Let's Take a Look at the Anime Production Process!

Anime is a visual medium in which each frame (or object) is captured through stop-motion photography and then played in succession to create the illusion of images or objects moving. Many of the works released on television or in theaters involve specialized staff members who collaborate in different stages, undergoing the hands of numerous professionals before completion.

Currently, the dominant approach in anime production is "digital animation," where most of the production processes are carried out using computers. However, in the past, "cel animation," which involved shooting individual frames of drawings called "cels" through analog methods, was the norm.

Cel animation gradually disappeared after the year 2000, and few contemporary productions rely on this method. However, this archive preserves a wealth of valuable production materials from that era.

On this floor, we will introduce cel animation and some digital-related production processes along with archival materials, following the three major stages of animation production: "pre-production," "production," and "post-production."

▶ Pre-production

This is the preparatory stage of production and is carried out by the core staff responsible for the production. The workflow for this stage includes the following steps: "concept," "plot (outline)," "script (screenplay)," "setting/design," and "storyboard."
The flow of work in this stage remains largely consistent between cel animation and contemporary digital animation.

1 Planning

In this phase, we outline the general strategy for the production in a project proposal. The project proposal not only includes the "synopsis" and "main characters" of the work but also details such as the "target audience" who will watch the production and the "production budget."

2 Plot (Outline)

In this stage, we create a "plot (outline)" where we write down how the story

will develop, including elements such as a story summary, character movements, etc. Additionally, in the case of a television anime series, based on this plot outline, a "series composition" is also developed to determine the overall flow of the series' storyline.

3 Script (Screenplay)

Based on the plot and series composition, we write a detailed "script" that includes dialogue, character movements, scene compositions, and other elements.

4 Character and Set Design

Based on the script, we develop the "setting/design" of the work, which includes designing characters, props (small objects and mechanics), the artwork, etc. Additionally, the "color design" process determines the overall color direction of the work. This involves creating a "color specification chart" for main characters and producing "art boards" as samples for backgrounds. Using the various design documents as a foundation, all of the staff members involved work together to create a single cohesive production.

5 Storyboard

In this phase, we create a "storyboard" that visually and textually represents the composition of each shot, character dialogue, movements, placements, backgrounds, sound effects, the number of cuts, duration, and more. This storyboard serves as a blueprint for the entire animation, providing a clear understanding of the visual flow of the work.

⊙ Production

Based on what was created during the "Pre-Production" phase, specialized staff members divide the work and proceed with production. This phase involves the largest number of staff members. While most of the tasks have transitioned to digital methods today, the only change is that drawing with a pencil or brush goes straight into the computer. So whether cel animation or digital animation, the workflow remains nearly the same.

In the case of cel animation, the process involves creating "layouts" for background images, followed by two distinct steps: "key animation & timing sheets" → "in-betweens" → "coloring" → "tracing" → "finishing (painting)" to produce the cel images. Simultaneously, there is the process of adding the "background." Afterward, cel images and backgrounds are combined in the "photography" process.

6 Layout (Including Background Originals)

"Layout" is the process of designing the screen in animation production. It involves creating detailed drawings and textual instructions for each cut, specifying rough movements, backgrounds, and camera work based on the directions provided in the storyboard. Layouts also include instructions for the background and art, serving a dual purpose by encompassing background originals.

7 Key Animation & Timing Sheets

"Key animation" refers to the drawings, often key illustrations, that serve as pivotal points for movements, created based on the layout. At a minimum, there are two key frames: one for the start of a movement and one for the end. In more complex movements, several key frames may be drawn to mark various movement points.
As an additional part of their work, the key animation staff creates "timing sheets" that include instructions for the timing of movements, directions for in-betweens, dialogue, camera work, and other details.

8 In-Betweens

"In-betweens," sometimes referred to as "middle frames," is the process of drawing images that connect the key frames to ensure smooth motion. Based on the instructions provided in the timing sheets and the key frames themselves, animators create these in-between frames, determining how many frames are needed between each key frame to achieve the desired movement. During this stage, cleanup work is also performed to conform the key frames with any corrections made by the animation director.
The "drawing desk" features a glass surface known as a "lightbox" that allows artists to stack multiple sheets of animation paper and see the lower layers while drawing, ensuring consistency. Additionally, animation paper has special holes that align perfectly with a tool called a "tap," preventing misalignment when stacking multiple sheets.

9 Coloring

In the "coloring" phase, instructions for colors are added to each frame based on the "color specification chart." These instructions are given using color numbers assigned to the various "cel paint colors (animation colors)" listed in the "color chart," which typically contains hundreds of color variations.

10 Tracing

"Tracing" is the process of copying the lines drawn in the animation onto transparent "cels." In the past, this was done manually using ink in a process

known as "hand tracing," where each image was drawn by hand. However, later on, the use of "tracing machines" became common, allowing for the transfer of lines onto cels. This automated method, referred to as "machine tracing," significantly improving work efficiency.

11 Finishing (Painting)

In the "finishing (painting)" phase, the backside of the cel is painted with the cel paint colors (animation colors) designated by the color specification chart. The finished resulting is called a "cel image."

12 Background

In the "background" phase, background images are created for each shot primarily using poster colors, based on the layout (background originals) and the art settings/art boards.

13 Photography

In the "photography" phase, the cel images and backgrounds are combined, and the "photography" camera work is added according to the instructions specified in the timing sheets and other documents.

In cel animation, the photography process involves using a specialized camera fixed to a device known as a "line-tester" that captures each frame by aligning the cel and background and pointing the lens downward. In the 1990s, with the discontinuation of cel production, the photography process rapidly transitioned to digital methods.

▶ Post-Production

"Post-production" is the final stage in the animation production process. In the era of cel animation, various specialized equipment was used in this phase, but many of these tools have now been replaced by computers. This phase includes the following processes: "Editing (Cutting)" ▶ "After-Recording (AR)" ▶ "Dubbing" ▶ "Negative Editing (Mastering)" ▶ "First Print."

14 Editing (Cutting)

In the "editing" phase, the developed "negative film" is processed to create "rush film (positive)," assembling the footage while considering factors such as dialogue, movement timing, continuity between cuts, etc. Various equipment is used for editing, ensuring that the final result matches the planned duration.

15 After-Recording (AR)

In the "after-recording (AR)" phase, voice actors perform and record their lines in a sound studio, synchronizing their voice acting with the edited visuals while reading a script and following the instructions of the sound director and director. Note: the reverse process, whereby audio is recorded before the animation, is referred to as "pre-scoring (pre-score)."

16 Dubbing

"Dubbing" is the process of combining the recorded audio from the AR session, including voice, background music (BGM), and sound effects (SE), onto the film. This step finalizes the audio for the animation. The completed audio materials, often in the form of magnetic tape, are optically converted to create the "sound negative film."

17 Negative Editing (Mastering)

In the "negative editing" phase, the rush film used during the sound work is synchronized with the negative film, and unnecessary portions of the negative film are cut or joined together to create the "picture negative film (master)." During this process, adjustments are made to ensure that the sound negative film matches the picture negative film, preventing any audio sync issues during printing.

18 First Print

The completed "picture negative film (master)" and "sound negative film (master)" are brought to the laboratory (developing facility), where they are carefully aligned and developed while making various adjustments. This process results in the completion of the "first print (positive film)" intended for screenings.

◉ Topics

Film and Tape Types
With the advancement of digital technology and the prevalence of digital delivery, the use of "film" and "videotape" for delivery in contemporary commercial animation has become obsolete. However, in the past, media such as those below were also in use.