



# The Nyckelharpa in the CADENCE Project

*By Esbjörn Hogmark*

This document is intended to answer some of the questions which have arisen about the nyckelharpa during the course of the CADENCE project. Unfortunately very little is known of the earliest history of the instrument but from the 17th century onwards we have a good idea of its history in Sweden. It is fascinating to learn that the instrument has been played there in an unbroken tradition, which also includes the making of the instrument, a process predominantly carried out by the players themselves.

## Table of contents

1. Introduction
2. Overview of the history of the nyckelharpa
3. Origin of the "modern" chromatic three-row nyckelharpa
4. Nyckelharpa making courses in the 1970s
5. Wood and wood quality of nyckelharpas throughout history
6. Sound quality from a Swedish perspective
7. What is now happening in Sweden, Europe and in the rest of the world?
8. Nyckelharpa making outside Sweden
9. Bass, tenor and alto nyckelharpa
10. What can we expect in the future?
11. Summary





## 1. Introduction

The nyckelharpa (keyed fiddle, Schlüsselfidel, vielle à clefs) was chosen as the unifying music tool in the project CADENCE, Cultural ADult Education and Nyckelharpa Cooperation in Europe. The reason for this is that the instrument exists today in all three countries involved in the project: Sweden, Italy and Germany. The revival of the nyckelharpa in Germany, and Italy in particular, has only occurred relatively recently. I will give a short explanation of the history of the instrument and how, in recent times, its use has spread all over the world. An overview of how the instrument was made in historical times and how it is made today is included.



Cappellina di Palazzo Pubblico, Siena, Italy. Angel with "Viola a chiavi", Fresco by Taddeo di Bartolo, 1408 (Photo by Per-Ulf Allmo)



Ålkvarleby church in Uppland, Sweden. Angel with nyckelharpa, Fresco c. 1500



## 2. Overview of the history of the nyckelharpa

Briefly the instrument seems to have existed in central Europe since the 14th century alongside the fiddle and the hurdy-gurdy. For some reason it seemed to vanish completely in that area before the 17th century. At the same time it appeared in Sweden, but as an instrument quite different from the medieval ones. There is no evidence that the instrument existed in Sweden in the late medieval period despite the existence of paintings in numerous Swedish churches during the 15th and 16th centuries. The pictures of nyckelharpa players on Swedish church ceilings were often made by artists coming from central Europe. They probably depicted instruments they had at that time in their home countries. In Sweden, around 1680, someone made two fiddle-type nyckelharpas, today called a **moraharpa**. Both instruments still exist; one is housed at the Zorn Museum in Mora in Dalarna and the other at the Music and Theatre Museum in Stockholm. Today it has become popular to make replicas of that instrument. It is much simpler to make its body compared to other types of nyckelharpas.

Most of the medieval nyckelharpas had a fiddle type shape with a flat bottom and a flat top. We think that the sides often were made of thin wood which was steamed to shape and then joined to a solid neck. This is an old technique used when making boxes and cabinets. This is the method used on the original moraharpa.

### The Swedish nyckelharpa

The Swedish nyckelharpa, first appearing in the 17th century, was made from a solid timber log. The neck, sides, and bottom were made from one piece of wood.

The manufacturing process started with cutting down a suitable spruce tree. The bottom part of the tree, c. 1 m from ground level, was cut to the length of a nyckelharpa. The log was then divided into two parts, each half being the raw material for a single nyckelharpa. Before starting to make the instru-



ment, the wood had to be carefully dried and aged. A few knots were acceptable, but no cracks.

After drawing the shape of the instrument on the wood the maker first shaped the outside and then hollowed out the inner body of the instrument with chisels and gouges.

This was a wood construction technique often used in the Nordic countries when making plates, bowls, sinks etc.

The core of the log was located in the centre of the bottom. The very thin (2-3 mm) and single acutely curved top was made separately with a radius following the annual rings of the body. It took a lot of skill to make the top with an even thickness.

Instead of the violin influenced f-hole, common on today's instrument, the top had two round, or slightly oval, sound holes located on both sides of the tail piece.

The old Swedish nyckelharpa with its long narrow design was quite different from the



The photo above shows the author with two "real" gammelharpas. To the left a kontrabasharpa dated c.1780 and to the right a silverbasharpa dated c. mid 19<sup>th</sup> century. In spite of their age both instruments are in very good condition and can still be played today.



Observe the slanted sides and the acutely curved top which follows the annular rings



medieval fiddle-type nyckelharpas. This is why Swedes often claim that this instrument originated in Sweden without any influences from the medieval ones. Research is still ongoing on this point.

The way of holding the Swedish instrument also differs from the medieval instruments which were often held flat to the fiddler's chest while the Swedish instruments were, and still are, held further down on the chest or in the lap.

The photographs below show the different ways of holding the nyckelharpa.



To the left: Johan Hedin plays a replica of a medieval lute-type instrument made by Tommy Johansson. The instrument body, except for the top, is made in one piece. To the right: Eric Sahlström plays one of his own instruments in 1984

It is important to understand that the Swedish nyckelharpa and the technique to make it have existed unchanged for more than 400 years in northern and central Uppland. Since the instrument appeared in that area it has been made and played in an unbroken tradition.

### Gammelharpa: kontrabasharpa and silverbasharpa

Today we have a common name in Sweden for all the different types of instrument made from one piece of timber, namely the gammelharpa (old nyckelharpa). The two most common vari-



ants of gammelharpas are the **kontrabasharpa** which existed from the early 17th century until the beginning of the 1930s and the **silverbasharpa** which appeared around the mid-1800s and remained popular until 1940. The kontrabasharpa was a fully chromatic instrument and some instruments were provided with quarter notes.



Three very old kontrabasharpas stored at the Music and Theatre Museum in Stockholm. They are all made out of one spruce log. The tops are carved to the correct radius and not steamed.

The main difference between the kontrabasharpa and silverbasharpa is that the latter has a mechanism/key box with a somewhat different set of keys. This was commonly the case in central northern Uppland where the dance music of that time did not need all the notes available on the fully chromatic kontrabasharpa. The dance music was happy music in major keys emphasizing the rhythm.



### 3. Origin of the “modern” chromatic three-row nyckelharpa

During the 1930s a couple of skilled nyckelharpa fiddlers who also played violin began to modify the instrument. The need for this arose from the new musical ideas of the 1920s which required an instrument better able to express melody and individual notes than the old instruments were capable of doing. To facilitate manufacturing they started to make the instrument body in several pieces. The sides and neck were still made in one piece but with a separate bottom and top. Later on, in the 1960s, the sides and neck were made from different pieces and then glued together before adding the bottom and top, as we do now.



Kontrabasharpa c. 1780

Silverbasharpa c. 1880

3-row chromatic  
Eric Sahlström type

**Eric Sahlström (1912-1986)** in particular, and his older fiddler friend August Bohlin, were the ones who changed the instrument to the modern chromatic version it is today. At that time they both played the violin and the silverbasharpa and their modification work originated from the silverbasharpa. They were influenced by the other instruments of the day, such as the accordion and the clarinet, which emphasized melody more than rhythm. The fact that they both played the violin affected the sound they sought from the new instrument.



Eric Sahlström first learned violin and accordion before learning to play a silverbasharpa which was given to him by his grandfather.

The changes Eric Sahlström made to the nyckelharpa are as follows:

- He made the top much flatter compared to the old instruments. He also introduced the violin inspired f-holes at the bridge sides.
- He did a lot of experiments with the key box but kept the basics from the silverbasharpa. He added keys on the G-string, took away all the keys with double tangents and put just one tangent on each key.
- He kept the bass string tuned to C as it was on the silverbasharpa.
- During the 1970s he raised all 12 sympathetic strings to the top of the bridge giving them a stronger and more even effect on the sound.
- He also introduced a lamination technique (compression moulding process) for the sides which he learned from his job as a TV cabinet maker in a local company. This technique, he often pointed out, had no influence on the sound compared to the technique of making the sides from solid material with the help of a band saw. It just made the manufacturing process easier and faster.

On the left: Two nyckelharpas made by Eric Sahlström. To the left an instrument made in 1943, an instrument with sides and neck in one piece, with the top and bottom glued on separately. To the right an instrument he made in 1981 representing his final design with laminated sides and separate neck, bottom and top. (Photo taken by Sture Möllerman)



#### 4. Nyckelharpa making courses in the 1970s.

The folk music revival of the late 1960s brought a renewed interest in the nyckelharpa. Eric Sahlström, along with another local nyckelharpa player, Ceylon Wallin, quickly became very popular. Sahlström was already known by many Swedes from his radio programmes during the 1940s-1960s. He always produced an outstanding sound from his instrument. He also wrote many wonderful tunes that were musically quite modern but at the same time followed folk music tradition.



Wallin was known to play very elegantly and carefully preserved old traditions from his father. He was depicted on a Swedish stamp.

In the early 1970s there was a great dearth of instruments all over Sweden. The only maker was Eric Sahlström himself, but very soon, courses with Sahlström as the teacher were organized. This was of course, far from enough.

### Government supported evening courses

In order to obtain financial assistance for this kind of course, the organizer had to have plans and building methods approved at a high level in the Ministry of Education (Skolöverstyrelsen, today's Skolverket).

Two groups of people competed for this authorization. The winning design was produced by two men, **Mats Kuoppala/Liljeholm** and **Herold Lundin** who worked together in the Stockholm area. Their instrument was highly influenced by the violin which was the instrument Mats played. Another instrument design was under development and was authorized just a couple of years later. This is a design known today as the **Lars Bäckström nyckelharpa**.

### Stockholmsharpan/Lundinsharpan

There were several hundred of the Kuoppala-Lundin (K-L) instruments made until the Bäckström model reached the market.

The K-L instrument was not designed according to the long tradition of nyckelharpa making culminating in Eric Sahlström's instrument. This soon turned out to be a big mistake. Very few of the **Stockholmsharpas** still exist. The instruments often broke because of the lack of understanding in the basic science of strength of materials. Their sound had a poor projection and they were quite heavy. They were also difficult to make because both the bottom and the top had to be carved out (double-radius) as is the case for a violin.



Most of the makers quickly changed from the K-L design to that of Bäckström.

**The KL design and its failure** shows what can happen if someone tries to make a product without taking into consideration the knowledge that already exists.

### Bäckströmsharpan

The **Bäckström nyckelharpa** was designed by a woodworking teacher, **Lars Bäckström**, from the village of Storvreta, near Uppsala. He was supported in his ideas by **Eric Sahlström** from Tobo and **Hasse Gille** from Österbybruk.

Bäckström issued a drawing and makers' instructions which very quickly spread all over Sweden. Together with Hasse Gille and Eric Sahlström, he started to teach many other woodworking teachers and skilled crafts people who would later become the teachers of nyckelharpa making courses. I myself became such a teacher in 1979, shortly after I made my first instrument.

### What has happened to the Bäckström nyckelharpa since 1970?

The Bäckström model had (and still has if the original drawings are used) some minor drawbacks in relation to what we think of today as a high quality instrument. Some of these are:

- The top and the bottom are thinned out near the edges, which Sahlström never did on his own instruments.
- The C and G melody strings on the early Bäckström instruments were supposed to be tuned slightly higher than they are today. This was reminiscent of how Hasse Gille and Ceylon Wallin tuned their instrument in the early 1970s. (Eric Sahlström had a different tuning more like the one we have today.) As a result of this, the position for the tangents on the keys acting on the C and the G strings are slightly inaccurate on the drawing. Today's maker should be aware of this when using Bäckström's drawing.



- The part of the bottom connected to the neck was made with a sharp corner at the side where the hand moves up and down on the keys. Bäckström, who drew the plans, was not a player himself.
- The sides of the instrument were not inclined as is common today and which has always been the case for the gammelharpa. This was probably done just to make the manufacturing process easier in that it was possible to make the sides directly using a band saw.

## 5. Type of wood and wood quality of nyckelharpas made throughout history

We know very little, if anything, about what kind of wood was used in the medieval instruments. We can see from the many very old instruments at the Music and Theatre Museum in Stockholm that the bodies of almost all the **kontrabasharpas** were made of spruce. The logs used were often taken from a fast growing local tree. This is obvious from the large distance between the annual rings.

When the **silverbasharpa** was first built, it was full spruce, but by the end of the 19th century, some of the instruments had bodies made in alder or birch. The tops were always made in spruce.

The **Kuoppala/Lundin nyckelharpa** was made with the bottom in maple, the top in spruce and the sides and neck in birch or alder.

The **Bäckström nyckelharpa** was also made with a maple bottom and alder for the sides and the neck. Eric Sahlström often used a piece of hardwood for the bottom, such as beech, oak, ash, maple, hard spruce, mahogany etc.

For the last 10 to 15 years, the winning instruments in the annual nyckelharpa making competition, which I am responsible for since the passing of Eric Sahlström, have had a full spruce body.



On average, we judge 50 instruments per year. In recent years the jury has consisted of myself together with Per-Ulf Allmo, Sigurd Sahlström and the winner of the contest the year before. The winning instrument is the instrument which has the best sound.

The type of wood used in the key box (sides and keys), tuning pegs, tail piece, nut and bridge varies among the makers. Today most makers make the tailpiece, bridge and nut in maple and the keys in birch. Birch makes less noise in the key box.

## 6. Sound quality from a Swedish perspective

I think that the old kontrabasharpa, like the Finnish five-stringed kantele, which nearly disappeared in recent times, had sound qualities that have been forgotten for almost

100 years but are now coming alive again in our modern instruments. The sound quality is dependent not only on the design of the instrument but also on the quality and kind of material used in the body.

What is the character of a good nyckelharpa sound?

This is a question with many different answers. Traditionally in Sweden, we think that a good nyckelharpa sound has:

- a quite a long lasting sound on all notes.
- a distinctive and brilliant sound in the upper register.
- a clear and strong sound in the bass register that gives double stops a good sound.
- **an overall strong and even sound in the whole tone register helping the nyckelharpa player to hear his / her own instrument when playing with other nyckelharpa or violin players (very common today).**
- A sound that at the same time is full and warm but has a noticeable brilliance and sharpness.



The kontrabasharpa also had some nice design features affecting the sound positively, which were forgotten but have been brought back during the last 15 years.

- Sides are now slanted again (not the case for the Bäckström model)
- The joint of the bottom to the neck is now made with a large chamfer to facilitate playing on the upper keys (not the case with the Bäckström model).
- Today's instruments weigh 1.7-2.0 kg, much less than K/L and B instruments which weigh 2.0-2.5 kg.

## 7. What is now happening in Sweden, Europe and in the rest of the world?

I regularly run seminars and courses at the Eric Sahlström Institute with the focus on improving the quality of the nyckelharpa.

Since 1970, we have made only minor changes to the nyckelharpa which we now call the **3-row chromatic nyckelharpa of Eric Sahlström's model**.

Today's instruments are smaller, with a narrower body and neck. They have slanted sides even at the rear and weigh much less. They have a very good and evenly strong sound on all three melody strings.

For those interested in exploring Swedish nyckelharpa making in more depth, I recommend that you contact The Eric Sahlström Institute: [www.esitobo.org](http://www.esitobo.org) and perhaps join some of the seminars or courses.

### Number of nyckelharpa players around the world

Today the nyckelharpa is played all over the world. In Sweden we have tens of thousands of instruments. In the USA, nyckelharpas might soon number one thousand and in Japan,



a couple hundred. In countries like France, Spain, Holland and Germany, they also exceed one hundred, and Italy and Great Britain now have some tens of players.

### USA and Japan

The instrument has been accepted quite differently in different countries. Those playing the instrument in the USA and Japan are interested in Swedish folk music. They buy their instruments from Sweden and want to have today's standard Sahlström model.

### Europe (outside of Sweden)

In Europe, the nyckelharpa has been accepted from a different perspective. People from France, Spain, Italy, etc. want to use the instrument in their own music and it is not always a regular Sahlström nyckelharpa that suits this. They often like a softer, more cello-like sound. They also often want to be able to play notes below the standard G string, meaning they add keys on the fourth string. This is something that has been done in Sweden for quite a long time but remains rare because of the difficulty in making the notes on that string sound clear enough with tangents acting on it.



Annette Osann, is here playing an instrument she made herself. She has put keys on 4 melody strings. The instrument body according to Bäckström. Annette Osann has a qualification in violin making.



A characterization of the “European” sound, if I am allowed to generalize a little, would be:

- A generally softer sound on all strings. This sound may very well fit the medieval and the baroque music traditions. It also suits other kinds of music where the stronger and pushier sound of a Sahlström type of instrument has to be avoided.
- The A string is often a wound string which has a softer sound compared to a plain steel string. The Sahlström type instruments sometimes use wound A strings when it is necessary to even out the sound character between the three melody strings.
- A number of keys on the string that traditionally in Sweden is a fixed bass string often tuned to the low C. The sound of these notes is very seldom acceptable. It is weak and fuzzy. The instrument design is not optimized to give a good sound for key notes on the C string. It would probably sound better with slightly longer strings and a larger body volume.

## 8. Nyckelharpa making outside Sweden

### USA

For the last 25 years or so, nyckelharpas have been made outside Sweden, first in the USA and later in Europe. The USA makers, like the USA fiddlers, want to very strictly follow the Swedish making tradition. They buy nyckelharpa kits from Sweden and Swedish makers have visited the country to teach them.

### Europe (Sweden excluded)

In Europe the situation has turned out differently. Some makers want to learn from Sweden, and other makers, often skilled violin or guitar makers, want to go their own way, using the old Bäckström model as a basis for their designs.

The reason for this might be that Bäckström advocated maple for the bottom together with sides which are not slanted, a feature which would be familiar to a violin maker.



## 9. Bass, tenor and alto nyckelharpa

Nowadays in Sweden, the nyckelharpa can be studied in elementary schools, general music colleges and even the Royal College of Music in Stockholm, where it is possible to study for a master’s degree in nyckelharpa playing. Ever since different schools in Sweden have introduced folk music into their syllabi, the quality of traditional music making on the nyckelharpa has grown immensely. This in turn has put pressure on nyckelharpa makers to improve the quality of their instruments.

The popularity of playing the nyckelharpa in groups and in combination with other instruments has also grown, which has increased the need for nyckelharpas with a different sound. Groups need instruments with a sound which is complementary to the standard Sahlström type of instrument and to their violins. A comparison with the baroque instrument family can be made here. The bass/octave, tenor and alto nyckelharpa all exist today and are used in many groups. These instruments differ more or less only in size (by a scaling factor) from a standard Sahlström instrument.

Bass nyckelharpas have a string length of 510 mm; tenor and alto have 440 mm, compared to the standard length of a Sahlström type, which is 400 mm.

There are also instruments, smaller by a scaling factor, made for children. Their string length varies between 300 and 380 mm. The most common being 340-360.

Strings for bowed instruments are an extremely complicated topic. It takes numerous experiments to get a satisfactory sound result. To function well with the bow, longer strings, compared to shorter, have to be both thicker and heavier.

An interesting fact is that the old types of instruments, kontrabasharpa and silverbasharpa, are undergoing a revival. Young players often want to have a different type of instrument to gain extra attention when they perform on stage.



Picture shows a tenor nyckelharpa designed by Johan Hedin, built by a violin maker Peder Källman and owned by Tobias Schmidt from Germany. The instrument is tuned: e1, a, d and g. My wife Åsa is playing.

## 10. What can we expect in the future?

There is no doubt that we have only seen the beginning of the spread of this fascinating instrument. There still remains much to do regarding the optimizing of all the different types of nyckelharpas to facilitate their use in a much broader musical context than we have today.

From being an instrument which only existed in only one size and one model shortly after the nyckelharpa revival during the 70s, 80s and 90s, the instrument today is made in a number of different individual styles. This is not always good. For instance, it might make group education in classes more difficult compared to all students using the same kind of instrument tuned in the same way.



Today in Sweden, we (and those at The Eric Sahlström Institute) believe that it is important to keep the Sahlström nyckelharpa model as the basic standard instrument

for the foreseeable future. This instrument also has, through Eric Sahlström and others, a clear connection to the historical instruments. This is a guarantee that we are using all the knowledge of nyckelharpa design and manufacturing technology developed over several hundred years (just as with the Stradivarius violin). It is also why this is the subject of our building courses and seminars and is the model used to produce children's instruments.



The Eric Sahlström Institute initiated a project with the aim of making 25 child-sized nyckelharpas. The reduction factor is 0.85 which gives a 340 mm string length. Picture taken from one of the last meetings at the Institute early Summer 2010.



## 11. Summary

My intention with this report is to give people who are interested in the nyckelharpa and its construction an overview of what has happened in the past, what is going on today and what we might expect in the future.

I have not done any research in this matter; I just want to share with you what I have learned through more than 30 years of nyckelharpa playing and nyckelharpa making.

Thank you for your attention

**Esbjörn Hogmark**



Hopefully we will see more of this instrument in the future; a four-row electric nyckelharpa for rock and pop music. The instrument is made by Olle Plahn from Falun.



David Olsson, miner at the mines near Österbybruk northern Uppland in the 1920s.



Ambjörn Hogmark 3 years



## Esbjörn Hogmark, Sweden

Esbjörn Hogmark is a professional nyckelharpa manufacturer and nyckelharpa player from Uppland. He was a scholar and friend of Eric Sahlström. He was one of the founders of the Eric Sahlström Institute and is now member of the board. Together with family members he plays in the ensemble "Hogmarkarna" (the Hogmarks).



English language checked by Philip Moate from England  
Content checked by nyckelharpa researcher Per-Ulf Allmo  
All photographs unless otherwise indicated are taken by the author