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Cel Animation: Mass Production and Marginalization in the Animated Film Industry

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Abstract While Winsor McCay was the pioneer of American animation, it was J. R. Bray who was the first to establish a true animated cartoon studio. His development of the process of cel animation created a rigid division of labor among animation workers, and served as a model for most other studios. While economically successful, this approach soon led the animated film to a marginal and highly conventionalized position within the motion picture industry.

Cartoon films have been a steady part of American commerical filmmaking since the early years of this century. Until recently, though, most historical surveys of silent cinema have tended to characterize the cartoon film as a form that was unrealized until Disney's efforts in the late 1920s. For example, William K. Everson writes in *American Silent Film*, "The animated cartoon . . . more than any other genre, was marking time until the arrival of sound and color, and the accompanying quickening of pace that was so essential to its success."[1] Yet a closer analysis of the history of the silent cartoon reveals that, as with the live-action film, it had reached its dominant structural form by the late 1910s and not the late 1920s, as Everson suggests.

Winsor McCay was the first American cartoon filmmaker of commerical significance, and many early cartoon filmmakers cited him as an inspiration. Already a prominent newspaper cartoonist and a successful vaudeville quick-sketch artist when he turned to filmmaking, McCay was able to carry his well-developed talent and his celebrity with him into the new medium. McCay, in fact, was the "star" of his early films. He appears in them, as himself, sometimes interacting with his own cartoon creations. His early cartoons, produced 1911–14, were enormously popular and proved that the demand for this type of film existed. The film industry took notice of McCay's success and rushed to capitalize on it.

Although McCay is generally credited with having pioneered the form, his mode of production, ironically, would serve as the model for the kind of cartoon filmmaking that would be avoided. His early cartoons

> "consisted of a sequence of roughly 5,000 drawings made on eight-by-ten inch sheets of semi-translucent rice paper. Every phase of his operation had to be performed manually.

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> After each drawing was completed, and a serial number applied to it, marks for keeping it in register with the other drawings were placed on the upper right and left corners. To facilitate handling and the photographing of the drawings, mounting them on slightly larger pieces of light cardboard became the next step. The left side and bottom of these mounts were cut at an absolutely ninety-degree angle, and the register marks printed on them had to correspond exactly with the location of the register marks on the tissue drawings, which marks had to be placed precisely over those on the cardboard. After each sequence of action had been processed up to the mounting stage, it had to be checked for smoothness of action in some way. McCay managed this chore very neatly by building a box-like contraption about twenty-four by twelve inches wide and roughly twenty inches high, open at the top. He ran a shaft from the center of one of the large sides to the same position on the other large side. On this shaft between the sides, he placed a large spool-like hub into which lateral slits had been cut about one fourth an inch apart. The sequence of drawings to be checked were inserted into those slits and tightened in place. On end of the axle protruded through one side of the box, and on it was attached a crank for revolving the hub and drawings. Part of this apparatus was a brass rod that . . . caught the cards momentarily, creating an intermittent action, simulating the gear used for that purpose on all cameras and projectors, which created the illusion of figures in action."[2]

It should be clear from this lengthy description that McCay's method of making cartoon films was "a long, tedious piece of work for McCay."[3] It was also a costly one. As movie programs in the early 1910s usually changed several times each week (to keep up with the demand for variety), it became necessary for cartoon filmmakers to expedite and facilitate the production of their product. Several innovations, credited to John Randolph Bray, met this requirement.

Bray, like McCay, was originally a newspaper cartoonist who moved into film. In 1913, he completed THE ARTIST'S DREAM, his first film, made more or less by the same laborious methods used by McCay. Bray spent six months making THE ARTIST'S DREAM, although the animation in the film (which is flanked by a live-action narrative) amounts to only several minutes of screen time. Bray's film was impressive enough to win him a contract with the Pathe exchange, requiring six films over a six-month period. Donald Crafton writes,

> Since it had probably taken that long (six months) to produce THE ARTIST'S DREAM, Bray's process would have to be quickly perfected and streamlined. He was forced to make decisions affecting four crucial areas. First, conventional means of producing the animation should be discarded or modified. He would implement a technqiue he had experimented with in THE ARTIST'S DREAM. Second, he would have to abandon individual control over production and mete out work to assistants, in other words, establish division of labor. Third, the process should be protected by a patent. The idea occurred to Bray that animation could be monopolized by the improved technique, so formal claims were filed. Fourth, improved means of distribution and marketing the product were devised.[4]

As Crafton points out, Bray's tendency towards streamlining his product can be seen in THE ARTIST'S DREAM. The film makes use of repeated cycles of action and contains noticeable moments of stillness, both of which cut down on the number of drawings necessary. Still, the process had to be modified further if Bray were to produce his films quickly enough to meet the demands of his contract while keeping their costs reasonable enough to be profitable.

Bray began this modification by borrowing several methods employed by McCay. According to John Canemaker,

> The first of Bray's patent applications, filed January 9, 1914, contained a number of methods developed and touted by Winsor McCay, including the use of cross marks to facilitate registration of the drawings; McCay's 'stationary local animation'—the sequential changes of a main action, while nonmoving elements are traced by an assistant; use of thin tracing paper; the Mutoscope action viewer; the reuse (cycling) of drawings to increase screen time and lessen the number of drawings. Where Bray's methods differed from McCay's was in the 'printing of a portion of the picture and the drawing in by hand of the remainder' and the 'printing of a background and the drawing in of a movable object.'[5]

This difference would prove to be a crucial one, for it involved the employment of 'cels.'

Cels are translucent sheets of celluloid onto which areas of the cartoon are drawn. Depending on the

technique utilized, either the area of the cartoon to remain immobile or the area to be animated is drawn onto the cel, while the corresponding moving or still area within the frame will be drawn on paper over which the cel is laid for photography. This reduces the time, labor, and material necessary for redrawing the entire picture for each exposure. The use of the cel technique for the making of cartoon films not only expedited the production of the cartoon, but it allowed for the "specialization of labor. That is, one person may do the background, while another does certain main poses of the character, and yet another fills in the phases between these major poses."[6] E. G. Lutz describes this further: "Besides the chief animator, others, such as assistant animators, tracers, and photographers, are concerned in the production of an animated film from drawings."[7] Once Bray had established the means by which he could produce cartoons on a quick and steady basis, he formed an animation studio. Bray himself claimed, "As Mr. Bray's business grew, he found it expedient to increase his capacity. He secured the services of a number of well-known artists, each of whom have created some character of his own."[8] Bray managed this by securing patents over the cel process, thus lessening competition which might fear legal action, and managed to obtain regular distribution for his product, insuring distribution for those artists who made films under him. Cartoon filmmakers who produced outside the Bray studio (such as Raoul Barre, who produced for Hearst's International Film Service) were required to pay Bray for the use of his patented devices.[9]

Bray had developed the method by which cartoons would be produced if they were to meet demand, and this means affected a particular mode of representation. This becomes clear when one watches a cartoon film comprised of individual drawings (such as McCay's GERTIE THE DINOSAUR, produced in 1912) and compares it to a cel animation cartoon film (such as Bray's COL. HEEZA LIAR IN AFRICA, produced in 1914, the first of Bray's films to make use of cels). GERTIE rarely contains any moments of stillness, having a "life-like" quality of fluidity to its animation, and the cartoon characters move in depth. The frame remains fixed, never panning. Although there appear to be several repeated cycles, the action is generally not repetitive. The cartoon appears to have been conceived in a "flipbook" style (recall McCay's method for checking the smoothness of the animation). COL. HEEZA LIAR, however, contains little of the fluidity seen in GERTIE. The movement of the characters is mostly lateral, not in depth, and the cartoon has a shallow depth of field. The size of the characters is usually constant. There are many repeated cycles of action and several moments of complete stillness within the frame. There is occasional panning (or the illusion of panning by means of moving background). Usually only one object at a time is in motion within the frame. As Kristin Thompson notes,

> The crucial aspect of cel animation is the different foreground and background layers. This difference in the amount of work involved in the background and foreground tends to promote a split between the type of

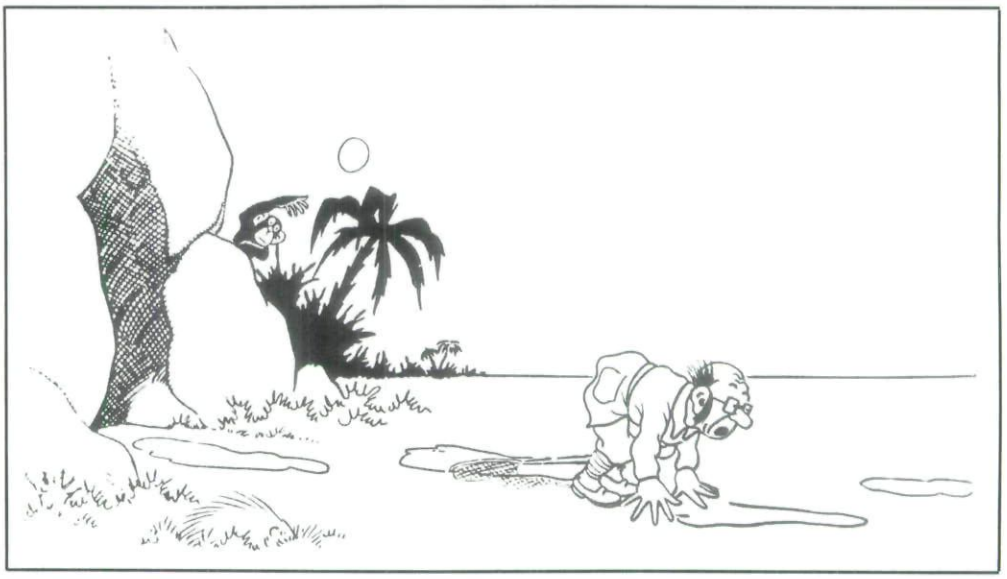

Figure 1. COL. HEEZA LIAR IN AFRICA (Pathe, 1914). J. R. Bray's first use of cel animation (see page).

> depth cues used in the separate layers. The flat representation of space used in cel animation means that the film is not dependent upon the lens for its formation of perspective, as live action is. Hence, the same composition may contain elements rendered in a linear perspective system, while other elements employ an isometric system.[10]

The use of cels in the production of cartoons resulted in a standardization of production methods, representational modes, and distribution practices.

The ideology behind using cels in cartoon filmmaking is well reflected in Lutz's *Animated Cartoons: How They Are Made*. This book, written in 1920, is a prescriptive discourse on the production of cartoons that are both technically proficient and economical. Lutz valorizes the Bray method of production, seeming to claim that it is the "correct" way to make cartoons. He writes:

> When it is considered that there are in a half-reel (five hundred feet, the customary length for a comic subject) exactly eight thousand pictures, with every one—theoretically—different, it seems like an appalling job to make that number of separate drawings for such a half-reel. But an artist doesn't make anywhere near as many drawings as that for a reel of this length, and of all the talents required by any one going into this branch of art, none is so important as that of the skill to plan the work so that the lowest possible number of drawings need to be made for any particular scenario.[11]

It is the task of an animator, states Lutz, to plan "the whole work in the use of expedients and tricks, and an economy of labor in getting as much action with the use of as few drawings as possible."[12] Lutz goes on the explain that the cel is the key to this economy of labor. He writes of the streamlining of cartoon representation:

> if the markings approach the geometric, definite and precise, then they are easily copied and imitated. This is why the little circles and similar curved markings are so frequently used in animated cartoons. There is nothing ambiguous in the lineaments of a face made with saucer-like eyes, and a nose like a circle. Its peculiarities are quickly noticed, easily remembered, and traced with facility.[13]

Elsewhere, Lutz reveals the hierarchal system implicit in the division of labor. He writes, "in the division of labor . . . the toil of repeating monotonous details falls upon the tracer. The animator does the first planning and that part of the subsequent work requiring true artistic ability."[14] Lutz's book was considered the principal text on its subject for years after its publication.

As Lutz states, cartoon films generally existed in the comic, split-reel format, as *Moving Picture World* issues of the period indicate. The cartoon was usually shown on the same reel as a newsreel, travelogue, or scenic, and the entire reel was marketed by exchanges as a "film magazine." Most of the major exhibitors of the period exhibited these film magazines as part of their program. It is interesting to note that in describing the cartoon film Lutz terms them "a comic subject," for this raises the question as to why the cartoon film was adapted (or restricted) to the comic format (a format it would retain throughout its production history in Hollywood).

Clearly, the adaptation of comic strips and the experimentation in the field by comic strip artists affected early production. Possibly they were simply fulfilling audience expectations. A 1915 article by Wallace A. Carlson, a young cartoonist for Bray, proposed the following theory: "The comedy is easily injected by slap-stick actions, and they always produce a laugh. The audience will break into an uproar over a dog chasing a cat in these drawings, whereas they probably would not even smile at this same action in a photoplay."[15] Carlson implies that the cartoon film is inherently comic, and it seems that this is what was expected of the form. The reviews covering cartoon films at the time usually concentrated on their comic quality more than on the quality of the animation. Some examples: COL. HEEZA LIAR'S AFRICAN HUNT—"an animated cartoon by J. R. Bray which is full of fresh fancy, at times very humorous and that made the audience laugh heartily again and again. It is surely a popular number." OTTO LUCK—"The 70th release of Paramount-Bray Pictographs . . . called 'OTTO LUCK,' the creation of Wallace A. Carlson . . . There is plenty of funny action." GOLDEN-SPOON MARY—"A one-reel cartoon burlesque of 'THE POOR LITTLE RICH GIRL.' The cartoon was drawn and animated by Paul Terry, and as a comedy filler should go well. The animation is good and the figures perform some cartoon slapstick that is quite funny."[16]

Kristin Thompson offers perhaps a better explanation:

> During the late teens, twenties, and up into the fifties, filmmakers and audiences maintained this ideological view of animation's difference; animation could do what live action could not, hence it came to be assumed that it should only do these things. As a result, cartoons did not opt for the naturalism of imi-

> tating live action films. Instead, cartoon production was broadly stylized, usually in imitation of comic strips; it used caricature, stretchiness, and flatness in general defiance of the laws of nature. These are all familiar aspects of animation. Hence, only certain types of narratives were considered appropriate to the animated medium: all cartoons were supposed to be comic . . . comedy has traditionally been a mode which motivates extreme departures from canons of verisimilitude.[17]

Thompson later argues that this limitation of the cartoon film ultimately led to its trivialization as a form of Hollywood filmmaking.

Attempts were made on the part of the cartoon filmmakers to lift the cartoon film into the realm of the "serious." These efforts were generally on a non-fiction quality (on the assumption that non-fiction is "real," thus superior to fiction). Bray established an educational department within his studio, headed by J. I. Leventhal, a technical animator. The films had such titles as HOW WE BREATHE and ACTION OF THE HUMAN HEART which indicate their intentions. Max Fleischer also created films for Bray which were used by the U.S. Army for the training of soldiers during World War I.[18] Indeed, the most highly acclaimed cartoon film of the period is on a non-fiction subject: Winsor McCay's THE SINKING OF THE LUSITANIA (Universal, 1918), which was

Figure 2. The early highpoint of "serious" animation, Winsor McCay's THE SINKING OF THE LUSITANIA promoted on the cover of Universal's house paper, The Moving Picture Weekly, 27 July 1918.

hailed upon its initial release as "tremendously realistic."[19] The film's length, 12 minutes, probably also affected the assessment of the film's worth. It was the longest animated film produced in its time. It was no doubt thought that the film's subject matter merited its length, while the comic, thus less significant, cartoons were worth only split-reel length.[20] Similar to retaining its comic format throughout its production history, the split-reel length (approx. 5–7 minutes) would be the dominant form of cartoon filmmaking intended primarily for theatrical distribution. The cartoons of the "Looney Tunes" and "Merrie Melodies" series, for example, never exceeded eight minutes.

The cartoon film of the silent era was never central to the movie-going experience. Its principal raison d'etre was to support the feature attraction. But the cartoon short did have its own identity, its own unique brand of appeal. It remained popular and in steady demand. The study of its history may therefore offer greater insight into the cinema of the day. ●

NOTES

1. Everson, *American Silent Film* (New York: Oxford University Press, 1978), 208.
2. John A. Fitzsimmons, "Windsor McCay," *Cartoonist Profiles*, #64 (December, 1984), 31–32.
3. Fitzsimmons, 31.
4. Crafton, *Before Mickey: The Animated Film 1898–1928*, (Cambridge, MA: The MIT Press, 1982), 144–45.
5. Canemaker, *Windsor McCay: His Life and Art*, (New York: Abbeville Press, 1987), 142.
6. Kristin Thompson, "Implications of the Cel Animation Technique," *The Cinematic Apparatus*, ed. Teresa de Lauretis and Stephen Heath (New York: St. Martin Press, 1980), 107.
7. E. G. Lutz, *Animated Cartoons: How They Are Made*, (New York: Scribner, 1920), 59.
8. John Randolph Bray, "Development of the Animated Cartoons," *The Moving Picture World*, July 21, 1917, 397. This article, which contains intentionally inaccurate material, is a piece of self-promotion. Its apparent aim is to promote the images of both Bray and the cartoon film. Note that it is written in the third person, possibly to give it an air of authenticity.
9. Crafton, 156.
10. Thompson, 113.
11. Lutz, 58.
12. Lutz, 59.
13. Lutz, 185.
14. Lutz, 66. The job of tracing was usually held by women, according to the previously cited Bray article.
15. Carlson, "The Animated Cartoon," *Movie Pictorial*, December, 1915, 6.
16. *Moving Picture World*, January 31, 1914; June 16, 1917; May 19, 1917.
17. Thompson, 110.
18. Leslie Cabarga, *The Fleischer Story* (New York: Crown Publishers, 1976), 10.
19. *Moving Picture World*, May 18, 1918, 1034.
20. Bray himself might have sensed a need to break out of the format he helped to propagate. An article entitled "Cartoonist Bray With Paramount" appearing in a December 11, 1919 issue of *Moving Picture World* states, "It may not be very long before exhibitors are offered a five-reel photoplay drawn by Mr. Bray and his associates." Such a film never materialized.

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