# MATERIALS AND MOVEMENT IN STOP MOTION ANIMATION

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# Declaration

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## ABSTRACT

Stop motion animation first evolved from the visual effects in live action filmmaking. Stopping the camera to move, add or remove something created an illusion that fooled the audience into seeing something possess its own motion. Early animations often considered as performances of visual trickery with an emphasis on movement.

Animation has evolved over the last century from its early beginnings as trick films, developing as a central element to live action visual effects in the first few decades of the 20th century and as a form of animation in its own right. Throughout this evolution, stop motion has developed to utilise clay models and complex puppets in addition to everyday objects as a means to tell rich and compelling stories. With the rise of computer generated imagery (CGI), stop motion is no longer used as often for visual effects. However it continues to be explored for its visual qualities and artistic possibilities in feature films and animated shorts and these qualities help to make the case for the longevity of stop motion for years to come.

The traditional process of photographing physical models leads to an organic and natural visual quality that has a feel unique to this animation medium. Jan Švankmajer and the Quay Brothers use stop motion to explore surreal and uneasy scenarios while the stylised worlds from the likes of Tim Burton and Laika are enhanced by detailed textures and the charm of the physically involved process behind.

The aim of this project was to explore these visual qualities of stop motion animation, to understand the unique stylistic affordances it offers. Case studies and analyses were used to work out how the qualities such as the use of materials and utilising the imperfections of stop motion's movement can enhance an artist's work such as evoking genre specific effects like atmosphere or characterisation.

The project makes use of short practical test animations and experiments to demonstrate the use of these stop motion materials and movement techniques and a final animated outcome was created and evaluated to further explore and showcase the project's findings.

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## 1.0 - INTRODUCTION

Stop motion animation is well recognised within cinema and can be seen in films as early as 1898 in Albert E Smith and J Stuart Blackton's *The Humpty Dumpty Circus* (Vitagraph Studios 1898). Initially stop motion shorts were considered trickfilms and were more concerned "with autokinesis, movement in itself" (Crafton 1993, p.32) and up until the late 20th century stop motion found itself as the dominant form of visual effects in filmmaking.

While stop motion's use as visual effects for live action filmmaking has shifted to gradually towards CGI, many directors including Tim Burton and the Quay Brothers have utilised stop motion animation in their films to enhance their visual style, using techniques such as texture and quality of movement to convey a surreal, unsettling or dreamlike performance in their characters (Adlakha 2015). Meanwhile, animation studios such as Laika have focused on creating a smoother and more realistic stop motion performance in their characters by utilising 3D printing technology to produce subtler movements and greater consistency between frame-by-frame movements (Scott 2014).

Imperfections are evident in even the very best of animations due to the physical and involved process to create animation in the medium. "Stop-frame has limitations, but those limitations are what make its films work" (Kewley 2015 quoted in Thrill 2015). This project explores what some of these imperfections are and how the process of creating stop motion can produce interesting effects through the use of materials and qualities of movement.

Despite requiring a high patience and sometimes dealing with frustrations, stop motion has an appeal and charm to it that keeps filmmakers coming back to use it in their work (Selick 2016, quoted in Rose 2016). The rise in computer graphics and the cost of an animated feature film reaching many millions means there is not much room for error (Thrill 2015). Digital animation certainly has its advantages over stop motion such as fewer physical space limitations (Urbina 2014) and ability to create photorealistic visuals, which puts pressure on traditional animation techniques.

This project aims to make a case for the longevity of stop motion animation by answering questions such as how stop motion animation differs from other animation mediums and how animators are using the unique traits of the stop motion effectively to explore artistic possibilities. The research explores these techniques through analysis of other animators work in order to gain a deeper understanding on their effects on the viewer. The project also looked into producing original animations which explore these techniques to understand how the process behind stop motion animation can produce visual qualities and what those qualities can enhance about a piece of work.

**PROJECT AIM**

To explore the stylistic affordances and unique traits of stop motion in order to better understand the medium's appeal to animators and audiences in a CGI dominated field.

**PROJECT OBJECTIVES**

1. Review existing films and short films to develop a greater understanding of the appeal and stylistic affordances of stop motion.
2. Explore the use of different materials and how different qualities of movement can be achieved in stop motion animation through short practical tests and experiments
3. Create a short animated film from an evaluative framework to further explore and showcase the project's findings.

## 2.0 - LITERATURE REVIEW

### 2.1 - Background

In 2014, only four feature length stop motion animated films were released in cinemas worldwide, which roughly equates to about 2% of the animated feature films released in 2014 (IMDb 2014). Although there are few stop motion films released each year, it is still a medium that is consistently used by feature film makers, each year seeing a small number being released. Despite being in the minority there were more stop-motion films being produced in 2012 than there had been in the 1950s (Sito 2013, p.268).

Early 20th Century stop motion animations, known as trickfilms, were an imaginative response to technological developments at the time producing "startling metamorphoses" (Crafton 1986, p.9) by starting and stopping the camera. While these early animations typically featured little narrative (Crafton 1986, p.32). Directors such as Max Fleischer appeared alongside their animated creations such as the *Out of the Inkwell* (1918) series of animations he and his brother Dave were creating (Crafton 1986, p.298). They had a focus on telling a narrative with animated characters that involved interaction with the live actors. In addition to shorts, the possibilities of stop motion eventually found its way onto the big screen.

Stop motion played a large role in the visual effects in filmmaking in the early to mid-20th century and Ray Harryhausen can be attributed as revolutionising the use of stop motion animated models through a technique he invented known as Dynamation, a form of stop motion animation that allowed stop motion to be incorporated into live action footage through projection (Official Ray Harryhausen Website 2009). Stop motion was used in visual effects because of its visual qualities and ability to feel real to the audience (Shadbolt 2013). Imaginary monsters featured in film today are more often than not created in a computer, however used to be miniaturised model puppets stop motion animated and layered into the film. However as technology has progressed, most visual effects in today's films are created in computers and there is less of a demand for stop motion visuals. As Barry J C Purves states: "For pure realism and convincing, moving performances, stop motion is no longer able to compete with such breathtaking CG creations as Gollum or Kong" (Purves 2007, p. xvii). While stop motion does have its limitations, animators are working on expanding stop motion's technical possibilities while other animators are still embracing the medium.

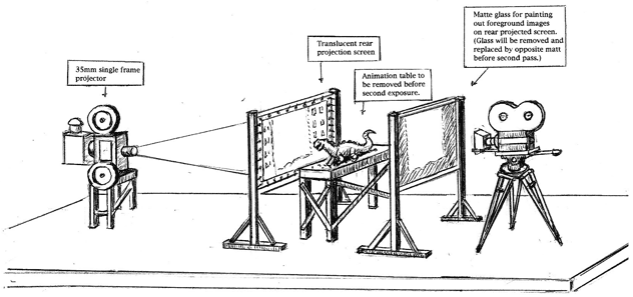


**Figure 1:** How Dynmation works. Official Ray Harryhausen Website (2009).

## 2.2 - Technological Developments

Laika Entertainment, an American stop motion animation studio, have utilised newer technologies in their animated films including the use of 3D printing to assist production of their characters' faces with greater efficiency and accuracy to enhance the range of performance and emotions that their characters can express. Animator and CEO of Laika, Travis Knight, claims that this process can bring a "greater sophistication to the animation style, so these things feel more real and alive" (Knight 2014, quoted in Kamen 2014). Laika appear to be moving further towards this goal. *Coraline* (Laika 2009) saw as many as 200,000 different facial expressions, whereas Eggs from *The Box Trolls* (Laika 2014) increased that number to 1.4 million (Kamen 2014). Knight sees this as an important direction "so you actually connect with them as living, breathing characters not just puppets" (Knight 2014, quoted in Kamen 2014). While Laika use 3D technology to get the most subtle of actions out of their character because they believe that pushing the expression of their characters makes them more believable to the audience. However despite the advances in technology in *The Box Trolls* (Laika 2014), this wasn't the deciding factor on whether the film was a success or not. Ed Hooks agrees that the performances are impressive but claims that many of the shortfalls in *The Box Trolls* (Laika 2014) were down to "a script issue, not a performance issue" regarding the audience's ability to emphasise with the characters (Hooks 2015).

**Figure 2:** A removable 3D printed face. LAIKA.com [no date]

## 2.3 - Aesthetic Qualities and Movement

Despite the dominant use of computer and digital animation in feature films, stop motion animation can offer many aesthetic qualities that arise through the process behind it. Purves makes note of a large set of qualities that stop motion can offer: "Texture, richness, space, depth, movement, shadow, lighting, physicality. They are all qualities stop motion has in abundance." (Purves 2007, p.15). The affordances which stop can offer aren't unique to the medium but they can come more naturally due to the process and many animators embrace these qualities within stop motion. While CGI can match photographic realism, animators like Tom Gasek claims there is no substitute for real physical objects that "strikes a cord in the human psyche with strong physical identification." (Gasek 2004).

The production process can lead to unique qualities that are often utilised by animators, showing that stop motion is a credible animation medium and is not likely to disappear any time soon. The nature of moving physical models and capturing frames over time can lead

to a visual quality of subtle light changes or small jerking movements at random frames. Animation from other mediums will differ, for example in digital animation lighting and movement will be smoother due to their controlled nature.

The photography of stop motion reveals a physical reality, physical flaws and an imperfection of movement. The same object can be animated in any medium but the hand of the artist is always apparent in stop motion animation. Humans relate to the fact there is infinite textures and no physical symmetry in the world which "can never ultimately deny our human nature." (Gasek 2004).

The imperfection of stop motion is often utilised to enhance aspects of an animation. Ray Harryhausen used jerking movements to emphasise certain aspects of a character such as the mechanical movements of a rusty character (Purves 2007, p. 201). The nature of stop motion can lead to movements that can look out-of-synch or possess a "subtle nightmare quality" where only slight manipulations to character movement can cause a feeling of unease (Williams 1997). This quality of movement can be something that puts people off about the medium but many animators of the craft embrace it. In comparison, in *Chorlton and the Wheelies* (ITV 1976) uses the imperfections in its movement to emphasise the child-like qualities in the toys it brings to life.

Jan Švankmajer is known for creating unsettling and sometimes grotesque tones in his animations while still maintaining humour. He plays with a lot of imagery that would be disturbing if it were real but uses stop motion to explore darker stories within the animation medium. Švankmajer uses modelling clay in his short film *Darkness, Light, Darkness* (1990) as the material for the main character which is composed of various limbs that work together to build a single body. Švankmajer uses the moulding properties of the clay to create visual gags that help to make light of potentially disturbing imagery. Sound also plays a good part in this short film with the sound effects adding to the unsettling nature of the content.

**Figure 3:** Clay feet accidentally deform a head. Darkness, Light, Darkness (1990)

Clay can be used in a number of ways and can be used to create different textures. Švankmajer utilises the different textures that can be achieved with the clay from a smooth, elastic property to a rough uneven tear such as when the ears are torn off. The contrast can create unsettling moments as the tear feels more real to the audience. As more clay comes in from outside of the room it becomes more fluid and has a texture that is hand moulded with lots of fingerprint indentations, a way of leaving a personal human mark in the work (Blair 2014). The idea of being aware of the animator is something that appeals to many stop motion animators as Gasek claims "there is a joy in seeing the fingerprints of the artist in a clay animated film. When computer animation incorporates the imperfections of

movement and physical flaws that are inherent in model animation, then it can successfully touch its audience." (Gasek 2004).

*Darkness, Light, Darkness* (1990) is a good example of using a variety of materials. The nature of the story means there is a lot of imagery that can get a reaction from the audience, from playing around with eyeballs to realistic looking organs. A tongue and set of teeth enter the room and as they are the first non-clay moving objects (other than the eyes) there is a distinct contrast between them and the clay character. The use of realistic organs that are wet in texture, coupled with the squishy sound effects can give a feeling of unease.

While stop motion isn't only for creating unsettling effects, it does do this well due to the physicality that it captures and ability to relate the audience to the objects. While motion blur can be added to create more fluid movement, without it you get the occasional strobing effect where the sudden jumps between frames can appear jarring (Williams 2014). Utilising this effect for surreal and unsettling performances is something Jan Švankmajer and the Quay Brothers used to enhance their style. The Quay Brothers focus on surrealism allows them to use stop motion to create imaginative concepts tying the physicality of the objects they use to the atmosphere they want to convey. The closed room with flickered light in *In Absentia* (2000) reflects the character's mindset and loss of sanity (Adlakha 2015).

The Quay Brothers, among other directors, filled the set with textures so that the audience can "feel every frame as though through your fingers" (Purves 2007, p.16). Texture is a common quality associated with stop motion since it is abundant from the physicality of the process. "Texture is one of the ways in that stop motion scores over other animation. It can be bettered with a whole team of computer graphics (CG) artists, but it just happens naturally with us" (Purves 2007, p.16).

Films such as *The Nightmare Before Christmas* (Skellington Productions 2012) heavily feature texture in both the detail of the set and appropriate use of real world textures. The film takes place mostly in outdoor locations in a fictional universe. Textures are used effectively to separate the different locations of the Halloween town, the Christmas town and the "real" world. Halloween town use a lot of unnatural textures that make up their characters such as Sally who is threaded together, which emphasises the sometimes unsettling Gothic tone of the film.

**Figure 4:** The textured world of Halloween Town.
The Nightmare Before Christmas (2012)

Tim Burton's signature style is not just visible in his animated films but also his live action films. Burton is one director who simply enjoys the visceral and tangible experience that the stop motion medium can offer (Tim Burton 2013 quoted in Lammers 2013).

It is tempting to suggest that traditional animation mediums are being taken over by computers. For animator Richard Starzak of Aardman, the use of puppets in a real environment is an experience only achieved through stop motion. "I think you appreciate the fact that these things really exist. They're real puppets, on a real surface" (Starzak 2015 quoted in Thrill 2015). To Starzak, the unique visual quality of having real life objects helps to create greater immersion: "... because the characters are in a space, and they have to interact with that space, it feels more natural. The best CGI films do that well, but I think that even in their most tense, dramatic scenes, viewers understand it's not real so they're not affected in the same way" (Starzak 2015 quoted in Thrill 2015).The appreciation of physicality is shared among many stop motion animators, echoed by many of the practitioners in Purves' interviews (Purves 2007) and director Tom Gasek; "The physical reality of actual models, puppets, lighting and imperfection that we can identify and understand as humans". (Gasek 2004). Through the physicality of stop motion, many aesthetic qualities are formed and this is what the project came to explore.

# 3.0 - METHODOLOGY

## 3.1 - Case Studies

In addition to background reading, case studies were carried out on other artists' animated films and shorts. This was done in order to understand how stop motion was successfully used to contribute to the work's visual style through identifying common techniques and stylistic affordances. The films chosen were chosen for case study due to the relevancy to the reading material or their innovative use of stop motion which would be appropriate to analyse further.

Three feature films were studied: *ParaNorman* (Laika 2012), *Corpse Bride* (Warner Bros 2005) and *The Nightmare Before Christmas* (Skellington Productions 2012). They were chosen due to their visual style and effective use of stop motion animation to build detailed and stylistically unique worlds and characters.

The initial purpose of the case studies was to identify common techniques and styles that contributed to the visual style of the films. Notable visual attributes such as texture or colour were noted down and compared across each film. These attributes helped to build a critical framework for each successive film to be analysed against. Blog posts were used to further explore these traits and find other examples to study.

In addition to case studies, smaller analyses of short animations were also conducted through the project blog. The animation discussions were a series of blog posts which focused on a short animation or series of short animations by other animators which were discussed and analysed. The purpose of the animation discussions was to identify common stop motion techniques, themes and tropes that would help gain a broader understanding of animation. Although less formal than full case studies, the discussions were quicker to produce while still benefiting the project by rapidly gathering research, evaluating and guiding the project to new ideas or animations to explore.

The findings of the case studies and discussions were used to build a framework of stylistic affordances in stop motion which helped the analysis and iteration of ongoing practical work and the final animation. Providing a structured method of thinking helped to make the most out of watching and evaluating other animations. It consisted of combination of questions and common themes to look for between each film. The framework was iterative so each film watched and evaluated would add up to benefit the next film that was reviewed.

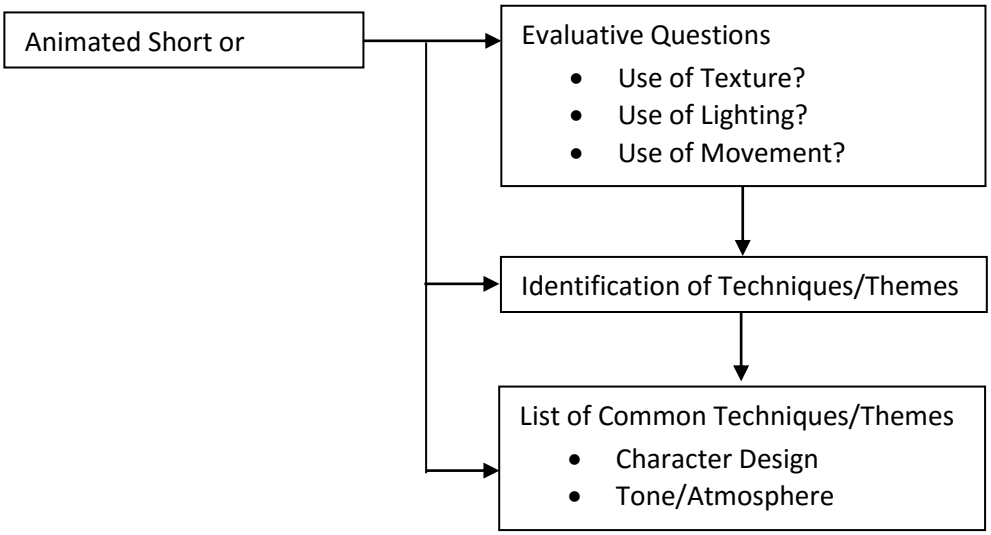


**Figure 5:** The process for evaluating case studies and identifying techniques. Diagram by author.

By carrying out these case studies an understanding of some of the possibilities of stop motion was gathered and this helped to direct the research into exploring into some of these qualities in greater detail. The case studies helped to narrow down the initial research aims to focusing in on materials and movement in particular. The main techniques which were identified and discussed in each the various case studies were:

- Materials – Evaluating the use of materials for genre or atmosphere. How materials are deformed and what affect that has on an audience?
- Movement – How smoothly does a character move and why would an animator choose to move a character in a certain way? How many degrees of movement does a character have and how does this affect the character? How do different materials display different qualities of movement?
- Texture – What materials are used and what effects can they convey? How does the use of materials and texture build a rich environment?
- Colour/Lighting – What does the lighting tell say about the environment. How does the lighting enhance the visual quality or texture of an environment?

While not all techniques were applicable to each animation, each case study was approached with the same questions and the project chose to expand upon some of these techniques further and also explore them in practical work. It was the physical nature of working with stop motion that lead to unique qualities such as materials and movement that were eventually became the main focus of the project.

The case studies identified the techniques through a structured approach while the animation analysis posts which could be considered case studies themselves were a second approach which used findings from the case research to discuss and analyse animations efficiently.

The case studies are included as Appendices A through C.

The animation discussions are included as Appendices D through H.

## 3.2 - Practical Tests and Experiments

To understand the different visual qualities that can be achieved from different materials in stop motion, the project explored a variety of materials through short practical tests and experiments. The test animations ranged in length from a couple of seconds to half a minute.

The purpose of the tests and experiments were initially to help identify attributes that contribute to stop motion animation's appeal and identify how the process of stop motion can lead to visual qualities that other animation mediums might not come across. Various materials were used tried out throughout the year including Lego bricks, rice, paper and cardboard, modelling clay and aluminium wire armatures. The test animations would often feature an additional test outcome such as experimenting with other techniques or trying out a complex lighting setup or camera movement.

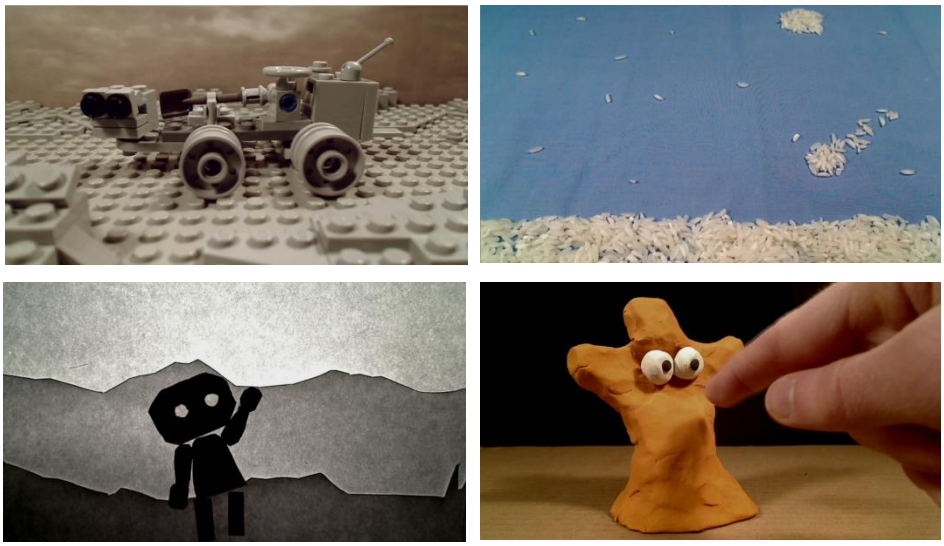

**Figure 6:** Various materials were animated in the project's practical work. Image by author.

An animation with rice was created to test the process of how a material composed of many small elements can come together and create a larger body of movement. The rice test showed that the movement had a unique quality to it as while each individual grain did not need to be accurately tracked and moved from frame to frame. For example focusing on one rice grain throughout the animation, the grain would not appear to move smoothly or

accurately, sometimes moving too much and other times not enough. The rice grains together would form a larger action that possessed a random, stylised quality of movement.

Later, another rice animation was created using a light source beneath the transparent table. The light shined through paper and then through the rice creating an interesting visual quality where the rice would vary in its transparency depending on how bunched the rice grains were. By changing the distribution of rice, light and dark shapes could be animated in addition to the overall movement of the rice. The additional lighting setup added a layer of depth and visual interest to the animation that the first rice test did not have. The first rice animation was colour corrected in post-production to experiment with enhancing the visuals by giving more contrast and depth.

**Figure 7:** Comparison of first rice animation without enhancements, and with post-production colour correction. Image by author.

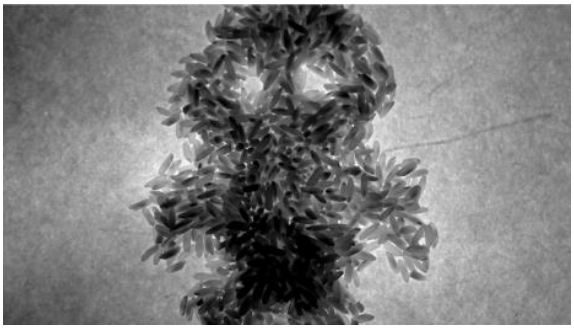

**Figure 8:** Lighting the rice from below produced different levels of transparency. Image by author.

The lighting setup was expanded upon with a paper animation experiment which layered paper on top of each other where each layer would appear darker due to the layers beneath it. A character made from thick cardboard would block all light and therefore give a style similar to that of silhouette animations. The natural texture from the paper increased the quality of the scene's overall appearance, which supported the idea that stop motion animation does have free visual qualities that enhance the style of the animation, as suggested by Purves (2007).

Clay is a well-known material within stop motion with big names such as Aardman using it as their primary animating material. Armature puppets can be utilised to define structured limbs and points of movement as clay on its own can mould and deform to any shape. To understand the potential of clay, a series of clay figures were created and animated for a Global Game Jam 2016 project. While the characters would be designed for the game, they were animated to explore the anamorphic properties of the clay that could be evaluated for this research project. The clay animations led to new ways of thinking on approaching how a character moved without a rigid skeleton. The fluidity and ease with which you can

**Figure 9:** An alien character created during the Global Game Jam. Space Mates (2016).

bend or shape a character led to many possibilities of visual gags. The use of clay again showed that stop-motion is very rich in style and simply choosing to use the animation medium gives you so much free texture, physicality and style which would take a lot more skill and time in other medium. It is understandable to see how stop motion with modelling clay is a good starting point for beginners in animation (Shaw 2004, p.49).

An animation test was created to experiment the effects of animating one object at a different frame rate from another. A clay model was animated at 15 fps (frames per second) while a live action hand was animated at 30fps. The idea of the experimental animation was to contrast how different objects at different frame rates would interact and to see if exploring with frame rates would actually be worth exploring.

**Figure 10:** Trying out pixilation and clay animation Image by author.

The result was that the clay character at 15fps appeared more real than the hand moving at a higher frame rate of 30fps. The higher frame rate created a surreal effect which was the opposite of what was expected. Testing the different frame rates was not explored due to the time frame of the project and it's important in comparison to other aspects of movement quality. However the animation test was pivotal in shaping the project's direction. The use of different materials, clay and pixilation, were later incorporated into the project's final animation and the idea of the animator interacting with the animated subject was a theme that was explored further. Following the numerous materials tests, it was decided that the practical work would focus more on puppet based animation rather than other forms of animation however still including the exploration of clay. This was chosen in order to cover the broad range of stop motion materials available and to better relate the practical work to the case studies and animation analysis which mostly consisted of puppet based animations.

Every animation created in the project was accompanied with a blog post describing the production process and afterthoughts. Successes and failures were also discussed and relations to any previous animation test or relevant literature was noted. Reading, practical work and analysis allowed the project to consolidate stylistic affordances that can be achieved through stop motion, identifying techniques which work well and those which do

not work so well. Working in stop motion showed that texture was a quality apparent in all of the practical work due to nature of the photographic process. However texture could be enhanced through lighting and post-production as seen with the rice animations. This iterative testing and reflecting process throughout the year helped to shape the research aim and focus the project's scope. Animation tests benefitted the project as they would help to answer questions such as what are the possibilities for materials and what techniques can do to an animation. Each animation test contributed to the project and led the direction for future animation tests. Ongoing practical work helped the project's research aim to form from a wider selection of questions to a few key questions.

Interviews were considered for the project where peers would be shown a short animation from the project's practical work in addition to a list of questionnaire which would help to evaluate if techniques were used effectively. Interacting with other people and getting their feedback would have been a method to gain a better understanding on findings in the research. However it was decided that the framework created from case studies and evaluations of practical work was deemed appropriate enough within the project's time frame.

During the year at an appropriate time in the project's schedule the next logical step was to start work on creating a final animated output which would showcase the project's findings so far and build upon techniques like materials and movement quality further. While more practical tests could have led to other findings, without a final project to round the project off, the project's practical work would have been be without focus. Moving forward from tests and experiments was a sensible approach in order to build upon the project's research so far.

# 4.0 - PRODUCTION PROCESS

## 4.1 - Introduction

The planned outcome for the project was to gain a better understanding of stop motion and the visual qualities it can enhance, particularly movement and use of materials to enhance style. A final animated short was made in order to showcase findings of previous project work and literature research.

Producing a final animation of some kind was planned from early on however the goals of the final outcome were not initially planned. The goals came from techniques discovered and findings made primarily through the previous animation tests.

Using the final animation to explore materials and movement through different materials and use of techniques was deemed the best step to further research into the work that had already been looked at and created.

The final animation set out to:

- Demonstrate how different materials have different movement properties.
- Develop a greater understanding of some of these specific qualities of movement through comparing and contrasting materials to each other in a single animation.
- Highlight how stop motion techniques such as texture and lighting can enhance the visual appeal of the animation.

The final animated outcome was considered early on in the project however was not officially started until the second semester. Early in the semester the final animation was worked on alongside other parts of the project but was made the main focus as the project began to come together.

## 4.2 - Narrative

The creation of a narrative was not central to the project's aim as the project was focused more on the animation and movement. However narrative is an important part of any animation and it was necessary to explore different narrative options. A well-defined story will help to ensure the character's performance and actions are stronger (Brierton 2006, p.7) and will therefore communicate the animation qualities that the project is setting out to explore more clearly.

An iterative process was used for building the narrative including the use of storyboards and animatics. An initial concept idea was storyboarded and revised throughout the year as practical tests and reading research continued. Storyboards helped to lay out the narrative visually whereas animatics helped to understand the pacing and timing of the story.

Not every action was planned out ahead. Creative freedom was used to allow gags to present themselves through experimentation with the materials throughout the production of the final outcome. Some subtle actions and responses of the character were also animated on the spot as opposed to being scripted. The character's body language was difficult to display in the animatics but a hands-on approach with the armature allowed for stronger poses and therefore being able to transmit a more powerful message visually (Hooks 2001, p.47). This approach allowed both a planned story to be told with the inclusion of unscripted changes which enhanced the character performance and narrative.

## 4.3 - Materials

Materials used in stop motion became a central to the project's research and practical work. Early animation tests were conducted to explore different stylistic affordances achieved by animating different materials.

It was decided that a more complex material, a stop motion wire armature, was to be used for the final animated outcome. A wire armature was chosen for its traditional association with the animation medium and for the possible range of movements and expressions that it can be achieved with it. A wire armature was chosen over a ball and socket, joint based armature for both monetary reasons and difficulty of use. A wire armature would be easier and more efficient to move frame-by-frame than a more complex armature. A more complex character would also require more testing and greater familiarity with the rig which would have not been possible in the project's timeframe.

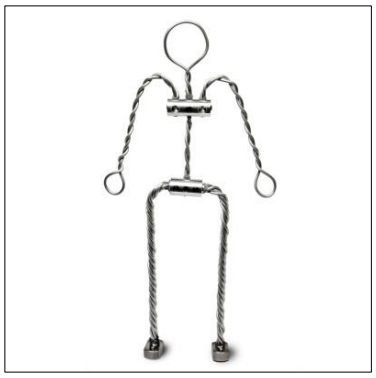

**Figure 11:** The assembled aluminium armature used. AnimationSupplies.net [no date]

The set design was kept basic in order to focus more attention on the animation of the character. It was created from cardboard and included some small clay assets. Earlier animation tests showed the potential of cardboard's texture ability to add visual interest to the environment. The set's materials were chosen to give a home-made feel by choosing materials that are easily recognisable.

The story called for a short section of animation to be filmed with a live actor. The pixilation technique was chosen due to explore the technique further from the earlier practical test. With pixilation an interesting movement quality comes from the fact that live actors cannot stay absolutely still between frames "so the result is an impulsive energy and vibration" (Gasek 2011, p.32). The quality of movement that the pixilation technique produced was contrasted to the inanimate materials which were controlled with a greater degree of accuracy.

Modeling clay was included in the animation which the armature character interacts with. The character exploring the material's properties on screen served a use in the narrative in addition to explore the different metamorphic properties which the clay possessed. The use of modelling clay also helped to shape the film's narrative. As clay is a material that can be shaped, it has the ability to be changed and does not have to conform to a plan. "Once you're on stage you can improvize and change your mind a lot." (Park [no date] quoted in Shaw 2004, p.49). This allowed the exploration of clay on-screen as both the character and the animator explore its properties.

The clay also allowed the maker's mark to be seen through fingerprints and subtle changes in the clay's shape as it was moulded from frame to frame. The evidence of the animator being present while not seen is embraced by stop motion animators (Gasek 2004).

Before filming the final short animation, a production test was conducted with the armature and an early set piece in order to explore how the armature moved around on set and how both the character and set appeared visually through the camera. This short test helped gain an understanding on the staging of the shot such as the position of the camera so that it encompasses the set but still keeps the character as the central focus.

### 4.4 - Movement

The final animated outcome set out to take advantage of the different qualities of movement that different materials can achieve and use them to aid the narrative. The short film made use of three main materials; wire (armature), modelling clay, and a live actor. Each of these materials have different properties and the project uses stop motion animation to highlight these properties by the showing the contrast in the way these materials move and deform.

The live action hands are not able to deform, stretch or bend to poses that are not humanly possible. This limits the exaggeration that can be achieved through the material itself. However as used by Lindsay Berkebile in *MEAT!* (2010) "the movement is exaggerated; the facial expressions are pushed to the limit and [this] place[s] an audience at an uneasy state." (Berkebile 2011, quoted in Gasek 2011, p. 33). However in this project's animation, pixilation was used to take advantage of the animated quality of moving a live actor frame-by-frame to stylise the hands' movement to match the same animated quality as the rest of the animation in the short film and to explore the interaction between a live actor with an inanimate character.

Modelling clay does not have any constraints and can be shaped and moulded into any form. This has both its advantages and disadvantages in animation. By making use of the physical attributes of modelling clay, more fluid and dynamic movement can be achieved by deforming the clay. The final animation's story utilises the properties of clay when the wire armature character falls on the clay on set and explores how the material moulds and forms as he plays with it. The clay in this animation is exaggerated as actual clay is not as fluid or soft as it appears to be in the animation. Exaggerating the clay's movement properties allows it to be interesting to use as it opens up a lot of possibilities for it as a material. The clay does show its actual properties when the wire character struggles too hard and comes loose from the clay body he has built himself. The clay appears more rigid in structure when the character is not interacting with it in order to create the gag of the annoyances of working with clay.

There is also a degree of fluidity that can be achieved with the wire armature. As opposed to a joint based armature which has pre-defined points of movement, the wire is similar to clay in that it has few constraints as to how the wire can bend. Through experimentation with the armature, there were limitations to the armature due to the nature of the material. Aluminium requires a relatively strong force in order to bend and it has to be held correctly so that the correct part bends. Applying force to the arm anywhere will simply bend the arm at the part of least resistance.

As moving physical objects around cannot be moved with exact precision, there is natural feel to the character's movement. Additionally, as anticipated with any stop motion project there is a likelihood for errors, bumps and unexpected movements. This results in imperfections and little kinks in the smoothness of the animation. There's a homemade and organic quality that echoes Tom Gasek's words that can help form a stronger audience connection (Gasek 2004).

For the final animation, the armature was made to move with the same structure as a human, with elbows and knees and choosing to not over bend the armature into an unrealistic pose. This was to allow the character to be relatable and to help emphasise the town of humorous but not over comical or silly. The clay moved in two different forms; fluid and difficult to attach, contrasted with the sticky and difficult to remove. The unreal movement of the clay and the less exaggerated movement of the character were balanced by establishing the movement properties of the clay with the initial character interaction. The way the clay moved initially was that it was difficult to work with so the character combats this by over compensating the amount of clay he uses and thus setting up a future gag.

## 4.5 - Mise-En-Scéne

As the short film's narrative was based around an armature moving around an animation set, production design was initially challenging to appear convincing. As the set was an animation set itself, the appearance needed to look like showing the edges of the set and behind the set piece were intentional and not simply a lack of resources. The set piece itself was a living room setup which was adapted from an early story idea. A living room setup is a common film setup which worked well as anything too farfetched or out of the ordinary would have raised questions from the viewer about why that setting was chosen.

Creating the production pipeline test allowed the early set design to be shown on screen and evaluated to see what was working and what was missing. It identified that it wasn't apparent enough that the set design was intentional so additional struts and behind-the-scenes props typical to a live action film set were added in order to communicate the purpose of the set. Piles of clay and other construction materials were situated beside the set to contrast the carefully constructed set piece and the behind-the-scenes area outside the set piece. Additional assets were considered such as cameras, boom microphones and lighting reflectors that would've helped to sell the film set concept but scheduling for animation meant that there was limited time to work on the set design.

The set was created with cardboard due to its abundance and easiness to cut and shape. The cardboard's texture also added visual appeal and helped to emphasise the home-made aesthetic that was appropriate to the animation's narrative. Some clay assets were used in the background and while more could have been added to increase the texture and detail to the environment, it was decided that less background clutter would ensure that the thin armature was readable against the background.

A feature of the animation was to explore the interaction between animator and animation. Including pixilation animated hands at the beginning not only setup the premise but also told the viewer that they were watching the armature's first movements on its own. Playing with the interaction between the armature and the clay allowed the story to be told of what the character's motivations are through the movements of the materials. The animator's hands re-enters at the end of the animation to bring it to an end with the animator offering a hand (figuratively and literally) to the armature character.

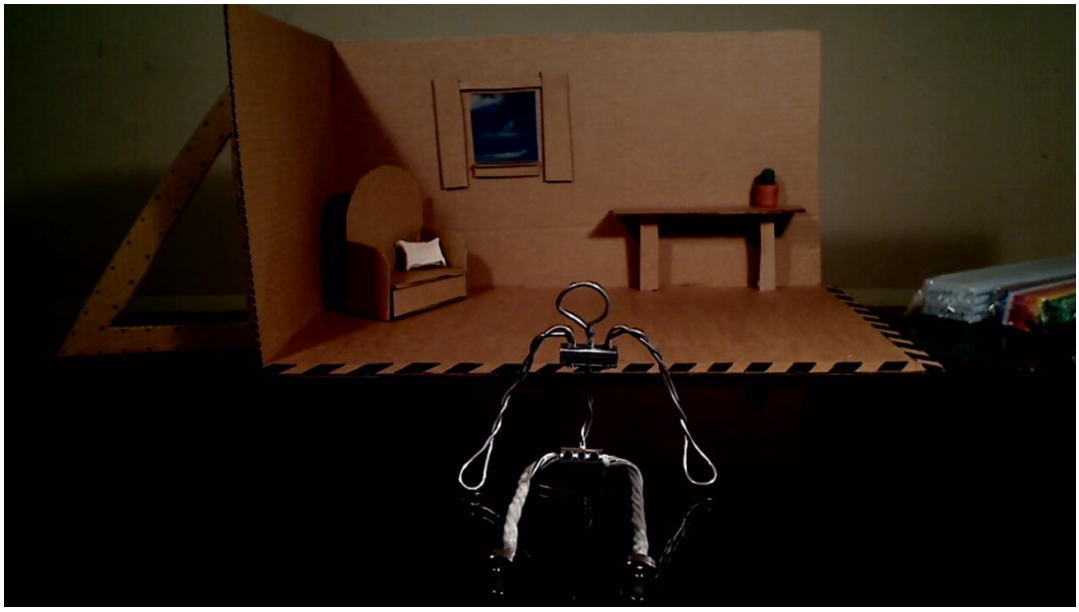

**Figure 12:** Final set design used in the animation. Image by author.

An idea was considered to explore the theme of the inside out world versus the outside world. Imagery was explored in the animatic where the set would appear to encompass more of the frame as the camera got closer. The camera would move towards the character as he got closer to building himself a body. While the theme can still be interpreted in the final animation, it was beyond the limitations of the camera setup to be able to achieve this effect.

A greater knowledge of model making and working with higher quality materials such as wood and fabrics would have been beneficial to the overall appearance and quality of the final product. This could have been achieved by additional test models in addition to reading about production design in stop motion animation. The final set design satisfied the goal of producing an environment that resembled an animation studio. While not visually impressive, there was adequate exploration of a number of textures, materials and composition which would allow the rest of the animation to be completed.

A mix of wider shot camera placements were chosen to encapsulate the set design and close up shots to focus on the character. The animatic showed that too many camera location changes were unnecessary and were too jarring for the short time of the shots. The final animation chose to use fewer camera shots to solve this problem which also helped to pace character actions better. Working with larger shots proved to be challenging as one camera shot would be spanned over multiple filming days. Subtle changes in light were noticeable between filming days and also fluctuations in temperature meant that the set would sometimes move or cause attached assets to detach.

As the film was produced, lessons were learned to ensure that objects remained secure during the transition between different filming sessions. By altering camera settings and being aware of how light will change in different situations, the light changes between

sessions were able to be minimised. Higher production values could be achieved through a more professional setup and higher quality equipment. However the final quality that was achieved was successful in utilising the best of what was available.

## 5.0 - DISCUSSION

The aim of project was to explore the materials and movement qualities of stop motion animation. The intention was to work out what these qualities were and what effects they can achieve. This was achieved through literature research, analysing existing animator's work and applying observations and knowledge learned into practical tests and experiments.

Some of these aesthetic qualities researched come naturally through the nature of stop motion's process while some qualities can be focused. As seen in the works of Švankmajer who uses texture to create feelings of unease (Darkness, Light, Darkness 1990) which he gets from using real or close to real objects or Tim Burton who creates detailed worlds filled with texture to make the world feel alive (The Nightmare Before Christmas 1993). By analysing these techniques and applying them through practice, an understanding of the appeal and longevity of stop motion animation could be made.

The final animation outcome was produced in order to showcase many of the project's findings. The short film titled "Set in Motion" helped to identify observations such as how through the use of a material like clay, the narrative could be shaped and improvised to enhance character moments or humour. The nature of clay means that while the staging of a shot cannot be altered so easily, gags and other subtle moments can be included where the animator feels they can present themselves.

Additionally, through the final outcome, a greater understanding of the animator and animation relationship was explored whereby the animated character interacts with the animator. While planned in the storyboards and the animatic, working with the physicality of stop motion can produce insights only gained through practice.

The final animation does show the differences that clay could be used but greater setup could have shown that the clay has different properties depending on how much is used. For example the character could have established that a small amount of clay wouldn't be able to stick on his arm but a large amount of clay would hold on his leg, therefore an enormous amount of clay would also hold but the character would not realise it would hold too well. The narrative does this to a certain extent but the character does not explicitly acknowledge that more clay is better (in his thoughts). An additional character reaction could have explained this better.

The final animation did successfully explore many of the goals it set it to. It highlighted unique traits such as the maker's mark, staging and lighting which cannot always go to plan but also shows that through embracing imperfections such as these, a charm can emerge that is appealing despite its flaws.

While not entirely accurate to the animatic, the story was still evident in the final animation. The ending was reworked to fit the project's time schedule in addition to making the ending read easier. The latest animatic called for the character to make their way into the set piece after become unstuck from the clay. Disappointed, the character would appear to give up on creating themselves a body. However in the final animation this was changed so that the character gives an action of sadness right after the stumble and this is where the animator's hand shows up. Throughout the production of the animation different ending ideas were considered in order to tie the animation together. While filming the last scene in the revised ending the animator's hands were not going to show up and instead a box of assorted body parts would be both a gag and way to end the story. However the animator's hands were reintroduced as it both worked for the narrative and allowed a connection between the animator and the armature character to be shared. By having the animator-animation interaction it connected the animation to work researched throughout the project such as the *Out of the Inkwell* series (1918).

Evaluation and iteration were important to the project in both the creation of the practical work and the journey in which the research took. From background reading and early analysis of other animations, techniques and common qualities were identified and would become the subject for future discussion and experimentation. This process was a strength of the project which started off with a vague idea of what techniques and qualities can be achieved through stop motion. Through practical experiments, new ideas and techniques would be brought to attention and so the literature and film research would benefit from these learnings. The study of film helped to enhance the final piece as it gave a visual representation that the literature did not. The literature however provided an understanding of the process and thinking behind stylistic affordances and what effects they have on the audience. The final piece considered these findings during the process and was enhanced by the ability to include and evaluate these findings.

The mixed methodology of practice based research and critical analysis helped to gather knowledge on the field of animation, in particular the medium of stop motion animation. Without practice based research, it would have been difficult to understand the effects of the stop motion qualities which were researched through literature and case studies. A hands-on approach helped to expand personal knowledge and understand the qualities of stop motion in more depth which in turn helped to fine tune the direction of the research.

The practical tests and animations helped to explore techniques such as use of different materials, enhancing visual appeal through lighting and exploring techniques such as pixilation.

The main objectives of the project were completed with a number of animated feature films and animated shorts analysed with a focus on the identification of the use of materials and the application of movement. A short animated film was produced taking into consideration

many of the research findings. The final outcome's use of these findings backs up the importance of the research into other's work and literature.

## 6.0 - CONCLUSION AND FUTURE WORK

The aim of this research was to identify methods animators and filmmakers working within the medium of stop motion can use to enrich the content they create. Through the use of a number of stylistic affordances within stop motion, animators are continuing to use the medium beyond its previous uses for visual effects in filmmaking. Utilising the rich detail of existing textures and materials, the appeal for stop motion even in a world dominated by computer graphics shows the potential for stop motion animations' longevity in filmmaking.

The project aimed to identify techniques used in stop motion and how they can be applied and used effectively to achieve a desired outcome. Techniques such as the use of materials, texture, quality of movement and its limitations are just some of the unique affordances of stop motion that can be used to enhance style within an animation.

Although computer generated imagery is the more dominant form of feature animation production (IMDb 2014) as its ability to create more realistic visuals is realised, the project aimed to prove stop motion will continue used in filmmaking for its unique visual qualities. The project has collated the ideas from other animators about the affordances which make stop motion visually interesting and has also explored these affordances in practical work in order to present evidence as to why stop motion still has a place in filmmaking.

The final artefact produced alongside the written work of this project presents some of the techniques explored and the stylistic affordances that are possible with the use of stop motion. Qualities of movement from different materials and different animated materials interacting with each other were explored in a short narrative. Additional techniques such as texture were utilised in addition to general animation principles and performance. The short film was reflected upon as part of the evaluated and project blog.

The aim of the project was to understand the unique stylistic affordances stop motion offers and to make a case for the longevity of stop motion. The research has looked at materials and movement qualities and how they can enhance an artist's work. Through the project's research and practical work much of the project's questions have been answered to an extent.

To continue researching in this area, the work produced and observations made would make a strong start to further analyse other animated films. Using the critical and evaluative framework, additional techniques could be discovered and explored through the same process of creating animation tests and experiments.

This research project only scratches the surface of the stylistic affordances that stop motion has to offer. Further research could build upon and expand the understanding of what makes stop motion appealing and how the techniques already identified are enhancing animator's work. A wider variety of films could be analysed and more literature could be

read to build a greater knowledge of the field. Interviewing practitioners to gain further insight into stop motion's aesthetic and movement qualities could also prove to be highly beneficial to expanding knowledge of how other animators interpret the qualities of stop motion animation. An approach similar to that of Barry Purves' methods of interviewing his peers and other artists could be used whereby he asks a question gathers the personal thoughts of those animators to display side-by-side. (Purves 2007, p. xix). Additionally showing created content to a focus group could be explored if the use of techniques in that content were desired to be evaluated from an audience's perspective.

Materials and movement are only a small part of stop motion but they have a large influence on its style and appeal. Despite limitations and intricacies around the process, the rich textures, lighting and physicality that come free just by using the traditional medium are an appeal to so many and will continue to be cherished in the digital age.

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# APPENDICES

## Appendix A - Case Study – Corpse Bride (2008)

Corpse Bride (Warner Bros 2005) is a feature length stop motion animation co-directed by Tim Burton and Mike Johnson. Corpse Bride is visually similar to The Nightmare Before Christmas (Skellington Productions 1993) and other work of Tim Burton's. The characters feature long limbs and are almost skeletal in nature, even the "living" characters. This enhances the creepy, gothic, surreal aspect of the film's content. For example many characters are undead, and while this would come across quite scary in live action, it is tamed down for a more general audience in this movie.

This film doesn't try to hide that it's not a stop motion movie. The characters and settings have physicality to them that the audience can connect to. There is a great use of texture in the set locations, particularly in the underworld and the town.

**Figure 13:** The use of colour and texture create a vibrant environment. Corpse Bride (2008).

The visual style of this film is enriched by the use of stop motion, there is texture everywhere. Detailed sets and attention to detail in the craft is something you can really appreciate. In this scene (pictured above), you can see the attention to detail such as which helps to create vibrant and engaging worlds. The physicality of stop motion is something most filmmakers take advantage of as brings in more lighting, depth and shadows that stop motion enhances so easily.

Corpse Bride has a very black & white tonal palette that also includes a lot of blue. Overworld scenes are contrasted with the underworld with their use of colour. Ironically the overworld is more monotone and grim compared to the more colourful underworld, an obvious visual trick to make the point that the 'dead are more alive than the living'.

I like the use of colour and lighting in particular and this inspired me to try out different types of lighting in my animations. I experimented with backlit scenes on a 2D surface in some examples, as well as using a set of LED lights and playing around with those in others.

## Appendix B - Case Study – The Nightmare Before Christmas (1993)

The Nightmare Before Christmas (Skellington Productions 1993) is a stop motion film directed by Henry Selick and based on the story and characters by Tim Burton.

The film is a well-known stop motion animated film. The characters and sets feel real and the quality of motion comes across as a traditional stop motion film, featuring the odd jerky movement that we associate with the medium. Overall the animation in the film is very convincing and there is a real sense of physicality to the look of the movie. In scenes such as the Christmas town and the forest, the depth of the closed sets give the illusion these worlds are enclosed, and separated from reality.

The Nightmare Before Christmas features a lot of texture in its sets and characters. The film takes place mostly in outdoor locations in a fictional universe. Textures are used effectively to separate the different locations of the Halloween town, the Christmas town and the "real" world. Halloween town use a lot of unnatural textures that make up their characters such as Sally who is threaded together.

**Figure 14:** Various characters in Halloween Town. The Nightmare Before Christmas (1993).

The film has a distinct Halloween or gothic look to it, featuring a lot of well-known fictional characters based around Halloween. I remember as a kid finding some scenes and characters pretty creepy but not too creepy where it became unwatchable. Maintaining a visual style and not straying into uncanny territory helped the film to achieve this. I think this was important as it allowed the story to be told while also including story elements that involve scaring children.

Compared to Corpse Bride, the colour palette is a lot duller, which helps to convey the grim atmosphere that the Halloween town has. This contrasts with the Christmas town and the positive atmosphere it has. As the movie progresses the Halloween town brightens up over time.

I wanted to explore the use of colour within my animations. As well as exploring different coloured lights, I've also experimented with camera exposures and saturation, and colour correction in post-production.

## Appendix C - Case Study – ParaNorman (2012)

ParaNorman (Laika 2012) is a stop motion animated film produced by Laika Entertainment and directed by Chris Butler and Sam Fell. It is the second feature length film Laika have produced and was nominated for an Academy Award for Best Animation.

The whole movie features stop motion characters and set. CGI is used sparingly to enhance background details and add addition visual effects. Like Coraline (Laika 2009), ParaNorman uses 3D printing technology to assist in the facial animation of characters. Faces are created in 3D software packages, printed out and swapped in each frame to create the character performance.

**Figure 15:** Undead characters. ParaNorman (2012).

The stop motion in this movie focuses heavily in creating subtler and more accurate performance through the use of 3D printing technology. The movement is smoother and therefore is not as much evidence that there is stop motion being used.

ParaNorman continues with a mild horror theme that Laika featured in their earlier film Coraline. The film deals with ghosts, the undead and witchery. While targeted towards families, the film does deal with mature themes such as the story of the character of Agatha and her accusation of witchcraft.

A scene in particular I observed which utilised stop motion for visual appeal is the scene near the end where Agatha is challenged and Norman tries to calm her down. There is a good use of texture in the forest: the trees and ground feel very traditionally crafted. As Agatha gets more upset the world changes around them becoming more of a distorted reality. I liked how CGI enhanced but didn't take away from the stop motion charm in Agatha's character performance. Finally as she calms down, the environment changes into something more pleasant, with cleaner textures and brighter lighting. These are all things that could've been done in CGI or another animation medium, but there's something quite special about using stop motion to create something very visually rich and unique.

**Figure 16:** The world changes around Agatha as she gets upset. ParaNorman (2012).

## Appendix D - Animation Discussion – Out of the Inkwell – Modeling (1921)

Video clip available from: https://www.youtube.com/watch?v=hyetrAePLTA

The first animations I'm going to look at are from a series called Out of the Inkwell animated by Max Fleischer. This animation is 95 years old at the time of writing which is pretty early in the film and animation industry. In this animation Ko Ko the Clown is drawn by the animator onto paper. The ink from his pen flows out of it (animated) and forms the clown and the colour of his clothing. The clown moves around and talks to the animator (in that classic; switch to text then back to footage style). Meanwhile in the studio room another pair of live action characters are conversing: one man appears to be creating a model of another man's face.

The clown ends up leaving the confines of the paper and I love the eventual interaction of the clown character and the second modelling scenario although I wished they'd have had the clay head interact from the beginning, there was potential for some good gags in there. Standout moment for me is the animator throwing a clay ball into the animated scene and the clown getting hit - three materials all interacting with each other.

While the film itself feels dated, the animation by modern standards holds up. The clown is very cartoony and there's lots of exaggeration going on. The animation appears to be rotoscoped over existing film footage which for the most part is brilliant but at times it can get a little uncanny since the movements are so close to real life which doesn’t always translate well into animation. The animation pacing is also very fast and frantic which has its pros and cons in a film like this. I think this is down mostly due to the way that old film often had that strange speed to it due to the nature of manually projecting the film.

From a narrative stand point there does seem to be a lot of "filler" content where the clown spends a lot of his on-screen time skating around, doing tricks and frantically moving across the screen. I feel the film focuses a little too much on the clown and not on what's going on with all the characters in the scene. I've already said I would've loved to have seen more interaction with the clay head and the live action actors. I think though, because of how animation was so magical and unique, that more time was spent on this as a visual spectacle.

That being said I can understand why Max Fleischer is so beloved for the time and still today. I checked out another short from the Out of the Inkwell series.

## Appendix E - Animation Discussion – The Tantalizing Fly (1919)

Video clip available from: https://www.youtube.com/watch?v=SBbj-I6t19w

In this animation, which was produced 2 years before the previous animation I talked about, it again features Ko Ko the Clown and an interaction with the animator. This time a pesky fly keeps landing on the paper infuriating both the animator and the clown character.

The film is shorter in length than the other I've discussed and I think it's better for it. The interaction between the animator and the character is more concise and the chemistry is greater as they have a common foe.

The animation itself isn't as fluid and focused upon but the character's actions don't seem as out of place. The rotoscoped actions are noticeable compared to the non-rotoscoped: the facial animations are more stylised compared to the real life actions that have been translated to animation. I do think the rotoscoped movements are great but the transition to a stationary character is sometimes jarring. Just like the modelling short, the animation is still very good and I particularly like how he plays with depth and the use of props.

I loved the interaction between the fly and the character and there were a good number of gags that played across very well. I was hoping that the "fly trap" would trap the fly in the drawing but that might also have not worked well.

The ending to how they catch the fly is genius, only I wish there was some setup beforehand. The clown jumps through the paper (which is a spectacle itself) and climbs into the inkwell. While I think it was a great way to lure the fly in, he initiates the jump through with no apparent intention and the animator seems to know immediately what to do. I imagine this was more of a time constraint. I can relate to approaching the end of an animation and not sure entirely how to end it so just rush it.

Again, despite any flaws, the animation still holds up and with this short in particular: the humour and narrative are still relatable and it's a joy to watch.

## Appendix F - Animation Discussion – Return to Oz (1985)

Video clip available from: https://www.youtube.com/watch?v=YjfMRBY16RI

Return to Oz (1985) is a sort of sequel to The Wizard of Oz (1939), based on the novels by L. Frank Baum. It's not an official sequel to the film but follows the events of the film and borrows some elements from it. While it’s not a live action film it does have some stop motion elements from it.

I watched the film a good few times when I was a kid and while I thought it was pretty dark and even scary in comparison to The Wizard of Oz, I also really liked it. I was recently watching this film when I spotted those stop motion scenes and this was the first time I had watched it and analysed it for its animation. The stop motion scenes I'll talk about in this blog are particularly related to the Nome King and his followers.

I couldn't find out much about how the visual effects were created so some things in this post will be good assumptions. It’s obviously stop motion animation but I have a feeling that Nicol Williamson, who voices him and plays him in human form later in the film, was used as a reference for the animators as the facial animation matches with his own acting style very well.

The nomes possess a metamorphic quality to the way they are built and also move. While the characters themselves were built with clay in real life, in the story they are made of rock. The visual effects team did a great job of using the clay to emulate the metamorphic quality of rock, and how it might move if it could. Additionally, the nomes are seamlessly blended into real life rocks, the clay texture matches the real rocks so well it’s very difficult to tell where they clay is blended in to the rock.

The characters themselves while in rock form consist of just their face with limited details, some have eyes and some don't, same with noses. Different rock types have different looks for the characters. For example a character appearing underground has a jagged appearance whereas a character appearing on a smooth boulder has a more circular appearance.

**Figure 17:** Different faces appear on different rocks. Return to Oz (1985).

The Nome King appears to the main characters in a few forms, his rock form shows up at the entrance as well as inside his mountain. Later, he slowly changes to become more human. I really like how the transition works as each step towards human gives him more detailed anatomy until they switch the stop motion model to a live actor as he emerges slowly from the rock wall. The Nome King's transformation is made sinister through the use of stop motion as the surreal change from stop motion to live actor emphasises the sinister actions of the character himself. Keeping the texture from the clay parts in the live actor's costume helps blend this well.

**Figure 18:** The Nome King prior to his human transformation. Return to Oz (1985).

**Figure 19:** Clay-like textures were used in the costume of the live action Nome King. Return to Oz (1985).

The Nome King's death near the end of the film also has some fantastic moments. I like the way the clay crumbles away like rock formation crumbling from being unstable. Moments like his eyes turning back to rock are also sinister but fascinating to watch.

In general, I'm not quite sure if they got the tone of the film right. In comparison to The Wizard of Oz, Return to Oz is a darker film with scarier characters. The stop motion only adds to the creepiness of some characters and while this is great if that was the intent but as a kid I don't remember entirely enjoying watching the film for that reason.

**Figure 20:** A realistic looking eye made the Nome King turning back to stone uneasy to watch. Return to Oz (1985)

Return to Oz sits in that great time of visual effects just before CGI explodes in popularity in the 1990s. As such, the stop motion greatly enhances the longevity of the film as it doesn't look cheap or out of place as it might do if it were created 10-20 years later with computer generated effects. The use of stop motion adds a layer of magic and mystery to the environment that I think only stop motion can do best. The hands and arms for a doorway is an iconic shot from this film.

**Figure 21:** Visually impressive Claymation hands carve out an entrance to the Nome King's ornament room. Return to Oz (1985).

I was surprised to learn that the Nome King and his followers weren't the only stop motion animated characters. A scene with Jack Pumpkinhead later in the film used a stop motion puppet in order for the Nome King to interact with him and eventually eat him. The design of the character itself has similarities to Jack Skellington in The Nightmare Before Christmas (1993).

While the film itself doesn't live up to the magic and wonder of the original The Wizard of Oz, the visuals did and it was even nominated for the 1986 Academy Award for Best Visual Effects.

## Appendix G - Animation Discussion – Darkness, Light, Darkness (1990)

Video clip available from: https://vimeo.com/81875587

I've talked about Jan Švankmajer a few times during this project but I want to discuss some of his work further. This animation discussion features Darkness Light Darkness (1990), a claymation film which revolves around a clay character building themselves, a similar theme to the final animation I will be creating.

The animation has a classic Jan Švankmajer atmosphere to it: creative but also unsettling and sometimes grotesque. The animation plays with a lot of imagery that would be pretty disturbing if it was real. Luckily stop motion is used appropriately here and having the character clearly made from clay gives the character visual appeal.

Modelling clay is used as the main material with the various limbs being made from it, as well as the character using the moulding properties of the clay to build himself. There's a lot of visual gags that arise from the use of clay. Sound also plays a good part in this short film with the sound effects adding to the unsettling nature of the content.

In general, the modelling clay has a smooth, elastic property to it. The limbs retain their shape to where they would resemble the firmness yet softness of real human limbs. Sometimes this is broken for a purpose, for example when the ears are torn off they leave an uneven tear which contrasts to the typically smoother use of clay within the animation. That itself can create unsettling moments as the tear feels more real to the audience.

The nature of the story means there's a lot of imagery that can get a reaction from the audience, from playing around with eyeballs to realistic looking organs making an appearance. A tongue and set of teeth enter the room and as they are the first non-clay moving objects (other than the eyes) there's a distinct contrast between them and the clay character. The use of realistic (maybe even real) organs that are wet in texture, coupled with the squishy sound effects, might alarm the squeamish and this is more than likely the intended effect.

I particularly like the different ways that the clay is deformed throughout the animation. Opening the head up to put the brain in leaves a nice effect in the clay that looks like the hands have left indents in the skull. The feet crushing the head from either side is also a humorous moment that leaves the head crushed in a comical way. As more clay comes in

from outside the room it becomes more fluid and has a texture that looks hand moulded with lots of fingerprint indentations.

Another moment I particularly liked was when one of the hands reacts to seeing something outside the door. The hand points then turns against the door and raises all its fingers as if to convey shock. This was both funny but also interesting in that I have considered doing a similar effect in my own animation, where my own hand (animated with the pixilation technique) will gesture towards my wire armature character.

Overall I really liked this animation. In context with other animated shorts and features I've looked at, I feel this is the most relevant to my project and I'm glad I took the time to discuss it further. For a claymation it does a lot of things and has contains many interesting techniques. I've said a lot of good things about the animation so I'll balance that by saying that I would've liked to have seen the hands mould the clay in more detail. Sometimes I didn't always feel the drag on the clay that it could have. I'm also not entirely sure of the few live action moments such as the use of water. I understand that it is impossible to animate water the way you want it to so I get why they are live action scenes but it does stand out. But on the whole this is superb animation and a must watch for those interested in stop motion with clay.

## Appendix H - Animation Discussion – Pied Piper (1986)

Video clip available from: https://www.youtube.com/watch?v=FULgBnb1byw

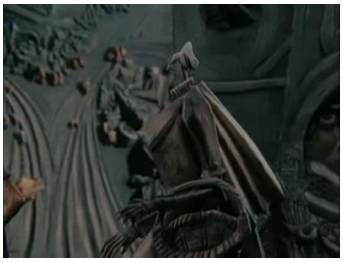
This was an animation a friend recommended me to check out. It's an excerpt from The Pied Piper (1986) which was directed by Jiří Barta, a Czech stop motion animator. While he is an animator himself, IMDb credits four others as the animators so I am not sure who in particular animated this clip.

When first watching this clip I was immediately drawn in. There's so much charm to the character design, the overall visual design and the stop motion itself. The characters have a limited movement especially while they walk, it reminds me of the vampires from The Nightmare Before Christmas. However the characters are very expressive, they have more movement in their arms and head movements coupled together with the visual storytelling so that we know what's going on.

Although the characters are not speaking English there are visual representations of what they are talking about, such as the coins coming from the mouth and the scales representing the haggling nature of the conversation.

There is a lot of good camera movement going on to allow for some neat gags. Switching focus from one character to another allows for heads to be switched out such as the angry heads. The angry heads had a different texture and colour in contrast to the rest of the animation which emphasised a creepy feel and helped to contrast it to the calm scene it once was.

One thing I particularly loved was the use of perspective. Very early on in this clip as a character walks by, she walks past a street opening showing the road as it goes off into the distance. Only, the set isn't that big, it looks like it’s physically only a short distance away and is perpendicular to the ground. I've seen this kind of thing done before for stylistic purposes or just to conserve space, I've even done similar things myself with stop motion perspective. What I love about this though is that there are small characters in the background and they're animated. Although we know there's an illusion going on, the focus of the camera and scale of the characters tell us they should be in the distance. We know they aren't but in the context of the animation's style it works and its charming to see the little characters move.



This excerpt ends with a rat appearing and stealing a piece of food. The people in the marketplace seemingly forget their differences and beat the rat to death. I'm not sure but it looks like a real stuffed rat was used. The addition of the blood and the fact the people were beating it to death seems to have been used for shock factor, perhaps as some metaphor for the greed of capitalist shopping or something, I don't know. All I know is I enjoyed the clip and will seek out the full film to watch in the future.