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## CHAPTER TWO

### From Terrible Toreadors to Dwarfs and Princesses: Forging Disney's Style of Animation

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As Hollywood shifted from slapstick to melodrama during the course of the thirties supported by the gradual addition of sound and colour, cinema audiences started to expect fuller, more believable cinematic experiences. Walt Disney's ambition was to be considered a true film maker rather than *just* a cartoonist, and he was determined to take the challenge. (Barrier, 1999) Throughout the *Silly Symphonies* cartoons, first, and then with the development of *Snow White and the Seven Dwarfs* in mind, the studio started to improve and develop its animation workflow. The Animation pipeline is a very complicated and time-consuming process, and character animation as process in particular requires vast amounts of time, focused mental agility, skill and keen observational understanding. While contemporary practitioners have at their disposal a number of digital and virtual tools designed to reduce production time, the need for swift execution of appealing and convincing animated performance requires more than technical proficiency and efficient tools. Animators have always recognised the need to draw from life, primarily as a research tool (anatomical studies, sketching etc.), but also as a means to inform and inspire where the task at hand is the communication of a complex human emotion through modes of performance. Early animation studios were compelled to constantly innovate, contrive and develop in order to produce viable and economic outputs. However, leading the charge from the outset was the Disney Studio, a collective of artists, designers and storytellers, firmly captained by the Disney brothers, who subsequently emerged as the most influential and renowned pioneers of hand drawn character animation of the early 20<sup>th</sup> century and beyond.

Focussing on elements of character design, and the animation process (including in particular the rendition of movement), this chapter will discuss how Disney and his animators dealt with notions of reality and believability, while finetuning a representational style that would become a standard for animators all over the world. The first part of this chapter will therefore focus on Disney's quest for believable characters from the point of view of character design. It will explore the evolution of the studio's aesthetics from the *Silly Symphonies* to *Snow White and the Seven Dwarfs* (1937), and the studio's desire to achieve the perfect balance of expressiveness and credibility in the pursuit of what could be described as emotional contagion, namely the capacity of a character to invite the audience instinctively to feel its emotion as if by contagion. Indeed, that capacity of the character to make us feel its emotion at a glance would become central to the

longstanding appeal of Disney films. There is of course always a risk of being teleological when analysing the development of the Silly Symphonies from the “arrival point” that is Snow White. However, when one scrutinizes every episode made between 1929 and 1937 one can’t help but notice that every now and then a new type of design is attempted, and that sometimes those variations are kept and integrated into the general practice of the studio. Eventually a clear sense of the evolution of the studio’s aesthetics emerges, but not a fluid linear one (that’s not how evolution actually works), an evolution that hops from one film to another, sometimes missing one, ultimately keeping whatever new feature seems to improve the quality of the films.

The second part of this chapter will concentrate on the legacy of the live-action referencing workflow pioneered in *Snow White*, and will contextualise early rotoscoping efforts with current action analysis techniques (Webster, 2012) used extensively in the modern animation industry. The action analysis workflow developed during Disney’s first feature was initially devised to complement *Snow White’s* ground-breaking character design, allowing the animators to bring believable human animated characters to life. The technique evolved over time, developing into a house style for Disney’s output that has become the centrepiece for analyses into the studio’s particular style of cel-animation.

In his book on the Golden Age of Hollywood cartoons, for example, Michael Barrier (1999) cites the *Goddess of Spring* (1934) as the first film with which Disney initiated its research into creating a human character that would be credible enough to support an entire feature film. However, the eponymous Spring Goddess is not the first human character to appear in a Silly Symphony short cartoon, or to demonstrate the Disney studio’s engagement with representation convincing human figures. While one must really wait until 1932, a change of distributor<sup>1</sup>, and a budget raise, to witness a multiplication of human characters in Disney films, some attempts had already been made since the beginning of the Silly Symphonies in 1929 to represent human form (BARRIER, 86). By reviewing the episodes of the series starring a human cast, starting with *El Terrible Toreador* (September 1929) up until the release of *Snow White and the Seven Dwarfs* (1937), it is possible to determine precisely how Disney animators progressively made the human shape their own. This trajectory showcases their development of a character capable of triggering strong emotional contagion and able to support the audience’s attention for the duration of a feature film. Of course, some may see in this attempt to draw global trends out of the analysis of various, apparently isolated, Silly Symphonies a rather teleological approach towards the studio’s formal evolution. However, it seems quite unlikely that a man as involved as Walt Disney was in the output of his studio, with a true ambition to move animation forward, did not at least try to inspire a certain direction to the films. Through the works analysed here, a trend emerges in which the studio strives to create ever more verisimilar<sup>2</sup> characters, capable of triggering true emotions within the audience and, certainly as of 1934, with the additional aim of maintaining this emotional state

1 From 1928 to 1930 Disney films were circulated through Celebrity Pictures (also proprietor of the Cinephone sound system used to add sound to Steamboat Willie (1928)). From 1930 to 1932 release of Disney films was secured by Columbia, then United Artists until 1937. *Snow White and the Seven Dwarfs* (1937) was released by RKO which officiated until 1953 when Disney opens its own distribution company : Buena Vista.

2 Based on the work of Roger Scruton in “Photography and Representation”, in : CARROLL (Noel), CHOI (Jinhee) (ed.), *Philosophy of Film and Motion Pictures, An Anthology*, Blackwell Publishing, 2006, p.20., the concept of verisimilarity borrowed from Karl Popper’s philosophy of science designates here a character whom we know is not realistic but elicits a « realistic enough » response that we accept it as if it were realistic.

through the duration of a feature film. Character design tests taking place in the Silly Symphonies will eventually lead to the development of the characters<sup>3</sup> to be found in *Snow White*, and which will ultimately become a true standard for animation, imposing with it a new aesthetic still at the centre of the animation industry today.

## Achieving likeable human character design

*El Terrible Toreador* (September 1929) is the second Silly Symphony episode, but the first one to mostly explore the representation of human characters. In this short film, Disney animators still demonstrate a complete ‘Rubber Hose’ style typical of the period, one firmly rooted in the bodily potential of slapstick humour. In this film, character design, animal as well as human, is given the same approach: a sort of potato shaped body out of which sprout four flexible tubes (or rubber hoses) figuring the arms and legs. Only the head and clothes allow spectators to really distinguish the protagonists. Character design here is actually still rather secondary, or at least reduced to archetypes. Movements are fluid and supple to the detriment of anatomical constraints and proportions. Bodies can inflate, stretch and distort at will. The vast majority of the gags rely on the ‘plasmaticity’ of the bodies, an interpretation put forward by Sergei Eisenstein which proposed that an important facet of appeal in early Disney animation was the rejection of “once and for all” fixed constraints of shape, a freedom from ossification and a capacity to take dynamically take any shape (Eisenstein 1991: 28-29). Under this principle, character design is therefore entirely subordinate to the animation, which achieves here in *El Terrible Toreador* a sort of naive purity detached from any consideration other than that of movement on screen.

One must wait until February 1930 and the film *Autumn* to glimpse the studio’s first real departure from the ‘Rubber Hose’ style. Indeed, “Disney had understood that sound could make what was on screen appear more real” (Barrier 1999: 70). Disney therefore starts to develop films with more elaborated narratives, meaning that comic gags are now not solely reliant upon bodily distortion. Animators thus endow their characters with more stable bodies in service of a coherent story, rather than a simple succession of gags relying mostly on the ‘plasmatic’ qualities of the character. In order to sustain these new types of story, the studio tries to create a new type of character design aimed at triggering an emotional response.

*Mother Goose Melodies* (April 1931) was the first Silly Symphony since 1929 to mostly rely on human characters. But more interestingly, this film offers a couple of archetypal representations of human characters that will be repeated in a number of subsequent episodes. These representations, it could be argued, offer a glimpse at the studio’s creative process of attempting to produce more believable characters. Old King Cole in the movie constitutes a turning point in the construction of the human character at Disney by proposing a representational archetype that will be used throughout the first half of the thirties. His physique is still largely reminiscent of the ‘Rubber Hose’, that is one big round head with a button nose on top of an oversized round body with four tube like arms and legs, but the treatment of the body clearly takes

3 The word “character” is used to refer to the body of the character as opposed to its role in a distinction similar to that between an actor/ress and the character s/he portrays.

its distances from the old style. Indeed, animators do not rely nearly as much on distortion, inflation or stretching of the body. The morphology of Old King Cole remains solid and only through his design is he to express his bonhomie and quasi constant joyfulness. This type of character will resurface, in *King Neptune* (September 1932), *Santa's Workshop* (December 1932), *Father Noah's Ark* (April 1933), *Old King Cole* (July 1933), *The Night Before Christmas* (December 1933), among many others. However, despite the recurring use of this archetype one must acknowledge that it tends to stay fixed in an expression of everlasting joviality and can scarcely express or elicit different emotional reactions.

Another archetype also appears in *Mother Goose Melodies* (April 1931), that of Mother Goose herself. This archetypal character is composed of a much less rounded face (moving towards slightly bony) with marked details (prominent nose and chin) atop a rather slim body. Completely contrasting with the King Cole archetype, the Mother Goose design is used for witches or, more broadly speaking, mischievous characters. The archetype appears in *Babes in the Woods* (November 1932), and even as a male character in *Lullaby Land* (August 1933) and *The Pied Piper* (September 1933).

These two character designs lay the foundation for characters with more nuanced and intelligible personalities, an essential step for anyone aiming to eventually create characters verisimilar enough to elicit emotional contagion<sup>4</sup> for the audience.

A third design archetype is introduced in the following Silly Symphony, *The China Plate* (May 1931). The character of the little girl has a body that is relatively well proportioned but covered in loose clothing, thereby hiding her true shape. Her head is slightly inflated but is not treated in a 'Rubber Hose' style. Her general shape remains solid. She has neither the exaggerated bonhomie of King Cole, nor the slim and caricatural aspect of Mother Goose. Her main feature seems to be the fact that the animators avoid the troubles of a detailed anatomical representation, focussing instead on more simplified lines. The head is inflated in a neotenic<sup>5</sup> exaggeration but not as much as in the other archetypes, or in the classic 'Rubber Hose' style of exaggeration. The whole body remains strongly simplified. Although this type of character is still quite far from anything leaning towards verisimilar, it does however clearly mark the moving away from the exaggeration of 'Rubber Hose', and towards something ever so slightly more truthful<sup>6</sup> in its global appearance, even if less expressive than the two previous archetypes. Disney repeated this way of dealing with youthful character design in several films, including *Babes in the Woods* (November 1932) where it is used for the two main child protagonists of the story. The archetype was slightly adapted to

4 The concept of emotional contagion designates a sort of instant visual empathy independent from the knowledge of the story. COPLAN (Amy), « Catching Character's Emotions : Emotional Contagion Response to Narrative Fiction Film » in *Film Studies*, n°8 etc 2006, Manchester University Press., 2007, p.31.

5 Neoteny is defined in biology as the retention of youthful features in an adult. In character design it is the use of those feature to give a character a youthful and cute look. (GOULD)

6 As suggested by Francesco Casetti the expressions "truthful" and "likely" will be preferred to the more vague "realist". In simplified terms (or at least how they will be used in this first part), "likely" refers to a representation that resembles something that exists (such as a portrait) and "truthful" refers to a representation that looks like something that could exist. (CASETTI, 46-47)

accommodate adult characters too, being used for beautiful female characters such as the mermaids in *King Neptune* (September 1932) or the wives of Noah's sons in *Father Noah's Ark* (April 1933).

Another interesting film is *The Clock Store* (September 1931). Here, Disney animators clearly experiment by combining archetypes and pushing further. For the first time in the series, Disney presents two characters with anatomically correct proportions and measures, or at least correct with regards to representational canons developed during the Renaissance.<sup>7</sup> Of course, the whole body structure remains quite simplified, but this is the first time Disney brings us characters showcasing a certain biological or anatomical truthfulness.

In early 1932 a rise in budgets allowed Disney to devote more time and personnel to each film, resulting in a significant increase in the number of human characters, more difficult to convincingly draw and animate than animal character for instance.<sup>8</sup>

Disney soon abandoned the 'Rubber Hose' style, wanting the character's design to elicit and maintain the interest of the spectator from the beginning to the end of the film. If narration remains one of the main factors behind creating empathy for the character, it is not enough, as Leonard Maltin explains: "One of Walt's most important pursuits was the development of personality in cartoons. He wanted audiences to respond with a variety of emotions, and he knew that character credibility was a major ingredient for this kind of success". (1980: 40) For Disney, character design was one of the most essential elements in order to emotionally engage the audience. However, the diverse archetypes used so far by the studio in its Silly Symphonies hardly manage to provoke anything but feelings of joviality and amusement. When it is necessary to represent characters that one might find beautiful or cute and still communicate their affect to the audience, characters that invite a willing suspension of disbelief (such as a feature film would require though this was not yet on the mind of Disney), the studio simply doesn't quite know what to do (Barrier 1999: 70). They had yet to figure out how to create characters capable of truly triggering an emotional contagion. Yet things would change with the arrival of a new animator in particular.

Fred Moore joined the studio in August 1930 a month before turning 19. A naturally gifted draftsman, Moore slowly progressed under Ben Sharpsteen's tutelage and started to get credited work around 1932. His first major assignment came with *Three Little Pigs* (May 1933) where he eventually managed to bring a part of the charm Disney was looking for (Barrier 1999: 87). With animal characters and not human ones, admittedly, but it was already part of the answer. May 1933

7 Circa 1400, the harmonious man is defined as that whose vertical proportion is equivalent to 8 and 2/3 face lengths, while the stretched arm span equates the height. According to Laneyrie-Dagen, if this model doesn't quite reflect reality, this canon, elaborated by Giotto and later theorised by Cernini marks a considerable progress from the point of view of the imitation of the real. (LANEYRIE – DAGEN, 120) A few quick measures of both above mentioned characters will show that they globally respect the canon. Other proportion ratios such as the equivalence between the length of the foot and that of the forearm, or the fact to report three times the length of the hand in that of the arm (from shoulder to wrist) are also present.

8 According to the theories of Konrad Lorenz, the weakness of distinctive human signals for social release mechanisms has forced us to become experts in the recognition of the human forms. One must therefore be much more precise to create an efficient human character than a non-human one. (LORENZ)

marks a decisive step forward in terms of character animation and brings one of Disney's most important popular successes. *Three Little Pigs* does not contain any human characters, but Moore's input revolutionised animation of the time and allowed Disney in particular to fix a series of principles to create more plausible characters with more personality (Maltin 1980: 40 – Barrier, 1999: 89-90). According to Michael Barrier, Moore based his drawing style on round and soft shapes, immediately inciting pleasant ideas and marking a departure from previous Disney aesthetics. These round shapes, contrary to Rubber Hose, more obviously suggest flesh over bones. Barrier adds that if bodies slightly distort while bouncing to the music, they maintain their initial volume.<sup>9</sup> For Barrier, within a few scenes at the beginning of *Three Little Pigs* (May 1933), Moore significantly extended Disney's animated vocabulary. Maltin adds that this film "was just the beginning for Walt; he knew that he had just scratched the surface of animation's possibilities. From this point on, the Silly Symphonies revealed an ever-growing mastery of the film medium" (Maltin 1980: 41). Most of all, the studio was getting ready to move on to bigger and longer projects.

## Going For Feature Length

1934 presents a turning point in the studio's aesthetic research and evolution in its visual style. From the end of 1933 and throughout 1934, Disney clearly marked his intention to produce a feature-length film (Maltin 1980: 42 - Barrier 1999: 124-125). But for a feature film to be conceivable, Disney animators had to provide characters able to withstand comparison with successful 'live' actors. The studio's animators therefore had to learn how to depict the whole range of human affects and emotions if they wanted to be able to grasp the attention of the audience for the duration of a feature film (Barrier 1999: 106). To that aim, Disney hired Don Graham, an art instructor from Chouinard who had been giving art classes to the animators in the evening since 1932, full time, not only to train new animators, but also to sharpen the skills of the existing team of staff artists. Graham organized live model drawing classes, seminars, field trips to the zoo, and improvement sessions for various specialized animators of the studio. Despite all this, however, a film like *The Flying Mouse* (July 1934) demonstrates how Disney still struggled with the credible representation of human characters. Contrary to the mouse - pleasing and triggering empathy - the fairy (a human character except for butterfly wings) feels stiff and unattractive (Maltin 1980: 42).

While *Snow White and the Seven Dwarfs* (1937) effectively got underway, Disney increasingly relied on the Silly Symphonies to give its teams the chance to develop new techniques. The greater sophistication achieved by the studio in layout and backgrounds was quickly matched by its ability to create new and sympathetic characters (Maltin 1980: 51). But Disney also needed truly credible characters, not just those that could be interpreted as cute or funny. This was the context of the creation of *The Goddess of Spring* (November 1934), the first film with a human main cast since *The Pied Piper* (November 1933) and perhaps the first real attempt made by Disney at creating truthful and credible human characters (Barrier 1999: 124). However, the characters are almost inexpressive, especially the goddess, and the design of the main characters is completely incoherent with that of the secondary cast. Indeed, the devil and the goddess are portrayed with

9 This principle will later be known as Squash and Stretch.

realistic proportion, albeit a caricatural face for the devil, while the rest of the spring “gnomes” and hell minions all showcase highly neotenic “cartoony” designs.

It was with non-human anthropomorphic characters that Disney animators took their next step forward. In November of 1934, Disney poached Grim Natwick from Ub Iwerks’ studio with a view of working on *Snow White and the Seven Dwarfs* (1937). Natwick had first earned his stripes on one of the most interesting Silly Symphonies of 1934-1935 under the direction of Ben Sharpsteen. (Barrier 1999: 193), namely a film about anthropomorphic cookies titled *The Cookie Carnival* (May 1935). Although the story exclusively revolves around more or less strongly anthropomorphic non-human characters, and even if the Sugar Cookie Girl first appears as a flat cookie, during her makeover into the future cookie queen, she suddenly becomes so anthropomorphic that one can hardly still see a cookie. From one frame to the next the anthropomorphic cookie becomes a human character. A clear progress has been made in the design of this character considered as human. Natwick is responsible for this long makeover scene. He managed to imbue the Sugar Cookie girl with all the grace and charm that the Goddess of Spring was lacking. She has more solidity and weight to her body, and a lot more credibility even though she remains a little bit “cartoony”. With her, Disney films have for the first time an attractive and expressive character.<sup>10</sup>

## Finding Snow White

In February of 1936, Fred Moore had started to bring more charm in the studio’s animation starting with *The Three Little Pigs* (May 1933), which fixed the definitive design for the dwarfs. In his original model sheets they display button noses and big bellies – sort of miniature Santas whose physiognomy barely resembles that of real dwarves (though reminiscent of the King Cole archetype). Indeed, until they were eventually provided with individual personalities, their highly neotenised features were unmistakably cute. Barrier adds: “The dwarfs were prime material for an animator like Moore, whose work made its strongest impression through charm and cuteness. [...] The dwarfs went through a neotenic evolution, growing younger (despite their white beards and jowls), cuddlier, and more immediately appealing” (Barrier 1999: 202). After spending the first half of the thirties experimenting with several human character archetypes, the studio was now able to achieve satisfying results when animating children or cute characters. Disney therefore, as seen with *The Goddess of Spring* (November 1934), tried to create more truthful characters without reaching a very convincing result when it came to either their expressiveness or their capacity to overcome their artificiality.

In the spring of 1936, Natwick was transferred to work on *Snow White* (Barrier 1999: 193-194). Around that time, all the talented artists of the studio began to work with Natwick in a special unit devoted solely to the character of Snow White. For two months all they did was practice drawing her (Barrier 1999: 194 - Maltin 1980: 56). However the idea of a very drawn, stylised Snow White remains (Barrier 1999: 197). According to Natwick some 2000 different drawings were made during the development of the character, before even starting to animate her movements

<sup>10</sup> These ideas were first brought to our attention by the lectures of Charles Solomon at UCLA in 2008.



(Maltin 1980: 56). The main difficulty presiding over any definitive design for the character lay in the fact that she is supposed to be beautiful. However, a number of studies in cognitive psychology, ethology and neuroscience seem to indicate that a certain level of exaggeration and simplification may increase the expressiveness of a character, and therefore its ability to convey emotional reactions. Gillian Rhodes states that in the field of ethology (see for example Tinbergen 1951; Gardner, Wallach 1965 ; Sternglanz, Gray and Murakami 1977; Lorenz 1965), research has shown that exaggerated signals are highly effective for a variety of recognition systems (Rhodes 1996). Moving in the same direction, Pat Power explained that the neurasthenic concepts developed by Ramachandran, such as the "Peak Shift Effect"<sup>11</sup> indicate how an aesthetic that he describes as expressive (whose characteristics are isolated and exaggerated) can facilitate cognitive, creative and emotional engagement (Power 2008).<sup>12</sup> Beauty, on the other hand, lies in anti-caricature and averageness (Valentine, Darling, and Donnelly 2004). Anyone seeking to create a character that needs to be both beautiful and expressive is therefore faced with an impossible paradox as beauty seems to rely on averaging out distinctive features, while heightened expressiveness requires the exact opposite.

Eventually, Hamilton Luske reworked the rotoscoped image of Snow White to give her more caricatural proportions, with a larger head and therefore more youthful appearance (Barrier 1999: 198), thus opting for a design tending towards neoteny rather than fidelity to a certain kind of pictorial realism. Indeed, contrary to beauty, neoteny (which triggers cuteness and caring) can be enhanced and supported by caricature (Sternglanz, Gray and Murakami 1977 ). The character of Snow White finally took on lightly caricatural and neotenic traits (smaller size, larger head, bigger eyes). The Prince's design, however, which remained more truthful and quite anti-caricatural in order to be charming, remained distinctly less expressive and didn't achieve the degree of liveliness the other characters did.

Over the course of the thirties and leading up the release of *Snow White*, Disney reached the following character design paradox: an over-simplified and caricatural design is not efficient because its artificiality is too obvious to allow for a true emotional contagion of the audience. But each attempt at creating a truthful design proved a failure from the point of view of its expressiveness, and eventually also revealed its own artificiality. Character designs such as those of the dwarfs, who were caricatural but not in such extremes as witnessed in the 'Rubber Hose' era, held a certain consistency. As characters, they manage to clearly and immediately express a wide range of emotional reactions.

From the 'Rubber Hose' heroes of *El Terrible Toreador* to the prince of *Snow White and the Seven Dwarfs*, the evolution the human figure in Disney's films brings forth a seemingly paradoxical tendency: in order to be efficient, the character's design needs to tend towards some

11 The "Peak Shift Effect" implies that if a stimulus causes a specific neurological reaction, then an enhanced stimulus will cause a stronger reaction (Ramchandran, Hirstein 1999)

12 Others such as Freeberg, Gallese 2007; Smith 2006-2007; Gallese, Guerra 2012; Gould 1979; Sayim, Cavanagh 2011; Cavanagh 2007, or Cupchick 1994 all propose research tending towards similar conclusions with regards to the efficiency of exaggerated stimuli.

degree of visual truthfulness but retain an element of caricature. The trick therefore is to create a human design verisimilar enough to trigger emotional contagion within the audience, but one that is simultaneously caricatural enough to benefit from the expressive strength particular to caricature, and to animation as a creative medium. These issues explored by Disney gave him animated characters that reflected the dramatic tone of his new feature project. However the animation team still needed to develop and utilise a variety of methods, in conjunction with design, to create believable movement, rather than the more typical rubber hose style of animation. The studio needed to create a believable character animation quickly and economically for such a pioneering production.

## **Disney's Search for "Believable" Animation – Live-action Footage**

Successful character animation often relies on a good understanding of pose, weight, timing and especially performance. Consequently, a cornerstone of animation skills development is the recognition of a long and intense study of human movement. Life drawing is a widely accepted and established method of documenting a character's performance and developing the required skills. During the process of life drawing the animator's perception and documentation of the model is subjective. The animator can adapt and modify the subjects pose as they see fit in order to improve the animated characters performance. The process can be slow, lack spontaneity and require considerable time to organise. Time has always been an animator's worst enemy, and greatest challenge also, and too much time taken in the planning of an animated performance will result in less time to create the final character animation. Recorded live-action was quickly recognised as an efficient way to stage a refined performance which could be shared across large teams, with the added advantage that film and subsequently video footage could easily be paused, slowed down or replayed by an individual animator.

The process of recording and utilising live-action footage to speed up the animation process has been used extensively in the animation industry. The process gained prominence in the 1930s and was utilised in animated work such as *Snow White* (1937) and Fleischer Studio's *Betty Boop's Bamboo Isle* (1932). The most popular techniques have been commonly acknowledged as Rotoscoping and Action Analysis (also known as Live-action Video referencing). Rotoscope work generally takes place in front of the camera, while Action Analysis is used behind the camera during a film's pre-production. The process of rotoscoping traces the live-action footage precisely. Providing the animator with an almost exact replica of the live-action performance. Action analysis can be more interpretational, allowing the animator to study the live-action footage in great detail, but still include their own ideas of timing and pose to the performance. Each process produces a very different result in spite of their similar techniques.

One of the key animators who worked on *Snow White*, Frank Thomas (1984), explained that Walt Disney felt the realistic movement created using the rotoscope process was too complex and lacking focus. Disney ultimately favoured the more evaluative action analysis method that is still used at the Disney studio today. Trainee animators can often blur the lines between Rotoscoping

and Action Analysis, tending to view this form of assistance as cheating, rather than acknowledge the benefits that each process can potentially offer. They believe that a talented professional animator should be able to fully comprehend pose, weight and timing automatically or as if by magic. Animation students (in particular) will always recoil in horror at the notion of recording themselves as reference, rather than consider the technique of recording movement as an important element of the animation pre-production process. Walt himself (Barrier, p120) believed that practicing live-action referencing techniques can speed up the animation workflow considerably and lend weight, purpose and uniformity to an action or scene. Sustaining successful and economically produced character animation regardless of the experience of the animator involved.

The method of using rotoscoped live-action footage to complement animated work has been practiced since the early days of animated production, not just during the production of *Snow White*. Initially the process was devised as a way to bring lifelike human animated characters to life. Realistic characters are often perceived as difficult to animate convincingly due to the viewer's familiarity with the human body. The original iteration of the rotoscope process was devised by Max and Dave Fleischer in 1915, and later patented in 1917. Rotoscoping allowed animators to create smooth and natural realistic human character animation. Presumably in a similar style that Disney desired for the human characters in *Snow White*. Live-action footage was projected frame by frame onto a transparent drawing board. Animators were then able to follow the movement to create smooth realistic animation. The process was not practical for most character work at the time due to the early adoption of a less physically realistic aesthetic, a style referred to as "rubber hose animation". The rotoscope process was used extensively in the Fleischer studio short *Betty Boop's Bamboo Isle*. The film begins with a live-action segment starring the Royal Samoan Orchestra, featuring a dancer named Miri. Animators rotoscoped (or traced) the live-action footage of Miri to create the dance performed by Betty at the end of the short. This was possible due to a more carefully observed application of realistic anatomy, action and proportions. Fleischer Studios would later use the rotoscope process on its first feature length production. *Gulliver's Travels* (1939) The film was produced in response to the success of Disney's *Snow White*. The main naturalistic human character Gulliver was heavily rotoscoped, while the other supporting characters were traditionally animated due to their more abstract design. Fleischer's smooth rotoscoped character animation used for Gulliver appears out of place in comparison the traditional animated characters throughout the piece, a common result of mixing heavily rotoscoped action with more lively and stylised characters.

## **Back to School**

Pierce (2016) mentions in his chapter for the New England Review that the animators working on *Snow White* were initially overwhelmed. Disney presented them with such a hugely ambitious debut feature length project. They lacked confidence faced with such radically different character design and animation style:

Up to this time, Disney animators had been roughing out characters largely based on simple geometric shapes, the circle and the oval in particular.

Disney drafted in instructors from the Chouinard Art institute to teach the animators new skills in drawing and action analysis. The animator's confidence grew as they attended the classes. One session involved analysing live-action footage that had been slowed down considerably. This would allow the animators to study pose and timing. Rather than use Snow White's voice actress Adriana Caselotti, Disney hired a young dancer Marjorie Belcher to perform Snow White for the feature. Belcher would also later perform other characters for Disney including the Blue Fairy in *Pinocchio* (1940) and Hyacinth Hippo in *Fantasia* (1940).

The animators were able to analyse the nuances of movement and capture Belcher's performances rather than slavishly trace the footage as was demonstrated in Fleischer's rotoscope technique. Frank Thomas animated the dwarfs during Snow White's death scene. Thomas is one of the famed nine old men of Disney (Deja, 2015) and the co-writer of the seminal "*Disney Animation: The Illusion of Life*" (1997). Thomas believed that animation was not a technical pursuit, but that a good animator must have an advanced technical knowledge of movement. He stated that successful character animation must adapt and synthesise real live-action performance and produce "believable" animated movement. Real action is highly complex, but an abbreviated interpretation of believable movement would allow an audience to accept all manner of fantastical characters. To be believable the character's performance must be initially based on real life movement and is why the animators on *Snow White* studied motion in various different ways including vaudeville acts, film, art, and attended classes in action analysis. Disney's characters although anthropomorphic would always retain natural proportions in order to utilise the reference material successfully. This allowed Disney to continue to use and refine the action analysis process and create a large library of referenced movement and performance. The studio would occasionally recycle the reference material and use the same movements for several different projects. Reusing the same reference footage again and again can be perceived as cheating, but the recycled animation equally gave the studio its distinct characterful style. The recycled live-action footage afforded the animators with a bank of recognisable, believable performances that the viewers would be able to recognise instantly as a Disney product. This would ultimately lead to a house style demonstrated in the character animation contained in the majority of Disney's early theatrical work.

## Action Analysis

The action analysis process pioneered by Walt Disney's studio on *Snow White* enables the animator to manipulate and interpret the live-action footage to their own needs. Similar to the more subjective and interpretive process of life drawing. Rather than constraining the animated character to the recorded movement as evidenced in the rotoscope workflow. The process of action analysis is discussed comprehensively in Chris Webster's book *Action Analysis for Animators* (2012). Webster discusses the merits of the process, and the relevance of including it in modern character animation workflows. Webster states that action analysis can be broken down into 4 separate actions:

1. Activity  
Describe the position of an object in time and space, either controlled or random.
2. Action

- Describe the movements and behaviours that are attributable to a specific object or material.
3. Animation  
Describe the movements that are generated internally either purposely or instinctively by an animated object.
  4. Acting  
Describe actions and behaviour performed by an object, that are driven by psychological and emotional conditions.

Many contemporary American animation studios such as Pixar, DreamWorks, and Sony Animation still use the action analysis workflow pioneered by the Disney animators during the production of *Snow White*. Viewings of any show reels of animators employed by these studios display a strong use of Disney's pre-production pipeline.

## Conclusion

The process of action analysis pioneered by Disney and the animators working on *Snow White* is still viable and utilised throughout the animation industry today. Webster (2012) states:

The Disney studio did much to establish the tradition of recording live action and action analysis for animation, a tradition that many animation studios follow to this day.

Contemporary Disney character animator Jose Gaytan's show reel evidences Disney's use of live-action video reference, which adapts human movement rather than simply tracing over the live-action footage. This action analysis workflow is practiced all around the world. In 2006 UK based animation studio Aardman released their inaugural computer generated animated feature *Flushed Away* (in partnership with DreamWorks) Due to various production issues the entire shoot was relocated from the Aardman studios in Bristol (in the United Kingdom) to DreamWorks' studio in Los Angeles. Senior production staff from Aardman were sent to LA to ensure that the established Aardman studio style was acknowledged and preserved during its all-important first feature length computer generated production. It was during this time that the production team from Aardman (including Animator/Director Jay Grace) became exposed to the action analysis technique in practice. Grace was heavily influenced by DreamWorks character animation workflow, itself inspired by the process used during the production of *Snow White* many years earlier. Grace eventually brought the action analysis technique to Aardman's studio in the UK and it is now an integral part of the studios pre-production pipeline, where it has revolutionised the studio's feature output. Commonly known in the studio as Live-action Video (or L.A.V). The workflow has established a fast and efficient "roadmap" for directors and animators, and has drastically reduced approval times for the animated shots. Aardman's feature director's will now work with their animators to create live-action video reference for most character animation shots. Allowing the director and animator to interpret and refine performance, plan, time and organise shots quickly before they are animated.

The Rotoscope process developed by the Fleischer Brothers gained appeal not just simply as a way to create smooth and successful character animation, but also as a time saving measure vital in the emerging and fast paced broadcast environment. Television production demands an exceptionally agile and rapid output. While an average 90-minute feature length theatrical piece could be in production for years, a 22-minute episode of a typical animated broadcast series must be produced in under a week or two. The rotoscope process is economical but can disconnect an audience from an animated character due to the overly naturalistic proportions, timings and ill-fitting nature contextualised with the other traditionally animated characters. This was particularly well evidenced in Fleischer's *Gulliver* animated feature. Yet action analysis (as used in *Snow White*) allows the animator to adapt and consider movement, timing, and performance rather than just slavishly copy the live-action footage as is demonstrated during the rotoscope process. Due to advances in modern technology action analysis is easily available to every animator with a smartphone or digital tablet. Live-action footage can now be appropriated anywhere at any given time. Speed will always be an issue for all animators and animated film producers, no matter the skill and experience they possess. The action analysis technique can enable all animator's to be able to considerably speed up their own process. Allowing them to enjoy the nuances of the character's performance and create the "believable" animation that Walt Disney desired so much during the early stages of production on *Snow White*.

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