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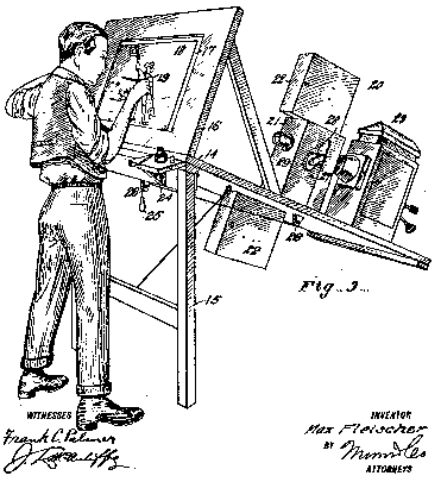
ROTOSCOPING

Rotoscoping is a technique by which animators use live action as a reference for their animation. Live film is projected onto a drawing board and then animators trace the action frame by frame. Initially rotoscoping was hand traced frame by frame by the animator; however, today, the process of rotoscoping is greatly enhanced by computer rotoscoping software. The technique of rotoscoping is commonly used to give animated characters a more life like quality or to add visual effects to live action films.



Rotoscoping was invented by the Austrian-American Max Fleischer who used it in his series "Out of the Inkwell" in 1915. Fleischer had the idea of using live action film as a guide for cartoon animation and in 1917 he patented his rotoscope design. Fleischer used rotoscoping to animate many characters including Betty Boop, Koko the clown, Popeye and Superman.

Walt Disney also used rotoscoping with cel shading in several of his animated films including *Snow White and the Seven Dwarfs* (1937) and *Cinderella* (1950). Most of the human characters in the early Disney Films were animated from live action references.

Since rotoscoping is usually not used for an entire animated film, it is challenging for animators to make scenes done by rotoscoping blend in with scenes animated by hand. Many animators see this as one if its limitations. They feel that characters that were animated by rotoscoping stand out next to characters that were hand drawn thus

giving the scene an unrealistic quality. Other animators feel that rotoscoping causes characters to appear to be too life-like. This issue can be compensated for by applying other animation techniques such as exaggeration, and squash and stretch to the character after it has bern animated with rotoscoping. Also, unless the frames are traced exactly, a "jitter" effect can be caused when a character is animated. This is a phenomenon where the edges of a character wobble back and forth as it moves. The "jitter" effect has been greatly reduced by the use of computers to aid today's rotoscoping artists.

Rotoscoping is also used to do special effects in live action movies. Today so called "bluescreen" effects are becoming more popular but there are many effects that are still done by traditional rotoscoping. In 1994 Smoking Car Productions invented digital rotoscoping. This is a technique in which 2D animation is used to support 3D effects. Digital Rotoscoping can be used to create an animated matte to block part of the scene so that another object can be inserted. For example, to insert a spaceship flying over a field, rotoscoping would be used to create a matte to cover the part of the scene that the spaceship would occupy and then the spaceship would be inserted over the matte. This process is called compositing. Compositing was also used in the original Star Wars movies to create the light saber glow.

Rotoscoping was also used by the visual effects crew in the movie *Titanic* to insert "puffs of human breath" to convey the icy ocean environment. Breaths were first filmed using "breath actors" and they were assembled into a digital library. Then the animation team had to create the illusion of 3D from these breaths and insert them into the film using 2D compositing. Each breath had to match the actor's movement exactly and even a small error in the animation would cause the breath to appear incorrectly placed thus losing the illusion of realism.

Director Richard Linklater used a form of digital rotoscoping called computer-assisted "interpolated rotoscoping" in his films "Waking Life" and "A Scanner Darkly". "A Scanner Darkley" (2006) was the first film digitally animated with Rotoshop making Linklater the first director to use digital rotoscoping to create an entire feature film. The movie was first filmed with a digital camera and then it was animated using Rotoshop. Rotoshop is a program that traces over key frames of live action film and

then interpolates between the frames. During the animation phase of production it took the animation team five hundren hours to produce each minute of animation. The above picture is of Winona Ryder animated in “A Scanner Darkly”.

To conclude, rotoscoping is a very useful animation technique that is being used in today’s cartoons, movies, and video games. Over time this technique has become more computer driven and it has enabled animators to create more realistic animations at a faster pace.

SOURCES:

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