Production Project

Jevon Jones - 1902309

Module Brief & Pre-role ideas

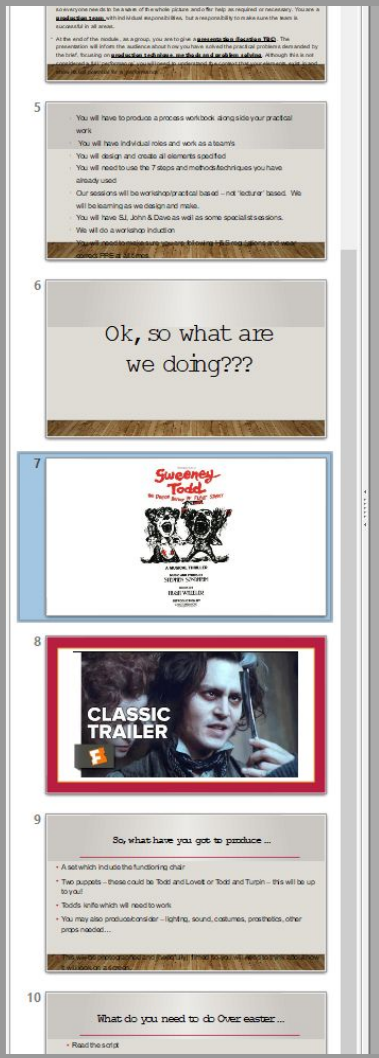
The Task - Sweeney Todd interpretation

In summary, our task as one group of practitioners is to create and present aspects of the musical *Sweeney Todd, the Demon Barber of Fleet Street*. Though, what will be made is not set in stone, we are looking to make the mechanical chair, a working effects razor, parts of/a full set, and two puppets. Unlike the last module, we will not be put into separate groups, but will work as one 'company' that can then present a unified final project, at the end of the allocated time.

With lots to do before easter break was over, I printed off the script to highlight each department's relevant details - along with watching three different adaptations of the musical itself.

It would not be until after easter break that we would know what roles we would be doing. Thus, it was important to highlight all relevant aspects in the provided script.





Sweeney Todd: The Demon Barber of Fleet Street

This musical is an adaptation of the Victorian era penny-dreadful serial literature series called *The String of Pearls*. It was written in 1846.

Though the musical takes a few artistic liberties with the original story, the central themes of revenge, obsession and mass murder still reign true for both.

The main protagonist is Sweeney Todd, a barber who seeks revenge on a man of lawful standing, Judge Turpin, for imprisoning him for 15 years in order to get at his wife.

“It might seem perverse to choose as a love-object a musical about a serial killer. But that's not quite how I see Sondheim's show. It's actually about a barber with a grudge who returns to Victorian London to seek his revenge on the judge who wrongly convicted him. Only circumstances, and the corruption he sees all around him, make him a crazed killer who turns his victims into succulent meat pies.” (Billington, 2014)

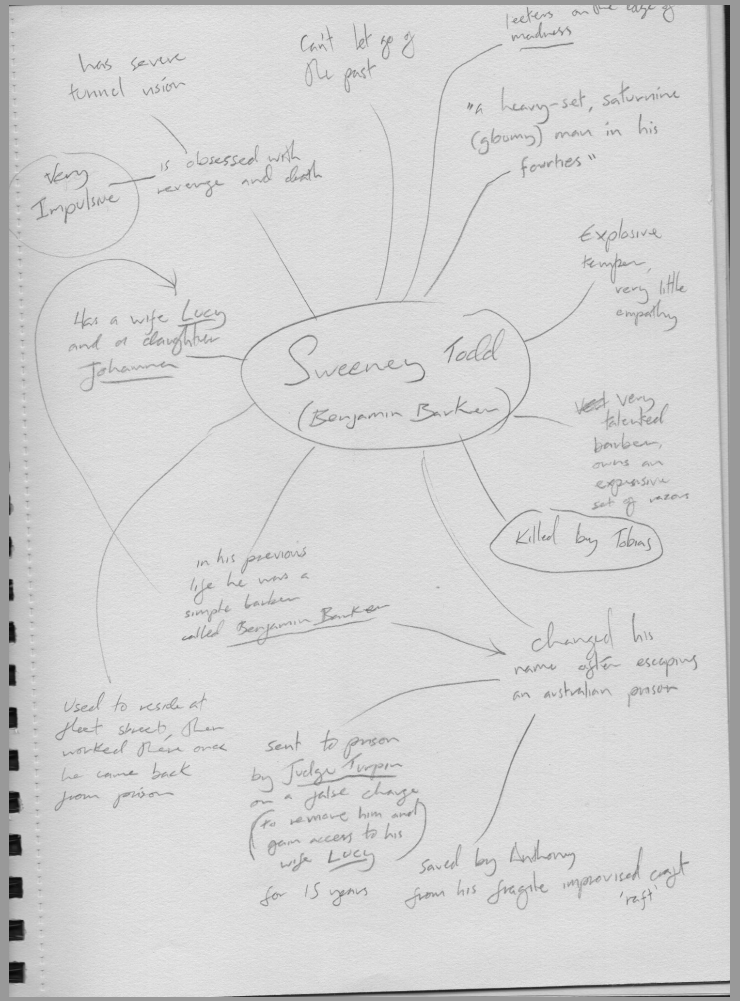

(Billington, 2014)

Character Analysis - Sweeney Todd

As the main protagonist, Sweeney is portrayed as close to madness very often, and the musical motifs that accompany his bouts of rage reinforce this.

I think the character of Sweeney is like an analogue for 'It could be anybody', as he's portrayed as a lawfully abiding citizen and nice person before his imprisonment.

The depths of raw anger juxtaposed with the heights of his ability to display compassion and tenderness make him a very compelling character.




(Amblin, 2019)


(Proctor, 2018)


(CarlaNg, 2018)

Character Analysis - Mrs. Lovett

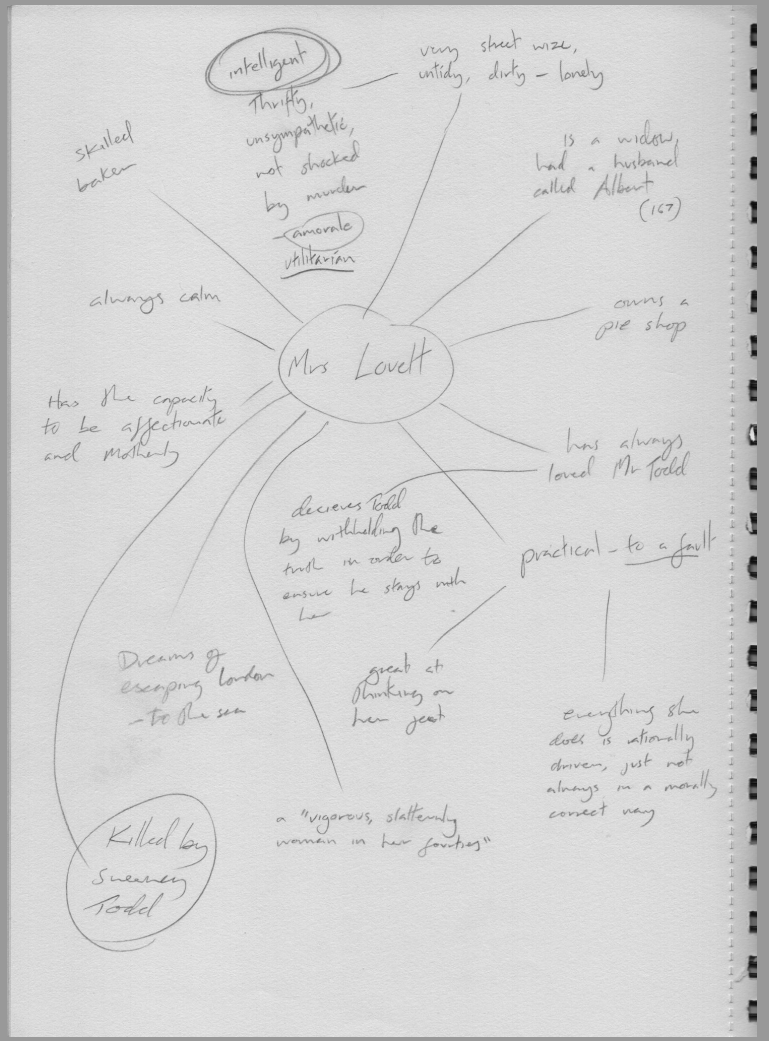
Lovett would have to be the puppet master in this narrative, as so much of what happens is directly because of her ability to organise and prioritise how events fold out. She utilizes Sweeney's blood just to great effect, while also loving him - but the pair are more like siblings in the ways they behave towards one another.

She is decisive, cunning, and much cleverer than she at first looks and sounds.


(Proctor, 2018)


(Amblin, 2019)


(CarlaNg, 2018)



Character Analysis - Anthony Hope

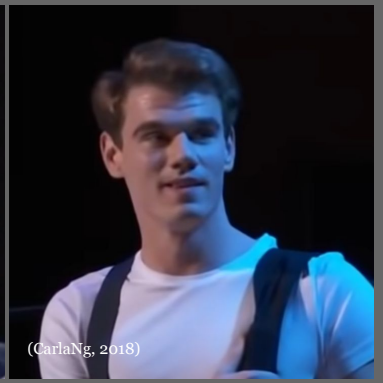
Anthony hope exists in this plot to justify a means for there to be a typical romantic sub-plot, and his character is portrayed as rather optimistic to a fault at times.

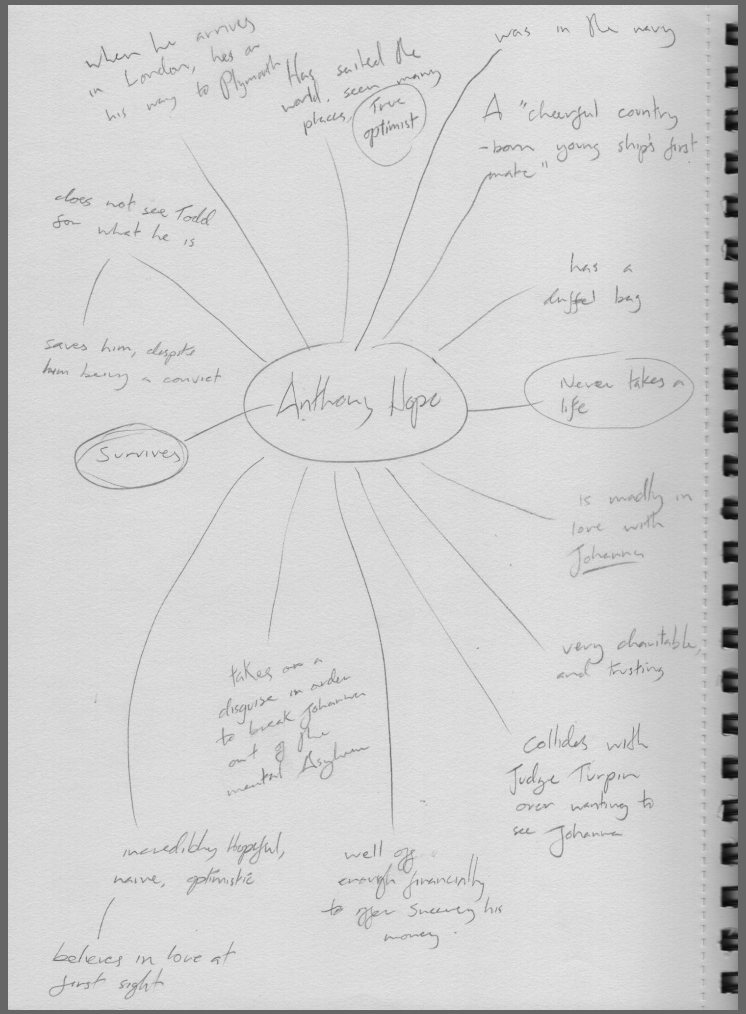
As the plot goes on, he becomes more and more disillusioned with what he sees all around him, to the point of disbelief.

Though he is supposedly a sailor, Hope ultimately fails to take a life when he is in danger, making him one of the few characters who does not kill anybody.


(Amblin, 2019)


(Proctor, 2018)


(CarlaNg, 2018)



Character Analysis - Lucy Barker

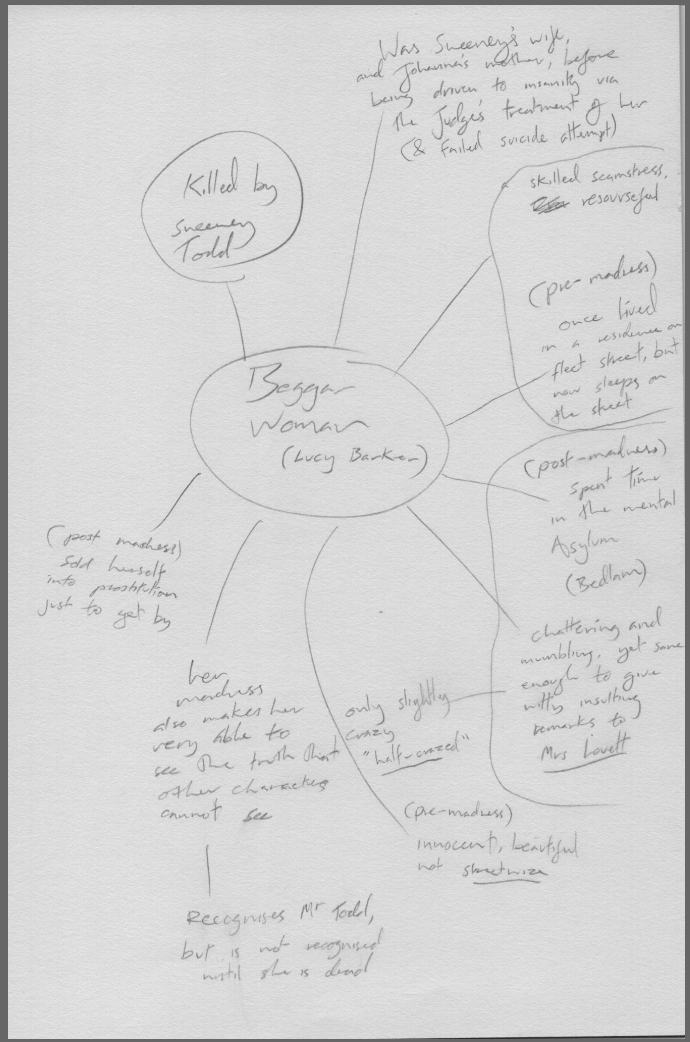
Lucy barker is the loving wife turned mad beggar woman of Sweeney. Her attempt to kill herself after her molestation from Turpin cause her not death, but a loss of sanity due to the lack of help she received after her attempted suicide.

Despite her muttering and polarised tone, she often speaks the truth that nobody else in the play can see. One example is how she can recognise Todd without him realising its her. She can also see Mrs Lovett for the monster she actually is.


(CarlaNg, 2018)


(Proctor, 2018)


(Amblin, 2019)



Character Analysis - Johanna Barker

Johanna is the daughter of Todd and Lucy, and is raised by Turpin after he destroys their family unit and imprisons her father.

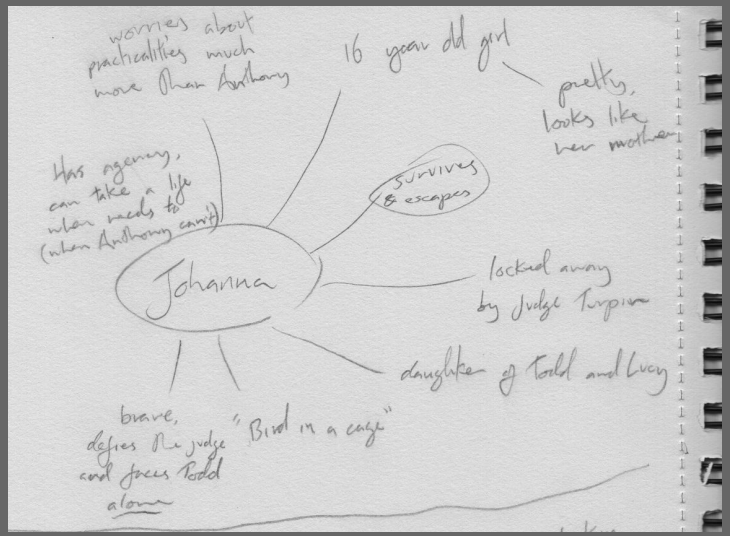
As one of the main motivations for Todd, Johanna bears all the visual cues of a typical ‘damsel in distress’, as she is being held captive by the predator Turpin for his own sexual gain.

However, Johanna is surprisingly one of the stronger characters, given that she defies Turpin multiple times, can take a life when push comes to shove, and also stands alone against Sweeney and manages to survive.


(Amblin, 2019)


(Proctor, 2018)


(CarlaNg, 2018)



Character Analysis - Judge Turpin

As the main antagonist of the story, Judge Turpin is a cruel and powerful man with a sick sense of justice and fairness.

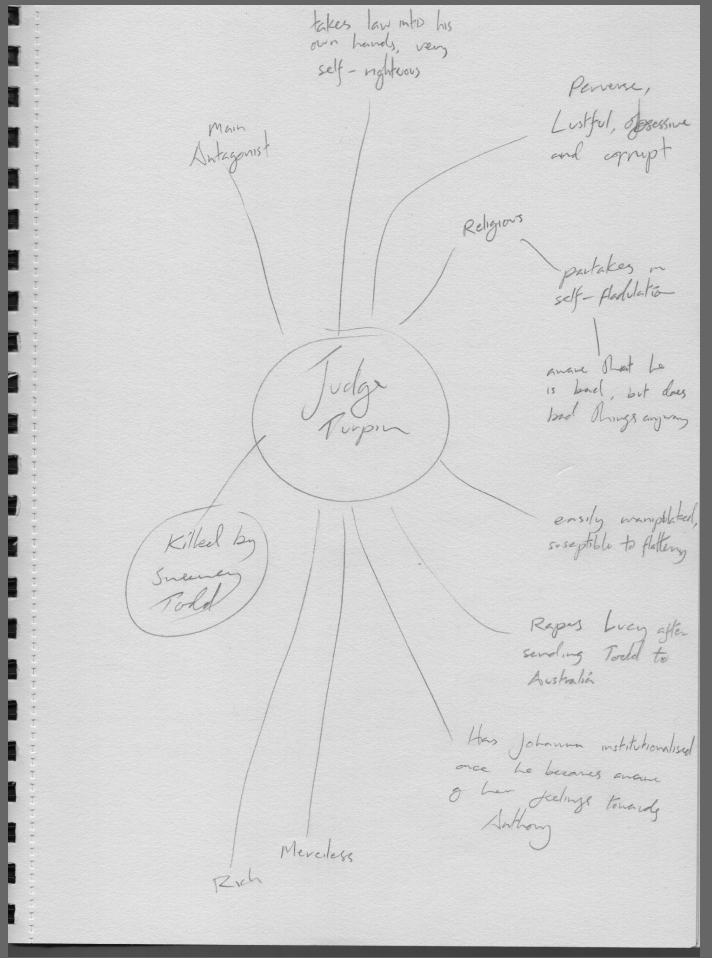
Despite that, he's still susceptible to being coerced, for example when the Beadle, his loyal lackie, encourages him to go and get a shave in order to 'woo' Johanna.

As far as main baddies go, Turpin is especially despicable in how he not only locks Todd away for 15 years in order to molest his wife, but also then takes Johanna and raises her just to be his slave in marriage when she is old enough.


(Proctor, 2018)


(Amblin, 2019)

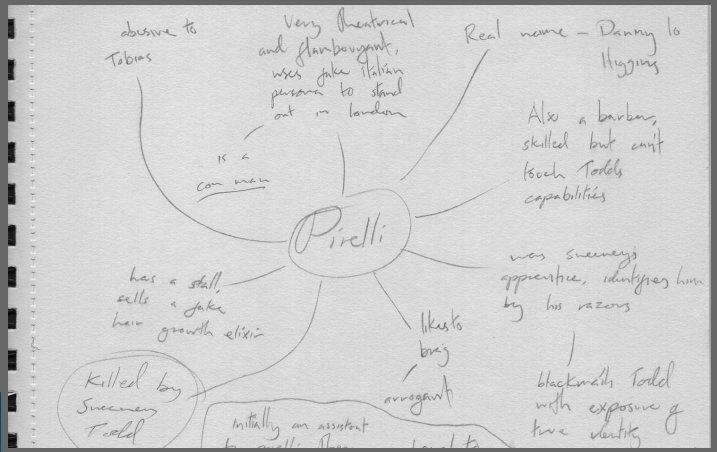

(CarlaNg, 2018)



Character Analysis - Pirelli/Danny Lo Higgins

A rival barber, Pirelli is one of the sub antagonists of the play. His fake persona of an italian make his dodgy street vending different to the competition, and he is portrayed as a good barber, but only until Sweeney himself beats him in a competition.

In reality, Danny Lo Higgins is a street con man, who tries to exploit Sweeney's unmatched barber skills via blackmail. He's also the de facto owner of Tobias, whom he publicly abuses.




(CarlaNg, 2018)


(Proctor, 2018)

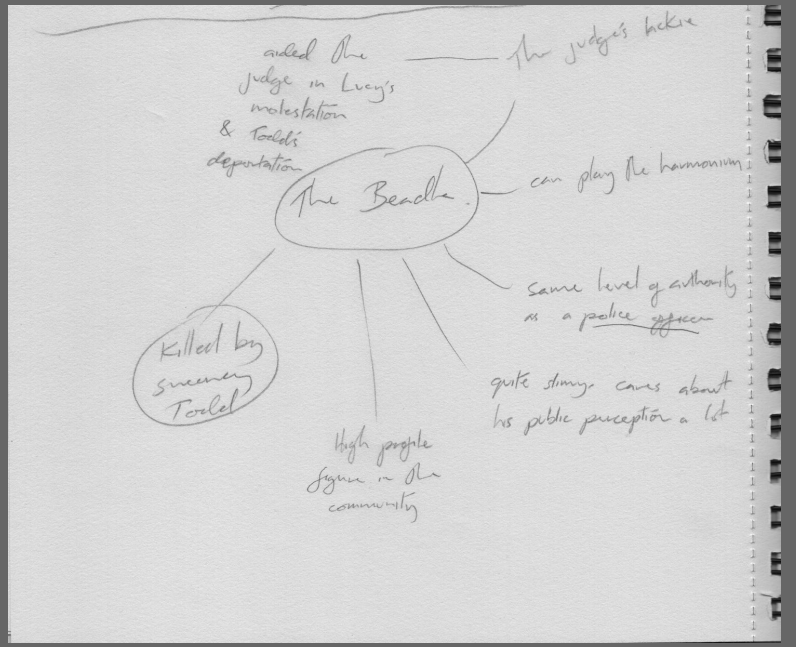

(Amblin, 2019)

Character Analysis - Beadle

The Beadle is a slimy sub-antagonist. Through upholding his position of power through the Judge, he is able to get away with being an immoral creature of impulse.

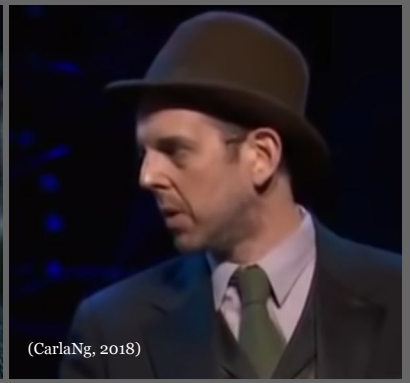
Though he can manipulate the Judge sometimes, it is ultimately his inability to see past his ego that leads him straight into Todd's web of death.

The Beadle aided the Judge in his molestation of Johanna and deportation of Sweeney, making him a larger profile sub-antagonist than Pirelli on Sweeney's hit list.




(Proctor, 2018)


(Amblin, 2019)

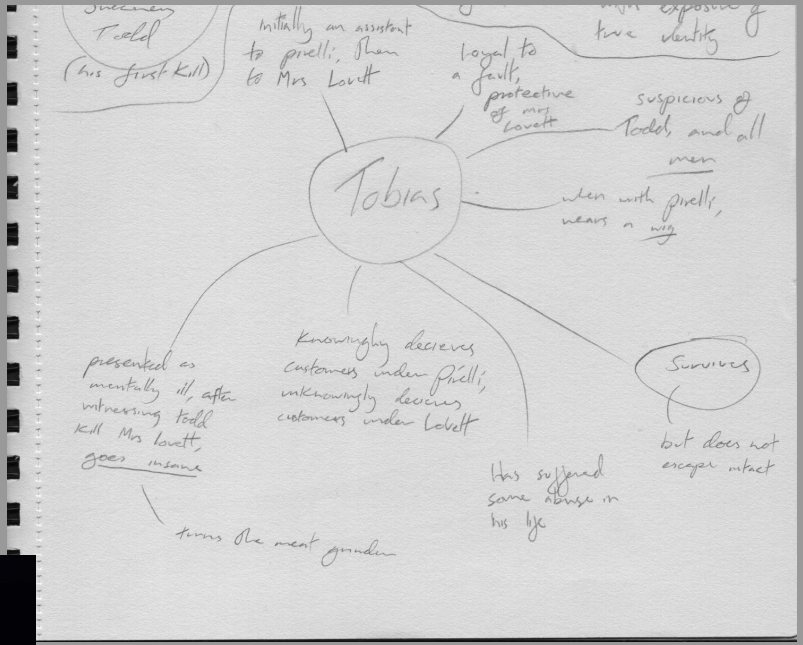

(CarlaNg, 2018)

Character Analysis - Tobias

Portrayed as mentally slow, Tobias is a slightly tragic character. Under the abuse of Pirelli, he exploits people knowingly as part of Pirelli's street vending. And he continues to exploit people under the care of Lovett, but unknowingly.

What makes his character tragic is his fondness of Mrs. Lovett for taking him in, whereas in reality she only did it because it was morally easier to do than have Todd kill him.

Tobias survives the plot, but not intact. He loses his mind once he sees the killings in the basement of Lovett's pie shop.




(Amblin, 2019)

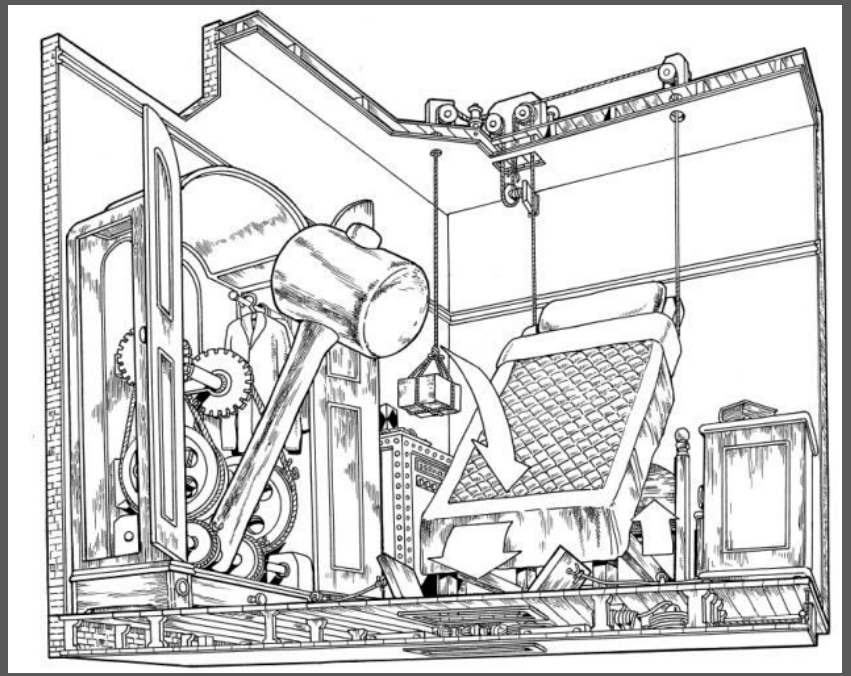

(Proctor, 2018)


(CarlaNg, 2018)

Instinctual ideas

As soon as I knew what our source material was, I gravitated towards the specialised flip chair, as it runs parallel with my love of furniture making. On top of that, during the previous module, Dave mentioned how I would have an opportunity to do a piece of furniture in the coming module.

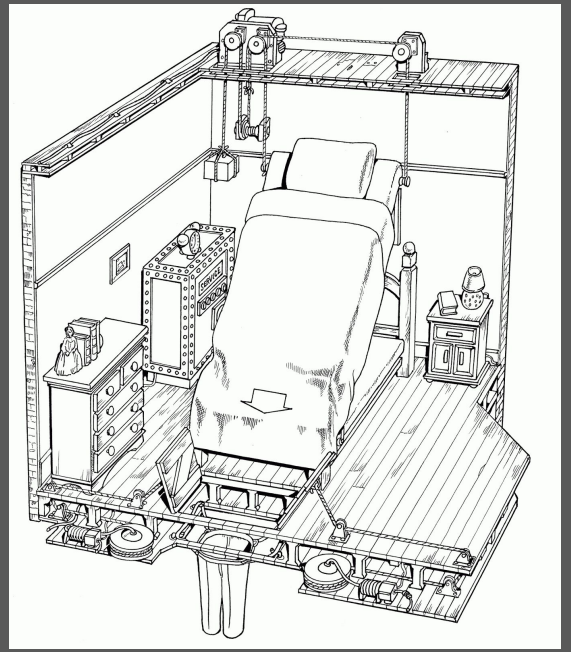
I gathered some visual inspiration for different mechanical chairs I could remember from the tv and film I watched as a kid, as well as gathering some amateur production's Sweeney chairs for inspiration for my own mechanism.



















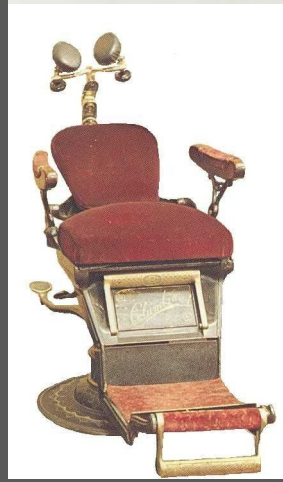






























(Amblin, 2019)



(Amblin, 2019)





(Amblin, 2019)











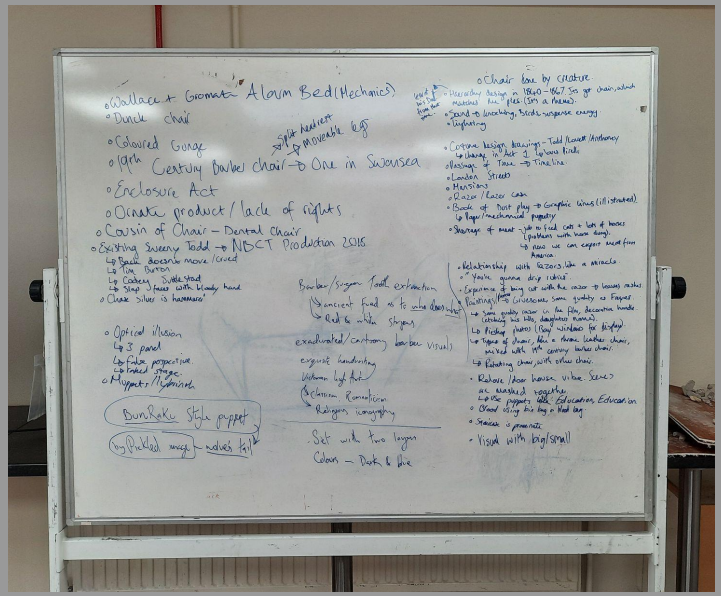
Post-Easter break onwards

Assigned Roles

Once back from easter break, we presented our initial ideas to each other. Key points from everybody's ideas were written on the white board.

I found out that Cara and myself were now responsible for Props and Puppets. This was not what I expected, and I realised my initial research into chairs was not necessarily the right thing to completely set my sights on. I realise now that I need to have a more well rounded perspective on my first thoughts before prematurely committing to something.

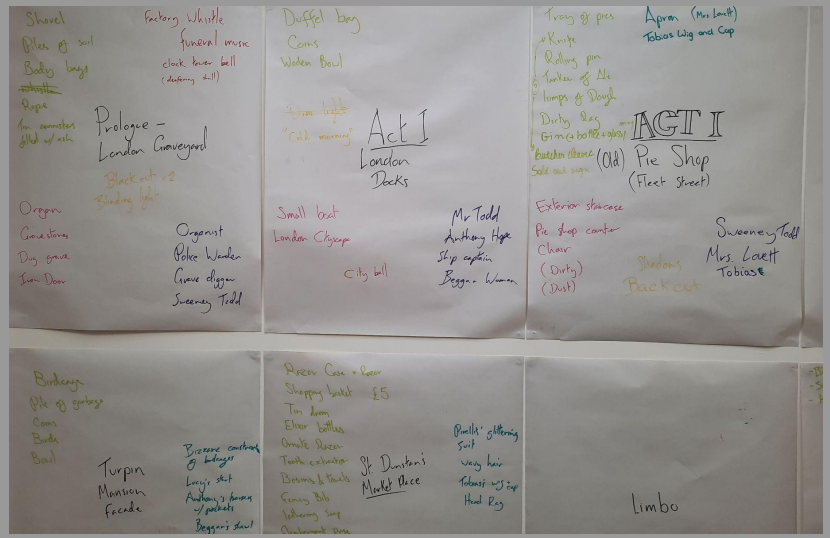


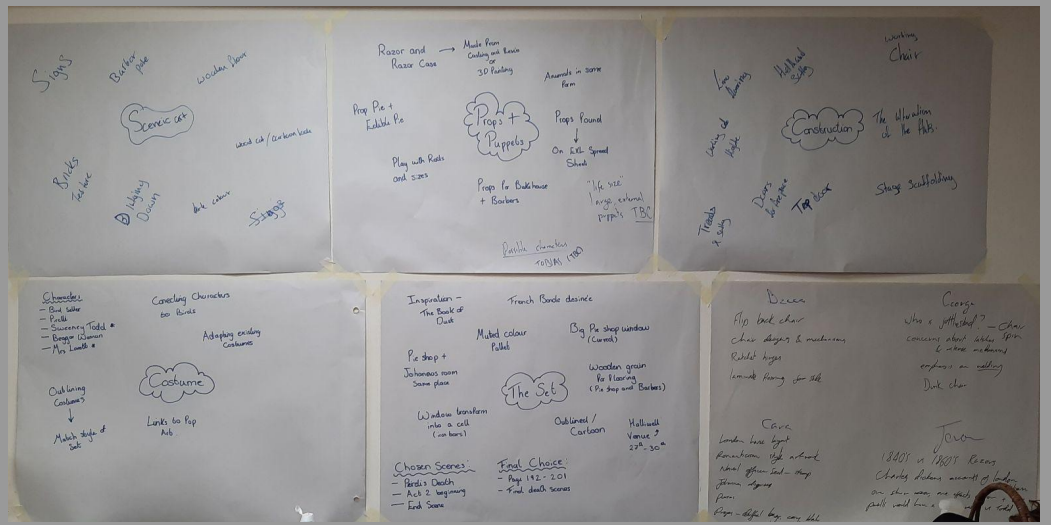


Group tasks

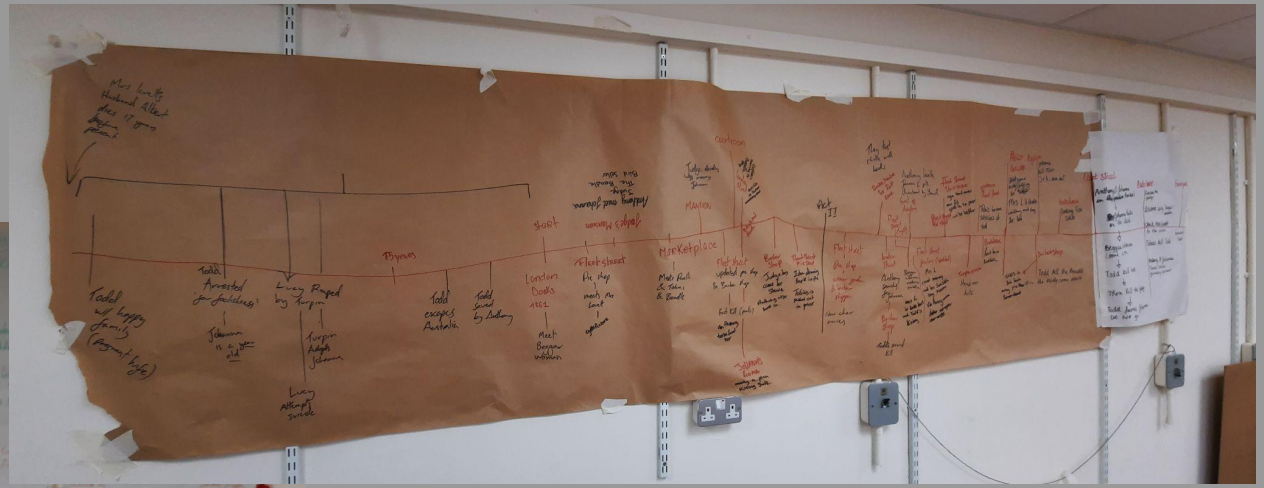
As a whole group, we all combined our individual character breakdowns and put them on the walls, along with a timeline of all the events of the play. This felt good, as we last did it during the Nights at the Circus module and had not done so together since.







Group tasks


Todd arrested for Jacobites
Lucy Raped by Turpin
Todd escapes Australia
Todd Saved by Anthony
London Docks 1821
Fleet street
Mr Ketplace
Todd kill (pie)


Tobias
Pirelli
Johanna Barker
Beggar Woman
Judge Turpin
Anthony Hope
Sweeney Todd
James Fogg
The Bundle

Bande Dessinée

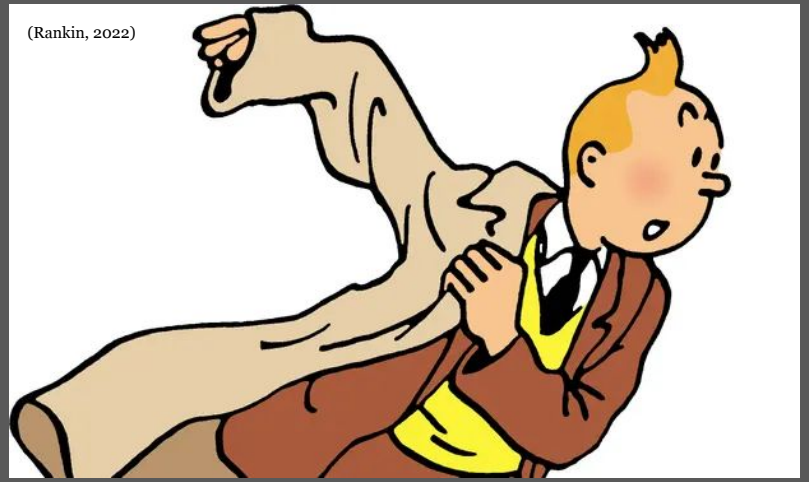
When we grouped up for our morning recaps, with the rest of the team, on the 3rd of May, our set design duo (Freya and Vanina) put forward the notion of using *Bande Dessinée* as the primary visual style. This, alongside heavy influence of the texture and contrast of woodblock prints (From a certain Philip Pullman novel), and a muted colour pallet would be the three guidelines to follow regarding how our theoretical play would appear.

I did struggle to comprehend this at first, as all my efforts to obtain the exact definition of bande dessinée were a little difficult - Google was translating it to 'comic', yielding me nothing!

Thankfully, with more careful observation, I was able to understand that the term refers to a sort of 'golden era' of mid to late 1900's european children's comics.

"bande dessinée, celebrated in Belgium and France as "the ninth art"', remain wildly popular, although no longer get the same space in daily newspapers as they did during their postwar heyday. Tintin, created by Georges Remi under the penname Hergé in 1929, was the first big hit. Soon after the second world war came Blake and Mortimer, an MI5 agent and nuclear physicist, two British gentleman in a permanent quest to outsmart the dastardly Colonel Olrik." (Rankin, 2022)

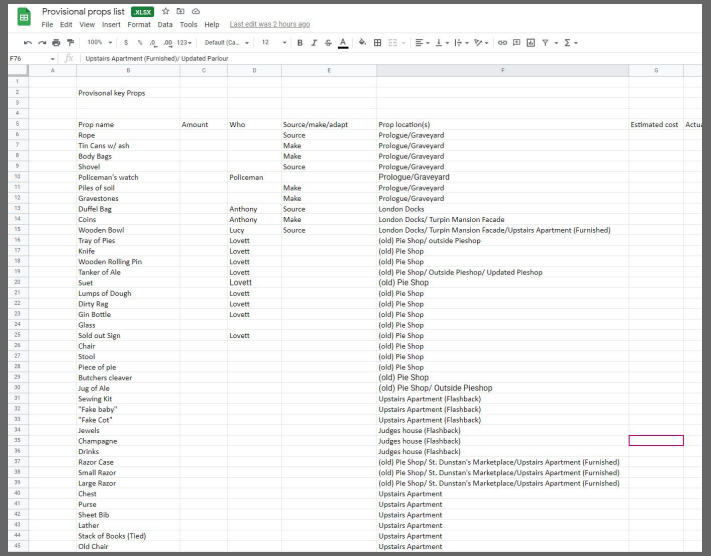
(Rankin, 2022)

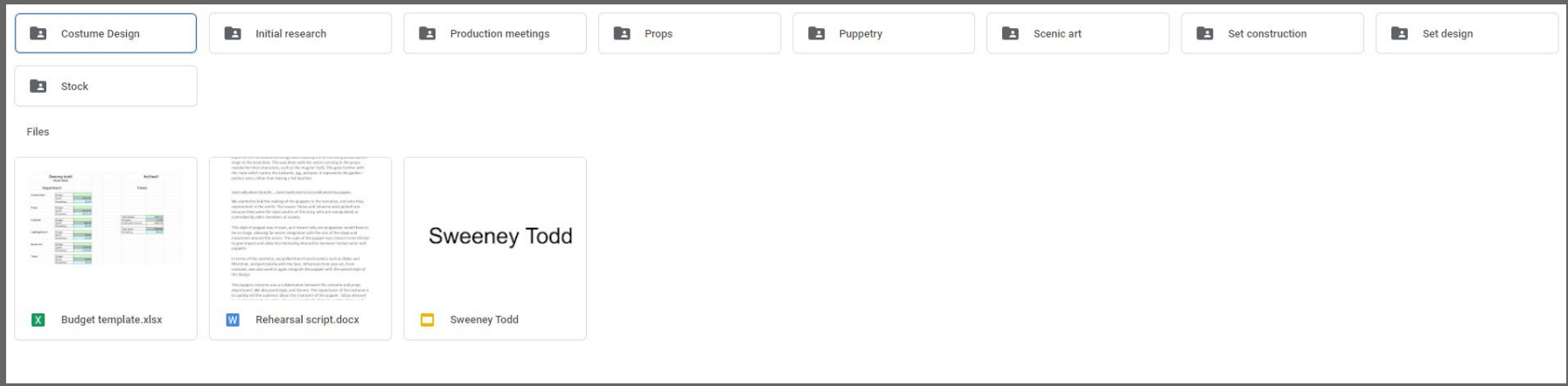


Online file sharing

As usual, we put together a shared Google Drive, containing many folders, allowing us to have an intricate and up to date knowledge of each other's online work.

This includes the budget sheets Stacey provided, as well as the prop lists, scripts for the final presentation, and such.





Prop Scavenging with Cara

Once we had broken down what scenes needed what props to function, we investigated the prop store on campus - along with the upstairs portion of the workshop. There was a good amount of what we needed already, but some of the props were simply too specific. We needed to check the local charity shops and antique stores. I also checked a few car boot sales on those initial weekends.



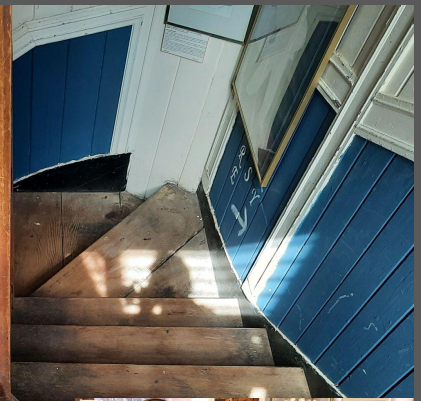






Second hand shop scouting with Cara







Blood bags with Stacey

Due to the nature of the play, Stacey spent a morning with us demonstrating how to construct effective blood bags.

The best ones were also the most fragile, as the ones made from poly pockets were a little too strong once the impulse sealer was used.

Clingfilm was a much better medium for this, but a little more fiddly to execute properly.

I didn't get to try them myself, but according to Dave, condoms work best, and you don't even need the impulse sealer to construct them.





Talks with an industry practitioner

Very near the start of Cara and I's creative process, we were lucky enough for Mr Jake Lindzey (pictured, right) of Leviathan Workshop to visit us several times via in person and online calls.

His work is extensive; he specialises in highly articulated puppetry and models. But that would be a disservice to him - as he does far more than that.

Through our talks with him I was given some major tips and tricks in regards to the tasks we had been assigned. This included not only the mechanical parts of the puppet, but also the joints, the methods of carving polystyrene, finishing techniques, foil tape, alternate 3D printing methods, just to name a few.

Without his guidance, I'm sure our final outcomes would be radically different to what they would eventually become.


(Leviathan_works, 2022)

The history of one brand of Straight Razor

The Heiffor family started work as barbers 1787, at 51 Scotland street, Sheffield. By 1833 they had listed themselves as a manufacturer of razors specifically, leaving the shaving aspect behind in pursuit of making the tools themselves instead.

The demand for razors must have made them very successful, as less than a decade later they moved the business to a larger property on Paradise street (pictured) to accommodate for the higher volume of production.

By this time, their name was synonymous with quality edges.

“Their army razors (pictured) sold for just 1/- each, 5 pence in today’s awful money, in the 1850s, this razor must have been a quality product for the Government to buy them as they were sticklers for quality. Thomas did try to to make razor production more mechanised in 1865 by patenting a method of rolling out steel in an pre-shaped hollow strip for his razors. I can’t say whether this idea took off or not but the business still made hollow-ground razors by hand.” (thestar.co.uk, 2017)

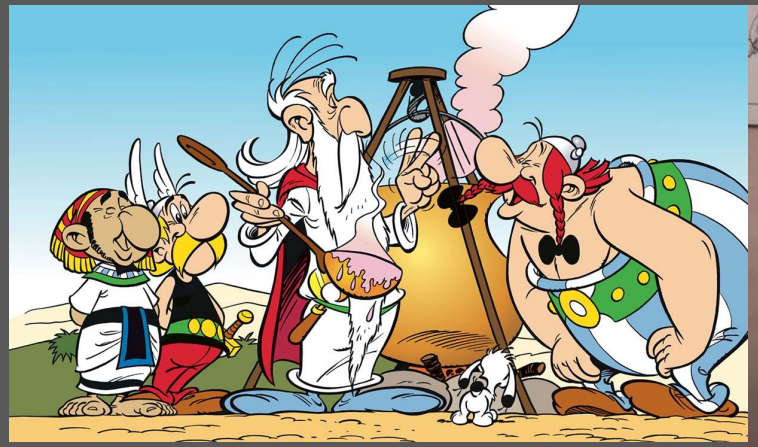

(thestar.co.uk, 2017)



(anonymous, 2022)

Visual style and colour

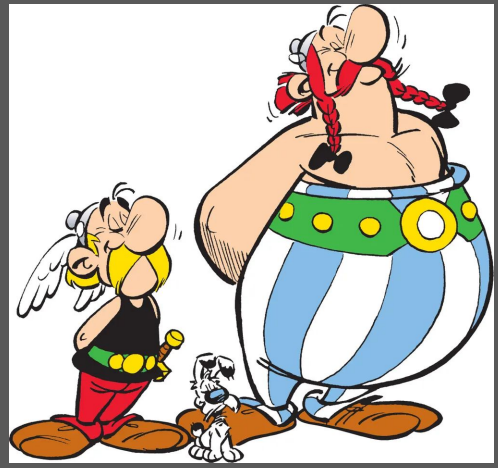
Asterix











Blake Et Mortimer





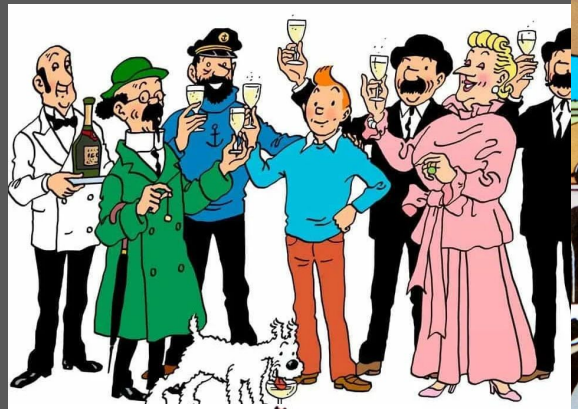




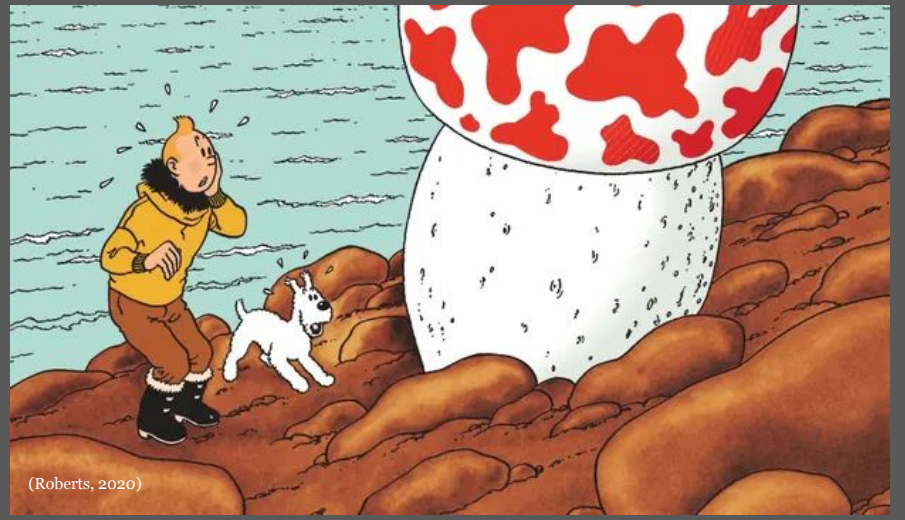




Tintin



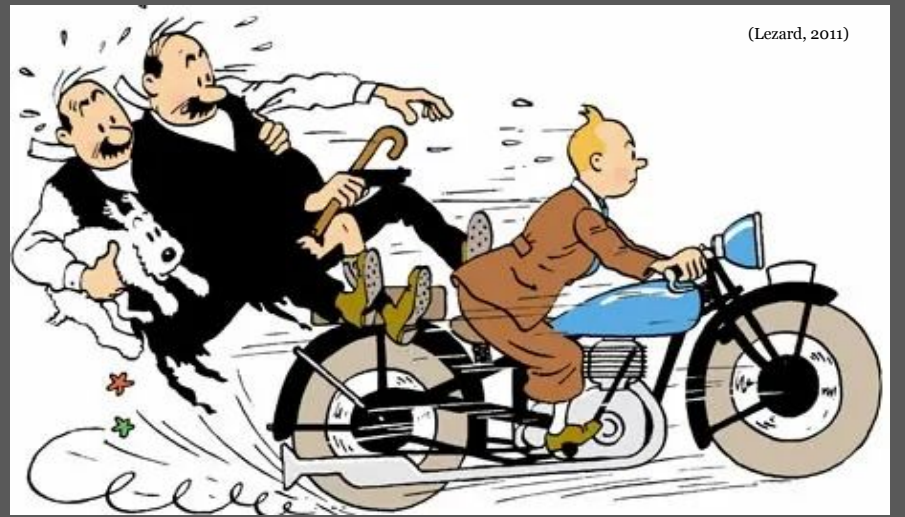




(Roberts, 2020)







(Lezard, 2011)

Existing Puppets & Mechanisms













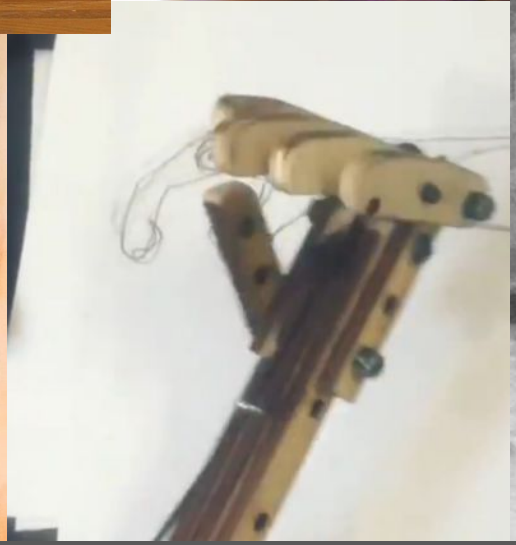










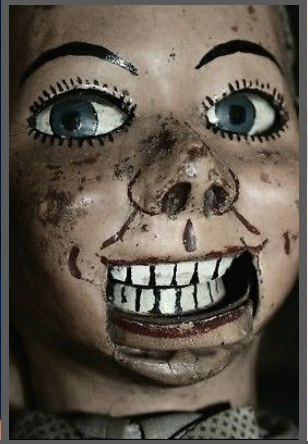









AntiquesAtlas.com



Peter Morton's puppet

Morton's creations are varied and intricate, but what touched me most was his replica of himself that he made in 2013. He wore this puppet for two weeks straight. That means he ate, slept, and used the shower with it too.

The whole puppet is constructed with plywood, making it extremely heavy. Morton has designed every joint to replicate his own body's movement, and made it so that they share hands. This a major advantage, as hands are especially difficult to articulate to pick things up and interact, ect.

"We manipulate objects to surpass our physical limitations. They can give us warmth, allow us to throw our voices across continents and travel to the edge of space. The material world shapes our experience of life and we build relationships and pour affection upon objects that physically can offer none in return. An object can become Levinas's "Other": we exist only for and through others. How does the object I have made fit into this world? In the 2 weeks I lived both through the object, and for the object." (Morton, 2013)

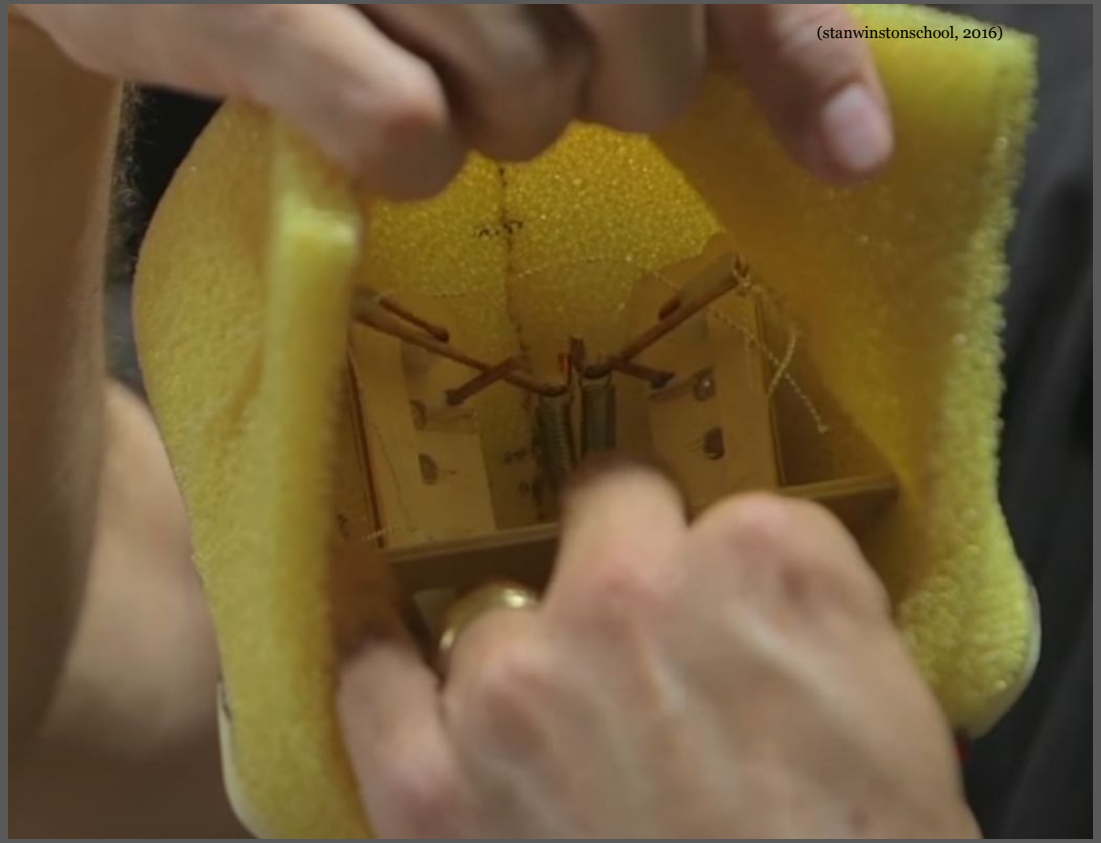
I only see one real flaw with Morton's design, aside from the massive weight in its materials. The extra articulation in it's ribcage has caused it to flop in an unpredictable way - this can be observed in how he has had to tie the ribs together in order to better control the movement of the spine.


(Morton, 2013)

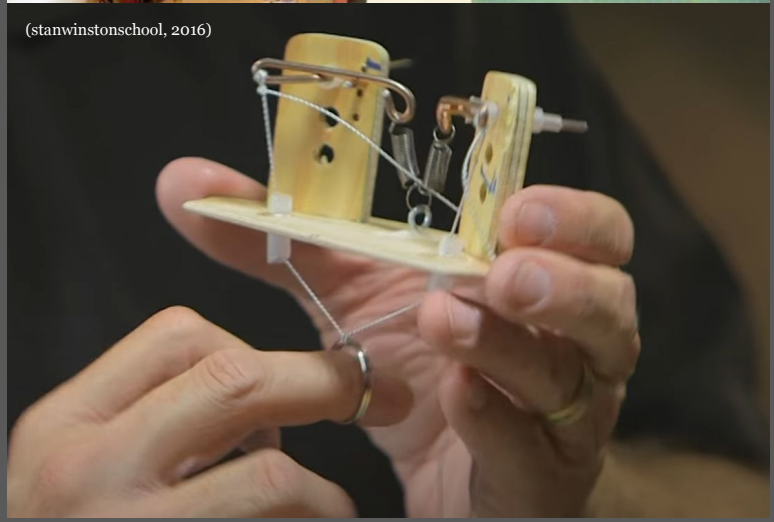




BJ Guyer's Mechs for expressions


(stanwinstonschool, 2016)


(stanwinstonschool, 2016)


(stanwinstonschool, 2016)

Existing Puppets in the workshop











Puppet design journey

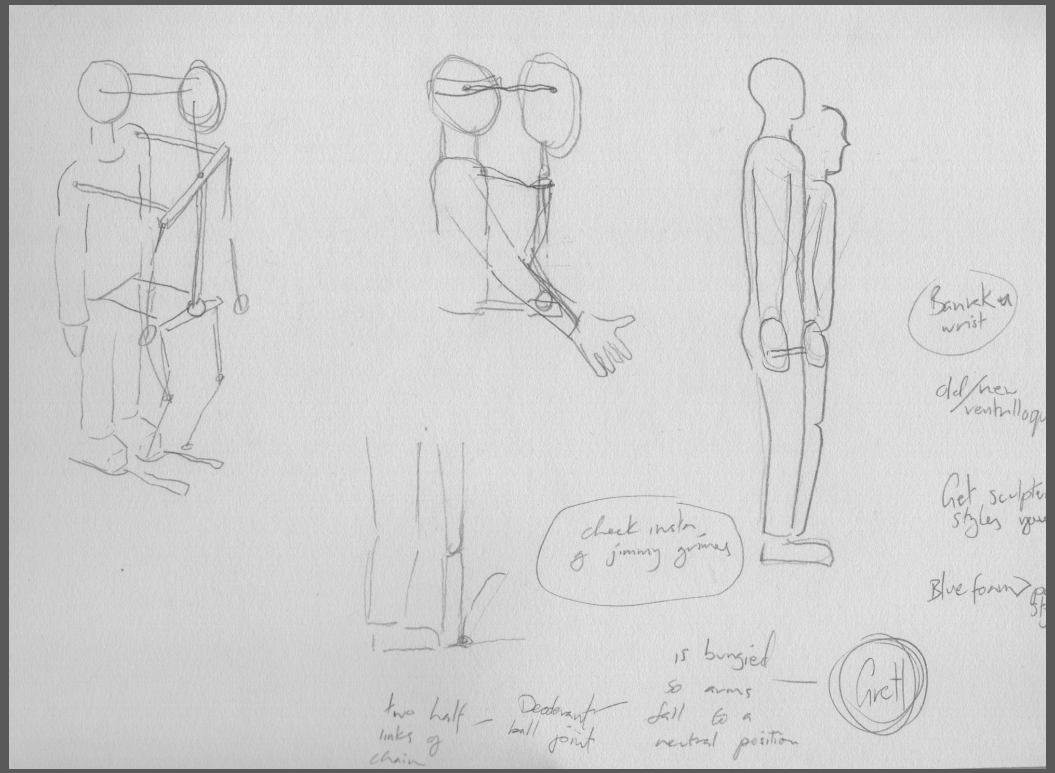
Initial ideas for puppets

Cara and I talked for some time about what exactly we wanted from the puppets we were tasked with making. As the script makes no mention of them, we had a vast expanse creative freedom with the topic. There were suggestions of re-using the ‘house’ I had made for my previous puppets, and having the character of Tobias controlling several smaller table-top puppets, owing to his child-like nature. I reiterated however, that I did not like how my smaller stage caused my puppets to be completely cut off from the rest of any show’s hypothetical world.

In all honesty, I shied away from diving into the puppet side of the task at first, as I wanted to work on the effect knife. But as time went by I found myself drawn to the opportunity, as I do love the challenge of a puppet. On top of that, I realised that this was an opportunity to prove myself via not putting up barriers of what I would and would not do. Even if I failed at both, it would still be admirable that I had attempted such an intimidating and diverse pair of projects.

After much conversation and suggestions from fellow classmates, we were drawn to the idea of a hybrid type of Banraku, which itself is a traditional Japanese tabletop scale puppet.

Initial ideas for puppets



I took heavy inspiration from the contemporary Banraku seen in Disney's the Lion King™ musical. Together with Peter Morton's 'Ridley' humanoid I wanted a full size puppet that would mimic my actions.

Cara was also looking at the full size puppets, and helped me narrow down the sights on what would eventually become our final design.



Initial ideas for puppets





As we needed a way to attach anything we made to our bodies, we started looking into what we could upcycle as a quick substitute.

Thankfully, Stacey had a baby carrier spare for us to modify and learn from.

This would be a valuable tool in allowing us to (moderately) quickly remove whatever we made from our bodies without just attaching it to our clothes directly.

But more importantly, I learned that I need rigidity in the chest and pelvic area when it comes to harnesses. Otherwise, whatever weight is added would ‘sag’ with the fabric - causing the puppet to not function at the height it was designed for.
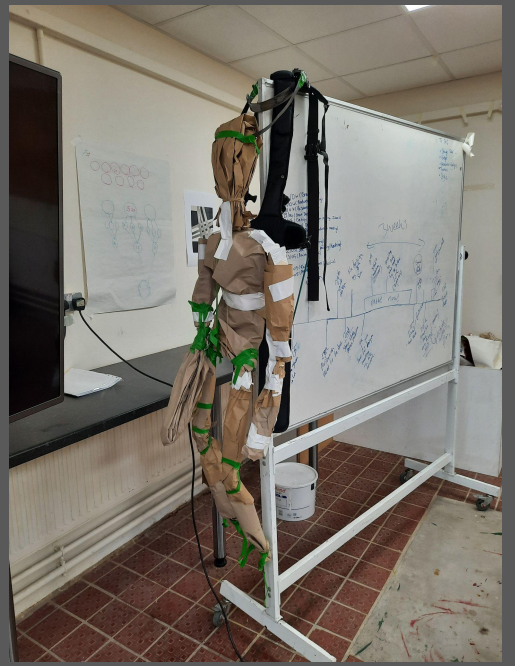
Puppet scratch building



I learned from my last experience with puppets that I have to jump in and make something, anything, so that I could get my hands on it and better understand how the physics of it all make sense practically.

Since I was most likely going to be operating the puppet, I decided that it should be just tall enough to come to my eyeline. Thankfully, Cara was the right height to fulfill this criteria. So I measured her body and roughly replicated it with rolled up brown paper.

It was shabby, but it held together long enough for us to wrap our heads around the concept.



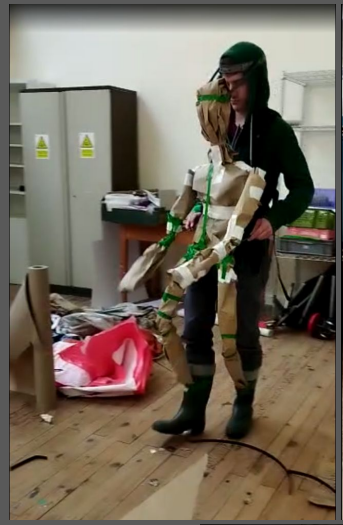
Puppet scratch building

In order to better understand how full size puppets work, we put together some brown paper rolled into arm length parts. This very basic maquette was then taped to my chest and boots, allowing me to manipulate it with the rods I had attached to its elbows.

This was a major milestone, and decision point for us, as I initially wanted hands that were shared by the puppeteer and puppet.

This allowed us to further commit to which character we wanted to portray, as the nature of this maquette was ideal for an adolescent person's height - due to my own having to see over it.

But once we saw how I could place the arms much further away from me through this method, we decided we should go down this route.











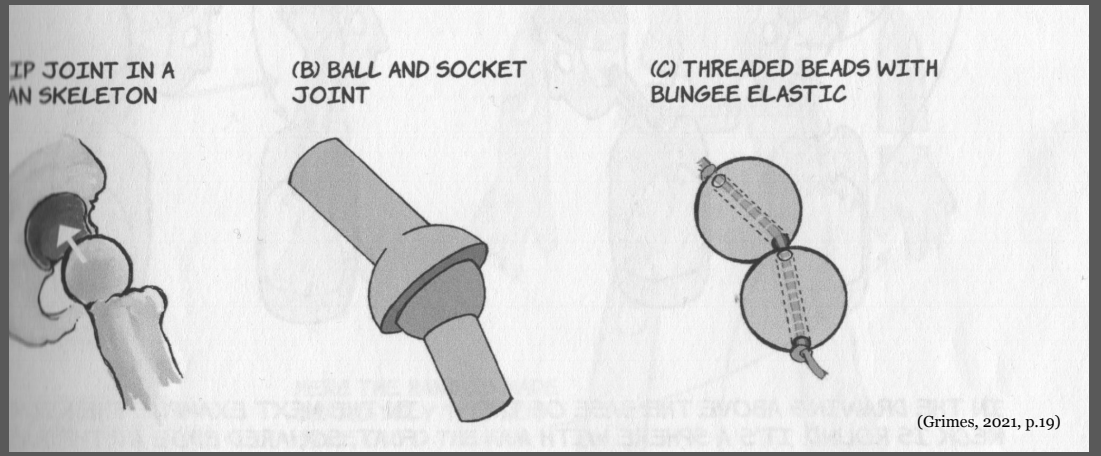
Puppet practice joints

With the success of the ‘scrunchy paper’ puppet, Cara and I both got to work making maquette puppet joints. This was mostly informed by the expert guidance provided in Jimmy Grime’s book *Puppet Mechanisms - and how to make them*.

We really liked the idea of joints that could fall back to a neutral position - meaning half the work of making them look like real human limbs would already be done without manipulating them.

As the second time around for me with puppet making, it was still a major challenge for me. Fully articulated floppy creatures are so hard to wrap one’s head around, compared to static objects like furniture.

I was thankful we had access to the back room of the parry building, as it’s a treasure trove of random bits when you are making simple principle ideas from scratch.



(Grimes, 2021, p.19)





Second Maquette iteration

Having successfully made some brown paper move like a humanoid, I felt I had to dig deeper in regards to finding out the exact lengths of each limb, and generally refining every aspect of the original version.

I used cardboard, sticks, strong rope, thick wire, and lots of hot glue to assemble a more rigid puppet that would hopefully out-perform its predecessor.

The notion of more rigidity (Because of the sagginess of the fabric baby carrier) was key for me here, and an emphasis on specific pivot points and defacto ball joints improvised from loops of the thicker wire.

It did not take long, and I was bolstered with confidence from our previous attempts at success. This is foreshadowing.



Second Maquette iteration

Cara and I rigged up the cardboard creature, with the same four points of attachment (the head strap, chest baby carrier, leg tape, and elbow rods)

To my surprise, almost every aspect of this iteration was a downgrade of the *scrunchy brown paper man*:

The arms were badly-proportioned and clumsy and the additional articulation in the central chest buckled and never straightened up.

But the biggest offence was the head, it drooped to one side due to the play in the improvised wire loops that served as its neck joints. Even after reinforcement with a ‘collar’ the head still didn’t work the way I wanted it to.

We never took a video of this one moving, it was too difficult to keep it’s head straight. I had to get these still shots where I’d balance the head in a way that it didn’t droop to one side.









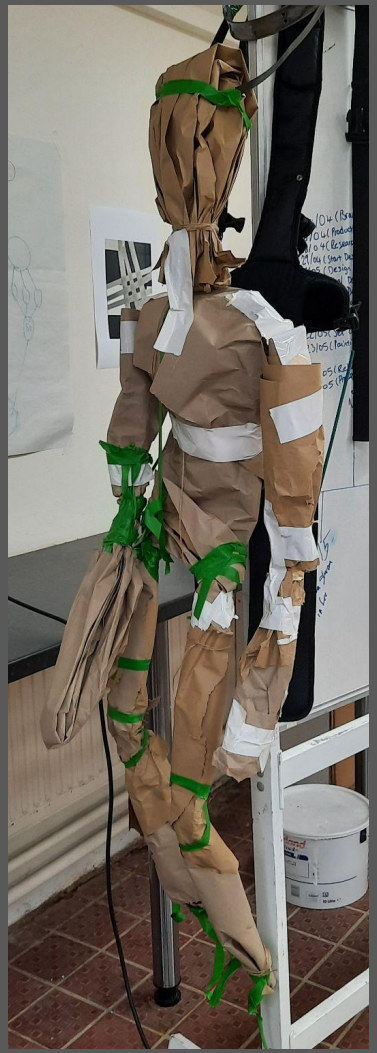
Maquette reflection

I feel it's so important to stress here, that my previous experience with marionettes was fighting the logic in my brain.

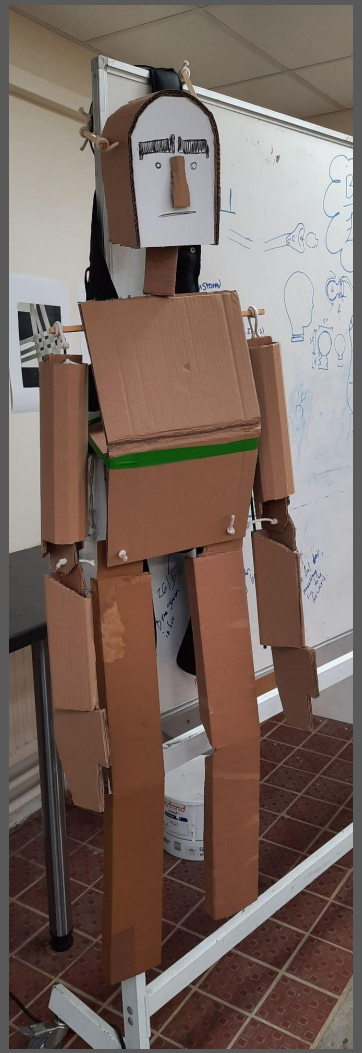
With my previous tabletop puppets, I started with less articulation, and total rigidity. The more joints I added, the better it moved because of the way it **hung** from the strings. Touching the ground would make them flex in a satisfactory way.

The difference was, the more I adopted these principles with the life-size puppet, the more opportunities it had to sag with the effects of gravity.

On top of that, the flexibility of the paper maquette was a silent aid I was not aware of until I made the cardboard one. It was the way it could slightly shift when under stress that made it more convincingly human.







A cure for rigidity

Given the problems I had faced with my stiff cardboard joints, Cara was hard at work making sausage arms.

I didn't realise it at the time, but these arms were the perfect solution for the problems with the arms I was using.

Through being fairly rigid, but still flexible and full of body, the fabric arms were a perfect solution for our problems. Additionally, with flat sewn parts, the sausages flex on a perfect pivot.

All we needed was a central bone, something light that would allow the extra flex at the joints while not completely warping.

I contemplated long bits of stiff wire, but they'd bend too easily and hold that bend. Thin pieces of wood crossed my mind, but they would snap too easily and be a nightmare to remove once glued in.





Jake’s further visit

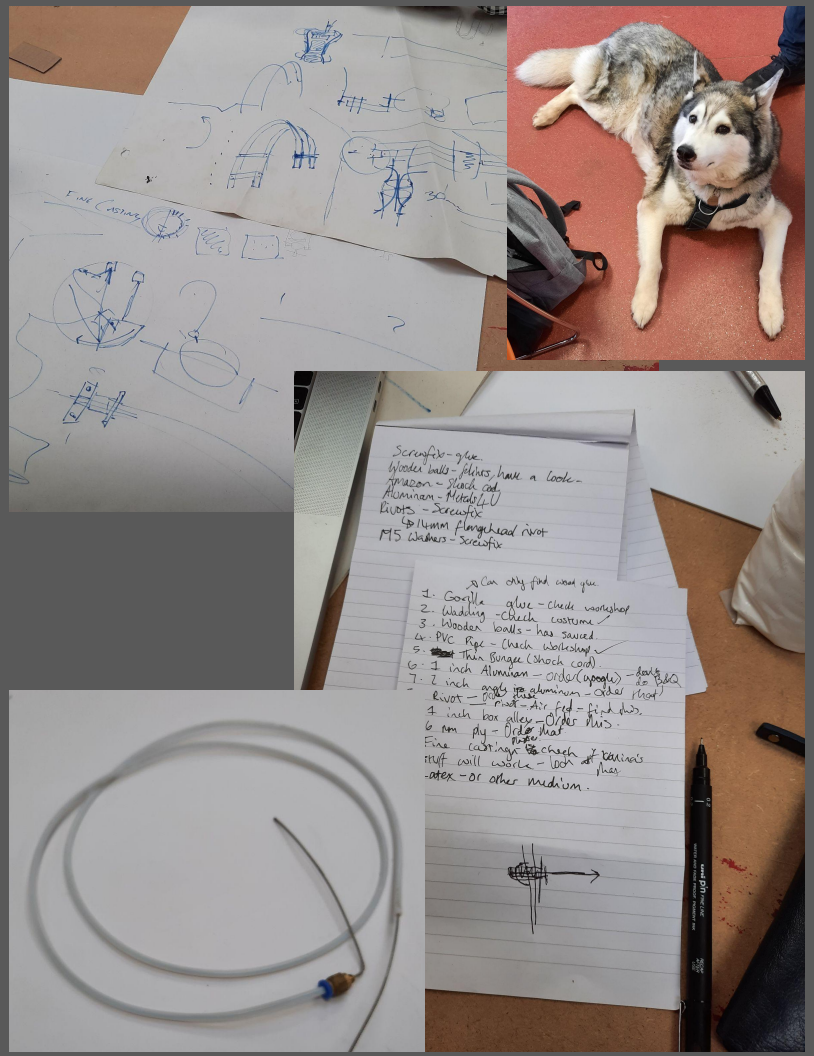
Having already spoken to Jake online, it was a world of difference to speak to him in person and allow us to put pen to paper.

On top the sage advice he gave verbally, he also brought a sample of the kind of PTFE tubing he uses which allows for energy to be transferred from one place to another without complicated pulleys. I already knew of these concepts through puch bicycle brakes, but had no idea how to meaningfully implement them.

As for the neck and shoulder joints, he suggested how PVC pipe can heated and warped to accept balls and work exceedingly well. This was the missing piece of Cara’s fabric sausage arms that would make them the ideal limb of choice for our type of puppet.

Along with all this, he ran through our plan and pointed out all the pitfalls we would snag on - and how to avoid them. We put together a list of the revised materials we wanted for our budget sheet (Jake also knew the best places to obtain each type of material!?!).

I feel dishonest sometimes, knowing that I got away with so much without making the mistakes I really was headed for. That being said, such is the nature of life.



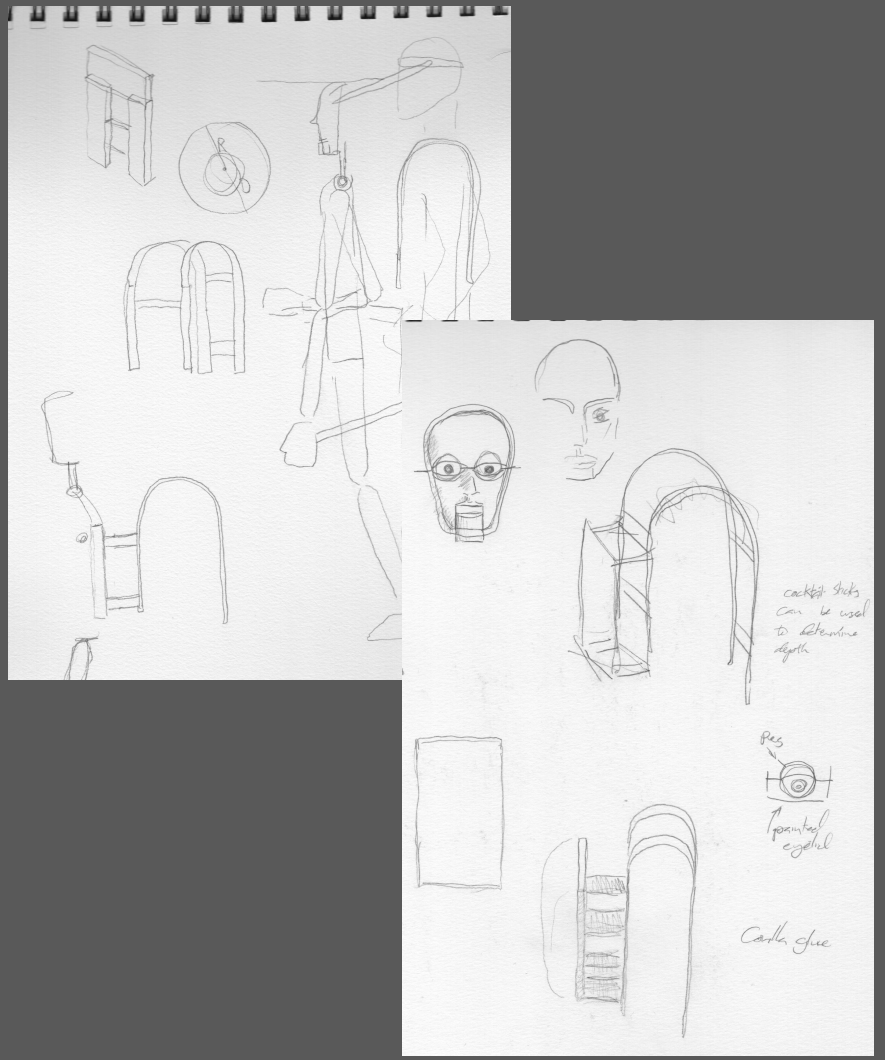
The ground plan going forward

So, with all the brainstorming and advice we now had, we opted for a metallic harness that could easily detach from the puppet. The puppet itself would have a thin plywood chest for mounting, fabric arms, and a PVC skeleton inside.

The face and chest would be plywood plates, with polystyrene adhered to them and carved to form the humanoid shape.

The polystyrene would be a completely new material for me, except for the few times I've messed around with the hot wire cutter in the workshop. I couldn't fathom being able to make not only detailed sculpture, but a rigid finished product using just high density polystyrene.

Another aspect that was looming in my mind in regards to difficulty was the 'mechs' that would deliver the facial expressions to the puppet from the operator's hands.



Faces and mechanisms

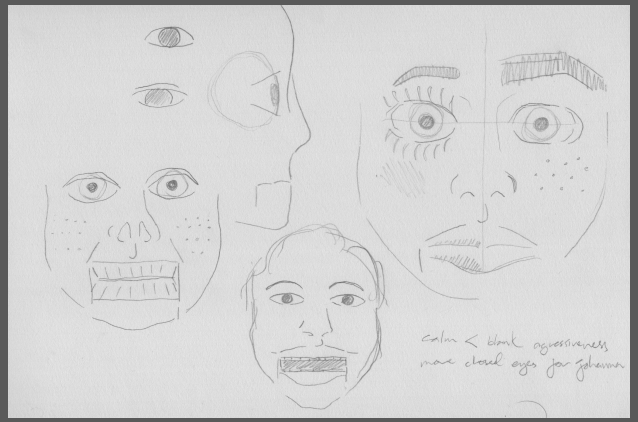
Taking into account Freya and Vanina's Bande Dessinée theme, we began to think about the designs for our puppet's faces. Cara and I both had different ideas in mind.

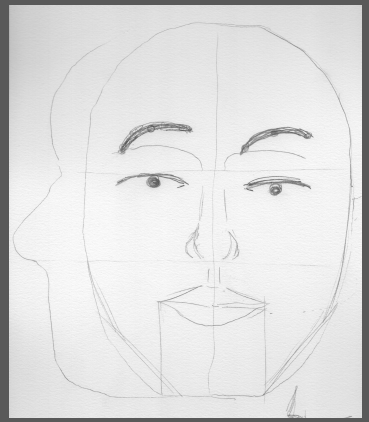
Personally, I wanted to have a ventriloquist dummy style mouth, as that lined up perfectly with the victorian setting. I selfishly wanted to attempt these mouths in order to make up for how my previous puppets never had mouths.

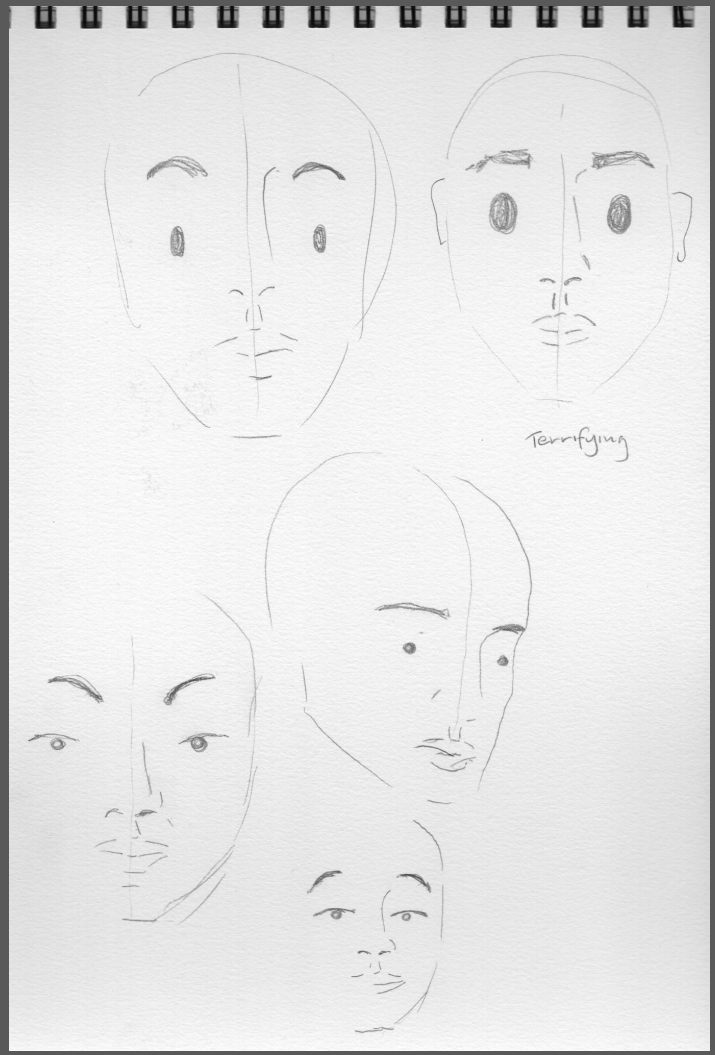
I also wanted blinking eyes, the way baby toys do - simple eyes with eyelids that roll in order to simulate blinking.

Cara however, didn't want the eyes to move. She wanted moving eyebrows and Tintin style dot eyes. As much as I love tintin, I didn't want the dot eyes, as they look a little creepy to me. We clashed over this for a little while.

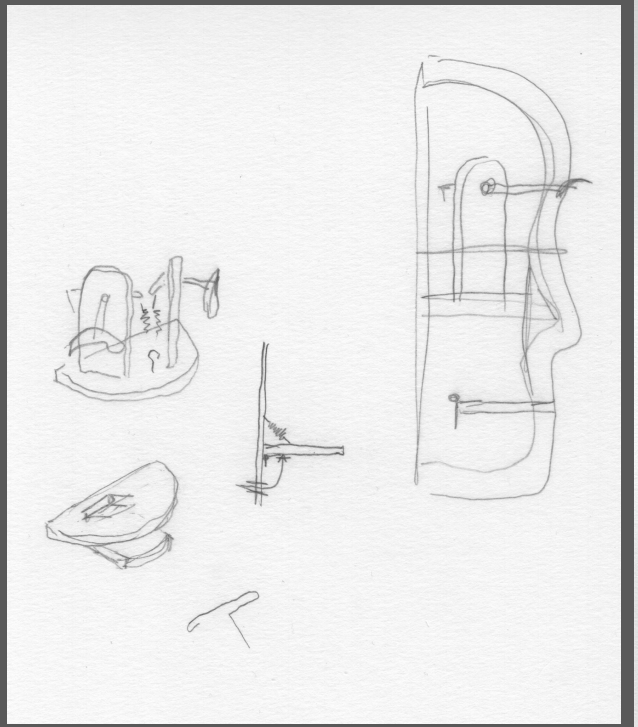
But our compromise going forward, was that we could have Blake & Mortimer style eyes (Still a dot, but a line above and below) and in return I would agree to her rotating eyebrows instead of blinking eyes.

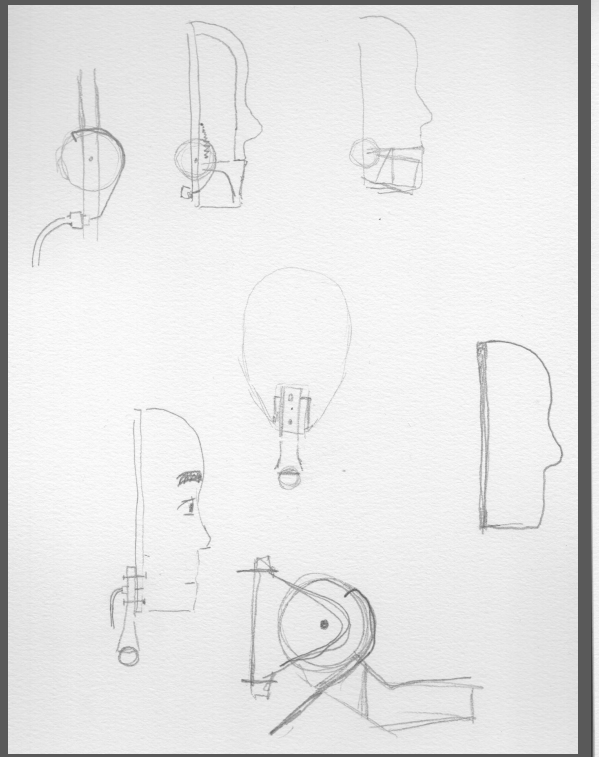


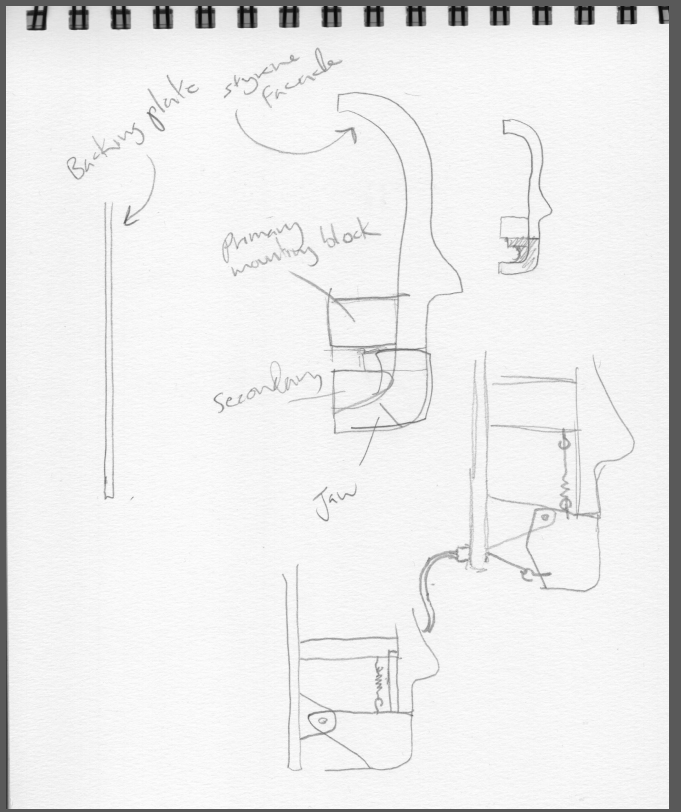




Faces and mechanisms





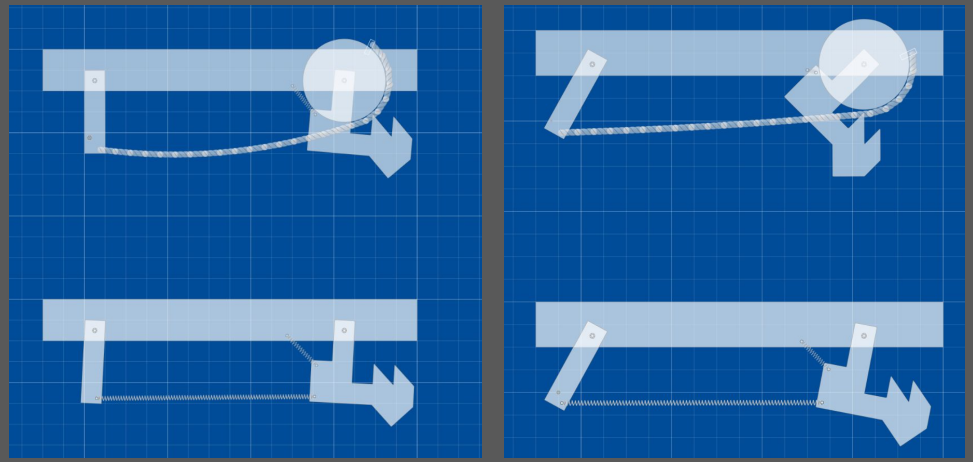


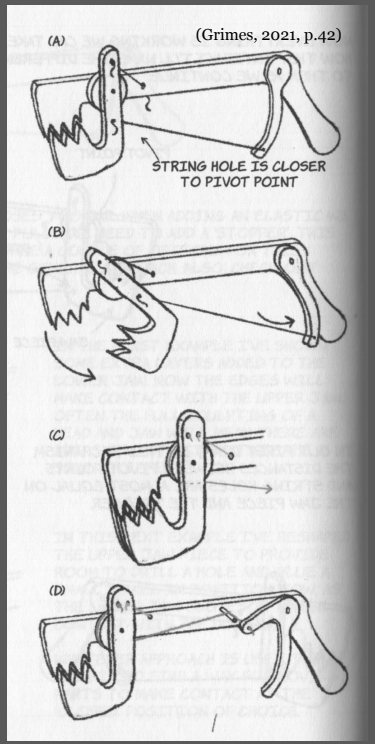
Faces and mechanisms in practice

As there is so much to understand about pulleys and tension, I opted to use the 2D physics simulator Algodoo to further investigate how I could execute the facial mechanisms and triggers.

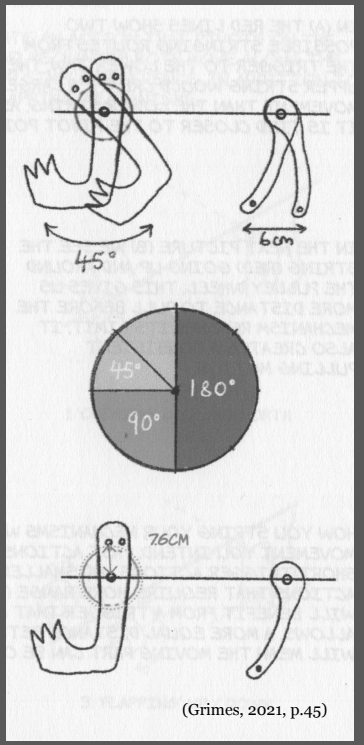
I took great inspiration (Again) from Jimmy Grimes book on puppet mechanisms, specifically a section about multiplying rotation. I duplicated his teachings on paper inside of the program, and this made it crystal clear to me what he was talking about.

The alternative to this of course, would be cutting out card and physically recreating the examples. But this was a much faster and more efficient method for me at least.



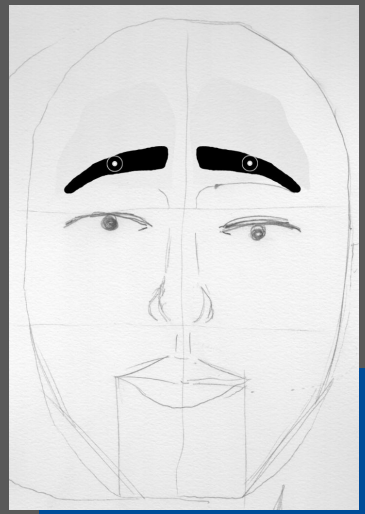


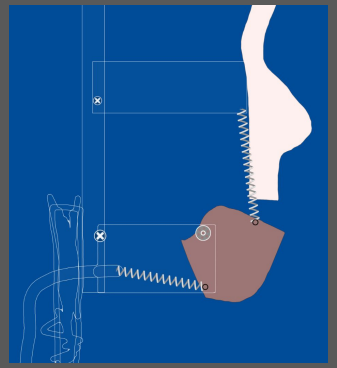
(Grimes, 2021, p.42)

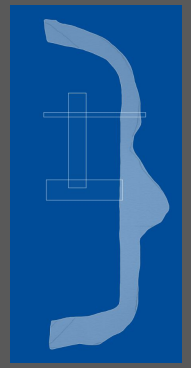


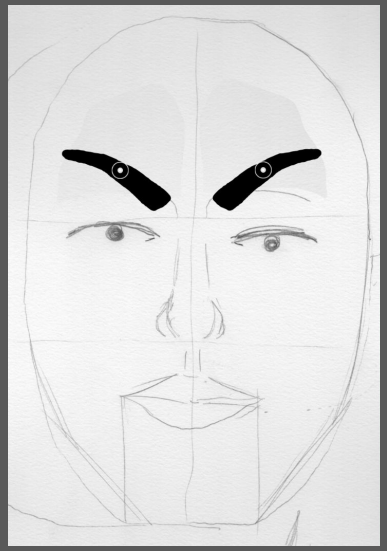
(Grimes, 2021, p.45)

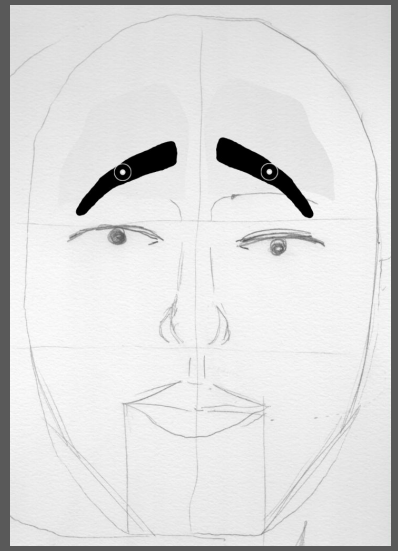
Faces and mechanisms in practice

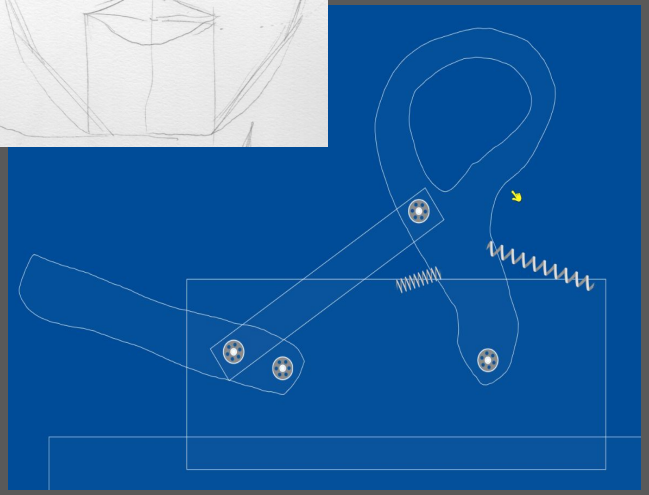


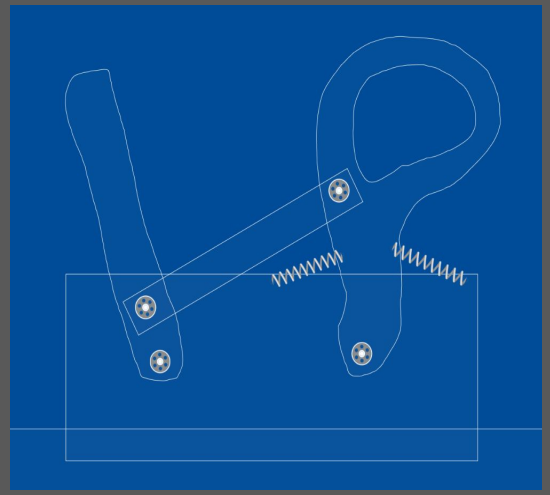


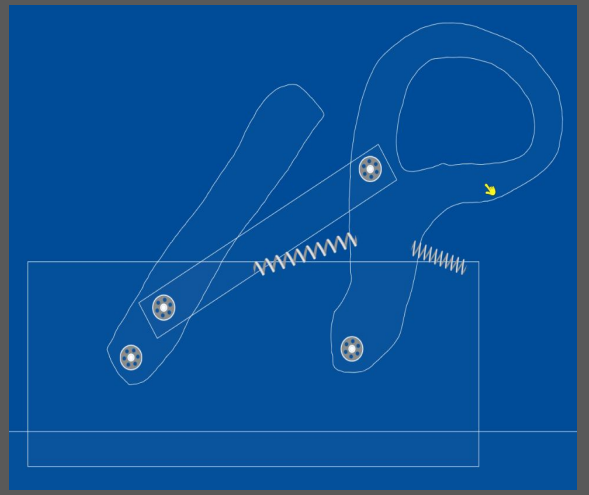












w/ stacey, Dave, Jake

Dave's printer broke sunday

Stacey is doing a tech rehearsal

Dave and Jake are with us

mostly

stuff to get

heat gun

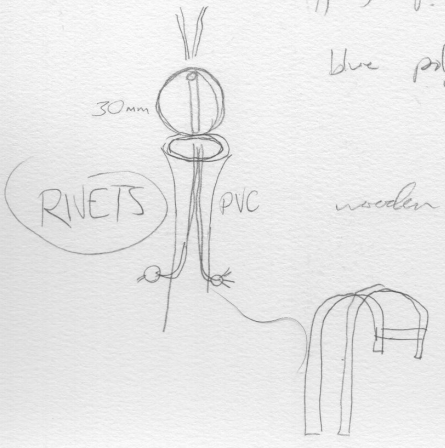
Rivet tool

insulation tube stuff — free floating



stuffing - polyester batting

blue polystyrene beads —



stuff to buy

PVC Pipe

wooden balls

foam pipe

Aluminium flat stock

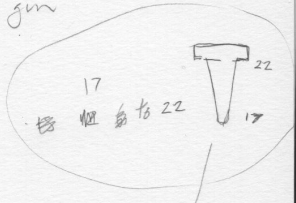
Thinner bungie

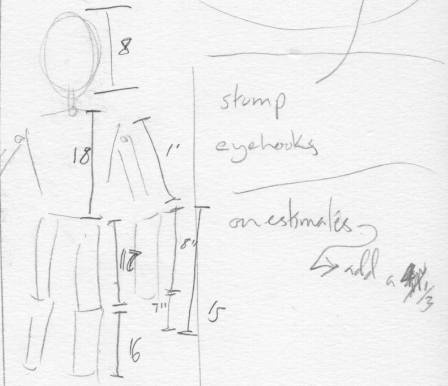
with the project

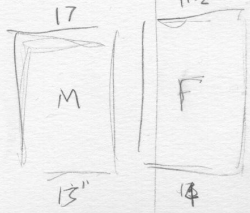
stuff to grab

heat gun

Rivet gun





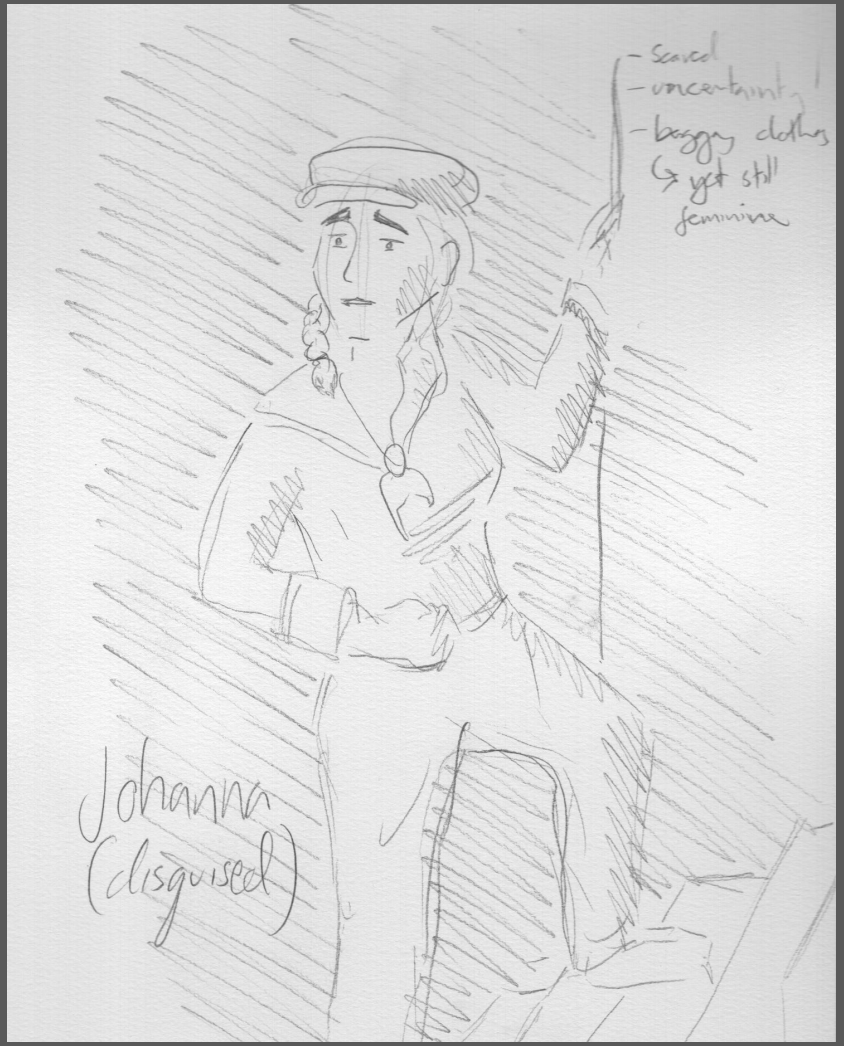


Character choice

Johanna seemed to be the ideal choice of who to make a puppet of, as she was the ideal height first and foremost. This also made Tobias a great candidate.

Cara brought up the notion that these two individuals are controlled by the older characters, and I really liked how that tied into physically being a puppet too.

The more I thought about it, the more I liked the idea of creating a strong yet very vulnerable and emotionally complex character such as Johanna.

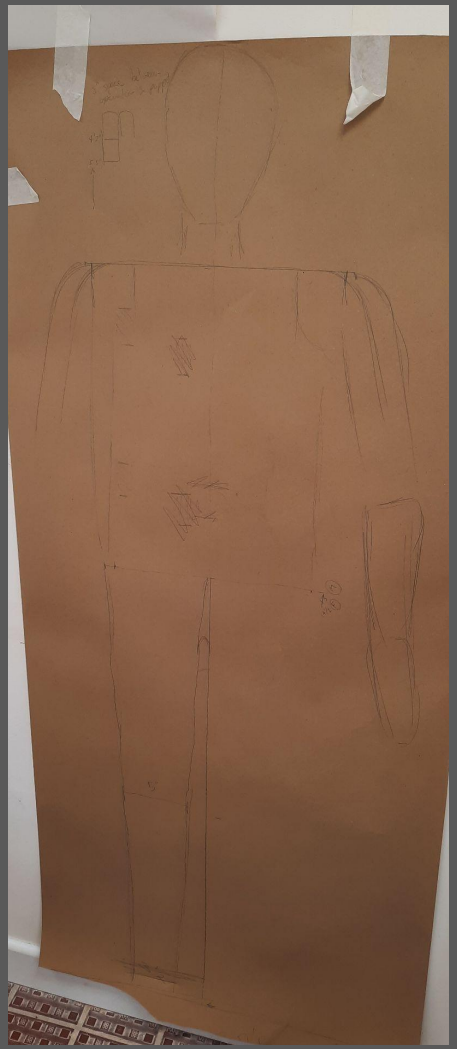


Obtaining bodily ratios

As the second attempt before just didn't look right , I decided to more or less trace Cara’s bodily proportions onto a large roll of paper that I would then reference everything off of.

I took this notion from my time in college studying architectural joinery. I thought that if I applied the concept of a central drawing that everybody referenced their measurements from to this puppet, it would hopefully have good proportions at the outcome.

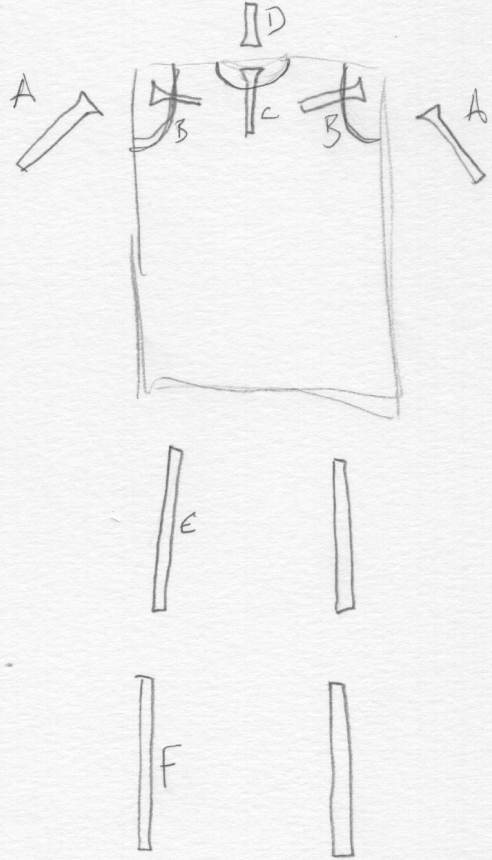
Once done, I was able to much more freely find specific sizes for components. This was especially useful for the cutting list of PVC pipe, as well as the ply and polystyrene dimensions.





PVC PIPE

A	230	X4	1 Flange to Flat
B	120	X4	1 Flange to Flat
C	110	X2	11
D	110	X2	11
E	370	X4	double Flat
F	320	X4	11







Puppet Build

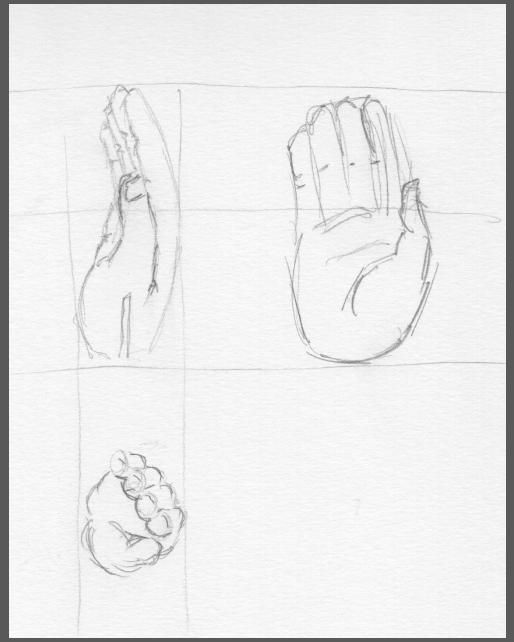
Hand stock creation

For the hands I needed two adhere two layers of high density blue polystyrene around a central rod of pvc that would extend all the way over to where the operator holds it.

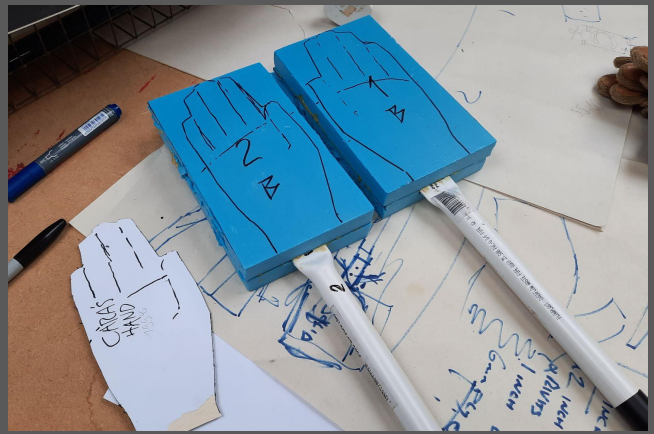
This is when my time spent helping with the 200 signs during the easter break became very useful, as before then I had only slightly dabbled in the use of the contact adhesive.

I was able to confidently assemble and glue together the PVC and polystyrene within a short time. It was the carving I was dreading!

Using a tracing cut out of Cara's hand, I traced and numbered the four hands for the hot wire tool.







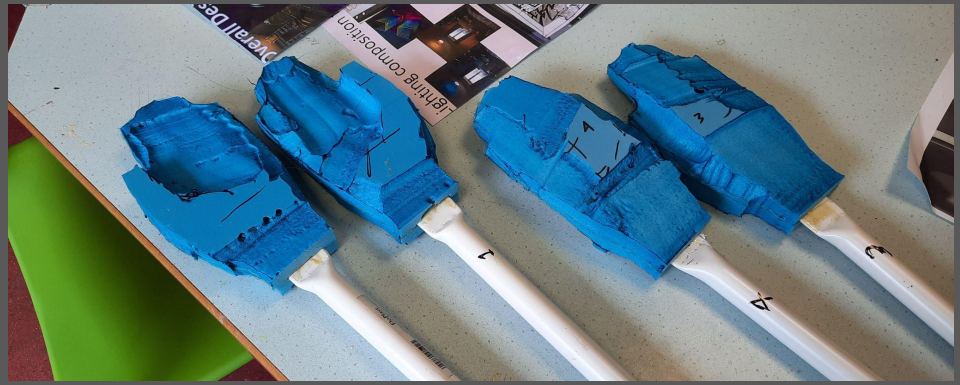
Hand Carving

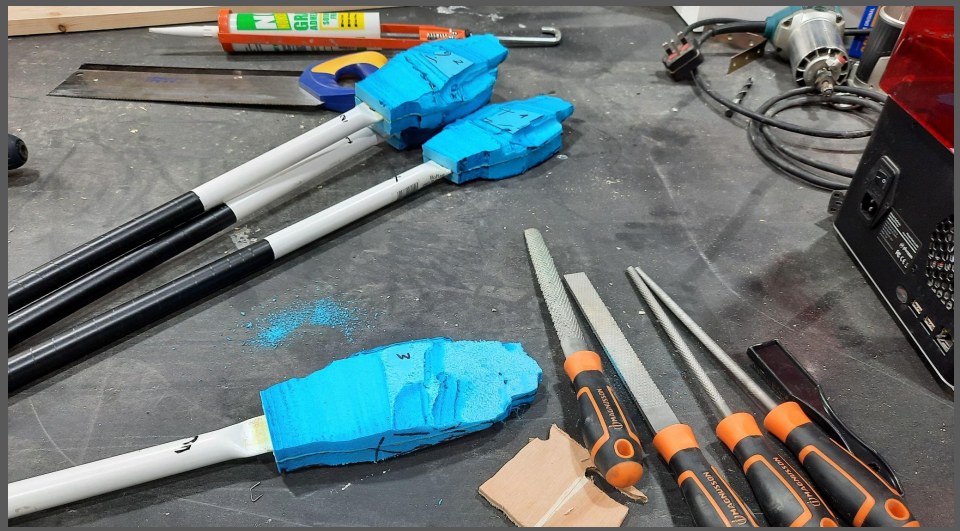
I was terrified of sculpting humanoid parts, and honestly didn't know how I would cope if the carving process went badly for me.

But, thankfully, I have one thing to thank my dad for in this aspect. As a qualified stonemason, I used to watch him lay out and carve complex humanoids from square blocks as a child.

I didn't realise how lucky I was to have witnessed this specific activity so often in my childhood, but I just copied his principles to the best of my memory.

After tracing the design from my drawings and card cut outs onto the top, bottom, and side panels, I would only carve one 'facet' at a time. And then repeat that cut on all four pieces before proceeding - and never getting stuck in a vortex of trying to bring any one point to absolute completion straight away.





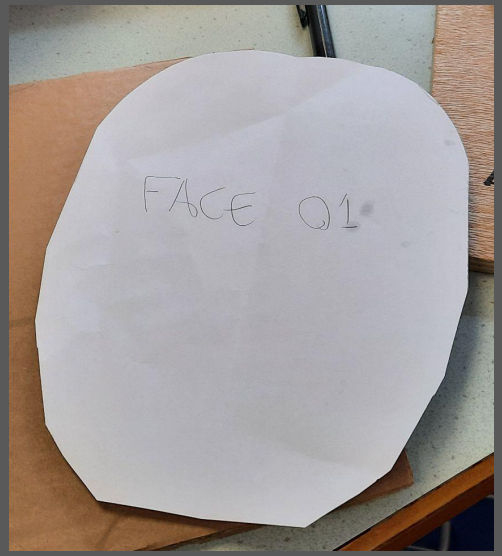
Hand Carving

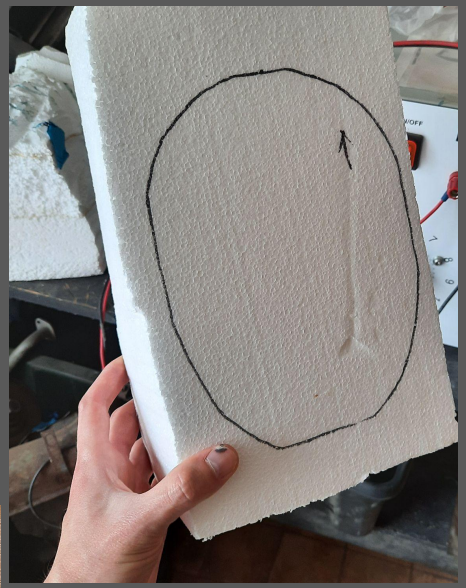
Once I had the rough shape ready, I walked away from the hot wire cutter and took them the rest of the way with the fine toothed files (The wood rasps were way too aggressive for the polystyrene). This is another principle of joinery, in that sometimes you don't cut straight to the finish line, you take it 98% of the way there - and trim the final stock to the exact place you want it.

This turned out so much better than I was expecting, and it was a major confidence boost for me. I definitely needed that confidence for the face I was about to attempt...



Head Carving





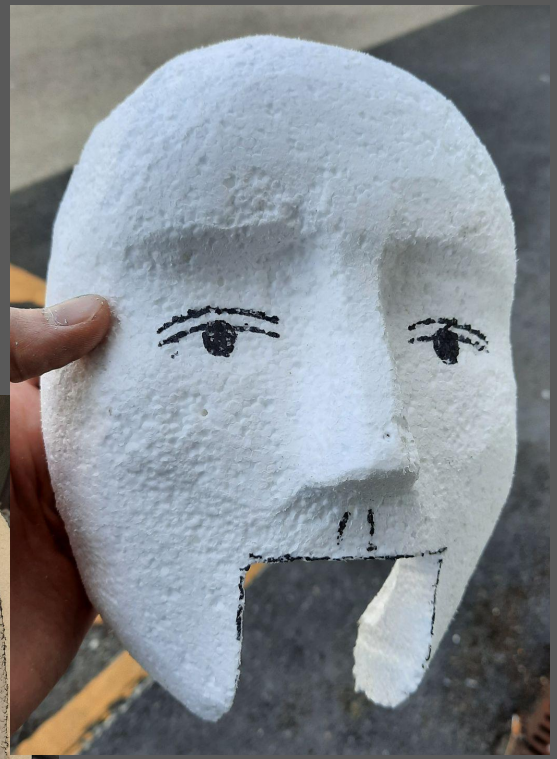




Head Carving











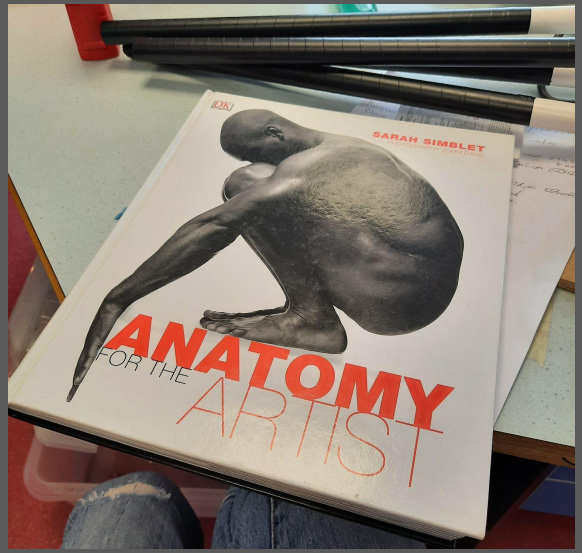
A snag with bodies

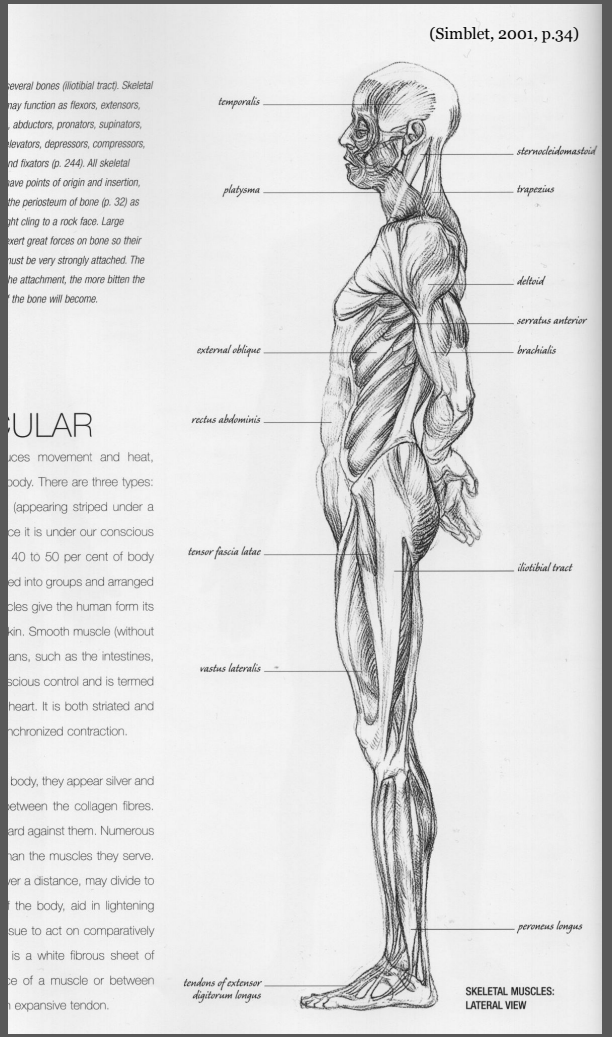
I realised shortly before we put the bodies together that I couldn't fasten the legs and arms to the body the way I had done so for the head. This was because they would be too far back once the polystyrene was on. This was an oversight on my part as I thought too much about the puppet's anatomy from the front onward in 2D.

Thankfully, I had just the right book on hand. Anatomy for the Artist by Sarah Simblet provided the perfect ratios for me to follow to ensure the arms and legs fell to the right positions in relation to the torso.

The solution was wooden blocks, to bring the limbs forwards. This did complicate the application of the polystyrene, however.

But I'm glad we avoided the tragedy of glueing on the only correctly sized piece of polystyrene we had and then finding out it had to come off again!!





Body Skeleton making

Once the materials we ordered arrived, I got to work assembling the ball joints for the torsos so Cara could build the limbs onto them. This would allow us to carve the polystyrene torso coverings to match the profiles cut into the male and female bodies. The polystyrene had to have the limbs go inside of them.

The ball and socket joints worked amazingly, and I found that with enough tension on the shock cord, they would maintain their given position. I used this logic to make the neck joint much tighter than the shoulders.





Body Carving

The body, ironically, was the easiest object to carve, given how much more forgivable the larger object was, and how many aspects of it would be hidden via the clothing and such.

Both Cara and I carved the bodies, and Cara also carved an additional face for the other puppet.

With all the pieces falling into place, it was nearly time to start dressing the puppets!



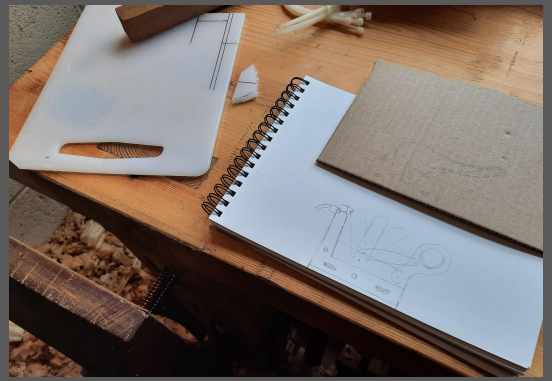


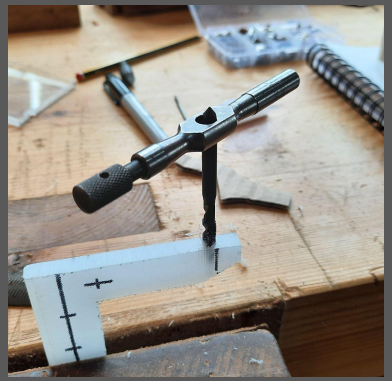
Controller Mechs

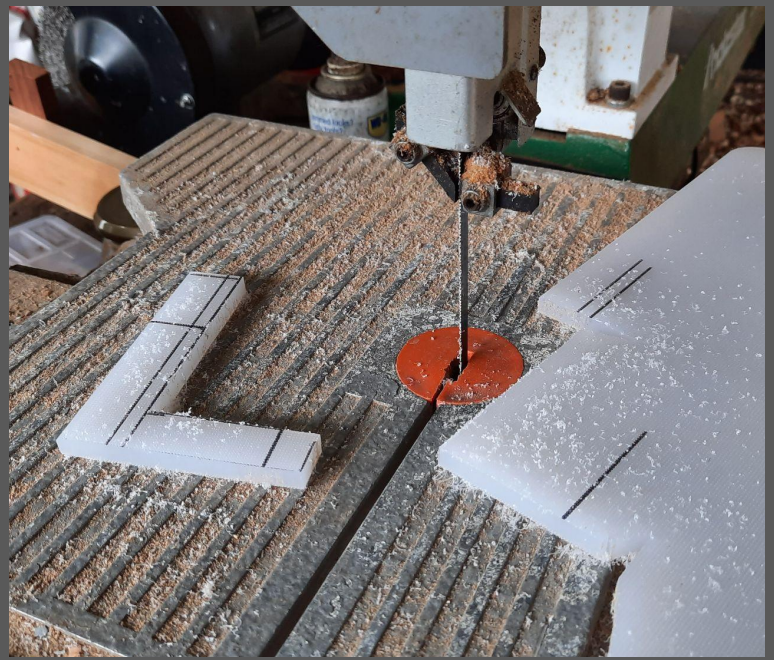
The controller mechs were a walk in the park to me compared to the face and hand carving. It was straight forward engineering, except I was using a new material I had heard about online: Plastic chopping board.

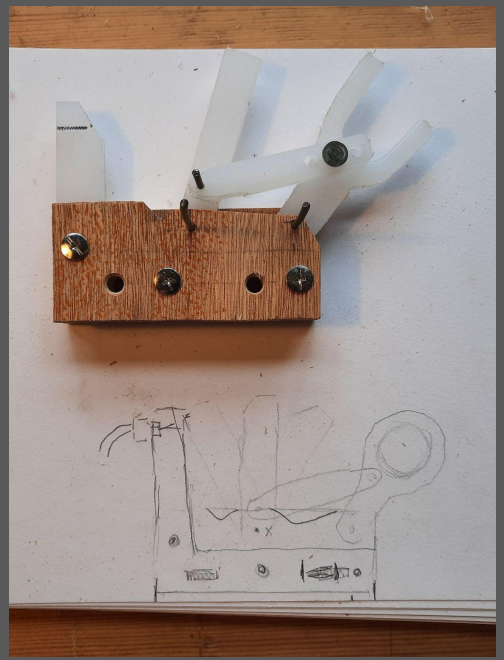
The stuff was a dream to work with, it cut so smoothly, took a thread effortlessly (and better than wood can), and was frictionless for the metal cable to pass through.

It was also stronger for thinner components than wood is, allowing me to get away with some ridiculously thin components.







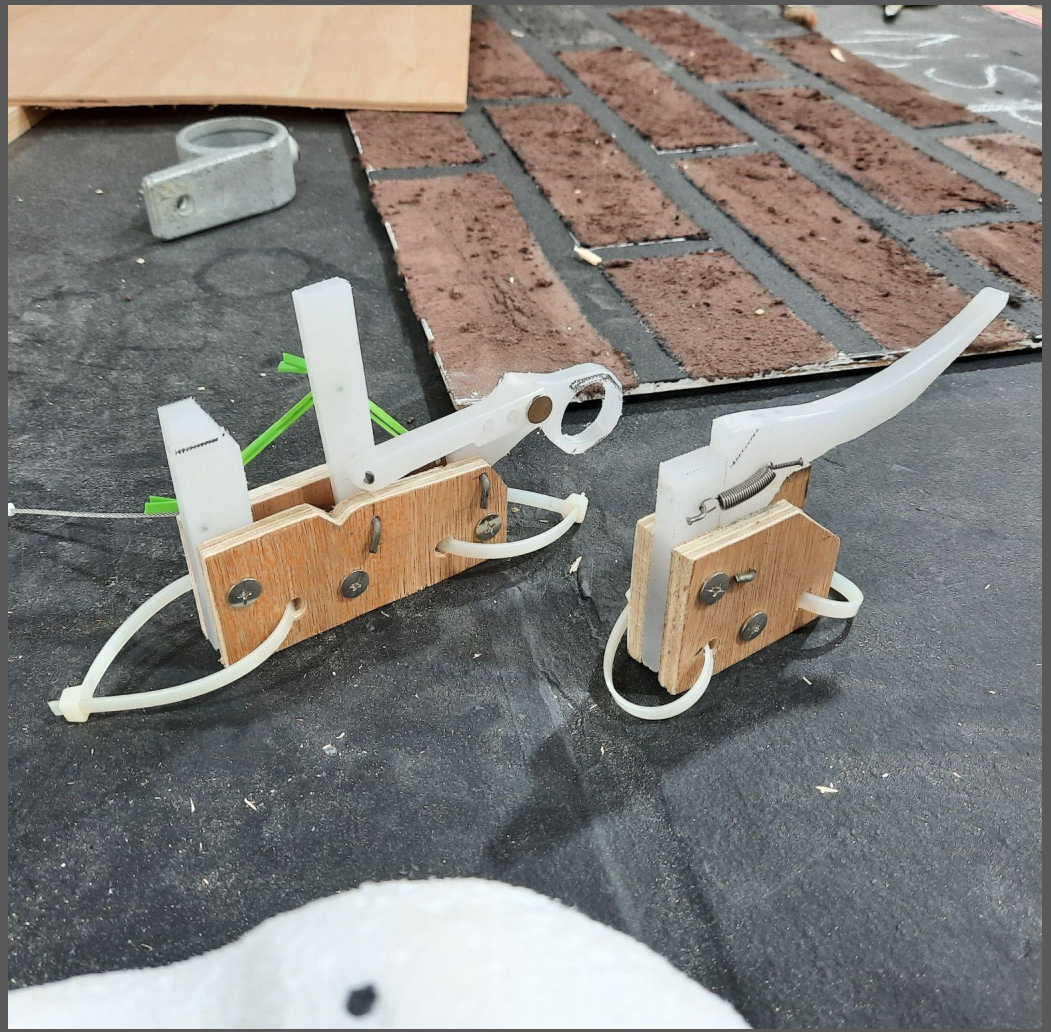


Controller Mechs

Both mechs served different purposes, one was pretty much the same as a push bike brake mechanism. It was a binary system of pull and reset to zero.

The second one was a more complex triple state controller, requiring a neutral state that could return the eyebrows to a normal position, and then two opposite push and pull states where the eyebrows would rotate to represent different emotions.

I think I’ve only scratched the surface of what’s possible with these basic materials, and it's opened doors in my mind as to what's doable with all the different types of puppet I’ve imagined making.



Head components

Now that the puppet's controller components existed, it was time to make the receiving ends of each for the puppet's face.

For the jaw, I needed a large piece of stock that would maintain its rigidity under stress, accept a threading, be easy to shape, and also require as little finishing as possible in order to be tough.

I opted for my native material, as I couldn't think of anything else at that moment. It added unnecessary weight to the head, but I understood the downside of it.







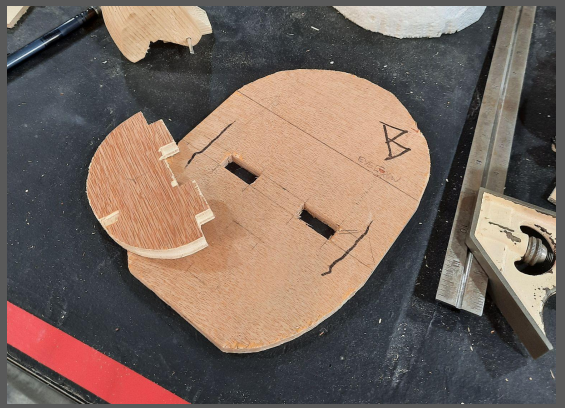


Head components

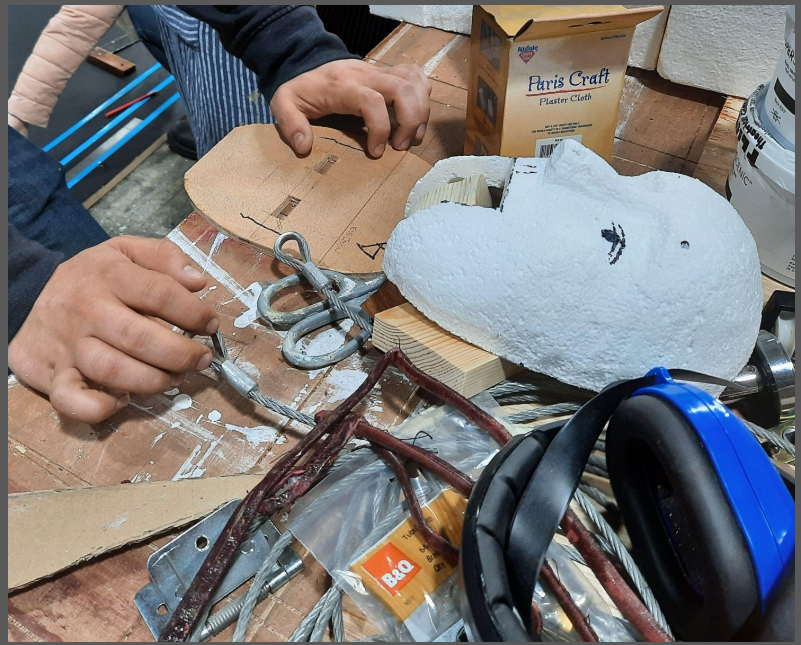
For the eyebrow mechanism, I did slip into ‘joinery mode’ and I realise it was unnecessary to over-engineer such lightweight components this way.

Jake would later come and tell me this, and thus I would eventually re-make this component from a much thinner plywood, and simply use hot glue to achieve what I wanted.

It was a quick fix, thanks to how easy it was to trace the first head plate onto the next one.

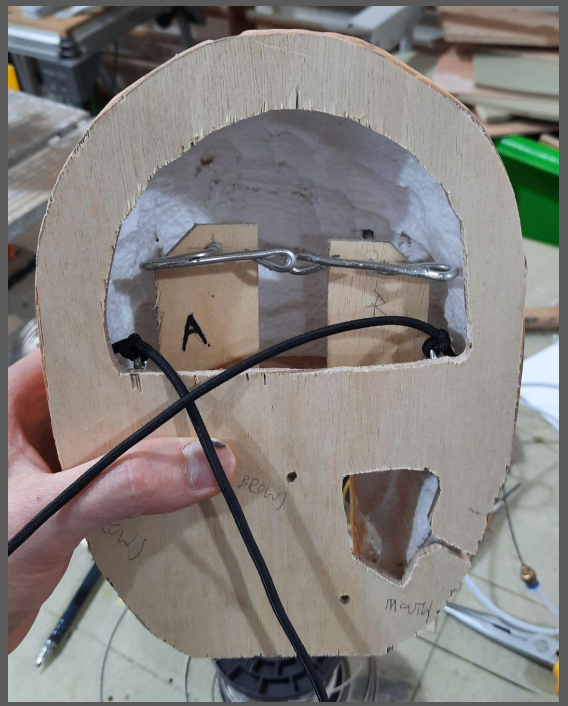






Head components







Putting the head enclosure together was incredibly fiddly. It was during this time that I realised I didn't need the elastic to return the eyebrows to the neutral position, as the tension from the wire was enough. But again in retrospect, it would have made the motion of the sadness expression slightly easier.

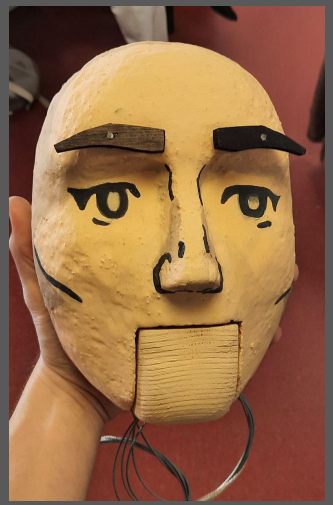
When completing this task I also really felt that all my skillbases were coming together. I often have impostor syndrome, but I didn't while making this face.

A complete head

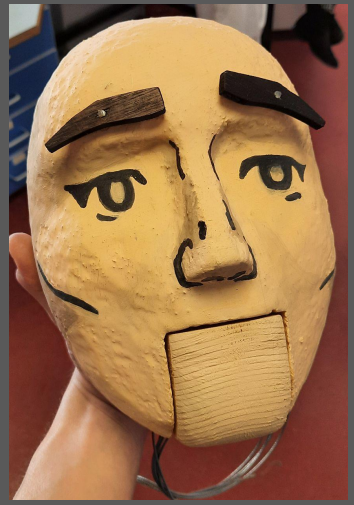
Meanwhile, Cara had coated the polystyrene components in XTC-3D, making them extremely durable. She also painted them with the influences we had drawn from the french comics, as well as some influences of 50's American Pop Art.

Once I put it all together, it was magic. I couldn't believe we had achieved this articulated face, and I'm just thankful that I had somebody so capable working with me - as there is no way our outcome would be to the standard it was without Cara's hard work.









Harness building

The harness was a straight forward job, the most difficult part being how strenuous the hand rivet gun is on the hands, along with having to file all the sharp edges off of the cut aluminium and steel.

Once complete and bent into shape, I was very impressed by its rigidity and strength. Its ability to not sag was so powerful that I found I didn't have to make more than two mounting points (quick change bolts) on the puppet's torso, as the bottom rods simply held against the weight of the puppet's hip area.

Once again, I feel like this is only scratching the surface of harness technology. I dare to imagine what can be achieved with such strong thin materials.







Limbs and clothing

Cara stuffed and sewed the limbs with the PVC skeleton inside of them, and the effect was exactly what we wanted. Because the PVC terminated before the bends, it allowed for that ever so slight flexibility if the operator needed the arm to bend a certain way.

With actual limbs now attached, Laurie was able to start dressing the puppet with real clothing, by pinching behind the torso to adapt the clothing to fit properly.

Having us three, and Taylor from first year working in the year two design room was a special kind of collaborative atmosphere.





Puppet assembly



Puppet assembly







Puppet assembly





Puppet assembly







Puppet assembly







Stands, compromises, and re-used components



With time running swiftly out, we quickly understood that the second puppet would not make it to completion at the stage we were at. Stacey could see this, and asked if we wanted to just focus on one of them and say that it was our intention all along. I appreciated her giving us the choice, and we didn't have any other paths to take. However, we wanted to display the joints under the clothes and wadding, so we opted to make a stand for both puppets. This meant that we could talk about the inner parts with a visual aid, while also operating and showing off the finished one.

For the stand, I simply bolted a plywood platform to an old tripod that Dave found in a skip. This also allowed me to put the puppet on during our presentation, which was a key feature with the quick change harness.

Also, I ended up using the same head harness from that first scrunchy brown maquette, as it was just too good to have an alternative to use in its place. If it's not broken, why fix it?



Finishing touches

The puppet was mechanically complete, but still needed clothes and hair. Cara and I spent many hours in the evening doing this, but we didn't let it get us down.

Infact, those late nights with Laurie, Taylor, Lleucu, Cara and I where probably some of the more fun times I had during this module. All the high pressure running around was exhilarating.





Finishing touches





Existing Sweeney Todd knives & Mechanisms







(CarlaNg, 2018)









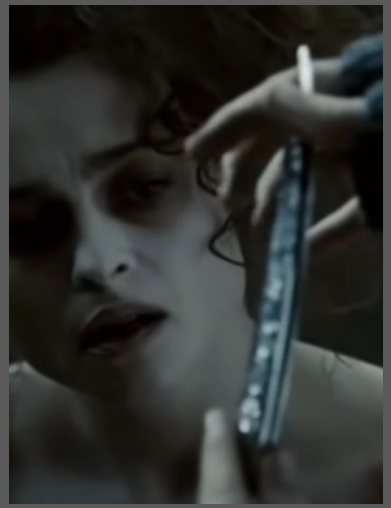




(Proctor, 2018)









(Amblin, 2019)



(Anonymous, 2022)





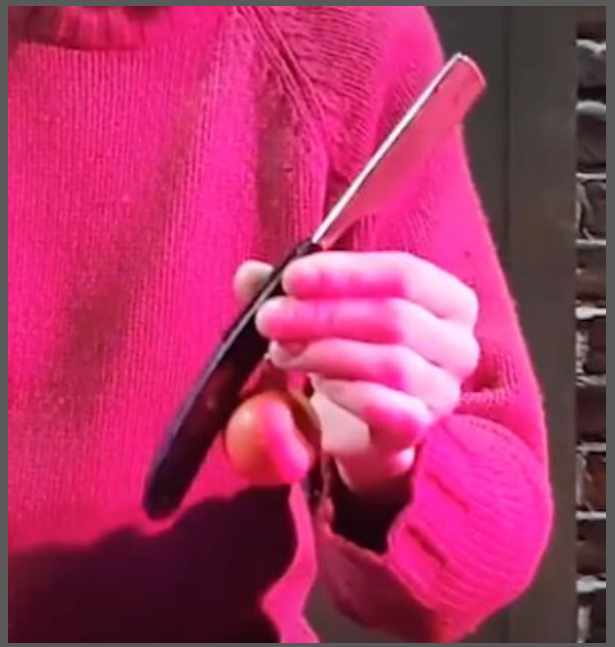


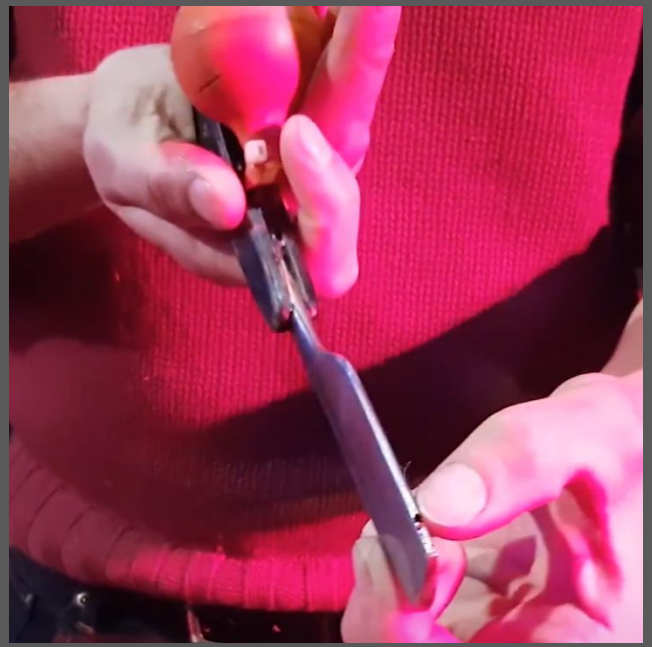














Razor design journey

Straight Razors in Victorian London

Straight razors, as we know them, saw their golden age and demise during the mid to late 1800's in the UK. It was during this revolutionary time that the materials and methods of production hit an absolute peak, according to collectors. Each decade saw a new advancement that allowed the iconic shape we know now to become an all-encompassing form for all razors made afterwards to follow.

After Gillette's invention of the safety razor in 1890, the demand for skillfully made straight razors slowly declined until 1950, where it would remain in it's (lack of) popularity as a rare domestic tool outside of barber shops.

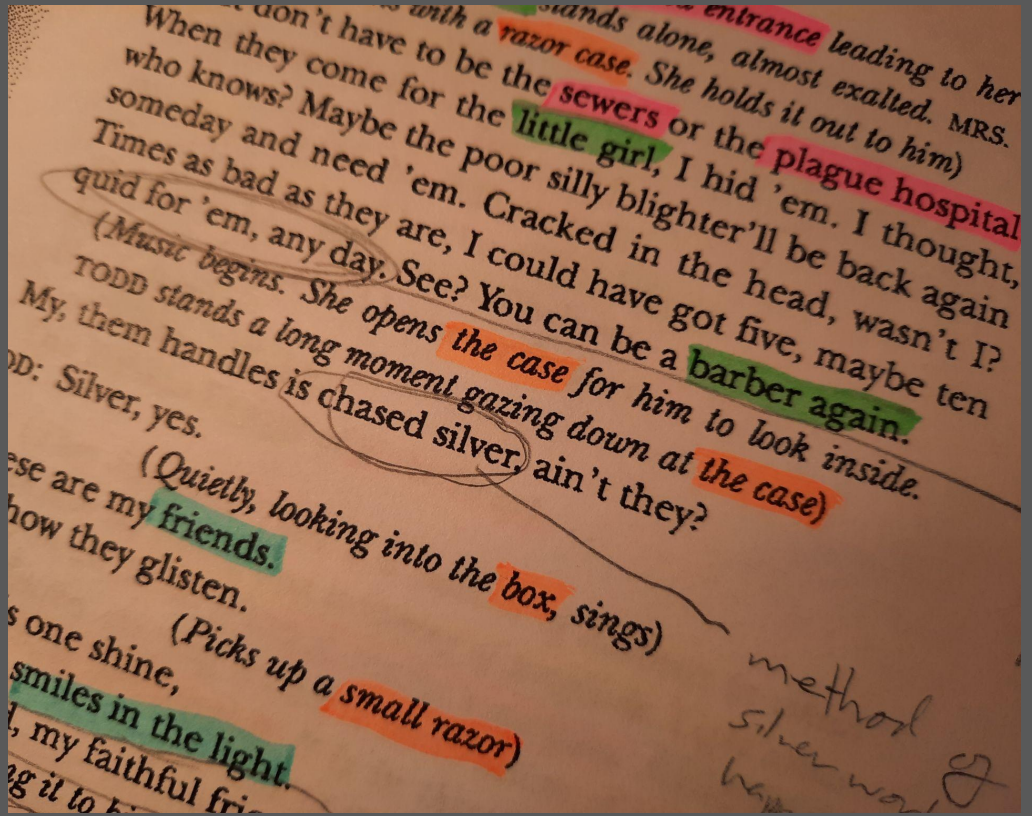
Straight Razors in our script

In order to line up with the meat shortages described in the script, we agreed to set our version of Sweeney Todd in 1861.

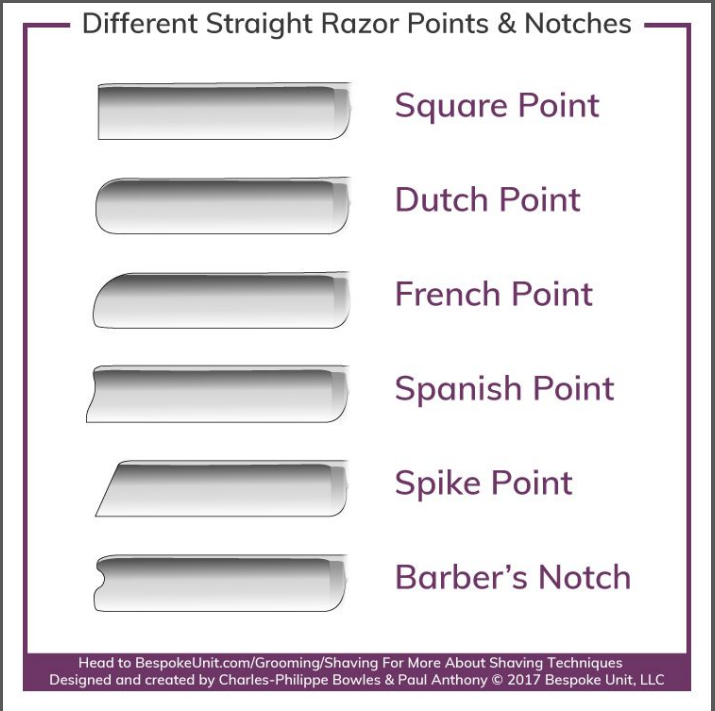
Due to his 15 year prison sentence, this would indicate that he was arrested in 1846. So I used this information to attain that his razors would realistically resemble designs found in those made during that decade.

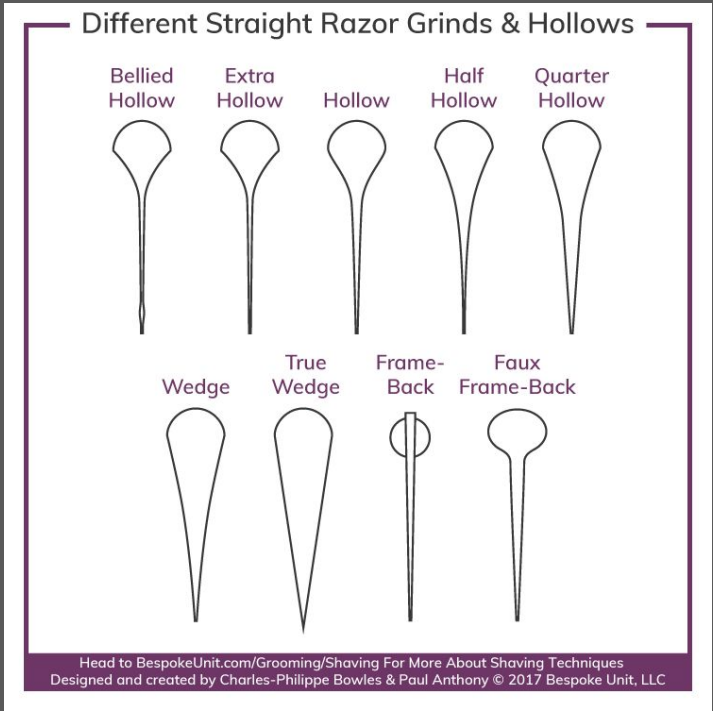
However, Pirelli's razor could be a more modern one. Thankfully design changes are visually significant between the two decades - meaning I had a lot of creative liberty between the two props - as well as the artistic style we were utilising (Bande dessinée).

As for script restrictions, all I have to go on so far is Lovett's proclamation that the handles are 'Chased Silver'.



Types of Razor edge profiles





Anatomy of a Straight Razor

Point/Tip
The shape of this component can define what era and country a razor is from, with artisans cutting flowing curves and such into them

Toe
The furthest point of the cutting edge

Spine
This is always much thicker than the cutting edge, to maintain structural rigidity - much like a japanese sword.

Face
The common ‘scallop’ bevel cut into both sides of the faces are what causes the cutting edge to meet at such a steep, sharp angle.

Edge
The part that cuts.

Heel
The cutting edge terminates here, and transitions into the shoulder.

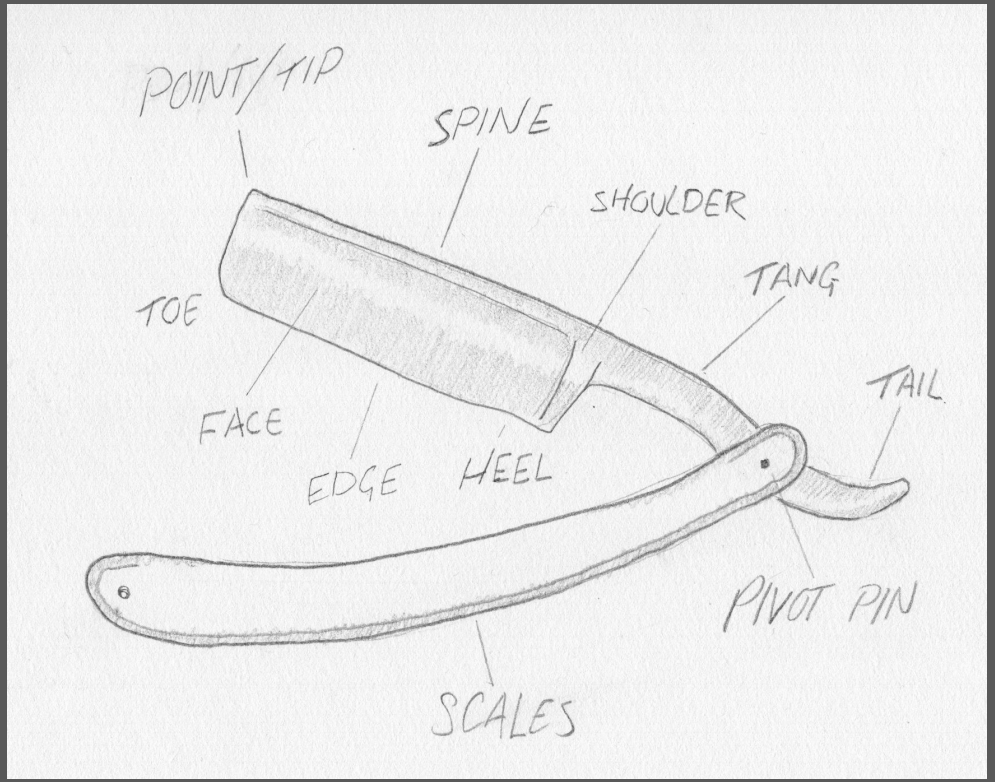
Shoulder
Another deliberately thicker part of the knife, for additional strength, as well as a means to prevent the user’s fingers making contact with the blade edge. This is a trait that would appear in the late 1800’s.

Tang
Much like a knife, the tang is like the central carcass of the razor. It needs to be elegant enough to grasp (think violin bow), but strong enough to withstand the pressures applied to it.

Tail
This portion of the tang extends out for ergonomics, as the Scales are not a handle.

Pivot pin
As the name suggests, this fastener allows the razor to swivel inside and out of its protective scales.

Scales
These act as a ‘sheath’ and prevent the razor edge from being damaged when not in use. Historically in London they would be made of wood, ivory and horn until their eventual replacement by early plastics in the 1880’s.













https://www.worthpoint.com/worthopedia/1850-straight-razor-69th-reg-made-1854249983






HOLLOW & ROUND




NAKED ARMOR
SOLOMON


CELEBRATED
RAZOR
SHAVESMITH

An example of Chased Silver

While searching for props to fulfill the props list we had made, Cara and I found a silver plate that had ‘chased silver’ written on it. Though much of the silver plating had been worn off, it was still an excellent example of the patterns created by the artisans of their day. Unfortunately the main words etched into the centre were all scratched away?





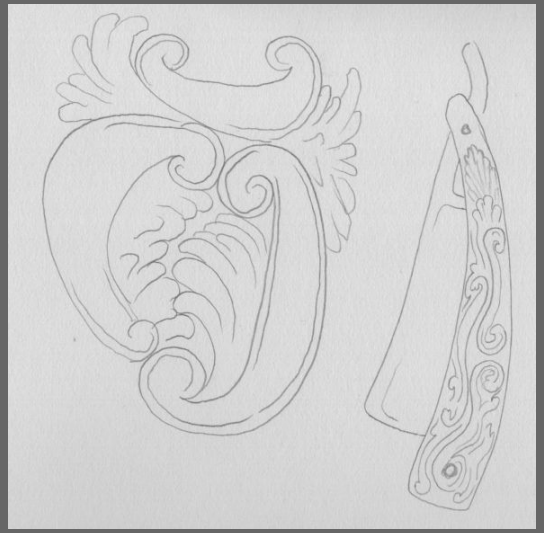


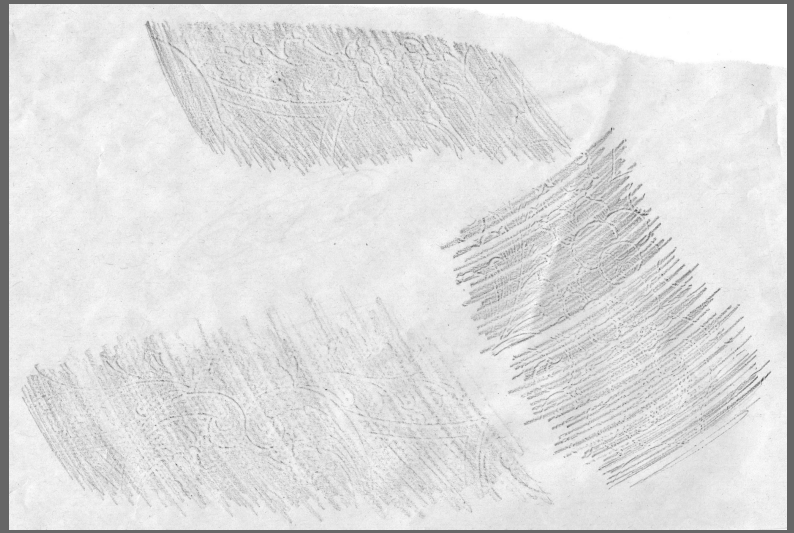


Adapting the chased silver motifs

By taking some paper texture rubbings of the ‘chased' silver, I was allowed to scan them and incorporate them onto handle designs going forward. After some research, I found a visual style that goes by the trademark name of ‘viners of sheffield’ along with ‘alpha plate’.

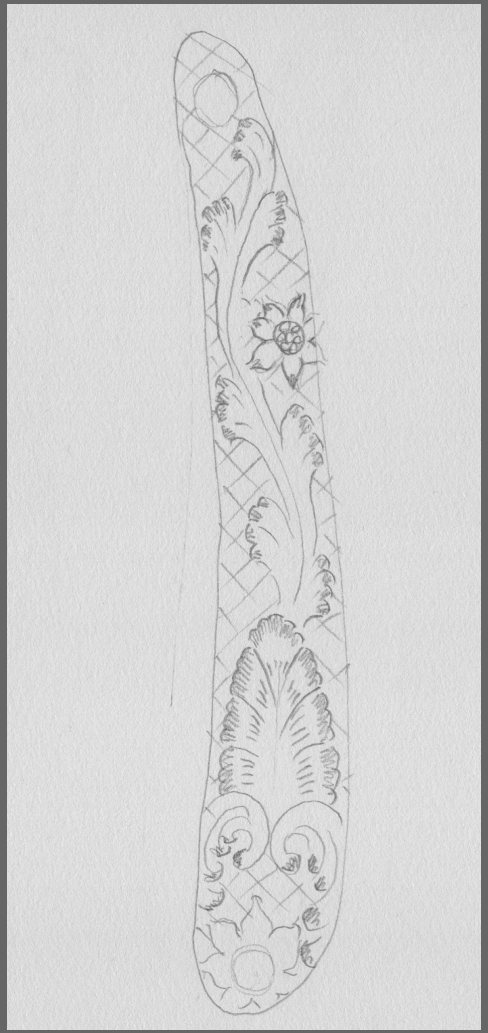
Laurie loved this notion of a recurring theme, and I shared my photos and sketches with her to help her integrate them into her costumes.





Razor designs compilation





Mock up razor sizes

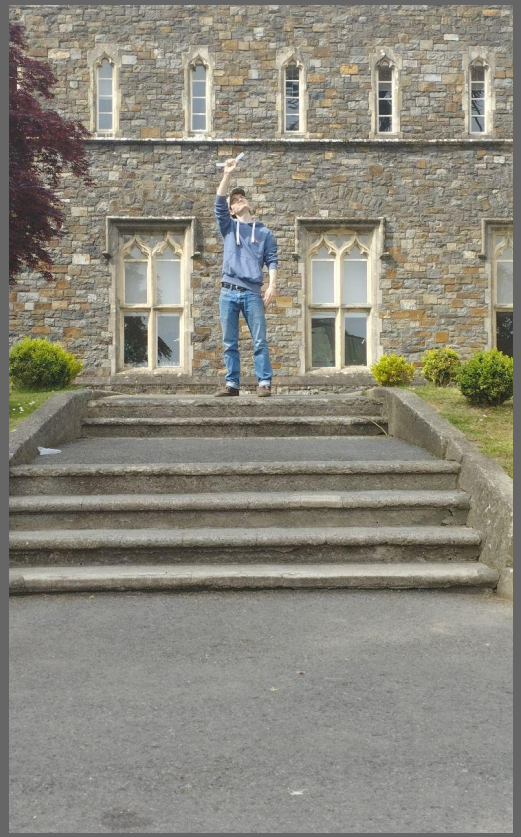
As seen in the professional production screenshots, the razor Sweeney uses varies from realistic size in the 2008 film, to absolutely massive in the 1982 stage production. This is obviously to aid in the audience being able to see what the razor was at any distance in the auditorium.

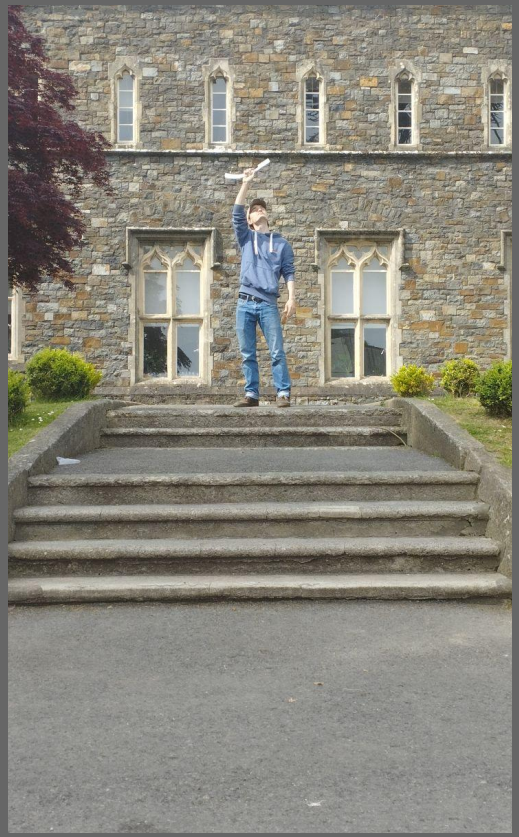
Thus, in order to get a feel for how large mine should be, I made three foam card mock ups - starting at a 1:1 ratio of a real razor, up to a small machete. I got Cara to take photos of me holding them at specific distances, to emulate how somebody sitting in the Halliwell auditorium would see them.

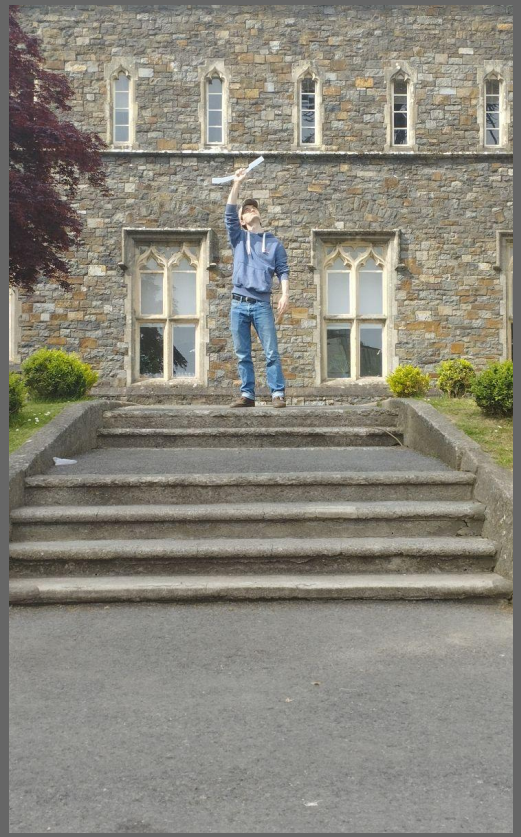
After reviewing the photos we took, I decided the middle size was the best option for the balance between visibility and believability.



Mock up razor sizes







Soy Sauce Fish Packets

While looking for containers that could dispense the fake blood, I was looking into buying a pack of plastic pipettes online.

I liked the idea of capturing the container inside of the knife to enable it to fold away like a real razor, but the issue was that the pipettes were conical. This meant they were just too wide for the razor's blade portion, even in the smaller sizes (which in itself was problematic, due to how more blood was better for the effect required).

I first asked if there were any pipettes on campus, and Laurie bought something from her car instead. It was a sushi soy sauce packet, and I had seen hundreds of them before. But suddenly I saw just how perfect it was.

The volume of liquid it could hold was great, and its flat circular geometry made it perfect for being cast inside a narrow object while still holding enough fake blood.

Additionally, I cut up a coat hanger and it fitted perfectly in the nozzle of the fish. This felt like a sign that I should try to make some kind of internal pipe through using the coat hanger.





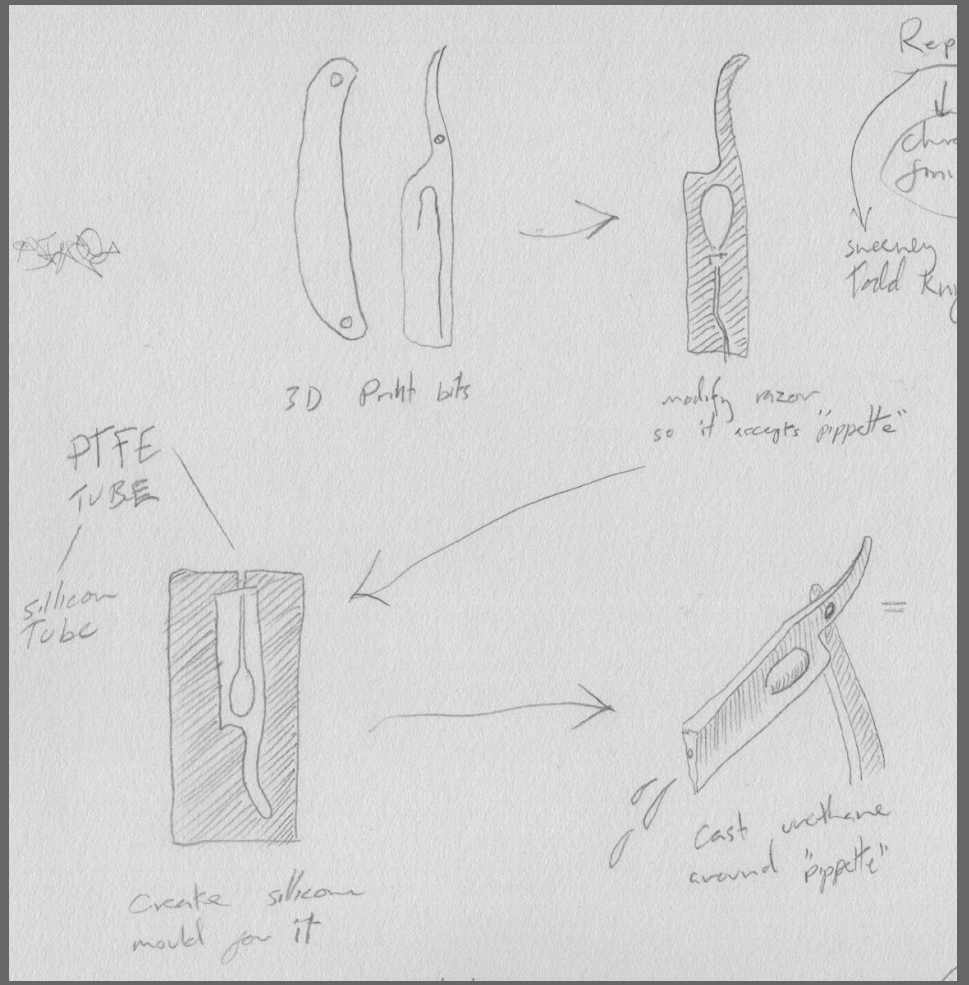
Razor Mechanism on paper

My idea for the razor was pretty straight forward, I wanted a prop that could behave like a real razor in it's ability to fold, but still retain the function of dispensing liquid when operated.

This would be achieved by casting the razor's urethane around a soy sauce fish container, with a metal stem leading out of it. This stem would then be removed to create a perfect tube within the casting.

From the razor designs I saw in my research, I had not seen anybody try the way I envisioned. This made me feel like it would not be possible - Leading me to have a backup plan of two 3d printed halves surrounding a rubber/PTFE pipe.

I still wanted to try, however, just to see how much of a challenge it would be. On top of that, if I was to just 3d print everything and be done with it, I wouldn't be able to justify the expensive path of silicones and urethanes that I wished to dabble in.



Possible building materials and Bentley chemicals call

Knowing that I'd like to use both silicone and some kind of hard urethane, I contacted Bentley Advanced Materials on the phone.

I told them of my project's parameters, and they were happy to help me find the right product.

Through this call, I learned that almost any silicone would do the job for me, and that I should opt for a bronze rated one - as my mould would likely be only used once or twice.





I also learned about the Shore D hardness rating through this call, which was extremely helpful. I was always a little boggled looking through the magazines such as Flints and Bentleys when it came to the urethane section before.

They recommended that my knife should be around a shore D hardness rating of 70. This would be between the hardness of 'a shopping trolley wheel and boot heel'. The fact that they provided all of this information to me for free was astounding. I guess they need to leave a good impression on potential customers.

For actual products, they said I should use *Smooth-cast 45D*.

I ran this information past Stacey and David, who recommended that I could use the urethane they have in the workshop as it would not bite a massive chunk out of the ever-dwindling budget. We still had to buy silicone, however.

Testing the products available

Just to confirm that what I wanted to try was possible, I conducted two tests.

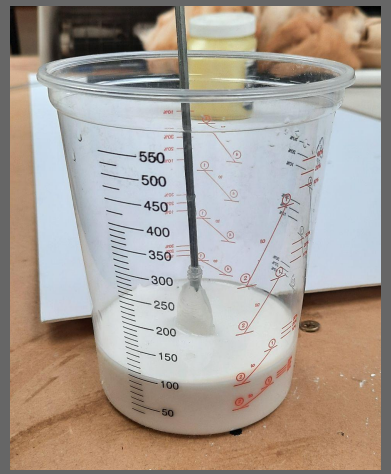
First, I put a metal stem that I coated in vaseline into a small pot of fast-casting urethane (SmoothOn™ Smoothcast 300Q), and then tried to remove it once it had set. This worked, and I was very excited to see this. This was my first resin product pour!

Secondly I then put one of the smaller soy sauce fish containers into the same type of fast casting urethane, just to see if it would damage the plastic of the fish. I knew that the urethane itself gets extremely hot when its setting, due to the exothermic reaction. Thankfully this was also a success.

One thing I did not test, however, was if hot glue gun glue was strong enough to withstand the heat of the urethane. I asked my lecturers and they said it would be fine. I see this a slight mistake on my part, as in the real world I would not have the same expertise on hand. I have learned a lot about this specific brand of urethane though, and hope to do better next time.







Testing the fake blood

So I had some idea of if the fish soy sauce packets even worked at dispensing blood, I fitted it with the piece of rubber tubing I had found.

Although it was a bit gloopy when pure, I found that with about 25% water, it worked very well. I was able to get two good squirts from it before I had to refill.

I also compared the large fish to a covid testing kit container, and a smaller sushi soy sauce fish. The larger one outperformed them all.

The more I messed around with it, the more keen I was to have a go at the concept of the captured vessel within the knife - it was becoming like a challenge to see if I could do it, despite not seeing it done this way in my research.





Razor Build

Mock up razor model stuff

I found out from Dave that the 3D printer he has can print objects up to 250mm long, on the longest available axis.

I used this information to plan how my model would be sized, knowing that I didn't actually want to print to that full size anyway.

Using the white card mock-ups I devised a loose measurement of what I wanted in regards to size, then took it further via the 2D physics program, Algodoo.

This way I could break down the ratios between the razor designs I liked most, and edit them in a way that suited what I wanted.

After that I could take a screenshot of said ratios, and juxtapose my sketches onto them. Using this modified image I could then map out and build a viable digital model in my chosen model making software.

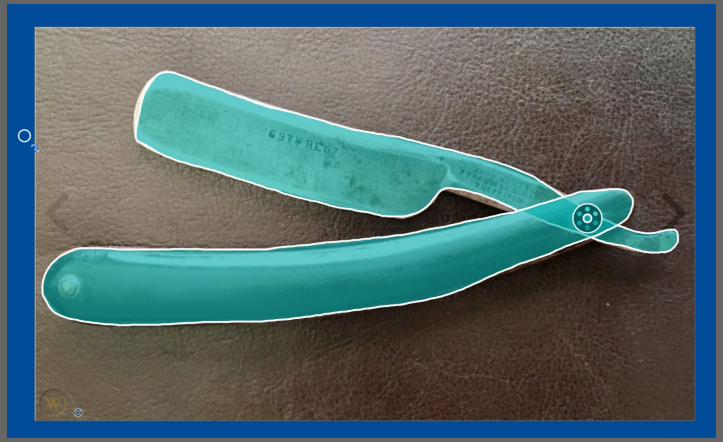


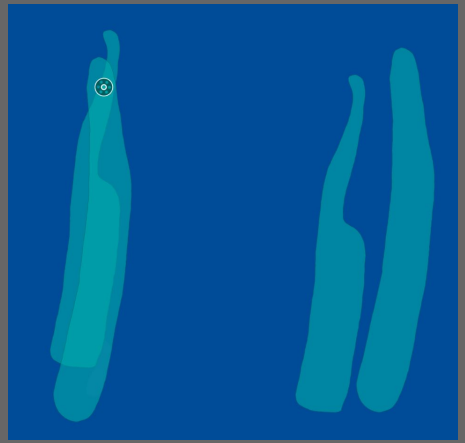
Technical Parameters

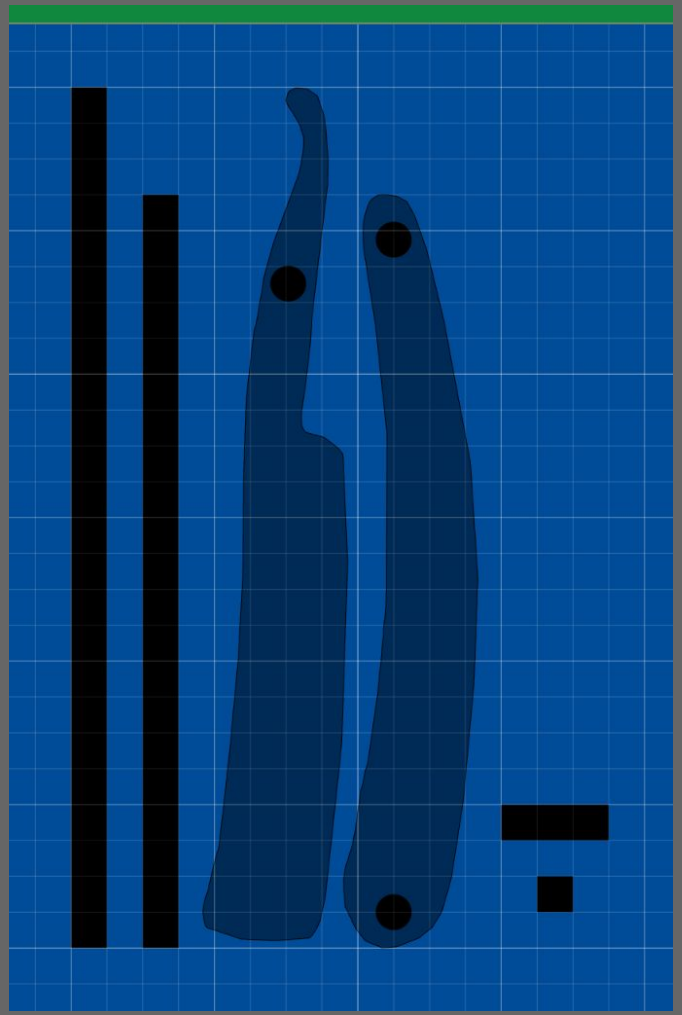
Build Volume	25×21×21 cm (9.84"×8.3"×8.3")
Layer height	0.05 - 0.35 mm
Nozzle	0.4mm default, wide range of other diameters/nozzles supported
Filament diameter	1.75 mm
Supported materials	Wide range of thermoplastics, including PLA, PETG, ASA, ABS, PC (Polycarbonate), CPE, PVA/BVOH, PVB, HIPS, PP (Polypropylene), Flex, nGen, Nylon, Carbon filled, Woodfill and other filled materials.
Max travel speed	200+ mm/s
Max nozzle temperature	300 °C / 572 °F

Razor 3D model build process

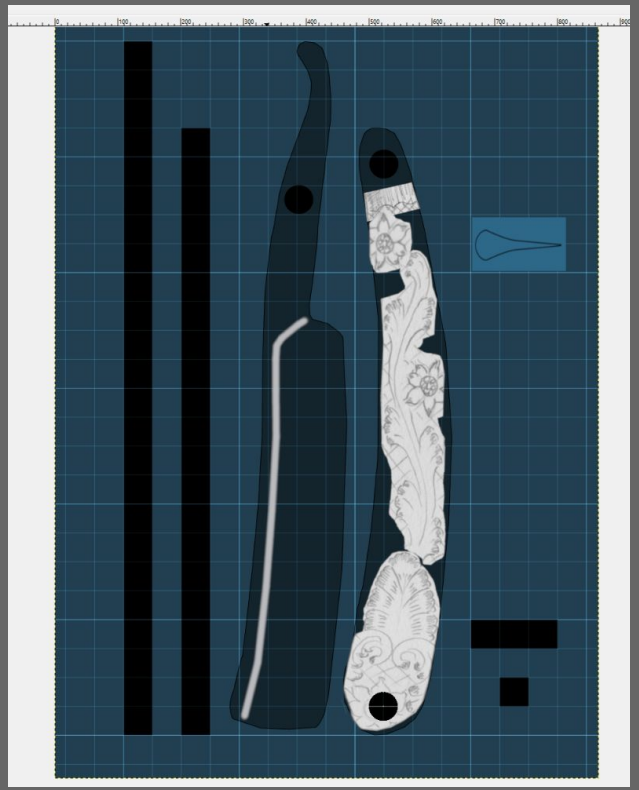


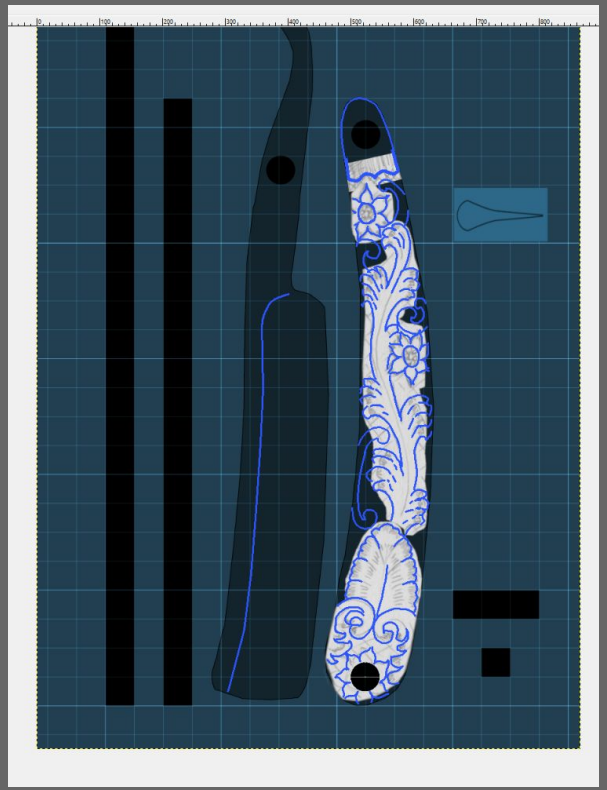


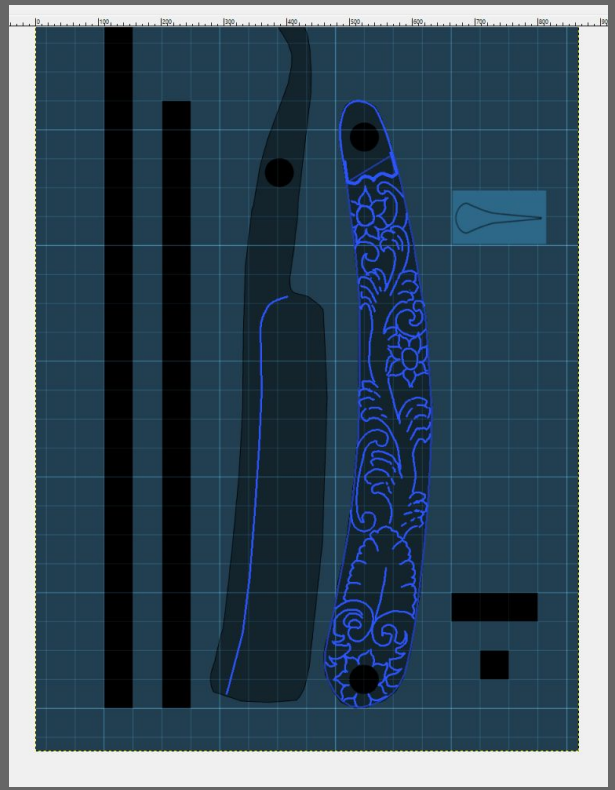




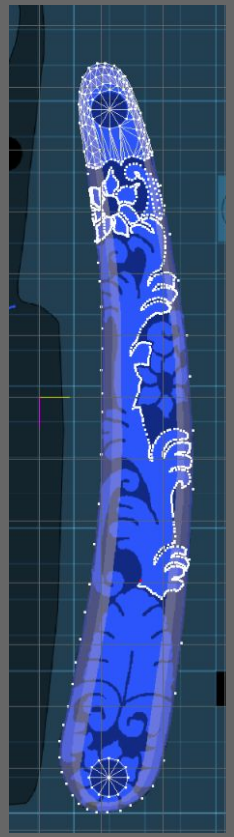
Razor 3D model build process

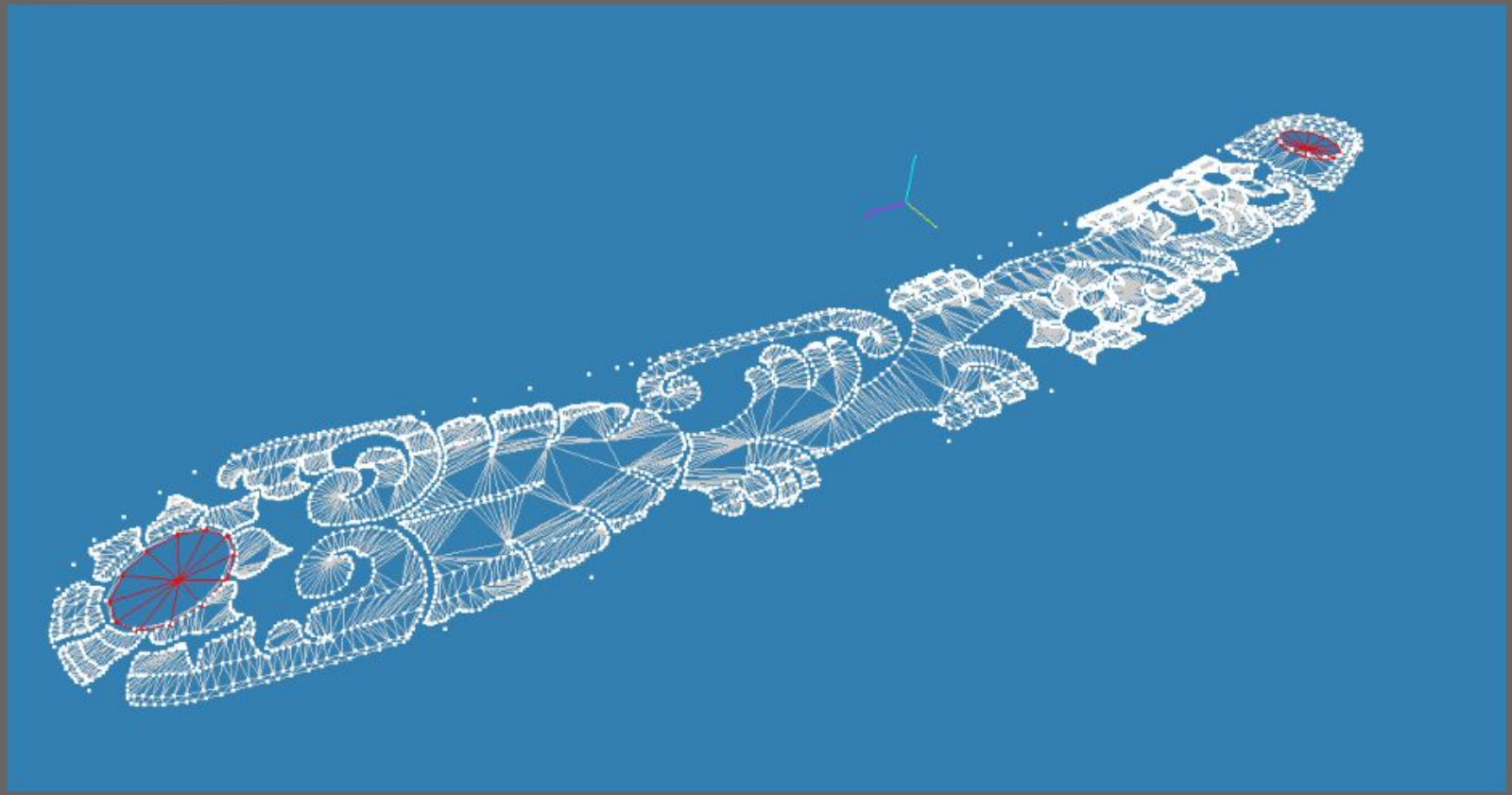




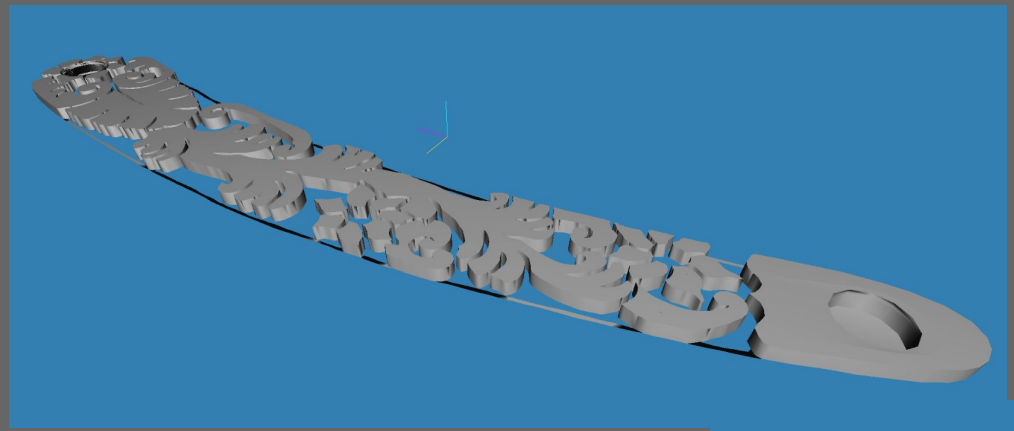


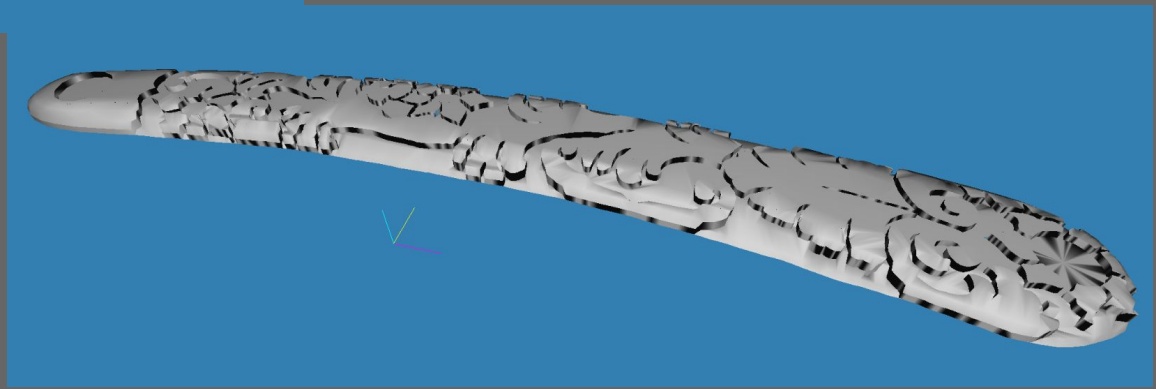
Razor 3D model build process



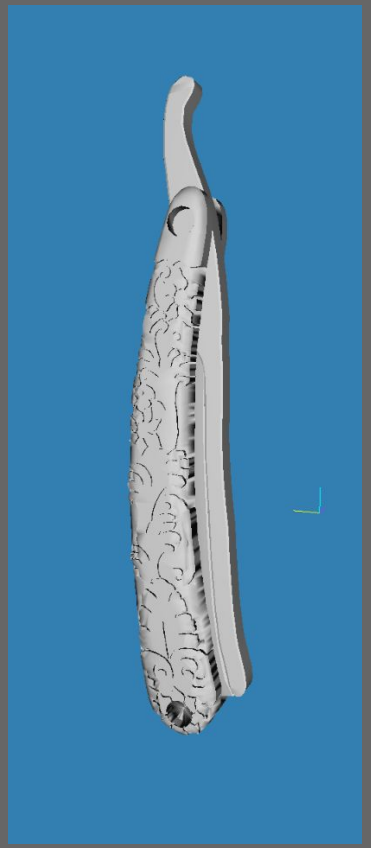


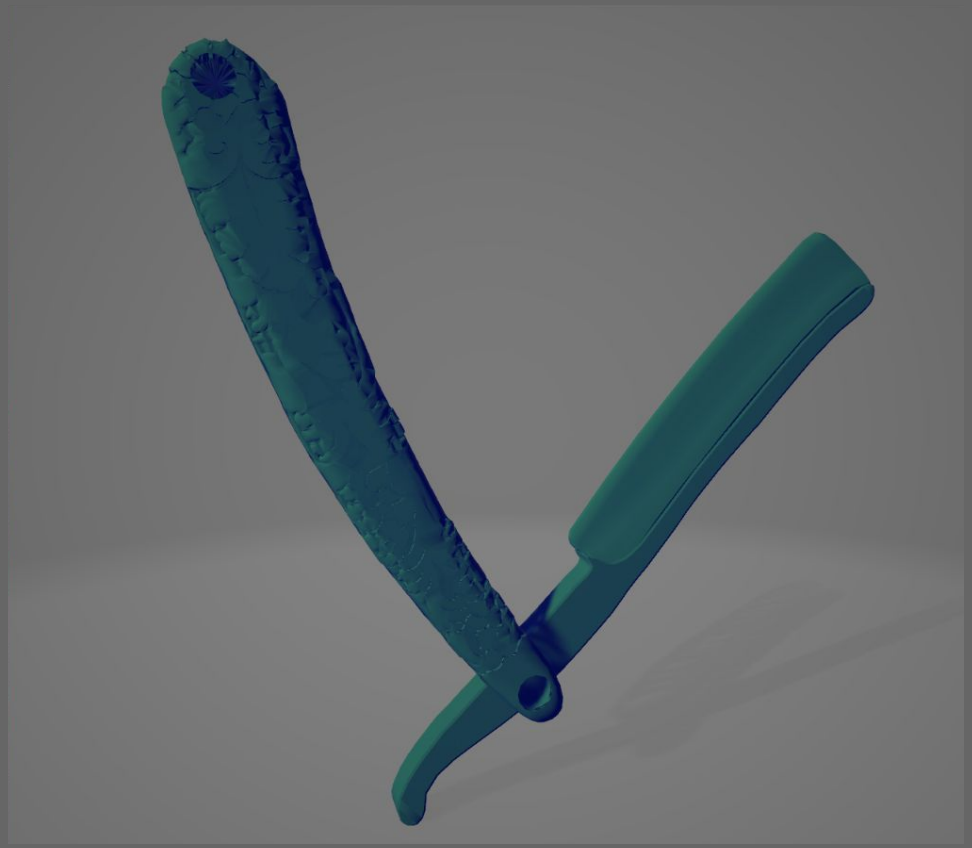
Razor 3D model build process





Razor 3D model build process





Razor model build

It was a perfect storm. Dave's 3d printer was broken over the weekend that I needed it, and though Jakes printer was not, it butchered the pattern on the handles completely.

However, the blade came out perfectly - but a little too large (my desired dimensions got mixed up, and the blade length became 30mm longer).

Thankfully, Freya's 3D printer managed to print out the correct pattern handles perfectly. I asked for slightly over-sized ones to accommodate for the larger blade.





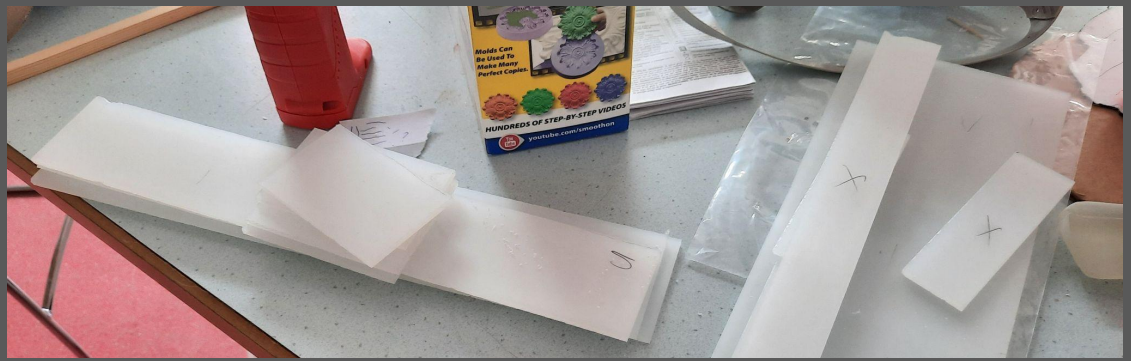
Razor model build

After filing, then sanding the parts, I was able to cut some perspex into vessels for them to inhabit while I poured the silicone.

I knew I needed both sides of the main knife to retain their detail, so I opted for a vertical mould that would house it from all sides, with tapered sides that would allow me to remove the silicone from the vessel without destroying it.

At the same time, I cut up two of the soya fish. One was for editing into a more suitable shape for fitting within the casting, the other for glueing onto the original printing so that the fish within would have a means of ‘poking out the side’ for pressing.







Razor model moulding

Now came time for casting the silicone around the 3d printed models, and it was one heck of a learning curve for me. It was getting to the end of the day, and I had cautiously wrapped all the edges of the containers with gaffa tape. I put parts A and B in the container and mixed them together thoroughly, and poured them into the vessels.





Razor model moulding

Three things went wrong with this first pour. All of them were my fault.

First and foremost, I completely forgot the mould release, even though it was right there in front of my face. Secondly, I didn't adhere the razor handles down to the base of the flat vessel, so they floated up into the silicone. Finally, I took dave's remark that the pack I had was enough to do both of the moulds, instead of actually scrutinizing that with some testing beforehand. I rushed myself, and I was careless. In order for the silicone to properly cover the blade mould, I had to stick a length of scrap wood down the side. This can be seen in the photo.

On the bright side, both moulds are intact and operational, as far as I can tell. The perspex containers didn't leak, which was made even more tragic when I had to tear them apart due to the lack of mould release.

Part of me feels like I didn't deserve to get away with these, given how many mistakes I made. On the bright side I won't forget this any time I work with pourable moulding products.



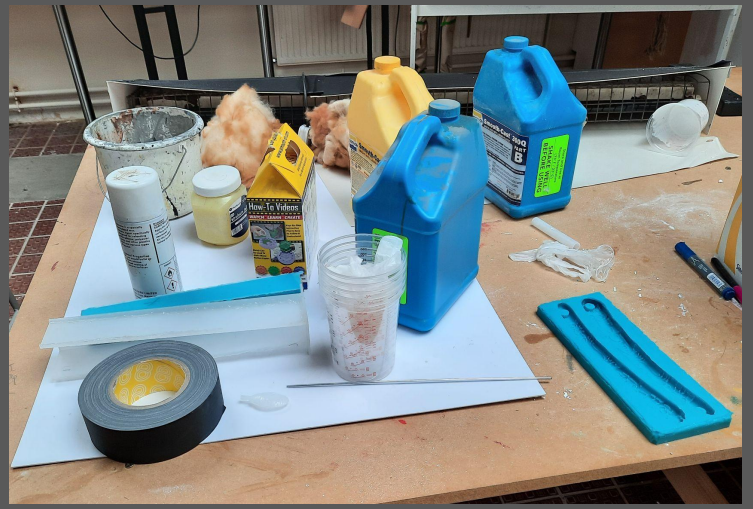
Razor model casting

First thing the next day, I cast some of the same fast-curing urethane I did my original tests with, and straight away I was sure I had messed up the cast again. And to make matters worse, what we initially thought was an abundance of urethane turned out to be very little. I didn't realise Cara's pies needed so much of it.

So with one shot at a major project, with quesitonable moulds (but lots of mould release), I poured the product over the captured fish container inside the mould - and helplessly watched it pour over the side onto the table. I had made the stem too narrow, and I was so deeply upset. I poured the remainder into one of the handle moulds, and walked away.

I was fully expecting that my sloppiness had caught up with me by now, I would have to tell my classmates and lecturers that the grand notion I had for an effect knife would not be possible, and that we would only have a 'show' knife that would look pretty and nothing else. I imagined Jake and David saying "You should have printed both sides around a tube". And rightly so.

Except, however, the silicone had gone inside of the 3d printed handles freya gave me (meaning it didn't survive intact). And dave's printer was still broken. And Jake was away until the day before the hand in. So in my head, I was actually ready to report that we wouldn't even have a display knife to show off. I was very unhappy with my actions.





Razor model cast

So, you can imagine how *flabbergasted* I was when I opened the cured moulds to find not failure, but a complete success. On top of that, there were no bubbles from the urethane (Somehow?). All the handles needed was a bit of work on the bench mounted sander - which I thankfully have access to.

This was one of the most triumphant moments for me so far on this course. Just because of how ready I was to report and absolute abysmal failure, the contrast was a total surprise to me emotionally.

That being said, I still don't feel like I deserved to get away with so many errors on my part. Any time we are working with pouring materials in future I will always think back to this emotional rollercoaster.





Razor Testing

Now came the real moment of truth for me. I mixed some fake blood with a similar consistency to my earlier tests, and had Cara film me while I tried it on myself.

As the images show, it actually worked. This was another super triumphant moment for me.

The prop itself can fold away like a real razor. Because of the narrowness of the tube connecting the inner vessel to the razor's edge, it won't dispense the blood until you press on the exposed container. That being said, it will come out if you 'flick' it really hard.

One thing I didn't realise was that the amount I could dispense this time was about 60 percent of the amount I could do before, simply because I can't press on it from both sides and truly evacuate the air inside. This is okay though.

If I was to do this again with more time and resources, I would devise some kind of custom made silicone container that perfectly matched the casting of the knife. Maybe I could 3D print the vessel from a soft plastic.









Razor Paint testing

Before I started painting the razor parts, I did a test piece. Using an offcut of the perspex I made the mould vessels from, I carried out several thin coats of primer, followed by three thin coats of the metallic grey I had from home. I also sanded the perspex to the same grit as my knife parts, to ensure the effect would be faithful to the final object's finish.

Though it's a bit 'dusty', I find this pleasing enough - especially given its convenience and consistency.





Razor Painting

I opted for several thinner coats with the spray paints, to avoid drips and maintain consistency. I did three undercoat layers of grey, followed by three of a darker metallic grey.

My first holder did not work very well, so I made one from thick wire instead of hooks.

I actually accidentally dropped the blade due to the nature of the first hook holder, and to my pleasant surprise it did not shatter, but harmlessly bounced off of the concrete. These products continue to impress me.





Razor Painting



Razor Foil tape effect

As per a recommendation from Jake, I tried out the adhesive foil tape on the ‘show side’ of the razor, in order to give it an artificial reflective surface. This was to great effect, and it was very quick to apply.

Another tip from Jake was to knock some of the shine off of it with spray paint if the shine was too much. But after standing on the Haliwell stage and asking my fellow students and actors what they thought of the prop in my hand at a distance, I opted to keep the full shine.



Razor Foil tape further testing

Even though we were happy with the razor and it's shine effect, I wanted to know what it looked like to 'knock off the shine' with spray paint - like Jake had mentioned.

At the same time, it seemed the character of Mrs. Lovett was missing a crucial prop: a butcher's Cleaver.

So I got on my tiny bandsaw (Which I've never appreciated more than on this module with all the fiddly things I've been making), and cut out a quick Cleaver shape from 6mm ply.

I sanded the sharp edges, then did one full coat of the same metallic spray paint I used on the knife. After letting it dry for an hour or so, I used the same foil tape from Jake on both sides.

By spraying black paint from a distance, I was able to give the impression of a sort of 'patina' on the spine of the cleaver. I did like this very much, but now that I knew how hard it could be to control such a sparse painting method, I thought I'd leave the Razor alone.





Razor Dry-brushing

As she has become very proficient with a brush, I asked Vanina for help in showing me how to get the handle pattern to ‘Pop’.

Using the very sparsely loaded paintbrush tapped on a scrap piece, she was able to get the exact effect I was looking for. And best of all, we didn’t have to take it apart to paint it - as dry-brushing is so quick to dry.

This felt like the right place to stop fiddling with it and let the actors start really using it as a hero prop. I very much appreciated the refresher session from Vanina.





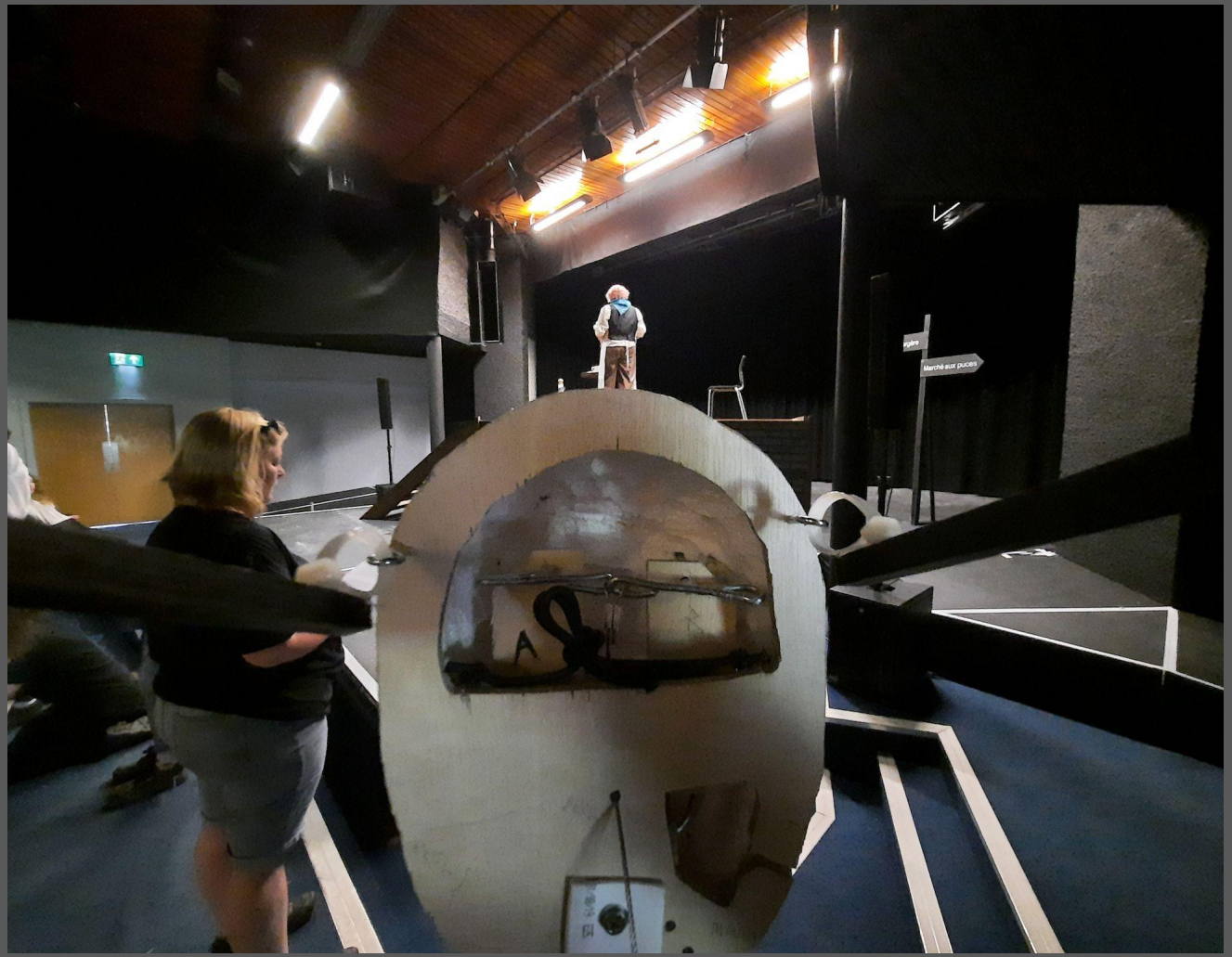
End of Module Presentation

Rehearsals

We did not hit the deadline of the intended rehearsal date of the Friday, and we all had a part to play in that. Me and cara had yet to clothe our puppet or make the stand, so it was a bit demoralising having to explain these things we intended to do instead of actually having them to show.

Walking around the stage with the puppet was such an interesting experience, as the low light made everything more of a challenge. I couldn't believe how difficult it was to not only talk about and operate the puppet, but also just remember to stay calm and position the stand and the knife prototypes in such a way that allowed me to address what I wanted to say.

As for how I feel about what I said, I can't say it was a good feeling. But I worked on it and put together the usual bullet point cards.



Final show

Even though it was not a real show, being on and around the stage with all the lights and sounds was electrifying. I loved every second of the acting student's show. The chair, the set, the knife, the sound, it all worked so well in my opinion.

I had to sit backstage in order to refill the knife for the second usage of it, and I'll admit that it was a little frustrating how it didn't work quite as well in the actors hands as it did in my own hands. That's okay, as afterwards I got to demonstrate to everybody using myself, Cara, and Harley (playing Sweeney).

Overall, I'm satisfied with what Cara and I said on stage, and I'm proud of myself for my delivery of the intro. I think next time I do a presentation, I'll make bigger bullet point cards with a pen instead of pencil, as the writing started to smudge in my pocket!



/Evaluation

In Retrospect

I have never felt so overwhelmed on this course than during this module. Sometimes that was exciting and explosive and intimidating in a great way, and other times I just wanted to sit down and not talk to anybody for 30 minutes.

I am very proud of how I pulled together some of the skills I used as a younger person, more so now than before. I didn't realise how useful those skills (3d model making, 2d physics engine proficiency) could be to me on a task like this.

Additionally, I feel like I have several new feathers in my cap, including the liquid plastic pouring product techniques, the polystyrene carving, the PVC pipe usage and the PTFE pipe mechanics.

I'm proud of what we've done, and I feel much more like a skilled collective group of workers than an individual. It's taken me this long to see that, or perhaps seeing everybody under stress shows you who they really are.

However, I'm really not proud of how my written notes mislead my team mates into making the wrong decisions regarding our project, and I wish I could go back and rectify that - as it caused both me and Cara much grief.

I wish, I really wish I had managed my time better. But at the same time, I've never given up so much of my spare time and I appreciate that you've gotta do that sometimes.

One thing I feel is worth noting is how I was losing around 2 hours a day compared to people living in carmarthen, as the 40 minuite taxi plus the 15 minute walk was taking artificially from me, and stopping me early in the evenings when I needed to get things done. I'm not complaining at all, but I just want to say that next year should be slightly easier in that regard. I'm super grateful for the free travel, and I wish I hadn't signed the tenancy on this house I'm living in. Just bad luck there. It will be different next time.

And finally, I'm just grateful to work with such a talented lot.

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