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November 20, 2008

Moving Image and Sound: Basic Issues and Training  
H72.2920  
Research Project – Format History

The Sony CV Videocorder: The Shared Origins, Uses and Marketing of  
Home Video and Video Art

From 1965 to 1969 Sony produced the CV family of ½” open reel black and white videotape recorders, cameras, and monitors. For all intents and purposes the CV system was the first VTR available for the home market. Mostly forgotten today, its story is worth recounting. While the format itself is unexceptional in regard to later technological advancements and the small amount of existing work, CV represents an initial tentative step towards the bi-directional interactive media world that exists today. Outside of such a teleological narrative, studying CV allows for an examination of planned obsolescence, the formation of a genre of art (video art), and the conflicted interrelationships between corporate profit motives and the utopian idealism assigned to new forms of communication technologies.

A note on nomenclature: recent accounts state the letters CV stand for Consumer Video<sup>1</sup> or more anecdotally, Commercial Video<sup>2</sup>. However, no official Sony literature or newspaper articles from the time publically call it either. Further research is required to completely confirm any meaning behind “CV” leaving the issue unsettled for the purposes of this paper. The brand name Sony used for its VTRs was Videocorder and it is under this name that it was widely known at the time. However, further

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<sup>1</sup> LabGuy, “LabGuy’s World: Museum of Extinct Video Recorders and Accessories,” LabGuy’s World, 16 June 2008. Accessed on 1 Nov 2008 at < [http://www.labguysworld.com/VTR-Museum\\_001.htm](http://www.labguysworld.com/VTR-Museum_001.htm)>.

<sup>2</sup>Vidipax, “Video Recorders – Sony CV-2100,” Accessed on 17 Nov 2008 at <http://www.vidipax.com/museum/msm34.html>.

confusing things for media historians, Sony continued applying the Videocorder name to its successor VTR system, AV, and even used it before CV in regards to its PV and EV VTRs<sup>3</sup>. For this discussion the term Videocorder will be used to refer to CV only. AV will be represented as such or as under the larger designation of the EIAJ standard to which it conformed.

The CV VTR originated in the intertwined motives of Sony's fundamental business philosophy and the company's response to the creation of quad video by Ampex in 1956. The former was an outgrowth from and prime motivating factor in Japan's economic resurgence following the destruction of World War II. Sony's business model was based on technological innovation through the introduction of transistors into consumer electronic devices making them energy efficient, smaller and more portable<sup>4</sup> and was furthered in no small amount by assimilating pre-existing technologies in innovative, transformative and extremely profitable ways. The company had found a tremendous success in its lines of transistor radios, magnetic tape sound recorders, and ever-smaller more portable televisions. The creation of a similar device for video was an obvious next step for the company and they had kept constant track of the advances in the field since at least 1952<sup>5</sup>. Regardless of their vigil, they were blindsided by Ampex's release of two-inch quad. They quickly set about constructing a prototype. By 1958 Sony had created a working VTR<sup>6</sup> that was admittedly inferior to Quad and was as "heavy as an anchor"<sup>7</sup>. Sony's chief engineer Nobutoshi Kihara proposed that the machine could

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<sup>3</sup> Interestingly, the phrase "Sony-Matic" is used on some CV decks linking the format to Sony's later ¾" cassette format U-Matic.

<sup>4</sup> Kihara, Nobutoshi, Interview with William Aspray, IEEE History Center, Rutgers University, New Brunswick, NJ., 24 May 1994., 9.

<sup>5</sup> Lyons, Nick, *The Sony Vision*, New York: Crown Publishers, Inc, 1976, 203

<sup>6</sup> Sony. "Time Capsule: Vol. 9: The Origins of Sony's VTR." Sony. 2008. Accessed on 31 Oct 2008 at <<http://www.sony.net/SonyInfo/CorporateInfo/History/capsule/09/>>.

<sup>7</sup> Lyons, 150

be a financial success in the broadcast market but company president Masaru Ibuka insisted on a smaller cheaper model destined for the domestic sphere<sup>8</sup>.

Essentially ceding the broadcast field, they entered into an agreement with their main competitor ratifying the division of the video market wherein Ampex claimed the professional side and Sony the consumer. A patent and technology transfer was initiated to combine Sony's expertise with transistors and mass production with Ampex's specialization in high-end video technology<sup>9</sup>. Such comity is difficult to maintain in a competitive business environment and their agreement quickly came to disputation. This severely restricted Sony's access to Ampex's Ginsberg patent – which compressed video to FM for recording and was a crucial element of VTRs<sup>10</sup>.

This falling-out and the resulting limitations seems to have spurred Sony's engineers as the company rather quickly introduced two lines of more affordable and portable video recorders: the PV-100 in 1962 and the EV-200 in 1964. Neither, however, was marketed for the home market instead finding their niche in the area between the broadcast studio and the home. The decks were adopted by the Navy for on-ship training<sup>11</sup>, the 1964 Tokyo Olympics for adjudicating close calls<sup>12</sup>, and airlines replacing film prints for in-flight movies<sup>13</sup>. Compared to two-inch quad's unwieldy size and expense these decks were “portable”, but only in a very loose sense of the word – the PV weighed 145 pounds and required a car to move

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<sup>8</sup> Lyons, 151

<sup>9</sup> Kihara, 13

<sup>10</sup> Lyons, 205

<sup>11</sup> Magnetic Recorders Co., Inc. Display Ad 16 -- No Title, Los Angeles Times (1886-Current File), 29 Oct 1967, p. a9. Retrieved October 13, 2008, from ProQuest Historical Newspapers Los Angeles Times (1881 - 1986) database, (Document ID: 511421362).

<sup>12</sup> Sony. “Time Capsule: Vol. 9: The Origins of Sony's VTR.” Sony. 2008. Accessed on 31 Oct 2008 at <<http://www.sony.net/SonyInfo/CorporateInfo/History/capsule/09/>>.

<sup>13</sup> Sony, “Sony History: The Airborne VTR,” Sony, 2008, Accessed on 3 Nov at <<http://www.sony.net/Fun/SH/1-11/h1.html>>.

it around<sup>14</sup>. This allowed the decks to move outside of the rarefied world of television broadcast, but necessitated an infrastructure still surpassing the individual level.

At every improved iteration of VTR the engineers at Sony were enjoined to create a deck truly usable by the home market. Ibuka told Kihara that “‘If you can make one like this [1958 prototype], you can also make one for home use. Develop one that will sell in the range of 2 million yen.’ Kihara did so [PV], and was soon told ‘Now make one that will sell for 200,000 yen’”<sup>15</sup>.

It’s necessary to note the Sony did not actually make the very first VTR for home sales. To award CV such an appellation one must attach qualifiers such as “fully-transistorized” or “mass-marketed”. However, the few examples that came before it had too insignificant an impact on the market to snatch the title away from CV. These two decks – the Ampex Signature V<sup>16</sup> and Philips EL3400<sup>17</sup>, from 1963 and 64 respectively – were prohibitively expensive, cumbersomely heavy and marketed to a high-class luxury market. For example, the Signature V sold for \$30,000, while the Philips went for \$4000. Since both were tube-based they consumed huge amounts of electricity,<sup>18</sup> precisely the limitation Sony’s program of transistorization was designed to redress.

However, the field for consumer video was not wide open for Sony in 1965. A number of firms were competing for what was hopefully a profitable new market. In 1964 Fairchild announced the upcoming release of a VTR that used ¼” tape which shuttled past a stationary head at 12

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<sup>14</sup> “Small TV Tape Recorder Is Demonstrated by Sony,” New York Times (1857-Current file) [New York, N.Y.] 12 Oct. 1962,57, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 31 Oct. 2008 <http://www.proquest.com/>

<sup>15</sup> Lyons, 150-151.

<sup>16</sup> Dawson, Max, “Home Video and the “TV Problem”: Cultural Critics and Technological Change”, Technology and Culture, Volume 48, Number 3, July 2007, 524.

<sup>17</sup> Rewind Museum, “Black and White Reel to Reel (open reel) Video Recorders”, Museum of early consumer electronics and 1<sup>st</sup> achievements, Accessed on 1 Nov 2008 at <http://www.rewindmuseum.com/reeltoreelvideo.htm>.

<sup>18</sup> LabGuy’s World

i.p.s.<sup>19</sup>. In 1966 Fairchild, obviously unsuccessful two years previously, was still hoping to release such a deck<sup>20</sup>. An article in the Wall Street Journal in April of 1965 surveyed the possibilities and competition for the home video market. While announcing Wesgrove Electric's entry into the field it lists other firms attempting a home VTR including the previously mentioned Fairchild, Ampex, Sony, RCA, Philips and the Minnesota Mining & Manufacturing Co. The journalist recounts the cautionary tale of Telecan and Cinerama's failure to bring a functional videotape recorder to market<sup>21</sup>. Some of these companies decided to wait until a color video recorder was possible<sup>22</sup>. Others never made it beyond a barely marketable prototype stage. They were either plagued with technical inadequacies or lacked Sony's efficient production system that could profitably mass market consumer electronics. In an article written after Sony had released the Videocorder and reporting on yet another entrant into the crowded sector an industry analyst stated that "several other companies have previously announced less expensive video tape recorders 'but have failed to market or produce them in sufficient quantities up to now to be a major competitive factor'"<sup>23</sup>.

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<sup>19</sup>Gould, Jack, "Home TV Recorder For \$500 Is Shown: HOME TV DEVICE FOR \$500 SHOWN", New York Times (1857-Current file) [New York, N.Y.] 5 Apr. 1964,1, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 9 Nov. 2008 <http://www.proquest.com/>

<sup>20</sup>"Self-Service TV." Time. 22 April 1966. Accessed 10/30/2008 at <<http://www.time.com/time/magazine/article/0,9171,899183,00.html>>.

<sup>21</sup> WALL STREET JOURNAL Staff Reporter "TV Tape Recorder Costing Under \$500 Shown by British Firm: Wesgrove Electrics Item Said To Be Available for Homes; 2,000 Deliveries to U.S. Due", Wall Street Journal (1889-Current file) [New York, N.Y.] 30 Apr. 1965,11, ProQuest Historical Newspapers The Wall Street Journal (1889 - 1991), ProQuest, 30 Oct. 2008 <http://www.proquest.com/>.

<sup>22</sup> "Sidelights: Vacation Periods Fly by Airlines." New York Times (1857-Current file) [New York, N.Y.] 15 Jul 1966, 57-57. ProQuest Historical Newspapers The New York Times (1851 - 2005). ProQuest. 29 Oct. 2008 <http://www.proquest.com/>

<sup>23</sup> "Smaller and Cheaper Video-Tape recorder Said to Be Ready: All American Engineering States 18-Pound Device Can Be Used With Any TV Set or Camera", Wall Street Journal (1889-Current file) [New York, N.Y.] 20 Sep. 1967,17-17, ProQuest Historical Newspapers The Wall Street Journal (1889 - 1991), ProQuest, 29 Oct. 2008 <<http://www.proquest.com/>>

What Sony had successfully released on the domestic market for 200,000 yen – \$995 in America – was the Sony Videocorder model TCV-2010. By early June of 1965, Sony’s president in America, Akio Morita announced the release in eight weeks of a “unit, combining both a video tape recorder and a television receiver” that would “be as easy to operate as an ordinary tape recorder”<sup>24</sup>. No specific model number is given; only the brand name Videocorder. The description – including mention of one model with a timer to record shows when the owner is not at home – clearly point to Sony first releasing the TCV-2010 and TCV-2020 [see below and appendix 1 for in-depth description of the various models] before the stand alone recorder only CV-2000. It is unclear at this time if both the 2010 and 2020 were available at once or if the 2020’s release lagged somewhat. The mentioned price of \$995 seems to suggest the 2010 came first as the 2020 sold for \$1250.

This brings up the issue of dating the releases and production runs of the various models of CV. As of yet, no original Sony documents have been uncovered that disclose proprietary information on dates of productions, release or sales. Most of the information included here comes from original newspaper articles recounting Sony press release, advertisements selling the models, or operating manuals. As such, the dates given are often best guesses or only estimates of the year. There is the greatest amount of information on the 1965 release of CV but even here things are slightly confusing. Most recent reporting mentions that the CV-2000 came out in the fall of 1965, but that is slightly inexact as the previous paragraph shows. The confusion likely arises out of the fact that the CV-2000 is essentially housed in a cabinet with a monitor creating the TCV models. A more precise dating of model releases will allow for a more

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<sup>24</sup> Smith, Gene, "\$995 Home TV Tape Recorder To Be Introduced Here by Sony", New York Times (1857-Current file) [New York, N.Y.] 9 Jun 1965, 64, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 29 Oct. 2008 <http://www.proquest.com/>.

accurate recounting of the dissemination of the technology and its effects (e.g. see the confusion described below over Nam June Paik's early video work).

For whatever reason, the actual release of the first Videocorder didn't come until the beginning of October, the 4<sup>th</sup> to be exact. This can be dated so precisely due to the oft-told story of artist Nam June Paik buying the first Videocorder; the origin myth of video art. Paik recalls using the money and influence of a Rockefeller grant to convince a Madison Avenue consumer electronics store, Liberty Music Shop, to sell him the first deck before those who had pre-ordered them<sup>25</sup>. According to the legend, which he clearly propagated, Paik's cab was stuck in the traffic for the visiting Pope Paul VI. The Pope's motorcade drove right past him and he videotaped the procession showing the results that night at a Fluxus related event<sup>26</sup>. Though repeated in almost every account of Paik and the history of video art, the story can only be partially true. A number of commentators have pointed out that whichever model he actually purchased at the time was not battery powered making shooting from a cab impossible<sup>27</sup>.

That such a story has continued to persist points to the uncertainty over exactly what model Paik bought and the confusion over the term "portable", used to describe the first models of CV, with Sony's later release of what came to be known as the Portapak, a truly portable battery powered VTR and camera. Taking the information on the first Videocorder as described by Morita<sup>28</sup> and by examining a photograph of Paik's VTR<sup>29</sup>

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<sup>25</sup> Paik, Nam June, Interview in unknown magazine, n.d., Accessed on 31 Oct 2008 at <http://www.vasulka.org/archive/Artists5/Paik,NamJune/general2.pdf>.

<sup>26</sup> Kang, Taehi, *Nam June Paik: Early Years (1958-1973)*, Diss. Florida State University, 1988, Ann Arbor: UMI, 1998, 108.

<sup>27</sup> Sherman, Tom, "The Premature Birth of Video Art", 2 Jan 2007, Accessed on 1 Nov 2008 at [http://www.experimentalvcenter.org/history/pdf/ShermanThePrematureBirthofVideoArt\\_2561.pdf](http://www.experimentalvcenter.org/history/pdf/ShermanThePrematureBirthofVideoArt_2561.pdf).

<sup>28</sup> Smith, "\$995 Home TV Tape Recorder"

from his show at Galleria Bonino from later in 1965 proves that Paik obtained a TCV-2010. This rather greatly precludes Paik's taping the Pope live in the street. Unfortunately, in all of the recounting of Paik's first screening of video, there is no discussion of what he actually presented. It is conceivable that he taped a news report on the Pope's visit live off the air. This would fit with his later videos where he taped television news events which he then physically manipulated. As another possibility, Electronics Art Intermix distributes a Paik video called Button Happening, which was apparently shot in-store on the day Paik bought the VTR<sup>30</sup> – though even EAI incorrectly attributes the work to a Portapak<sup>31</sup>.

Regardless, artists such as Paik were certainly not Sony's intended market for the Videocorder. Early ads from 1965 for the Videocorder, created by Sony's brilliantly effective ad agency Doyle Dane Bernbach, show that Sony was clearly aiming for the home market<sup>32</sup>. The ads employ an iconography of family life very similar to one that had been employed for decades in the home movie market. In one from the summer of 1965 with the tagline "Sony introduces the television tape recorder" a father is shown taping his son blowing out candles on a birthday cake. The ad continues "You can electronically record anything you see or hear, and play it back instantly"<sup>33</sup> with the concept of instant playback playing a crucial part in Sony's quest to prove the device's superiority over film home movie cameras and their requirement for processing, delay, and extra costs.

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<sup>29</sup> Paik, Nam June, Videa 'N' Videology: Nam June Paik (1959-1973), Judson Rosebush, ed., Syracuse: Everson Museum of Art, 1974, Reprinted in 1997 by Tova Press, (pages unnumbered).

<sup>30</sup> Public Art Fund, Nam June Paik at Rockefeller Center, Public Art Fund, 2002, Accessed on 4 Nov 2008 at [http://www.publicartfund.org/pafweb/projects/02/paik\\_n\\_j\\_release\\_02.html](http://www.publicartfund.org/pafweb/projects/02/paik_n_j_release_02.html).

<sup>31</sup> Electronic Arts Intermix, "Button Happening – Nam June Paik", 2008, Accessed on 4 Nov 2008 at <http://www.eai.org/eai/title.htm?id=779>.

<sup>32</sup> Smith, James, "ADVERTISING AND MARKETING: Maker of Sony Video Recorder Places Focus on Promotion", Chicago Tribune (1963-Current file) [Chicago, Ill.] 29 Jun 1965, b6, ProQuest Historical Newspapers Chicago Tribune (1849 - 1986), ProQuest, 29 Oct. 2008 <http://www.proquest.com/>.

<sup>33</sup> Sony, "Sony introduces the television tape recorder for the home", Advertisement, 1965, Accessed on 1 Nov 2008 at [http://www.smecc.org/sony\\_cv\\_series\\_video.htm](http://www.smecc.org/sony_cv_series_video.htm).



The terminology used in news reports of Morita's announcement for the Videocorder further corroborates its initially intended domestic audience. The word home is used constantly with the deck being variously called a "home videotape recorder"<sup>34</sup>, "home videotaper"<sup>35</sup> or "home TV tape recorder"<sup>36</sup>. Placing the market square in the growing consumer electronics field one journalist reports that for Sony "the outlook for home consumption is "excellent" based on the growing popularity of home movies, audio tape recorders, stereo and hi-fi equipment"<sup>37</sup>. All of the articles highlight the Videocorder's ability to record television shows live off the air thereby connecting the VTR to the heart of the new electronic home. A Sony spokesman is quoted that "We expect to sell to many homeowners, but it is necessary to remember that video tape recorders have strong appeal to people like actresses or golf instructors, whose business may require a instantaneous playback of their actions"<sup>38</sup>. This last quote expands the market a slight bit, but it's important to note that the businesses spoken of are at an individual level and not an industrialized corporate one.

Crucial to Sony's plan of a consumer mass-market adoption of the Videocorder was the price at which it was being sold. In an article written in between the time of the Videocorder's announcement but before its release, a journalist emphasizes that Sony was "proclaiming [the Videocorder] across the country as the first model ever priced for the home market"<sup>39</sup>. Sony clearly had a stake in promoting the Videocorder as such

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<sup>34</sup> "Sony Shows TV Taping for Home Use, " Chicago Tribune (1963-Current file) [Chicago, Ill.] 25 Jun 1965, c9, ProQuest Historical Newspapers Chicago Tribune (1849 - 1986), ProQuest, 29 Oct. 2008 <http://www.proquest.com/>.

<sup>35</sup> "Home Videotaper to Debut", Los Angeles Times (1886-Current File) [Los Angeles, Calif.] 9 Jun 1965, d18, ProQuest Historical Newspapers Los Angeles Times (1881 - 1986), ProQuest, 29 Oct. 2008

<http://www.proquest.com/>

<sup>36</sup> Smith, Gene "\$995 Home TV Tape Recorder"

<sup>37</sup> "Home Videotaper to Debut"

<sup>38</sup> Smith, James

<sup>39</sup> Smith, James

even though the article mentions the price is rather high for the “average home”. That fact becomes more apparent when considering that its list price of \$995 in 1965 is approximately \$6900 in 2008 dollars. To be sure, \$995 was much more affordable than the Ampex Signature V’s price tag of \$30,000. It is apparent that Sony hoped to find a price point just cheap enough to appeal to a larger domestic market than the purely luxury one of earlier VTRs.

However, reporting on the size and distribution of purchases of CV decks points to Sony’s underperformance in the desired home market. At the announcement of the Videocorder in the summer of 1965 Sony had hoped to sell 10,000 to 20,000 decks over the next year<sup>40</sup>. By the following April Sony had only sold around 1000 units<sup>41</sup>. By July the number had only grown to 3000 units. Morita admitted that only “about one-third have been bought by individuals for their own home use, while the remaining two-third are being used by companies for training films or by schools for teaching”<sup>42, 43</sup>.

Quickly reacting to market interest Sony began shifting the advertising to attract a more corporate clientele. In 1966 they released a pamphlet called Sony Videocorder For Business Education and Science. Besides exhibiting the complete line of CV decks and accessories it suggests “Unlimited Videocorder Applications” for business, education, science, and law enforcement<sup>44</sup>. An ad from November of 1966 for the Sony CV-2000 shows a monitor transmitting an image of an outraged boss chewing on a cigar admonishing the unfortunate recipient of the tape; the

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<sup>40</sup> “Sony Shows TV Taping for Home Use”

<sup>41</sup> “Self-Service TV”

<sup>42</sup> Smith, Gene, "Trial by Fire Tests New Sony TV Unit: NEW TV RECORDER IN TRIAL BY FIRE", New York Times (1857-Current file) [New York, N.Y.] 14 Jul 1966, 49-50, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 31 Oct. 2008 <http://www.proquest.com/>.

<sup>43</sup> By the end of CV’s 4-year life Sony had sold 26,000 Videocorders. Compare this with one million sales of Sony’s portable television sets over 8 years (see Schmedel, Scott R.).

<sup>44</sup> Sony, Sony Videocorder For Business Education and Science, Long Island City: Sony, n.d. (likely 1966), Accessed on 1 Nov 2008 at <http://www.smecc.org/video/wpe128.gif>.

headline reads “If your salesman has a talent for making mistakes, put him on television”<sup>45</sup>. The Videocorder moved from the private realm of father/son relationships to the financial world of employers and employees. Other Sony ads continued to stress the CV uses for taping family events<sup>46</sup> or as part of a hi-fi entertainment system<sup>47</sup>, but the emphasis had clearly shifted to reflect the business reality the company found itself in. Perhaps reflecting this, in 1968 Sony’s departments for industrial and personal VTR sales merged into one, mirroring the changing marketing campaign and the prevalence of business sales for the Videocorder<sup>48</sup>.

But what exactly was Sony selling? CV was not just a videotape recorder, but an entire system of interrelated VTRs, cameras, monitors, tapes, and accessories. As a new technology and consumer electronic product it went through intense modifications and upgrades. Over its short existence of 4 years on the market, there were at least 18 variant models of VTR, 3 cameras, various sized reels of tape, and an array of monitors and accessories [for an expanded list of models with more detailed information see Appendix 1].

The models and cameras were grouped in 5 lines in America: 2000, 2100, 2200, 2400, and 2600. In Europe there were at least versions of the 2000 and 2100 and a color variant – the 5600<sup>49</sup>. The 2000 and 2100 lines included stand alone VTRs and versions housed in a cabinet with a built-in nine-inch monitor; one version of the latter included a timer to record TV

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<sup>45</sup> Harvey Radio Co, Inc, “If your salesman has a talent for making mistakes, put him on television”, Display Ad 197 -- No Title. New York Times (1857-Current file), 21 Nov 1966, 51, Retrieved October 13, 2008, from ProQuest Historical Newspapers The New York Times (1851 - 2005) database, (Document ID: 82958503).

<sup>46</sup> Browning’s Fifth Avenue, “Become a TV star without really trying”, Display Ad 7 -- No Title, New York Times (1857-Current file), 15 Nov 1969, 8, Retrieved October 13, 2008, from ProQuest Historical Newspapers The New York Times (1851 - 2005) database, (Document ID: 79436866).

<sup>47</sup> Sony. “Now instant movies in sound start at \$695.” Advertisement. HiFi/Stereo Review. Unknown date [1966?] and volume. [Purchased on e-bay as pages cut out of magazine.]

<sup>48</sup> “Sony Units Joined”, New York Times (1857-Current file) [New York, N.Y.] 4 Feb. 1968, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 31 Oct. 2008 <http://www.proquest.com/>

<sup>49</sup> LabGuy’s World

shows when the owner was out of the house<sup>50</sup>. Later lines did not include the combination VTR/monitor version. The 2100 line added the ability to edit<sup>51</sup> which the 2200 improved upon by being able to duplicate tapes<sup>52</sup>. The 2400, released in 1967, was dubbed the Video Rover and included a hand held camera and portable VTR which was carried by an over the shoulder strap. To save space and weight, the Video Rover was record only and tapes had to be played back on a Videocorder. Further, it had no automatic rewind so tapes were rewound by hand with a small crank<sup>53</sup>. The last model released in the US, the non-skip-field<sup>54</sup> 2600, was a transitional unit and it prefigured the EIAJ compatible AV-3600 that replaced it only a few months later<sup>55</sup>.

For all of the technical and cosmetic changes that occurred in CV, the basic playback and record functions remained constant allowing for interoperability across the lines (excluding the 2600, the prototype 5100 color version, and European varieties). The format used open reel half-inch videotape on a deck running at a speed of 7½ i.p.s. Whether the CV is the first VTR to use ½” tape is still under research, though it does seem to claim that technical achievement. Anecdotal evidence suggests the tape used at the time did not have the carbon backing found on later tape<sup>56</sup>. It used a helical scan rotary head; a technology utilized in earlier Sony VTRs such as the PV-100 and EV models.

What technically separates CV from previous and following VTRs was its tape saving “skip-field” record/playback system. Essentially a system

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<sup>50</sup> Smith, “\$995 Home TV Tape Recorder”

<sup>51</sup> Sony, Owner’s Instruction Manual: Sony Videocorder CV-2100, n.d. (1968?).

<sup>52</sup> Sony, Owner’s Instruction Manual: Sony Videocorder CV-2200, n.d. (1968?), Accessed on 1 Nov 2008 at [http://www.labguysworld.com/Sony-Manual\\_006.htm](http://www.labguysworld.com/Sony-Manual_006.htm).

<sup>53</sup> LabGuy’s World

<sup>54</sup> Bensinger, Charles, Petersen’s Guide to Videotape Recording, Los Angeles: Petersen Publishing Co., 1973, 80

<sup>55</sup> LabGuy’s World

<sup>56</sup> Tennant, Carolyn, “Looking Back/Looking Forward: A Symposium on Electronic Media Preservation: Issues in Physical Preservation Panel”, 2003, Accessed on 1 Nov 2008 at [http://www.experimentalvcenter.org/history/preservation/preservation\\_level1.php?id=3&id2=4&id3=11](http://www.experimentalvcenter.org/history/preservation/preservation_level1.php?id=3&id2=4&id3=11).

of 2:1 compression, skip-field is exactly what its name implies. Only one of the deck's two heads is used to record thereby skipping every other field. Therefore, each frame of video is comprised of only one half frame of video instead of the standard two interlaced fields. During playback each of the two heads would play the same field thereby replicating a full frame of video – though of the same doubled up lines<sup>57</sup>. Employing skip-field allowed CV to record up to an hour of video on a 7" tape but at the cost of a reduction in image quality. Further, utilizing skip-field ensures that CV tapes are only compatible on CV decks and cannot be used on the later ½" open reel EIAJ standard decks such as Sony's AV.

The image quality issue is addressed both in the patent for skip-field and by an ad promoting the deck to the hi-fi market. The patent, Recording and Reproducing System which was submitted by Kihara in 1964, states "that there is no appreciable difference in the information content of adjacent or slightly spaced fields or frames of a television signal. Accordingly, even if the video signal corresponding to a certain field or frame of a television signal is replaced, for example, by an adjacent or slightly spaced field or frame, the variation or change cannot be recognized by the naked eye"<sup>58</sup>. Even so, the technique was not used on Sony's higher quality PV or EV lines or CV's successor, suggesting skip-field was a stopgap measure employed until tape recording density combined with further miniaturization allowed full two field video on a "portable" deck such as the AV.

The ad for the TCV-2010, which was likely from late 1965, attempts to influence public perception of the visual quality of the deck<sup>59</sup>. It

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<sup>57</sup> Kihara, Nobutoshi, Recording and Reproducing System Utilizing Only Alternate Fields or Frames of the Video Signal, Sony Corp, Patent 3524018, 1970, Accessed on 10/29/08 at <http://www.freepatentsonline.com/3524018.html>.

<sup>58</sup> Kihara, Recording and Reproducing System, 8

<sup>59</sup> Sony, "Imagine. Instant Movies in Sound (produce you own or tape them off the air)" [two-page version], Advertisement, HiFi/Stereo Review. Unknown date [late 1965/early 1966?] and volume.

describes CV as the first attempt to bring video technology out of the broadcast studio into the home, strongly implying a continuation of broadcast's high quality standards. Skip-field is mentioned as part of the long line of Sony's achievements, though interestingly the ad calls it "alternate-field recording and repeat-field playback". In a way skip-field was a new accomplishment but the ad frames the technology to obscure the fact that it was not an improvement as much as a cost saving feature. Finally skip-field is explained by comparing it to a film projector, specifically the way a two-blade shutter shows each frame of film twice to reduce the flicker. This analogy is interesting, though incorrect, as an example of trying to use pre-existing technologies to describe new ones. Either the copywriter did not themselves truly understand the difference between skip-field and how a projector works or they were trying to deceive the audience. Yes, each frame of film is shown twice, but this is a full frame of information; whereas skip-field video shows each field twice, but each field is only one half of a frame. Further, showing each frame of film twice was created as a method of improving image quality, while showing each  $\frac{1}{2}$  frame twice in skip-field was created to save tape at the expense of picture quality. Truly considering the implications of the analogy – and not just being bamboozled by the wealth of convincing sounding facts – only ends up drawing attention to skip-field video's deficits.

Still unclear is whether skip-field affects the determination of the number of lines of resolution of the deck. The CV-2000 is stated as having more than 200 horizontal lines of resolution<sup>60</sup> while the 2100 and later lines have 220<sup>61</sup>. Perhaps this is making too fine a point of the issue, for the decks did output 220 lines. It was not, however, truly presenting 220 lines of unique information but 110 lines repeated twice.

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<sup>60</sup>Southwest Museum of Engineering, Communications and Computation, "Sony CV Series Video", 2007, Accessed on 1 Nov 2008 at [http://www.smecc.org/sony\\_cv\\_series\\_video.htm](http://www.smecc.org/sony_cv_series_video.htm)

<sup>61</sup> Sony, Owner's Instruction Manual: Sony Videocorder CV-2100

A further line of technical research to be undertaken on CV is its level of operability with television monitors. Four of the decks – TCV-2010, TCV-2020, TCV-2110, TCV-2020 – included their own monitor. Sony offered as least two monitors specially designed for CV while requiring a TV adapter for connecting the deck to a standard television<sup>62</sup>. Still undetermined is exactly what technical specification of the format instituted the need for specialized monitors or an adapter for standard sets and if the skip-field playback had a role in the matter.

An additional television related problem is the fact that, regardless that a the main selling point of CV was its ability to record television shows off the air (though the ads always stress never to record copyrighted material!), the VTR itself did not have a tuner as the later Betamax and VHS formats. The decks had to record the signal direct from the television which did not allow for the watching of one show while taping another – a crucial selling point for later VCRs for when there are two interesting shows on at the same time. One ad for CV addresses this shortcoming by suggesting the customer buy two televisions<sup>63</sup>! Furthermore, the lack of a tuner meant that when using the automatic timer on the TCV-2020 and TCV 2120 to record a show when not at home one would have to leave the television on.

As previously mentioned Paik used his TCV-2010 to record television shows that he would then manipulate in a manner reminiscent of his earlier work distorting television sets with magnets. On tapes such as Lindsay Tape or Variations on Johnny Carson vs. Charlotte Moorman, Paik would physically tinker with the playback to alter the image/sound sync or put a live wire next to the open tape during recording to introduce drop outs<sup>64</sup>.

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<sup>62</sup> Experimental Television Center, "Video History Project: Tools List", Accessed on 1 Nov 2008 at [http://www.experimentaltvcenter.org/history/tools/tools\\_list.php3](http://www.experimentaltvcenter.org/history/tools/tools_list.php3).

<sup>63</sup> Dawson, 12

<sup>64</sup> Kang, 138

These hands-on alterations were possible because of the accessible nature of tape on an open reel deck and would be very difficult on a cassette-based format. The inspiration may not have even been possible with the mechanical workings of the tape transport hidden away inside of the deck. This kind of work is an example of the way the physical construction of a technology and its technical possibilities and limitations intimate and direct the kind of uses created for it<sup>65</sup>.

Sony would certainly not approve such acts but they point to an odd consonance between the methods and artistic pursuits of the earliest video art made possible by CV and the rhetoric of the marketing campaign Sony devised for the format. Another parallel between the two can be seen in the early work of Les Levine and Bruce Nauman. In 1965 Levine shot footage of homeless men on the streets of New York, the video Bum<sup>66</sup>, and in 1967 Nauman began videotaping performances of himself in his studio<sup>67</sup>. Once again, this usage was very different in tone to Sony's conception of a father taping his son's birthday but similar in spirit to the CV's promise of instantaneous playback, putting yourself in the picture, and recording the events around you. A further equivalence exists between the shared impulses to record repetitive behaviors. Sony executives often mentioned using the Videocorder to improve their golf score<sup>68,69</sup>. One can imagine this possibly apocryphal recording with its endless repeating of golf swings fitting in with an exhibition of Nauman stomping around his studio for an hour or Paik buttoning and unbuttoning his jacket.

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<sup>65</sup> As consumer video decks improved on editing capabilities, acts of media manipulation similarly switched from such physical means to "cutting" the signal itself via montage.

<sup>66</sup> Boyle, Deirdre, "From Portapak to Camcorder: A Brief History of Guerrilla Television", Journal of Film and Video, Spring-Summer 1992, Vol. 44, no. 1-2, Accessed on 1 Nov 2008 at <http://www.experimentalvcenter.org/history/people/ptext.php3?id=13&page=1>.

<sup>67</sup> Churner, Leah. Personal interview. 15 October 2008.

<sup>68</sup> Schecter, Errol L, "Horatio Alger Story--With a Japanese Twist: Japanese Twist (Cont.)", New York Times (1857-Current file) [New York, N.Y.] 10 Sep. 1967, 274, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 29 Oct. 2008 <http://www.proquest.com/>

<sup>69</sup> Smith, "\$995 Home TV Tape Recorder"



Outside of the engendering of a new genre of art, albeit one that would only come to full fruition at the end of the format, most of the uses of CV were more in line with official designs. In the only example found during this paper's research of taping domestic events, violinist Isaac Stern used a Videocorder to record his children's parties<sup>70</sup>. The lack of further examples is possibly due to the high cost of the deck that would have limited its purchase to upper class families.

There are other examples of people using CV to record television shows – one of the main abilities of the format promoted by Sony's ad campaign – besides Paik's. They're mostly from the UK, but the sample size is entirely too small to be able to draw any conclusions regarding geographic variance of use. In an example from the US, Carol Channing used her Videocorder to record her favorite shows, which she missed due to her busy performance schedule<sup>71</sup>. In the BBC's search for shows they lost from their policy of erasing original tapes in a cost saving measure, the network briefly believed they had discovered a lost episode of Doctor Who from a home taper with his 625 line CV-2100. Unfortunately for the BBC and obsessive Doctor Who fans it turned out to be a duplicate of an episode already recovered<sup>72</sup>. YouTube, in its near infinite display of cultural detritus and obscure ephemera has two examples of old BBC television recordings from CV decks<sup>73</sup>. The first is an otherwise lost episode of Val Doonican's variety show from the early 70s. The original transmission was in color but it was recorded on a black and white 405 line

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<sup>70</sup> Hammel, Lisa, "For the Itinerant Isaac Stern, Summertime Means Family Time", New York Times (1857-Current file) [New York, N.Y.] 18 Jun 1968, 42-42, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest. 29 Oct. 2008, <http://www.proquest.com/>.

<sup>71</sup> Schecter

<sup>72</sup> Roberts, Steve, "Missing episode hunting", Missing Episodes.Com: The British TV Missing Episodes Index, 2005, Accessed 31 Oct 2008 at <http://www.btinternet.com/~m.brown1/boffin.htm>.

<sup>73</sup> These examples suggest that future research is needed examining YouTube recording and documenting obsolete media technologies.

CV-2000 and it features a crazed penny whistle and bongo duet<sup>74</sup>. The second, also made on a UK CV-2000 is a recording of 405 line broadcast test card with library music<sup>75</sup>. In the finest British trainspotting tradition actual video recordings of the pre-PAL 405 line transmission have become for, for enthusiasts, a rather sought after item.

Building on the recording of television shows and often mentioned in Sony literature and news reporting of the time is the closely correlated potential for consumers to create a home library of movies on tape. The concept had a clear origin in the world of amateur film, where movies had been offered for home sale or rental at least since the days of 28mm Pathescope back in the late teens. Video promised a library that was comprised both of tapes recorded live off the air and those purchased pre-recorded. A Sony ad from late 1965 or early 1966 proclaims that “Important programs may be seen time and time again” while the monitor on the TCV-2010 shows a rocket launching into space<sup>76</sup>. In an amazingly prescient article from July of 1965 on the future effects of home video (predicting timeshifting, skipping commercials, the beginnings of electronic news gathering, the fragmentation of broadcast network’s audiences), Lawrence Laurent posits that “a consumer might one day have a [video]tape collection of major dances, just as now millions have disc or sound tapes of the world’s great music”<sup>77</sup>. Though not exactly the kind of performance Laurent was suggesting the first pre-recorded videotape for sale was released in the CV format. In August 1966 a record company, Audio Fidelity Records Inc., released on CV videotape a live in-studio

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<sup>74</sup> Doonican, Val, “Val Doonican Show early 70’s”, YouTube, Accessed on 6 Nov 2008 at <http://www.youtube.com/watch?v=1IPSBax2QsE&feature=related>.

<sup>75</sup> BBC, “Testcard D – late 60s”, YouTube, Accessed on 6 Nov at <http://www.youtube.com/watch?v=1Lh1DXRLiE>.

<sup>76</sup> Dawson, 12

<sup>77</sup> Laurent, Lawrence, “TV Tape Recorder For Home on Way”, *The Washington Post, Times Herald (1959-1973)* [Washington, D.C.], 1 Jul 1965, D27, ProQuest Historical Newspapers The Washington Post (1877 - 1992), ProQuest, 29 Oct. 2008 <http://www.proquest.com/>

recording by country & western singer Johnny Paycheck and his band. In an obvious example of elitist disdain, the journalist for the Wall Street Journal calls the Videocorder an “expensive novelty” and goes on to slight Paycheck and the entire genre of country music. The record company planned to release ten more titles in the next three months for CV and other companies competing VTRs<sup>78</sup>. That no record exists of that happening points to the difficulty of marketing pre-recorded movies on open reel tape. The solution to that dilemma, placing the tape in some sort of consumer friendly container, would directly contribute CV’s end (see below).

Other uses for CV closely match those suggested by Sony in its “Sony Videocorder For Business Education and Science” pamphlet discussed above. Abaco Fabrics used a TCV-2010 to send tapes of its new lines of fabrics to salesmen all over the country<sup>79</sup>. Analysts at Smith & Barney in New York taped their daily stock tips for regional offices<sup>80</sup>. A realtor in Virginia used a 2010 to make tapes of the homes they were selling<sup>81</sup>. Franchise International employed a Videocorder to promote the Heap Big Beef Restaurant Chain on what it called FI-TV<sup>82</sup>. All very different industries, but they used CV in a similar way: to increase business

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<sup>78</sup> “Videotape Milestone: A Pre-Recorded Show Put on Home Market: Country and Western Singer Performs in Hour-Long TV Entertainment: Price \$49.95”, Wall Street Journal (1889-Current file) [New York, N.Y.] 5 Aug. 1966,3-3, ProQuest Historical Newspapers The Wall Street Journal (1889 - 1991), ProQuest, 30 Oct. 2008 <http://www.proquest.com/>.

<sup>79</sup> Dworky, David, “Video Tape Aids Fabric Maker: VIDEO TAPE AIDS A FABRIC MAKER”, New York Times (1857-Current file) [New York, N.Y.] 2 Jan. 1967,31-32, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest. 31 Oct. 2008 <<http://www.proquest.com/>>

<sup>80</sup> Metz, Robert, “Market Place: Analysts Take to TV Screen”, New York Times (1857-Current file) [New York, N.Y.] 25 May 1967,68-68, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 31 Oct. 2008 <http://www.proquest.com/>

<sup>81</sup> Willmann, John B, “State of Real Estate: Three Builders Who Bury Wires”, The Washington Post, Times Herald (1959-1973) [Washington, D.C.] 30 Apr. 1966,D1, ProQuest Historical Newspapers The Washington Post (1877 - 1992), ProQuest, 30 Oct. 2008 <<http://www.proquest.com/>>

<sup>82</sup> Franchises International, Inc, “To men who prefer to look before they leap up to franchising’s top profit management level; see for yourself”, Classified Ad 98 -- No Title, Wall Street Journal (1889-Current file), 18 Jan 1968, 19, Retrieved October 13, 2008, from ProQuest Historical Newspapers The Wall Street Journal (1889 - 1991) database, (Document ID: 72816736).

opportunities and profits through the quick transmission of data in a way that telescoped geography and time.

In terms of adoption by educators, little direct evidence outside of vague recollections and Sony's marketing literature has been found. A New York Times article on community organizers and outreach groups using new media devices to educate inner city youths mentions the work by Paul Ryan and Walter Buckner in teaching kids in Harlem and Bed-Stuy to operate a Sony Video Rover<sup>83</sup>. Ryan was soon working with the video collective Raindance and wrote for the philosophical organ of the video art movement, Radical Software. He wrote an article for a 1968 issue of Educator's Guide to Media & Methods where he recounted his realizations on the nature of video gained from working with teens, specifically the way the device can be used as a mirror to improve the youths' skill base and self image<sup>84</sup>.

Therapists, psychological researchers, and self-improvement advisors used CV to probe and reveal a subject's inner psyche<sup>85</sup>. Sarno, et al. employed a CV-2000 to playback a recording of a man reading a vocabulary list with visual cues in a study of repetitive behavioral therapy for the treatment of aphasia<sup>86</sup>. Magaro and Staples recorded therapy sessions with schizophrenics on a CV-2100 to precisely measure the patient's duration of response to the psychologist's prompts<sup>87</sup>. A study

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<sup>83</sup> Culkin, John M. S. J., "For Kids, Doing Is More Fun Than Viewing: Doing Is More Fun", New York Times (1857-Current file), 28 Jul 1968, 69, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 31 Oct. 2008 <<http://www.proquest.com/>>

<sup>84</sup> Ryan, Paul, Video Mind, Earth Mind: Art Communications and Ecology, New York: Peter Lang, 1993.

<sup>85</sup> Bylin, James E, "The Instant Replay: Videotape Is Finding Some Unusual Uses: Opera Students View Selves, Detectives Watch Suspects; Sales Soar as Price Drops", Wall Street Journal (1889-Current file) [New York, N.Y.] 17 Nov. 1966, 1, ProQuest Historical Newspapers The Wall Street Journal (1889 - 1991), ProQuest, 29 Oct. 2008 <http://www.proquest.com/>

<sup>86</sup> Sarno, Martha Taylor, Marla Silverman and Elaine Sands, "Speech Therapy and Language Recovery in Severe Aphasia", Journal of Speech and Hearing Research, Vol.13 607-623 September 1970, Accessed on 8 Nov 2008 at <http://jslhr.asha.org:80/cgi/reprint/13/3/607>

<sup>87</sup> Magaro, Peter A., and Sharon B. Staples, "Schizophrenic Patients as Therapists: An Expansion of the Prescriptive Treatment System Based Upon Premorbid Adjustment, Social Class and A-B Status", Psychotherapy: Theory, Research and Practice, Volume 9, #4, Winter, 1972, 352-358,

from 1974 used a CV-2200 deck to create and playback different edits of a police procedural television show to examine the influence of TV on young children's inter-personal behavior<sup>88</sup>. An enterprising venture in California, Image Makers, used Videocorders to show clients how others view them through taping their speech and body language<sup>89</sup>. Robinson and Jacobs used a CV-2010 to confront mental hospital patients with their maladaptive behavior during group therapy sessions. They found that those in the experimental group undergoing the video feedback sessions improved at a significant rate over those in the traditional control group<sup>90</sup>.

Law enforcement quickly adapted CV for purposes of evidence and surveillance. The Costa Mesa police department purchased a Video Rover to assist in training new officers, but instead the device was used to record evidence at the scene of a murder. In an article on the introduction of the tape as evidence during the murder trial, the assistant D.A. states that video offers "fantastic possibilities [...] in this way we can bring the scene to the jury (in this case the judge) so that it can actually sense and feel the crime scene"<sup>91</sup>.

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Accessed on 8 Nov 2008 at

<http://psycnet.apa.org/index.cfm?fa=main.showContent&view=fulltext&format=PDF&id=1973-27419-001>.

<sup>88</sup> Collins, W. Andrew, and Suzanne Kasper Getz, "Children's social responses following modeled reactions to provocation: Prosocial effects of a television drama", *Journal of Personality* 44.3 (Sep. 1976): 488, *SocINDEX with Full Text*, EBSCO, 9 Nov. 2008

<<http://search.ebscohost.com/login.aspx?direct=true&db=sih&AN=7379415&site=ehost-live>>.

<sup>89</sup> Seidenbaum, Art. "SPECTATOR, 1966: Instant Replay Designed to Make Jack Less Dull", *Los Angeles Times (1886-Current File)* [Los Angeles, Calif.] 8 Dec. 1966, d1, *ProQuest Historical Newspapers Los Angeles Times (1881 - 1986)*, ProQuest, 29 Oct. 2008

<http://www.proquest.com/>

<sup>90</sup> Robinson, Margot and Alfred Jacobs, "Focused Vide-Tape Feedback and Behavior Change in Group Psychotherapy" *Psychotherapy: Theory, Research and Practice*, Volume 7, #3, Fall, 1970, 169-172, Accessed on 8 Nov 2008 at

<http://psycnet.apa.org/index.cfm?fa=main.showContent&view=fulltext&format=PDF&id=1971-04412-001>.

<sup>91</sup> "Prosecution to Use Video Tape at Mrs. Tucker's Murder Trial: Introduction of Recording of Death Scene at Opening of Proceedings Today Will Set Precedent, DA Aide Says", *Los Angeles Times (1886-Current File)* [Los Angeles, Calif.] 3 Oct. 1968, c1, *ProQuest Historical Newspapers Los Angeles Times (1881 - 1986)*. ProQuest, 29 Oct. 2008 <http://www.proquest.com/>

One of the oddest instances of the format's use occurred during the Sony's announcement of the Video Rover in New York City. Sony's president of American operations Morita was showing off the new device when he looked out the window and spotted smoke billowing out of a neighboring building. He and an assistant ran out of the room and down the street where they taped the fire and the arrival of the fire department. They then returned to the conference room and screened the tape for the astonished journalist<sup>92</sup>. In a twist that strains credulity, the exact same thing had happened a few days earlier when Morita had shown off the Video Rover to another journalist. As Nick Lyons accurately states Morita had "an unflinching flair for promotion" <sup>93</sup> and either the entire thing was a brilliantly conceived marketing plan by Sony or they had located their offices on a rather unlucky block.

All these examples prove Sony's prediction was correct: that a market existed for a video tape recorder outside of the broadcast TV studio. Regardless of CV creating the market a number of its unsatisfactory technical limitations contributed to its rather speedy demise. First, contemporaneous with the release of CV was an increasing adoption of color television sets – a serious impediment for a black and white VTR. Second, the industry began a strong push for a more user-friendly tape housing along similar lines to Philip's audiocassette. This would make VTRs less difficult to use and "will operate with a cassette of prerecorded tape that can be slipped in as easily as putting a record on a phonograph"<sup>94</sup>. In fact Sony was working on such a thing almost from the creation and release of CV. Kihara states that pressure from Ibuka and the

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<sup>92</sup> Smith, "Trial by Fire"

<sup>93</sup> Lyons, 187

<sup>94</sup> Schmedel, Scott R. "Akio Morita's Odyssey: Sony Cofounder's Drive to Westernization Pays Off in Facing Competition Challenges", *Wall Street Journal (1889-Current file)* [New York, N.Y.] 18 Nov. 1969, 40, *ProQuest Historical Newspapers The Wall Street Journal (1889 - 1991)*, ProQuest. 29 Oct. 2008 <<http://www.proquest.com/>>

sales department spurred him to begin developing a videocassette<sup>95</sup>.

Unlike audiocassettes' stationary audio head, the rotary head of a VTR required a much more complicated automatic threading function, making the effort that much harder<sup>96</sup>.

By 1969/1970 a number of competing firms were working on different technologies hoping to accomplish the same thing – create and successfully market a home video system that would allow for the profitable distribution of pre-recorded movies. Sony attempted what it called the Videoplayer to play magnetic video cassettes lasting up to ninety minutes; RCA hoped to release SelectaVision, a cartridge based format that embossed holographic video signals onto vinyl strips, by 1972; and Columbia created the hybrid EVR system that split the color and brightness of a video image and recorded each separately on black and white film housed in disk-shaped cassettes<sup>97,98</sup>. None of these were successful much less even actually sold to consumers, but the massive success of Betamax and VHS later confirmed the business instincts of these three companies.

What finally killed CV by basically surpassing and subsuming it was the adoption of industry standards for ½” open reel video by the Electronic Industries Association of Japan in 1969<sup>99</sup>. The lack of interoperability between the various brands of VTRs at the time seems to have been a driving force behind the creation of EIAJ-1, the designation for the technical

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<sup>95</sup> Kihara, Interview, 15

<sup>96</sup> Sony, “Sony History: The Video Cassette Tape”, Sony, 2008, Accessed on 31 Oct 2008 at <<http://www.sony.net/Fun/SH/1-13/h1.html>>.

<sup>97</sup> Smith, Gene, "TV TAPE PLAYERS SPURRED ABROAD: Makers to Introduce Units Before U.S. Producers", New York Times (1857-Current file) [New York, N.Y.] 30 Oct. 1969, 79-79, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 31 Oct. 2008 <http://www.proquest.com/>

<sup>98</sup> Field, Roger Kenneth, "In the Sixties, It Was TV; In Seventies, Video Cassette: Cassettes To Grow In the 70's", New York Times (1857-Current file) [New York, N.Y.] 5 Jul 1970, 73, ProQuest Historical Newspapers The New York Times (1851 - 2005), ProQuest, 31 Oct. 2008 <http://www.proquest.com/>

<sup>99</sup> Bensinger, Petersen, 48

specifics adopted by all manufacturers that adopted it<sup>100</sup>. The wide embrace of the standards assured that a tape made on a Sony deck would be compatible with a Panasonic VTR and that a tape from the Panasonic could be played on a Shibaden player, etc. – obviously a great boon to customers and presumably beneficial to VTR industry as a whole.

Sony immediately revamped the CV-2600 into the EIAJ standardized AV-3400 keeping the basic tape transport and controls but changing the electronics. The two decks look remarkably similar but tapes made on each are not interchangeable. The EIAJ standard discontinued use of the skip-field process accepting as the norm the traditional two-field frame.

Effectively by the end of 1969 the CV's short commercial life span was over. Examples of its use in 1970 and later exist but are usually instances of an organization continuing in-house use without any need for wider distribution that would require EIAJ standardization<sup>101</sup>. A 1972 index of independent media groups compiled by the April Video Collective lists a number that still employ CV<sup>102</sup>. The study of television's effect on children's inter-social behavior previously mentioned was conducted with a CV deck as late as 1974<sup>103</sup>. Regardless of pockets of lingering usage the wider video world had moved on – even video artists and guerrilla television groups who started in CV. For example, the Videofreex's Spaghetti City Video Manual neglects any mention of the format<sup>104</sup>. That a video collective with its origins rooted firmly in CV would not discuss it in a book on disseminating knowledge of community based ½" video making indicates the format's practically instantaneous plummet into complete

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<sup>100</sup> LabGuy's World

<sup>101</sup> Murray, Michael, The Videotape Book: A Basic Guide to Portable TV Production, New York: Taplinger Publishing Company, 1974, 45.

<sup>102</sup> The April Video Collective, "April Video Contact List", 1972, Accessed on 31 Oct 2008 at <http://www.vasulka.org/archive/LyndaMiscTHREE/lynda/AprilVideoCoop.pdf>.

<sup>103</sup> Collins, et al.

<sup>104</sup> Videofreex, The Spaghetti City Video Manual: A Guide to Use, Repair, and Maintenance, New York: Praeger Publishers, 1973.



obsolescence and the near total degree to which it was effectively consumed by AV.

This replacement of CV by a format with a tape indistinguishable to the naked eye is the source of one of the many preservation problems surrounding the format. Since CV and AV used a similar tape [though anecdotal evidence suggests tape used in the CV era did not have a black carbon backing<sup>105</sup>] on the same reels the format cannot conclusively be determined without putting it on an AV deck and seeing if it plays. Because of the significantly greater number of tapes made in AV due to its much wider adoption and slightly longer life span, the assumption would be that a ½” tape is AV until proven otherwise.

A further problem with CV is the decks’ lack of a tracking control to improve a tape’s proper alignment with the rotary head<sup>106</sup>. This fact would be less problematic if playing a tape on the deck that recorded it, but it can cause problems with migrating the video signal on another deck – certainly the case in any current preservation lab. Hopefully a responsible lab will have a variety of CV decks increasing the chance of providing a good signal. Since CV decks are exceedingly rare, this might not be the case, and the resulting poor image quality of the duplicate might be unavoidable.

The lack of clear distinction between CV and AV causes difficulties in terms of the archiving and instituting intellectual control over a collection of CV tapes. In the MARC 21 metadata standard EIAJ is the only ½” tape in its list of video formats leaving a cataloguer without clear instructions for designating CV<sup>107</sup>. In regards to how institutions catalog CV neither the Electronic Arts Intermix<sup>108</sup> nor the Video Data Bank<sup>109</sup> distinguish between AV and CV in their databases. Tapes are assigned the ½” appellation only.

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<sup>105</sup> Sacerdote, Angelo, Personal interview, 31 Oct 2008.

<sup>106</sup> Sacerdote

<sup>107</sup> Library of Congress, “MARC 21 Format for Bibliographic Data Field List”, Accessed on 9 Nov 2008 at <http://www.loc.gov/marc/bibliographic/ecbdlist.html>.

<sup>108</sup> Colley, Tom, Personal interview, 27 October 2008.

This is not brought up to accuse these two respected organizations of mismanaging their holdings; far from it. That two institutions concerned with the distribution and preservation of video art and its history do not do so points to the neglected history of CV. For both, on the level of daily operations once an original ½” tape is migrated to a newer format – be it U-matic back in the 80s, Betacam SP in the 90s, or digitized in the 00s – the archival preservation master is stored for safe keeping making the nature of the original technology somewhat moot. That the original format of a tape can be disregarded points to the tenuous relationship accorded to a video signal and its physical origins.

In spite of the often-disembodied nature of video, a better understanding the CV format physically and temporally locates the concealed origins of a series of technologies and techniques at the heart of today’s user generated media landscape. Kihara, in his accounts of the creation of Betamax, identifies CV as both the end result of a campaign to make VTRs available to the home and the source of a number of patents that “govern the basics of video tape recording”<sup>110</sup>. Paik’s early video work manipulating TV shows and satirizing political and cultural figures is the forebear to today’s widespread remixing of images appropriated from mass media. According to Roy Armes, CV was the inchoate beginning of the liberation of video from the financial and aesthetic constraints of broadcast television that allowed for the eventual creation of an endless variety of applications and uses – from obscurant art in galleries, politically engaged activism, and quotidian displays of domesticity<sup>111</sup>.

To be sure, too much importance should not be placed on CV as some sort of initial spark that created the current media environment. It was simply a reification of ideas and concepts of the time regarding media,

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<sup>109</sup> Churner

<sup>110</sup> Kihara, Interview, 16

<sup>111</sup> Armes, Roy, On Video, New York: Routledge, 1988, 128.

technology, and culture; it's not unimportant that McLuhan's Understanding Media was released the year Sony developed the Videocorder. If Sony had been unsuccessful in the development of CV one of its many competitors would have soon thereafter released a similar device to the market. Brian Winston in his study of the technological development of cinema and television, Technologies of Seeing, attributes the transformation and dissemination of a prototype into an widely used invention as based on its filling a "supervening social necessity"<sup>112</sup>. CV then did not create the need to record, talk back and engage with broadcast media, to "put yourself in the picture" in a variation of Sony marketing. A social need – inculcated from two decades of being inundated and left voiceless by broadcast television – created CV.

#### APPENDIX 1: CV MODELS

- I. 2000 models
  - A. CV-2000
  - B. CV-2000B
  - C. CV-2000D
    - 1. Dark walnut finish
  - D. TCV-2010
    - 1. Built-in monitor
  - E. TCV-2020
    - 1. Built-in monitor
    - 2. Walnut finish
    - 3. Timer to record TV shows
  - F. VCK-2000
    - 1. Camera system to use with CV-2000
  - G. SV-300
    - 1. Professional model
- II. 2100 models
  - A. CV-2100
  - B. TCV-2110
  - C. TCV-2120
  - D. VCK-2100
- III. 2200 models

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<sup>112</sup> Winston, Brian, Technologies of Seeing, London: British Film Institute, 1996, 6

- A. CV-2200
- B. CV-2200A
  - 1. Both can be used to edit and duplicate.
- IV. 2400 Video Rover system
  - A. DV-2400, portable recording deck
  - B. DVC-2400, portable camera
  - C. No playback
  - D. 20 minutes on 4 ½" tape
  - E. Hand rewind
- V. CV-2600
  - A. Transitional model to AV line
- VI. CV-5100
  - A. Color
  - B. Never went beyond prototype in US
- VII. EUROPEAN VERSIONS
  - A. CV-2000
  - B. CV-2100
    - 1. Switchable between 405/625 lines
  - C. CV-5600P
    - 1. Color, similar to 5100
  - D. CV-5600S
- VIII. GE branded model
- IX. Cameras
- X. Tape
  - 1. V-30
  - 2. V-31
  - 3. V-32
- XI. Monitors
  - 1. CVM-2300U
  - 2. CVM-51UWP
- XII. Accessories

## APPENDIX 2: CHRONOLOGY OF CV

(This chronology was gathered from dates and previous chronologies cited in the annotated bibliography.)

1956:

Ampex introduces 2" Quad

1958:

Sony creates prototype based on Ampex 2" Quad

1962:  
Sony releases the PV-100

1964:  
Sony releases the EV-200  
Sony develops CV

1965:  
Early June – Sony announces the upcoming release of the Videocorder  
End of September – TCV-2010 begins shipping to stores at least in NY  
Oct 4 – Paik purchases first Videocorder, shoots video that is shown that  
night at the Café au Go Go in Greenwich Village.  
Oct 11 – Second screening of Paik's' first video at Café au Go Go, Cage and  
Cunningham attend  
Les Levine purchases a CV VTR and shoots Bum  
TCV-2020 released

1966:  
CV-2000, CV-2000D released  
July – Video Rover announced for next year

1967:  
Video Rover released

1968:  
(?) CV-2100 released  
(?) CV-2200 released

1969:  
CV-2600 released  
EIAJ-1 Standardization  
End of CV

### APPENDIX 3: PARTIAL CV VIDEOGRAPHY

Abaco Fabrics Corporation:  
[New fabric lines], 1966

Channing, Carol:  
[Missed TV programs], 1967

Collins, Andrew W. & Suzanne Kasper Getz:  
[Action-adventure television program depicting an intense interpersonal  
conflict edited for aggressive stimulus], 1974

[Action-adventure television program depicting an intense interpersonal conflict edited for constructive-coping stimulus], 1974

Costa Mesa Police Department:

[Crime scene of Mrs. Harriet Westphal's murder], 28 June 1968

Creston, Bill:

[Untitled videos], 1967

Franchises International:

[Promotional videos for Heap Big Beef Restaurants], 1968

Gillette, Frank:

[Untitled 5 ½ hour piece on hippies in the East Village], 1968

Ibuka, Masaru:

[Tape to improve golf handicap], 1967

Image Makers:

[Videotaped portraits for improving clients' self image], 1966

Johnson, Lyndon:

[Practicing speeches], 1967

Levine, Les:

Bum, 1965, 1965

The Big Eye, installation with pre-recorded tapes and live CCTV, 1968

Morita, Akio:

[Golf swing practices], 1965

[Nearby office fire], 1966

Nauman, Bruce:

8 videos from 1968

Paik, Nam June:

[Apocryphal video of the Pope's visit], Oct 4 1965

Buttons Unbuttoned, 1965

Charlotte Moorman, February 1966, 1966 [possibly the Johnny Carson tape under a different name]

Lindsay Tape, 1967

McLuhan Caged, 1967

Nixon Tape, 1967(?)

Variations of Johnny Carson vs. Charlotte Moorman, 1966

Variations on George Ball on Meet the Press, 1967

Paik, Nam June with Jud Yalkut:

Beatles Electronique, video-film 16mm/CV video, 1966-1969

Videotape No. 3, video-film 16mm/CV video, 1967-1969

Paycheck, Johnny:

Johnny Paycheck at Carnegie Hall, Audio Fidelity Records, Inc., 1966

Ryan, Paul:

Geoff Hendricks Art Work, NYC, 1968

Milan Knizak's Art Work, Rutgers, N.J., 1968

Ryan, Paul and Walter Buckner:

[Community outreach tapes made by high school students], 1968

Shannon & Luchs Realty:

[Videos of home for sale], 1966

Eric Siegel:

Possibly used CV as black and white source material that was colorized in color synthesizer.

Smith, Barney & Co.:

[Daily stock analysis on video distributed to offices nationwide], 1967

Stern, Issac:

[The Stern children's parties], 1968

Stoney, George with Bonnie Klein and Dorothy Henaut:

VTR-St. Jacques, 1969

Tambellini, Aldo:

Black Video II, 1967

Videofreex:

A number of their early CV tapes reside with the Video Data Bank.