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The Evolution of Early Chinese Animation Teaching Materials

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During the early stages of Chinese animation, teaching materials were developed according to the needs of those working in the field. With ideas derived from filmmaking practices, these teaching materials standardized operations and the direction of progress in animation, as well as reflected the diverse theories held by various authors and the unique characteristics of each film project. From early informal lecture notes to later systematic textbooks, these materials house many principles that still possess important referential value.

Initial Organization of Animation Instructional Theory in the "Animated Cartoon Film" Era

The Wan Brothers are central to any discussion of early Chinese animation. Although much of their work from the last century has not survived, their pioneering contributions to the field are substantial. When not producing, the young Wan brothers actively referenced a wide range of foreign sources to apply to their own animation projects and the education of their production team. Wan Guchan (1900-1995) recalled, "I sought out all related literature, imagery, pictorials, and newspapers. This included materials utilized by famous animators world-wide and comparisons of their merits and drawbacks. It also included the published works and essays of every known animator, and we spent a lot of hard effort going over the huge variety of critics' reviews." In 1936 when the Chinese market was dominated by European and American animation styles, the Wan Brothers' essay "Gossip Cartoon" (*Xianhua katong* 闲话卡通) advanced the viewpoint that "Chinese animated cartoons should feature Chinese characters"[1] and is an early example of advocating for Chinese cartoons to represent Chinese people, characteristics, and style. Published during their time at Shanghai Animation Film Studio, the Wan Brothers' *The Secret of Cartoons* (*Donghuapian de mimi* 动画片的秘密)[2] which sequentially analyzed the classic *Princess Iron Fan*, became an important reference for teaching the foundations of animation.

Qian Jiajun (1916-2011) was the first to advocate institutionalizing animation education. During Shanghai Animation Film Studio's early years, half of their designers came from the animation department at Suzhou Academy of Arts where he was the director.[3] Qian Jiajun's ideas for a systematic education first developed around 1940, the year the animated short film *Farmhouse* (*Nongjia le* 农家乐) was released. His 1946 essay "About Animation and Its Method of Study (Guanyu donghua jiqi xuexi fangfa 关于动画及其学习方法)," was his first on understanding animation from an educational perspective.[4] He expounded in detail on the transformation from "cartoons" (*katong* 卡通) to the concept of "animation" (*donghua* 动画), and discussed the history and present state of animation. His discussion of the necessity of the term "animation" (*donghua*

动画) appearing in China was particularly important. This summary laid the groundwork for the establishment of the Suzhou Academy of Arts animation department a few years later, and Yan Dingxian (1936 –) witnessed the department relocate from Suzhou to Beijing.[5] Qian Jiajun's lecture materials *Animation Principles* (Donghua yuanli 动画原理), *Animation Line Drawing* (Donghua xianmiao 动画线描), et cetera, were refined when he joined the Animation Division of Shanghai Film Studio in 1953. It is possible that these make up China's earliest animation textbook;[6] however, there was never a good opportunity for publication. Rather, they supported early animation education in China in the form of mimeographed copied used internally by the Animation Division. Qian Jiajun simultaneously taught and carried out projects. In the late 1950s the Shanghai Zhonghua Publishing House invited Qian Jiajun, along with the Chinese artist Shen Zicheng (1904 – 1996), to film the literacy education animation *Man with Two Hands* (*Ren yu shuangshou* 人与双手). Qian published *Active Cartoon Drawing Methods* (*Huodong katong huafa* 活动卡通画法), which was based on the film, and a second edition was released only one year later, proving the popularity of this type of teaching material at that time.[7]

Professional Practice and the Formation of Systematic Textbooks in the "Fine Art Film" Era

The establishment of Shanghai Film Studio in the early 1950s marked a new era for Chinese film. The government added an Animation Division when they decided to centralize animated filmmaking in Shanghai. In February of 1950, Te Wei (1915-2010) and Fang Ming (Mochinaga Tadahito, 1919-1999) from the Northeast Film Studio relocated there from Changchun and began recruiting talent. They invited Wan Chaochen (1906-1992) from Shanghai Film Academy and went to Suzhou to pay a visit to Qian Jiajun who had just launched animation instruction at the academy of arts, leading to the two subsequent graduate classes entering the Animation Division. In 1953 Qian Jiajun improved production quality by introducing the academy's systematic talent training method. *Animation Theory* (*Donghua lilun* 动画理论), an Animated Division training text in circulation in the 1950's,[10] appeared during the same period as the aforementioned *Animation Principles*. It emphasized the importance of the division of labor and coordination: "the 'key animation' design produces every action, each shot's expression of plot, the relationship between time and background, et cetera. The 'in-between animation' work is carried out on the basis of the circumstances and actions indicated in the 'key animation' design. More often than not, four-fifths of the work is generated by 'in-between animation,' so the quality of the final result is maximally dependent on the 'in-between animation' work. The 'in-between animation' determines whether or not the feelings generated through the animation process are sophisticated, comfortable, and authentic. If the 'key animation' is drawn well but the 'in-between animation' is not, the result of the shot will inevitably be spoiled." The textbook centered around "methods for drawing in-between," "strength and motion," "curved motion," "speed," "exaggeration," "methods for shooting animation," and "methods for shooting loops," developing these seven crucial issues into a complete system. It was compiled just as the Animation Division was producing the films *Why is the Crow Black* (1955) and *The Conceited General* (1956), a strong enthusiasm for learning spurring the production of these high-quality pieces. The division became capable of producing feature-length animated films, and it was in this atmosphere that *A Piece of Zhuang Brocade* (1959) and *Havoc in Heaven* (1961-1964) were successively produced. The previously mentioned *Animation Line Drawing*, later developed into *Line Drawing Theory and Technique* (Xianmiaohua de lilun he jifa 线描画的理论和技法), was acclaimed by Pu Jiaxiang (1932 –) as "a precious textbook written by Qian Jiajun to train the students."[11] He discussed the most foundational aspects of animation, but whether through the many works of the black-and-white or color film eras, it is clear that the charm of the screen revealed through the beauty of the Chinese line's vivid form and rhythm is not unrelated to Qian Jiajun's teaching and advocacy. The Shanghai Film Training College opened in 1959 with Qian serving as director of the animation department, and many of the graduates became the central force of Chinese animation development in the period that followed.

Scientific and educational animated film study was also happening during this time. The above mentioned *The Secret of Cartoons*, published in 1956, described the broad application prospect of science and educational animation in the future from the perspectives of scientific research, health care, sports, industrial and agricultural production, etc. Published in 1959, *Animation in Scientific Educational Film* (Kexue jiaoyu yingpian zhong de donghua 科学教育影片中的动画)[12] was used as a textbook for the scientific and educational film animation specialty training courses in the 1960s,[13] and in 1973 the Scientific Film Technical School started an animation major.[14] The textbook *Science Education Animation* (Kejiaopian donghua科教片动画), which analyzed many examples of science education animated filmmaking from over the years, was completed as a mimeographed manuscript in 1976.[15]

Over time, the early members of the Animation Division developed rich expertise. In December 1977 Yan Ding Xian completed the manuscript for *Animation Theory Course Materials* (Donghua lilun kecheng jiaocai动画理论课程教材), presenting the case for animated films with Chinese characteristics, and he continued to make use of it in other film studio instruction.[16] Additional new film case studies were published in *Cartoon Animation Film Techniques* (Meishu dianying donghua jifa美术电影动画技法)[17] in the early 1980's. This book was often referred to in later textbooks and its influence was far-reaching. In the late 1970's, Wu Qiang (1927 –) transferred to the Fine Arts Department at the Beijing Film Academy to teach the seventh and eighth classes of animation majors and compiled *Foundations of Animation Techniques* (Donghua jifa jichu jiaocai动画技法基础教材) in collaboration with Qian Yunda (1928 –). [18] It was a substantial and well-rounded text that incorporated the strengths of various styles and even included a section on Chinese and overseas animation history. Wu Qiang's teaching culminated in 1982 when he led his students to complete the short film *The Strange Hand*.[19]

The New Exploration of Digital Animation Textbooks in the "Computer Graphics" Era

In the early 1980's computer graphics experts began looking to the field of animation with interest. Some colleges and universities organized short-term joint classes for the advanced studies of computer graphics, becoming the starting point of digital animation education. Lecture content published as *Coursebook for the Study of Computer Graphics* (Jisuanji tuxingxue jiaocheng 计算机图形学教程) included a section that specifically examined the state of computer animation, present and future.[20] *Animation Broadcasting* (Donghua sheyingtai 动画摄影台) and *Mastering the Timing of Animation* (Donghua de shijian zhangwo 动画的时间掌握) were the first foreign animation textbooks to be introduced[21] and were useful references for the new stage of animation technology. *Animation Broadcasting* touched on principles of computer assisted filming and established a connection between film cameras and digital computers through operating systems, making a "completely computerized system" for high-definition stop-motion filming a reality. With its rapid popularization, television became an important medium for disseminating knowledge, bringing together traditional hand drawn animation with new technology applications. *Producing Educational Animation for Television* (Dianshi jiaocai donghua de zhizuo 电视教材动画的制作) is a representative textbook on television animation production from this time period.[22] The author analyzed the use of the video-tape recorder for stop-motion filming, paying close attention to the ability to connecting micro-computer imaging and word processing systems to television equipment, which led to the development of synchronous editing and composition with video equipment.

Shanghai Animation Film Studio also started exploring computer animation in the mid-1980's. In 1985 director Tang Cheng (1919-1986) left for Beijing Aviation Academy, and at that time the professor in charge of computer graphics, Tang Rongxi (1928-2020), researched computer-generated animation.[23] He emphasized the importance of animation as a branch of computer graphics applied research in his 1988 text, *Coursebook for*

the Study of Computer Graphics (Jisuanji tuxingxue jiaocheng 计算机图形学教程). In the chapter "Computer Animation and Art" he summarized the latest experimentations and investigated how to make use of computer assisted methods to generate both vividness and standardization between art and technology, taking a shot from *Havoc in Heaven* as an example. He investigated graphics software packages with the ability to draw straight lines, curved lines, and polygons in two-dimensional and three-dimensional spaces, becoming the starting point of exploration in this field. He also presciently mentioned the future possibility of introducing computer graphics and artificial intelligence technology to calligraphy, drawing, and the design field.[24] In 1991 North China University of Technology and Beijing Television Studio worked together to complete China's first two-dimensional computer animation, *Kitty Goes Fishing*. During this period Shanghai Animation Film Studio's Duan Xiaoxuan (1934 –) led a team to successfully develop computer ink animation, and in 1995 created an ink animation commercial.[25] In 1998 chief editor Qi Dongxu integrated art and technology in *Principles and Applications of Computer Animation* (Jisuanji donghua yuanli yu yingyong 计算机动画原理与应用), which became the most comprehensive textbook on computer animation at that time.[26]

Conclusion

Published in the first year of this century, *Modern Graphic Technology's* (*Xiandai tuxing jishu* 现代图形技术) chapter "Digital Art" lists many representatives of digital art in and outside of China, discusses the relationship between digital technology and art, and clearly indicates the direction of future development. Just like Tang Rongxi said in the introduction, "In the age of the computer, scientists and artists come together. As collective creators, they work together, learn from each other, and adopt the other's strengths to make up for weaknesses. Admire their creations which are scientific and yet differ from scientific illustration. They are works of art and possess a great number of scientific implications. This is the start of a new age."[27]

Artistic style is diverse around the world, and animation follows the developmental pattern of art. Though, from a technological standpoint, animation develops alongside technological innovation. These twin aspects of development can be seen at every level of quality, and they are reflected in the evolution of Chinese animation teaching materials discussed in this article, which outlines the main features of each period leading up to the year 2000. Each step of progress is inseparable from the efforts of the early animators themselves. Animation textbooks in different periods have become the internal driving force for the development of Chinese animation production. They were not only the summary of animated filmmaking experience, but also trade standards for Chinese animation production. It was in these standards that the artistic characteristics of Chinese animation were formed. With determination, Chinese animators built on the experience of their predecessors to grow Chinese animation out of nothing, and ultimately to achieve great success in world cinema.

[1] 1936年《明星》第1期，第17-23页。

[2] 上海文化出版社，1956年10月。

[3] 浦稼祥，《苏美校友在美影》，刊载于《沧浪掇英—苏州美专建校八十六周年纪念专辑(1992-2008)》。

[4] 苏州美专《艺浪》1946 年第 4 卷第 1 期，第 18-20 页。

[5] 秦海伦，《严定宪传》，江苏人民出版社，2018 年 2 月。

[6] 李镇，《他自画中来:献给远行的钱家骏先生》，《当代电影》2011 年第 11 期。

[7] 《活动卡通画法》1950 年 4 月由上海中华书局初版，1951 年 6 月再版。

[8] 1947 年 9 月 1 日《南国艺讯》第 23 期，作者吕同。转引自鲍济贵主编，《中国动画电影通史》第 53 页，连环画出版社， 2010 年 8 月。

[9] 同上，第 55 页，1947 年 12 月 21 日《南国艺讯》第 24 期，作者吕同。

[10] 1973 年 3 月八一电影制片厂动画队油印《动画理论资料》引言提到:“1956 年由我厂去上海科影和美影学习的同志，带回 一部份动画理论资料。今天我们翻印这份资料，以适应日益扩大的动画队伍需要”。The Introduction of *Animation Theory Materials*, a mimeographed manuscript of August First Film Studio in March 1973, mentioned, “In 1956, our colleagues who visited and studied at the Shanghai Science and Education Film Studio and the Shanghai Animation Film Studio, brought back a manuscript of animation theories. Today we reprinted this manuscript to cater to the needs of our rapidly expanding animation team.”

[11]《动画创作启示录》第 132 页，北京联合出版公司，2014 年 9 月。

[12] 中国电影出版社，1959 年 12 月。

[13] 《上海电影史料》6，第 280 页。

[14] 同上，第 285 页。

[15] 《科教电影动画》，中国电影出版社，1980 年 2 月。

[16] 从油印教材版本来看，此一时间八一电影制片厂、山东农业电影学校等单位选派人员前往美影厂学习。At this time, August First Film Studio, Shandong Agricultural Film School and others sent their staff to the Shanghai Animation Film Studio to study there.

[17] 中国电影出版社，1981 年 8 月。

[18] “动画专业七八班”版本之后有“1979 年 1 月版”和“1980 年重印版”等多个版本。

[19] 《北京电影学院同学录 1950-1990》, 北京电影学院音像出版社，1990 年 9 月。

[20] 1982 年和 1984 年的暑期，复旦大学、山东大学和浙江大学联合举办了计算机图形学进修班，唐荣锡等编写《计算机图形 学教程》，1988 年 9 月完成，1990 年 4 月科学出版社。

[21] 《动画摄影台》(Zoran Perisic, The Animation Stand, Focal Press,1976)，1981 年 1 月中国电影出版社;《动画的时间掌握》 (Harold Whitaker, John Halas, Timing for Animation, Focal Press,1981)，1991 年 7 月中国电影出版社。

[22] 《电视教材动画的制作》，第一航空技术专科学校电教中心，1987 年 10 月。

[23] 何郁文，《1986 年逝世的电影工作者》，刊载于《中国电影年鉴 1987》，中国电影出版社，1990 年 4 月。

[24] 唐荣锡等编著《计算机图形学教程》，科学出版社，1990 年 4 月第一版，2000 年修订版。

[25] 《口述上海——电影往事》(下)，第 113 页，上海教育出版社，2008 年 2 月。

[26] 《计算机动画原理与应用》，科学出版社，1998 年 5 月第一版。唐荣锡等人对初稿提出许多宝贵意见。

[27] 唐荣锡主编，《现代图形技术》，山东科学技术出版社，2001 年 10 月。

Bio:

Zeyu Yang received his master's degree from Northeast Normal University in 2006. Since then, he has been teaching in the Communication School of Qingdao Agricultural University. He is currently doing research on Chinese ink-painting animation. In 2019, he joined the Department of Art and Art History at the University of Alabama to write a book on Tang Cheng, which will be published soon.

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