

Glimmer of Fragility

By Freya Jeavons



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Why thinking ethically is important

'No single element has tantalised and tormented the human imagination more than the shimmering metal known by the chemical symbol Au.'

My Ethos

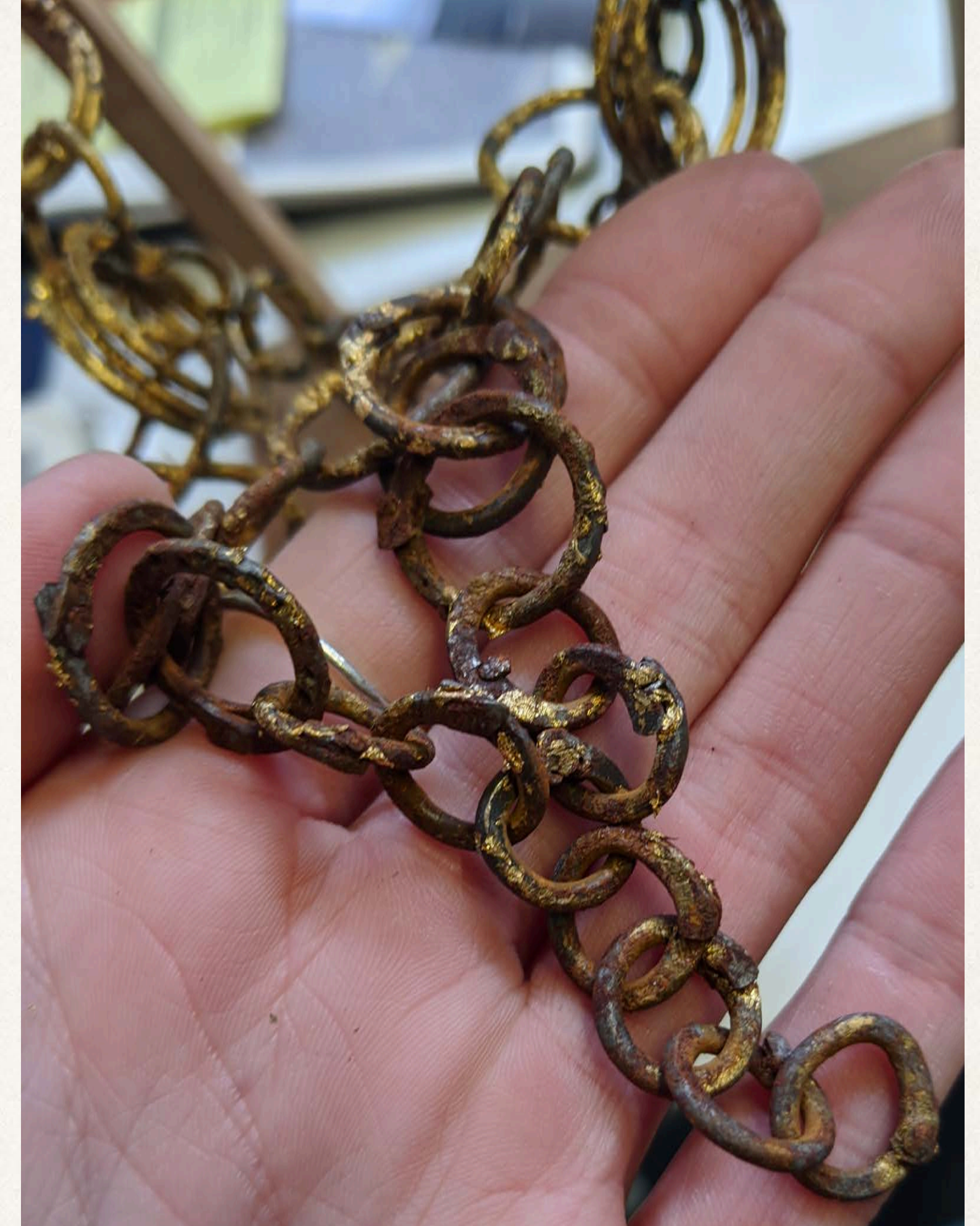
After researching mining activities around the world and specifically Peru for my dissertation, it has opened my mind to how destructive both large and small scale mining really is to our planet. My aim is to use ethical methods in my practice such as using eggs if I am to oxidise my silver or using alternative cleaning methods to using an acid bath.

Using scrap materials will be my focus for the year. I have started a collection of scrap silver and gold which include old serviette rings dating back to the 18th century, along with unwanted jewellery and charity shop finds. I have also made connections with scrap metal dealers at car-boots. Using scrap does not save the mining industry from all its terrors, however it means I am not buying into the poisonous trade and am recycling unwanted items and recreating them into meaningful statement pieces.

I am looking into how our land is corroding before our eyes. Corrosion and erosion are both natural processes that deteriorate metals and landscapes. The shapes and methods of erosion will inspire the processes in my practice and the forms of my pieces. I want these pieces to speak of the violence, fragility and irreparable damage our actions have on our natural resources.

Gold mining and many other mining practices are exhausting our planet. I am exploring our relationship with this valued material. By taking existing scrap metals and transforming them through force to a raw state. Taking this into consideration on how we erode the planet with our actions and greed. I'm deconstructing this preconceived notion, by destroying this material that is considered beautiful and precious. I'm eroding the material like humans are eroding the planet and its resources

Previous project



This was my self directed project from second year which prompted the start of this year. It was a piece that demonstrates the truth beneath the beauty. It was a rusted steel chain with gold leaf painted on top revealing the rust. It represents the people who exploit miners and do not pay them enough. The gold covering the rust is how the gold people buy is dirty and not as glorious as they think it is. I want to continue this metaphorical stance and continue making rusted steel jewellery. I want to mix non-precious and precious metals together to devalue them to make a point that we shouldn't value jewellery because of their monetary value but for the work that has gone behind it, the people that made it both the gold itself and the object that is being worn.

Research

FairTrade Gold and Fairmined



Figure 1

“Fairtrade Gold is the first of its kind. By having your beautifully-crafted piece created with Fairtrade Gold you're making a real difference to the community that sourced it. Fairtrade Gold gives miners and their families the opportunity to be paid a fair price and build their futures, investing in schools, better working conditions and improved healthcare. Become part of the story.”

Fairtrade gold offers gold that has been mined by communities that are being looked after. The profits that Fairtrade Gold make all goes to helping out the mining communities, making the mines a safer place to work, providing food and basic sanitation and equal rights between genders. Buying Fairtrade Gold means you are buying into an organisation that is making peoples lives better, and organisation that does not exploit.



Figure 2

‘FAIRMINED TRANSFORMS MINING INTO AN ACTIVE FORCE FOR GOOD
PROVIDING EVERYONE WITH A SOURCE OF
GOLD TO BE PROUD OF
An initiative by the Alliance for Responsible Mining’

Fairmined certifies gold that has been mined from small scale artisanal mines that follow the responsible mining act. Fairmined focuses on making small scale mining safer and fairer. These two certifications are really important as they make a massive difference to everyone’s lives.

the benchpeg® newsletter

Issue 167: 13th - 19th June 2010

22. Ethical Section:

22.1 So What's Wrong with Gold Mining Anyway?

Most of the debates around ethical gold feature aspects of gold mining. In order to develop a personal position on the issue it is important to understand in what ways gold mining can be dangerous or destructive. This article is a glossary of the main terms, hopefully providing enough contextual information to explain their relevance to the issues.

Hard-Rock Mining involves digging a metal rich ore out of rock. A hard-rock mine (with or without the seven dwarves) is probably the image that comes to mind when most people hear the word 'mine'. The ore is usually found as seams (also called veins or reefs) that run through hard igneous or metamorphic host rocks. The seams themselves are usually a mixture of quartz and metal compounds. The miners aim to remove as little



Gold panning

of the useless and hard host rock as feasible, so a hard-rock mine mostly consists of tunnels excavated as the miners followed the seams. It is, however usually necessary to also dig access, drainage and ventilation tunnels through the host rock to make the mine workable. Ores dug from hard-rock mines can be very rich in gold, but need to be broken up almost to powder as the first stage of processing.

Open Cast Mining is, in principle, a much simpler method of extraction; dig a big hole and take everything out. In practice, the gold bearing layer is usually beneath other material that needs to be removed first. In mining parlance this is called the overburden and can include layers of rock, gravel, or topsoil. Open cast mines can operate at staggering scales, using enormous, specially constructed excavators and trucks. Open cast mining is the approach taken when the gold is dispersed throughout a softer sedimentary rock, or the gold-bearing layer is relatively close to the surface, as is the case with many placer deposits.

Placer Gold is gold that has already been weathered out of rock and deposited in alluvial gravels. This is the gold found in the beds of rivers and streams. It can also be found in the sands and gravels left where rivers used to flow. Placer Gold is predominantly nuggets, grains or dust of gold metal, which are extracted by sifting the gravel. Placer mining can be highly industrialised or simple operations. The low-tech approach is using a gold pan or rocker box, but placer gold can also be extracted using giant industrial gold dredges. As gold is much heavier than rock, it drops quicker whenever the gravel is disturbed, so the highest concentration of gold occurs where the gravel meets the bedrock. In Alaska deep gravel deposits were initially mined by digging tunnels through the lowest levels of the



Alaskan gold dredge

“Open cast mines can operate at staggering scales, using enormous, specially constructed excavators and trucks.”

This article was originally published in *The Goldsmiths' Company Technical Bulletin* 2012.

Peter Oakley

Reflections on Ethical Gold

2011 could be described as the year of ethical gold, as it saw the launch of 'Fairtrade and Fairmined Gold' in the UK and major suppliers starting to offer 'recycled gold' in commercial quantities. The original Responsible Jewellery Council (RJC) members began completing their self-auditing processes before December deadline, whilst the RJC's staff launched a consultation for chain-of-custody certification. In June the Channel 4 documentary programme *Dispatches* broadcast an episode called *The Real Price of Gold*¹, which it claimed would 'reveal what's wrong with the industry'. Responses from the jewellery companies, professional associations and development programmes mentioned in the programme, most of which felt they were misrepresented, displayed a mixture of exasperation and dismay. By the time we reached the end of the year, the only thing everyone could agree on was that ethical gold was proving to be a difficult substance to manage.

A major problem with ethical gold, which it shares with other ethical products, is a lack of agreement about what it actually is. In their 2001 essay for Demos titled *Ethical Consumption in the Twenty First Century*, Melanie Howard and Michael Wilmott drew up 'the ethical checklist' of often conflicting reasons being used by promoters to claim products were ethical. They also identified that the use of ethical as an adjective: "implies a fixed moral standard, systematically held and applied, by which consumers can judge the provenance of any product or service"². This uncritical acceptance by consumers of imposed standards to define a product's acceptability is paradoxical as it runs counter to the individual choice and active participation usually associated with consumption.

Amongst the most influential sets of standards used to define ethical gold are the Golden Rules³, drawn up by Earthworks and Oxfam America to support their 'No Dirty Gold' campaign, launched in 2004. 'No Dirty Gold' drew a direct link between gold mining and gold jewellery, a strategy followed by CAFOD's 'Unearth Justice'⁴ campaign launched in 2006. 'No Dirty Gold' literature included sentences such as: "Producing a single gold ring generates, on average, 20 tons of mine waste"⁵, an approach that implied

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23. Ethical Section:

23.1 Why is ASM Different? The fourth in the series of articles written by Peter Oakley

In the fourth of his articles written especially for benchpeg, Peter Oakley continues to de-mystify ethical issues in the jewellery industry.

Artisanal and small-scale mining (ASM) is the name given to mining carried out by lone individuals or small groups, using minimal technology. As alluvial deposits of gold and gemstones can be extracted with simple processing equipment, these form a large part of ASM activity. The term 'small-scale mining' first appeared in the 1972 report *Small-Scale Mining in the Developing Countries*, published by the United Nations. The use of the adjective 'artisanal' was commonly used as a synonym in reports written in the 1970s and 80s. By the late 1990s ASM was in common use to describe all such mining in developing countries. So ASM has an implicit geographical as well as an explicit technological aspect.

The earliest commentaries on ASM considered it to be an entrepreneurial activity. This perspective was challenged by reports in the 1990s that claimed ASM was predominantly poverty driven. During this period much of the discussion centred on ASM in Africa, with a special emphasis on the sub-Saharan nations. It was thought the issue was primarily lack of investment and inadequate technology which could be solved through aid provision and education programmes.

Since the late 1990s events and research have proved ASM is a far more complex phenomenon than it first appeared. Firstly, it began to be recognised that some form of ASM was occurring or beginning in some form in almost every developing country which had suitable gold deposits. Secondly, the number of people engaged in ASM was not only far larger than initially thought, but the numbers were rapidly rising. Thirdly, observers began to appreciate ASM had significant cultural, social and political components; it was far more than a collection of entrepreneurial businesses following the western mining industry model in miniature. Some of the political components were also potentially embarrassing to governing regimes and policies being advocated by international organisations. The sensitivity and unpalatability of these aspects means they are ignored in official policy decisions, reports and programmes.

The complexity of ASM has led to a number of questions. ASM was originally considered a simple problem to be eradicated through aid. Commentators are now divided on whether it is a specific problem to be solved, a sustainable activity, or the inevitable consequence of other economic policies. The diversity of ASM practice and locations means in some situations it appears far more socially desirable than in others. But all attempts by government authorities to stop ASM activity anywhere have been markedly unsuccessful. Even where questionable and violent means of suppression have been adopted, the number of people engaging in ASM keep rising. In many places ASM communities are expanding because there are few other options for survival; in such situations even concerted erasure campaigns are merely temporarily effective.

Some of the most positive ASM stories come out of Latin and South America. In many cases the harsh conditions and lack of any alternative employment make mining the only viable economic solution in the locality. But despite the



Dr Peter Oakley - He leads funded research projects at the RCA. He is currently interested in the development and impact of ethical and sustainable material sourcing programmes.

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23. Ethical Section:

23.1 The Third in the Series of Peter Oakley's Articles: Industrial Mining and Anti-Mining Campaigns

Multinational Mining

Industrial scale precious metal mining is currently dominated by a limited number of multinational companies. Most have head offices in the US, UK or former colonies with large gold deposits: Canada, South Africa and Australia. The multinationals operate mines across the world, with an increasing percentage of their activity being in developing countries. Less high profile are 'juniors', smaller mining companies that concentrate on exploration and the initial preparation of concessions, but which anticipate selling these on to the larger companies for the capital-intensive activities of mining and processing.

Most of the multinationals do not restrict themselves to just mining precious metal deposits, but operate different concessions that each produce one or more of all the commercially used metals. In addition, today most



large scale deposits are combinations of metal compounds or complexes of metals as most single metal ore deposits have been exhausted by earlier mining activity. For example, a significant percentage of gold is mined as tellurides (gold-iron complexes) that require specialist processing. Though mines are generally described in terms of their primary product, they may also produce secondary (or by-products) in significant amounts. Most newly-mined silver comes from copper or lead mines, and platinum is found in combination with other precious metals. Frequently gold is mined along with copper, with their combined value making the mine viable. The large mining corporations are able to apply their accumulated technical experience of working a wide range of ores, and the commercial viability of using different processes in specific situations. They also gain economies of scale in terms of leveraging finance, large project management, operating mining and processing plants, developing relationships with specialist equipment suppliers and negotiating with national governments and regional administrations.

The complexity of multinationals' activities and of the products coming from individual mines has consequences for the jewellery industry. Large multinational mining companies are less affected by changes in the type or level of use of one metal and less dependant on any one manufacturing sector than the material supplier in a hypothetical simple supply chain. For example, for an industrial mining company making a primary profit from processing copper ores at one of its concessions, the expectations and needs of those using a by-product such as silver is not paramount in terms of viability in terms of running the mine, and even less so terms of the company's overall balance sheet.

Multinationals' perspectives on their actions are determined through a need to create profit (to keep them in existence as companies) and a requirement to adhere to national laws and regulations. Though they may make

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22. Ethical Section:

22.1 Introducing Ethical Gold by Peter Oakley

Ethical gold has become a hot topic. Though high-profile ethical campaigns affecting the jewellery industry are not new (think diamonds, coral or ivory), gold has become a new target for ethical and environmental campaigners. Gold mining is a strong theme in 'Unearth Justice' and the sole focus of the 'No Dirty Gold' campaign. The Fairtrade Foundation's recent announcement of a fairtrade gold initiative during Fairtrade Fortnight has pushed the issue further into the public consciousness. Anyone actively researching the issues beyond these public campaigns runs into a bewildering host of organisations: the Association for Responsible Mining, Conservation International, Earthworks, Ethical Metalsmiths, the Global Reporting Initiative, the Initiative for Responsible Mining Assurance, the International Council on Mining and Metals, and the Responsible Jewellery Council.



For working jewellers running a business, recent developments bring new anxieties. Many, whilst not being active social campaigners, want to 'do the right thing' but are not sure how to go about it. The practicalities of keeping a business afloat and moving forwards is the short-term priority, particularly in the

current difficult trading situation. At the same time potential customers are being subjected to repeated claims about the immorality of the jewellery they intend to purchase, and the intensity of this pressure is increasing.

In the UK the ethical sourcing approach is currently the provenance of a small group of designer-led businesses that use ethical sourcing as a unique selling point. The same owner/managers are also often involved in specifically targeted ethical advocacy activities above and beyond promoting their own products. But in the US consumers now have the opportunity to buy ethical jewellery from any of the 1400 Wal-Mart and Sam's Club stores across the country or online. The Wal-Mart corporation has used its significant retail clout to develop partnerships with miners and manufacturers, enabling them to identify the sourcing of all the materials used in their 'Love, Earth' range. While researching the jewellery industry, I have found 'ethical gold' a recurring issue. I was discussing the ethical gold issue at a recent meeting with benchpeg's editor and the suggestion was made I should write something for the newsletter on the topic. After discussing what would be the most useful for readers I offered to write a series of related reports, each one either focussing on one of the main themes or explaining the background issues behind current campaigns. I don't expect these reports to be the last word on each topic: I intend to give all organisations featured in depth a right to reply, to be published in the newsletter either at the same time or soon afterwards. I think it is important to state here why I think adding yet another input to the debate is worthwhile. As a full-time industry researcher I have had the time to attack the mountain of outputs and undertake background research, including attending trade events and making field visits. I have also been fortunate enough to be invited to industry meetings focussing on ethical issues. As someone with experience of jewellery manufacture, precious metal analysis and mining and refining technologies I can understand and interpret the technical elements of the debate. As an observer I am not overly biased towards any specific perspective or affiliated to any specific campaign. Importantly,

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22. Ethical Section:

22.1 Fairtrade and Fairmined Gold by Peter Oakley

The following article benefitted from information given by the Fairtrade Foundation during meetings with staff and the provision of relevant literature. The Fairtrade Foundation has also checked the final draft for factual accuracy regarding Fairtrade and ARM. However, Fairtrade does not endorse any speculative comments made in the article regarding Fairtrade, FLO, ARM, Fairtrade and Fairmined gold or any comments or factual information relating to other organizations mentioned.

Fairtrade and Fairmined Gold

In March 2010 the Fairtrade Foundation publically stated its intention to launch Fairtrade and Fairmined Gold. Harriet Lamb, Executive Director of the Fairtrade Foundation, stated:

"The launch of Fairtrade and Fairmined standards for gold provides a lifeline for communities who find themselves at the mercy of unbalanced markets, when agriculture and other livelihoods are not viable. Many face exploitation from middle men who pay below market prices and cheat them on weight and purity of the gold content. Mining community members lack basic sanitation, clean and safe drinking water, poor housing, little or no access to education and health care and are financially unstable. The Fairtrade and Fairmined standards are an important development tool, and will complement other development interventions."

During 2009 Fairtrade Foundation representatives had undertaken research amongst small and large scale jewellers and metal suppliers to determine the appetite for the Fairtrade and Fairmined initiative and identify what form the Fairtrade labelling standards should take, with the chosen standards being published in spring 2010. This extension of Fairtrade's activities beyond agricultural commodities required a rethink of some established approaches. This included how to set the price paid to miners and how to define sustainability in relation to mining. Another new development was a partnership between the Fairtrade Labelling Organisation (FLO) and the Alliance for Responsible Mining (ARM), who brought specialist industry knowledge and networks to the partnership. As a consequence of this, the standard is for "Fairtrade and Fairmined Gold", with both organisations' Marks featuring on products. All Fairtrade and Fairmined Gold will be the product of artisanal and small-scale mining (ASM) operations. FLO and ARM have declared all producers will receive:



- A guaranteed Fairtrade Minimum Price: 95% of the London Bullion Market Association (LBMA) price at the export point (usually the point at which the gold is shipped out of the country of origin).
- A Fairtrade Premium payment of 10% of the LBMA price.
- An additional Fairtrade Premium payment of 5% of the LBMA price for 'ecological gold' (gold extracted without the use of chemicals)

Certified miners will be required to develop democratic, collective organisations and implement safe working practices to improve working conditions. They have to

be audited by FLO-CERT to guarantee adherence to the standard.

Fairtrade and Fairmined gold will be available in the UK, but anyone wanting to label a finished product will have to be licensed and others in the supply chain registered and audited by FLO-CERT to ensure the standards are being adhered to. For Licensees (the brand owner of the finished product), the cost of a license fee is currently 1.7% of the wholesale value of the finished product in the UK. Licensees and traders will also have to provide evidence of

Benchpeg provided me with all the articles and information I needed. It contained many Peter Oakley papers which are very relevant and informative.

Deforestation

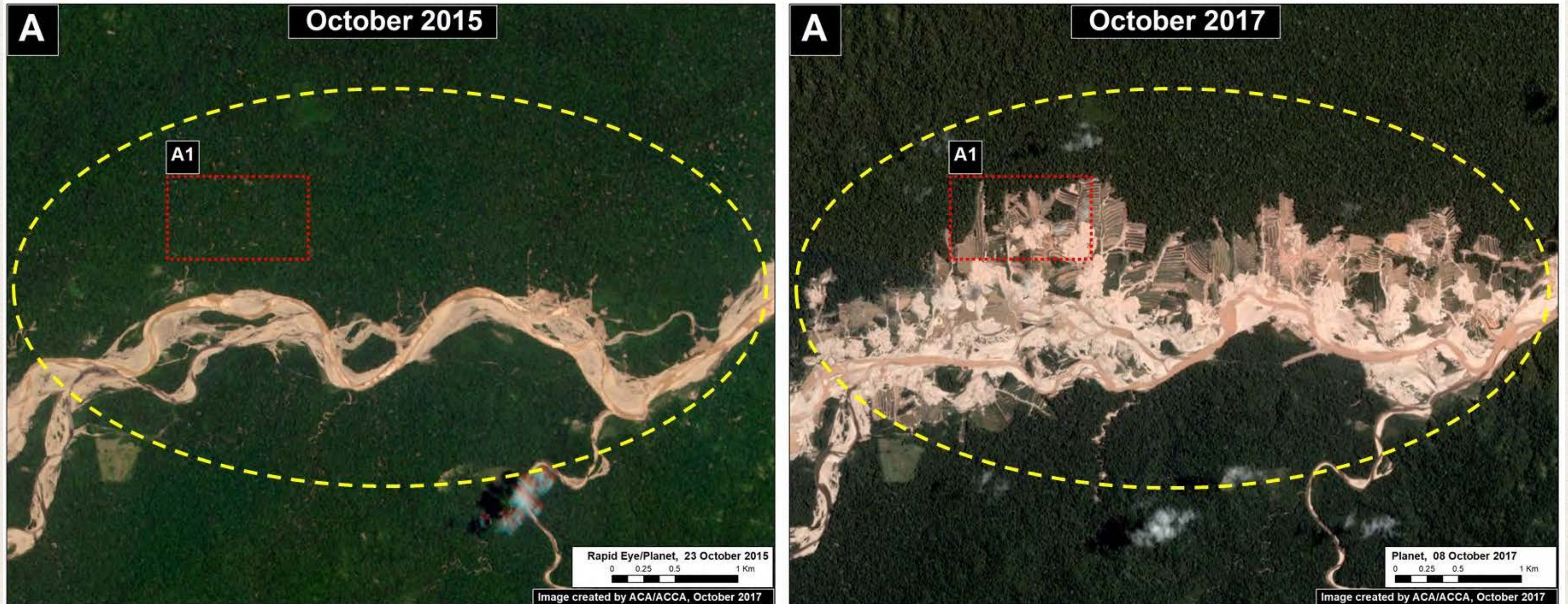


Figure 3

These are two images displaying how small scale mining is affecting the Amazon Rainforest. in just two years you can see a drastic change along the river, this is due to mining communities digging for gold continuously and chopping down trees to access more possible gold spots. Large scale mining companies also have to fell the forest to create space for the mines.

From Open Pit to Wedding Ring

How Gold Is Produced

A golden wedding band, or some other piece of gold jewelry—for many people, these things are almost too valuable to put a price on. Perhaps you own such a ring yourself. But while the ring as a symbol may indeed be priceless, the gold certainly is not. Gold comes with a price—a heavy one. Gold mining costs the planet and its peoples far more than the metal itself is worth.

3. CYANIDE LEACHING: Once it's extracted, the ore is crushed, piled into huge heaps and sprayed with cyanide, which causes the gold to leach out of the ore. Some mines use several tons of cyanide per day. A rice-grain sized dose of cyanide can be fatal. The cyanide-contaminated waste ore is usually just abandoned. To produce enough gold for a ring, about 18 tons (20 short tons) of waste ore are created.

2. WASTE ROCK: An open pit mine generates huge piles of waste rock, which leach toxic metals and acid. Mine waste has turned groundwater thousands of times more acidic than battery acid. For more on waste rock, see page 9.

1. EXTRACTION: Of all the gold in use or in storage today, two-thirds is newly mined—it came directly from the Earth. (The other third came from scrap or recycled sources.) Of that newly mined gold, two-thirds was extracted from immense, open-pit mines. Several of these craters have grown so large that they are now visible from outer space. For more on open-pit mining, see page 4.

4. SMELTING & REFINING: The separated gold is then shipped to a smelter, where remaining impurities are removed under intense heat. The metals smelting industry (of which gold is but a small part) is a major consumer of energy and a major air polluter. For more on smelting, see pages 6 and 13. For energy consumption, see page 12.

5. TRADE: Once the gold has been purified, it can be traded. More than 80 percent of gold is used for jewelry; most of the rest is bought by investors or used in electronics.



6. A RING MORE COSTLY THAN GOLD: Jewelry manufacturing can be a lucrative business. In the United States, a piece of gold jewelry typically sells for four or more times the value of the gold it contains. Few jewelers are likely to be able to tell you where the gold in their products came from. There is a business that has yet to hold itself accountable for the damage done in creating its merchandise. The time has come to change that, and as a consumer, you can help make that happen. Please visit our website, at www.nodirtygold.org, to learn more about what you can do.²

One of my Influences - Ute Decker

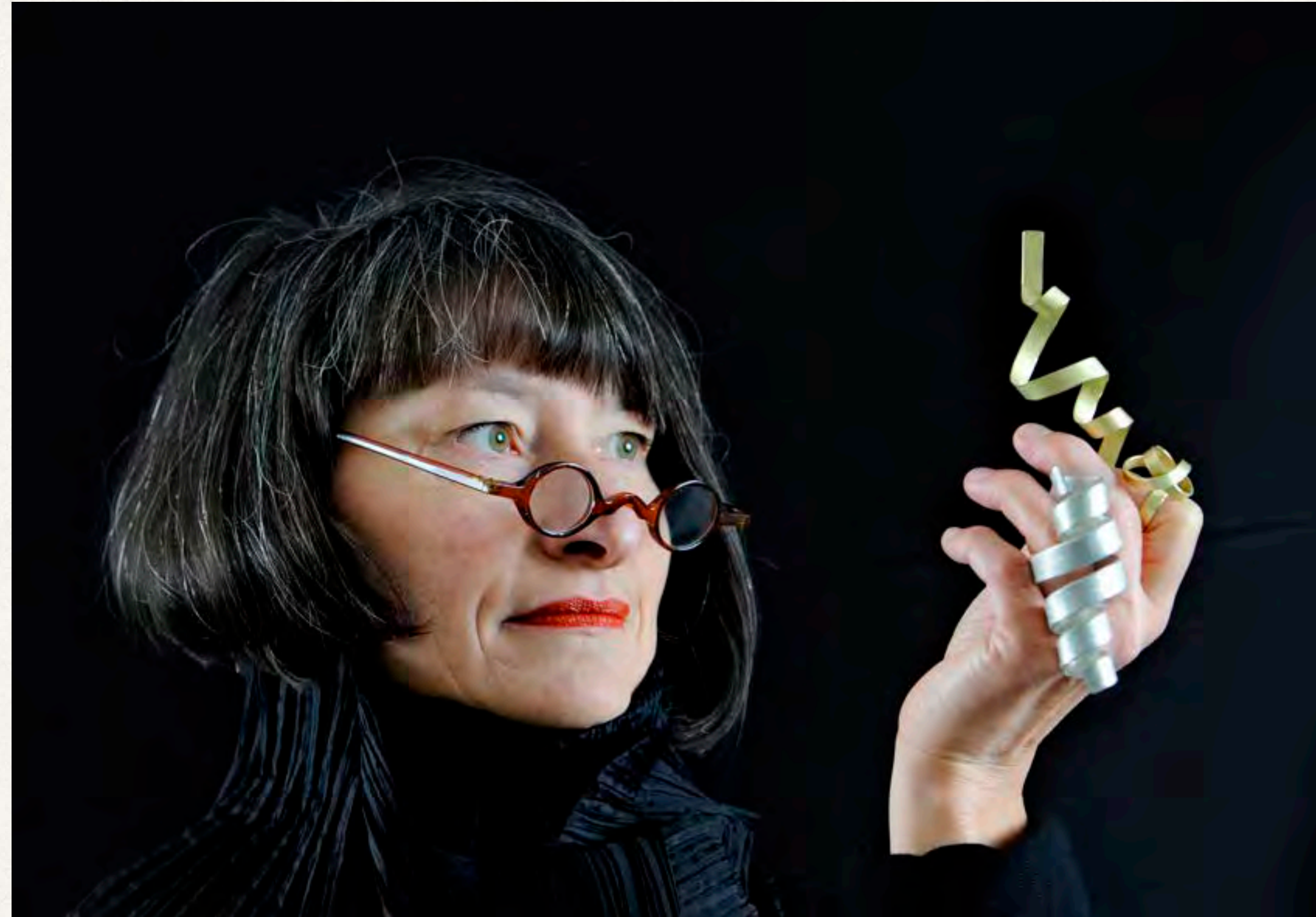


Figure 5

Collection - Pure



Figure 6

Ute Decker has been an influence to me for a while now. She was one of the first people to become Fairtrade certified. She has done hundreds of talks and after 9 years is still promoting herself and the use of Fairtrade Gold. she has a whole range that is called 'Pure' that is pure Fairtrade and recycled gold. I have visited her at her studio and at shows to hear more and expand my knowledge

An Informal conversation with Ute Decker

It was interesting meeting Decker. She had a bold personality and welcomed me into her studio. I started by mentioning that I am writing my dissertation on ethical gold mining and basing my work on the impacts. She then asked "what have you found out that is not on my website?" Her website is full of great articles and papers written on the subject. This question stubbed me as the depth of research I have done was mainly based from her website and similar sources. She said to look at *academia*, this has tonnes of sources related to what ever subject you are researching.

She also said "I can't stand it when student email me with hundreds of questions to answer, like what inspires me and stuff like that, I find it brutally boring and would rather have a conversation with them."

She said do you know who Greg Valario? I said no. she said he's the founder of Fairtrade Gold and CRED (a metal supplier). "It wouldn't exist without him. You must ask to interview him."

She also said that greenwashing is currently one of the biggest problems facing the ethical gold industry as people are trying to sell their gold as Fairtrade when it simply isn't. They cannot trace back to the origin of the gold making them unethical. However, that's what Fairtrade gold is all about as you can trace back the gold to its routes.

I asked her whether she uses a lot of recycled silver and she said she does when she can. However, in her words "there is not enough silver in the world for me." I asked if there are any ethical silver mines and she said no, there are none. This is because it cost too much to make an ethical silver mine and it is not worth it. silver is classed as a bi product, so it isn't as important.

I then asked where she got her silver from, if it was still CRED. She then said "actually, CRED went bankrupt of Wednesday." 27/11/19 this is a huge piece of information that I was not aware of. As she needed to see to her customers, we had to cut our chat short, the last thing she said to me was if you find anything more out about the industry, please share.

Value

noun. The regard that something is held to deserve; the importance, worth, or usefulness of something.

Why do we treasure gold?

Gold symbolises wealth and prosperity. People invest in gold as the worth always increases, it becomes an asset. It is a safety net for people. People only look at the monetary value of gold, they don't think about where the gold originates from or what processes are used to make it. If they knew how dirty gold really was the value would go down.

Gold is valued because of its longevity, its colour and its weight and strength. It is a perfect material in aesthetics and physical capacity.

Gold jewellery can be a display of wealth, a sentimental item such as a wedding ring and a physical adornment. It has many meanings when made into something else. It carries history and depth. However, still people only see these values and do not see beyond.

Gold has a big role in many religions and cultures giving it another layer of meaning.

Crown jewels

The crown jewels symbolise wealth, authority, religion, prosperity and overall regal control. They are treasured and maintained but rarely worn or seen.

The crown consists of 2,868 diamonds, 17 sapphires, 11 emeralds, 269 pearls, 4 rubies.

The crown jewels are impractical, heavy and uncomfortable. They serve no purpose other than to resemble all the aforementioned. This is where I have found inspiration for my work. I want to use precious metals and make impractical statement jewellery that has a lot of meaning behind them.



Figure 7

'Reality has grown old and gone senile, after all, it is definitely subject to the same laws as every living organism - it ages. Just like the cells of the body, its tiniest components - the senses, succumb to apoptosis. Apoptosis is natural death, brought about by the tiredness and exhaustion of matter. In Greek this word means 'the dropping of petals'. The world has dropped its petals.'

*

*'Drive Your Plow Over The Bones of The Dead' Olga Tokarczuk,
page 56*

Main Inspirations

Did you know: *In the last five years 170,000 acres of the Amazon rainforest have been destroyed for the purposes of mining.*

Wake Forest University. Rainforest destruction from gold mining hits all-time high in Peru. [2018] 1.

Copenhagen

Copenhagen inspired me greatly. It has a reputation for the craft industry. I met a jeweller I have been admiring for a few years and she directed me to 'Galleri Montan', a silversmith gallery where they were exhibiting many talented silversmiths work.

Maya Bjørnsten

To the left is a jewellers I happened to stumble across. I rung the door bell and got talking to the assistant. It turns out this is an ethical diamond workshop where they are fully certified by the Kimberly process and make stunning jewellery. Maya



Olle Olls (below)

Olle was exhibiting at Galleri Montan after I left Copenhagen. He popped up on their Instagram. His work is very raw and bold. He sings and hammers the vessels until near breaking point. I want to use these traditional methods to make my pieces. To test the strength of my materials.

Kim Buck (left)

Kim buck was one of my main inspirations from this gallery. They are extremely fragile silver vases. Judging by the shape of the vases they could have been cast. the texture looks as if it has started to dissolved in acid or another form. They have small balls around the edge of the dissolved part. I am intrigued but the surface texture and will try to make a similar texture as I find it really interesting.



Natural Erosion



(Rotorua, New Zealand, FJ 2017)

This is a river bed of a sulphur river in the Wai-O-Tapu hot springs (New Zealand). This was a truly magical place that thrived with geothermal activity. The sulphur, over hundreds of years will have eroded each layer of the rock causing this formation which is very interesting.



(Windspit, Dorset, FJ 2019)

Coastal cliffs always create incredible formations. This is because of the material they are made from and how they erode when weathering occurs. There are quite often two different types of rock or material, one softer than the other. The softer layer will erode quicker causing great formations.





(Cosy Bay, Western Australia, FJ 2016)



(Bude, Cornwall, FJ 2019)

With both coastal erosion and man-made mines, they are both formed in layers. Layering will be a main point throughout this project. **When things corrode or erode they reveal layers.**

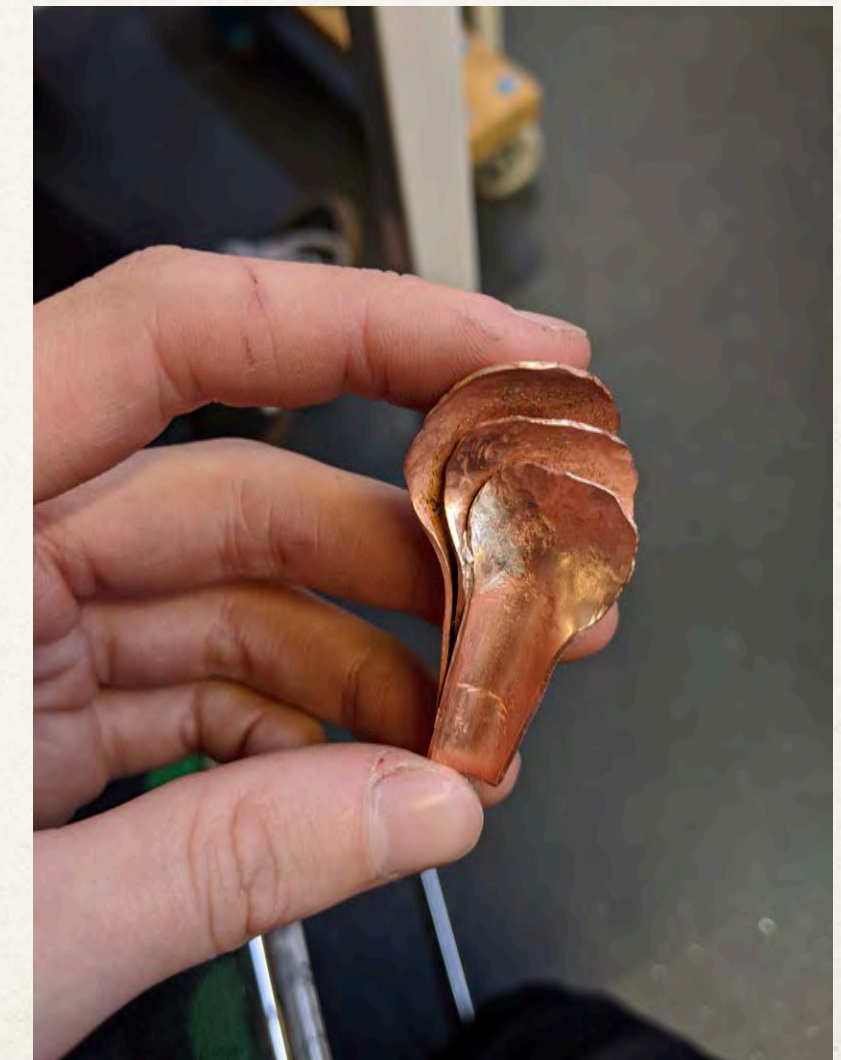
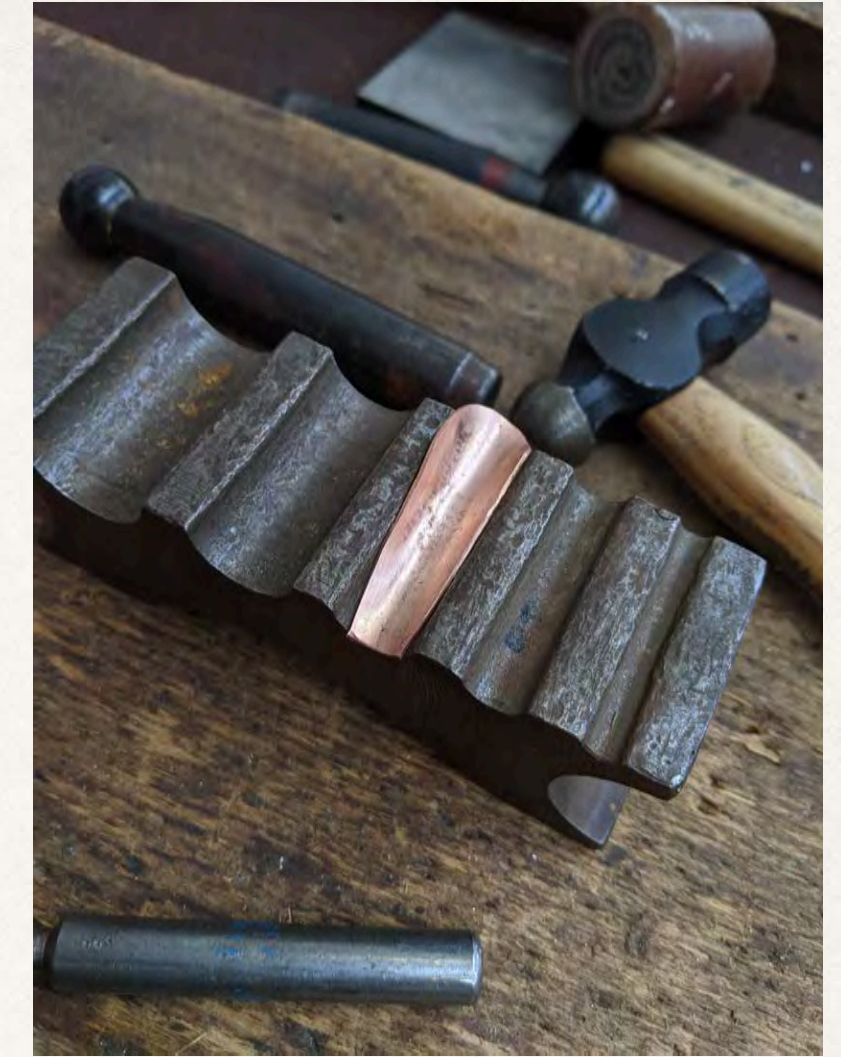


Natural Erosion of New Zealand Cliffs

I have always been fascinated by erosion and landscapes. I found these cliffs in New Zealand that had the most interesting shapes carved into them from the sea and wind. Most cliffs have visible layers whereas these have rounded holes. I wanted to try and replicate this with metal.

I got some scrap gilding metal and shaped them into curves, almost like petals to match the shapes on the cliff. I then sunk them and started to create the curved tops. These were difficult shapes to replicate and I should've used a thinner material or at least rolled the metal before hand.

Coromandel, New Zealand, FJ 2017)



Montenegro - Weathering on buildings



(Montenegro, FJ 2019)



(Montenegro, FJ 2019)

I visited Montenegro and stayed in a town that dated back to the 1100s. All the plaster had peeled off all the buildings and the paint was peeling of all the doors. This is erosion of man made materials. I love the look of peeling paint and want to try and replicate this with metal.



Corrosion

Corrosion is a natural process where metals start to disintegrate; they start to rust. This is due to weathering. I am interested in corrosion as this is a natural way to manipulate the material.

I want to make a steel jewellery collection as it is a great material to work with, It is also the opposite to precious metals. It is seen as an industrial material, with little value. I plan to make it weak and fragile, I want it to have a similar appearance to the rest of my work. with steel you can alter the colours with heat. At a certain temperature it will go a lovely golden colour, this would give the appearance of a precious metal.

The old pier structure that is being exhibited on the beach front. These were corroded from the sea. I find the textures really intriguing, it almost has a bark texture to it.

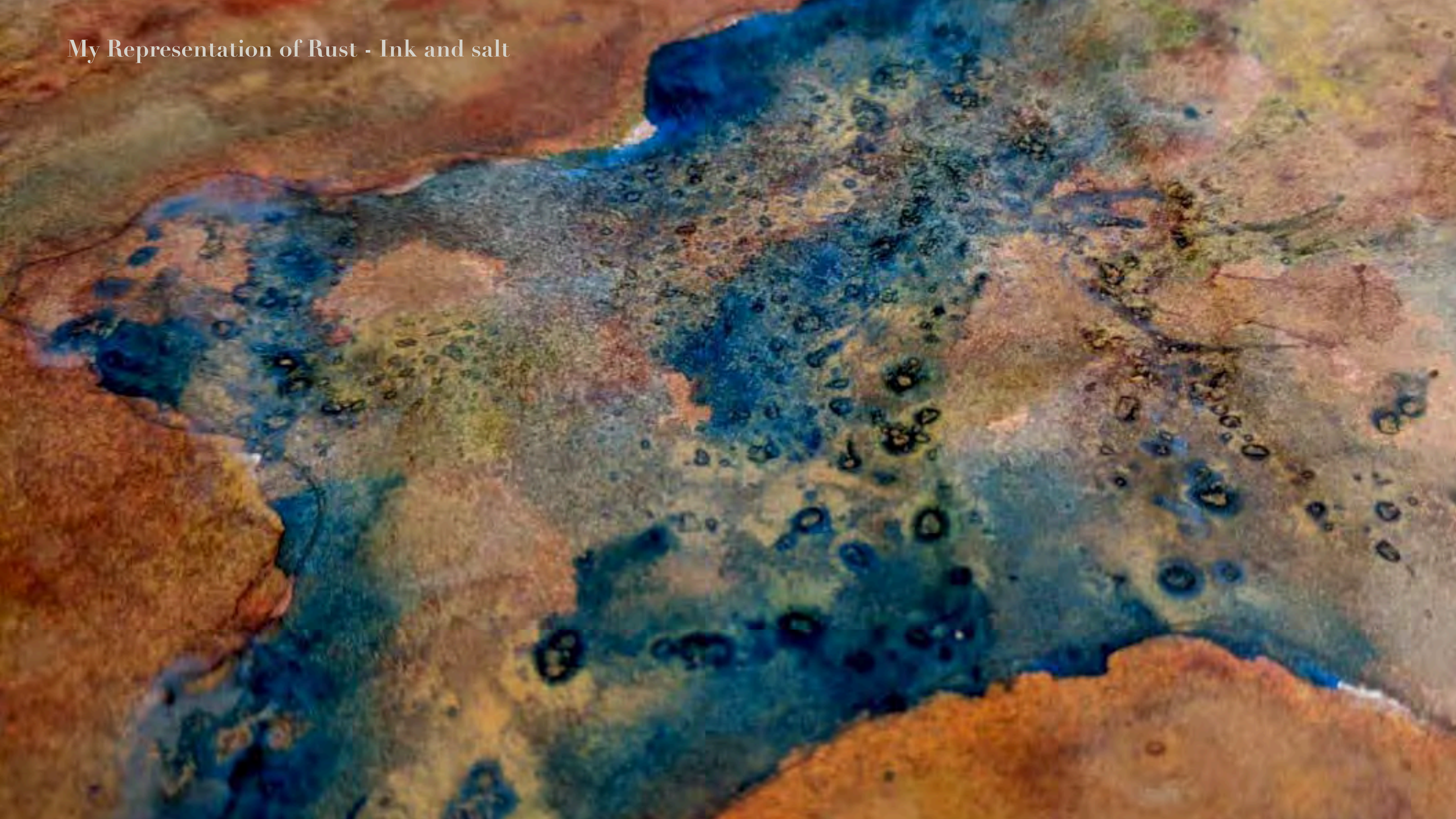


(Brighton Beach FJ 2020)



(Brighton Beach FJ 2020)

My Representation of Rust - Ink and salt



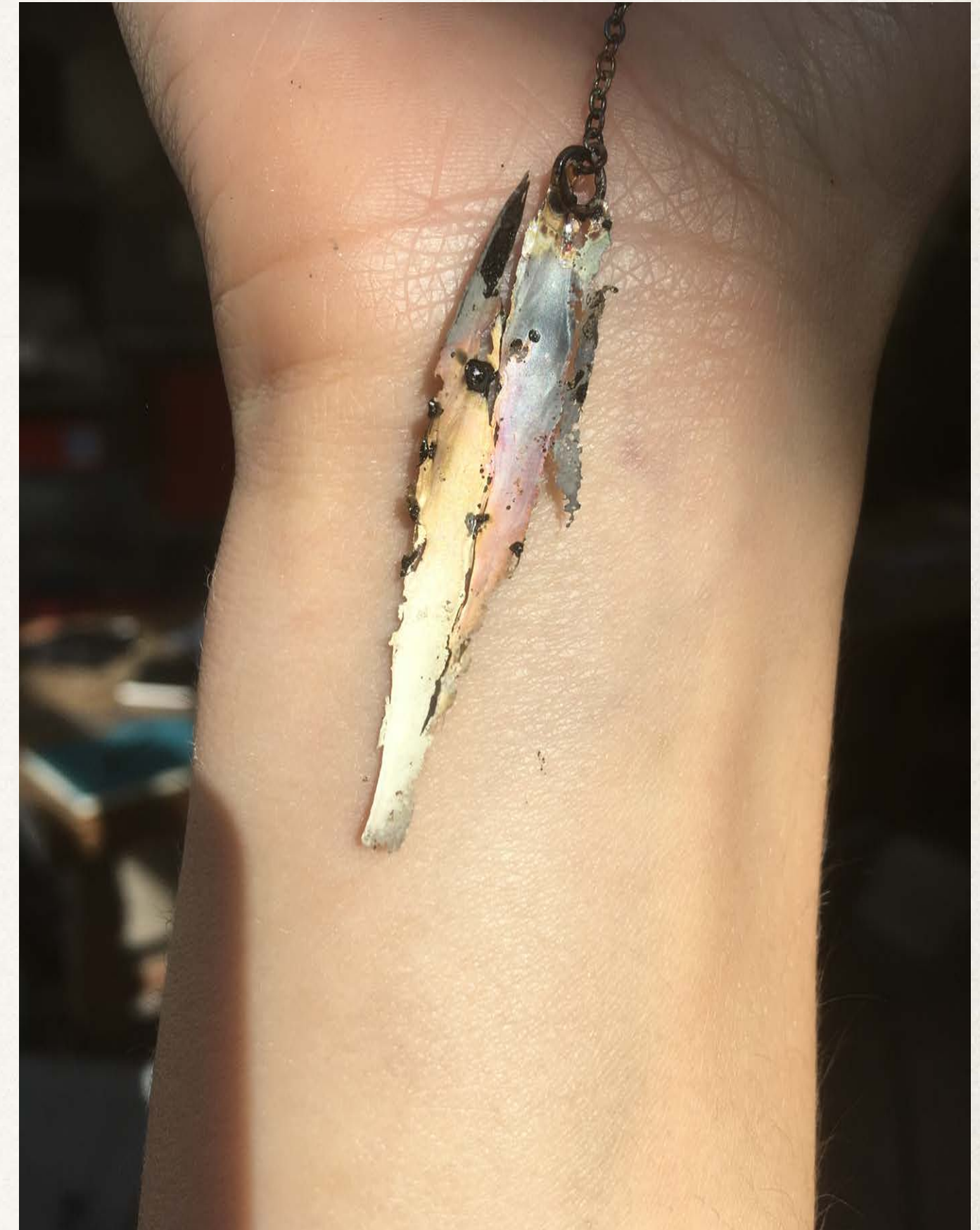
Experiments

Did you know? *'Over 90% of British people recognise the Fairtrade Mark and 84% of people trust the Mark.'*
Fairtrade website. Buying Fairtrade gold. [2019]

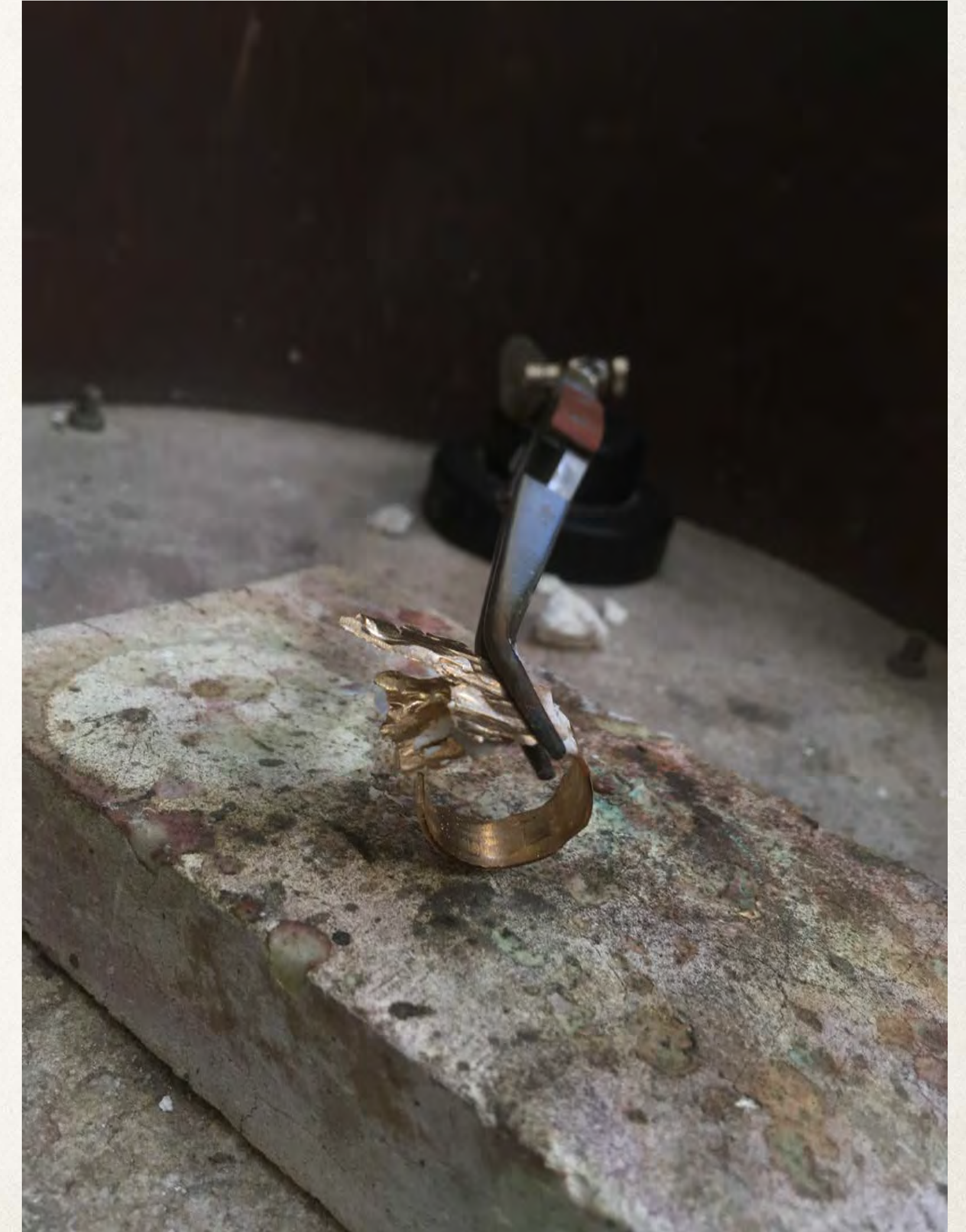
First Piece

I thought about using acid first to resemble the harmful chemicals in which artisanal miners use such as mercury or cyanide. It would be a way of displaying chemical use. It also would refer to acid rain. This is produced from large scale mining, the chemicals that are released into the air eventually produce acid rain.

My aim for this project is to not be precious about my precious metals. I want my pieces to almost outrage people, I want to de-value the material. I decided to see what silver looked like when left in high concentrated acid. I hammered and rolled the piece first and then placed in in the acid for an hour. It appeared this was too long as it had almost dissolved by the time I got to it. I had put some stop-out on it so fortunately I had some silver to work with. As the object was so fragile I could get all the stop-out of. I thought I'd attach a chain so it would resemble a piece of jewellery. When I fired the silver the stop-out produced some incredible colours. The acid made great rough textures too.



Experimenting with different metals

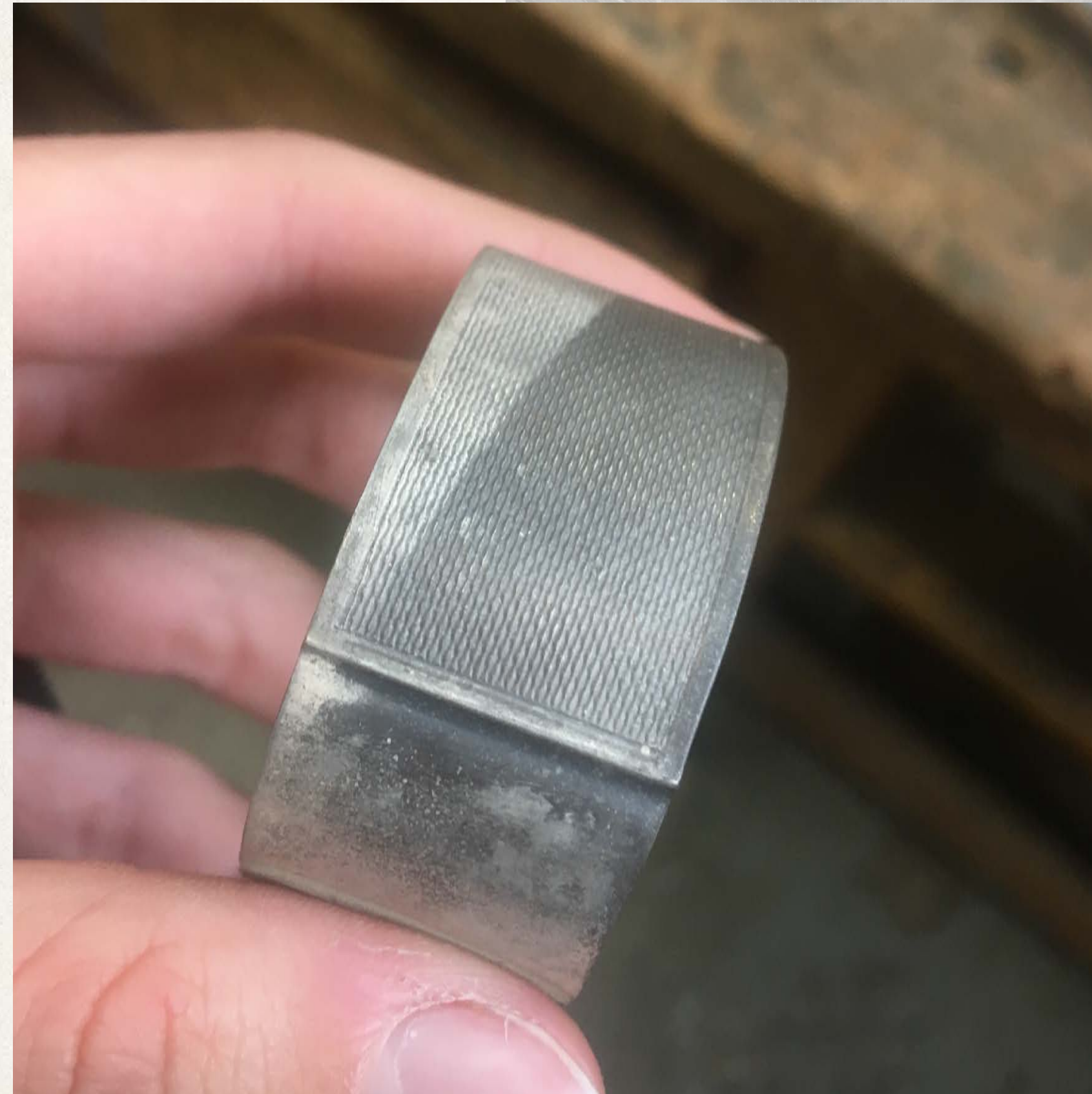


I wanted to hammer different metals to see if they had different properties, how each one reacted to being repetitively hammered. I first worked with copper. I found copper to be very malleable. It didn't break easily as it was quite resistant. I then used gilding metal. I really liked the look of the gilding, it has a golden colour and is ore aesthetically pleasing.

I don't like the idea of using copper as it has little relation to my work.

The gilding eventually broke into two bits and I decided to solder them back together and make a ring out of them. Once polished the ring looked as if it could be gold. This could be a cheaper alternative to using gold or silver

Silver



This is the first experiment with silver. This was a serviette ring. I used an embossing hammer to create this texture. The pattern that was already on the serviette ring came out in the hammering. It looks similar to a feather. I really like this effect and hope to continue in future experiments. I like to have the old texture of the serviette ring as it keeps the history, it emphasises that everything is recycled.



Steel

These are both acid etches from last years project. They hold relevance in their textures and colours. it is a way of rusting and texturing steel quickly.

Here, I used the same method as the other materials I experimented on, however I used the forge. The texture and colours were beautiful. Depending on how hot the steel gets it changes colour. It is possible to get it to a gold colour with little heat and it stayed that way. this could be great for future use.

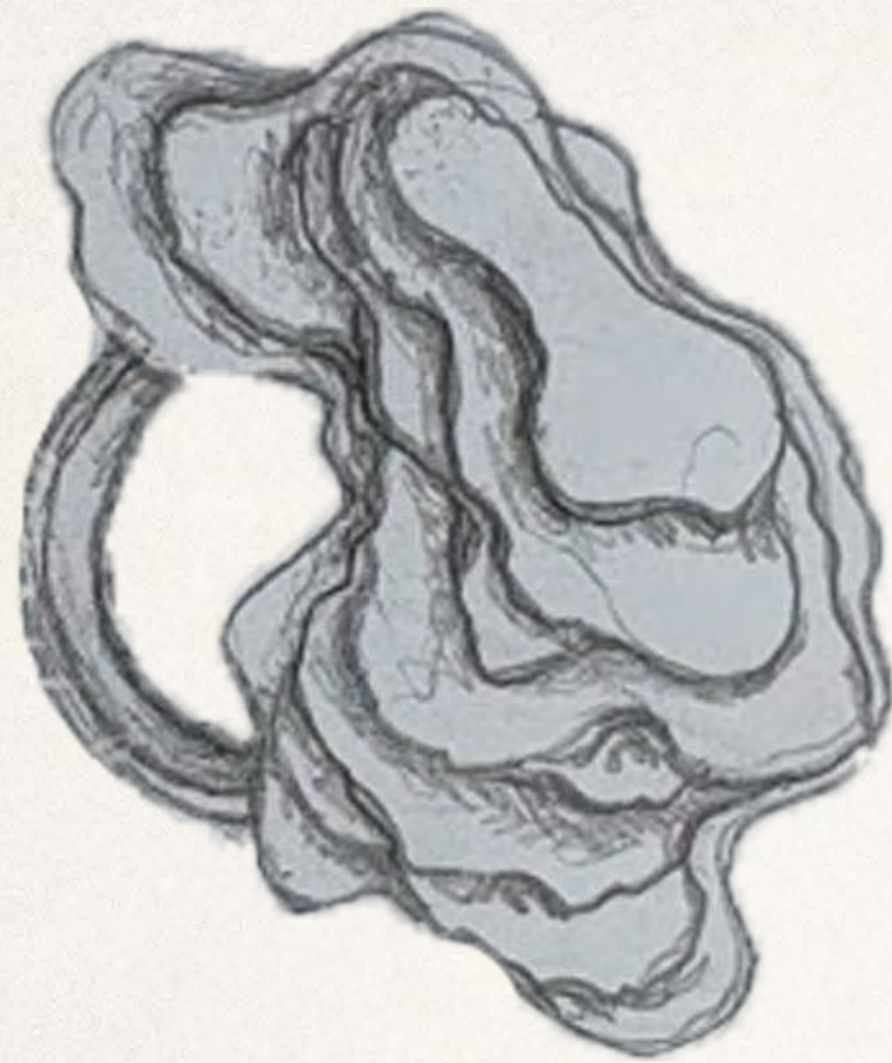


Experimenting with different materials enlightened me into they're different properties. I understood each metal better and could work out which ones i wanted to work with. Using the Acid bath is not a traditional technique and I want my work to have that value to it. Gilding metal is a great metal to work with. It gives the appearance of gold and is malleable and good to work with. I love working with scrap silver, it has history and its properties are brilliant. I will plan to use silver throughout and potentially gold plate in the future.



Layers

Inspiration from large scale mines



Here I soldered different sized pieces of steel together using tenacity number 5 and silver solder. I was trying to replicate the river bed from Roturua (the last page). The aesthetic of this reminded me of what physical mines look like. Mines are incredible to look at from above, the lines and shapes are a piece of art themselves. These huge manmade holes are destroying our planet.

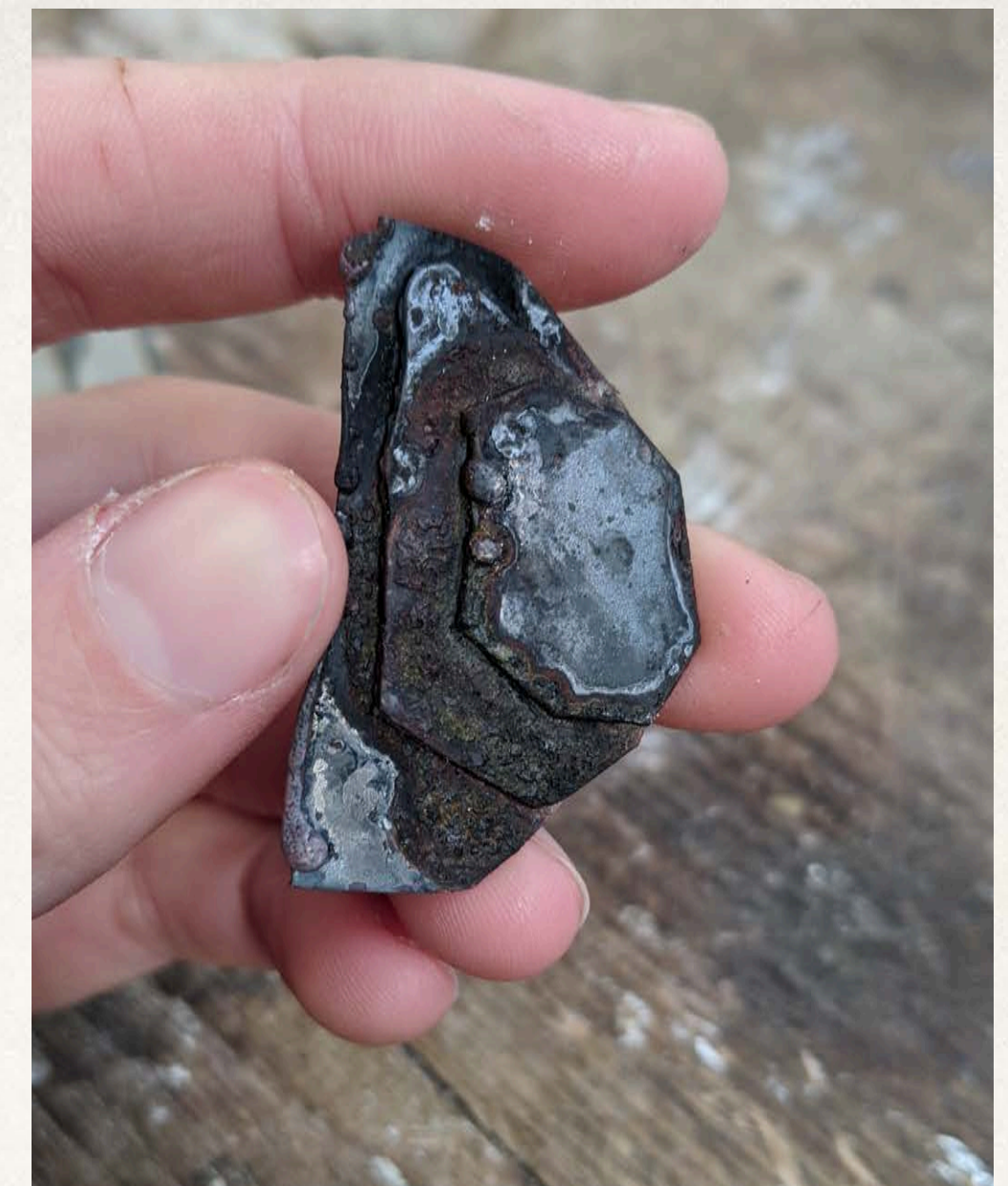


Figure 3



Figure 4





Exploring way of drawing using charcoal and blue paper.
On the right is a layered steel ring design.

Art Smith



Figure 8

Art Smith was a leading modernist jeweller in the 20th century. He made bold, organic jewellery. His work reminds me of the open pit mines on the previous slides. The way the material is layered is such a great way. Layers will be a predominant factor in my work. Not only are there layers in mines and the landscape, it will represent the layers of issues mining has, all the underlying factors that mining has on our planet.



Figure 9

A r t i s t Interpretation

This is a cardboard model of a cuff i could make in my steel collection. it is meant to represent rusted steel with gold leaf shining through. The steel will devalue the gold and will make it stand out a lot.

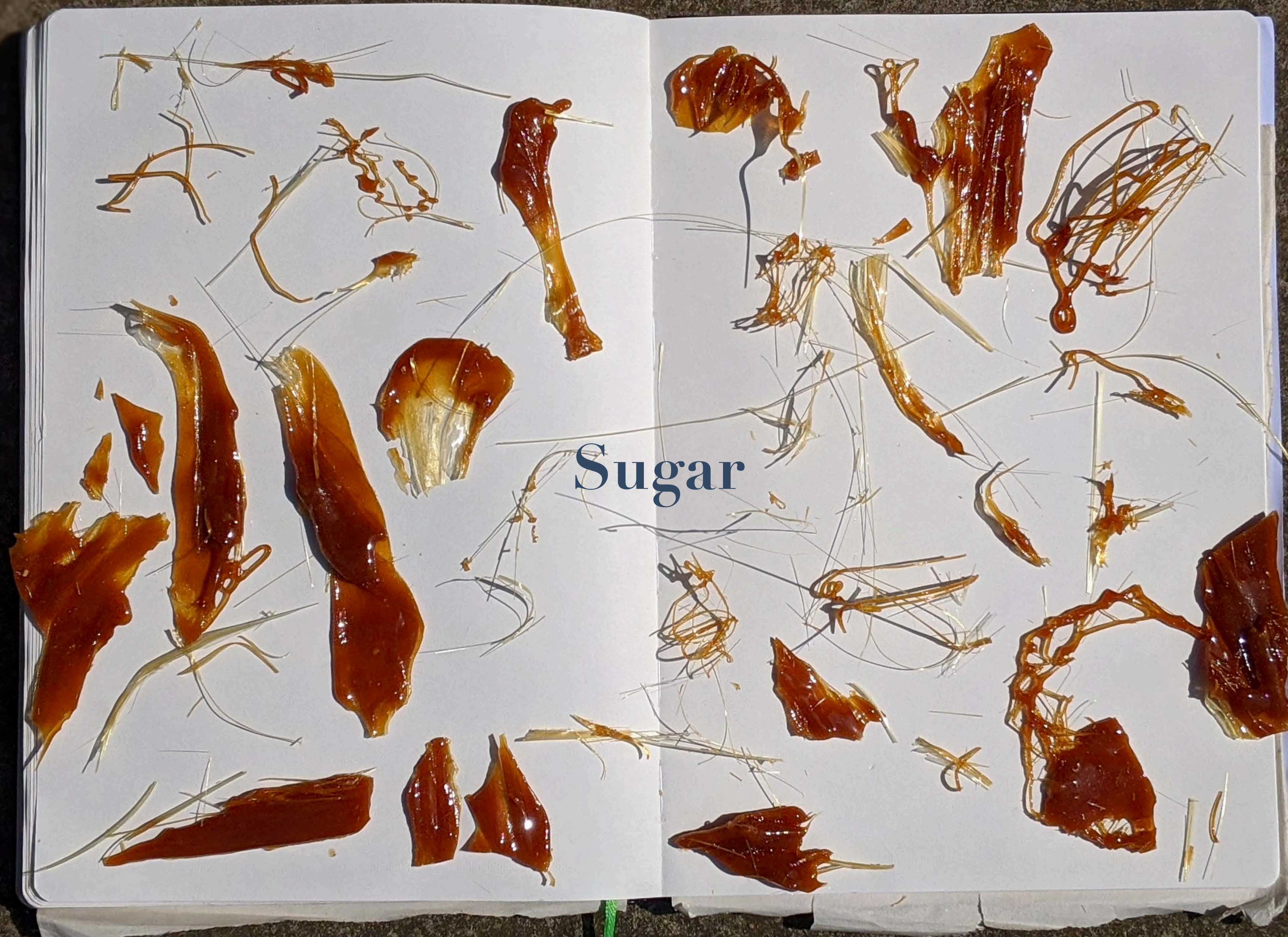


Sweet Vanity

Did you know?

Approximately 1,350 tonnes of mercury per year are released in to the environment from ASGM, making it the largest source of anthropogenic mercury emissions.'

Nicole M Smith. Journal of Cleaner Production. Elsevier. [2019].



Sugar



For a comprehensive list of definitions see the [Fairtrade Trader Standard](#).

Monitoring of changes

Fairtrade International may change Fairtrade standards as explained in Fairtrade International's Standard Operating Procedures, see www.fairtrade.net/setting-the-standards.html. Fairtrade Standard requirements can be added, deleted, or changed. If you are Fairtrade-certified, you are required to check the Fairtrade International website regularly for changes to the standards.

Fairtrade certification ensures that you comply with Fairtrade standards. Changes to Fairtrade Standards may change the requirements of Fairtrade certification. If you wish to be or are already Fairtrade certified, you are required to check the compliance criteria and certification policies on the certification body's website regularly at www.flo-cert.net.

Change history

Version number	Date of publication	Changes
01.05.2011_v1.0	01.05.2011	New Standards Framework (NSF) changes: (1) reorganization of the standard into 4 chapters.
01.10.2015_v1.0	01.10.2015	Full review of the standard, alignment with the Trader Standard. New requirements on like for like rule, GMO contamination, reporting on indicators on sustainable production, drinking water for workers, additional reporting by conveyors, premium payment in case of multiple producers supplying the same mill, premium planning and regular meetings with producers. Addition of definition section, simplification of wording, reorganization of requirements, deletion of redundancies, added or improved guidance, new standard design.
01.10.2015_v1.1	01.05.2017	Full substitution of cane sugar with beet sugar allowed, added guidance in like for like requirement 2.1.1., amendment of requirement 2.1.2 on substitution of cane sugar with beet sugar.

Fairtrade has a part in the sugar industry has has been for a long time along with gold. They help make sure that people are treated fairly. This holds a similarity to the use of gold in my projects.



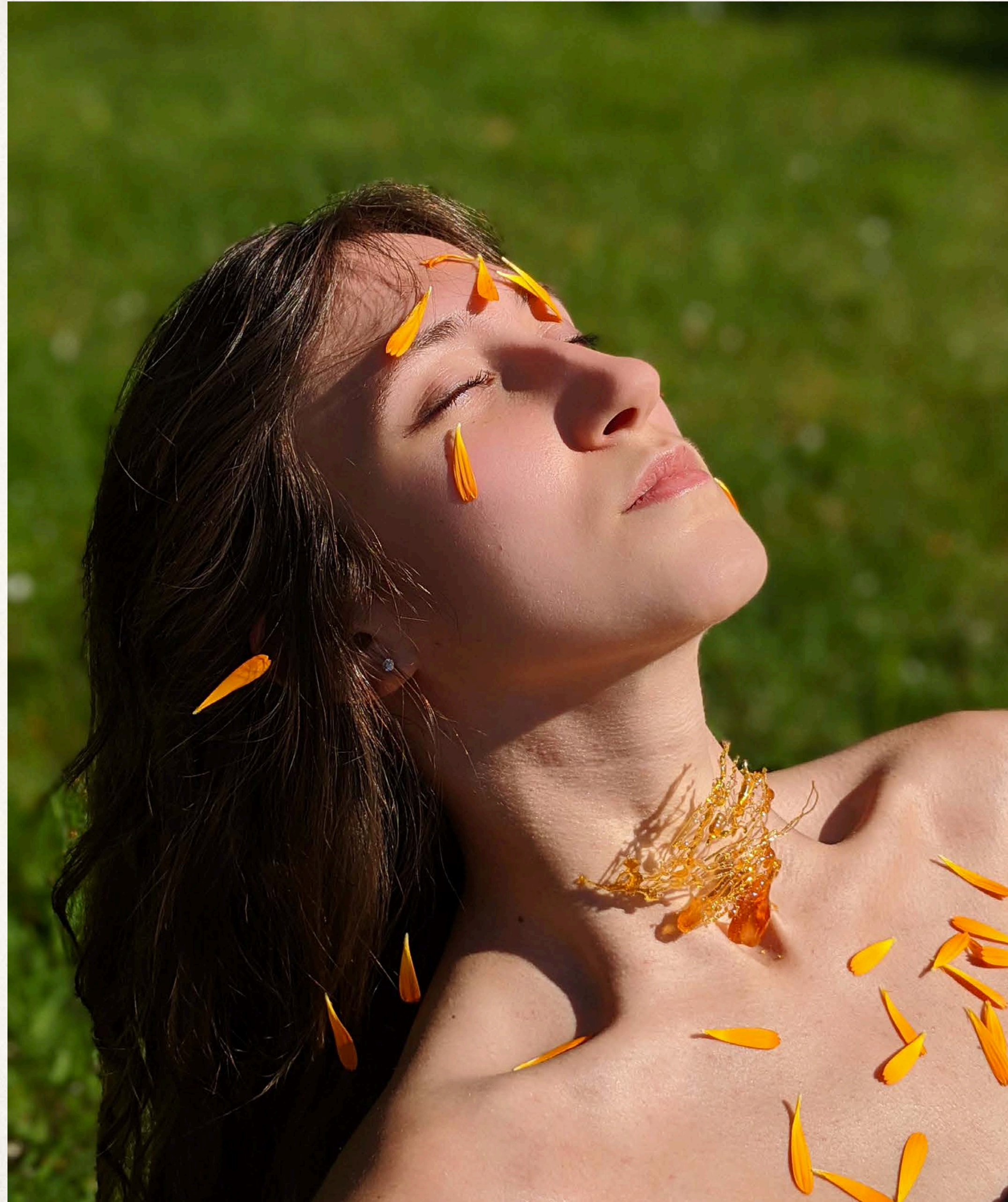


Sugar can be moulded in to all kinds of shapes. it produced incredible textures and its transparency is beautiful.



It's unfortunate that it's difficult to work with and there's only a short amount of time that the sugar is malleable.





I placed orange petals in the melted sugar to make it more vibrant and to add a fragility aspect to it.



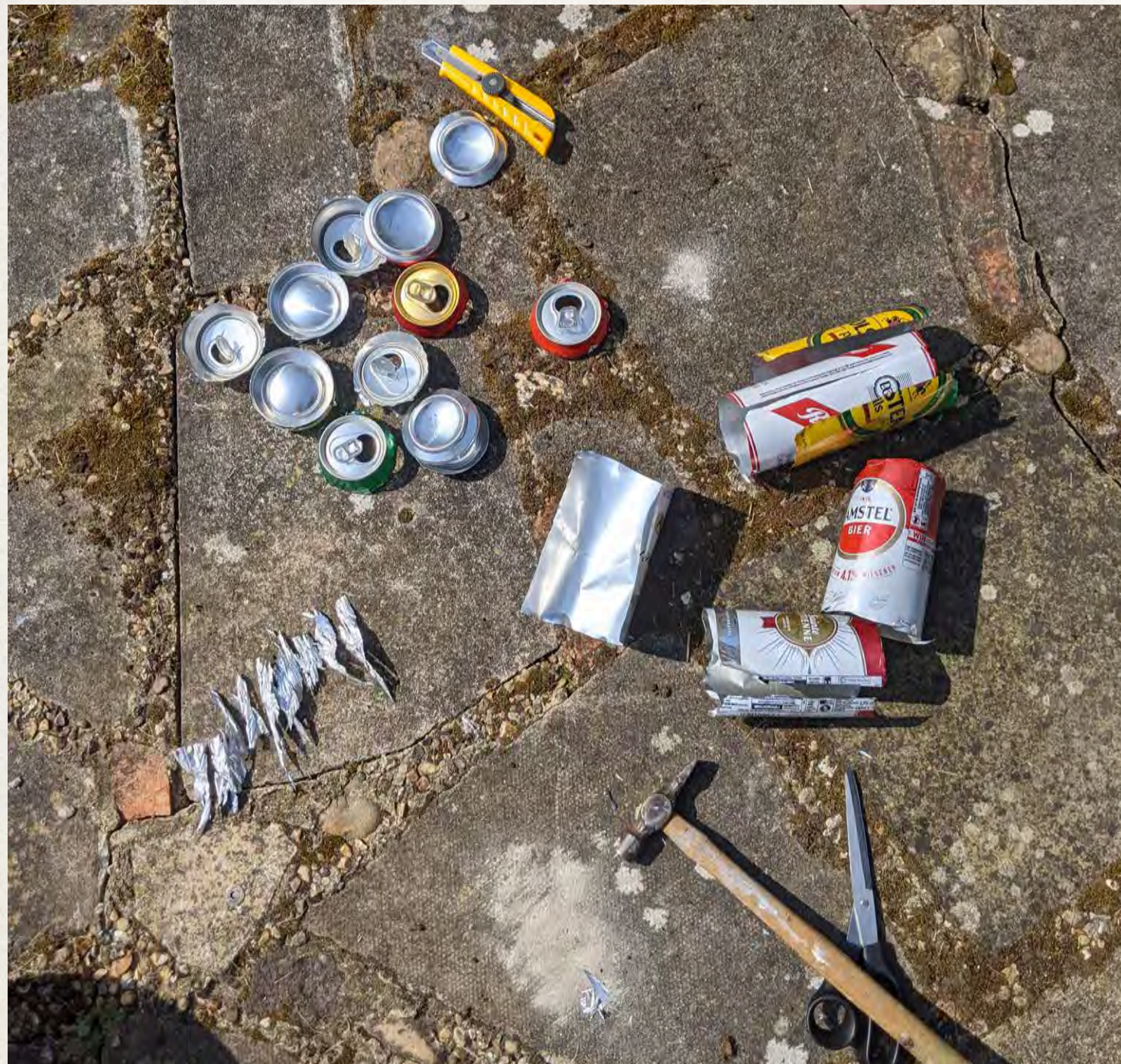






Aluminum

Beer Cans - Aluminum Experiments



I wanted to test how durable aluminum cans would be. I used scissors to cut strips of the cans to make individual pieces, then using a small hammer i gentle tapped the can on the slabs of stone. The results were astounding. The aluminum picked up every detail of the stone slab and produced a really delicate strip. Its colour gives the appearance that it could be silver and i love it fragility. I glued each piece with a very strong silicone based glue.



Making these model has developed my knowledge of these materials. I never thought sugar jewellery could work so well. Using card was a great way to easily get across a design, including textures and colours. Sugar was great to work with, I could manipulate it into any shape and add things to it like petals. Its colour is amazing and shimmers like gold. It also has the appearance of amber which i really loved. The sugar gives the aspect of fragility and ethics, similar to gold. Using aluminum was really enlightening. The hammered texture is amazing and it is extremely fragile. I like this method of working and continued to use this method all year.

A Glimmer of Fragility

Did you know?

'a rice-grain sized dose of cyanide can be fatal to humans; cyanide concentrations of 1 microgram (one-millionth of a gram) per litre of water can be fatal to fish.'

Earthworks. Oxfam America. Dirty Metals, mining, communities and the environment. [2004] Report. 5.

Silver Brooch



Figure 10 - Margaret Cowther



I needed some more inspiration involving layers and I came across the artist *Margaret Crowther*. She works in textiles and produces large colourful canvases. I find her work truly amazing. She uses hundreds of layers of different textiles. I live the idea of replicating this using silver. I started guillotining small shards of silver and then rolling and hammering each piece to make them extra fragile. This was a real test for the metal. I thought it would be almost impossible to solder such a fragile piece of metal to another piece, however, it worked and I repeated these steps and I found it to be really successful. While soldering the silver would turn a beautiful blue (see picture below).

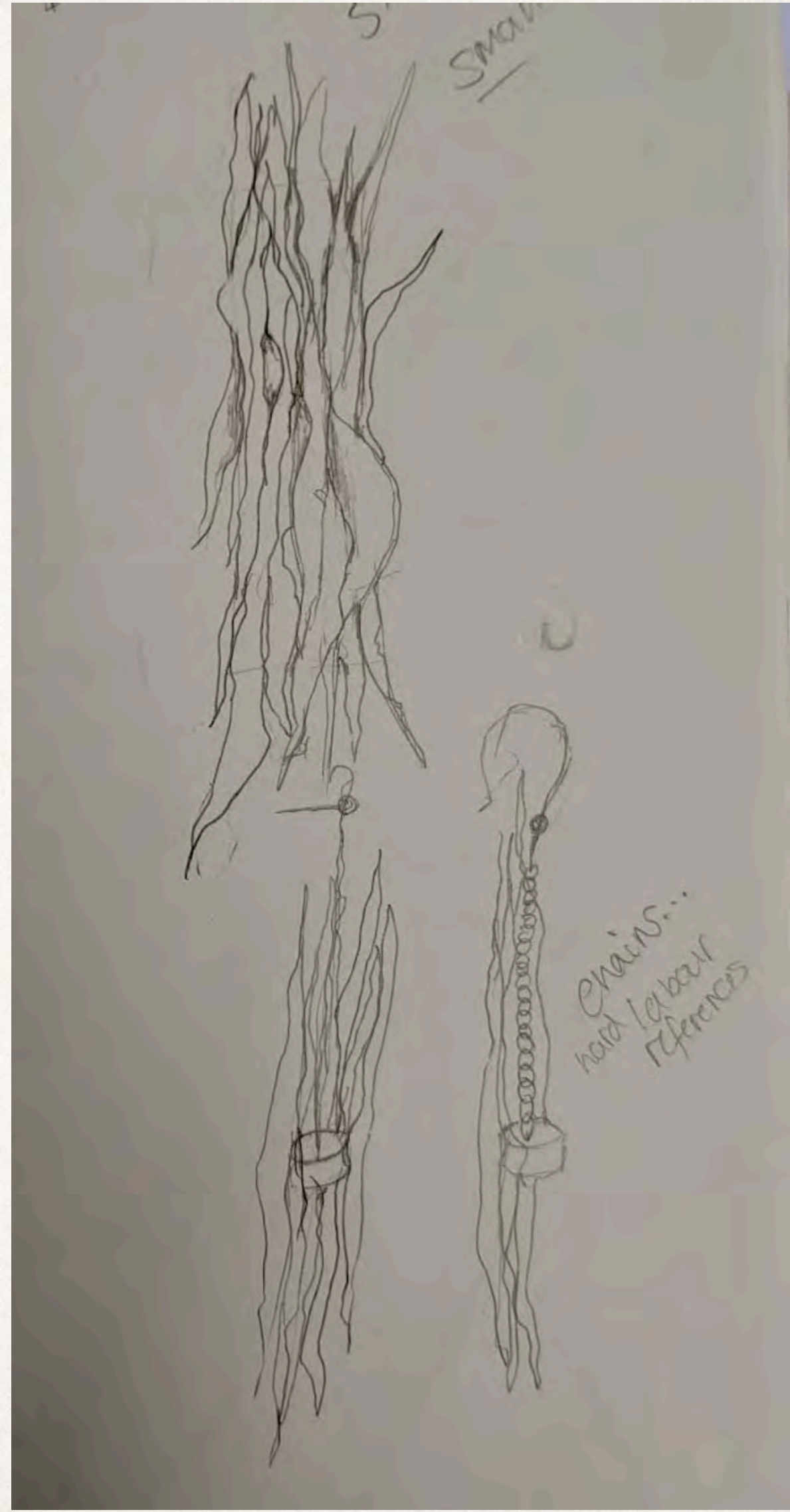




Fragility

adjective. 1(of an object) easily broken or damaged.

Spiral

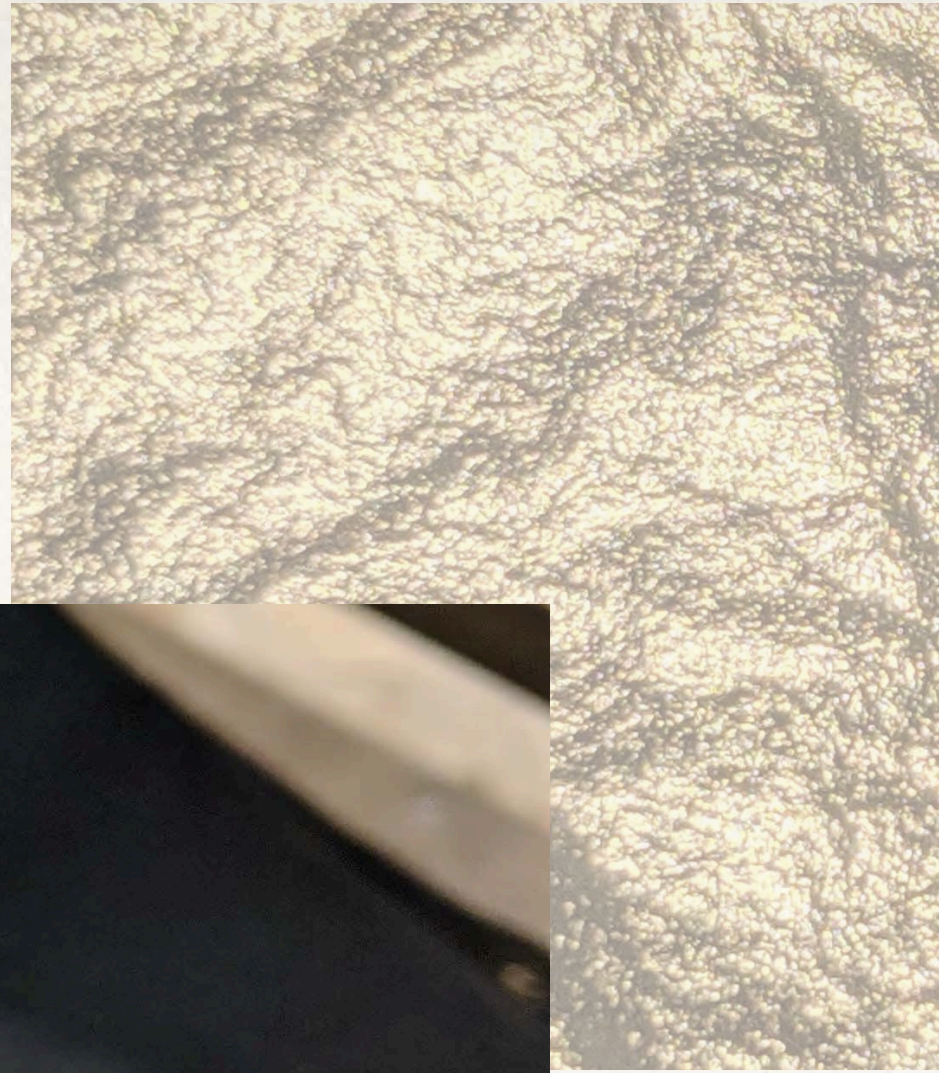
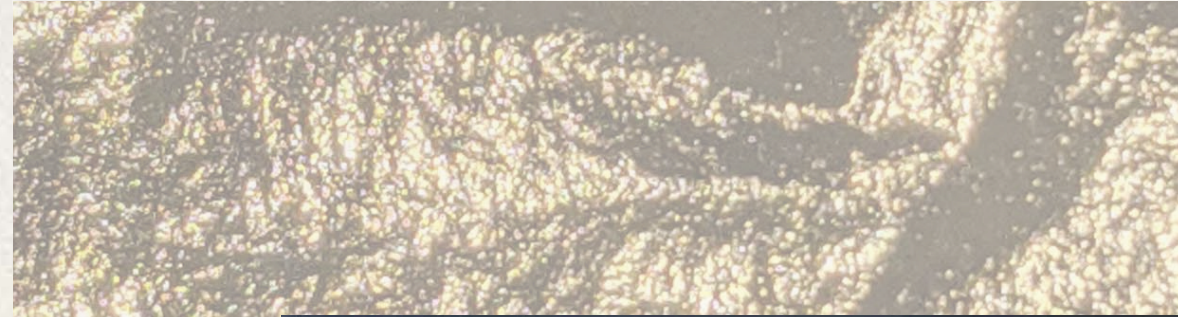


Drawing ideas to expand my range, looking at where else I could place the jewellery on the body.



An impractical ring. To admire but not be worn. Fragile but not weak. A spiral to resemble strength and regrowth.

Golden Lock



Experimenting on a larger scale. I wanted to make a piece with gilding metal. I hammered it with the same method as before just in a larger scale. I then soldered a smaller flake to the big one and soldered a ring on. at this stage it looked like a leaf or moth. It looked very delicate but was quite robust. I like its position on my hand.





Using silver to create a similar ring to the gilding.
Its appearance is solid but the shape provides a
touch of fragility - I would gold plate this piece.

Gold



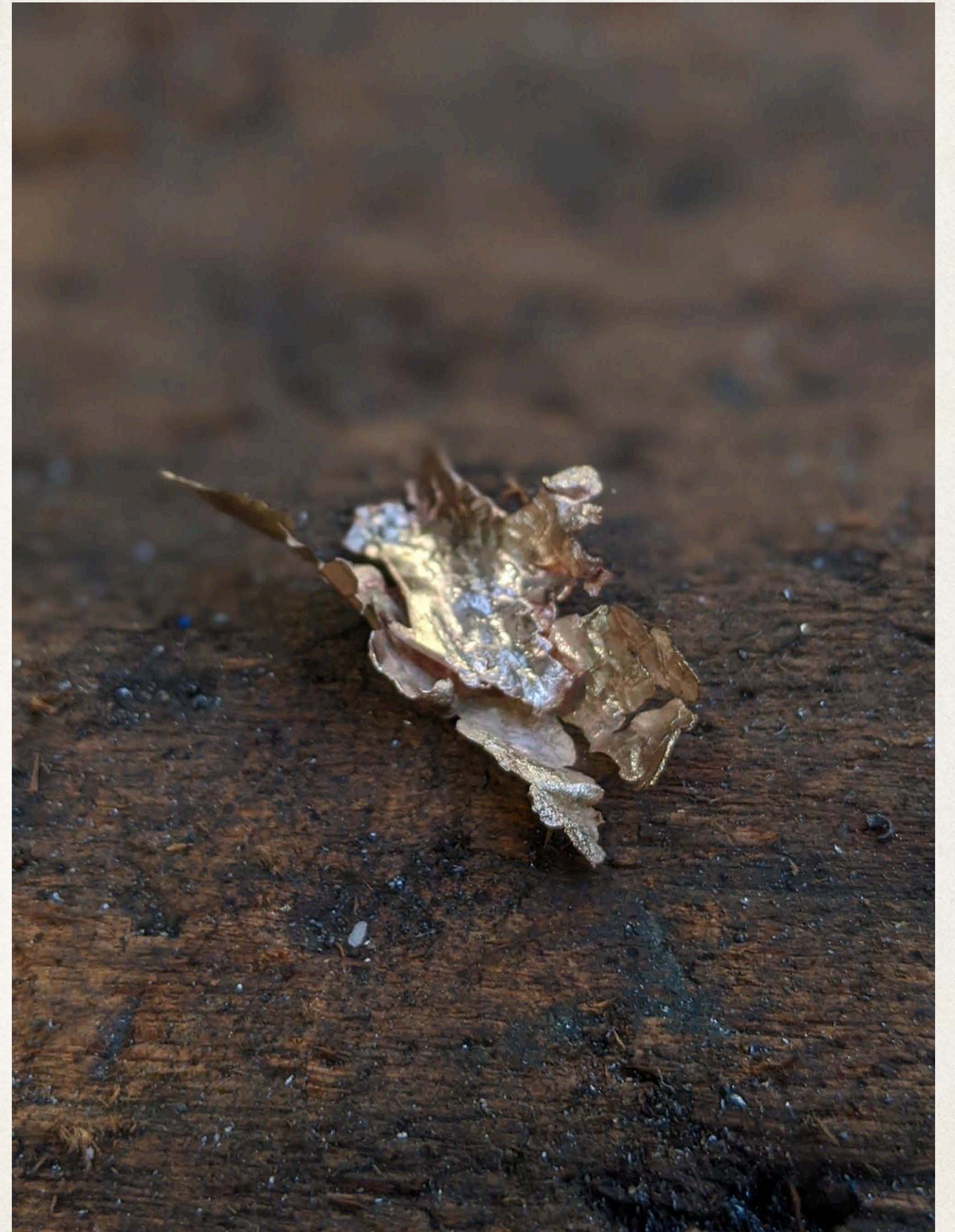
As delicate as a leaf





My first time working with gold. It has similar properties to silver and I really enjoyed working with it. Using gold in my project is important as I am very knowledgeable on the subject.

I hammered and rolled the gold till it split then using
gold solder I soldered them together.



A Glimmer



I wanted to create a Bracelet using the same method as the brooch. I melted and rolled the silver into a flat wire and making a spiral, then added flakes. The base gave too much structure and I feel this was too commercial than what I was aiming for.



The name Glimmer of Fragility came from this image. The light bounces of the bracelet subtly and it produces a slight glimmer.

Neckpiece

Some of the serviette rings recycled for this project



E.E Elizabeth Eaton

1849



Hamilton and Inches

1877



Roberts & Belk

1886



The beauty of a rolled serviette ring.



The graphite drawing allows me to see the tone and texture of a piece.

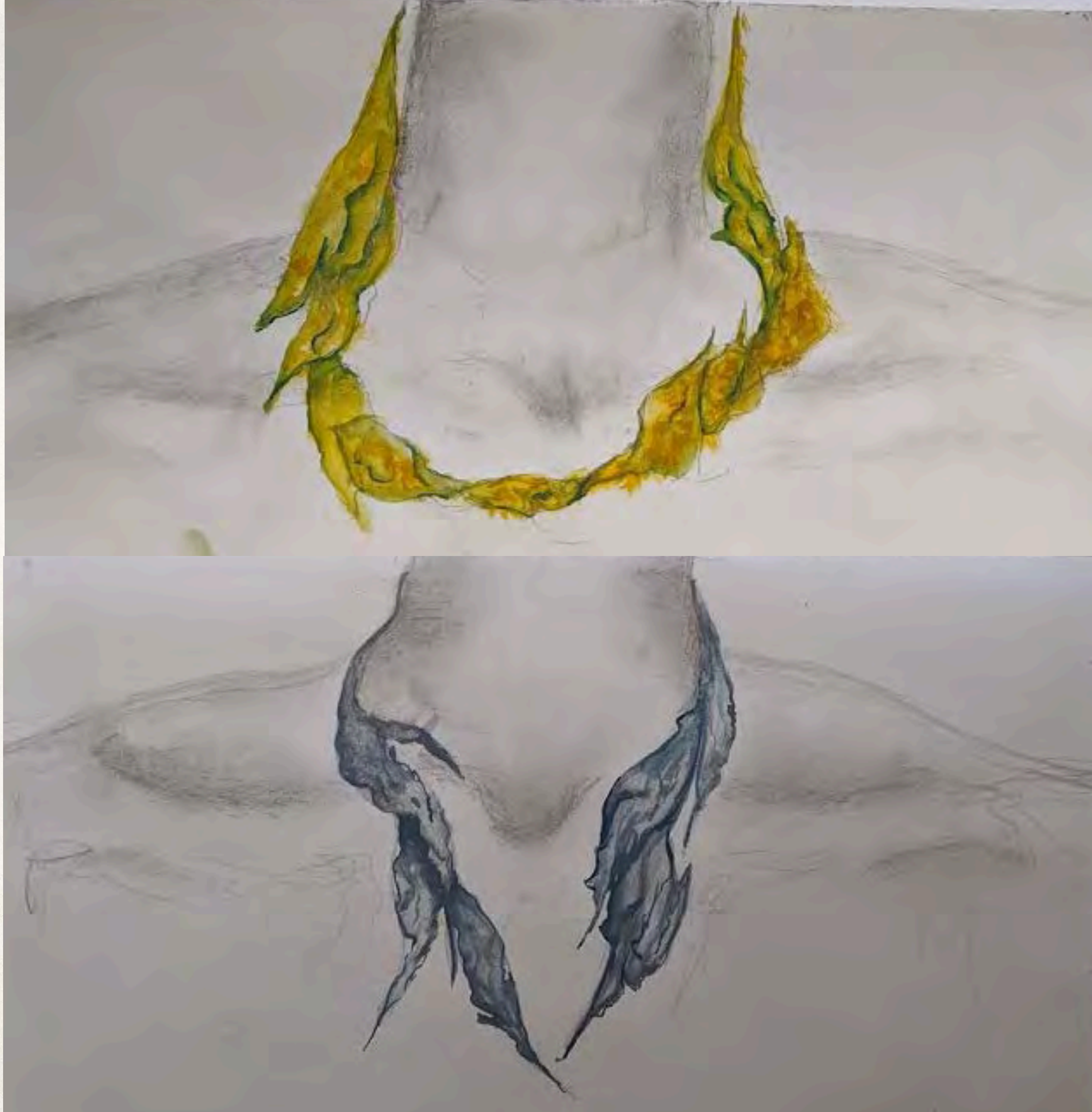




Here I wanted to expand my jewellery collection I wanted to make a neck piece. The idea behind this is that it can hook on to your neck easily without breaking but is sharp and delicate. I started by cutting small pieces of the serviette rings and blue-tacked the pieces together to get the shape and order I wanted. This helped me to see what the final thing will roughly look like, it also held together well enough I could place it on someone's neck to see if had the shape right.

Soldering the pieces together turned out to be easier than I thought it would be. fragile pieces would melt but it wouldn't ruin the piece. The more bits I added the trickier I got as the heat would cause previously soldered bit to fall off.

Watercolours of neckpiece ideas





Subtle Textures

Revealing history and brutality





Notice details





Hidden Value



Here you can see the pattern the serviette ring originally had. These textures are really important in my work. they add more depth to the pieces.





Previously i found that adding a base gave the piece too much structure. For this I made the flakes first made thin D shaped wire. This meant that the cuff will hold well on the wrist.





Hidden value comes from the fact that there is gold on this piece its just not the main feature.



Brutal Beauty



Leaf like colours and textures. This is before it was cleaned. I liked the colours and debated not cleaning the final piece but I found it looked better pure and clean.









I wanted this piece to be my most extravagant piece. I wanted it to bring all the other jewellery together. It is my main piece that shows of value and beauty, but also discomfort and history. It reminds me of the Victorian era of having to wear painful contraptions and structures so they would comply with the standards of being a typical woman by having a perfect posture and a high chin. Although you are wearing a valuable object made of gold and silver, it is unbearable to wear and you can't tolerate it, just like the world can't with excessive mining.



Henry Bigg – British Orthopedic surgeon in 1862

“A horrible instrument was devised which I had to wear while doing my lessons. It was a steel rod which ran down my spine and was strapped at my waist and over my shoulders—another strap went around my forehead to the rod. I had to hold my book high when reading, and it was almost impossible to write in so uncomfortable a position. However, I probably owe my straight back to those many hours of discomfort.”

—Consuelo Vanderbilt Balsan,
The Glitter and the Gold

A Glimmer of Fragility displays a range that is powerful and beautiful. Each item holds value in its history and its purpose. Texture and technique has been a main theme throughout. I thoroughly enjoyed making these pieces. I can see looking back now how I progressed with each piece and how they got bigger and better each time. The main neck piece 'Brutal Beauty' resembles the discomfort of wearing unethically made jewellery. People should be aware of the truth of what they are wearing around their neck or wrist.



Devaluing

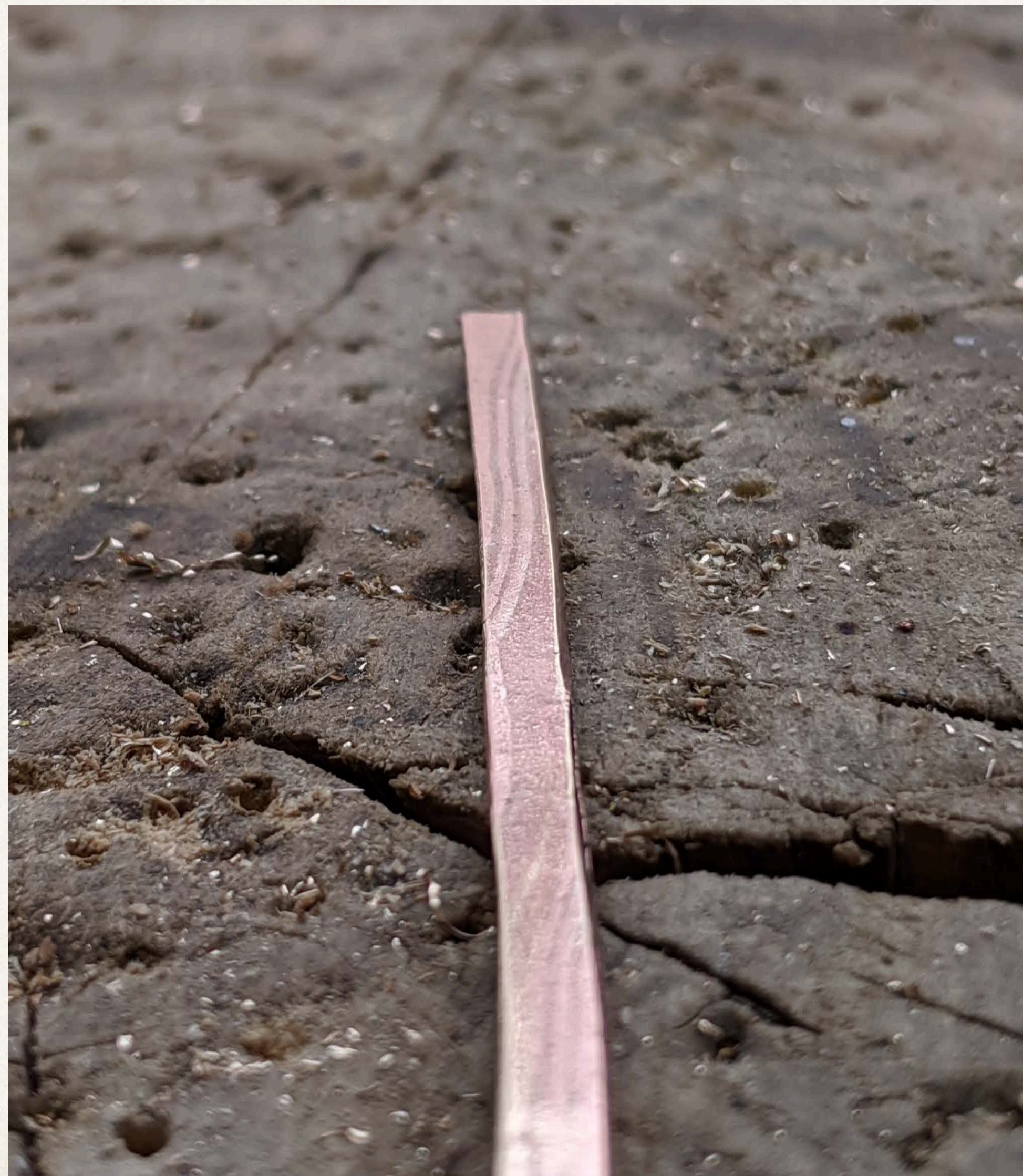
Mokume Gane

Mokume Gane is a traditional Japanese method of creating layered textured pattern in a ring. Through using silver and copper, amazing shapes and contrasting colours are formed.



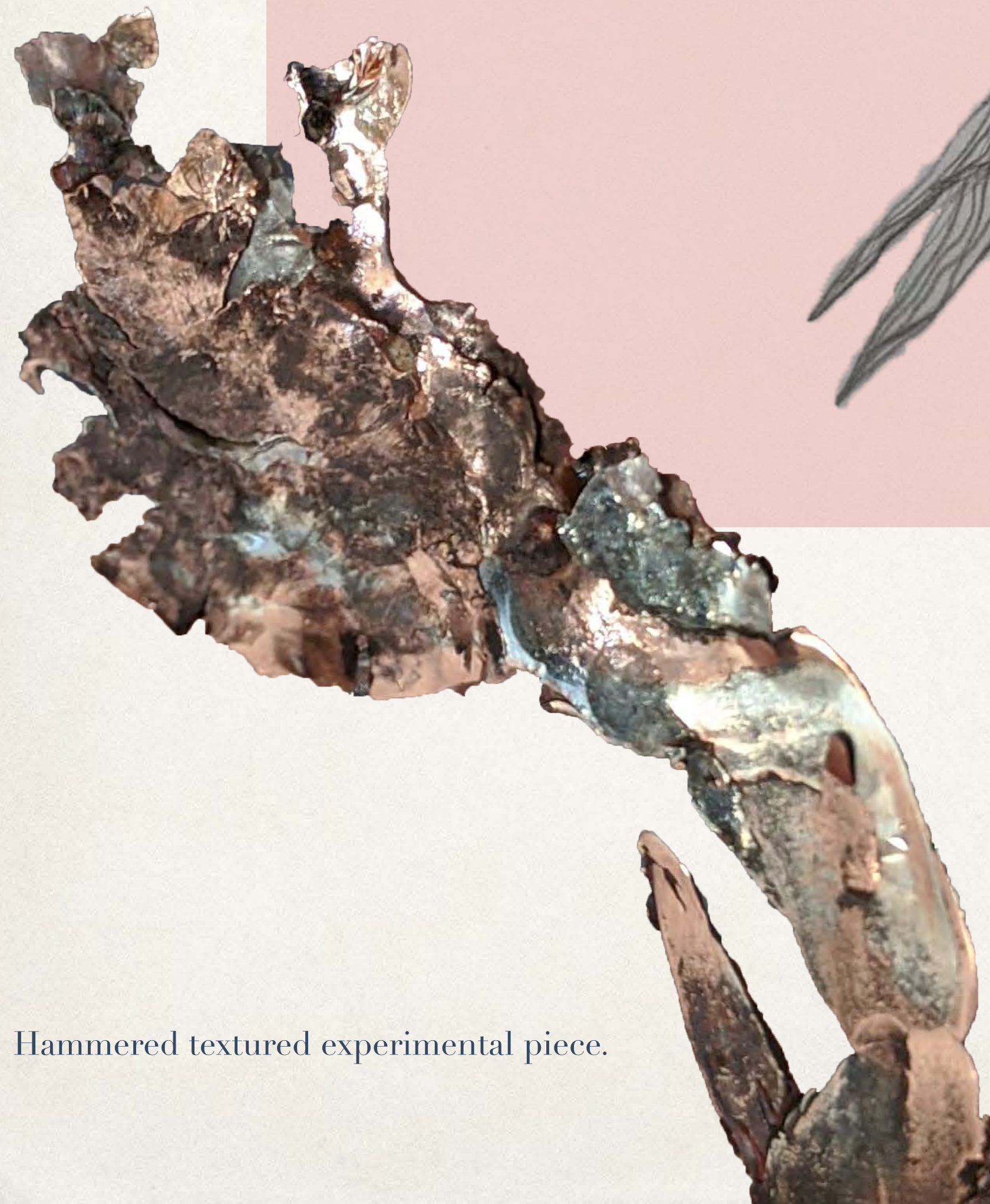
Making a Mokume Gane ring is laborious and combining silver and copper make the object less valuable. To start with I used gilding and copper and found the colours didn't stand out as well as copper and silver would. I continued to hammer the bar and the lines became more prominent. I then decided to use the straight edge of a hammer and create a new texture. This made the layers split. I really loved this texture and wanted to continue using this method.

First try
(Copper and Gilding)



Second try
(silver and copper)





Hammered textured experimental piece.



Sketch of a potential mokume ring

The textures ended forming into triangle shapes. I decided to solder them together and it formed this half moon shape. I decided to make an ear cuff as I had not made any ear pieces.





The use of Mokume added more skill and interest into the range. They have incredibly delicate textures and the colours are contrasting and aesthetically pleasing. More work and materials went into making these pieces, however, combining the metals devalued the silver and if I were to use gold and silver the silver will devalue the gold. My ultimate aim. I find it fascinating that making an object that is prettier and takes more craftsmanship and time could be worth less than a plain gold band.

Ostensible

- being such in appearance : plausible rather than demonstrably true or real.



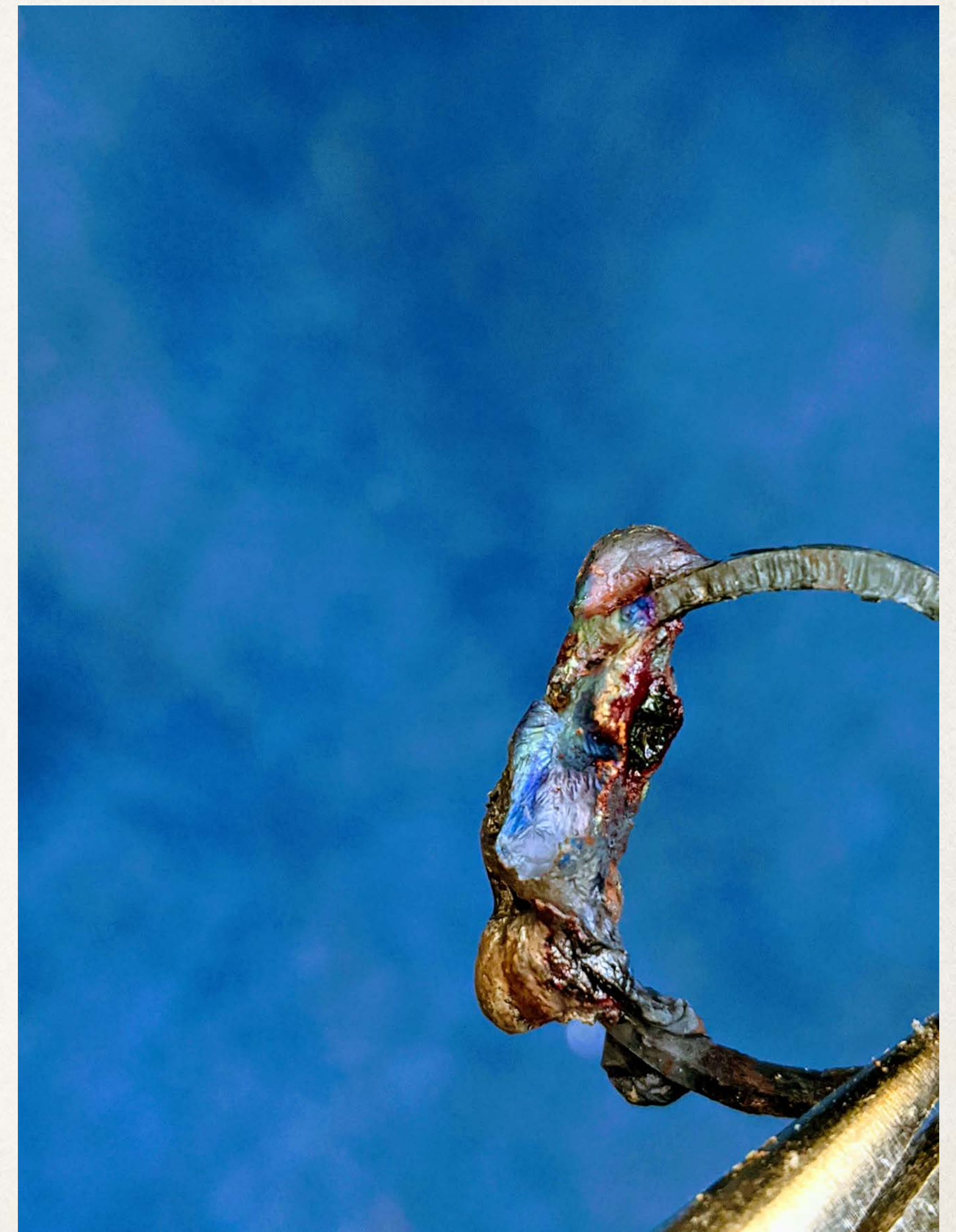
Oxidising silver makes it turn black. This is often used to add depth to a piece or make it look more rustic. It disguises the fact that it is silver which i really like. I put a gold ring next to the black silver and it really stood out. From this I wanted to create silver pieces that look like a lower grade metal; in this case steel, and add gold bits to it to make the piece stand out.



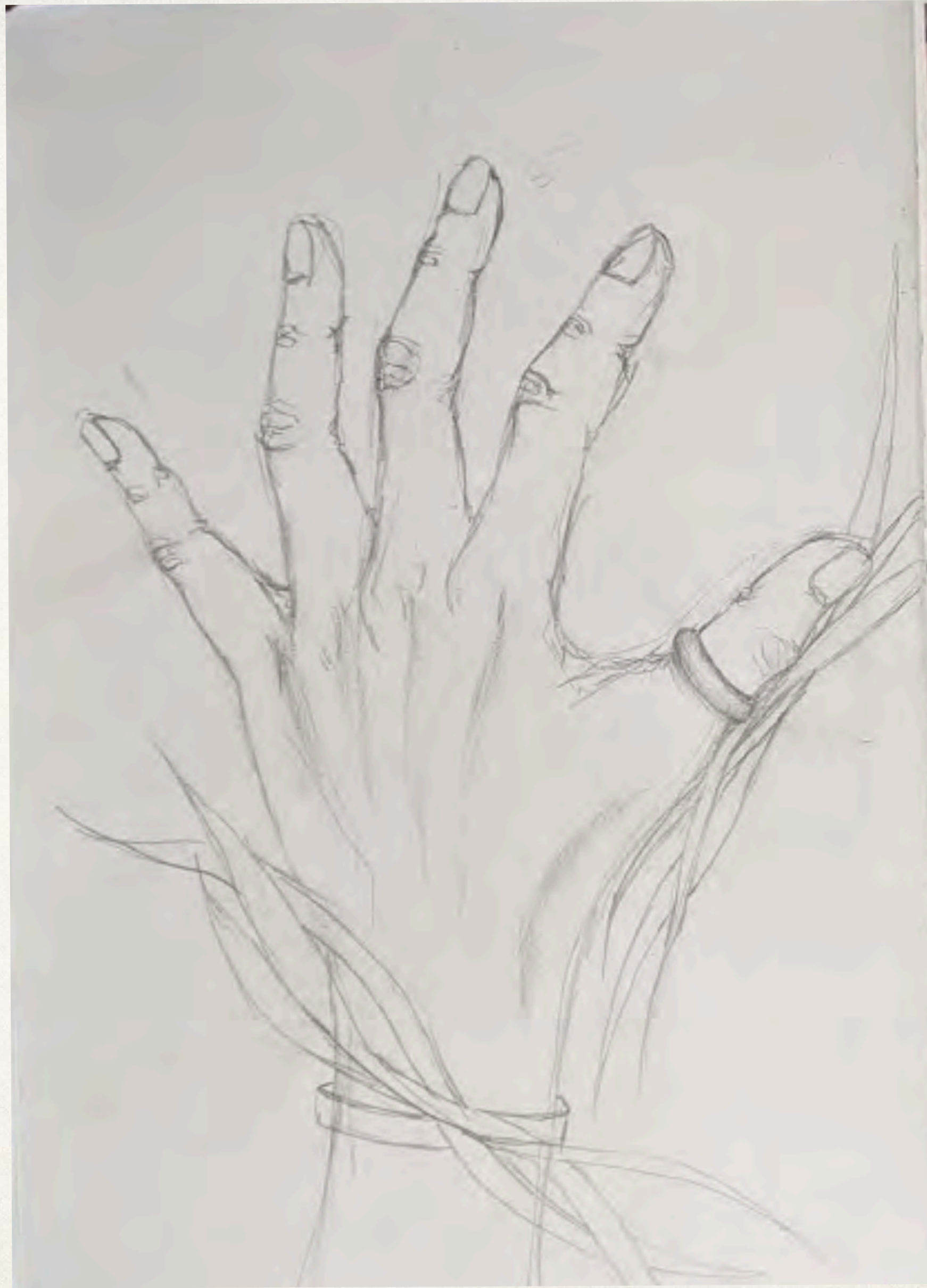




The idea is to disguise the material to make it appear to be something that it is not. this in turn will make people want it less, as they would not see that it is gold or silver. This, without actually devaluing the material, does devalue it due to the fact that it is not visibly appear to be what it is.



Here I decided to melt silver on to a rusty steel ring. The colours that appeared were amazing. I want to devalue the silver.



oxidized
silver
dipped in
gold / gold leaf

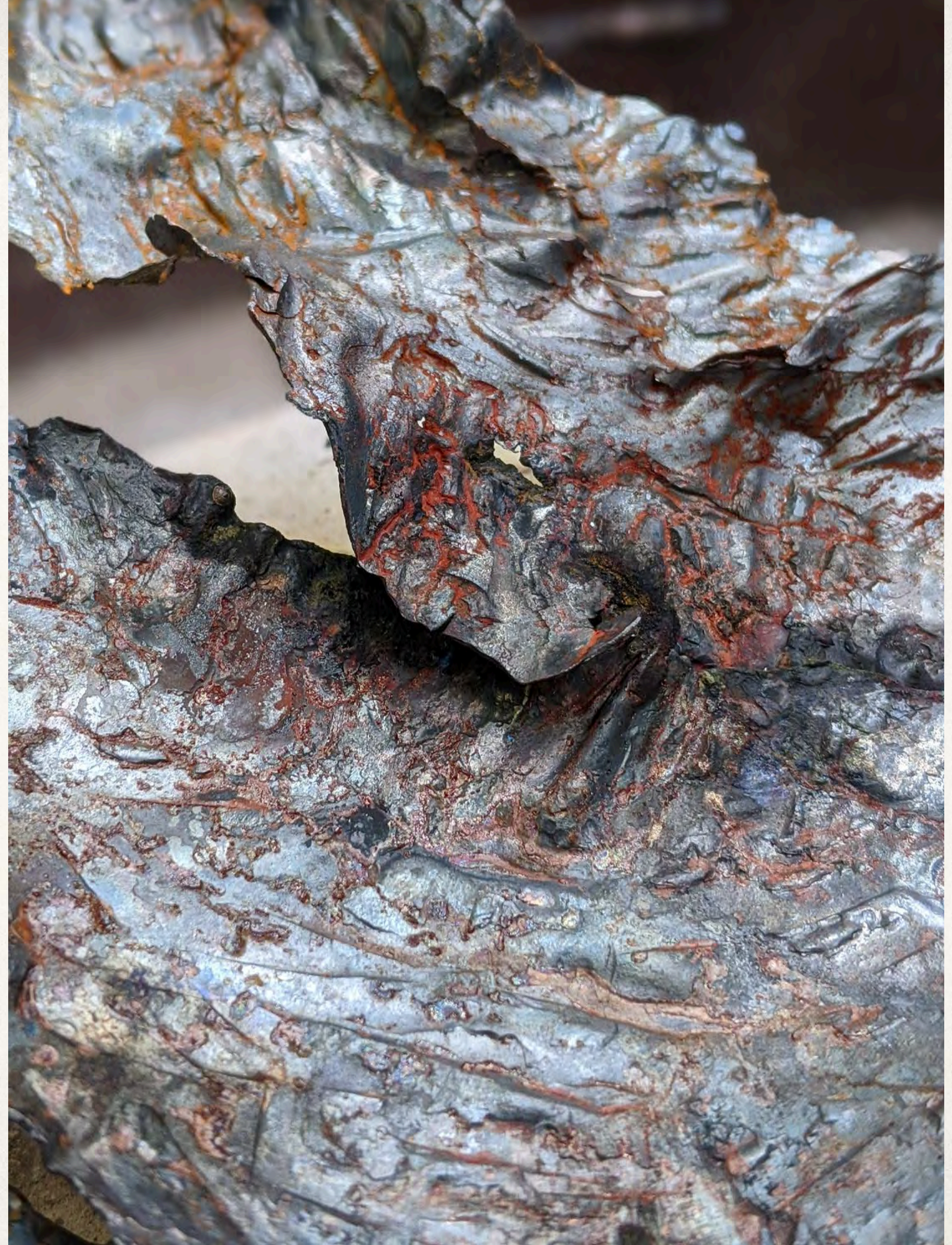


oxidized
silver

Steel Wall Piece



I forged this piece as a side project for my degree show. I wanted to create a large piece that represented my whole show and to bring all my pieces together.



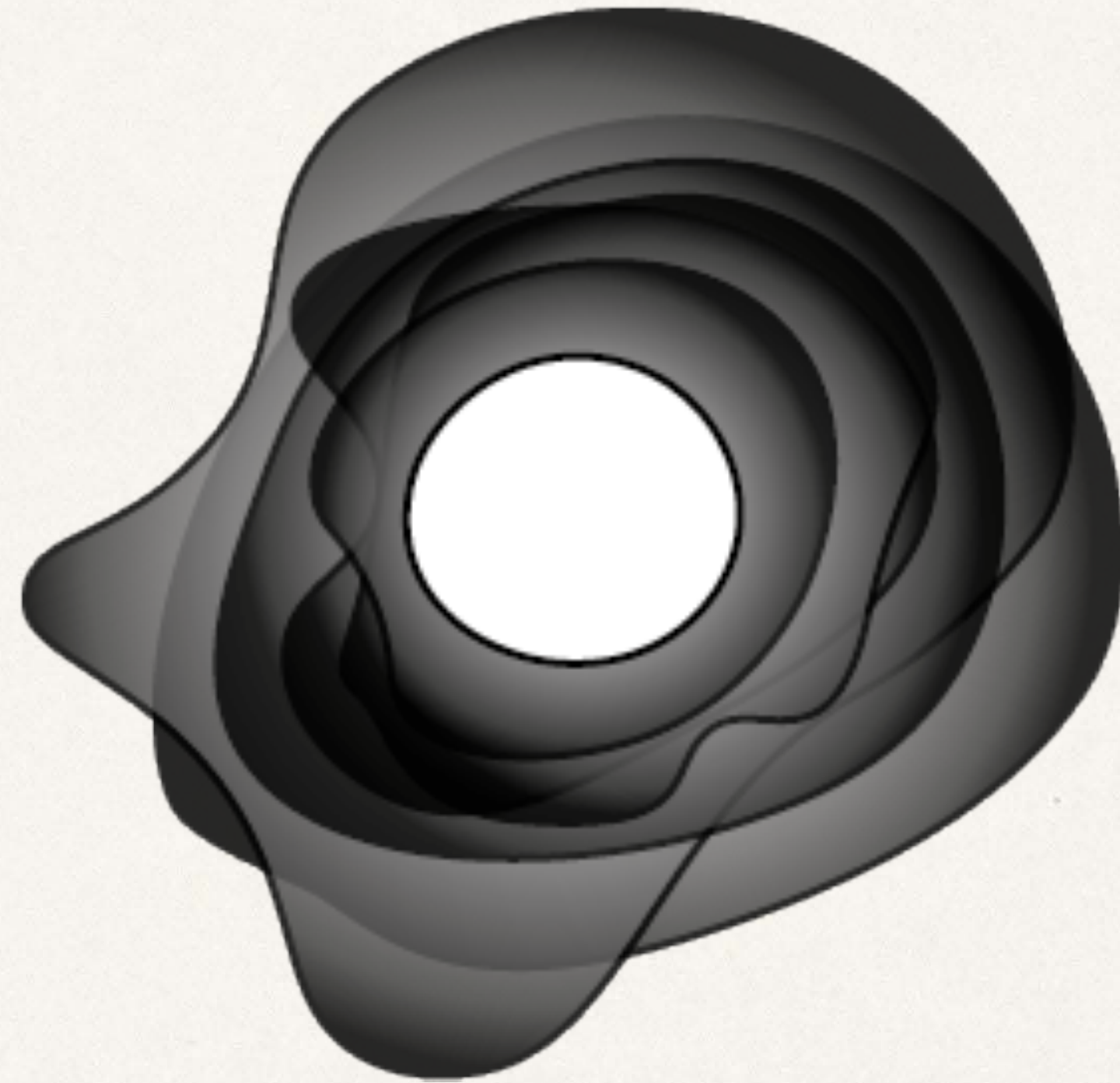
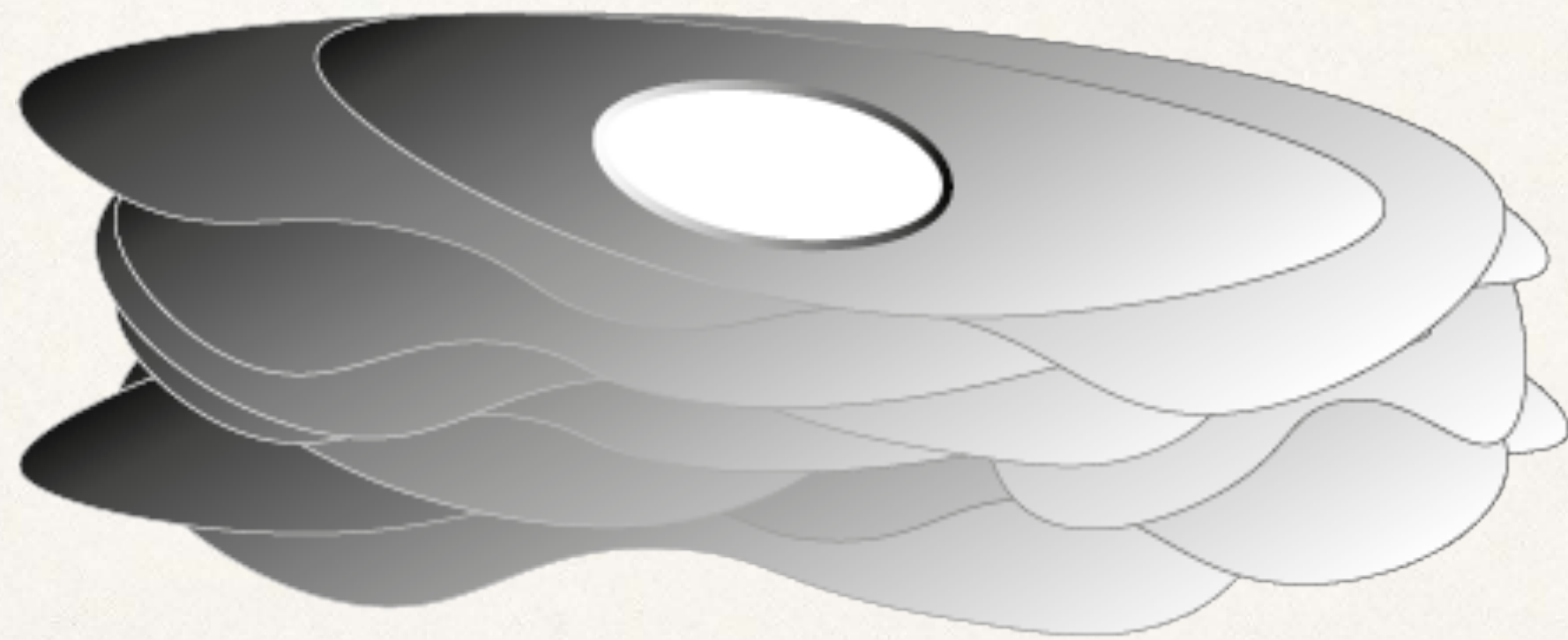


New Range Proposal

A model of a set of jewellery I would like to go on to make. The idea is to hammer layers of thin steel that are cut into circles, similar to the steel wall piece. Then weld them altogether to produce heavy, uncomfortable, rusted steel piece, potentially with gold incorporated into it. I would use gold leaf or have an actual layer of thin gold amongst the steel.



Adobe Illustrator
Designs





This would be the style of photography I would use for these pieces. They are more conservative and vogue like. Simple but effective.

The new range will be similar to the previous project that inspired me, using rusted steel and gold flakes. The range will resemble the ugly behind the beauty, meaning it is more about material use than the processes in which they are made. They will be very heavy and uncomfortable, but they will look striking and powerful.

To Conclude...

Through experimenting with different materials and developing a technical skill that I have running through all my collection, i have produced a powerful and enticing range. Each piece has a story behind it and a lot of depth and meaning. They offer discomfort in beauty and make people see jewellery in a different light. I hoped that my range would educate people and make them value jewellery in a very different way, not just monetary or sentimental. By looking closely at my jewellery, they will see depth and history, they will see a story. The hallmarks and the textures of the previous item. While displaying the art of using traditional techniques. My project will make people look at their jewellery with even more compassion than before they will think not only of the sentimental value but value how it was created. I hope to develop my steel range further and produce striking, heavy jewellery that will contrast greatly with my fragile range.

Bibliography

Figure 1 and 2

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<https://www.fairtrade.org.uk/Buying-Fairtrade/Gold>

Page 7 and 8

<https://benchpeg.com/>

Figure 3

Deforestation pics <https://maaproject.org/2017/upper-malinowski-2017/>

Figure 4

<https://earthworks.org/campaigns/no-dirty-gold/>

Figure 5 &6

<https://www.utedecker.com/>

Figure 7

<https://www.hrp.org.uk/tower-of-london/history-and-stories/the-crown-jewels/#gs.5p1lbi>

Figure 3 & 4

<https://www.mining-technology.com/projects/minera/>

<https://www.zerohedge.com/s3/files/inline-images/mining.jpg?itok=Cl0cob66>

Figure 8 &9

<https://archpaper.com/2014/04/on-view-the-cincinnati-museum-of-art-presents-the-modernist-jewelry-of-art-smith/>

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Figure 10 <http://www.thebritishtapestrygroup.co.uk/artist/margaret-crowther/>

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