

# An artist's experience during his 45 years long career as a caster of medals

Raimo Jaatinen

Producing a good cast medal is a combination of artistic creativity and high class technical skills. When the artist's creative role and the caster's realization for the technical demands and the manual skills meet each other, the final result can be enjoyable medallic art.

The friends of medallic art can easily understand the meaning of the artistic inspiration and the visual innovation in the process of designing a medal.

The ordinary, everyday side of the process, casting with many different phases, can easily be ignored. The importance of the successful technical accomplishment when aiming at good artistic achievements is often unknown even to the medallic art enthusiasts.

The basic demand of medal casting is the fact that also the smallest details of the artist's design can be reproduced exactly in bronze or some other metal. The carefully made patina crowns the finishing.

Casting medals is therefore maybe the most challenging area of casting artworks, because even the small mistakes can cause a damage for the delicate surface and tiny details. Mistakes which would not cause any problems in the casts of larger sculptures and could be easily corrected by chiselling or some other method, can totally spoil a cast of a medal.



1. Noah  
Toivo Jaatinen  
cast bronze, 100 mm  
photo: Raimo Jaatinen

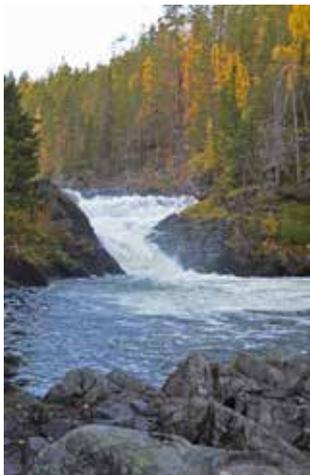


2. Sculptors Toivo Jaatinen and Heikki Häiväoja  
photo: Raimo Jaatinen

The tradition of medal casting in Finland is very short and it is strongly connected with the foundation of The Guild of Medallic Art in Finland in 1965. The first annual medals of The Guild had been cast in Germany, but soon it became necessary to develop casting skills in Finland, too.

Medal casting started in Finland really at the end of the nineteen sixties. Some medals had been cast before, but they were more or less some kind of individual experiments.

In 1965 sculptor Heikki Nieminen got a commission for one cast medal. He already used a silicone rubber positive model for making the moulds and made the first casts himself. After successful experiments he delegated the task to a foundry which produced a series of 20 medals using his positive models. But the craftsmen in the many Finnish foundries during that time were not in general very interested in medal casting. The daily busy routines of the foundries did not allow enough time to concentrate on tiny objects. Artists had to find out the best methods by themselves. The start was not easy, because there was not enough knowhow available. Because of his many other tasks Heikki Nieminen did not continue actively the developing of his medal casting skills.



3. A waterfall in Kuusamo  
photo: Juha Länsiluoto

In 1967 artist Martti Suominen made the casting work for Toivo Jaatinen's medal "Noah", the annual medal of the Guild of Medallic Art and it was the first bigger series of cast medals realized in Finland. Mr. Suominen also had too many and maybe more important projects that he could have had energy to

continue with medal casting.

Sculptor Heikki Häiväoja, a great artist and known also as a talented craftsman with many manual skills, made some experiments with medal casting, too. But then Heikki suggested to sculptor Toivo Jaatinen, my father, that he should start to find still better methods for bronze casting in general and especially for medal casting. Toivo was known also as a very skilful man, who had a gift for technical innovations. Toivo started to make experiments and found good solutions for instance how to make proper mould masses and better positive models for mould production. He also found a reasonable solution to cast very thick and heavy medals without the problems of making metal shrink.

Here starts also my role as a caster of art medals.

In the autumn 1970, I was not a very happy young man. I had finished high school and the obligatory 11 months of military service. I had failed at a couple of entrance tests for universities, I did not have a job and the worst of all, I did not have a girlfriend. I lived with my parents. My father suggested to me that I could work with him and start to learn the casting skills. Because I was too inefficient and lazy to find any other solutions, I accepted my father's offer and began to work. In this way started my casting career and the co-operation with my father, which still goes on occasionally, though Toivo is now 90 years old.

When I, a couple of years later, succeeded in starting my studies at the university of Art and Design in Helsinki, I had learnt enough in order to do casting simultaneously.



4. 15 years old student Kerttu Snäkin  
photo: Kari Kantola



5. Bronze casting at Kuusamo college  
photo: Kari Kantola



6. Kuusamo medal  
Mia Arentz-Grastvedt  
cast bronze, 100 mm  
photo Raimo Jaatinen

It was not necessary to find any other jobs between the terms. There were enough casting projects available.

After finishing the studies my professional life has been divided between three sections: teaching visual arts in different adult institutes, casting medals and sculptures and making my own artistic projects.

Now I draw a pension, but life goes on almost like before. I still go on teaching, but the daily routines with lessons have been history for a long time. I have concentrated on directing short courses for bronze casting skills at various schools.

Kuusamo College in a small town of Kuusamo, 800 km to the north east from Helsinki, has been the most important place for me. I have been teaching there for two or three times annually since 1996 and directed also a couple of ancient art symposiums. Most of the students there have



7. The Finnish dream  
Kaija-Riitta Iivonen  
cast bronze, 110 mm  
photo: Raimo Jaatinen



8. The Baltic sea  
Anne Meskanen  
cast bronze, 85x75 mm  
photo: Raimo Jaatinen



been non-professional artists, but many of them are really devoted to sculpture and also very talented. I have found good friends among these people and learnt a lot myself from their creativity and skills. Kuusamo College has arranged already for many decades different kinds of art courses both for professional and non-professional artists. In spite of its distant location from the larger population centres of Finland the college has succeeded to attract year after year most of its students just from these areas.

I have also had an active role in organizing three international medallic art symposiums in Finland. During the symposiums the participating artists created tens and tens of fine medals, most of which were cast in bronze. Many of these medals have been exhibited also in the exhibitions of FIDEM congresses.

During the second symposium at Kankaanpää Art School we made so many casts that one of the participants, the

well-known Dutch medal sculptor Mirjam Mieras was really astonished. She once told me that I and my Finnish colleagues must really love casting, because we looked so happy during the hard process.

As you know, Mirjam has a totally different kind of approach, more conceptual to medallic art, and she uses different kinds of materials than bronze. But Mirjam was right, we Finnish sculptors were happy and full of energy. We felt we worked like Hephaestus, the god of fire and metallurgy from the ancient Greek mythology.

When the molten metal is successfully poured in to the well-prepared moulds and after opening them you find complete replicas of the original design in bronze, you can really feel satisfied. When the molten bronze obeys your will you can have a sense of power and the feeling that all the gates are open to your creativity.



9. Moshe Yosselevich  
Raimo Jaatinen  
cast bronze, 115x110 mm  
photo: Raimo Jaatinen

10. Taavi Komonen,  
Raimo Jaatinen  
cast bronze, 120 mm  
photo: Raimo Jaatinen

In medallic art I have a double role. I have also designed many medals myself, although the number of my medals is very small compared to many other artists with a long career. I have participated in FIDEM exhibitions since 1992, and also here in Ghent you can find two of my medals in the exhibition.

I have also won some prizes at some Finnish art medal competitions. For instance, in 1998 I got the first prize at the annual medal competition arranged by the Guild of Medallic Art in Finland. And yet, I think that my role in medallic art has been more important when carrying out other artists' designs than being a medal artist myself. In any case, my close touch with medallic art in many forums and being an artist at the same time has helped me to develop my technical skills.

I have wanted to be a very flexible person when negotiating with the artists about the future casting processes. It

is important that an artist can trust the caster's skills completely, without any fear that the medals in bronze will give a wrong kind of impression compared to the original vision of the artist.

During my caster career I have cast maybe thousands of medals altogether, most of which to the The Guild of Medallic Art which had a lot of members 25-30 years ago, more than 250.

A few years ago, according to the rules of the Guild all the members received the annual medal. Casting so many medals with a close deadline was sometimes very exhausting, but at the same time casting was an important source of income to my family. In addition to bronze, I have also cast a couple medal series in silver.

Almost all Finnish foundries and sculptors have adopted the traditional lost wax method and not sand casting,



11. Wheels of love  
Raimo Jaatinen  
cast bronze, 110 mm  
photo: Raimo Jaatinen

and so the basis of Finnish medal casting is also the lost wax method. Thus the tradition is different from Central Europe, where sand casting is very common. I have myself seen skilful craftsmen working with sand casting method in Slovakia and in Hungary.

The idea of lost wax method is thousands of years old. The basis of this method is very simple. The sculpture is modelled directly from wax or the wax model is made by the help of a plaster, vinamold or silicone rubber mould. The wax model, pouring cup, so called runners and air channels are covered by an investment which is traditionally a mixture of crushed brick and plaster. When the moulds are heated in a special kiln till the temperature approximately of 700 C, all the wax burns out leaving inside the mould a hollow space, where the molten bronze later will be poured.

The modern version of lost wax method is to use ceramic shell moulds. Especially in the UK this method is very popular, and there are a couple of foundries also in Finland making use of that method. Heating the traditional moulds always requires several hours, but burning wax out from ceramic shell moulds takes only less than half an hour.

In the sand cast method layers of special casting sand is compacted to the surface of the sculpture, medal or bas-relief. Compacting makes the layers so hard, that they can be detached from the surfaces of the models and this way they form a mould or parts of that. The models for the sand casting must be made from some hard material.

Lost wax process is a very exact method if all the phases are made carefully. Fingerprints in wax model can be seen in the final bronze reproduction. Sand casting can be a very exact method, too, but there are limitations for the model. It cannot be very complicated, because the delicate sand mould must be detached from the model without causing any damage either to the mould or the model. For individual medals the lost wax method, and especially the modern version with ceramic shell moulds, is a good way to make casts. But if larger series are needed, producing and finishing big amounts of small wax models is a very slow process and requires the most careful attitude all the time.

I told before that already as early as 1965 sculptor Heikki Nieminen used silicone rubber positive models for producing a series of 20 medals. This way he avoided the slow process of making a finished wax model for each medal required. Toivo Jaatinen and his two friends, sculptors Markku Kitula and Leena Turpeinen made improvements to Heikki Nieminen's invention. With Mr.



12. Positive model for mould making  
photo: Raimo Jaatinen



13. Making moulds  
photo: Raimo Jaatinen



15. Moulds in the holder  
photo: Raimo Jaatinen



14. Positive model and the mould  
photo: Raimo Jaatinen

Niemenen's positive models the production of moulds was still rather slow. The next step was to add walls around the model, so that it is very easy just to pour the investment made from crushed brick and plaster on the positive model. It is like pouring thick soup into a bowl and then shaking it a little bit with fingers.

The casting method which Toivo Jaatinen and other sculptors developed, is like a mixture of lost wax casting and sand casting. The moulds can be made without wax models, but the investment of the moulds is the same as is generally used in lost wax casting. It is also necessary to heat the moulds to the same temperature as in the traditional lost wax process.

In the beginning the two halves of the mould were tied together with wire. This step took time and the method was not always reliable. Sometimes the moulds spread and removing the thick seams from the casts meant a lot of work.

It was obvious that there must be some better ways. The solution was simple after all. The moulds are squeezed tightly together in a special holder. In this way the seam is minimal and the slow tying work is avoided.

In the beginning there were problems with casting very thick and heavy medals, because the metal always shrinks a little when it is being cooled. When the volume of the object is large, the shrinking can be so strong that the cast is completely spoiled. Toivo, Markku and Leena found

a solution from using the traditional, very large pouring cup, the model of which resembles a cognac glass. The sphere, which is the basis of this pouring cup, has a large content compared to the outer surface. When the object starts to cool after the molten bronze is poured into the mould and tends to shrink, there is a reservoir of molten bronze still in the pouring cup. The molten bronze from this reservoir has a possibility to run into the mould and fill the shrunk places. I myself have good experiences with this method when casting the most heavy and thick medals. The pouring cup can be full of holes and yet the cast of a medal is complete.

During my career, I have also made some small inventions of my own to improve the quality of the casts and to improve the organized process during my numerous courses. It is a challenging task to work as a teacher during the bronze casting courses, because it is most important for the students to have complete casts at the end of the course. The teacher must be all the time aware of what the students are doing and watch carefully that no mistakes will occur during the process.

The fact is also that I have been able to enjoy the fruits of casting knowledge which the elder generation of sculptors and casters have developed. I have also tried to be curious enough and look around for adopting continuously new methods from colleagues in order to improve my capacity both as a caster and as an artist. All the knowledge that I have learnt from the others I have been willing to share with my students.

Among my students there have been artists who are now teachers themselves and can guide new students to the public secrets of the casting process. This way the skills of bronze casting in general and also casting of medals are in a state of continuous renaissance.

#### NOTES

All the medals shown in this article are cast by me. The only exception is the medal entitled *Noah* (fig. 1) by Toivo Jaatinen. It was cast by Martti Suominen.