Izaac Virasak

In 1832, the first animation device was the phenakistoscope. By looking through slits while facing a mirror, you were able to see moving images for the first time. The zoetrope, invented in 1833, also known as the wheel of life, was a similar concept, but without a mirror, which created the illusion of moving pictures. In 1872, the praxinoscope was created. Instead of the slits, it used mirrors to display the different images at different angles. Also in 1872, Steamboat Willie was created. Each frame of movement was drawn onto celluloid and then photographed with a multipane camera. They drew the background separately so that they could move the characters independently from it. This is also widely recognized as the first animation that had synced audio. In 1932, an animation called Rainbow Dance displayed the first instances of rotoscoping, where you paint over existing footage. In 1957, many cartoons started being produced, like scooby doo and The Flintstones. To save money and the expensive animation cost, they used smears, looping cycles, and suggestions. When these cartoons were coming out, Disney was in the “golden era.” Their realistic animation, which was extremely high quality for the time, pushed the boundaries of animation forever. In 1988, Jan Svankmajer created Alice using stop motion animation. Using a doll as a puppet, he was able to make realistic and believable animations because they were real objects. Also during this time, Studio Ghibli became popular. They used watercolor backgrounds and hand-drawn animation. To this day, they are one of the only animation studios to make hand-drawn animations still. In 1993, Aardman used stop motion for his animation. He made sets out of plasticine and other materials to bring these characters to life. In 2006, “A Scanner Darkly” was filmed digitally and then rotoscoped afterward. They used Rotoshop, which makes vector keyframes from the video and interpolates the in-between frames automatically. In 2015, Most animations were made this a thing called Toon Boom. It's cel animation, but on a digital computer, it was a lot quicker and cheaper than traditional animation, but it doesn’t completely lose detail and charm. After that, animation continued to get better and better. Almost a whole different thing compared to the plate it all started on.

But there's still more to learn about animation. Such as the 12 principles of animation. The first principle is squash and stretch. It states that when an object is moving faster, it gets longer, and it squishes when it stops. But also, the amount of stretch depends on the object. If a water balloon were to fall and land, it would have extremely noticeable squash and stretch, but if you did the same with a rock, it would be very stiff and wouldn't stretch. You could also use this for faces to exaggerate emotions. But it is very important to keep the volume of the object so as not to make it unnatural. The next principle is anticipation. Imagine someone jumping, it would look weird if they didn't wind up before that, right? That is the principle, you must have your character exaggerate their movement so that the viewer can notice and know what is coming. Next is pretty simple staging. Just keep your audience's eyes in one place without too many things going on, and you should be able to control where your viewer is looking. You also need to exaggerate everything. If someone is sad, make them really sad; if someone is dirty, make them really dirty. The next principle is straight ahead and pose to pose. Pose to pose is drawing your character in the beginning, middle, and end of your animation so that you can draw in between those poses. Straight ahead is just drawing the next place you think your character is going, with no framework. But in unpredictable animation like fire, straight ahead can look very

good because you can not truly predict what's going to happen with the fire. There is some vocabulary with poses to poses called extremes and keys. Keys are the start and end. And extremes are the main movements of the action. The next principle is overlapping action, where objects track behind the body in movement. There are 3 ways to describe it: follow-through, overlapping action, and drag. Follow-through refers to the parts of the body that continue to move after the body is stopped. Overlapping action is the timing of the main body and the other parts. Drag is delaying the movement between body parts. Slow in and slow out is the 6th principle describing action starting slow, then speeding up. This is very important if you want to make a realistic animation. The next principle is arcs. It is the concept that everything moves in arcs. Like if you wanted to animate a ball bouncing it would have to be in an arc rather than in a straight line to make it more realistic. The next principle is Secondary Action and is Gestures that support the main action to add more dimension to the character animation. Like if someone is knocking on a door, the main action is them knocking, but the other hand can be in a fist, which shows that they are mad, and if it's closed and they look side to side, it could show they're trying to be sneaky. But do not let the secondary action take over the primary. The next principle is timing. If the drawings are close, that means it's slow; if there are fewer, that means it's faster. There are also things called animating on ones and twos or every three. This indicates the frequency of each drawing. You would draw every frame or every other frame. The next principle is exaggeration. This just uses unrealistic proportions for a small amount of time to make the action more confined. The next principle is solid drawing, which states that you need to make your character seem 3d because if you make them too flat, it will look 2d. The last principle is appeal. Which means your character has to be appealing in some way with their design. Some ways to help with this are to 1. Use a variety of shapes to change the form of your character. 2. proportions, which is shrinking the boring part and making the interesting parts bigger. 3. Keeping it simple because too many forms can confuse a very and you have to consider the fact that you need to draw the character hundreds of times.

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https://www.youtube.com/watch?v=WdZ3aPztO70

2:13



Appeal
Spuash and stretch
Secondary action: angry face

0:22



Arcs
Slow in slow out
Secondary action (salutes the hologram)
appeal
0:29



Arcs
Anticipation (about to grab screen)
Exaggeration

1:41



Secondary action (he is calling while the opponent is rising)
appeal
Anticipation (beam came down, making opponent rise)

2:32



Arcs
Squash and stretch
Appeal

Secondary action (playful expression)

3:15



Anticipation
Squash and stretch in the face
Appeal
exaggeration.