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<center>**Imagination and Natural Movement:**

The Bray Studios and the "Invention" of Animated Film</center>

Introduction

As recent research continues to illuminate the particularities and potentials of animation, its multivalence is becoming better understood. Studies such as Vivian Sobchack's examination of animation and automation, Donald Crafton's historicization of animated and mechanical movement and Scott Bukatman's exploration of labour and anima – to give just a few examples – illustrate a shift away from large-scale claims about the identity of animation towards nuances and tensions within its formulations.[1] This article examines an early instance of the complex articulations of animation's identity, tracing its discursive and aesthetic expressions at the Bray Studios, one of the most prominent animation studios of the 1910s. The latter half of the 1910s was a pivotal period in the institutionalization of animated film in the United States, with major film studios beginning to produce and exhibit animated films, new series being introduced, character-based comedies becoming increasingly standard, and annual production increasing from dozens to hundreds. Writing in 1917 for *Everybody's Magazine*, Homer Croy captures the sense in which animated film had become a distinct form within popular culture, writing of "the pen-and-ink play that nightly performs for millions" that "begins where the accepted movie leaves off."[2]

Scholars including John Canemaker, Donald Crafton and Mark Langley have documented how Bray and his animation studio were central to the changing status of animation during the latter half of the 1910s.[3] This was partly due to the prominence of animated series such as Colonel Heeza Liar and Bobby Bumps produced at the studio, which had set up

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exhibition and distribution deals with Paramount in 1916 and Goldwyn in 1919 before moving

predominantly into government and industry films in the 1920s. The Bray Studios was also

significant in terms of its innovations. As well as developing new technologies and practices

ranging from animated instructional films to colour animation, its patents in cel animation played

a crucial role in changing how animated films were produced. Between 1914 and 1916, there

were three patents granted to J. R. Bray and one granted to Earl Hurd, joined together in the

Bray-Hurd Process Company. Through cel animation, moving elements of an animated film

(such as a character) would be drawn separately from stationary elements (such as a

background), facilitating a cheaper and faster mode of production where each frame would not

need to be entirely redrawn. For Bray, this made animation "a commercially practical

proposition."[4]

At the time, this was seen as transformative: articles described Bray as "the originator of

the animated cartoon"[5], the inventor of "the basic processes by which all films of animated

cartoons are made"[6], "the Edison of cartooning"[7] and – in an article attributed to him – "the man

who made the animated cartoon possible"[8]. While partly due to Bray's self-publicity and partly a

reflection of a more general fascination with inventors and novelty, such comments indicate a

sense that animated films had emerged as a new form. Bray acknowledged that animation had

existed before, describing animated films made by Pathé Freres and Winsor McCay, and also

noting that "moving drawings of a very simple and crude type had been produced long before

that in the form of toys called 'The Wheel of Life,' and other novelties."[9] But, for Bray, his

patents allowed for a step change in quality and viability: "either these cartoons were so crude or

the methods of producing them were so tedious, complicated and expensive as to render them

impractical commercially."[10] The introduction of a commercially viable mode of producing animated film was central to its consolidation.

The status of animated film during this period resonates with conditions that André Gaudreault and Philippe Marion see as vital to the establishment of a medium's identity. Rather than seeing a single event or invention as establishing a medium, Gaudreault and Marion propose a dynamic model of media formation that follows a "gradated process" of "appearance, emergence and constitution."[11] In a sense, while animation had existed before, the medium of animation became constituted during the mid-1910s. Gaudreault and Marion emphasize two facets of this formation of a media identity. First, there is "a recognition of the 'personality' and often increasingly specific use of the medium" through reception and "a consciousness of its potential for an original, medium-specific expression" through production.[12] Second, this specificity is generated by distinguishing a medium from other forms: "A good understanding of a medium thus derives from its relationship to other media; it is through intermediality, through a concern with the intermedial, that a medium is understood."[13] In many respects, animated film in the latter half of the 1910s was an emergent medium. But certain questions arise. While animated film may have found a new visibility and viability, what was animated film's specific "personality"? And since animated films were so closely entwined with live action cinema and cartoons – evident in their typical designation as "animated cartoons" – had they actually emerged as a distinct medium?

I address these questions by examining how Bray's ideas of animation were figuring a new medium while at the same time negotiating its instability. I then examine how similar ideas were explored within key animated series produced by the Bray Studios. The sheer number of animated films produced from 1914 to 1920, with over two hundred made at the Bray Studios

alone, precludes any large-scale claims about animation during this time. However, the close examination of Bray's ideas and the ways they were reflected and refracted within films themselves can help illuminate the expressions and potentials of animation in this febrile period of its history.

Envisioning Animation

In the first of his patents (#1,107,193), granted in 1914, Bray presented animated film as a synthesis of imagination and natural movement. The patent explains that "animated cartoons differ from the ordinary moving pictures" because "drawings may be made from imagination rather than from life."[14] Going on to note how this can lead to the representation of movements "impossible in reality" or "made extremely amusing and entertaining," Bray indicates that the quality of imagination is a basis for animated film's specificity. This is then entwined with a different implication in the following paragraph: "the object appearing in the picture on the screen will seem to move about from place to place and assume various expressions and positions in a natural and characteristic manner."[15] For Bray, the aesthetic of animated film was rooted in two fundamental qualities: drawings taken from imagination and "natural and characteristic" movement. In an article shortly after the patent was granted, describing "the qualifications demanded in making animated cartoons," Bray explained that "one must possess imagination combined with an exact knowledge of motion."[16]

In *How Animated Cartoons Are Made* (1919), the animator Wallace Carlson serves as a guide to the Bray Studios. After a light-hearted demonstration of several stages of the animating process – including editing the scenario, drawing the individual images and photographing the

drawings – he shows Bray a scene from his animated film. In the scene, a policeman who is cuddling his girlfriend on a park bench notices that she doesn't react when a dog bites her leg. The policeman then realizes that she has a wooden leg, exclaiming in a thought balloon: "A hickory limb as I live!" Rather shocked, he runs from her and she pursues him. As the scene unfolds, intercut with live action shots of Carlson laughing at his own film, we see a live action shot of Bray who is visibly unsatisfied with the film. Bray turns on the light in the screening room and explains, "A woman with a wooden leg doesn't run that way." He then demonstrates a running motion, and sends Carlson off to fix the film. Bray's approach to animation as natural movement coupled with imaginative drawing becomes the subject of knowing self-parody, with his attention to accurate details of movement applied in a somewhat absurd manner to the unrealistic scene. But Bray's reaction is nonetheless indicative of his broader idea of animation, highlighting in exaggerated fashion how deeply embedded his approach was in the studio's identity and production practice.

This approach to animation derived partly from its relation to cartoons and live action cinema, distilling particular qualities of imagination and natural movement from these forms and combining them. In an article from 1914, Bray pointed to the vast potential of this: "The animated cartoon marks an epoch in motion pictures as well as in caricaturing.... Its possibilities are as yet undreamed of."[17] Bray conceived of animation partly in terms of it being an "improved process" from simply "photograph[ing] an object in motion."[18] The notion that film can be used to project the imaginative quality of the drawn image can be seen as an example of what Jay David Bolter and Richard Grusin characterize as "remediation".[19] Bolter writes, "A remediating media form always depends on the authenticity of an older (or other) form and at the same time claims to surpass it (with something 'new'). In addition to plot and character, formal elements

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are borrowed and refashioned."[20] One important implication of this is that "remediation is also a cultural theory, because the designer or producer who remediates is trying to appropriate the cultural (and economic) significance of the older form by refashioning its elements."[21] This wider cultural significance was evident in animated film's immersion within the frameworks of live action cinema and cartoons in ways that had little to do with the specific aesthetic potentials of imagination and natural movement. For example, Bray's ideas on animated film's place in the cinema programme was described in one account: "the hand drawn illustrations, comic and otherwise, will eventually take the same place in the moving picture field that it has in the newspapers and magazines."[22] At the same time, films produced at the Bray studios were situated in narrative forms associated with live action film, with *Col. Heeza Liar's Waterloo* (1916) discussed in such terms: "A new departure is the evident attempt to follow the construction and presentation of the usual comedy picture, that is, in the cutting and arranging of scenes, and the construction is very effective."[23] Bray described the importance of narrative in animated film: "The man who is valuable in my studio is the one who has the technique of the cartoonist and the dramatic sense of the stage director... His sense of the dramatic must be as finely developed as that of the man who directs a Paramount feature play so that his fantastic actors may be convincing."[24] Such emphases on animated film's intermediality were an important feature of how the Bray Studios situated animated film, drawing upon the more well-established forms of cartoons and live action film.

As well as developing from qualities of imagination and natural movement or situated within existing media frameworks, animated film was entwined with industry and art. The new processes of production introduced by Bray used assembly line practices. For example, the camera operator was seen as crucial to the production of animation films, using "the schedule

which the animator keeps as he works – and which looks as long and complicated as a railway time-table" in order to "figure out how all these parts of picture are to be fitted together to be photographed."[25] This task was described "as important as the cartoonist's."[26] On the other hand, Bray situated this mode of production within the context of art. After establishing a distribution deal with Paramount, he explained, "Paramount Pictures have done more to raise the standard of film production than anything else... I resolved to find a place in the Paramount program for my new school of art."[27] The coupling of artistic and industrial practices was, as Mark Langer describes, "consistent with the ideology of the age. It was a period that mythologized the work of inventors such as Edison, Marconi, Ford, and Goodyear into a belief in the congruity of personal enterprise, art, science, and commerce."[28] Entwining art with industry, Bray was a pivotal force in redefining animation.

The multifaceted vision of animation offered by Bray relates to key features of Jacques Rancière's approach to the ways in which a medium can be understood. In terms of cinema, Rancière writes, "The 'medium' of cinematic art cannot be identified with the instrumental paraphernalia that captures movements, gathers and projects moving images. A medium is neither a basis, nor an instrument, nor a specific material. It is the perceptible milieu of their coexistence."[29] Bray had put forth a "perceptible milieu" in which animation was not simply one thing, but rather a combination of expressive possibilities, intermedial extensions and industrial art. While other studios, animators and commentators were discussing similar ideas at the time, Bray's elaboration of a nexus of elements that constituted animation's identity was a particularly prominent articulation of its form.

This vision of animation was evident in articles on Bray's career. An early account described how "Mr. Bray had won his spurs as a cartoonist long before he dreamed of giving his

figures animation and causing them to move across the screen."[30] The article goes on to note how Bray's work as an animator combined "his art" as a cartoonist with film's "technicalities of photography."[31] Understanding motion was crucial to this move into animated films, with Bray apparently "studying the movements of animals" at the Bronx Zoo so "that his drawings might be natural."[32] But rather than simply copying from real life, the effective depiction of motion also requires imagination. Bray is quoted as describing this: "when it comes to giving the idea exact expression on paper we find how hazy our knowledge of motion really is. In preparing an animated cartoon an artist must depend largely upon his imagination, for, of course, there cannot be a model for each movement."[33] In articles such as these, Bray was typically quoted and discussed in terms of an approach to animation that coupled natural movement with imagination, cartoons with films, and art with technology. These concerns and ideas were central to the discourse circulating around the Bray Studios. Turning now to examine how this sense of animation was evident within the Bobby Bumps series, I aim to draw out how Bray's ideas were used and refashioned within a key animated production of the Bray Studios.

The Aesthetics of Bobby Bumps

The Bobby Bumps series, animated by Earl Hurd, engaged with Bray's multifaceted ideas of animation. With more than 30 films produced at the Bray Studios from 1916 to 1919, Bobby Bumps was a major series in the studio's output, with Bray characterizing it as "one of the best liked and best drawn cartoons in the entire profession."[34] Focusing on a rambunctious young boy, Bobby Bumps, the films typically presented a series of humorous situations that were a result of his playful schemes and general unruliness. *Bobby Bumps and His Goatmobile* (1916), is a typical example. The film begins with Bobby having difficulties starting his goatmobile – a

makeshift car with a goat as its engine – but eventually succeeding and rapidly driving off. The film cuts to another boy in the neighbourhood who also has a makeshift car, though he pulls it around like a cart. With a young girl in tow, he rapidly circles the frame and then moves offscreen. Going past Bobby, he begins to circle the frame again but the girl calls out in a speech bubble, "Whoa!" She turns around – shown in a cut-in – admiring Bobby and his goatmobile. The scene cuts back to Bobby, gesturing to the seat next to him. The boy who she was riding with tries to holds on to her, but she goes to join Bobby on his more enticing mode of transportation. As the film goes on, Bobby takes her for a ride, encountering various characters as they recklessly whiz through a semi-rural environment. After further events involving Bobby's rival and a local policeman, Bobby and the girl are caught and their adventure comes to an end. The film concludes with Bobby's rival sitting on top of a roof with a telescope, peeping into the homes of Bobby and the girl and watching them being punished.

The film draws upon familiar live action subjects from the time, showing a love triangle, the enticements of modernity (the goatmobile), and a moralistic ending. It also uses codes of editing: cut-ins to display subtle gestures of performance and narratively significant items; crosscutting to create tension; glances and movements to link separate spaces; gazes to signify point of view and character desire. By using such established elements of film form, *Bobby Bumps and His Goatmobile* is situated within a cinematic framework. At the same time, the film extends the cartoon form, highlighting the marvels of animated motion. This includes the main action of the various modes of transportation, but also the ways in which they are shown: crossing frames, moving into the depth of the frame, rapidly circling within the frame. The impact of movement is highlighted in situations where an initial immobility is overcome through tropes of imagination or fantasy: when the Goatmobile is temporarily stuck, the girl imagines

Bobby's rival's car circling within a thought balloon; the ghost of a pig who is accidentally run over by the goatmobile is shown rising out of its body; Bobby's rival is frozen by the girl's icy stare before breaking free. These different emphases are central to the film, which oscillates between framing its animation within cinematic codes and materializing imaginative potentials of animated movement.

Turning conventions in the visual language of cartoons into instances of motion, other films in the Bobby Bumps series embellished cartoon stasis. For example, the series elaborated on the longstanding trope of showing a character's gaze by a line of dashes connecting their eye with the object of their attention. While sometimes used as a way to show where a character was looking, this also became an opportunity for a more formal play of animatedness. In *Bobby Bumps Gets the Flea-Enza* (1919), Bobby's dog gazes upwards and this culminates in a question mark which distracts his curious nemesis, the family cat; in *Bobby Bumps Starts for School* (1917), Bobby's listless gaze materializes his animated daydream of playing baseball; in *Bobby Bumps' Fight* (1918), a tough guy withers a flower with a glance. In each of these examples, the animated gaze is no longer merely a functional guide to where a character is looking. Instead, it projects animated thoughts or effects. Similarly investing static cartoon tropes with movement and vitality, in several films a mouse would appear who would sign the animator's name, Earl Hurd, within the frame, embellishing the standard visual trope of the artist's signature appearing in the corner of a cartoon panel. Sometimes part of a scene framed with an iris, self-consciously evoking a static image like a tableau or an emblematic illustration, the mouse's signing of the artist's name would become a final flourish of liveliness, drawn into the frame through animation. Revivifying tropes of the cartoon for an animate world, the series playfully extended its relation to cartoons.

The series also drew attention to cinematic qualities. As well as using conventions of narrative film, the series would evoke a cinematic perception through its representations of the natural world in motion. At the start of *Bobby Bumps and His Goatmobile*, immediately after the goatmobile has started up and run out of frame, the scene lingers briefly to depict the dust kicked up in the air, emphasising not only the rapid movement of the goatmobile but also the moving image of a dust cloud. The depiction of water, snow, smoke, dust and other substances in movement was a recurring spectacle in the Bobby Bumps series. *Bobby Bumps Surf Rider* (1917), for instance, places particular emphasis on the visual spectacle of the rippling water of the waves that Bobby surfs on (with an ironing board). While cel animations tended to use stable backgrounds, "as immovable as the Rock of Gibraltar" and "the basis of the economy in these animated non-photograph pictures" in one description, the series demonstrated a fascination with showing the visual fluidity of the material world in motion.[35] An article focusing on how "every little movement has a meaning of its own" in animated film describes the range and complexity of such images: "Tumbling objects, pyrotechnique effects, falling and splashing water, volatile smoke and cloudy forms, all must be studies – not in easily sketched graphic forms, but in all phases of motion. It is a study of motion that keeps the 'animator artist' busy..."[36] The Bobby Bumps series displayed the motion of the natural world as a visual spectacle and subject of fascination, drawing attention to representational and cinematic qualities of animation.

As well as using elements of cartoons and live action film as a basis for animated form, films in the series visualized a motive force of animation in ways that resonated with Bray's approach to animated film's industrialized mode of production. A well-established trope within animated films had been to show the hand of the artist drawing a character, who would then become animate. This became increasingly rare. An early account described this with evident

relief: "The Bray films do not consist of merely inanimate dead pictures, or the photograph of an artist's hand, drawing an inanimate picture, where the only motion is on the part of the artist's hand, but one from the start to finish, moving drawings."[37] With the fading of the artist's hand, other strategies were used to motivate the animation. This included framing the more vivid animation within a dream or extravagant story, a central conceit of the Colonel Heeza Liar series. Another strategy was to draw attention to the artist not within animated films themselves but rather through the discourse circulating around them, with cartoonists celebrated in articles and advertisements. But even here, the tie to the hand of the artist would be loosened – a recurring trope was that the characters themselves created the films. In one account, Bud Fisher explained: "Having created Mutt and Jeff doesn't mean that I control their destinies – not by a long shot. They control their own destinies pretty well…. All I have to do is to give them some scenery and they supply the action."[38] This was the premise for *A Fisherless Cartoon* (1918) which, according to a studio notice, "recites in pen-and-ink drawings the efforts of the genial Mutt and Jeff to make a cartoon without the aid of their creator, Bud Fisher."[39] Such formulations shifted the focus from a creator to a character or to a self-contained animate life within a film.

These various approaches to showing or implying animation's motive force were partly evident within the Bobby Bumps series. The hand of the artist appeared in title cards and within some films of the series, although this was relatively uncommon. Framing narratives were similarly rare, although used to curious effect in films such as *Bobby Bumps Caught in the Jamb* (1918) where Bobby's dog Fido recounts his conflict with the family cat and *Bobby Bumps at the Dentist* (1918) where Fido has a hallucinatory dream under the effects of anaesthesia. Typically, though, Bobby would motivate the animate life of these films through his creations and schemes. Crafton describes the change in animated films during this period, where "drawings seem to take

on an independent life of their own," as figuratively implying the presence of the animator within characters "who became agents of his will and ideas."[40] Bobby can be seen to participate in such a renegotiation of animate force, becoming a counterpart to an animator as he sets in motion various ideas and projects that lead to extraordinary images of movement.
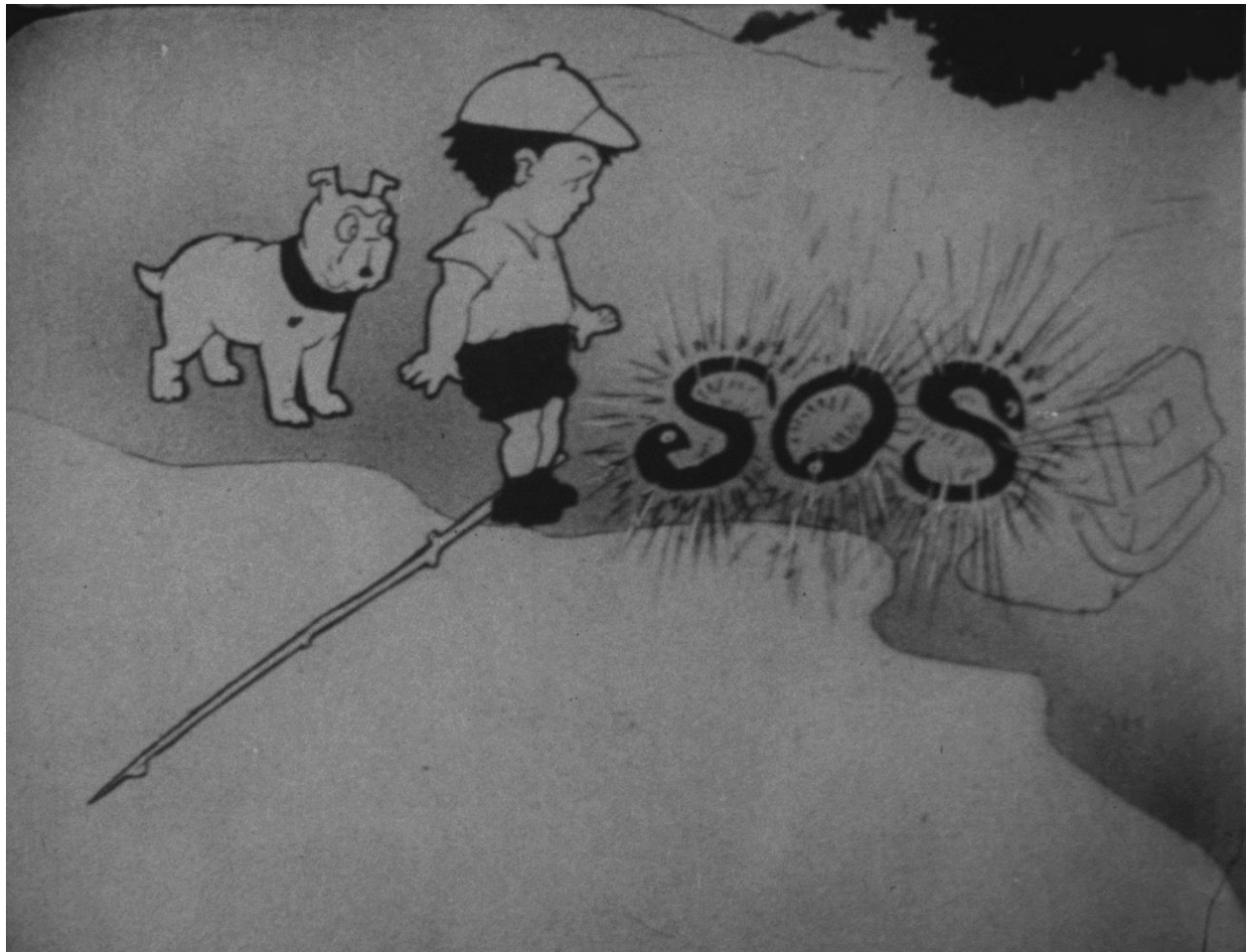

Figure 1: *Bobby Bumps' Eel-lectric Launch* (1919)

Bobby Bumps' Eel-lectric Launch (1919) develops this sense of animation. The film begins with Bobby, Fido and Bobby's father (Pa) on a fishing expedition in a boat, which drifts slowly in the water and then comes to a halt. Concerned about the lack of movement, Bobby and Fido look to Pa who then takes out a battery from the back of the boat. He shakes it, listens to it, takes off the lid, looks in, and then says, "It's dead." But it will come alive later in the film. After

Bobby and Pa have gone to shore to fish, Bobby hatches a plan: Fido dives into the water and waits for fish to appear, which he then leads to Bobby's hook. After helping Bobby land fish after fish, Fido encounters three wriggling eels underwater, with their movements described in an intertitle: "The Shimmy". The eels pursue Fido to the shore, and he leaps out of the water. "Snakes! Take 'Em Away," Fido exclaims as the eels – now on land – spell out SOS with lines of electricity shooting out from their bodies [Figure 1]. Bobby explains, "Them's not snakes, Fido. Them's 'lectric eels. That's what makes the current so strong around here." Bobby gathers them in his arms and places them in his fishing bag. Soon after, following a series of adventures with a sea horse, Fido and Pa end up in the water, with Pa pursued by a shark. Eventually finding himself riding the shark, Pa cries desperately for help. Bobby comes to the rescue, placing the eels in the empty battery case and powering the boat with their electricity, "An eel-lectric battery" the intertitle explains. In the boat, Bobby chases the shark, with Pa still on its back, circling the frame rapidly; eventually pulling alongside the shark, Pa jumps off and lands in the boat. Safely ashore, with the adventure over, Pa thanks Bobby and goes to shake hands with Fido who quickly turns, opens the battery case and sticks an electric eel in Pa's hand. The electric charge shoots out of the eel and Pa is briefly electrified before flinging the eel to the ground.

Kristen Whissel describes one formulation of electricity at the start of the 20th century as "a dematerialized and disembodied form of power that seemed omnipotent, omnipresent and potentially limitless in its extension and universal in its application."[41] In a similar way, the electric power of the eels is an animating force, charging the battery and energizing the film. Bobby and Fido use this energy to animate the world around them. The eels themselves are also an animate force, with their simple figuration allowing them to take on new shapes and move in fluid ways: swimming, wriggling, shimmying, shocking and transforming. At the end of the film,

we see the three eels against a blank background, forming a circle that fills most of the frame; in a strange and abstract scene, they devour one another and transform into a tiny black dot. While the electric power of the eels is harnessed by Bobby, other extraordinary depictions of movement in the series would be shown as outside of his control. In *Bobby Bumps' Fourth* (1917), for example, fireworks become an animating force: emitting smoke and sparks, flying erratically, taking on different forms, propelling characters, shooting up into the sky, and used like a pen to sign Earl Hurd's name in the final tableau. The fireworks function as an explosive potential of movement, taking on an animate life of their own.

The display of a motive force of industrial or technological power was central to other films in the series, with Bobby playing a role more akin to a mechanic or engineer than an animator. *Bobby Bumps and His Goatmobile*, for instance, begins with an image of a goat standing upon a treadmill that is attached to a small car. Bobby enters the scene, turns to the goat and winds its tail, trying to start up his goatmobile. With no result, he briefly faces us pensively, and then returns to his task more vigorously. The goat kicks up its hind legs, knocking Bobby's hat up in the air, but the goatmobile does not start up. Bobby comes up with an idea. He brings out a gas canister and a funnel, and then pours gasoline down the goat's throat. The goatmobile still not working, Bobby feeds a can of food to the goat, who happily swallows it whole and begins to run. A brief description of the film in *Motography* highlights how the goatmobile gives movement to the film: "The story concerns Bobby Bumps, who starts out in his goatmobile propelled by a goat operating a treadmill."[42] In some respects, the film itself is propelled by this vehicle, providing the motivation for its situations and its vivid instances of animation, from the dust kicked up as the goatmobile runs off to the rapidly changing scenery as Bobby rides through the countryside. The automated goatmobile gives vitality to a world that was mostly inert before

it began running, much like the electric battery charge of the eels in *Bobby Bumps' Eel-lectric Launch*.

The series presented a range of similarly imaginary machines as central to the liveliness of the animated onscreen world, such as a mechanical fish in *Bobby Bumps Goes Fishing* (1916), a homemade tank in *Bobby Bumps' Tank* (1917) and an automated snowball cannon in *Bobby Bumps' Disappearing Gun* (1918). Evoking resonant themes of modern technologies, labour and militarization, these films playfully and reflexively envisage machines of animation. Rather than linking animation's motive force to an artist, narrative or character, associated with cartoons and live action cinema, the series showed self-generating powers, new technologies and machines of movement that drive the animation. This was one way in which the films themselves emblematically displayed and reflected on how animation's new industrialized mode of production was itself a basis for animation.

These instances of animation bridge distinctions that have been drawn between animation's artistic possibilities and its production. Bukatman describes how "[a]nimation as an idea speaks to life, autonomy, movement, freedom, while animation as a mode of production speaks to division of labour, precision of control, abundances of preplanning, the preclusion of the random."[43] Films in the Bobby Bumps series combine these two aspects, reflexively displaying extraordinary animation coming from an industrial or machinelike basis. The "possibility of enlivening – indeed, animating – the mechanical" that Tom Gunning describes as following from the "technical process of cinematic motion" is figured within these films, displaying machines of animation that help make the world come alive.[44] In a discussion of cinema's status as a form of art in the 1910s and 1920s, Rancière describes the merging of "the inventions of art" and "the automatism of the machine" in the reception of Charlie Chaplin's

films.[45] Rancière writes that, at the time, "For the art of the camera to be recognized as art, the frontier between the artistic and the mechanical had to disappear."[46] Much like Bray's considerations of animation as both an industrialized mode of production and a "school of art," such ideas informed new ways of understanding artistic form; animated films in the Bobby Bumps series participated in such a context by figuratively projecting their industrial mode of production as a creative force. This was a vitalizing quality in these films, along with their engagement with the aesthetics of imagination and natural movement, and their intermedial connections to cartoons and live action cinema. In these ways, the series offered a multifaceted picture of animation's identity in ways that resonated with Bray's vision of the form.

Intensified Intermediality

In the first of his patents, as noted earlier, Bray suggested that imagination and natural movement provide a basis for animated film. These two elements offered avenues for novel uses of animation at the Bray Studios. As early as 1914, Bray was reportedly envisioning how the quality of imagination could be extended in animated films: "Mr. Bray will not confine himself to the production of funny cartoons, but will eventually produce hand drawn moving illustrations of all the classics of literature which cannot be successfully acted in the usual way, such as fairy tales, fables, etc."[47] In the same article, Bray was reported to be planning the development of animation in the direction of more realistic forms of representation: "He will also go into scientific educational work, covering the fields impossible of being photographed in the usual manner."[48] While the Bobby Bumps series did not follow this division of animation's potentials, two other animated series at the Bray studios would develop along these different routes.

Figure 2: Advertisement in *The Moving Picture World*, January 22, 1916, page 528.

The Bray-Gilbert Silhouette Fantasies were the realization of Bray's plans for animated

fantasy films [Figure 2]. The series offered a new type of film where live action silhouettes

would be combined with animated drawings. Despite being a short-lived series, beginning with

Inbad the Sailor (1916) and lasting only a year, it was seen at the time as having considerable

potential: a new studio was established to film the live action elements and a patent was

registered for its production processes. The series was framed in reviews and advertisements in

terms of its imaginative qualities; its associations with live action cinema and its depictions of

movement were seen largely through an optic of fantasy. An article in *Motography*, for example,

describes the implications of the series: "The impossible has come to pass. Fantasy has come into

its own. Silhouettes need stop at nothing. When a remarkable transformation or feat of strength

must take place along comes the artist and draws it. Then the actors take up the work again and

all is well."[49] Accounts emphasised the possibilities of this new form, describing how it "has

opened a wide field."[50] This was partly due to its immersion within the framework of visual art,

with its producer Charles Allan Gilbert's prominence as an artist and illustrator lending the form

artistic credibility. As one account explained, "It is usually an outsider who contributes

something new and original to an art or science.... In this case it is C. Allan Gilbert..."[51] This

intermediality extended to advertisements, which hailed the form as "a living illustration" and "a

type of moving picture made entirely by Artists."[52] Rather than engaging with Bray's more

multifaceted idea of animation, the series was embedded in imagination, illustration and artistry.

The other avenue of animation that Bray had planned – its use in scientific and

educational work – was also realized during this period. A series of animated films, first

produced by J. F. Leventhal, used animation for the purposes of instruction. These films showed

the animated inner workings of various machines, technologies and scientific devices by

depicting cutaway diagrams and other means of visual representation.[53] Much like the Silhouette

Fantasies, these films were described in terms of opening "a great new field."[54] But rather than

offering artistic and imaginative potentials, animation in these films was used for military and

industrial purposes as "a medium of thought transference and actual instruction"[55]. The ability to reveal unseen perspectives was central to these films, as in *The Submarine Mine-Layer* (1917) which "showed not only the boat in action under water, but sectional view[s] explaining the internal arrangement and operation."[56] The form also allowed for new ways of representing temporality: "Time has no limitations. Operations that may have required years to carry on can be shown in a few seconds. Motions that occur in the fraction of a second can be lengthened so that they can be studied and understood."[57] Advertisements described such films as "representing all forms of the unseen, invisible, intangible and indescribable for purposes of explanation"[58] and a means by which the "unphotographable is translated to the screen."[59] These extraordinary potentials of animated film were framed not only as extensions of live action cinema, but as opening up entirely new perspectives, "rush[ing] in where the motion picture camera not only fears to tread, but where it couldn't get if it wanted to."[60]
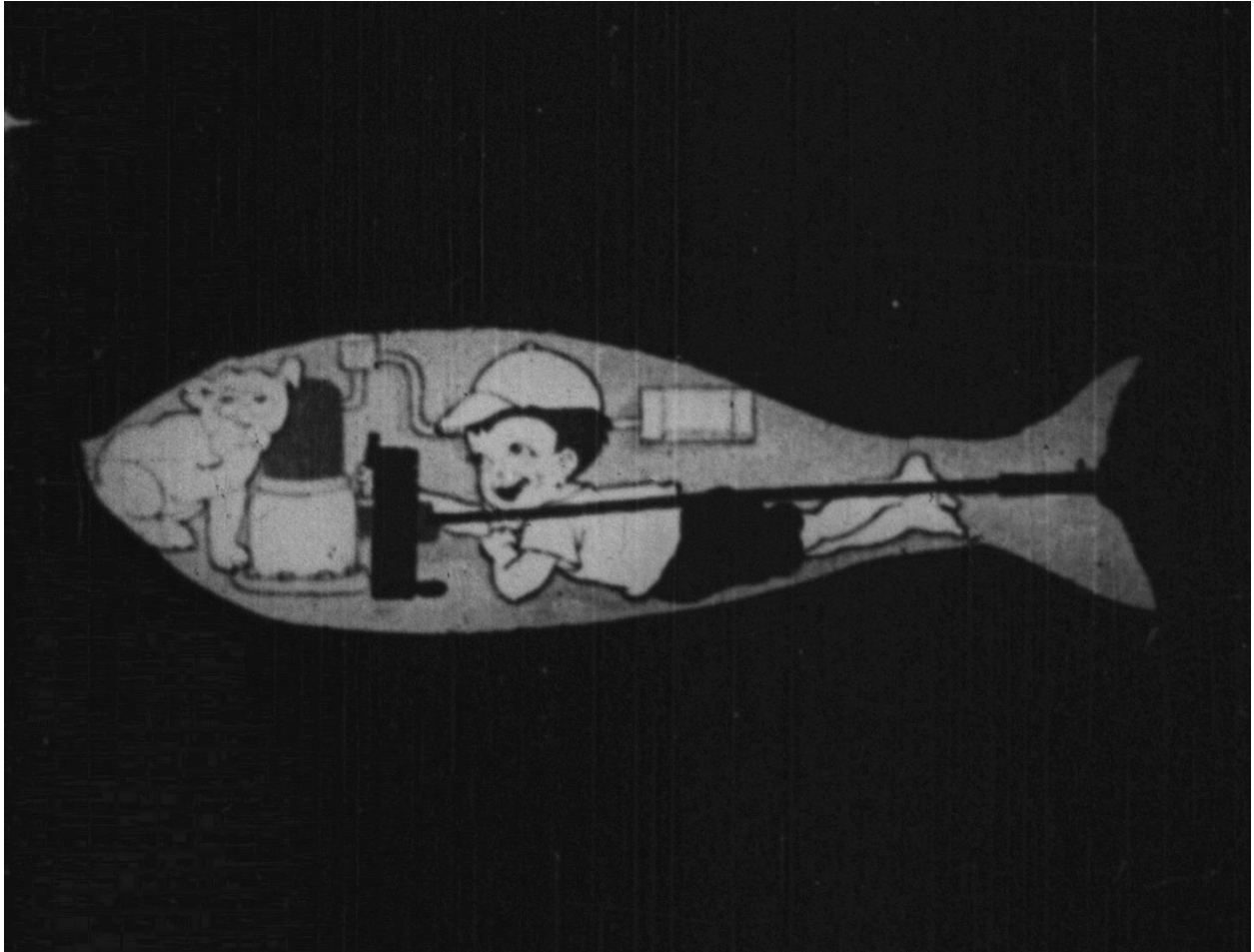
Figure 3: *Bobby Bumps Goes Fishing* (1916)

Using tropes borrowed from the instructional film to schematically represent a hidden

dynamics of movement, some of the Bobby Bumps films playfully visualize the hidden workings

of machines and technologies. *Bobby Bumps' Tank*, for example, shows the interior workings of

a tank that Bobby has constructed in his backyard through a cutaway roughly torn at the edges to

indicate paper that has been ripped open, figuratively tearing back the surface of the image to

reveal hidden processes. Similarly, *Bobby Bumps on the Doughnut Trail* (1918) and *Bobby

Bumps Goes Fishing* [Figure 3] show cutaways and cross sections to reveal the animate forces

within moving objects. This interplay between Bobby Bumps and the instructional films was

perhaps indicative of the prominence that the studio placed on this sort of film – it would become

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the focus of the Bray Studios production in the 1920s. During the mid-1910s, though, the instructional films were not typical examples of the Bray Studio's output, which focused on animated cartoons like the Bobby Bumps series. Nevertheless, this kind of animated film indicates how Bray's ideas could develop along intermedial directions toward live action film by using animation as an extension of cinematic perception. On the other hand, the Bray-Gilbert Silhouette films moved in a distinctly different direction, highlighting animation's capacity as a form of imaginative illustration. Taken together, these two types of animation set out new directions for animation that bifurcate its aesthetic, expressive and intermedial potentials.

Conclusion

In the different examples of animated films at the Bray Studio that I have discussed, animation does not take on a unified form. There are instances, both fleeting and substantial, where it is closely linked to cartoons or illustrations, and further tied to the creativity of an artist or cartoonist. There are also instances where it is shown as a highly industrial or technologically determined product, sometimes evoking the appeals of cinema's representational and narrative form. There are also instances where animation exceeds these boundaries, showing itself to go beyond previous forms, to bridge seemingly distinct categories or to open up new perspectives. Bray's own ideas of animation reflected a similar multiplicity, mixing together different implications and potentials of the form. Despite becoming increasingly standardized and institutionalized, animation's identity was still open to divergent paths in some of its most prominent formations

One implication of this diversity is that animation was reliant on other forms as it did not yet have its "own way of re-presenting, expressing and communicating the world."[61] Gaudreault and Marion describe a "fusion phase" before a medium "unfolds along the path of its singularity," where it is still "content to bind with other elements of the chain of socially practised media and genres."[62] In some respects, the series produced by the Bray Studios discussed in this article are bound to the forms of live action cinema and cartoons, suggesting that animation was an unfixed media form that had yet to find its identity. But another way of seeing it is that animation drew energy from these media forms without becoming contained or absorbed by them. Sarah Street and Joshua Yumibe describe their use of intermediality in terms of "seeing links between media as productive, symbiotic, and generally vitalizing, rather than constituting lack or conflict."[63] Bray's evident fascination with animation's potential to follow different paths and the multiple ways in which films at the Bray Studios developed new trajectories for animation evoke a similarly energizing sense. Rather than being subsumed by a relation to other media, investing movement or imagination in pre-existing forms could be transformative, opening up new perspectives that could make immobility mobile or reality unreal. And sometimes this could extend properties that were already present in these other forms; it is not as if imagination was lacking in cinema or movement was absent from cartoons.[64] Seen in this light, rather than a barrier to animation's identity, intermediality was a means for its expression.

Bray participated in a consolidation of animated film that had a double meaning. On one hand, he was pivotal in the establishment of a technological and commercially viable basis for animated film. On the other hand, his approach to animation consolidated different ideas and potentials of the form, drawing together art and industry, motion pictures and cartoons, and

imagination and natural movement. Relying upon established social practices and artistic forms helped give animation a certain cultural credibility. In many respects, it offered an extension of values, appeals and frameworks that were familiar at the time. But animation was culturally incredible as well, revealing new potentials from what had come before by merging forms or developing novel aesthetic expressions.

The shifting forms of animation can be seen as a result of how its distinctiveness was not framed in terms of a particular material basis or expressive aim; instead, less tangible qualities of imagination and natural movement were central to the ways it was understood and used. Gunning describes the "mercurial, protean, indeed *mobile* nature of cinematic motion."[65] While referring to a wider field than just animation, this characterization of cinematic movement resonates with the range of ways in which motion was used in the films discussed in this article. Movement takes on shifting forms partly through its interrelation with certain ideas of imagination, natural movement, cartoons or cinema. But movement also springs from the diverse subjects that are animated or that offer a motive force. Ranging from the unseen workings of machinery to the power of electricity, from the fluidity of illustrated imagination to the marvels of contemporary technology, from the natural world to the fantastic, animated movement does not align itself with a single path. In a similar manner, writing in 1919, the animator Bert Green described the skills required of an animator with an emphasis on variegated types of motion:

> In conclusion, an animated cartoonist must be able to talk English, Irish and Swedish, must know the Ten Commandments, the law of gravitation, locomotion and its uses, mind over matter, psychology and its action on cheese, the rules of the road, "cohesion" and its lifting capacity, navigation, a strong believer in Darwin, the art of tuning a bass violin, the internal combustion engine and its use in the home, how to fry an egg, many innumerable things touched upon so lightly by our famous men and, above all, the animated cartoonist must have a one-track mind.[66]

Filled with references to different manifestations of movement – including scientific ideas, technological developments and daily activities – Green playfully suggests animation's multiplicity. Bray's ideas of animation and the ways they circulated through a range of films suggest that a similar variability of form was fundamental to animation's identity during this formative time in its history.

Acknowledgements

Biographical Note

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