



UNIVERSITY OF GOTHENBURG

Making by Hand

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Abstract

My work is focused on making tools out of recycled materials and sharing the knowledge of how to use the tools with people who have little to no prior experience of metal crafts. I am making tools by hand to be used by other people's hands with the hope of inspiring more people to embrace making by hand. We live in a world where so much is being made by machines, to an extent that it feels like people do not know how things can be made using your hands and hand tools.

When you design an object and a machine produces it you are dependent on the function of the machine, but when you make it by hand the result is something that is undeniably made by you, no one else. This sense of empowerment is something I want to share with other people through my work.

Key words: Tools, upcycling, crafts.

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Background

For the past year or two I have been growing tired of working within the jewellery art context. During an exhibition at Nääs in the summer of 2019, Staffan Jonsson and I exhibited our most recent work and for me, showing these objects I have put my heart and soul into making, felt pointless. For me, jewellery should be worn and used. But when it comes to the jewellery art field it feels like objects are mainly displayed. I don't want to make objects that end up just being decorative. Should I ever start selling my work to other people, I would not want to make objects that just end up in a collection - stored in a box and maybe taken out for exhibitions every now and then. I want to make objects that are used.

In the autumn of 2019, our class hosted a workshop for children aged 7-10 at the Röhsska museum in Gothenburg. The activity we organised consisted of three steps where the participants first drew layout lines on two pieces of paper. In the following step they used a "machine" (pictured below) where teamwork was needed to colour in the outlines they drew in the previous step. Finally, the papers were folded into boxes and brought home by the participants.



Photo by Staffan Jonsson

Seeing the participants using the machine we build felt so much more rewarding than showing work at an exhibition. This experience combined with the growing interest for tools has inspired me to make tools. Previously I have felt distracted by making tools when working with jewellery projects. But in the end, I felt that I wanted

to make this distraction my priority and focus on tools even though this means altering the way my work relates to the jewellery art field.

Working in a workshop with other people has shown me the disregard there is for the tools some of us craftspeople use. Instead of being a cherished piece of equipment, the tools are often just used and abused and when they have filled their purpose they are discarded.

To me, a tool is something you care for, especially a well-made, high quality tool that if cared for could be used for generations. A proper tool is something that you repair when it breaks and when it comes to files and other tools made from high carbon steel - something you can re-purpose and turn into something else once it is beyond repairing.

Hyltén's Metalware Factory

In the winter of 2018, I visited Hyltén's Industrial Museum in Gnosjö, formerly Hyltén's Metalware Factory. The company was started in 1874 and the building which is now preserved as a museum was in use between 1917 and 1974.



Stepping into the old building is like traveling back in time as most of the factory has been left in the same condition as when production ceased in 1974. The thing I really appreciate with this old factory is that they didn't let resources go to waste. The picture below shows a tap for cutting threads and a spanner, both made from old

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files. Instead of discarding the dull files, the workers annealed the steel, shaped them and heat-treated them to turn them into new durable tools.

I feel that the 21st century is missing this mentality of upcycling, at least when it comes to the industrial world. In the world of crafts on social media the re-use of old tools is live and well. There are countless videos on YouTube of people turning old files into knives, varying from complete novices making their first knife to highly skilled bladesmiths making beautiful tools from what often would be regarded as scrap metal.



During the first year of my master studies, we had a course where we were encouraged to experiment with new materials and techniques. I took this opportunity to learn about making tools, mainly focusing on understanding the process of heat-treating carbon steel. The pictures bellow shows the steps of transformation, from an old file discarded in the metal workshop at HDK, to a small kitchen utility knife. This was my first ever knife and it now lives in our kitchen and spends its time slicing vegetables and fruit.



Jewellery Art

Before starting the last year of my master's degree, I was interested in working with kinetic jewellery. The picture below shows the last piece I made during the first year of my MA, a stainless steel and brass brooch with a lever that actuates a piston that fills the glass bulb with water. This type of mechanical object relating to environmental issues is something I was certain I would focus on during my final degree project. But things changed, when we started the first semester of our final year my brother had just passed away and I was left with no energy and the type of determination I need for making intricate mechanical objects just wasn't there. I just couldn't work in the same way I had been working during the first year of the master's degree. The thing I realised I could still work with was tools, where the process was much more straight forward - make a hammer head, make the handle, put them both together - done! Compared to the process of sketching and planning how mechanical elements go together in a piece of jewellery this felt like a breath of fresh air. It left me with the issue of whether I was moving away from the jewellery field.

The way I justified working with tools instead of jewellery when I started my degree work was with the argument 'tools are just as bodily related and body-interactive as jewellery'. I still think this is true, tools are (to the right user I suppose) just as close to the body as the jewellery we wear, and in many cases I think the using of a tool can be much more intimate than putting on a piece of jewellery, especially when a tool is used by a craftsperson that loves their craft and has an appreciation for the tools they use.



Upcycling/downcycling?

An issue I am facing when I take existing tools and turn them into something else is that the idealistic idea of upcycling could turn into downcycling if functional tools were to be destroyed in favour of using them as material. Therefore, it is necessary to make a distinction between usable tool and a tool that is suitable to be used as material. One of the materials I sourced to make engraving tools from is this batch of 20 Allen keys from the online auction site Tradera. They were pretty much free and as most people buy sets of Allen keys in a range of sizes, I figured no one would have much use of 20 of them in the same size. This was my way of justifying taking these second-hand, but still pretty much brand-new tools and using them as a material. Whether or not this is upcycling is debatable, but as the price was 1kr it showed that the demand for them wasn't very high, and had I not bought them there would have been a chance of them just being thrown away.

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Why focus on upcycling scrap steel?

According to SSAB, the largest steel manufacturer in the Nordic countries, about 30% of the steel they currently produce is made using recycled scrap metal. They expect this amount to increase to 50% by the year 2050 (SSAB, n.d.). The positive aspect of recycling steel is that it can be recycled an infinite amount of times without the quality of the material being reduced (Jernkontoret, 2019). Despite these efforts to make the steel production more sustainable, it is still responsible for about 11% of Sweden's total CO2 emissions.

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The Industrial sector is responsible for 32% of Sweden's total carbon emissions. Out of these 32% the production of iron and steel is the biggest emitter of CO2 coming in at 34% of the total industrial emissions (Naturvårdsverket, 2019).

Knowing this, I feel that it makes sense for me to focus on making use of existing scrap metal when making tools, even though it might limit the size and shape I can work with. Being dependent on sourcing scrap metal in various dimensions could be seen as a limitation - just ordering tool steel from a manufacturer would mean getting the exact dimension of material needed. It would also mean knowing the quality of the steel and how to heat-treat it, as different types of steel are heat-treated in different ways. But there is a certain charm to being limited in the materials I use, the material I can find dictates what tools I can make and only experimenting with the material will show me whether it should be quenched in oil or water, and by doing this I find out how hard the steel can get - in turn dictating what types of tools the material will be suitable for. Something about this feels very organic, I work with what I have available and can source locally. The way I work with metal is often very controlled as using the lathe means working to quite accurate dimensions. But not being able to choose the exact material I can use adds a challenge and I feel that this creates a contrast to the very controlled manner of machining. The problem with this choice of material is that in a future production environment where the work is dependent on a steady supply of material of high quality - the upcycled material could add too much uncertainty. If I end up making functional objects such as hammers, kitchen knives and other tools, upcycled materials might not be a reliable option. But it still feels important to try to stick to this way of sourcing material.



Scrap steel at Lindholmen, I have used the thicker steel rods found here to make hammers.

Making Tools

From the very start of this project I have been interested in making hammers, something I've never done before. I had a clear idea of what I wanted to make; chasing hammers, one inspired by the typical western chasing hammers and one inspired by Japanese chasing hammers. Both are made from the same scrap steel found at Lindholmen, Gothenburg. On the Japanese style hammer, the texture from the rusty steel is preserved while the western style hammer has been machined on the lathe and sandblasted.

Working with scrap steel means you don't know the exact carbon content of the material, so before making tools from it I cut of a small piece and tried hardening it. I was lucky and the heat-treated test piece turned out hard - at least hard enough for making hammers out of it, but not hard enough for making cutting tools such as knives.

Traditionally hammer handles are made from hickory or ash as they are both very strong and can stand up to repeated impacts when hammering. The western style hammer handle is made from ash but with the Japanese style I wanted to use a scrap piece of oak sourced from my apartment buildings recycling room. Someone had thrown out an old shelf and I thought it would be nice to reuse it, in that way the Japanese style hammer is entirely made from scrap material found at Lindholmen.



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One of the problems I am facing is the time it takes to shape a handle. The first two hammers were entirely shaped by hand, sawing out the rough shape and using rasps and files to achieve the desired shape. Although I appreciate taking the time to perfect the handle shape by hand, I would like to learn wood turning and more specifically eccentric wood turning. This technique is common when making hammer handles and it allows you to turn oval handles, which are preferable over cylindrical handles as they prevent the tool from rotating in your hand and when you pick up them hammer it is automatically facing the right way.

However, I am afraid that implementing too many machines in the shaping of my tools will cause the tools to lose some of their character. I am already using the metal lathe a lot to shape the hammer heads which I feel is necessary. The alternative way would be to forge the hammer heads to shape which I would love to learn; but this requires a lot of time, practice and equipment that I do not have at this time.



The image above shows a hammer that is ready to be parted of from the main stock. All the work so far has been done on a manual metal lathe; the curved waist segments are shaped using a form tool that has a radius ground into it, to be able to get consistent shapes on both sides of the hammer. After the hammer head is parted of, the hole for the handle is drilled. The hammer is then normalized to get rid of any built-up stress in the material before it is hardened and tempered.

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Plans for the Workshops

Towards the end of this project I plan on hosting a workshop titled *Making your mark*, where I invite participants to use the tools I have made to learn two different ways of making your mark in metal. The first and easier way is to use punches (chasing and repoussé tools) to make indentations in the metal. By using different shaped punches, it is possible to hammer in textures and shapes into metal, this feels like a fairly simple task even for people with no previous crafts skills.

The more challenging way of making your mark will be engraving, more specifically hammer and chisel engraving. I learnt about this technique from German artist and YouTuber Uri Tuchman who makes decorative and absurd inventions often adding engraving to his work. Engraving is a technique I have previously never tried - so to no surprise my first test engraving left a lot to be desired (see picture bellow), it would be interesting to develop these skills and learn to make more traditional and decorative engravings. Despite this, I really love the crude Neanderthal-ness of the engraving, it's not pretty but it allows you to leave your mark. I would say that this is an important theme for my work - making it yourself, learning from your mistakes and improving with time, also, using tools that are made by hand, being used to make other objects by hand - this is a cycle of making that I love. There is something about this hand-made process that no one can take away from you. You made this, with your own hands, all on your own; it's something that is wholly yours, something personal and very intimate. Especially in contrast to modern techniques such as CNC and 3D-printing which are very common today. They give you excellent results and provides a craftsperson or designer with the possibility to make objects that would be tricky to make by hand. But I feel that there is a risk of us humans losing the skill of making by hand if we always keep defaulting to using machines to make parts and objects for us.





Hammer and engraving tool, matching set with handles made from ash.

Thoughts on the workshop

A question raised by fellow students during class examinations has been whether the fact that the tools are well made and in brand new condition will prevent people from wanting to use the tools. I've also been asked if I'm afraid that people will abuse the tools during the workshop.

One of my ideas to combat this was to make a set of tools for each person to be used throughout the entire workshop. In this way, the tool kit belongs to just one person and is not shared among several people. My hope is that this will make the participant care for the tools while they use them and make them feel like "these are my tools for now and I must use them with care".

I am sorting the tools into kits where the wood of the hammer and engraving tool match. This way of grouping the tools feels more interesting than just having tool kits grouped by numbers. The kits I am making now are made with ash, hickory, oak and maple. If the workshop grows and there is a demand for more tool kits it would be nice to use different types of wood for the new kits so that they are all individual and unique.

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The issue of whether people will be afraid of using the tools when they are presented with handmade tools that look brand new remains. I think the solution to this will be to encourage the people participating in the first test workshops to use the tools as much as possible so that it results in some notable wear, so when it is time for the final workshop, the tools won't look brand new and hopefully people won't be too hesitant to use them.



The complete tool kit: oak hammer and engraving tool, three engraving tools and three punches.

With the workshops, I am hoping to introduce people to making by hand and working with metal. By letting them use tools that were made from recycled materials I hope this will inspire people to think of ways they can either use recycled materials in their own work, or have a more general impact on how people view products that are either second hand or made with recycled materials.

In a broader perspective, I would love if my project and the workshop lead to discussing issues that could arise if we humans lose touch with making by hand and end up letting machines do all of the work. I think this question is too big to discuss in this project and this text as I am trying to focus on the actual craft and not weave in too much theory. But it is a question that would be interesting to research in the future.

I hope to document the workshop with video of the participants working, I think this will be the best medium to share what the workshop is about. When discussing methods of documenting the workshop with Rosa she had the idea of making prints. Since the plan is for the participants to make engravings or chasings of their own

'mark', whether it is their initials, logo or what ever they desire, the result will be a metal plate with a relief that could be used for making prints by applying a thin layer of printing ink with a roller. Using this method every participant could make a print using their objects so that there is some physical trace left by every person who was part of the workshop that I can keep without having to keep the actual objects they make.

Results of the workshop

This part will be updated once I have been able to carry out the planned workshops.

Why make your own tools?

In January of 2020 I spoke to Elin Hedberg who was teaching a course at HDK, she works with silversmithing and corpus. Throughout her studies she had teachers who made their own tools and passed on this knowledge to Elin. It started out with making her own burnishing tools while studying at Leksand's Folkhögskola and she continued with making hammers and stump anvils while studying at Kunsthøgskolen in Oslo.

In the beginning it was more of a way to starting to build up your own workshop by making the tools needed but in the last five years it has become a part of her artistic practice where the tools are made - without knowing what they will be used for - and then making objects based on the shape of the tools. The tool becomes a study of volume and shape - an idea of a future object (personal communication, April, 2020). I find this practice interesting as the artist in this case does not only work with their artwork but are also in charge of creating their basis for making art by making their own tools. When discussing the subject with Elin, she made it sound like it's getting increasingly difficult to find hammers and anvils in the various shapes needed when forging vessels, so being able to make your own tools in this case is a necessity unless you are able to spend a lot of money on ordering custom made tools from a toolmaker or blacksmith.

To me, making my own tools feels like a natural thing to do. Just like in Elin's case I can make the specific tool for the intended use without asking someone else to make it for me, which would be expensive and would mean waiting for it to be completed and delivered. Apart from having a practical benefit It also feels like I achieve a sense of completeness within my practice when I am able to make objects with tools I made myself. As a future project, it would be very interesting to build a studio space where everything is made by hand - first building a small shed, then the workbench and finally the tools. Thus, creating a space where you only introduce things that you made by hand and limit yourself to using these tools when creating new work.

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