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## Japanese color animation from ca. 1907 to 1945\*

Broadly speaking, Japanese color animation is seen as a post-World War II phenomenon. Only beginning in 1958, with Tōei Dōga's 東映動画 *Hakujaden* 白蛇伝 (*Legend of the White Snake*; US title: *Panda and the Magic Serpent*), directed



*Hakujaden*

by YABUSHITA Taiji 藪下泰司 (1903-1986)<sup>1</sup>, could a large number of Japanese admire home-grown color animation films in cinemas.<sup>2</sup> So it comes as no surprise that among three recent anime histories (Koyama-Richard[2010]; Tavassi[2012]; Clements[2013]) just one contains an attempt to collect information on pre-war color animation (Clements[2013], 50f.).

This study will discuss Japanese color animation before 1945 systematically, showing that there was more of it than even Clements acknowledges, although, as we will also see, by international standards Japan was a laggard in this field. I will not include the “utsushi-e” 写し絵 and slides for Japanese magic lanterns (“gentō” 幻灯) here, because I do not regard them as animation: they did not rely on the “persistence of vision” principle, which I deem fundamental to any definition of animation. However, I will discuss, among other types of animation for the home market, the color animation filmstrip discovered by MATSUMOTO Natsuki in 2005 and provisionally called *Katsudō shashin* 活動写真, which very likely is the oldest surviving Japanese animation film to be projected (just not in a cinema), as well as its German counterparts by which it was likely inspired.

The following text falls into three main parts: on natural color systems, on what I will call here artificial coloring methods, and on printed color animation (including *Katsudō shashin*).

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[More on printed animation \(and other things\) in my 2017 book “Animated Film in Japan until 1919. Western animation and the beginnings of anime” \(ISBN: 978-3-7448-3052-2\)](#)

<sup>1</sup> Tōei Dōga used Eastman Color, not a Japanese color system (Hu[2010], 91). Two previous, short color animation films had also used Eastman Color: Otogi Pro's おとぎプロ *Fukusuke* (*Fukusuke*) ふくすけ, directed by Yokoyama Ryūichi 横山隆一 (1909-2001) in 1957, and Tōei Kyōiku Eigabu's 東映教育映画部 *Yumemi Dōji* (*Dreaming Child*) 夢見童子, directed by Fukiya Kōji 藤谷虹児 (1898-1979) in 1958 (Animēju Henshūbu[1989], 37f.).

<sup>2</sup> Shortly before the premiere of *Hakujaden* on 22 October 1958, the made-for-TV cut-out color animation *Mogura no abanchūru* もぐらのアバンチュール (*Mole's adventure*; directed by WASHIZUMI Hiroshi 鷺角博) was broadcast by NTV, but seen by most Japanese in black-and-white because color TVs at the time were still rare (<http://ja.wikipedia.org/wiki/もぐらのアバンチュール>). The 16mm film used the American Ansco Color system (Yamaguchi/Watanabe[1977], 256).

## 1 Natural color systems

Filming and projecting colors “realistically” had been the aspiration of many people right from the beginning of film itself: the first patent on a “natural color system” was filed by the German Hermann Isensee in Berlin in 1897 (McKernan[2008]). Such systems divide into two classes: additive (“optical”) and subtractive (“chemical”) ones. In the former, as in Isensee’s case, colors are created by mixing light of various wavelengths; in the latter, colors are produced by absorbing certain wavelengths using dyes or pigments (Koshofer[1988], 140, 155). For additive systems filters and special equipment were usually necessary for filming and projecting, whereas subtractive systems resulted in film that could simply be projected with standard equipment.

### 1.1 European and American developments

The earliest natural color system to be reasonably successful and widespread was the British two-color additive “Kinemacolor”, which had been developed by George Albert Smith (1864-1959) in 1906, and which was subsequently marketed by the American Charles Urban (1867-1942) (McKernan[2013], chapter 3).<sup>3</sup> Kinemacolor also found its way to Japan in 1913<sup>4</sup>, after Tōyō Shōkai 東洋商会, soon reorganized under the name Tennenshoku Katsudō Shashin 天然色活動写真 (“Natural Color Films”; in short, Tenkatsu 天活), obtained the East Asian rights (Komatsu[1995], 70-72).<sup>5</sup>



*Lake Garda – 1910*<sup>6</sup>

The first drawn animation in natural colors seems to have been John R. Bray’s (1879-1978) *The Debut of Thomas Cat* in 1920, using the two-color subtractive “Brewster Color” (Cavalier[2011], 75; Nowotny[1983], 127). And one of the most famous natural color systems, the three-color subtractive “Technicolor (Nr. 4)”, was first presented with Walt Disney’s (1901-1966) animation film *Flowers and Trees* in 1932 (Higgins[2007], 25-26) which soon impressed Japanese audiences, too (Honpō kiwamarinaki[1933]).<sup>7</sup>



*Flowers and Trees*<sup>8</sup>

<sup>3</sup> This is the same Charles Urban for whose French company Eclipse Émile Cohl (1857-1938) produced *Les exploits de feu follet*, which was distributed internationally as *The Nipper’s Transformations*, and which was shown on 15 April 1912 in Tokyo as *Nipparu no henkei* ニッパルの変形 (Litten[2013a]).

<sup>4</sup> With only Albert Smith mentioned, but neither Kinemacolor nor Urban, the principles of this process had already been reported in a Japanese newspaper in 1908 (Hanashi no tane[1908]).

<sup>5</sup> Tenkatsu did not use Kinemacolor much after 1914 (Komatsu[1995], 75), but did, *inter alia*, hire Shimokawa Ōten 下川凹天 (1892-1973), also read Shimokawa Hekoten, and produce the first Japanese animation films for the cinema in 1917 (Litten[2013b]). For a contemporary Japanese note on Kinemacolor see Terasaki[1916], 101.

<sup>6</sup> This is a photograph of the projected film from <http://www.brianpritchard.com/Kinemacolor%20Project.htm>.

<sup>7</sup> It should be noted that Technicolor No. 4 involved printing on blanc film (Higgins[2007], 24f.).

<sup>8</sup> Screenshot from <http://www.disneyshorts.org/shorts.aspx?shortID=166>.

Other countries, too, saw the development of natural color systems. In 1933 and 1934 Germans were able to view color animation films by Oskar Fischinger (1900-1967), made with the three-color subtractive Gasparcolor system (Schoemann[2003], 149-151).<sup>9</sup> And from 1935 on various animation films were produced in the Soviet Union using two- and three-color subtractive systems (Mayorov[2012], 247, 250-253).

### 1.2 Japanese natural color live-action films

It is often claimed that the first Japanese (natural) color feature film had been *Karumen kokyō ni kaeru* カルメン故郷に帰る (*Carmen Comes Home*), directed by KINOSHITA Keisuke 木下恵介 (1912-1998) in 1951 (e.g., Sharp[2011], 234). Yet it was just the first one to be made using Japanese color film, in this case by Fuji Film. (The first test of this new film type seems to have been the short, and unreleased, animation *Nezumi no kentō* ネズミの拳闘 (*The boxing-fight of the mice*), directed by MORINO Satoshi 森野佐登志 in 1948 (Animēju Henshūbu[1989], 30.))



*Karumen kokyō ni kaeru*<sup>10</sup>

Already in 1937, however, at least three “natural color” films produced by Dai Nippon Ten-nenshoku Eiga 大日本天然色映画 (“Great Japan Natural Color Film”) premiered in Japan: the first one, perhaps qualifying as a feature film, was *Tsukigata Hanpeita* 月形半平太 (*Tsukigata Hanpeita*), directed by SHIBA Seika 志波西果 (1900-1937?) (Yomiuri shinbun[1937]). Either the two-color subtractive American Cinecolor system (Sugimoto[1990], 300; see also the next section) or its precursor, the two-color subtractive Multicolor system may have been used for these films (National Film Center[2003], A27; Koshofer[1988], 152).

Of course, Tenkatsu had already made several shorter color films using Kinemacolor, starting in April 1914 with *Yoshitsune Senbonzakura* 義経千本桜 (*Yoshitsune and the Thousand Cherry Trees*), directed by YOSHINO Jirō 吉野二郎 (1881-1964) (Komatsu[1995], 73).

### 1.3 Japanese attempts at natural color animation: *Kogane no hana*

Although no Japanese natural color animation film reached cinemas before the 1950s, some attempts were made between 1929 and 1937 by well-known animator ŌFUJI Noburō 大藤信郎 (1900-1961) alone or in collaboration with him. Ōfuji, a disciple of KŌUCHI Jun’ichi 幸内純一 (1886-1970), employed various animation techniques in his career (Sano[2013]) and in 1929 produced the *chiyogami* 千代紙 (colored paper) cut-out animation *Kogane no hana* こがねの花 (*The Golden Flower*): not just as a “record-talkie” レコード・トーキー (a film that could be projected in synchronization with a record player), but also as a color film using a “Shinekarā” シネカラー system.<sup>11</sup>

<sup>9</sup> Oskar Fischinger’s animation films were also seen in Japan in the 1930s (Nishimura[2008], 134).

<sup>10</sup> Screenshot taken from <http://nozawa22.cocolog-nifty.com/nozawa22/2011/11/nozawa22-22.html>.

<sup>11</sup> The film is available on the DVD *Animēshon no senkusha Ōfuji Noburō – Kokō no tensai*, based on a 35mm b/w print (cf. National Film Center[2004], program 2).

*Kogane no hana*

However, when the film was released in 1930, it was only in monochrome and silent (Yamaguchi/Watanabe[1977], 200; Tsugata[2010]). Nevertheless, it still managed to win the “Best Film Medal” of the Japanese Ministry of Education (Sano[2013], 88).

Yet there remain doubts about the real nature of this film. First of all, no sources are given in the literature for the assertion that it had originally been made in color. Secondly, Ōfuji himself, in his 1934 article on color films, does mention, neither *Kogane no hana*, nor any “Shinekarā” system. On the contrary, he claims to have given up on *chiyogami* animation and to have turned to drawn animation because there was no way in Japan to show these films in color, as they deserved (Ōfuji[1934], 66). That *Kogane no hana* is found in a list appended to Ōfuji’s article under “works from the silent era”, not under “record-talkies”, and that no mention of color is made in the author’s comments on it does not help either (Saitō[1934]). Finally, it remains difficult to ascertain which “Shinekarā” system Ōfuji could have employed: the British Cinecolour system (1925-1930) needed a beam splitter camera; it is very unlikely that Ōfuji had access to such a camera. The French Lumière Cinécolor system using the *Kornraster* (irregular grain screen) process was introduced only in 1929, the year of Ōfuji’s film,<sup>12</sup> but never fulfilled its promise. And the much better known American Cinecolor system became available only in 1932, much too late for this film (Koshofer[1988], 25, 31, 42).

#### 1.4 Japanese attempts at natural color: *Sanba no chō*

The problems of additive color systems were well illustrated in Ōfuji’s next, or probably first, attempt, made in collaboration with another highly important animator of the time, MASAOKA Kenzō 正岡憲三 (1898-1988). In 1934 they completed the 16mm short animation *Sanba no chō* 三羽の蝶 (*Three butterflies*), apparently with the two-color additive DuPont-Vitacolor system introduced in 1930 for amateurs. This relied on recording and projecting every picture twice in separate colors, similar to the old Kinemacolor system, so the projector needed to be able to run faster than usual – at 32 pictures per second (Koshofer[1988], 23, 145). Yet they lacked such a, foreign-made, device and thus could not project the film properly (Yamaguchi/Watanabe[1977], 213; Sugimoto[1990], 295).

Ōfuji had held high hopes earlier for this color system which he transcribed as “Baitakarā” バイタカラー, because in his opinion it did not need any special projector (he thought 24 frames/second were enough), but was more advanced than Kinemacolor, and different from the more recent “Uaitakarā” ヲアイトカラー system – presumably the American two-color additive Vitacolor system introduced in 1932, which also needed a beam splitter camera (Koshofer[1988], 159) –, though not in all points as good as Technicolor (Ōfuji[1934], 66f.).

Sugimoto Gorō also covers this film extensively – he does not mention *Kogane no hana*, and is not aware of any Japanese “Shinekarā” animation –, but argues that Masaoka and Ōfuji

<sup>12</sup> Is it co-incidence that one of Ōfuji’s films was shown in France early in 1929 (Sano[2013], 88)?



used a “Uaitakarā” ウアイトカラー system which, by his description, might have been a different Vitacolor system introduced in 1930 (Sugimoto[1990], 290, 295, 300; Koshofer[1988], 42). However, he provides no references; moreover, according to him the film was additionally hand-colored in orange and green, leading to the question whether it should not be listed below with *An Expression* (2.1).

### 1.5 Japanese natural color animation: *Katsura-hime*

Ōfuji’s last experiment with color in the 1930s was in the 16mm film *Shikisai manga no dekiru made* 色彩漫画の出来る迄 (*Making of a color manga[-film]*) by OGINO Shigeji 荻野茂二 (1899-1991) in 1937.<sup>13</sup> This was a live-action color film showing Ōfuji’s way of preparing a color animation,<sup>14</sup> which included within its five minutes the “experimental” drawn animation *Katsura-hime* かつら姫 (*Princess Katsura*), lasting two minutes.<sup>15</sup>



*Katsura-hime*

It was recorded on (subtractive) Kodachrome film introduced in the US in 1935 for amateurs (Koshofer[1988], 150), so, while Ōfuji seems to have been quite content with the result (Ōfuji[1939]), like the other attempt(s) it was a dead end as far as cinematic release was concerned because the Kodachrome system was not available for 35mm motion picture film. However, Konica’s post-war Konicolor/Sakuracolor system was based on the Kodachrome process (Koshofer[1988], 114), and Ōfuji used this system for his remake of the silhouette animation *Kujira* くじら (*The Whale*) in 1952 (Tsugata[2010]).<sup>16</sup>



*Kujira*

<sup>13</sup> On Ogino see also below and Makino[2002], 59f. Also cf. Sugimoto[1990], 296f.

<sup>14</sup> This corresponds closely with his introduction to animation production for readers of the *Asahi shinbun* in 1939 (Ōfuji[1939]).

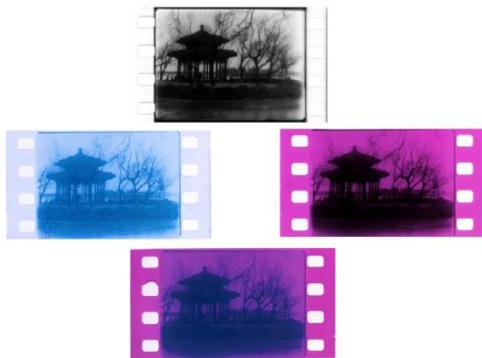
<sup>15</sup> The film can be found as an extra on the DVD *Animēshon no senkusha Ōfuji Noburō – Kokō no tensai*.

<sup>16</sup> The film is included in the DVD *Animēshon no senkusha Ōfuji Noburō – Kokō no tensai*. The lost original of 1927 had been written with the Kanji 鯨. A few other Japanese animation films in the 1950s also used the Konicolor/Sakuracolor system (Sugimoto[1990], 306), but not *Fukusuke* (see above and Yamaguchi/Watanabe[1977], 251).

## 2 Artificial coloring methods

According to a study of about 800 films shown in Europe between 1908 and 1912, 74% of them were at least partly colored. 69% of these had been colored by “tinting” (“virage”; immersing the developed film in dye baths), 13% by “toning” (exchanging silver salts by colored metal salts through chemical reactions in a bath), 9% by stencil-coloring, and 3% by hand-coloring (Yumibe[2012], 6). In Japan, at least among the holdings of silent films on inflammable stock (a proxy for early film) at the National Film Center in Tokyo, more than half were tinted and/or toned (Itakura[2011], 369).

In fact, what we today know as black-and-white films more often than not were seen in (artificial) color by contemporary audiences, and not necessarily in monochrome either, because tinting and toning, for example, could be combined (Koshofer[1988], 15ff.). As one film historian put it: “By the late 1920’s, features were being tinted all colors of the rainbow” (Limbacher[1969], 6).<sup>17</sup>



A b/w image (above), a toned (middle row/left) and a tinted version (middle row/right), and a tinted and toned one (below).

(From [http://www.ameet.jp/digital-imaging/digital-imaging\\_20101224/#page\\_tabs=4](http://www.ameet.jp/digital-imaging/digital-imaging_20101224/#page_tabs=4) and Matsuo[2007], 13.)

Western animation films were also artificially colored in various ways. To mention just two examples: Germany’s oldest extant animation for the cinema, Guido Seeber’s (1879-1940) advertisement for sparkling wine, *Prosit Neujahr 1910* (*Here’s to 1910*; 1909; one minute), was a tinted mixture of drawn animation, stop-motion, and live action.<sup>18</sup> And Winsor McCay’s (1869?-1934) *Little Nemo* from 1911 is probably the best-known example of a hand-tinted animation (Solomon[1994], 14ff.).



*Prosit Neujahr 1910*



*Little Nemo*<sup>19</sup>

<sup>17</sup> The introduction of sound film did not end artificial coloring, because pre-tinted positive film was available (Koshofer[1988], 19). When the original nitrate films were copied on safety film for protection, the artificial coloring was not replicated, which is the reason we usually know them today only in b/w.

<sup>18</sup> The film can be found on the DVD *Von tanzenden Zigaretten und Elchen. Der deutsche Animationsfilm in Werbung und Musikvideos*.

<sup>19</sup> Image from [http://en.wikipedia.org/wiki/Little\\_Nemo\\_%281911\\_film%29](http://en.wikipedia.org/wiki/Little_Nemo_%281911_film%29).

## 2.1 Artificial coloring in Japanese animation

Japanese animation before 1940 employed at least three of the above-mentioned coloring methods<sup>20</sup>:

- Tinting (“senshoku” 染色) can be seen, e.g., in Ōfuji Noburō’s first film, the recently rediscovered *Noromana jiji* のろまな爺 (*Dumb old man*; 1924) (Watanabe[2013]).



Restored image from *Noromana jiji*.  
(From [http://www.kobe-eiga.net/program/2013/09/post\\_241.php](http://www.kobe-eiga.net/program/2013/09/post_241.php))

- Toning (“chōshoku” 調色) is found quite often in so-called “toy films” (“gangu firumu”/“omocha firumu” 玩具フィルム): 35mm live-action or animation films, roughly one to three minutes long, sold to the public for use in home projectors. These toy films divide into three main types (personal communication by Matsumoto Natsuki, 31 March 2014):
  - films which were cut into shorter sequences after having finished their cinematic release, and which were sold either by cinemas or by companies selling home projectors;<sup>21</sup>
  - longer sequences re-assembled from such film cuts, copied, and sold by these companies;
  - short animation films made directly on order for these companies, for example *Sunakemuri Takata baba* 砂煙高田馬場 (*Dust clouds at the Takata riding grounds*) by KIMURA Hakuzan 木村白山.<sup>22</sup>



Screenshot from *Sunakemuri Takata baba*.  
(From Matsumoto Natsuki’s collection.)

<sup>20</sup> Stencil-coloring was probably too expensive for the rather few prints made for Japanese animation films. The use of stencils in printed animation will be covered later in part 3.

<sup>21</sup> Among them are the two oldest surviving copies of Japanese animation for the cinema: Kōuchi Jun’ichi’s *Namakuragatana* なまくら刀 (*The Blunt Sword*; 1917) and KITAYAMA Seitarō’s 北山清太郎 (1888-1945) *Urashima Tarō* 浦島太郎 (*Urashima Tarō*) from 1918. (Cf. Litten[2013b].) Both were tinted, although we do not know whether they had already been shown in that coloring in the cinema.

<sup>22</sup> <http://toyfilm.jp> contains more information and examples and shows how extensively artificial coloring was used at the time. See also Ōta/Matsumoto[2002] and Tomita/Matsumoto/Kozaki[2008], 11f.

- Hand-coloring seems to have been rarely employed. According to Sugimoto Gorō, Kitayama Seitarō used hand-coloring sparingly in his films, for example coloring a flag or a flower (Sugimoto[1990], 284). ICHIKAWA Kon 市川崑 (1915-2008) reports in an interview that while in the animation department of J.O. Studios in Osaka (1933-1935), he and his colleagues once hand-painted an animation print in red, blue and yellow (Quandt[2001], 25), but this print was presumably not released. Among advanced amateurs this technique was also used, at least by Ogino Shigeji in *An Expression* (international title; Japanese title: *Hyōgen* 表現; 1935): This abstract animation of geometrical shapes on 9,5mm film was filmed with alternating red and green filters on b/w film stock, similar to Ōfuji's and Masaoka's experiment in 1934. It was then, however, colored by hand, twice (Ogino cited in Goda[2013], 105).<sup>23</sup>



*An Expression*<sup>24</sup>

Further examples of amateur color animation are mentioned in the literature – e.g., the drawn animations *Haru hitotoki* 春ひととき (*Spring Break*; 1934) by SAKAMOTO Tameyuki 坂本為之 and *Umi wo egaku* 海を描く (*Drawing the Sea*; 1938) by ASADA Isamu 浅田勇 (Nishimura[2008], 140, 144) –, yet, with the information at hand, it is often difficult to ascertain in which way these films were colored.<sup>25</sup>

<sup>23</sup> Claims, e.g. by Asari[2014], 109, that the film employed the Kinemacolor method, are thus not really correct since there seems to have been no intention to project the film using filters; besides, other methods also used red and green filters during filming, as evidenced by *Sanba no chō*. Even the statement that this was a “natural color film”, already made by Ogino (Goda[2013], 105), seems misleading. *An Expression* was shown at an amateur film festival in Budapest in the color film section (Asari[2014], 109).

<sup>24</sup> This title sequence is found on the first page of *Tokyo Kokuritsu Kindai Bijutsukan kenkyū kiyō* 東京国立近代美術館研究紀要, no. 18, 2014.

<sup>25</sup> It seems possible that such dedicated amateurs also used a natural color system in the second half of the 1930s; after all, Ogino used Kodachrome with Ōfuji in 1937. At the least, they certainly knew how to tint and tone (Goda[2013], 104).



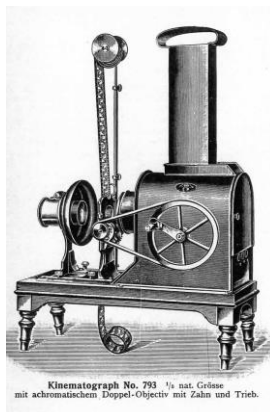
### 3 Printed color animation

“Printed animation film” is a phenomenon rarely mentioned in histories of animation, either out of ignorance, or because it does not fit the author’s idea of what an animation film should be (cf. Crafton[2011]). It is a form of cameraless animation – like the “direct animation” by Norman McLaren (1914-1987), for example – and involves printing images directly on a paper strip to be used, e.g., in such “optical toys” of the 19<sup>th</sup> and early 20<sup>th</sup> century as the zootrope, or on blanc celluloid film for use in (home) projectors.

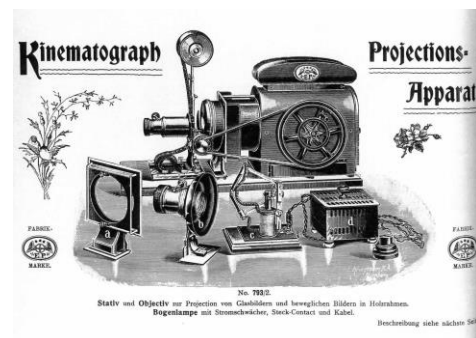
#### 3.1 Early German cinematographs and printed color animation

To understand the (likely) template of the Japanese printed color animation film strip *Katsudō shashin*, it is necessary to turn first to Germany.

In 1866, Gebr. Bing, a metal and optical toy manufacturer (model railways, toy steam engines, magic lanterns, etc.) was founded in Nuremberg/Bavaria by Ignaz Bing (1840-1918) and his brother Adolf (1842-1915). In 1898 they seem to have been the first to present a *Kinematograph* at the Leipzig toy fair (Bing[2004], 71). Until the early 1930s, such a cinematograph was essentially a magic lantern with a good light source and one or two spools, a crank-handle and perhaps a shutter attached to enable it to show 35mm celluloid film with standard (Edison) perforation, the same that was used in cinemas (Plank[1922], 70; Herbert[1987], 14).<sup>26</sup>



Two cinematographs by Ernst Plank, as shown in the 1902 catalog. (From Baecker[1974], 1036.)



At the time, toy manufacturers clustered in Nuremberg, so without much delay other companies there also began producing such “toy cinematographs”, based on their respective experience with optical toys; notable among them the companies of Ernst Plank (1844-1914) and of Georges Carette (1861-1954).<sup>27</sup> Yet, as was the case with magic lanterns, these companies did not just produce the hardware, they also offered the “software” in the form of slides, and now film strips. If we look at a price list/catalog from 1902 by Ernst Plank (reprinted in Baec-

<sup>26</sup> A device such as Watson’s Motorgraph, which did not yet integrate magic lantern and film projector, preceded the toy cinematographs (Herbert[1987], 11).

<sup>27</sup> Around 1900 the largest Nuremberg manufacturers each produced more than 50.000 magic lanterns a year, with only Paris providing some competition (Senst[1901], 41). As already observed by Rifaux[1990], 60, at least one French manufacturer, Lapierre, entered the market for cinematographs at about the same time as the Nuremberg ones (also see <http://cinematographes.free.fr/lapierre-amateur.html>). Animation film for these home projectors was apparently produced in France, too (see also Mannoni/Pesenti[2010], 249, but note that the date given for the Plank cinematograph on the same page is wrong).

ker[1974], 1037f.) and use the explanations contained in his grandson's doctoral thesis on the Nuremberg toy industry (Plank[1922], 174f.), we can see that these "children's films" came in three types:

- "Extra- Filmsbilder – in Farben ausgeführt" ("extra film pictures – done in colors"): color images printed on blanc film by lithography, i.e., animation by a method which the Nuremberg companies knew well.<sup>28</sup> The lithograph images were made by artists or traced from live-action film in a manner reminiscent of the later rotoscopy (Plank[1922], 174; Herbert[1987], 11).  
While Yves Rifaux's data, as we will see, are not always reliable,<sup>29</sup> we can be certain from the entries in Plank's price list that such color animation films existed by 1902 at the latest and, likely, in black-and-white already in 1898/99 (Rifaux[1990], 60).<sup>30</sup> By putting the ends of a film strip together, it could be shown "endlessly" ("loop film").<sup>31</sup> Rifaux argues that the reason printed animation was taken up by the toy manufacturers was the scarcity and high price of live-action film, especially in the beginning (Rifaux[1990], 61). Yet, this kind of animation was also an easy way to provide color images – certainly an important reason for companies that were appealing to children.
- "Extra-Films mit photographischen Aufnahmen" ("extra films with photographic recordings"): mass reproduced (photographic) monochrome children's films, i.e., live-action film made for/by the toy companies.<sup>32</sup>
- "Original-Films – Photographische Aufnahmen in Längen von [...]" ("original films – photographic recordings in lengths of [...]"): sequences of theatrically-released films (similar to some of the Japanese toy films mentioned above).

According to Plank's 1902 catalog, the "Extra-Filmsbilder", i.e., the printed animation films, had titles like *Smoking a cigar* or *Gymnastic lessons in a girls' school* and were mostly sold in sets of six. The conventionally filmed "Extra-Films" were sold singly; among them is one, no. 34 *Der Weintrinker* (*The wine-drinking man*), which we will encounter later.

Sadly, no such early catalog by Carette is available.<sup>33</sup> The Frenchman Georges Carette had begun his toy production as a supplier of Gebr. Bing in 1886, but very soon became one of the big players in Nuremberg in his own (Hoffmann[2000], 38), also in the field of optical toys. A local advertisement from 1899 does not yet show cinematographs among Carette's offerings (Schwarz[n.d.]), but at around this time production of these devices must have started (Hraba-

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<sup>28</sup> Carette especially was renowned for the quality of its lithography ([http://www.brightontoymuseum.co.uk/wiki/Category:Georges\\_Carette](http://www.brightontoymuseum.co.uk/wiki/Category:Georges_Carette)).

<sup>29</sup> Rifaux' short study published in 1990 is still the main source on these animation films; Robinson[1991] mostly took up his arguments, but did not deepen or correct them. No German study of these films exists yet.


<sup>30</sup> They would thus match or even predate Arthur Melbourne-Cooper's (1874-1961) stop-motion films, which are believed to date from 1899 (de Vries/Mul[2009], 11-18, 267-313).

<sup>31</sup> For a simulation combining several such "loop films" of the time, see <http://www.youtube.com/watch?v=UN3jvVOGGYA>.

<sup>32</sup> Plank[1922], 174f., does not disclose details of the "special process" developed in the Nuremberg/Fürth region for this mass reproduction.

<sup>33</sup> I have not been able to find a copy of the 1905 catalog which is only partially reprinted in Levy[1975].

lek[1985], 84f.).<sup>34</sup> In 1911, at the very latest, he not only offered cinematographs, but also “extra sets of colored films of excellent cinematographic effect” of lengths varying between 20 and more than 150 frames (Levy[1975], 144). Titles included *Leap Frog*, *A Cow Crossing the Road*, and so on.



The films 329/20 A to 329/15 C adjoining are not supplied in any of our lantern sets but the following coloured films are supplied, in part, in our sets.

Number	Statement of subjects contained in each set, the number of pictures in each film and the length of each film				total total length
<b>No. 329/11CA</b>	Builder, Tosser, Smithy, See-saw				
4 films	24	24	27	28	103
set 1/8	18"	18"	20½"	21½"	6½ feet
<b>No. 329/11CB</b>	A good drop, Wrestler, Serpentine, Magician				
4 films	46	54	57	61	218
set 3/6	35"	40½"	43"	46"	13½ feet
<b>Extra sets of Black (Lithographic) Films.</b>					
<b>No. 329/12SA</b>	Gymnastics, Acrobats, Skipping				
3 films	30	35	35		100
set 1/-	22½"	26½"	26½"		6¼ feet

Extract from Carette's 1911 catalog. Note set 329/11CB.  
(From Levy[1975], 144.)

Nuremberg toys, not least by Carette who since 1904 also supplied the British company Bassett-Lowke (Schwarz[n.d.]), were sold and appreciated all over the world.<sup>35</sup> In Japan a newspaper article in 1910, for example, declared that “the home of high class [toys] is Germany” (Natsumuki no omocha[1910]).<sup>36</sup> Since Japanese companies could not build high-quality metal optical toys, it comes as no surprise to encounter German-made toy cinematographs as well as film strips in Japan, even though Japan was not one of the top export markets for Nuremberg (Plank[1922], 41, 84).

### 3.2 Carette in Japan

In January 2005, Matsumoto Natsuki, a Japanese collector and academic lecturer on visual culture, bought three old film projectors, eleven 35mm loop films and thirteen glass slides from a second-hand dealer who had obtained all of them from one wealthy household in Kyoto that would now be called an “early adopter” of all things related to film. One of the projectors was a cinematograph manufactured by Georges Carette in Nuremberg,<sup>37</sup> which came in a box that originally had also contained at least some of the film strips and glass slides (Matsumoto[2011], 98ff.).<sup>38</sup>

<sup>34</sup> The earliest models, at Bing and Plank as well, ran the film horizontally, but this seems to have changed very soon.

<sup>35</sup> On their sale in the US see also Singer[1988], pp. 38ff.

<sup>36</sup> See also Gangu no kairyō[1906]. The compliment was not returned: Ernst Plank (1898-?) wrote in his dissertation that Japanese toys were of the absolutely lowest quality (Plank[1922], 40). On the Japanese toy industry of the interwar years, especially the production of celluloid toys – which Plank[1922], 41, deemed one of the only remarkable products there –, see Tanimoto[2007].

<sup>37</sup> At first he had identified this as a French product, but on re-inspection in 2011 understood that it was a German product by Carette (Matsumoto[2006], 89; Matsumoto[2011], 125).

<sup>38</sup> For another example see [http://www.luikerwaal.com/newframe\\_uk.htm?/kinematograaf\\_uk.htm](http://www.luikerwaal.com/newframe_uk.htm?/kinematograaf_uk.htm).



The box and the Carette cinematograph bought in 2005 by Matsumoto Natsuki. (From his collection.)



It should be noted here that Carette had never renounced his French citizenship and had to leave his factory in Nuremberg at the outbreak of World War I (Bing[2004], 82). Since toy exports from Germany also ended at that time, we can assume quite confidently that this cinematograph and the box came to Japan no later than 1914.

Eleven of the thirteen glass slides were color lithographed and presumably belonged to a set of a dozen slides accompanying the Carette cinematograph. The other two slides were hand-colored and apparently belonged to another magic lantern (Matsumoto[2011], 100f.).

Of most interest here are, of course, the eleven 35mm film strips: seven of them were Western or Japanese live-action films (with a length between 31 and 75 frames), three were Western animation films, and one apparently a Japanese animation film (Matsumoto/Tsugata[2006], 92). One of the Western animation strips (no. 10 in Matsumoto/Tsugata[2006], 92; 46 frames) – also shown in a catalog of the Tokyo Metropolitan Museum of Photography – was identified by Matsumoto as *Der Weintrinker* by Ernst Plank, based on Rifaux' data (Matsumoto/Tsugata[2006], 92, 103; Matsumoto[2011], 101f., 125; Rifaux[1990], 39 left, 49).

However, as noted before, *Der Weintrinker* was a live-action film strip, not an animation film.<sup>39</sup> Thanks to Darren Nemeth, an American collector whose copy of this strip carries the stamped trademark “G.C.&C[<sup>o</sup>].N.”, it was possible to identify it as, in fact, a Carette product, called *A good drop* in the English Carette catalog of 1911 (Levy[1975], 144, nr. 329/11CB). Another animation film strip in the box (no. 4 in Matsumoto/Tsugata[2006], 92; 61 frames), called *Magician*, came from the same set sold by Carette. As with *A good drop*, both the number of frames and the topic match Matsumoto's description. The third Western animation film (no. 9; 46 frames) was very likely *Gymnastic* in Carette's set no. 329/23A (Levy[1975], 144).<sup>40</sup>

<sup>39</sup> According to Plank[1922], 174, these lithographs were usually owned by the toy manufacturers; it can therefore be assumed that a certain film strip was not offered by more than one manufacturer. The film strip shown by Rifaux[1990] on the middle of p. 39 also seems to have been wrongly identified: it was not sold by Ernst Plank, but by Bing (Spielzeugmuseum Nürnberg, Inv.-Nr. 1983.1309; dated there to 1912). This calls into question whether, for example, the b/w strips on p. 45 really came from Plank and Carette and date to 1899. However, as can be seen from Carette's 1911 catalog, he did offer b/w lithographed film strips, and as they are mentioned at the end, they may have been the oldest ones (Levy[1975], 144). Plank's 1902 price list does not even mention b/w animation film strips (Baecker[1974], 1037).

<sup>40</sup> They can be seen as simulated animations on [http://www.toverlantaarn.eu/celluloid\\_37.html](http://www.toverlantaarn.eu/celluloid_37.html), ...32.html, and ...34.html, respectively.

Right: Three film strips, with *A good drop* on the left.  
(From Rifaux[1990], 39.)

Below: Detail from *A good drop*.  
(From Darren Nemeth's collection.)



Whereas Plank films were available by 1902 at the latest, we do not know for certain when the Carette films began to be sold before 1911 – worldwide, as copies of *A Good Drop* in, at least, the US, France, the Netherlands and Japan attest to –, although it is very likely that they were already on the market by 1905.

### 3.3 *Katsudō shashin*

Just like *A Good Drop* and the other Carette film strips, *Katsudō shashin* was originally a 35mm celluloid loop film with Edison perforation (it has now shrunk to 33,5mm). Unlike with *A good drop* we do not know its real name: *Katsudō shashin* or “Matsumoto fragment” (e.g., Tavassi[2012], 47; however, it is a complete film, not a fragment) are just provisional names. Its 50 images show a boy in a sailor uniform who writes the Japanese characters for “moving pictures” (“*katsudō shashin*” 活動写真) on a wall and then turns again to the viewer to raise his cap. Projected at 16 frames/second, it runs for about 3 seconds, but being a loop film, it would have been projected for longer. While the outlines of the boy and the characters are black, his cap is red (Matsumoto/Tsugata[2006], 92).



Two frames from  
*Katsudō shashin*.  
(From Matsumoto  
Natsuki's collection.)



Obviously, the printer did not do his job correctly, because the color is not always in register with the outline of the cap. Yet, this is further proof that this was not, as is so often claimed in Western sources (e.g., López[2012], 584; Clements[2013], 20), drawn by hand on celluloid, but a printed animation. In fact, *Katsudō shashin* was made by stencil-printing (“*kappazuri*” 合羽刷り), a traditional Japanese technique for colored glass slides for magic lanterns, but also



for silk screens, etc. (Matsumoto[2011], 102, 108f.). Both the technique and the content thus strongly suggest that it actually was a Japanese product, not an imported one. Moreover, *Katsudō shashin* was not a lone curio, but had been “mass”-produced (Matsumoto[2011], 116f.).

Which leads us to the contentious question of dating *Katsudō shashin*. Without a firm identification, ideally a price list or an illustrated advertisement, we can only speculate about when *Katsudō shashin* had been produced and sold. However, in my opinion it is probable that it was made around 1907:

As we have seen, the idea of printed animation was already current, at least in Europe, at the beginning of the 20<sup>th</sup> century. The “kappazuri” technique for stencil printing had been in use in Japan since at least the first Sino-Japanese war in 1894/5 (personal communication Matsumoto Natsuki, 11 June 2014).

Especially during the Russian-Japanese war of 1904/5, shops such as Yoshizawa Shōten 吉沢商店 and Ikeda Toraku 池田都楽 ran advertisements in the national press for cinematographs (“katsudō shashin kikai” 活動写真機械) and “head machines”, i.e. attachments to magic lanterns to project film (“katsudō gentō kikai” 活動幻燈機械).<sup>41</sup> Such advertisements can, for example, be found in the *Asahi shinbun* 朝日新聞 of 17 February 1904 (p. 7) and 18 November 1905 (p. 5), or in the *Yomiuri shinbun* 読売新聞 already on 3 November 1903 (p. 4) and on 25 February 1905 (p. 6).

But, again, not just hardware, but also software was offered. So, in the *Asahi shinbun* of 8 February 1905 (p. 1), Yoshizawa Shōten listed Japanese and foreign film (in the modern sense) on the war, and foreign film for entertainment, too. And in the *Yomiuri shinbun* of 20 March 1906 (p. 4), Yoshizawa Shōten boasted of more than 350 kinds of films.

That Yoshizawa Shōten was really offering cinematographs and loop film can be seen from an illustrated advertisement in the journal *Sekai shūyū shashinchō* 世界周遊写真帖 (*World Tour Illustrated*) from 1906. However, it cannot be discerned whether it was animation film.



Advertisement for cinematographs and “world travel films” by Yoshizawa Shōten in the 23 December 1906 issue of *Sekai shūyū shashinchō*. (From Matsumoto Natsuki’s collection.)

<sup>41</sup> The terminology of those years is a dangerous field. “Eiga” 映画, for example, in those years denotes not “film”, but the glass slides for the magic lantern. “Film” in the modern senses was “katsudō shashin” or “firumu” フィルム / ヒルム. Thanks to Matsumoto Natsuki for pointing this out to me.

On the other hand, the “world travel films” mentioned in the advertisement (in line with the journal’s specialty) would point to imported film – and it would seem highly unlikely that animation loop film had by then not been imported, too.

In any case, with interest in film surging during the Russo-Japanese war (Gerow[2014], 164) and a massive fall in the price of celluloid afterwards (Katsudō shashin dairiyūkō[1908]), smaller players in the Japanese optical toy sector might also have entered “film production”. In Matsumoto Natsuki’s opinion, the rather poor quality of *Katsudō shashin* and the “kappazuri” printing technique are not typical of the big players like Yoshizawa Shōten, but rather of such a smaller company (personal communication, 5 June 2014; see also Matsumoto[2011], 116). Yet, it might also have been an early attempt to add some local flavor to imported cinematographs and films, mimicking the German print technique instead of laboriously hand-coloring the film like magic lantern slides.

An advertisement by Yoshikawa Ganguten 吉川玩具店 in the *Asahi shinbun* of 11 Dezember 1908 (p. 7) shows an imported cinematograph, another one in the journal *Shōnen sekai* 少年世界 (*Boy’s World*) in October 1910 by Osaka-based Takagi Gentōho 高木幻灯舗 specifically mentions the sale of German cinematographs with films (Matsumoto[2011], 119).<sup>42</sup> By 1912 we can be certain that German animation films for cinematographs were sold in Japan (Matsumoto[2011], 121), although, as already noted, it is extremely likely that animation films had been bundled with imported cinematographs from the beginning.

Obviously, in the absence of direct evidence we can only operate with probabilities. A production date before 1905 or after 1912 is unlikely.<sup>43</sup> If we focus on ca. 1907, it is plausible that *Katsudō shashin* could have been made by then. Foreign printed animation should have been seen by then in Japan; there should have been enough sales of cinematographs, also to travelling magic-lantern showmen, to make it sensible to try to produce localized animation; the price of celluloid was low; and there was not yet much competition from film cuts from theatrically released (foreign) animation.

Whether *Katsudō shashin* was the only sujet that was produced then is, of course, unknown. We also don’t know for how long it was sold (Plank’s “*Der Weintrinker*” was still listed in its 1914 catalog (Baecker[1974], 1138). So there is still a lot of mystery around this short film strip, but I would argue that it actually is the oldest extant Japanese animation film, by far. And I see no reason to exclude it from the category “animation film”; after all, it could have been projected in a cinema, it was just a bit brief.

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<sup>42</sup> However, German optical products were already imported much earlier. See the advertisement for German Karl Zeiss binoculars, and unspecified cinematographs, by Konishi Honten 小西本店 in the *Asahi shinbun* of 8 April 1905 (p. 1).

<sup>43</sup> Matsumoto[2011], 110ff., being more circumspect, comes to the conclusion that *Katsudō shashin* was made at the end of the Meiji era. If it were not a direct imitation of German (or other) imported animation loop films, it might have to have been produced before 1905, which seems to me to strengthen the case for it having been an imitation. With the outbreak of World War I the price for celluloid rose rapidly (Seruroido to bunmei[1916]), so it is unlikely to have been used for such “trifles”. The Kinemacolor process, for example, needed twice as much celluloid as a normal film and, for that reason, was mostly being abandoned by Tenkatsu already in 1914 (Komatsumu[1995], 73).

### 3.4 “Baby Talkie”

1932 saw a curious return to an invention of the 19<sup>th</sup> century: the “Baby Talkie”, produced by Mikado Shōkai 美加登商会 and distributed by Nihon Tōkingu Shōkai 日本トーキング商会.<sup>44</sup> This was a metal zoetrope (“wheel of life”) to be put on the turntable of a record player, with a diameter of 24 cm, matching a 78 rpm record, and 23 slits.



A “Baby Talkie”

In terms of this research note the most interesting part are the paper strips (“katsuga” 活画) for the “Baby Talkie” which were offset printed (personal communication by Matsumoto Natsuki, 3 June 2014) in color and formed a loop. There seem to have been at least 39 strips (5,7 cm x 78 cm), consisting of 21 to 23 “frames”.<sup>45</sup> Subjects shown were a skeleton dance, soldiers marching off to the front, girls dancing, Charlie Chaplin and his dog, and so on. According to KUSAHARA Machiko, some of the strips might have appealed to children, while others were probably meant for adults. The quality of both the drawings and the printing was high, and, in light of the following section, it would not be surprising if an animator was involved in their production.



Detail from paper strip no. 16 for the “Baby Talkie”.

The story of the “Baby Talkie” probably ended quite soon; at the latest, the start of full-scale war with China in 1937 led to the end of metal toy production. Yet, in the same year that Disney showed its first color animation film (with sound-on-film), this represented the first time that a Japanese “film” could be seen in color and with synchronized sound at all.

### 3.5 “Paper film”

One reason for assuming that the “Baby Talkie” soon disappeared was the introduction of another idiosyncratic method to see animation in color and with synchronized sound: the “paper film” (“kami firumu” 紙フィルム).<sup>46</sup> This first appeared on the market in Tokyo in 1933 under the name “REFCY” レフシー (“REFlection Cinema”?) and had been developed by TSUJIMOTO Shūgorō 辻本秀五郎 and KOBAYASHI Yūtarō 小林勇太郎, both coming from the print business.<sup>47</sup>

<sup>44</sup> Information in this section from Kusahara[2011]. The illustrations come from Matsumoto Natsuki’s collection.

<sup>45</sup> According to an advertisement in the *Asahi Shinbun* (20 June 1932), quoted by Kusahara[2011], 127, the film could be “manga or photographic”.

<sup>46</sup> Unless otherwise noted, this section is based on Inaba[2010]. The illustrations come from Matsumoto Natsuki’s collection.

<sup>47</sup> Inaba[2010], 91f., here refutes the assertions made in Sugimoto[1990], 256, and repeated in Okamoto[1995], 24, that REFCY was invented by a furniture maker. The idea of using paper as a basis for film already appeared in Japan in 1913 (Matsumoto[2011], 121f.).



A REFCY projector and “paper film”.

REFCY projectors were available in several models, including a portable one. Despite patents being held by Tsujimoto and Kobayashi, at least two other companies, one of them the Osaka-based Katei Tōkī 家庭トーキー (“Home Talkie”), also sold “paper film” projectors, some to be synchronized with a record player.

As its name implied the film was made of paper (which was a stable material, unlike cellulose nitrate film), on which images were offset printed. The film had a width of 28mm which, thanks to being perforated in the middle, resulted in roughly the same picture area as with 35mm film. It was projected, not with transmitted (diascopic), but with reflected (episcopic) light. Thus film width, perforation, and illumination system all meant that only film made for this contraption could be projected. Even if REFCY projectors were “not that expensive toys” (Sugimoto[1990], 256), this would seem to have been a disadvantage.



The start of a REFCY “paper film” with a black dog that resembles TAGAWA Suihō’s 田川水泡 (1899-1989) manga (and anime) *Norakuro のらくろ* (*Black Stray Dog*).

The paper films (one to three minutes long) again fall mostly into two types: live-action film in monochrome reprinted on paper film and, much more importantly, manga (film) printed in four-color offset.<sup>48</sup> The names of the animators/directors of the latter were not stated, but Sugimoto assumes that most of the top-class animators of the time made paper film animations: YAMAMOTO Sanae 山本早苗 (1898-1981), MURATA Yasuji 村田安司 (1896-1966), SEO Mitsuyo 瀬尾光世 (1911-2010), ŌISHI Ikuo 大石郁雄 (1901-1944), and others (Sugimoto[1990], 258). Masaoka Kenzō mentioned in an interview in 1978 that he, too, had worked in that field (Masaoka Kenzō intabyū[2004], 21). And Murata Yasuji’s disciple Okamoto Masao 岡本昌雄 (1915-1996) had not only drawn paper films such as *Hi fu mi yo go roku* 一三三四五

<sup>48</sup> There were some kinds of paper films which could be colored or drawn in by the children themselves (Sugimoto[1990], 261).

六 (*One two three four five six*), but was even able to see this film decades later for the first time as a 16mm transfer (Okamoto[1995], 25).

Yet, the ban on metal toy production in 1938 also meant the end of “paper film” because the projectors could hardly be built without metal. As the system was never exported, and was not revived after the war, it has been mostly forgotten.

### **Conclusion**

Color, as we have seen, was certainly a feature of Japanese animation in the first decades of the 20<sup>th</sup> century. However, in contrast to other leading countries, such as the US, Germany, or the Soviet Union, the Japanese did not manage to produce “natural color” animation film for the cinema at all, and hardly any in the amateur sector – nor very much in the live-action field. Japanese animation producers therefore had to employ, either the “artificial” methods of tinting and toning, or color printing by stencil or offset. Yet all their products, even when they seem to have left not much of an imprint on animation history as a whole, are certainly part of that history.

These efforts also show that there was a certain demand among the public for color animation. (After all, manga comics of the time were often in color, too; so was at least part of the foreign animation shown in Japan in the 1930s.) So why did Japanese animation producers not manage to introduce the more demanding form of natural color until after the end of World War II? The answer to this question goes beyond the scope of this note, but it will probably include technological, economical, and human factors. Much remains to be explored ...



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