Hansen, wrote as follows: "In many respects, Malling-Hansen can be characterised as a happy man. Unusually well endowed both spiritually and physically, dauntless and cheerful in his youth, from an early age he won everybody's heart".

From early on the young Malling-Hansen proved himself to be a very intelligent boy with an great aptitude for learning. He was talented in many fields, in particular in mathematics and drawing. A new assistant teacher came to Hunseby school, and he took special care of Rasmus, also after classes. It appears that the preparation for confirmation made a lasting impression on Malling-Hansen and it is said that he confided in his confirmation teacher that he himself aspired to become a clergyman. However, the prospects of getting a higher level education were not good, and Malling-Hansen was apprenticed as a painter in Maribo in order for him to learn a profession. And according to his grand-child, Gerda Forman Jensen, he

never forgot his old painting skills. Once when he was elderly, a painter had painted a door for him, but Malling-Hansen didn't find the work well done and he told him so. The painter responded that in that case he could do the door himself, which in fact Malling-Hansen did!

We don't know if it was the clergyman responsible for the confirmation preparation – later on dean Gude - who had approached the count of Knuthenborg, Frederik Marcus Knuth, but one day the young Rasmus and his mother were called to the manor house where they received notice that the count wished to support to the talented young man financially. Malling-Hansen was sent to the teacher training college of Jonstrup, and graduated from there in 1854 after merely two years of studies – with very high marks! This was followed by a period with teaching as a tutor some hours per week at the estate and at the home of vicar Gude, then a year as a tutor at Maglemer school, and preparative theological studies before enrolling in 1858 as a student of theology at university. However, he interrupted his studies without completing them at that time, perhaps because he was not happy being subject to financial support. At any rate he applied for and got a position as a teacher at the Royal Institute for the Deaf-Mute in Copenhagen in 1859, following a tip about the vacancy from a friend of his, who was a teacher at the institute. Within this institute Malling-Hansen found a calling where he got the opportunity to develop his manifold talents and his rich personality to the outmost. He became a driving force in the development and betterment of teaching as well as the conditions of the deaf-mute, not only in Denmark but in all the Nordic countries, and his work with the deaf-mute also became the foundation for his later inventions and discoveries.



Both photos are from 1861. Left, the young up-and-coming teacher and student of theology. Photo: Private. In the other picture we see Malling-Hansen, standing in the middle in the back row, together with teaching staff of the Institute for the Deaf-Mute. Sitting to the right of Malling-Hansen is the then principal and also his future father-in-law, Søren Johan Heiberg. Photo: The Historical Society of the Deaf.

However, first of all Malling-Hansen wanted to finish his theological studies, and in 1861 he left the Institute for the Deaf-Mute in order to devote himself entirely to the studies. But this was not to last very long, because already in 1862 he was offered a position at the Institute for the Deaf-Mute in Schleswig, which at the time was a part of Denmark, and he accepted this position, whereupon he was appointed principal of the institute in 1864. But the war forced him back to Copenhagen, and in 1865 when Søren Heiberg retired, Rasmus Malling-Hansen takes over the direction and keeps this position until his death.

1865 is an eventful year in Malling-Hansen's life. Apart from gaining the post of principal of the Royal Institute for the Deaf-Mute, he also graduates in theology, marries the daughter of the former principal, Cathrine Georgia Heiberg, with whom he has been betrothed since the

time before he left for Schleswig – and, in addition, starts working on the invention that was to create a name for him far beyond the borders of Denmark – the writing ball. The following years he continues to develop his inventions further, and in 1872 he launches the so-called tachygraph, a machine intended to be used for shorthand writing and which can manage up to 1200 keystrokes per minutes. He also develops the first method in the world for dry copying – giving it the name xerography – and hence he is 66 years earlier than the Swedish-American Chester Carlson who in 1938 presented his copying machine, that later was named xerograph!

Rasmus Malling-Hansen moves into the principal’s apartment at the Institute for the Deaf-Mute on Kastelsvej together with his wife Cathrine. It is an 11-room apartment, the kitchen faces the square in front of the school, and on the backside the family has a room with an exit to a large garden with a beautiful tree, a Robenia Pseudo Acacia, acquired and planted in 1839, the year when the school building was erected. The receipt for the tree is still kept in the school museum. Here Malling-Hansen has some very happy years as a vicar and principal, as a husband and eventually fathering no less than 7 daughters, and as an inventor and scientist. Malling-Hansen is very generous with his love, and his many letters to the brothers and the mother from these years bear witness of a very happy and considerate family man and father.



Cathrine Hansen



The private garden of the Malling-Hansen family as seen from the room opening towards the garden. Photo: Sverre Avnskog



*Rasmus Malling-Hansen
Photo: The Royal Library.*



Emma, Juliane and Engelke



Karen, Johanne and Marie



*Zarah, Emma and
Engelke*



Emma



Karen

He showers his wife with unqualified and always devoted love, refers to her with the loving pet name of "Cäthemo'er" ("Maa Cäthe"), and he always keeps his mother and the brothers informed about the daughters' welfare, about their diseases, their hobbies, progress and their petty ordeals. His very keen interest in the daily life and well-being of his children must have been rather remarkable for a man at that time!

Already in 1866 Cathrine gives birth to the first daughter, Juliane, and then in rather rapid succession: Engelke in 1868, Emma in 1869, Zarah in 1870, Johanne in 1873, Karen in 1874 and Marie in 1875. Also some of the children have pet names, and for instance Juliane is called Nanna, Engelke is Enga, Emma goes under the name Emse, Johanne is referred to as Jeanne and Marie as Misse.

Then in 1876 Cathrine is due to give birth again, this time twins, but neither Cathrine nor the two baby girls survive the delivery. Malling-Hansens grandchild, Gerda Forman Jensen has commented this tragic event, saying that "it was a terrible thing. She died because of childbed fever. The midwife didn't quite understand this thing about hygiene."

For a man with his sensitive disposition and so very close family ties, this was undoubtedly an extremely hard blow. I have not seen him refer to the tragedy in any of his letters to the family, and one can only imagine how it must have struck him at a time when he was at the absolute pinnacle of his career as an inventor, principal and family father, and with happy prospects for him and his wife to have yet two more children, but then at a stroke is left alone with responsibility for 7 daughters, the smallest still infants. In all probability he had some very heavy years after this, and we don't know who helped him with the children during these first years after the death of Cathrine.

4 years later when he meets Anna Steenstrup, the woman who was to become his second wife, he refers to her in the beginning in rather bashful and ambiguous terms, as if to test the mood among family members how they would receive a new woman, but fairly soon he reveals that he is as much in love with her as he was in his Ma Cäthe, and soon talks about her as his dear Ma Anna and as God's gift to him. Anne very soon proves to be a very loving and talented woman, which the young daughters accept completely as their stepmother, the youngest of the girls being merely 5, 7 and 8 years old when Malling-Hansen re-marries in 1880.

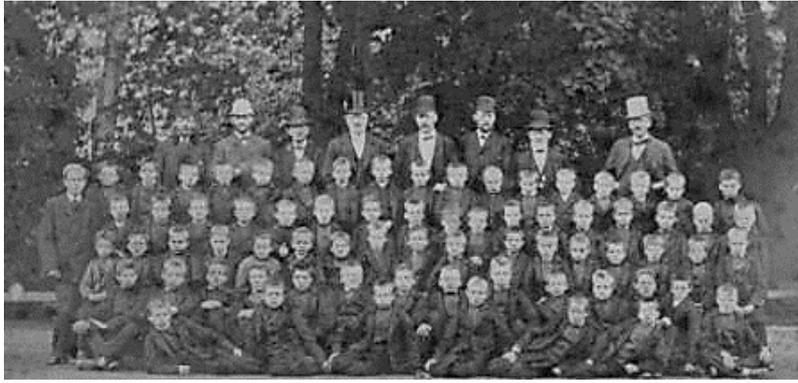


Left: Song for Malling-Hansen and his second wife Anna on the occasion of their return from a voyage abroad, possibly their honeymoon. Original: The Museum of Copenhagen. Above: Portraits of Anna og Rasmus.

Malling-Hansen's grandchild, Gerda Forman Jensen, recalls this romantic story about Rasmus and Anna:

"While still very young, our grandfather visited the rectory (in Huseby?). Here he met Miss Steenstrup, who was visiting her family. They fell in love with each other. But this was out of the question: He was beneath her, and also they were very young, so nothing came of it. Instead he was engaged with and married the daughter of the principal. Apparently he did meet Miss Steenstrup before the wedding, but at that time one did not easily break an engagement.

Miss Steenstrup could have married the brewer Carl Jacobsen; she belonged to the higher classes of the Copenhagen society, but it is said that she waited for the love of her youth. They met again a couple of years after the death of Cathrine and married. They did not have any more children, but she willingly became the stepmother of 7 girls. Mother and the other small girls loved her very much. It was more difficult with the two eldest, aunt Enga and aunt Nanna." (quoted from Jens Forman).



Malling-Hansen with teachers and pupils of the Royal Institute for the Deaf-Mute in Copenhagen, photo from 1881, enlarged section to the right. The welfare of the deaf-mute and their education was very dear to the heart of Malling-Hansen during his 25 years career as principal and vicar of the institute. Photo: The Danish Historical Association of the Deaf.

C Goos, in his book about the history of the Institute for the Deaf-Mute, starts off his chapter about Malling-Hansen's period as director as follows(p. 226): "When we move from the period of director S. Heiberg to deal with the history of the Royal Institute for the Deaf-

Mute under his successor Malling-Hansen, it is like jumping from the quiet, sedate era of King Frederik the Sixth into our own turbulent, changeable time. In the political sphere the new era starts in the 1840s, while at the Institute for the Deaf-Mute it is not initiated until 1865, and the transition is so sudden that it is evidently caused by the change of directorship".

It is also difficult to imagine two personalities more contrasting than those of Heiberg and Malling-Hansen. Heiberg is altogether a man of *l'ancien régime*, his road is straight and steady, while Malling-Hansen is modern, nervously modern, and his road runs – like that of the lightning – in a zigzag. Heiberg kept the door shut for novelties, Malling-Hansen opens it. His period is to become like a sparkling, sizzling fireworks of fighting ideas and thoughts, in which long-established thinking dies and new ideas are born. While some of the reason for this can be found in the prevailing conditions, first and foremost we must seek it in Malling-Hansen's character and temperament....."



This beautiful painting of the garden entrance to the director's residence formerly belonged to Malling-Hansen's daughter Emma Mathisen, but in 2006 it was donated to the Historical Museum of the Deaf by her descendants. The artist is unknown

Hence, it is no surprise that Malling-Hansen does not rest passively in his new position, but on the contrary with all his heart and soul endeavours to improve the conditions of the institution he is leading, and he does not decline to dispute with his adversaries when necessary, because while he in his heart was of a friendly disposition, he could also display a violent temper. And no area is too small or insignificant for the principal, be it the provision of meals for the deaf-mute, their access to fresh air, work in the garden etc. From very early

on Malling-Hansen improves and expands the outdoor area of the Institute, providing the school with a much bigger garden where the pupils get to work regularly during certain periods in fresh air and in beautiful surroundings. He also wanted electric lighting installed, which unfortunately did not become a reality, and Malling-Hansen's proposal to expand the school was not approved by the authorities either. It says a lot about Malling-Hansen's steadfastness, that during a ten-year period from 1879, he waged a constant battle against the Copenhagen authorities, to get them to lay an open wastewater and sewer ditch, which went just past the institute in pipes. Now he probably had a certain personal interest in the case, because the open ditch went just past the headmaster's private garden, but there can be no doubt that he was worried that the department's students could be infected by serious illness due to the open sewer ditch. And his tireless efforts succeeded in the end when it was decided to pipe the ditch.



Above: This is the Institute for the Deaf-Mute as it appears today – a peaceful yellowwashed brick-building in Copenhagen. To the right is an old plan of the Institute and the area around it. The two large buildings are the Institute for the Deaf-Mute to the left and the Institute for the Blind to the right. In the basement of the Institute for the Deaf-Mute the Historical Society of the Deaf has a small museum depicting, among other things, the history of the school.

Malling-Hansen's time as headmaster was marked by a great conflict between two different pedagogical methods for teaching the deaf-mute children. The institute in Copenhagen taught according to the sign method, using hand signs for words with support in alphabetic signs for each letter. But another method was on the rise and received increasing support from the educators of the time, namely the speech method, or the lip reading method. The other very central educator in the teaching of deaf children, Professor Johan Keller, ran a school for the deaf based on the speech method, and wanted the speech method to be used for all deaf-mute children. In this controversy, Malling-Hansen proved his pragmatism, and although he personally appeared to be a supporter of the sign method, he probably understood that it was inevitable that Danish schools for the deaf would also have to use the new method. But he stopped Keller's attempt to make the speech method dominant, and got the authorities to agree to a scheme, called "the Danish division". It was thus enacted in 1867 that the really deaf-mute (the completely deaf from birth) were to be trained at the Institute for the Deaf-Mute according to the sign language method, while the not really deaf (those who had a certain hearing, or who had been hearing) were to be taught at the Keller institutions. according to the speech method (lip reading). The Keller institutions were also to be responsible for the mentally retarded deaf-mute. In retrospect, this is considered a collaborative project between Keller and Malling-Hansen, but in reality the scheme had already been established many years earlier, while Keller wanted to make the speech method dominant.

In the light of posterity, we can only say that it was very wise and foresighted by Malling-Hansen that he secured the drawing method a continued place as a teaching method for the deaf. The proponents of the speech method probably had very good intentions, and believed

that the deaf could be fully integrated into society for the hearing, by means of lip reading and by learning to speak through intense training in pronunciation. But the results in no way corresponded to the goal of the idealistic educators, and in our time the introduction of the speech method is considered an educational disaster, almost an abuse of the deaf children. The method is completely outdated and the period in which all deaf children were forced to speak is considered a tragedy.

But towards the end of the 19th century, the speech method was increasingly popular, and Malling-Hansen probably understood that it was inevitable that it would have to have a place in Denmark as well. He therefore proposed the establishment of a completely new institute in 1879, and his plans were approved by the Danish politicians. A new deaf-mute institute was established in Fredericia in 1880, and here all deaf-mute children in Denmark were called to a one-year preschool, to map their cognitive abilities and whether they possibly had a small remnant of hearing. After the first year in Fredericia, the really deaf were sent to the Institute for the Deaf-Mute in Copenhagen to be taught according to the sign method, while the not completely deaf were sent to Keller's deaf school based on the speech method.

Malling-Hansen went on a study trip abroad in 1868 to study how teaching was organized in different countries, and in this way came up with new ideas which he then worked to put into practice at home in Denmark, and the authorities regarded him as the foremost authority on the teaching of the deaf children. It was therefore quite natural that he should be appointed secretary of a commission set up in 1888 to draw up a plan for the further education of deaf-mute children. He was undoubtedly the driving force in the commission, and he was also the one who wrote the proposals from the commission. They presented their final proposal in 1889, and about it Arild S. Ebbe wrote in his biography of Malling-Hansen in Jonstrupbogen, 1928, p 9:

"But when it is stated in a Commission report of 1889 that all the deaf-mute institutes of the country are classified as part of a system within which every deaf-mute is referred to a peculiar 'institution, whose teaching is adapted to the degree of his bodily error and his spiritual standpoint, and that such a systematic arrangement of deaf-mute education does not yet exist elsewhere than in Denmark, this excellent result was due in the first place to Malling-Hansen. "

Thanks to Malling-Hansen, Denmark had become a pioneer in the organization of the teaching of the deaf-mute, and Malling-Hansen must be said to have been a very foresighted special educator in his efforts to provide students with a teaching adapted to their cognitive abilities and hearing.



The Institute for the Deaf-Mutes in Fredericia was established in 1880 following a proposal from Rasmus Malling-Hansen. And in 1890, the proposal from the commission led by Malling-Hansen was adopted and another new institute was established, this time in Nyborg. The state also decided to take over the Keller institutions, and all teaching was done by the state and subject to a common, overall plan. Malling-Hansen's visions had finally been realized!



Cathrine's stepmother Emma née Rørdam, 1812-1897 and her father Søren Johan Heiberg, 1810-1871. When his first wife, Engelke Marie, 1814-1855, died, Heiberg married her 2 year older sister. Photo: The Heiberg Museum



Juliane Hansen, 1809-1885, Malling-Hansen's mother. The father died in 1839, a year before the invention of photography



Anna's parents, Abelone Antoinette née Lyngbye, 1814-1906 and Michael Vogelius Steenstrup, 1809-1855, mayor in Frederikshavn. Photo to the right: The Royal Library.



*Cathrine n. Heiberg, 1841-1876
Photo: The Heiberg Museum, Sogndal*



*Rasmus Malling-Hansen, 1835-1890
Photo: The Heiberg Museum, Sogndal*



*Anna, née Steenstrup, 1842-1897
Photo: The Royal Library*



*Juliane, 1866-1920,
married name: Danckert*



*All daughters in one place!
Photo: The Heiberg Museum, Sogndal*



*Zarah, 1870-1910,
married name: Bech*



*Engelke, 1868-1949,
married name: Wiberg*



*Karen, 1874-1955,
single*



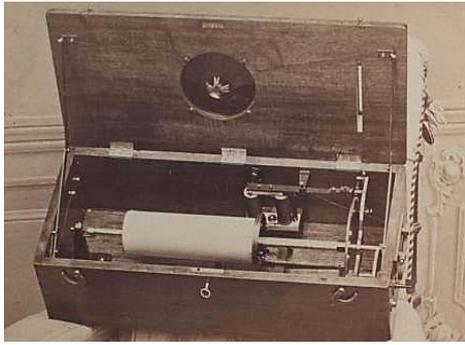
*Emma, 1869-1954,
married name: Mathiesen*



Johanne, 1873-1946, with her husband Michael Agerskov, 1870-1933. They were behind the publication of the religious work "Towards the Light!" in 1920. Johanne worked hard to defend Malling-Hansen against accusations of having stolen the idea of the writing ball. Photo: The Royal Library.



*Marie, 1875-1945
married name: Forman*

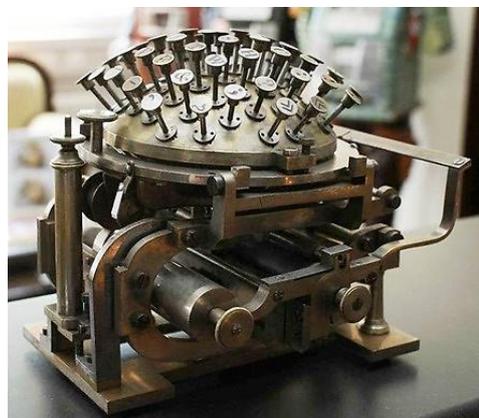


Left a photo of the first model of the writing ball, patented in 1870. The machine used an electromagnetic battery. Right: An advert for the writing ball. Price 300 kroner. The last models cost only half of that.

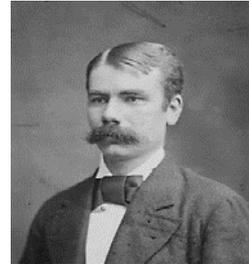


On the 12th of March 1924 professor H. I. Hannover published an article in the Copenhagen-based daily newspaper "Berlingske Tidende", in which he claimed that the real inventor of the writing ball was someone else than Rasmus Malling-Hansen, namely a person by the title and name of "kancelliråd" Peters (a title indicating a medium or lower-medium level ranking officer in a state ministry). In other words, he accused Malling-Hansen of having attempted to take the credit for another man's invention. This caused two of the Malling-Hansen sisters, Johanne and Engelke, to initiate thorough research on the issue and, after having clarified the truth of the matter, retorted forcefully against the allegations of H. I. Hannover. In her work "Die Biographie der Erfinder der SchreibeKugel, R. Malling-Hansen" Johanne Agerskov relates how this misunderstanding may have arisen, by his mixing up different models and years, and also because Mr Peters was close to 90 years old and, in addition, nearly deaf when he was interviewed by the professor.

The issue went around in the columns of the papers over a long period, partly in harsh and polemic wording, and it also led to private exchange of words and meetings, but professor H. I. Hannover was a proud man, not willing to admit a mistake just like that. However, the sisters made a heroic effort to defend the good name and reputation of their father, and thanks to the book Johanne Agerskov published, and in which she describes the feud ("Who is the Inventor of the Writing Ball?"), today we are lucky enough to possess relatively detailed information about how Malling-Hansen in 1865 together with his brother-in-law, Johan Alfred Heiberg, carried out his experiments on his invention. During a period, Johan Heiberg lived together with the Malling-Hansen family, and in her book Johanne Agerskov relates how Johan Heiberg was able to confirm, in the form of written letters, and by consulting his diary, that Malling-Hansen already in 1865 had the idea for his typewriter ready, and also how he conducted experiments by drawing letters on a hemisphere made of porcelain, and by means of Johan Heiberg's timekeeping and test-typing on the hemisphere, how he was able to figure out how to place the letters on the hemisphere in order to type as speedily as possible.



Left: A "writing ball typist". This writing ball from 1875 was rather high and should therefore be placed on a relatively low table in order to have a good typing position. Centre: Malling-Hansen's invention underwent continuous improvements, and can be found in a variety of versions. Presumably, old "balls" were disassembled and mounted on newer models. This is the model that was developed by mechanic August Lyngbye in 1885. Photo: Dieter Eberwein. Right: The publications for the writing ball claimed that it could be used by anybody, even persons suffering from trembling hands.



Malling-Hansen's daughter Johanne Agerskov made a big effort, together with her sister Engelke, to preserve the memory of her father and his reputation as the rightful inventor of the writing ball. To the right of Johanne Agerskov is her uncle Johan Alfred Heiberg, who assisted Malling-Hansen with his first trials on the writing ball in 1865, and who also spoke at the funeral of Malling-Hansen. Centre above another uncle, Frederik Heiberg, who took over the post as principal and vicar at the Institute for the Deaf-Mute when Malling-Hansen died, and also gave a very beautiful commemorative speech at the uncovering of the memorial on the grave site of Malling-Hansen. On the extreme right the brother-in-law of Johannes, Fritz Bech, married to her sister Zarah. He became principal of the institute for the deaf-mute in Fredericia, and contributed much to honour the memory of Malling-Hansens minne through a number of articles in books, journals and in his own magazine, "Smaablade for dövstumme" ("Notes for the Deaf-Mute").

In her undated biography about her father, Johanne Agerskov relates how the idea of the invention of the writing ball originated in Malling-Hansen's mind. And the phenomenon she describes in fact is relevant for several of Malling-Hansen inventions and discoveries. They were rooted in his daily work; through observations of and reflections on day-to-day small things, ideas emerged in his mind, which he would subsequently work on and try to put into practical reality. He was used to working alone, having to a large degree completed his education through self-studies, and he showed on a number of occasions that his mind did not rest before having found solutions to problems in the face of which others had had to give up.

Johanne Agerskov relates that her father once, while working with the education of the deaf, was shown that when using the hand alphabet - featuring a sign for each letter of the alphabet and much in use at the time - that it was possible to achieve up to 12 signs per second. This should be compared with handwriting, where very few people could manage more than 4 letters per second. This led him to the idea that it should be possible to construct a machine, which could take advantage of the agility of the fingers in order to write much faster than what was possible with a pen and ink. We don't know exactly when the first little germ of the invention appeared in Malling-Hansen's mind, and we also don't know much about his further progress or even when the first model was ready, but we do know that Malling-Hansen was in full swing with his practical experiments in 1865, and Johanne Agerskov writes in her biography that the first model was probably ready during the winter of 1867/68 eller 1868/69. Not until 1870 does Malling-Hansen acquire a patent on his invention, providing him with 15 years of sole and exclusive rights, and very soon the writing ball becomes a hit at various exhibitions around Europe.

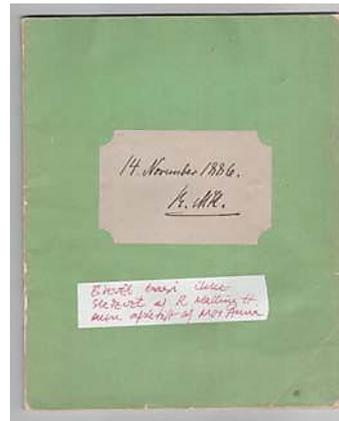
The first model is very big and awkward, but in the course of a few years, practically only the typing ball is identical, while all the rest has been given a more convenient and manageable design - without the electromagnetic battery. Gradually Malling-Hansen finds better and mechanical solutions that operate without electricity.

Malling-Hansen personally travelled around to various exhibitions in Europe and had great success with his writing ball. In many ways it is fair to say that the invention of Malling-Hansens in a symbolic way embodied much of the optimism about the future as well as the pronounced belief in the opportunities of man through new discoveries and inventions, so typical of the era. Throughout the years Malling-Hansen is to receive a string of distinctions and marks of honour. He receives first price medal at the Scandinavian industrial exposition in Copenhagen in 1872, "Vortschritts medal" (Progress Medal) at the world exhibition in Vienna in 1873 and the gold medal at the world exhibition in Paris in 1878. In the course of a few years Malling-Hansen becomes a famous and respected man in Denmark, and also

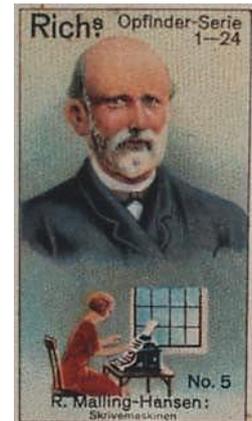
beyond the borders of Denmark people start to notice him. In 1872 he is awarded the "Fortjenestemedalje i guld" (the Gold Medal for Meritorious Services) in Denmark, in 1873 the Austrian gold medal "Pro literis et artibus", in 1876 he is conferred the Knighthood of the Swedish Order of Vasa, and in 1880 he is made a Knight of Dannebrog in Denmark. Not bad for a man of the people, rising from very simple conditions in the Danish countryside. Several times Malling-Hansen meets the Danish monarch who is a great admirer of his work, and also the Swedish king tests his writing ball and lavishes it with praise. The magazine "Illustreret Tidende" (Illustrated News) publishes several big articles, praising his inventions loudly! He also joins the freemasons, reaching the 9th level, and the name of his lodge was "Zoroabel and Frederik of the Crowned Hope". It was on his way back home from a meeting with the members of the loge that Malling-Hansen died, on a dark autumn day in 1890.



Left the "Vortschritts medal" awarded Malling-Hansen at the world exhibition in Vienna in 1873. Right, first medal at the Scandinavian exhibition in 1872. The gold medal from Paris, 1878, was stolen at a burglary at the family's home. After the world exhibition in Paris, Malling-Hansen returned home with 40 orders for writing balls – orders originating from Denmark(9), France(7), Sweden(2), Norway(2), England(3), Amerika(2), Italy(1), Böhmen(2), Hungary(1), Egypt(1) and Peru(10). Photo: Lars Mathiesen.



Malling-Hansen used this kind of notebooks to note down his ideas and results of his research, and he left behind a large number of them. The above notebook bears his initials and the date 14th of November 1886.



Series of collectors' cards were produced also before our time. Here Malling-Hansen has been honoured by a card in the series featuring inventors, published by Richs. However, it is a pity that it is one of the machines of his competitors that illustrates the card!

In contrast with the traditional qwerty-keyboard, the writing ball features letters placed in such a way that the quickest fingers will most easily hit the letters that are also most frequently used, and they have also been placed in such a way that one will often, when typing on the writing ball, use a finger from the right and left hand, respectively, every second time. The vowels are placed to the left and the consonants to the right. With this system it is possible to achieve an extremely high typing speed, up to 800 strokes per minute, far exceeding the limits of the qwerty-keyboard. On the writing ball the distance from key to letter is also very short, because the pistons penetrate directly through the hemisphere and straight onto the paper, while the competing machines had articulated pistons from the key to the letter – something that delayed the typing speed considerably. The competing machines also had the problem that the pistons got entangled into each other if the typing speed was too quick, and it was therefore necessary to place the letters in such a way that the speed was not too high. I have personally tried a writing ball, and it is a very different experience, compared to typing on the traditional typewriters. The keys are incredibly easy to handle, they move very quickly up and down, and in addition almost soundlessly. The mechanical parts have been exquisitely refined, and also the design of the writing ball is industrial design at its very highest level!

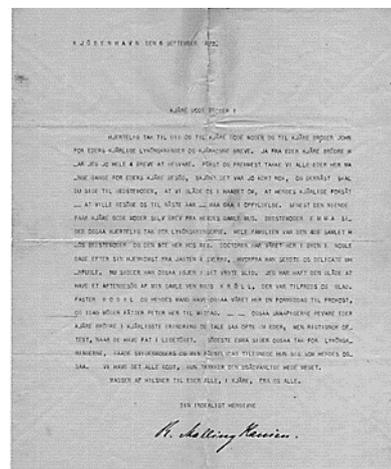
However, unfortunately the slower machines that Malling-Hansen's writing ball competed against were eventually to prevail, and one certainly wonders why this was so, considering that the writing ball by far exceeded the other machines in terms of typing speed. There are

probably several reasons, and the most important factor is probably linked to cost aspects. The people behind the American Remington machine, that were to become the leading brand in the market, had quite a different financial backing as well as a much better marketing organisation. The writing ball was essentially a one-man company - Malling-Hansen being the inventor, marketing director, seller and expediting the orders etc. He did have the assistance of professor C. P. Jürgensen, and later on August Lyngbye (who was awarded the highest distinction, the silver medal, at the world exhibition in Copenhagen in 1888 for the refined version of the writing ball, in the production and further development of the writing ball, and help from his friend Erik Ritzau for the marketing, but that was the extent of it. For the rest, Malling-Hansen was responsible for everything – and the effort to drum up financial support for the production was not easy. It is legitimate to question whether the destiny of the writing ball would not have been very different, if only the people in Denmark who had the financial means to support their countryman had been more ready to seize the opportunity.

Obviously, another factor is of course the all too early demise of Malling-Hansen, merely 55 years old. When he died he had an order for 100 writing balls, but after his death no one was ready to continue his life's work. The order was cancelled, and writing balls were not sold after that.



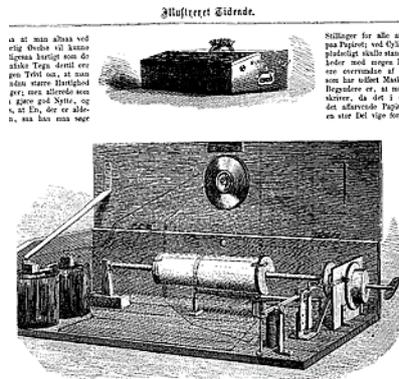
Above a painting by the Danish painter Malthe Engelstedt showing Malling-Hansen in the home of his friend and business associate Erik Ritzau(left), the founder of the Ritzau news agency. In the background is Ritzau's wife, and the other two players are captain Gustav Feilberg and head teacher and lexicographer Johannes Kaper(right). The painting belongs to Anna Ritzau in Kalundborg.



Fortunately a large number of the letters Malling-Hansen wrote on his writing ball have been preserved. As a curiosity can be mentioned that Malling-Hansen had to write the first patent application by hand! They did not accept his application for the patent of a typewriter, typed on the machine!

Once Malling-Hansen had invented his writing ball and started using it for practically all his correspondence, from time to time he found himself in a situation where he would like to have several copies of his letters. He therefore started to use "inking paper", as was commonplace at the telegraph stations, in order to make copies. He experimented with different colours on the inking paper and discovered that blue inking paper produces many more copies than the black colour. He also got the idea to place 5 sheets with every second layer inking paper and every second common paper, and when placing the inking paper with the colour upwards, in this way he got 5 "negatives", which he subsequently could run through 2 cylinders with writing paper between, and in this way he had quickly produced 5 copies of his letter. The procedure could be repeated up to 20 times, and hence he could in a relatively short period of time produce 100 copies of his letter, typed on the writing ball. The method could also be used for copying of handwriting and drawings. Malling-Hansen gave the method the name of "xerographics", and several decades passed before anyone got the idea to use a similar method!

Nowadays this may not sound so very impressive, but this is the nature of simple things, that somebody must emerge as the first to figure them out – and in this respect Malling-Hansen had this special gift and talent that he always tried to figure out how things could be done in a better and simpler way.



Paster H. Malling-Hansens Skrivemaskine af nyeste Construction.

Through several articles in "Illustrated News" the general public could follow the development of Malling-Hansen's inventions. Above is an illustration of the oldest model from 1870, below is a "writing ball typist" working at one of the later models. Fritz Bech mentions in his autobiography that the daughters of Malling-Hansen were known at school as "the small writing balls". He also relates that they frequently met His Majesty, who always asked them to convey a greeting to their father. Below the sisters Karen og Johanne.



The Danish Monarch, Christian IX, was a great admirer of Malling-Hansen's inventions. To the right, Queen Louise.



Left Malling-Hansen's son in-law, Fritz Bech, photo from 1882, the year he became a teacher at the Institutet. In 1904 he was appointed principal in Fredericia. He wrote a series of articles about Malling-Hansen and contributed to making his inventions known! The center photo is of Professor Jürgensen, who was co-owner of some of Malling-Hansen's patents and who did important work on developing and refining the writing ball together with Malling-Hansen. To the right a picture of the count of Knuthenborg Estate, Frederik Marcus Knuth, the man who supported Malling-Hansen financially and enabled him to study.

In his autobiography Fritz Bech writes about the Sunday services at the Institute: "There was no church room, but in the morning the big classroom was transformed into a church. The oldest boys moved the wooden altarpieces to the back of the room, the white pulpit with the golden cross was taken from the attic, and rows of benches were put up in front. Then Principal Malling-Hansen – who was also an ordained clergyman – ascended the pulpit, dressed in his vestment, and expounded the Gospel clearly and neatly in unusually beautiful hand alfabet and sign language."

Fritz Bech also relates an amusing story from one of the Royal visits to the Institute for the Deaf-Mute: "On a beautiful summer's day the Royal family came to the Institute in their glorious coaches with coachmen and servants dressed in scarlet colours mounting the box. It was the elderly King Christian IX and Queen Louise and some of their guests, among them their daughter-in-law, the lovely Queen Olga of Greece with her 2 sons, Crown Prince Constantin and Prince Georg, 16 and 15 years old, respectively. The deaf-mute children were very much taken by the sight, but they were quickly dispatched into the classrooms while the reception took place. The principal had received news about the visit a couple of days before, and the entire Institute was spick-and-span and immaculately clean. The teachers stood to attention each in his class, dressed in a black frock coat with a white glove on the left hand. The boys stood up and bowed and the girls made a curtsey, while the Royal visitors moved from one classroom to the other and stayed a while watching the teaching. But Queen Louise, who had heard something about the weighings of the principal, struck up a conversation with him about this and expressed the wish to be put on the scale herself. Naturally the principal led the Royal visitors into the dormitory where the big scale was, the Queen was put on the scale, and it appeared that she weighed merely 95 pounds (47,5 kilos, or 7,5 stone), but then again, she was short and also elderly." Bech furthermore relates that she wished to know the weight of the two young princes, but it soon appeared that the two young gentlemen had disappeared. After searching for them for quite some time they were found in the kitchen, of all places. There were the two Princes, chewing very happily on "a thick piece of rye bread with lard. And they liked it very much" Bech finishes his account. Quoted with the permission of the Historical Society of the Deaf-Mute.



KJÖBENHAVN DEN 10 MARTS 1883.

KJÄRE GAMLE V E N .

DET VAR MIG EN STOR GLÄDE AT MODTA-
GE DINE VENLIGE LINJER; JÄGTET JEG SOM
DU SIDDER I ARBEIDE OP OVER HOVEDET, -
SAA SKYDER JEG DOG MED GLÄDE HELE RE-
DELIGHEDEN TILSIDE FOR AT FAA EN LILLE
PASSIAR MED EN VEN, EN JONSTRUPPER. DE
DAGE DER, OG VENNERNE DERFRA, STAA STA-
DIST SAA LEVENDE FOR MIG, OG ERINDRE OM
SAA MEGEN GLÄDE OG GOD FREMGANG. DOG
- FLERE AF JONSTRUPPER HAR JEG KJENDT IGEN,
NAAR DE GLÄDEDE MIG MED ET BESÖG, JA
DEM ALLE; MEN DERSOM DIT PORTRAIT LIG-
NER GODT, SAA VILDE JEG RIGTIGNOK VÄRE
VILD PAA DET, OM DU VAR KOMMEN. - JEG
KAN I ÖFVELLIGHED IKKE ÖJNRE GJENKJÖLD,
MEN SKAL SENDE DIG MIT ANSIGT SNAREST.
JEG VIL FORMODENTLIG VÄRE ENDNU MERE
UKJENDELIG, DU HAR DOG HAARMASSER END-
NU, MEN MINE ÄRE NÄSTEN TIL AT TÄLLE.-
FORRESTEN ER JEG INDERLIG GLAD MED MIT
ARBEIDE, HAR EN VELSIGNET, KLOG OG EL-
SKELIG HUSTRU, DER ER EN KIÄPLIGHEDS-
FULD OG ELSKET STEDMÖDER TIL MINE VEL-

SIGNEDE SYV FIFTERÖR, DEN ÄLDSTE ER NU
SNART 17, OG DEN YNGSTE 8 AAR. SOM DU
HAR JEG MEGET ARBEIDE VED SIDEN AF MIN
EMPEDSGJERNING:- SKRIVEKURLEN MED TIL-
BEHÖR, OG SAA EN MÄNGDE MAALINGER, DAG-
LIGE, OG VEININGER AF ELEVERNE HER, DER
HAVE FÖRT TIL HÖJST MÄRKEELIGE RESULTA-
TETER, HVOROM DER SNART VIL KOMME NO-
GET I NATIONALTIDENDE.

DET FORUNDRER MIG, AT DE TO BEKERE
IKKE HAVE SVARET. JEG KUNDE HAVE LYST
TIL AT PIRRE VED DEM. JEG SKRIVER IDAG
TIL VEN JÖRGENSEN I FREDERICIA OG SKAL
DA ERINDRE HAM OM SAGEN. TO HERER LÄ-
RERE HER, LASSEN OG LINDHOLM HAVE LO-
VET AT SENDE.

KOMMER DU IND TIL RYEN /KJÖBENHAVN/
SAA BLÄD MIG MED ET BESÖG. DIRECTEUR
RITZAU, SOM OMTALER DIG MED MEGEN AN-
ERKJENDELSE OG TAKNEMLIGHED, HAR RIG-
TIG HILST MIG FRA DIG. DU VED VEL SAG-
TENS, EFTERSOM DU HAR ALLE OS I DINE
GJEMMER, AT MIN BRÖDER THOMAS ER FÖRSE-
LÄRER OG INSPECTEUR VED ROBERGSKOLEN
I RINGSTED, HAN ER UGIFT, STOR SPROG-
STUDERER, TALER OG SKRIVER VED FÖRRAV-
SENDE CORRECTHED TYSK, FRANSK OG ISÄR
ENGELSK. BRÖDER JOHAN ER SKOLELÄRER I
HUNSEBY SOGN PAA LAALAND, GIFT OG HAR
TO BÖRN.

Malling-Hansen was a very avid letter writer, and adjacent I am showing a letter "in extenso" written in 1883 to an old friend from the time when he was studying at the Jonstrup college, Otto Lind. I did, however, leave out a few lines penned after the signature. Note that Malling-Hansen has started to write his family name with a hyphen! In the letter Malling-Hansen sums up his life situation so far and makes comments about his family and work.

Below: On the left hand is the best known model, the tall transportable model from 1878. It was now equipped with a color ribbon. Photo: Uwe Breker. To the right a picture from Norway showing the writing ball owned by the Technical Museum in Oslo. Unfortunately it is not on display at the moment.

The picture in the middle deserves a comment. A very common misunderstanding claims that Malling-Hansen constructed the writing ball as an aid for the blind. This is not correct - the intention of Malling-Hansen was to build a machine for people with normal eyesight to be able to speed-type. This is documented in his own papers and letters in which he comments on the creation of the writing ball. Indeed, one single writing ball with braille was produced, and it is now being kept by the museum of the Institute for the Blind in Copenhagen. As far as we know, it has never been used by blind persons.

VEED DU, NAAR VI KUNNE FEIRE, JA
DET VEED DUCNATURLIGVIS, SEMINARIETS
100-ÄRRIGE BESTAEN. JEG SEER NU AT
DIT BREV HAR ITS! INGEN VIL VÄRE NÄR-
MERE TIL AT SÄTTE SIG I SPIDSEN FOR EN
GENERAL-SAMMENKÖMST PAA SEMINARIET TIL
DEN TID, TÄNK DERPAA, DERSÖK DU IKKE
ALLEREDE HAR OVERVEJET DENNE SAG.

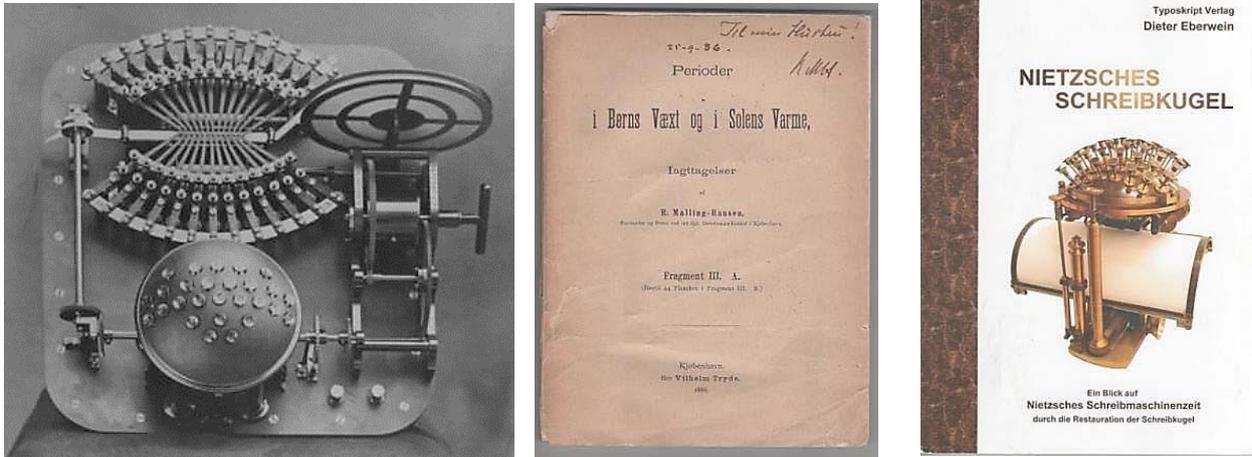
DENNE MIN HAANDSKRIFT ER DOG NOGET
BEDRE END DEN KLO, SOM JEG SENDE DIG
FORLEDEN DAG, MEN KUGLESKRIFTEN KAN VÄ-
RE ADSKILLIGT SMUKKERE END DENNE, DER
ER SKREVET MED ET FÖR TÖRT FÄRVEPAAHD
MEN - JEG EIDER IKKE SÄTTE ET NYT PAA.

VENLIGST HILSEN TIL DIG
OG DINE FRA DIN GAMLE VEN

N. Malling-Hansen



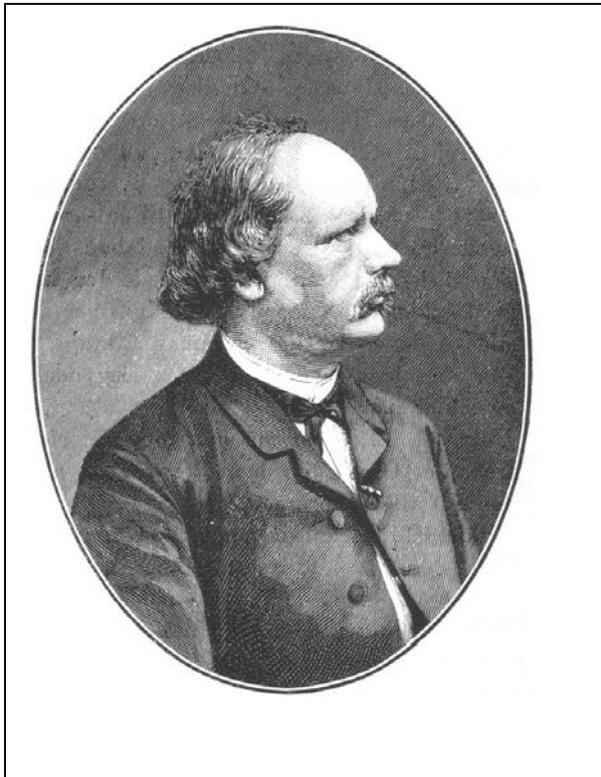
Around the same time that he invented the dry-copying method, Malling-Hansen constructed a machine designed particularly for extreme speed-typing, the so-called tachygraph, managing up to 1200 signs per minute, intended for taking shorthand in the parliament for example. Unfortunately this machine did not gain ground. It was, however, patented and at least one copy was made, since we have photos of it. But it is unknown whether it still exists and, in that case, where it is.



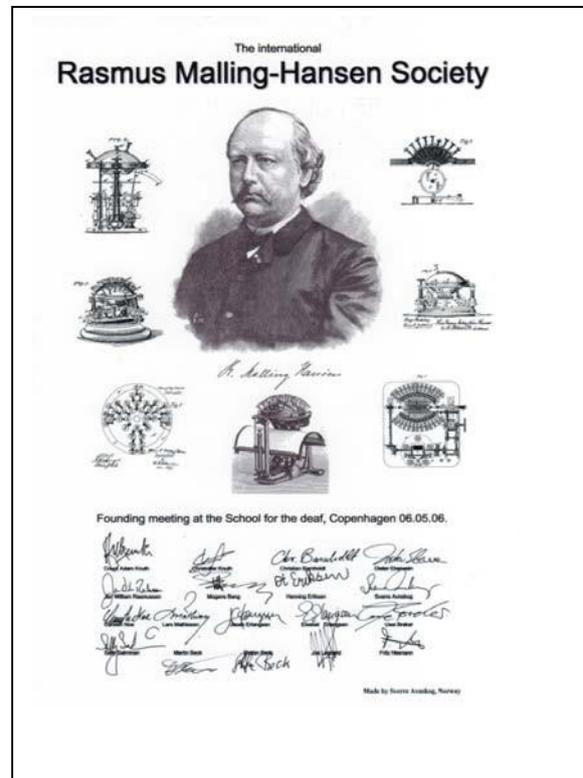
Left: Malling-Hansen's invention, the tachygraph – the shorthand machine that allows the user to type up to 1200 signs per minute. Center: The other major project of Malling-Hansen that was to follow – daily weighings and measurements of the pupils of the Institute, and the discovery of hitherto unknown principles for all growth in nature. He dedicated this work to his dear wife Anna. Right: Dieter Eberwein's book, Nietzsches Schreibkugel. The most famous owner of a writing ball was Friedrich Nietzsche. He is said to have been very dissatisfied with his purchase. While restoring the Nietzsche writing ball, Eberwein discovered that the writing ball had severe damages, probably originating from the transport from Denmark to Germany. The technician who was to repair the machine knew nothing about typewriters and caused even greater damages. No wonder that Nietzsche was dissatisfied! His writing ball had become practically useless because of the damages.

Another issue that occupied Malling-Hansen's mind and time was the health of the pupils, their opportunities to get fresh air as well as physical exercise and work. Many of the pupils were from very poor homes, ill health was prevalent at the institute and the mortality rate was also high. Malling-Hansen managed to introduce a new and improved arrangement for the provision of meals, and in order to investigate the effect of this on the health of the children Malling-Hansen in the 1870s initiated a very thorough and scientific research – by means of several daily weighings and measurements of all pupils he wanted to study the effect of the diet of the children. He was not concerned with variations of the weight of each and every individual, rather his focus was on the group, and hence he would weigh the children in groups, and weighing girls separately from boys. Malling-Hansen's very keen sense of detail and his well developed intuitive understanding of contexts soon led to his discovery that the children did not grow steadily and evenly, but rather that growth took place in certain periods, controlled by some unknown factor. Malling-Hansen also did research on the trees growing at the Institute and found identical growth periods as with the children. He also took initiative to establishing several stations for measurements around the world, and results were reported back to Malling-Hansen. His conclusion was that all living organisms in nature experiences similar growth in the same periods, and that the rays of the sun cause these variations in the periods of growth. Malling-Hansen wrote about his investigations and results in the work entitled "Periods in the Growth of Children and in Solar Heat", published in Denmark in 1886. He also reported on his discoveries at an international medical congress in Copenhagen in 1884 i København, and his discoveries created attention way beyond the borders of Denmark. Up till that time it was commonly assumed that the growth of children took place at an even pace and that it was first and foremost linked to their diet and state of health. Malling-Hansen was the very first to discover that this was not the case. However, also in this field Malling-Hansen unfortunately did not get the opportunity to complete his research, and the

many unanswered questions to which he was still searching the answers remained unanswered after his death. Nevertheless, he still left his mark also in this field, and Fritz Bech quotes in his book "The Lives of Inventors" from a work by Ludvig Feilberg, writing in his book "About Spiritual Humility": "It was the first vigorous effort to use one's own daily experiences in a field of applied science applicable to day-to-day life in Denmark. When Malling-Hansen's work stopped, threads were lost and it may be difficult to pick them up again".



An unknown artist's representation of Malling-Hansen, after a portrait photo from 1887. This is the portrait that was used as the basis for the medallion on Malling-Hansen's tombstone. Malling-Hansen had many talents and was admired for his beautiful organ playing. He also mastered the world language Volapük and translated several texts from Volapük into Danish. Original: The Royal Library.



In Spring 2006 "The International Rasmus Malling-Hansen Society" was established, the aim being to contribute to provide Malling-Hansen with the place in history that he deserves. The founding meeting took place at the School for the Deaf-Mute, where Malling-Hansen worked for more than 25 years. The present day Count of Knuthenborg, Adam Knuth, was made honorary member.

Then in 1890 it is all over, Malling-Hansen collapses in the street and dies instantly. Two passers-by notice what is happening and attempt to revive him, but to no avail. A massive coronary thrombosis ended his life. Malling-Hansen was suffering from arteriosclerosis, and there had been alarm signals that his health was not as it should be. The last year he had to take a long break from his work. Also, he suffered from angina pectoris, or heart cramp as he called it, and his daughter Marie recalled that the father was in great pain and cried out loud every time he had a fit. And it is no wonder that his body couldn't take anymore – in the photo taken a few months before his death, Malling-Hansen looks very much aged, in spite of being only 55 years old. Malling-Hansen was not the kind of person to spend his life in idleness, on the contrary it is fair to say that he wore himself out. His door was always open to whoever came to see him, and he was a very good and close support for the deaf-mute, for the teachers of the Institute, while constantly and incessantly working with his inventions and research projects, as well as being active in congresses, in committees and circles of friends. His relationship with his two wives, his daughters and the other members of the family also absorbed a lot of his time and thoughts, and he was deeply loved by all of them! But even for

a man of Malling-Hansen's calibre there are limits. When the sad news of his death was spread to those who knew him, it caused deep grief, not least among the "smallest" among them, the deaf-mute. And I would like to present, now that I am approaching the end of my story about one of the very greatest sons of Denmark, some of the beautiful words from Malling-Hansen to the deaf-mute, as quoted in "Smaablade for døvstumme" ("Notes for the deaf-mute"), nr 10 1892. May these words bear witness of Malling-Hansen's character, his fatherly care, his bright hope, his love and his strong and unshakable belief in the Lord and his prophet, Jesus.

"O come my brother, you whose ear is closed, and read the Gospel about the deaf-mute who was healed (Marc. 7, 31-37). It is your own Gospel; you are the one that Jesus Christ Our Lord takes by his hand and leads away from the crowd; you are the one to whom he says his Ephatha ("open up"); you are the one whose ear he opens!

God has sent you an ordeal. The Spirit comes through the ear, but your ear is closed; the Soul speaks through the Word, but your lips are mute. You have felt very lonely; you have thought yourself abandoned by everyone, perhaps you have felt that no one had any love for you, the poor deaf-mute; - but if you have believed and felt thus, then read this Gospel about the cure of the deaf-mute, and you will feel deep down in your heart that you are not abandoned and alone, but our heavenly Father, and the one He sent, also love you and give you their rich blessings, when you believe in Him with all your heart and soul. Because God loved the world such that he gave his only begotten Son, so that each one who believes in Him shall not perish but shall have eternal life."



"A Monrad-type of head with expressive eyes looking more inwards than outwards; the figure of a military officer, supple and with a courteous conduct – that was the appearance of Malling-Hansen when he was at the pinnacle of his physical powers!" (Fritz Bech in "The Lives of the Inventors" p. 348).

"He looks like an artist or a composer, and carries himself with the nonchalance of an artist, combined with the exactitude and courtesy of an officer." (From an article in the journal "Nutiden" (Our Present Time) 1886).

"..... an optimist through and through." (Arild S. Ebbe in The Book About Jonstrup, 1928,p.24).

It is evident that Malling-Hansen made a big impression on his contemporaries – above are photos from 1877, 1883, 1885 and 1887, respectively. At the time, it was commonplace to make a large number of copies of these small size portrait photos, using them as a kind of calling or business cards, distributed to friends and acquaintances. The above shown pictures can therefore be found at various places today. The copies presented here have a very high quality, probably as a result of protecting them from sunlight.. One of Malling-Hansen's grandchildren, Elsebet Mathiesen, a daughter of Emma, left behind a very large collection of photos of Malling-Hansen and his daughters and other family members, in addition to a large amount of letters, documents, books and other printed matter. She kept all the pictures in a metal box with a lid, presumably an old shoe box. Most of the photos of the members of the Malling-Hansen's family in this article are from her collection. There is also a collection of around 30 pictures in the pictorial archive of the Royal Library in Copenhagen, some pictures in the museum of the Historical Society of the Deaf-Mute, The Museum of Copenhagen, the Heiberg Museum in Sogndal Norway, and also with collectors, and some other descendants in the Malling-Hansen family.

Not long after the death of Malling-Hansen some of Denmark's most well-known personalities took the initiative to start a collection with the purpose of erecting a memorial over the deceased. The collection brought in around 1300 kr, and the originators decided to erect a monument of granite at the graveyard of Malling-Hansen, featuring a portrait medaillon in copper. The visual artist Brandstrup was commissioned to design the medaillon, and he used a well-known portrait of Malling-Hansen in profile from 1887 as model for his work. The granite was taken from Bornholm, the draft design of the artist worked out in clay

was cast in copper, and in 1892 the day had arrived for the uncovering of the memorial at the Malling-Hansen gravesite at the Garrison Cemetery. Malling-Hansen's son-in-law, Master of Arts Fritz Bech, writes about the event in "Smaabladet for døvstumme" nr 10, 1892:

"This beautiful ceremony took place Sunday the 2nd of October – on a Sunday in order for as many as possible of the deaf-mute pupils of the deceased to be present. A large number of them were indeed present; in addition we noticed, apart from the closest family and friends of the departed, also many well-known persons from the field of special education. "

Malling-Hansen's brother-in-law and successor as principal and vicar at the Institute for the Deaf-Mute, Frederik Heiberg, spoke at the gravesite, and he gave a very moving speech taking his point of departure in the words of Paulus about belief, hope and love, and of them love being the greatest. He talked about the "son of the Highest" and his "wonderful, good belief in the faithless men and women", his "bright hope of salvation for these generations without hope", and the "infinite, self-sacrificing love" that Jesus possessed.

And he continued: "And now that I am to describe to you the one that our thoughts are resting on, I believe that everyone who knew Malling-Hansen, will agree with me that he had a wonderful trust in his fellow man; - he put his trust and confidence not only in his wife and children; he trusted not only those that worked under his direction, but instinctively he met each and every person with trust and confidence, and as always happens this made other people trust and confide in him. And if anybody ever had bright hopes, he certainly had. It seems to me valid what the poet sang: Even when a hope or two were broken, a new glimmered in his eye.

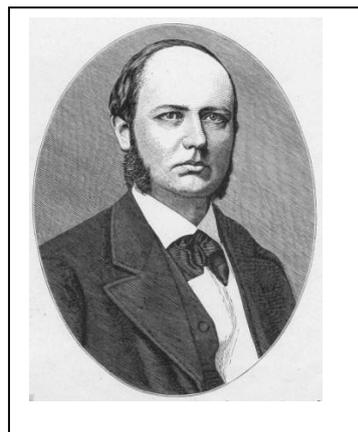
He could keep the hope bright! And now that I am looking around at the large crowd gathered around his grave, I must say to you: We really are very many who loved him. This is so because he himself had a big and loving heart.....and there are indeed many to whom he has been linked with the ties of friendship and brotherhood."



In 1947 the memorial on Malling-Hansen's grave was moved to the Institute for the Deaf-Mute, where it remains today. The artist, Brandstrup, at the same time created a bust of Malling-Hansen that can be seen at the Historical Museum of the Society for the Deaf-Mute.



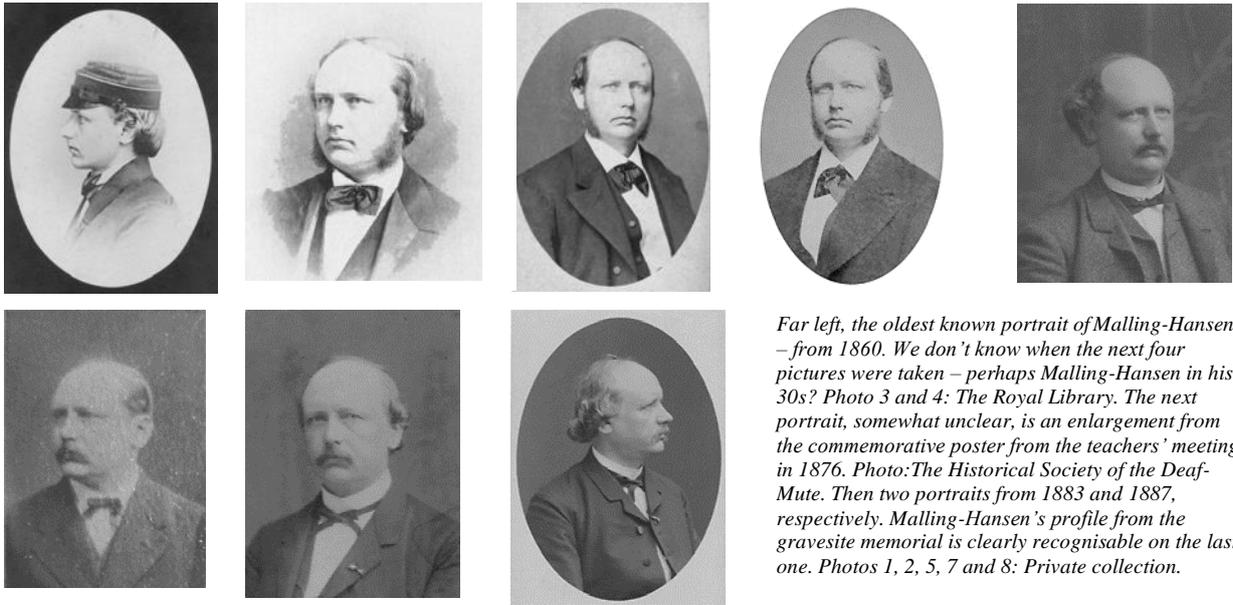
These are the founders of "The International Rasmus Malling-Hansen Society", gathered around the memorial for Malling-Hansen in connection with the meeting to set up the society – on a beautiful Spring day in Copenhagen in 2006. Here are gathered Malling-Hansen admirers from all over Europe, several great-grandchildren after Malling-Hansen and after one of his brothers, and also the present day count of Knuthenborg Estate! The author is vice-president of the Society.



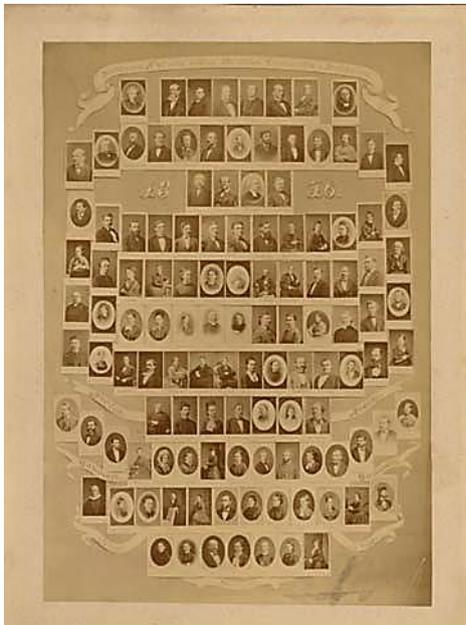
"Nature had bestowed him rare gifts, some of the intuitive power which is genius, a facility to make himself acquainted with the various fields of Science, composure and tranquility, combined with a particularly well developed flair for finding connections"

"A Pioneer of Science, that is the epithet he deserves with all the honours, but it by no means exhausts his nature, because he was far more than that. We must not forget that he was a father for the unfortunate children entrusted to his care, a true humanitarian and a good man." Arild S. Ebbe in the Book about Jonstrup 1928, p 24 og 25. Right; "Illustrated News" used the entire front page to commemorate Malling-Hansen in its issue of 12th October 1890.

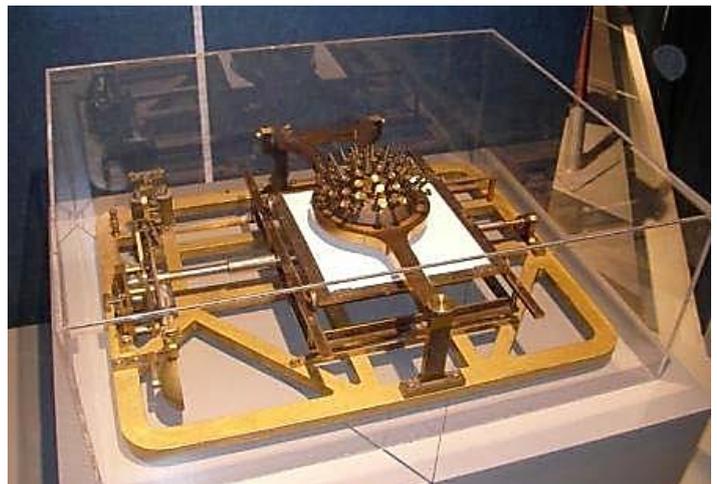


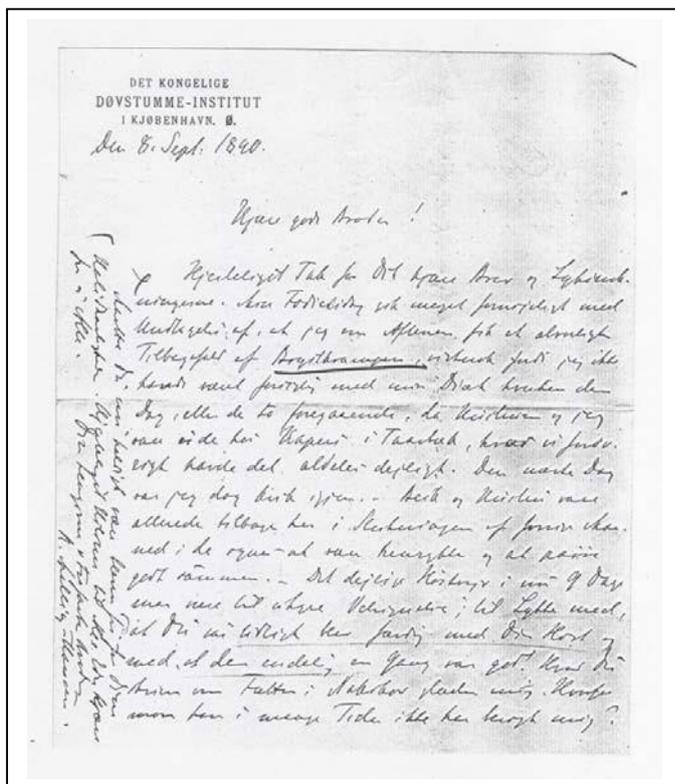


Far left, the oldest known portrait of Malling-Hansen – from 1860. We don't know when the next four pictures were taken – perhaps Malling-Hansen in his 30s? Photo 3 and 4: The Royal Library. The next portrait, somewhat unclear, is an enlargement from the commemorative poster from the teachers' meeting in 1876. Photo: The Historical Society of the Deaf-Mute. Then two portraits from 1883 and 1887, respectively. Malling-Hansen's profile from the gravesite memorial is clearly recognisable on the last one. Photos 1, 2, 5, 7 and 8: Private collection.



Above: A commemorative poster from the Nordic teachers' meeting in 1876, owned by the Historical Society of the Deaf-Mute. Malling-Hansen is in the 2nd row at the far left. Below, a label from a writing ball – patented in 1875. The two pictures to the right: The 9 writing balls of the Technical Museum - only the one shown at the bottom is presently on display. At the bottom right: 2 miniature versions, displayed by a collector at the foundation meeting of the M-H Society 2006.





The last letter from Malling-Hansen that has been preserved – written on 8th of September 1890, less than 3 weeks before his death. It is not easy to decipher, because Malling-Hansen's handwriting was sometimes almost unreadable. Someone has jokingly said that this was the reason why he invented the writing ball!

"My dear brother!", he starts. Malling-Hansen has recently celebrated his 55th birthday – on September 5, and continues: "Thank you so much for your dear letter and the congratulations". He then relates that he has been "quite alright, except for a serious recurrence of the chest cramp, probably because I have not been careful with what I have been drinking, neither on that day nor the two previous days, since I and the wife went to Kaper in.....?, where we otherwise were enjoying ourselves very much. However, the next day I was feeling fine again.." Malling-Hansen comments that the son-in-law Bech and his wife Zarah have returned, and that they seem to be "so very delighted" and seem to be fit very well together. Then some wellwishing, and he ends the letter: "Warmest regards to all of you dears from all of us here. Your devoted and faithful brother,
R. Malling-Hansen



Left: The very last portrait of Malling-Hansen, taken a few months before his death in 1890. The picture exists in countless copies, and the version presented here is a copy of a large, retouched portrait that has been on display in the home of his daughter Emma, married name Mathiesen. Photo: Private. After Malling-Hansen's death, funds were collected in order to make a memorial at his gravesite at the Garnison cemetery. The artist Ludvig Brandstrup was commissioned to create the draft of a medallion for the memorial stone. Subsequently, the medallion was cast in copper. The memorial stone was moved in 1947 to Malling-Hansen's old school. The artist also produced a bust of Malling-Hansen, today displayed at the Museum for the Deaf-Mute on Kastel road. The picture of the bust was taken by Jan William Rasmussen of the Society for the Deaf-Mute. The picture to the right showing Malling-Hansen's grave was given to me by Anna Ritzau, descendant after Malling-Hansen's friend and business associate, Erik Ritzau. She is also the owner of the painting of Malling-Hansen playing L'homme with his friends, Erik Ritzau, Johannes Kaper and Ludvig Feilberg.



Malling-Hansen was not granted the happiness of seeing his grandchildren. One of his daughters, Zarah, married Fritz Bech, teacher of the deaf-mute, shortly before Malling-Hansen died, but their first child, Zarah, was not born until the year after. They had five children, apart from Zarah also Hans, Vilhelm, Ellen Margrethe and Erling (upper left picture). Erling emigrated to the United States and has present day descendants in the USA. Emma married barrister Marcus Mathiesen, and they had Gertrude, Elsebet and Marcus (center photo above). They in their turn had many descendants. Johanne, married to associate professor and author, Michael Agerskov, had only one child, Inger, (photo above right), but Inger did not have any children. Marie married vicar Axel Perch Forman, and they had three children, Carsten, Inge og Gerda. They also left behind numerous descendants. Left photo: The Royal Library.

The story about Rasmus Malling-Hansen's life must surely be some of the closest we can get to the history of a genuine Danish hero. The poor boy coming from a very simple and impoverished background, winning the princess and half the kingdom! Like an Espen Askeladd-figure out of the classical Norwegian folktales, crying out: "I found it, I found it!" Where other people passed by without noticing the tiny gold nuggets, Malling-Hansen stopped and took a closer look. But why isn't this colourful personality and inventor more well-known today? – that is a source of wonder and a legitimate question. Why has Denmark not taken much better care of the memory of one of the nation's very greatest sons? It is difficult to find a good answer to that question. Again, it is natural to explain it in terms of his premature demise, as well as to the fact that his greatest invention, the writing ball, unfortunately was defeated in the competition with typewriters that obviously were poorer machines, but nevertheless were cheaper and enjoyed better marketing. My hope is that Malling-Hansen's great achievements in different fields shall be pulled out of oblivion, for him to assume a place in history more commensurate with the importance he had in his own time! And I do hope this article will contribute somewhat to that end. Perchance a street in Copenhagen will be named after him, or maybe his portrait will adorn a stamp – possibly in year 2035, on the day marking his birthday 200 years ago?

Perhaps we will be able to stroll along Rasmus Malling-Hansen's Boulevard some day in the not too distant future?

Oslo, 06.07.06 (revised in 2021)

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Sources and further reading (in Danish, Norwegian and German):

- Årsskrift fra Roskilde Museum 1994, side 45-52, artikel av Carsten Erik Noe.
- Årbog for Svendborg & Omegns Museum 1990, side 108-112, artikel av Henrik M Jansen.
- Jonstrup-bogen, nr 6, 1928, Jonstrupsamfundets Forlag, København, s 3-25, artikel av Arild S. Ebbe.
- Det Kongelige døvstumme-institut i København 17. april 1807-17.april 1907 samt meddelelser om døvstummesagens udvikling, av Dr. jur. C. Goos, København 1907, side 226-284, om Malling-Hansens periode som forstander.
- Opfindernes Liv, første del, av Helge Holst, København og Kristiania 1914, side 348-352, kapittel om Rasmus Malling-Hansen, skrevet av Fritz Bech.
- Danmarks Præstehistorie i aarene 1869-1884, personalhistoriske undersøgelser, av Sofus Elvius, København 1885-1887, side 298, om Presten ved Døvstummeintitutet i København.
- Den Jonstrupske Stat, Personalhistoriske meddelelser 1790-1884, av Anders Petersen, København 1884, side 123-124, om Malling-Hansen.
- Slægten Heiberg, Personalhistoriske og genealogiske oplysninger, Kristiania 1907, av G. F. Heiberg, side 170-172, om Cathrine Georgia Heiberg og Rasmus Malling-Hansen og deres døtre.
- Dansk biografisk leksikon, om Malling-Hansen, online på www.lysator.liu.se
- Nekrolog i Danmarks lærerforenings blad, skrevet av Chr Brøchner.
- Hvem er skrivekuglens opfinder? Av Johanne Agerskov, Otto Markussen's boghandel 1925.
- Die Biographie der Erfinder der Schreibkugel, R. Malling-Hansen av Johanne Agerskov, udatert originalmanuskript.
- Illustreret Tidende, diverse artikler.
- Diverse artikler av vitenskapelig journalist, Christian Barnholdt.
- Smaablade for døvstumme, nr 10, 1892, utgitt av Fritz Bech.
- Mindeblade for døvstumme – om deres lærer og sjælesørger Forstander Malling-Hansens død og jordefærd, utgitt av Fritz Bech.
- Nietzsches Schreibkugel, av Dieter Eberwein, Typoskript Verlag, 2005.
- Døvehistorisk Tidsskrift, December 2002 og Maj 2003, utgitt av Døvehistorisk Selskab.

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The author, Sverre Avnskog, with a miniature writing ball, owned by descendants of Malling-Hansen