

Animating Science and Technology: From Little Tadpoles to the Space Monkey (1950s–1980s)

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Why does a school of tadpoles keep mistaking other water creatures for their mama? Why does a cuckoo arrive late to remind farmers it is time to sow their seed grain? What makes the arrogant Monkey King admit his incompetence? These questions are beyond the moral lessons provided in animated films adapted from fables, folk tales, and classical Chinese stories; instead, they are answered in scientific animations (*kexue donghua*), which provide children with both moral and scientific instruction. With the advantage of conveying a message in a simple, linear, and easily understandable manner to children, Chinese animation from the 1950s to early 1980s was a propaganda tool geared toward serving the new socialist order, promoting the construction of a new China, and educating young Communist successors of the future. During that period, Chinese scientific animation played an important role in popularizing scientific knowledge and new technologies, promoting scientific thinking, and responding to the ruling Communist Party's rhetoric about achieving the Four Modernizations by the end of the twentieth century.

This article focuses on Chinese scientific animated films produced from 1957 to 1983 by the Shanghai Animation Film Studio (hereafter SAFS) in order to shed light on the important function of scientific animation as a media tool that contributes to the nation's political, cultural, and scientific development. This article discusses six representative animated scientific short films: *The Little Inventor* (*Xiao faming jia*, 1958), *The Cuckoo Is Late* (*Buguniao jiao chi le*, 1959), *Little Tadpoles Look for Mama* (*Xiao kedou zhao mama*, 1960), *The Hens Move to a New Home* (*Muji banjia*, 1979), *Yuanyuan and the Robot* (*Yuanyuan he jiqi ren*, 1980), and *Dingding Fights the Monkey King* (*Dingding zhan houwang*, 1980). My reading of these six films reveals both continuities of aesthetic expressions and subtle propaganda, along with changes of narrative strategies and thematic concerns that Chinese scientific animation underwent from the late 1950s to early 1980s. Produced at various junctures in the history of Chinese animation, these works differ drastically in their approach to the power of science and technology as well as the relations between characterization and science and technology. We can detect a trend in how protagonists from the early films actively solved problems, while characters from films made during the early Reform Era blissfully consume modern goods. In addition, scientific animation films of the 1950s and 1960s were usually set in the present day and realistic in orientation, dealing with familiar sciences and applied technologies. In contrast, scientific animation films made during the early Reform Era focused more on future possibilities, introducing the viewer to elements of science fiction and futurism. These changes reveal the tension between an approach to science that reflects present-day developments and a vision of science that imagines the future. I argue that this tension has a lot to do with the Communist Party's changing rhetoric from building a socialist "New China" during the 1950s and 1960s to looking forward to eventually achieving the Four Modernizations during the Post-Mao thaw. This tension is also caused by the close connection in China between scientific animation on the one hand and scientific literature

and art on the other. My analysis demonstrates that scientific animation has resonated with the development of Chinese scientific literature and arts, especially science fiction, in the People's Republic of China (hereafter PRC).

During the period from 1957 to 1983, Chinese animation witnessed its two golden eras (1957-1965 and 1976-1983), featuring considerable aesthetic experimentation and unique national characteristics. These two golden eras overlap with the two booms that Chinese science fiction experienced in the 1950s and the post-Mao cultural thaw from the late 1970s to the early 1980s. The SAFS was founded in 1957. Chinese animation started to develop into a cultural industry beginning in 1983 due to stimulation of the market economy, the popularity of television, imports of foreign animated films, gradual withdrawal of governmental sponsorship, and the injection of foreign capital into Chinese animation projects. In that year, Chinese science fiction (abbreviated as SF) also sank to a low ebb on account of the central government's campaign to "eliminate spiritual pollution," which significantly contributed to the decline in the production of scientific animation.

Popularizing Science and Promoting Scientific Thinking: 1950s-1960s

With Te Wei (1915–2010) as the president of SAFS until 1983, the studio had a talented production team composed of three generations of animators. The Chinese animators combined motion picture with such traditional Chinese visual art forms as puppet plays, ink painting, paper-cutting, shadow plays, paper-folding, and Peking Opera. They also experimented with various raw materials, and adapted stories from traditional Chinese literature, folk tales, and proverbs. During this period, Chinese animation received central government subsidies within the planned economy. Some 300 to 400 minutes of animation came out yearly, and enjoyed a guaranteed distribution network through the China Film Corporation. In addition, government censors relaxed some of their controls on animators' artistic and technical experimentation, and some high-rank national leaders expressed a strong interest in animation.¹ All of these factors contributed to Chinese animation's high tide of uniquely Chinese characteristics and aesthetic achievement. Scientific animated films were produced in this very favorable atmosphere, and had much in common with general animated films in terms of artistic expression and ethical commentary.

Chinese animated films were intended to entertain and educate a youthful audience. This orientation was in part a political choice, and in part due to the legacy of early Chinese animation and Disney's influence on it since the 1930s. As early as the 1930s, the Wan Brothers started to emphasize the educational function of children's animated films and promoted the idea of animation as a pedagogical medium. They created animations based on Aesop's didactic fables such as in *Tortoise and Rabbit Run a Footrace* (*Guitu saipao*, 1932), *Sudden Catastrophe* (*Fei lai huo*, 1934), and *Locusts and Ants* (*Huangchong yu*

¹ Lent and Xu, "Chinese Animation Film: From Experimentation to Digitalization," pp. 111–126. For the history of Chinese animation, also see Sean Macdonald, *Animation in China: History, Aesthetics, Media*.

mayi, 1932).² They also realized that American, German and Russian cartoons all bore the character of their own culture, and argued that Chinese animation should utilize narratives based wholly upon genuine Chinese traditions and stories, and be in accord with a Chinese sensibility and a Chinese sense of humor. The films should also bring pleasure, and simultaneously stimulate learning.³

Educating schoolchildren in the PRC was long considered of vital importance to the creation of a new socialist society. The veteran animator Zhan Tong recalls: “We produced films that followed existing PRC policies aimed at serving children. . . . There were some animation films for grown-ups, but very few.”⁴ The values advocated in animated films resembled those found in children’s literature, films, and comic strips. Educating the younger generations became an even higher priority after Mao Zedong declared in 1957 that youth resembled the morning sun, and the future belonged to young people. Mao also emphasized that children’s education should focus on the three areas of moral education, scientific education, and physical education. Educators were supposed to help transform young people into “workers with both knowledge and a socialist consciousness.”⁵ Therefore, equipping the younger generation with a basic knowledge of modern science and technology became a major part of the country’s educational agenda. Responding to Mao’s rhetoric, Chinese animators felt the need to include scientific themes in their animated films, thereby fostering young people’s curiosity and enthusiasm about science and technology.

Scientific animated films for children first made their appearance in the late 1950s with such short films as *The Little Inventor*, *The Cuckoo Is Late*, and *Little Tadpoles Look for Mama*. These early thematic concerns revolved around the introduction of scientific knowledge and new technologies, as well as the promotion of scientific thought.

The Little Inventor is a puppet-based animated film that was released in 1958. The film recounts how Young Lin, her younger brother Young Mu, and their classmates have to spend a long time walking to and from school every day because their homes in the South Mountain and the school in the North Mountain are separated by a deep valley. When the students complain about this to their teacher Elephant, he encourages the students to

² In addition to didacticism, another reason for adapting Aesop’s fables was that these fables are very short, and could be easily made into commercial short films of about seven minutes in length. Moreover, the Wan Brothers also followed the Western animation practice of adapting Aesop’s fables at that time because these fables were already familiar to the audience, and thus could be easily understood and appreciated by viewers of various cultural backgrounds.

³ Lent and Xu, “Chinese Animation Film: From Experimentation to Digitalization,” p. 114.

⁴ Zhan Tong said these words when he was interviewed by John A. Lent in Shanghai on August 15, 1993. See Lent and Xu, “Chinese Animation Film: From Experimentation to Digitalization,” p. 118. I made some sentence level revisions to the quotes based on Lent’s translation.

⁵ Zhao Yao, “Peiyang shehui zhuyi xinren yu dang de jiaoyu fangzhen de lishi tansuo,” *Qianxian* 2003, no.11, < <http://www.bjqx.org.cn/qxweb/n3448c177.aspx> >, accessed Feb. 17, 2017.

“think carefully about a problem so that they can figure out a solution to it” (*dong naojin, zhao qiaomen*). Young Lin and her classmates decide to follow their teacher’s advice with much enthusiasm. Young Lin stays up late at night to sketch out the design for a contraption that would convey the students across the valley, and to perform some preliminary experiments. With the help of her classmate Monkey, Young Lin sets up a horizontal rope and pulley system that spans the valley and is powered by a windmill. The students can thus shorten the travel time between home and school by riding in baskets that are suspended by the rope and conveyed across the valley by the windmill-powered pulley. The teacher Elephant praises Young Lin’s device as a fine scientific design, and encourages the other students to work together with Young Lin to improve the safety of the valley-crossing system. With the help of her classmates and the teacher, Young Lin transforms the rope-pulley system to an automatic conveyer belt, which is much more efficient and safe. From that point on, the students need no longer worry about a lengthy commute between home and school, for the wind-powered automatic conveyor belt helps them cross the valley almost effortlessly.

This film imparts both moral and scientific lessons to its youthful audience. Its protagonists include both humans and animals. Similar to other animal fables such as Aesop’s, the film advocates virtues such as diligence, reciprocity, and teamwork. The Elephant is presented as a model teacher who is supportive and inspiring. The film also presents a contrast between the diligent and responsible sister Young Lin and the lazy and sloppy younger brother Young Mu. Initially, Young Lin is the only student working on the project, though Monkey eventually joins her. As the project enters its final stage, the teacher Elephant mobilizes the entire class to participate in the project. Therefore, it winds up illustrating the benefits of teamwork.

In addition to these moral lessons, the film details the scientific and technical aspects of the project, such as design sketches, experiments, enhancements to safety and efficiency, construction of various components, and the linking together of the components. In this way, young viewers learn about rope-pulley systems, windmill power, and conveyor-belt technology. Most importantly, the film conveys the importance of solving problems with the aid of scientific knowledge and technical adaptations. On the blackboard, the teacher Elephant writes the message of “think carefully about a problem so that you can figure out a solution to it”; he asks the students to explain what this means and how it might be achieved in everyday life. This message is also incorporated into the film’s theme song. Overall, the film achieves the three objectives of transmitting scientific knowledge, promoting scientific thinking, and delivering moral lessons. Young Lin and her classmates’ engineering project also echoes one of the country’s key initiatives of technological innovation (*jishu gexin*) in order to free workers from the most toilsome aspects of manual labor and thereby improve productivity.⁶ This approach was first recommended and implemented in the steel industry, from where it spread to other industries in China through promotion in the media.

⁶ Chen Fei, ed. *Zuixin jiceng gonghui gongzuo quanshu*, p.316.

In addition to the scientific and technological message, the film also conveys other messages. First of all, the protagonist Young Lin is a female student and the only human figure (besides some nameless classmates in the playground) in the film. The rest of the characters are wood puppets (such as Young Lin's younger brother), and anthropomorphic children such as a cat, a monkey, a bird, and a rabbit. It is also noteworthy that no parents appear in the film, and the teacher Elephant is the only adult who gives the children educational guidance. Therefore, Young Lin plays both a domestic role as a surrogate parent to take care of her younger brother and a social role of actively engaging in a large-scale engineering project. This characterization delivers a significant message—women are indispensable in building a socialist New China. It endorses the Communist Party's agenda of raising the social status of Chinese women and mobilizing women to engage in industrial and agricultural production. It also echoes Mao's high-sounding claim that "Women hold half the sky."⁷ The image of women as builders of socialism is also evident in China's propaganda posters from the 1950s through the 1970s.

Though the plot development and characterization of the film aptly comply with the Communist Party's political and ideological initiatives, the setting of the film caters to an audience of children. The film settings include a bedroom, a classroom, a mountain path, and a playground. The main colors used to generate the settings are baby blue and pink. The objects placed in this milieu of children mostly look like toys. For example, the furniture in Young Mu's bedroom seems to be made of toy bricks, and Monkey's bicycle is like a toy. The colors and toy-like objects create a fairy-tale atmosphere, which makes the scientific and ideological messages more accessible to a young audience. In addition, the film gives a realistic depiction of an ordinary day at school for an elementary student, and attempts to promote healthful habits by showcasing the children's daily routines such as brushing teeth and doing morning exercises.

The Cuckoo Is Late is a Chinese-style watercolor animation directed by Qian Jiajun (1916-2011) and released in 1959. The film is adapted from the children's literature author and animator Jin Jin's (1915-1989) story of the same title. In the film, a cuckoo comes to the village every year to remind farmers that it is time to sow the crop fields. However, one year the cuckoo arrives at the usual time and finds no job to do, because the rice seeds have already started to sprout in the fields. After making some inquiries, the cuckoo learns from a scarecrow that the local farmers have adopted the practice of "sow early for an early harvest" so that they can double-crop rice and thereby increase productivity. After hearing this news, the cuckoo cannot help but exclaim how resourceful these farmers are. The cuckoo thereupon decides to change the contents of its birdcall from "cuckoo" to "sow early for an early harvest," and will show up at the village earlier next year.

⁷ Though the historian Hu Songhai claims that Mao officially launched the formulation or slogan that "women hold half the sky" in 1968, historical records show that Mao began referring to women as holding half the sky as early as in 1949; Mao continued to repeat this formulation on various occasions during the 1950s. For more details, see Wang Yiqiu, "Is the Rhetoric about 'Women Holding Half the Sky' a Quotation from Mao Zedong?" <http://marxism.org.cn/blog/u/89/archives/2011/1071.html> (accessed July 30, 2017).

Even though the film echoes the central government's rural policy of double-cropping in the late-1950s Great Leap Forward movement, the film does not make overt reference to this political movement. The only detail relating to the movement is a sign on the wall that reads, "East Wind People's Commune." Though no actual farmers make an appearance in the film, the filmmakers present a happy and prosperous setting of a new socialist countryside. The film opens with colorful butterflies flying through a forest of flowering trees. Then, from the cuckoo's perspective, the camera pans from neat rice paddies and redbrick farmhouses to vegetable greenhouses, orchards, and a wind-power generator. Through the mouth of the scarecrow, the film propagates the early sowing method in detail: the farmers spread plant ash in the paddies to protect the seedlings from the cold, and pump water to the field to protect seedlings from wind. The central scientific message of "sow early for an early harvest" is repeated many times throughout the film by the cuckoo and its baby cuckoos. The film does not impart any overt moral message other than the cuckoo's maternal care for her young and the friendly relations between the cuckoo, the scarecrow, a frog, and some other birds. The film also includes some lively episodes of particular interest to a youthful audience. For example, the frog makes fun of the cuckoo by imitating its song; small birds mock the cuckoo for having been tardy; and a magpie praises the cuckoo's sonorous song.

Little Tadpoles Look for Mama is an animated film famous for its successful experiment of melding traditional Chinese watercolor painting with cinematic visuals. Numerous essays, memoirs, and books have written about various aspects of this film. However, the scientific themes of the film have often been neglected in previous scholarship. This film was adapted from a science-themed fairy tale of the same title by co-authors Fang Huizhen and Sheng Lude. The original story is less well known than its later cinematic adaptation. Based on the Chinese painter Qi Baishi's paintings, director Te Wei (1915-2010) and his associate directors Qian Jiajun and Tang Cheng "revitalized traditional [Chinese] aesthetics in innovative ways" by "successfully fusing classical painting techniques with animated motion pictures.... and presenting [silver-screen versions of the life-like actions] of ink-painted fish, shrimps, crabs, tadpoles, frogs, and other water creatures."⁸ The animators reduced water-and-ink painting figures to simple, manipulable lined figures within the specific narrative frame of a children's story. The development of water-and-ink painting animation was promoted as a technical innovation in SAFS, and *Little Tadpoles Look for Mama* came out of experiments that were first attempted around 1960. That is to say, animation itself was a technical achievement as much as any message delivered in the plot. Te Wei also directed two other water-and-ink painting animations, *The Herd Boy's Flute* (*Mu di*, 1963) and *Feelings of Mountain and River* (*Shanshui qing*, 1988), but *Little Tadpoles Look for Mama* is the only one with a scientific theme.

The film shows how a mother frog temporarily abandons her egg clutch after laying many eggs in the water; she will not return to this site until after her eggs have hatched

⁸ Kiu Wai Chu provides a detailed discussion of the technological aspect of *Little Tadpoles Look for Mama*. See Kiu Wai Chu, "Animating Shanshui: Chinese Landscapes in Animated Film, Art and Performance," p. 115.

into tadpoles. However, before the mother frog returns, the school of little tadpoles sets out to look for their mother. The plot development is advanced through a series of misunderstandings. They learn that their mother has two big eyes, a white belly and four legs. Consequently, they mistake a goldfish for their mother on account of the goldfish's big eyes; they confuse a crab for their mother on account of the crab's white belly; they mistake a turtle for their mother on account of its four legs; and they confuse a catfish with their mother due to its resemblance to a tadpole. When they finally find their mother, they ask her why they do not resemble her. The mother tells them they will look like her only after they have grown up.

The scientific character of the film lies in how it popularizes the knowledge of the biological development of a frog from egg to tadpole to frog. Through a series of misunderstandings, the film also introduces to the young audience the specific physical features of such aquatic creatures as goldfish, crabs, turtles, and catfish. At the end of the film, the narrator also points out that frogs benefit farmers by preying on various insect pests. The didactic aspect of the film is the bond of maternal love between the mother frog and her tadpoles. In the late 1970s, this film underwent a sort of revival, attracting the attention of a younger generation of animated film critics. Ye Yonglie suggests that the film also contains a philosophical implication in addition to its praise of maternal nurturing and scientific knowledge. The reason that the tadpoles keep confusing other water creatures with their mother is that they have been focusing upon only one aspect of their mother's physical features. Only when they consider all their mother's features in combination can they finally search for her successfully. The philosophical implication is that we should avoid a subjective or one-sided approach to a given issue, and instead examine problems in a multi-faceted way.⁹

From the above analyses of the three animated films, we can see that scientific animated films have experimented with elements of puppetry, watercolor painting, water-and-ink painting, fables, folk tales, and traditional Chinese stories. The language used in their animation followed Mao's dictum at the Yan'an Talk that literature and art must cater to the masses and follow the party line. The language is simplified in order to be readily comprehensible to a youthful audience. For important teachings, the films either repeat them at various junctures or weave them into theme songs. In addition, the didactic tone used in scientific animation followed the tendency in other educational animation to present a society that is striding rapidly in the direction of a perfect socialist utopia.

Aside from these commonalities, there are several distinct characteristics that distinguish early Mao Era scientific animated films from contemporaneous animated films adapted exclusively from animal fables, folk tales, fairy tales, or traditional Chinese narratives. These characteristics include subtle propaganda, political or ideological minimalism in plot, the relative downplaying of moral didacticism, presenting scientific and technological knowledge through problem solving, the inclusion of scientific facts, and the relative lack of scientific fantasy.

⁹ Ye Yonglie, "Kexue wenyi chuanguo zhaji," p. 111.

Political and ideological factors naturally influenced the thematic concerns of animated films in the 1950s and 1960s. The puppet animator Qian Yuanda comments: “At that time (1950s-1960s), political factors influenced art very much.... The government hoped we [would] use animation to [illustrate] modern [day] class struggle.”¹⁰ Zhan Tong also points out that the animated films sometimes included “international topics, such as American imperialism and an attack on Eisenhower,” and sometimes “were made in cooperation with the Great Leap Forward political movement.”¹¹ Many animated films made during this period reflected these political concerns by incorporating class struggle and political movements in their plots. In comparison with this obvious and easily recognizable political and ideological propaganda, scientific animated films aptly and subtly weave together political, ideological, and didactic messages in their narratives through such techniques as characterization, special attention to setting, and theme songs. As revealed in my analysis of *The Young Inventor*, ideology and didacticism are utilized in a very subtle way that often escaped the notice of viewers. For example, the main character Young Lin does not wear a red scarf, an identifying feature of the Mao Era’s ubiquitous Young Pioneers. The film also uses a clever and amusing way to get across a number of messages about feminism, collective action, technical innovation, and a scientific version of learning by trial and error.

Even if a film were made to respond to a specific political movement, it would not directly portray the movement but just vaguely mention it in the form of a slogan or poster in the film. The plot was not developed around political or ideological conflict, and did not involve class struggle—it just emphasized economic production or doing science. For example, as I mentioned earlier in this essay, though *The Cuckoo Is Late* is a response to the Great Leap Forward movement that propagates double-cropping, the political movement is entirely absent from the plot development.

In addition, moral didacticism was greatly downplayed in scientific animated films, in contrast with animated films based on animal fables. The moral emphasis shifts to scientific education, though scientific animated films also promulgated values such as friendship, loyalty, teamwork, honesty, sharing, and the triumph of justice, and presented a positive image of the socialist state or communist world. Similar to films based on animal fables, the animal characters in scientific animated films are anthropomorphized. They are mostly domestic animals or those associated with a mild disposition and positive traits, such as chickens, ducks, birds, tortoises, fish, frogs, and monkeys; ferocious or cunning animals such as wolves, tigers, lions, foxes, and snakes seldom appear in scientific animated films. Therefore, animals in scientific films are friendly and harmless, which makes them more acceptable as conveyors of scientific knowledge and moral lessons.

¹⁰ Qian Yuanda said these words when he was interviewed by John A. Lent in Shanghai on June 17, 2001. See Lent and Xu, “Chinese Animation Film: From Experimentation to Digitalization,” p. 118.

¹¹ Zhan Tong said these words when he was interviewed by John A. Lent in Shanghai on August 15, 1993. See Lent and Xu, “Chinese Animation Film: From Experimentation to Digitalization,” p. 118.

In contrast with relatively subtle propaganda and didacticism, these animated films convey clear scientific and technological messages through a narrative strategy of focused problem solving. In *The Young Inventor*, the young woman actively produces a work of engineering in order to shorten the distance between the school and the students' homes. In *The Cuckoo Is Late*, the cuckoo tries to solve the conundrum of why it is late this year when it arrives at the village at the usual time. In *Little Tadpoles Look for Mama*, the little tadpoles' problem is to identify their true mother by means of observing the entirety of her primary physical features. During the process of problem solving, scientific knowledge is imparted to the audience.

These scientific themes are based on known sciences and existing technologies, with bits and pieces of factual knowledge interspersed throughout the films—they tend to reject science fantasy and SF. Though scientific animated films borrowed various fantastic elements from animal fables, their scientific themes did not extend to fantasy, and were almost entirely limited to agricultural technologies and the biological or physical sciences. For example, the focus is on real-world science and technology in the above-mentioned three films: windmills, rope-pulley systems, conveyor belts, double-cropping, and the biological features of aquatic animals. There is also no extrapolative vision about a future society that might be brought about by advanced sciences and technologies. This lack of science fantasy and social extrapolation had to do with the trend of socialist realism in film and literature, an influence from Soviet Russian literature at that time. We see a relatively realistic depiction of Mao-era China in the agricultural cooperatives and countryside in *The Cuckoo Is Late*, the school life in *The Little Inventor*, and the pond in *Little Tadpoles Look for Mama*.

The lack of scientific fantasy is also related to the pursuit of scientific accuracy in scientific literature and art at the time. Though animation is a vital branch of film art with its own peculiarities, codes, and conventions, educational and scientific animated films in early Mao-era China were also regarded as a sub-branch of scientific literature and art (*kexue wenyi*), and were also sometimes termed “scientific fairy-tale films” (*kexue tonghua dianying*). Commentary about scientific animated films first became widespread in the late 1970s, the same period in which popular science writing and science fiction regained their vitality in the PRC.

Most of these commentary essays were written by veteran popular science and science fiction writers who were active in the 1950s and 1960s, and returned to the field in the later 1970s. Their emphasis on the accuracy of scientific content in scientific literature and art sheds light on children's scientific animated films. For example, Ye Yonglie argues that the scientific knowledge in scientific literature and art must be accurate because children are like a piece of blank paper, a *tabula rasa*. Once an erroneous scientific concept entered their minds, it would supposedly be difficult to correct at a later date.¹² He recalls that the popularity of *Little Tadpoles Look for Mama* attracted the attention of various biologists who carefully reviewed the biological content presented in the work, and spoke out about two inaccurate ideas. The first inaccuracy is that frog eggs

¹² Ye Yonglie, “Kexue wenyi chuangzuo zhaji,” p. 112.

are laid as a clutch or cluster, not in the shape of a belt or rope as portrayed in the film. Secondly, when tadpoles undergo a transformation into frogs, their tails do not abruptly fall off, but gradually atrophy instead.¹³ Gao Shiqi, an author of children's literature and popular science writer, also emphasizes that scientific content should be based on accurate scientific facts and principles—there should not be any distortion or poetic license. In addition, Gao argues that scientific knowledge should be related to ordinary people's daily lives and genuine aspects of economic production.¹⁴

These characteristics of scientific animated films, such as subtle presentation of political and ideological messages, the realistic depiction of science and technology, and the inclusion of accurate scientific knowledge, resonate with those in Chinese SF during the early Mao Era.¹⁵ Scientific animated films became a visual expression of Chinese popular science writing and SF. Under the influence of the Soviet Union's science fiction, writers of Chinese SF narratives experienced their first boom in the PRC. This science fiction brimmed with optimism about Communist revolution, and expressed the Party's belief that technology would successfully conquer nature, as presented in Zheng Wenguang's narratives "From Earth to Mars" (1954) and "The Mars Pioneers" (1957). Science and technology came across as entirely positive in every way. In addition, many SF writers often crossed the boundary between science fiction and popular science writing by inserting factual disquisitions in their literary texts. This practice is very similar to that of the animated film directors who often incorporated factual discussions in their films.

Presenting a Better Future Brought about by Advanced Science and Technology

After an eight-year suspension of production from 1965 to 1973, mostly overlapping with Mao's Cultural Revolution, Chinese animated filmmaking resumed its production in 1973. Scientific animated films reappeared after 1976, which coincided with the revival of scientific literature and art during the Post-Mao cultural thaw. The particular political and social atmosphere that characterized the Post-Mao thaw pushed scientific animated filmmaking in new directions: some writers presented a vision of a better future brought about by advanced science and technology, combining scientific principles with fantasy. Consequently, the typical subject matter shifted from agricultural technology and the biological and physical sciences to space exploration and the Four Modernizations of industry, agriculture, national defense, and science and technology. The emphasis on the Four Modernizations was in response to Deng Xiaoping's new political and economic agenda, starting from his clear and decisive move away from Mao's focus on class struggle at a major Party conclave in December 1978. The nationwide expectations for a

¹³ Ibid.

¹⁴ Jiang Feng, "Gao Shiqi jiqi zuopin," p. 153.

¹⁵ Nicolai Volland observes these characteristics of Chinese SF in the 1950s and argues that these were influenced by Soviet SF. See Nicolai Volland, "Soviet Spaceships in Socialist China: Reading Soviet Popular Literature in the 1950s," pp. 192–213.

more humane and prosperous future spurred PRC SF writers to think in more futuristic terms than was possible during the Mao Era.

The concept of the Four Modernizations was first upheld by Premier Zhou Enlai at the Conference on Science and Technology Work in Shanghai in January 1963.¹⁶ In 1978, PRC leaders resurrected Zhou's call for the Four Modernizations on various occasions. Hua Guofeng, the National Chairman of the PRC from 1976 to 1978, advocated the Four Modernizations as a tool for making the PRC powerful and prosperous at the Fifth National Congress in early March 1978. At the opening ceremony of the National Science Conference in mid-March 1978, Deng Xiaoping argued that science and technology are the linchpin of the Four Modernizations. He also called for the building of a science and technology community whose members would be both politically sound and professionally competent.¹⁷

The central government's effusive rhetoric in favor of the Four Modernizations helped to raise the profile of scientific literature and art. Many veteran writers of popular science and science fiction who had been active in the 1950s and early 1960s resumed their activities by the late 1970s and early 1980s. More importantly, they started to pay attention to scientific animated films. A few articles published around 1980 presented some theoretical discussion of scientific animated filmmaking, stressing its importance in propagating scientific knowledge and stimulating youthful readers' interest in science and technology. In Zheng Wenguang's essay "A Miscellany of Scientific Literature and Art," he divides the works of scientific literature and art (*kexue wenyi*) into two separate categories: popular science writing (*wenyi xing de kexue duwu*) and literary works with scientific themes (*yi kexue wei zhuti de wenyi zuopin*). Popular science writing uses literary language to make scientific knowledge more accessible to readers, especially juvenile readers. It includes science primers, science essays, scientific accounts, descriptions of scientific research, and science travelogues. Literary works with scientific themes are defined as genuine imaginative literature, and make use of characterization, plot development, imagination, and narrative techniques. It includes science fiction, science fairy tales (including scientific fairy tale films), science poetry, and comedic dialogues with scientific themes.¹⁸ Within the wide spectrum of *kexue wenyi*, with science at one end and literature at the opposite end, science primers, science essays, science travelogues, and descriptions of scientific research are closer to the pole of science; science stories, comedic dialogues about science, and science fairy tales are in the middle of the spectrum; and science fiction is closest to the pole of literature. This

¹⁶ Zhongguo zhongyang dangshi yanjiu shi [Research Institute of CCP History] ed, "Zhongguo gongchandang dashi ji 1963" [Chronology of Chinese Communist Party events: 1963], *Zhongguo gongchandang xinwen* [News of Chinese Communist Party], <http://cpc.people.com.cn/GB/64162/64164/4416060.html> (accessed October 11, 2016).

¹⁷ Deng Xiaoping. "Deng Xiaoping zai quanguo kexue dahui kaimushi shang de jianghua," <http://scitech.people.com.cn/GB/25509/56813/57267/57268/4001431.html> (accessed March 25, 2015.) I paraphrased Deng's speech.

¹⁸ Zheng Wenguang, "Kexue wenyi zatan," p. 81.

genealogical connection with both popular science writing and science fiction differentiates scientific animated films from other animated films that are adapted from animal fables, folk tales, and non-SF fiction.

Ye Yonglie defines the scientific animated film as a combination of the fairy tale and animations that popularize sciences and technology for youthful viewers. He believes that this kind of film usually entails moral didacticism. Ye deems *Little Tadpoles Look for Mama* to be an excellent scientific animated film because of its didactic, artistic, and scientific features. These three features are also the main criteria for defining scientific literature and art.¹⁹ In addition, Ye emphasizes the “fairy tale” quality of scientific animated films. It appears that Ye uses the term “fairy tale” to refer to fantastic elements in this type of film. Ye argues that scientific animated films should create an atmosphere of fantasy and transcend everyday life.²⁰ This emphasis on fantasy is very different from the dictum of socialist realism that Chinese scientific animated films stuck to in the 1950s and 1960s.

Under the above-mentioned political and literary circumstances, Chinese animation manifested “a growing interest in science and technology, the creation of myth of science, and a consequent passion for the science fiction genre,” similar to what Laura Pontieri has observed about Soviet Russian animation during the Post-Stalin thaw of the mid-1950s.²¹ From the late 1970s to 1980, SAFS produced such scientific animated films as *A Strange Patient* (*Qiguai de binghao*, 1978), *The Hens Move to a New Home* (1979), *A Strange Ball Game* (*Qiguai de qiusai*, 1979), *My Friend, Little Dolphin* (*Wode pengyou xiao haitun*, 1980), *Yuanyuan and Robot* (1980), *Dingding Fights the Monkey King* (1980), and *The Little Red and Little Blue* (*Xiao honglian he xiao lanlian*, 1982). Some of these films were adapted from SF or scientific fairy tales. For example, *A Strange Patient* was adapted from Ye Yonglie’s scientific fairy tale “An Unknown Patient” (“Laili buming de bingren,” 1978) about a cabbage worm, and *My Friend, Little Dolphin* was adapted from Liu Xingshi’s SF short story of the same title in praise of a harmonious relationship between humanity and nature. A small portion of scientific animated films continued the 1950s tradition of popularizing knowledge, such as *The Little Red and Little Blue*, a film that urges children to brush their teeth every evening before going to bed. A large portion of scientific animation during this period was closely related to the nation’s modernization of industry, agriculture, national defense, and innovative technology. The science-related themes deal with computers, robots, artificial intelligence, electronics, aerospace technologies, satellites, and submarines. In the following paragraphs, I will analyze three short films to reveal how their science-related themes helped promote the central government’s rhetoric about the Four Modernizations.

¹⁹ Ye Yonglie, “Kexue wenyi chuanguo zhaji,” p. 111.

²⁰ Ye Yonglie, “Kexue tonghua dianying de tedian,” p. 168.

²¹ Laura Pontieri, *Soviet Animation and the Thaw of the 1960s*, p. 57.

The Hens Move to a New Home, directed by Dai Tielang (b. 1930), is a film that promotes agricultural modernization. The Chinese central government began implementing a series of reforms to improve efficiency in agricultural production in 1978. The ensuing growth in productivity stemmed in large part from new technologies and specializations that tend to utilize resources more efficiently.²² Agricultural productivity growth became one of the major themes of science fiction and scientific animated films during that time. The topics of these narratives range from modernized aquatic and animal farms, high-tech pastures, and plant and animal breeding, to environmental and ecological protection.

In *The Hens Move to a New Home*, three hens move to a modernized chicken farm. The film is a linear and simple narrative of what the three hens see on the road and in the chicken farm. There is no dialogue and not a single human character, just a musical score that accompanies the hens' movements. As the hens walk to the farm, the camera randomly pans along the electric power transmission lines by the roadside, which symbolize a more modernized countryside than the one presented in the 1959's film *The Cuckoo Is Late*. After the hens arrive at the farm, the audience follows the hens on a tour inside the farm. The chickens live in high-rise buildings equipped with elevators, solar-powered generators, automatic feeding stations, water sprinkler systems, and incubation systems. Life on the modern farm is incredibly idealized, and almost utopian. The film endorses the government's message that science and technology are crucial to the enhancement of China's productive forces.

In addition to conveying the imperative of agricultural modernization, the film also imparts more complicated messages about urbanization and a modern lifestyle with its culture of consumerism, which are achieved by scientific progress and advances in technology. The three hens' move to the new home is also a move from the countryside to an urban realm. Their dumbfounded expressions upon first seeing high-rise buildings on the farm remind readers of the usual reactions of rural hayseeds when entering a big city for the first time. The film deliberately features hens of different colors (one black, one brown, and one white) in order to distinguish them from the uniformly white chickens on the farm. This detail might disclose the animators' subtle criticism of modern mass production and collectivism, both of which tend to suppress individuality. However, in general, the film presents the three hens happily embracing their new modern life. When the hens begin their journey to the modern farm, they carry three things with them: a basket of corn, a quilt, and an umbrella. These three items are essential to support their life on the road: the corn provides them with food, the quilt keeps them warm at night, and the umbrella keeps them dry on rainy days. The film includes various short episodes that show how much they treasure these three things. For example, when their quilt gets wet during a river crossing, they painstakingly squeeze the water out of it before resuming their journey. When one of the hens stumbles and falls down, causing every ear of corn to tumble out of the basket and onto the ground, the three hens carefully pick up all of the corn scattered on the mountain

²² Bryan Lohmar, Fred Gale, et. al, "China's Ongoing Agricultural Modernization: Challenges Remain After 30 Years of Reform," < <http://www.ers.usda.gov/media/159717/eib51.pdf> >, accessed 11 October, 2016.

slope. However, after the hens arrive at the farm, they discover that none of these three items is needed anymore. The new multi-ingredient chicken feed is more nutritious, concentrated, and delicious than mere raw corn. The automatic temperature-controlled hen house can keep them warm at all times, so they no longer need quilts at night. Umbrellas also become superfluous on the farm. The only time they experience anything like rain is when the sprinkler system is turned on. Therefore, they cast aside each of the three things that they had formerly considered crucial to their survival. Technological advances thus exert a major impact on the hens' material needs.

The three hens step into the modern world without hesitation or second thoughts. They are practically intoxicated by the new comforts of their everyday lives. On the evening of their arrival, the farm authorities welcome the three hens with a dinner party. Aside from enjoying good food during the party, the hens also participate in a social dance, which was a popular leisure activity for young Chinese people at that time. Everything is sweetness and light. The chickens fall asleep to soothing music; they happily lay eggs, and later cuddle their chirping chicks. In contrast with the scientific animation films of the 1950s and 1960s, which emphasized problem-solving and increasing production, this film celebrates the culture of consumerism and the enjoyment of an affluent material life.

The short film *Yuanyuan and the Robot* is a puppet-based animated film made in 1980 to advocate China's industrial modernization. The film's use of actual or model toys in puppet animation is a continuation of a staple in Chinese animation since the early 1930s. The film is like a mini version of *Toy Story* (1995), which features toys as protagonists, but it came out fifteen years before its American counterpart. The film starts with a toy store in which a robot and three dolls, namely Yuanyuan and his two friends, are displayed on a round table. One day after the store closes, Yuanyuan and his friends go outside to play a traditional Chinese game of shuttlecock. Yuanyuan accidentally kicks the shuttlecock into a manhole. He decides to make a new one for his friends, and asks the robot to help him catch a rooster. On their way to look for a rooster, the robot and Yuanyuan encounter a series of minor incidents that showcase the robot's various abilities: it can fly, move as fast as a car, and even operate a crane.

The critics Wang Dazhi and Cao Ying argue that even though the robot adds a futuristic element to the film, the film has nothing to do with scientific fantasy. The robot is not fundamentally different from the other cartoon images except it flies higher, moves faster, and adds more fun to the film.²³ The two critics' argument is partially right in terms of the function that the robot plays in the film, but the film provides far more futuristic and scientific elements than they have noted. For example, there is an atom logo on the robot's breast, which represents development in physics. There is also a big poster on the roadside that shows a boy (who looks like Yuanyuan) riding a rocket-powered spaceship to blast off into the sky. An observatory stands in the background when Yuanyuan and the robot converse. The poster and the observatory represent major achievements of the nation's aerospace industry, and present an extrapolative vision of

²³ Wang Dazhi and Cao Ying, "Fusu yu congjian: zhongguo donghua de dierci fanrong 1977-1983," p. 169.

space exploration. In addition to the scientific content, the film also articulates a moral lesson. At the end of the film, Yuanyuan catches hold of a rooster and is about to start plucking some feathers to make a new shuttlecock, but his two friends prevent him from doing any plucking and force him to let the rooster go. In doing so, the film advocates the value of compassion for life.

In addition to the scientific and moral messages, the film also presents urban and commercial elements. For example, the film shows the image of a modernized city with highways, a huge viaduct, power plants, construction sites, and cranes lifting steel pipes. The space in which Yuanyuan and his friends play shuttlecock is a public commons surrounded by flower beds and trees. A toy store, a roadside fruit stand, balloons in a pedestrian's grip, and a truck loaded with cages of chickens all point to the commercial and consumerist culture that re-emerged in Chinese society around 1980. Though this imagery of urban life and commercialization has been commonplace in other countries' animated films, they were relatively new in PRC scientific animated films. After all, early PRC scientific animated films of the 1950s and 1960s normally had a rural setting and emphasized agricultural production.

If we were to characterize *Yuanyuan and the Robot* as only a “naïve” or primitive robot story with a limited amount of scientific fantasy, then *Dingding Fights the Monkey King* could be considered the first Chinese SF animated film with its skillful combination of classic Chinese narration with the genre of science fantasy. More importantly, it was released right before the Japanese animation series *Astro Boy* was imported into China near the end of 1980—and before foreign SF animation started to influence China's animation industry in terms of aesthetic expression, thematic concerns, and technological methods. *Dingding Fights the Monkey King* was adapted from the comic strip *Little Sun and Old Sun* (*Xiaosun he Laosun*) and directed by Hu Jinqing in 1980. The film is a salute to the classic feature animated film *Uproar in Heaven* (1961-1964) and follows its aesthetic style; the film also borrows such scientific motifs as chemistry equipment, geometry problems, and discussions of the power of knowledge from earlier SAFS productions.

The film starts with Dingding watching *Uproar in Heaven* (1961-1964) on television. The animators use footage from the classic SAFS animated film for about a minute or so. Dingding turns off the TV before the film ends, and goes back to doing his homework. The Monkey King thereupon jumps out of the TV screen to ask Dingding why he turned off the TV in the middle of the show. The Monkey King initially looks much the same as he did in *Uproar*, but he grows into a giant about eight minutes into the film. His echoed voice sounds like a revolutionary character from earlier films, and his large and muscular hands remind the audience of stock proletarian imagery in Cultural Revolution poster art. Dingding replies that it is time for him to do his homework, and further explains that doing homework helps learners gain knowledge, and that scientific knowledge is a powerful force. In the film, knowledge is symbolized by a golden key that will open the door to the future. The sparkling lights that shoot out from the key of knowledge are common in many SASF films from the 1950s and 1960s. The golden key metamorphoses into an atom logo that represents advances in modern physics at its first appearance in the film. The golden key

has the same magic power as that of the Monkey King's golden cudgel; when the Monkey King challenges Dingding to a fight, he tells him to use his golden key as a weapon. Dingding accepts the challenge, and the golden key metamorphoses into a spaceship that takes Dingding on a space journey, during which he sees man-made satellites and other spacecraft in near-earth orbit. The golden key subsequently metamorphoses into a submarine that takes Dingding to visit an aquatic farm, seafood processing factory, and gem mine at the bottom of the ocean. The film also showcases how gene modification has been used in agricultural production to produce a fruit tree that has a wide variety of fruit growing on it. These are also motifs in contemporary Chinese SF at that time. In the face of modern science and technology, the once mighty Monkey King now looks clumsy and perplexed. He keeps falling into misfortune. For example, the Monkey King accidentally falls inside some experimental equipment and is almost dissolved in a chemistry tube. Afterwards, he compares the experimental equipment to the Taoist minister Tai Shang Lao Jun's furnace that refines the pills of immortality. At the bottom of the ocean, he is caught with other fish, conveyed to the automatic processing belt, and made into canned food. After being released from the can by Dingding, he ignorantly chews on a glass bottle instead of drinking the beverage inside. As the plot continues to develop, the image of the Monkey King gradually changes from an arrogant giant to a humble pupil. Witnessing the power of the golden key, the Monkey King asks Dingding to lend him the key. Dingding replies that the Monkey King must study very hard in order to obtain the key. The Monkey King thereupon begins to study under Dingding's instruction. This change in image depicts a deliberate shift in official discourse from the revolutionary, represented by the Monkey King's hyperbolic initial rejection of scientific knowledge, to the post-revolutionary period's embrace of proper and objective scientific knowledge.²⁴

The end of the film presents an extrapolative vision of the Monkey King travelling throughout the universe on the spaceship. The film stresses the message that knowledge is the key to opening up a better future. The motif of the golden key also appears in the theme song, which goes: "The small golden key radiates and opens its golden wings to fly forward. Fear not hardship or difficulty, and cherish time. We love science when we are young, and will contribute to the Four Modernizations once we've grown up."²⁵ The film endows scientific knowledge with magical power, which is much greater than that of the Monkey King's golden cudgel. It affirms the central government's message that science and technology are society's primary productive forces. While revolutionary fervor was once the key to production, the advancement of science is now the major factor in production.

As in *The Hens Move to a New Home* and *Yuanyuan and the Robot*, the film also clearly promotes new modes of consumption. Dingding's room is not only equipped with chemistry laboratory equipment, but also contains a sofa, a television, and a modern-style desk. The food that Dingding enjoys is Western in style, such as a juice beverage, bread,

²⁴ I would like to thank one of the anonymous reviewers' insightful input regarding this point.

²⁵ The lyrics are quoted from the film *Dingding Fights the Monkey King*, directed by Hu Jinqing. Shanghai: Shanghai meishu dianying zhipianchang, 1980.

and sausage. Canned meat and genetically modified fruits and vegetables are presented positively and compose part of Dingding's diet. The collage in these scenes with cans, bottles, and kaleidoscopic dancing fruit showcase the affluence of Dingding's material life.

Though containing futuristic and fantastic elements, the above-mentioned three films made during the Post-Mao cultural thaw are all set in the contemporary world so as to give young audiences hope that they may soon be living in a thoroughly modernized society. The films not only celebrate scientific and technological progress, but also emphasize the imperatives of the Four Modernizations, especially advances in agriculture and industry. These films also reveal China's rapid and extensive urbanization and the emergence of a new culture of consumerism during that period. The didactic stance of these films comes across in a new way: good juvenile behavior has now risen to the status of a heroic act performed in the name of studying hard to obtain more scientific knowledge. The young audience has been charged with the heavy responsibility of building up the country into a modernized socialist superpower.

Comparing the scientific animated films made during the period of 1957-1965 with these made during the Post-Mao cultural thaw, we can detect both continuity and changes. The artistic expressions are consistent—in “Chinese style” forms such as puppetry, watercolor drawing, water-and-ink painting, and paper-cutting animation. In addition, most of the scientific animated films made during the Post-Mao thaw did not overtly mention class struggle or other ideological conflicts in their plot development, but aptly weaved the political and ideological messages in the narratives, thereby continuing to develop the subtle propaganda evident in most films in this genre from the 1950s and 1960s.

In addition to these continuities, we can also detect some changes. The overall aim gradually shifts from encouraging scientific thinking while popularizing known sciences and existing technologies to promoting the realization of the Four Modernizations in the near future, along with affirming the power of modern science and technology. The narrative style also changes from socialist realism to a livelier type of narrative with futuristic and fantastic elements. Moreover, scientific animated films have long been closely tied to scientific literature and art. Though many critics have tried to pigeonhole scientific animated films in the subgenre of the scientific fairy tale, their connection with science fiction proved much stronger over time, with *Dingding Fights the Monkey King* as a leading example of this trend. Moreover, the relation between characters and science also changes from solving problems to enjoying the benefits of advanced science and technology. The narratives' setting changes from rural to urban, and emphasizes the enjoyment of a comfortable material life. It reflects various social and cultural changes taking place in the early Reform Era.

Wang Dazhi and Liu Xiaowei have expressed their regret that SAFS did not produce more SF films about robots and futuristic civilizations during the early 1980s; otherwise, they feel, the history of Chinese animation would have had a more memorable trajectory. Due to large-scale imports of Japanese and Western SF animation during the 1980s, the market for scientific and SF animation was dominated by foreign television series such as *Astro Boy*, *The Transformers*, and *Mobile Suit Gundam*. There are various reasons for the

large-scale imports of foreign animation to China, including the growing popularity of television as a form of entertainment for Chinese households, and the expanding number of local TV stations in the PRC. The demand for various TV programs such as animation increased far beyond the domestic supply, so both CCTV and locally run PRC television stations imported a sizeable number of foreign animated films.²⁶

Many other factors also contributed to dramatic changes in Chinese animation production during the 1980s. These factors include the switch from a centrally planned economy to a market-based economy; an unprecedented level of foreign capital investment in the PRC animation industry; the establishment of both privately owned and joint-venture animation studios in PRC coastal urban areas; increased commercialization of the industry, along with decreased emphasis on its artistic heritage; and a shift from labor-intensive animation techniques to computerized digital animation.

In addition to the above factors, I believe that the 1983 political campaign to “eliminate spiritual pollution” in PRC literature and art was also a crucial reason SAFS did not produce more scientific animated films in the early 1980s. This campaign aimed to root out Western-inspired “bourgeois liberalization” from the PRC populace. Deng Xiaoping defined “the substance of spiritual pollution as disseminating all varieties of corrupt and decadent ideologies of the bourgeoisie and other exploiting classes and disseminating sentiments of distrust towards the socialist and Communist cause and to the Communist Party leadership.”²⁷ The top-down campaign began as a denunciation of pornography and various other trends in philosophy, literature, and art, and swiftly expanded into an attack by hardline CCP apparatchiks against a broad range of cultural phenomena and social trends. On the literary and artistic front, the Party’s Central Propaganda Bureau singled out specific types of works and genres to attack and suppress. “Works of science fiction that contain ghost stories, violence, sex, anti-scientific assumptions, and veiled criticism of socialism” were among the genres and subgenres castigated as spiritual pollution.²⁸ Because of this government suppression, Chinese SF remained at a low ebb from 1983 to the mid-1990s. In the face of such unfavorable circumstances, PRC animation studios took self-protective measures such as abandoning Chinese-style scientific and SF animated films.

Admittedly, scientific animated films amount to a relatively modest portion of all the Chinese animated films produced from the late 1950s to early 1980s, not even large enough in number to be categorized separately from other animated films. Nonetheless, these science-related films effectively popularized academic subjects in science and

²⁶ Wang Dazhi and Liu Xiaowei, “Zhuanxing yu zhentong: zhongguo xuepai de shiluo yu xiaoyin 1984–1994,” pp. 204–246.

²⁷ The original Chinese text was published in *Renmin ribao* [People’s Daily], November 16, 1983, p.1. I am using Thomas B. Gold’s English translation. See Thomas B. Gold, “Just in Time!: China Battles Spiritual Pollution on the Eve of 1983,” 952.

²⁸ *Ibid.*, 972.

technology, helped incorporate science more fully into PRC popular culture as a whole, and contributed to the overall development of PRC scientific literature and art.

Filmography

- Sudden Catastrophe (Fei lai huo)*. The Wan Brothers. Shanghai, Lianhua, 1932. Unknown min.
- Tortoise and Rabbit Run a Footrace (Guitu saipao)*. The Wan Brothers. Shanghai, Lianhua, 1932. Unknown min.
- Locusts and Ants (Huang chong yu ma yi)*. The Wan Brothers. Shanghai, Lianhua, 1932. Unknown min.
- The Young Inventor (Xiao faming jia)*. Chen Zhenghong. Shanghai: Shanghai meishu dianying zhipianchang, 1958. 15 min.
- The Cuckoo Is Late (Buguniao jiao chi le)*. Qian Jiajun. Shanghai: Shanghai meishu dianying zhipianchang, 1959. 10 min.
- Little Tadpoles Look for Mama (Xiao kedou zhao mama)*. Te Wei, Qian Jiajun, and Tang Cheng. Shanghai: Shanghai meishu dianying zhipianchang, 1960. 15 min.
- The Herd Boy's Flute (Mu di)*. Te Wei and Qian Jiajun. Shanghai: Shanghai meishu dianying zhipianchang, 1963. 20 min.
- Uproar in the Heaven, parts 1 and 2 (Danao tiangong shang xia ji)*. Wan Laiming. Shanghai: Shanghai meishu dianying zhipianchang, 1961, 1964. 50 min, 70 min.
- A Strange Patient (Qiguai de binghao)*. Qian Yuanda. Shanghai: Shanghai meishu dianying zhipianchang, 1978. 17 min.
- A Strange Ball Game (Qiguai de qiusai)*. Zhang Chaoqun. Shanghai: Shanghai meishu dianying zhipianchang, 1979. 30 min.
- The Hens Move to a New Home (Muji banjia)*. Qian Yuanda. Shanghai: Shanghai meishu dianying zhipianchang, 1979. 16 min.
- Yuanyuan and the Robot (Yuanyuan he jiqi ren)*. Zhang Chaoqun. Shanghai: Shanghai meishu dianying zhipianchang, 1980. 10 min.
- Dingding Fights the Monkey King (Dingding zhan houwang)*. Hu Jinqing. Shanghai: Shanghai meishu dianying zhipianchang, 1980. 27 min.
- My Friend, Young Dolphin (Wode pengyou xiao haitun)*. Dai Tielang and Ma Kexuan. Shanghai: Shanghai meishu dianying zhipianchang, 1980. 20 min.
- The Little Red and Little Blue (Xiao honglian he xiao lanlian)*. Dai Tielang. Shanghai: Shanghai meishu dianying zhipianchang, 1982. 10 min.
- Feelings of Mountain and River (Shanshui qing)*. Te Wei, Yan Shanchun, and Ma Kexuan. Shanghai: Shanghai meishu dianying zhipianchang, 1988. 19 min.

Bibliography

- Chen Fei. *Zuixin jiceng gonghui gongzuo quanshu* (Corpora of the Latest Working Reviews of the Grass Roots Labor Unions). Beijing: Hualing chubanshe, 2007.

- Chu, Kiu Wai. "Animating Shanshui: Chinese Landscapes in Animated Film, Art and Performance." In *Animated Landscape: History, Form and Function*, ed. Chris Palland, pp. 109-124. New York: Bloomsbury, 2015.
- Gold, Thomas B. "Just in Time!: China Battles Spiritual Pollution on the Eve of 1983." *Asian Survey* 24, no. 9 (1984): 947–974.
- Gong Chengbo, ed. *Zhongguo donghua shi* (The history of Chinese animation). Beijing: Zhongguo guangbo yingshi chubanshe, 2015.
- Huang Yi, ed. *Zuojia lun kexue wenyi* (Writers on scientific literature and arts), 2 vols. Nanjing: Jiangsu kexue jishu chubanshe, 1980.
- Jiang Feng. "Gao Shiqi jiqi zuopin" (Gao Shiqi and his works). In *Zuojia lun kexue wenyi* (Writers on scientific literature), ed. Huang Yi, vol. 1, pp. 147–154. Nanjing: Jiangsu kexue jishu chubanshe, 1980.
- Lent, John A., and Ying Xu. "Chinese Animation Film: From Experimentation to Digitalization." In *Art, Politics, and Commerce in Chinese Cinema*, eds. Ying Zhu and Stanley Rosen, pp. 111–126. Hong Kong: Hong Kong University Press, 2010.
- Lohmar, Bryan, Fred Gale, et. al. "China's Ongoing Agricultural Modernization: Challenges Remain After 30 Years of Reform." *Economic Information Bulletin* no. 51 (April 2009). USDA. <<http://www.ers.usda.gov/media/159717/eib51.pdf>>, accessed 11 October, 2016.
- Macdonald, Sean. *Animation in China: History, Aesthetics, Media*. London: Routledge, 2016.
- Pontieri, Laura. *Soviet Animation and the Thaw of the 1960s: Not Only for Children*. New Barnet: John Libbey Publishing Ltd, 2012.
- Volland, Nicolai. "Soviet Spacehips in Socialist China: Reading Soviet Popular Literature in the 1950s." *Modern China Studies* 22, no. 1 (2015): 192–213.
- Wang Dazhi and Cao Ying. "Fusu yu chongjian: Zhongguo donghua de dierci fanrong 1977–1983" (Recovery and reconstruction: the second boom of Chinese animation 1977–1983). In *Zhongguo donghua shi* (The history of Chinese animation), ed. Gong Chengbo, pp. 139–202. Beijing: Zhongguo guangbo yingshi chubanshe, 2015.
- Wang Dazhi and Liu Xiaowei. "Zhuanxing yu zhentong: Zhongguo Xuepai de shiluo yu xiaoyin 1984–1994" (Transition and pain: The decline of the "Chinese School" 1984-1994). In *Zhongguo donghua shi*, ed. Gong Chengbo, pp. 204–246. Beijing: Zhongguo guangbo yingshi chubanshe, 2015.
- Wang Yiqiu. "Funü neng ding banbiantian' shi Mao zhuxi yulu ma?" (Is the Rhetoric about 'Women Holding Half the Sky' Quotation from Mao Zedong?), published on November 20, 2011 <<http://marxism.org.cn/blog/u/89/archives/2011/1071.html>>, accessed July 30, 2017.
- Ye Yonglie. "Kexue tonghua dianying de tedian" (Characteristics of scientific fairy tale). In *Lun kexue wenyi* (On scientific literature and arts), ed. Ye Yonglie, pp. 167–168. Beijing: Kexue puji chubanshe, 1980.
- . "Kexue wenyi chuanguo zhaji" (Notes on the writings of scientific literature and arts). In *Zuojia lun kexue wenyi* (Writers on scientific literature and arts), ed. Huang Yi, vol. 1, pp. 96–121. Nanjing: Jiangsu kexue jishu chubanshe, 1980.
- Zhao Yao. "Peiyang shehui zhuyi xinren yu dang de jiaoyu fangzhen de lishi tansuo" (Historical exploration of cultivating new socialist man and the party's educational

policies). *Qianxian* 2003, no.11. < <http://www.bjqx.org.cn/qxweb/n3448c177.aspx> >, accessed Feb. 17, 2017.

Zheng Wenguang. “Kexue wenyi zatan” (A Miscellany on scientific literature and arts). In *Zuojia lun kexue wenyi* (Writers on scientific literature and arts), ed. Huang Yi, vol. 1, pp. 80–95. Nanjing: Jiangsu kexue jishu chubanshe, 1980.

Zhongguo zhongyang dangshi yanjiu shi (Research Institute of CCP History), ed. “Zhongguo Gongchandang dashi ji: 1963” (Chronology of Chinese Communist Party events: 1963). *Zhongguo gongchandang xinwen* (News of Chinese Communist Party). <<http://cpc.people.com.cn/GB/64162/64164/4416060.html>>, accessed 11 October, 2016.

Bio

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