As visual music (re)asserts itself as a performance art

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With the invention of the ocular harpsichord in 1725, Louis-Bertrand Castel attempted to integrate sound and image in real-time. Almost three hundred years later we are poised, I think, to answer questions raised by his invention and the inventions of those who followed him. At least four threads interweave to bring us to the current moment. They can be thought of as consisting of contributions by inventors like Castel, painters such as Leopold Survage in Paris and several members of the Bauhaus in Germany, film-makers too numerous to mention, and to a lesser extent musicians, most notably Scriabin. To treat the four groups as separate is to focus on the threads at the expense of the tapestry. It is nonetheless a useful place to start. While the four have overlapped and intersected, they have only recently converged to form visual music.

Castel believed that there was an analogy between sound and light that could serve as the basis for a visual art that was as powerful in its emotional appeal as music. But though sound and light share characteristics (both are reflected by surfaces, can penetrate into denser media, and can be focused by a hollow mirror), there are also important differences between them. Tomes merge into one while colors remain separate, and tones are fleeting while colors persist. Since tones could not be made persistent, Castel proposed to make colors transient. And colors, though separate, could be combined to create visual harmonies. The ideas, then, of colors moving in time and of color harmonies have been part of visual music since its earliest imaginings.

Castel started out more interested in proving his ideas than in constructing a device. In his initial article on the topic he wrote that he wanted, "in the style of Socrates, the demonstration to precede the proposition and the construction of the thing, …since it is not as an artisan but as a philosopher that I set out to demonstrate this new art" (quoted in Franssen, p. 23). He had begun construction of a device by 1745 and he labored on it throughout the rest of his life, though in the end he was not satisfied that the results lived up to the potential of his idea or the expectations of the public. The picture that emerges is of a man worn down by his idea.

Throughout the 19th century others, including Erasmus Darwin, D.D. Jameson, Frederic Kastner, Bainbridge Bishop and Alexander Wallace Rimington, created instruments based on changing color. By the turn of the century, the physicist Albert Michelson enthusiastically wrote "so strongly do these color phenomena appeal to me that I venture to predict that in the not very distant future there may be a color art analogous to the art of sound" (quoted in Wagler 1974, p. 162).

While inventors worried about how to make colors move through time, painters were devising bases for arranging colors in appealing combinations. Some were doing so in the specific context of color music. One of the earliest such efforts was that of Leopold

Survage, a Russian painter of Finnish descent. Working in Paris between 1912 and 1914, Survage painted over 200 watercolors intended to serve as the basis for a four-minute abstract film. He called the series *Colored Rhythm*. Both its colors and the movements implied by its changing forms are stunning, especially given that it anticipated both color stock and abstract animation by years.

Though Survage's work was unusual in the holistic way in which it foreshadowed the future of the art, others painters were writing about and working on the general problem of creating attractive color combinations. In his basic course at the Bauhaus Johannes Itten identified seven distinct contrast effects that could be achieved through various combinations. Drawing on art history, physiological optics and neural psychology, Faber Birren compiled many principles of color use. And seeing what was happening with color among his colleagues, he observed that "Art in frames and art on pedestals is giving way to art that is more a part of life…There is an art of mobile color, Lumia, dramatic and emotional effects with color that involve the manipulation of lights, shadows, flowing abstract forms" (Birren 1987, p. 78).

With the addition of form, Survage had changed color music into visual music. Devising a language for their movement was immediately important. "An immobile abstract form does not say much...It is only when it sets in motion, when it is transformed and meets other forms, that it becomes capable of evoking a feeling" (quoted in Graves, p. 412). This was not lost on the inventors. Between 1922 and 1947, Thomas Wilfred, probably the most important of them, designed his Clavilux which gave significant roles to form and motion. "Form, color and motion are the three basic factors in lumia—as in all visual experience—and form and motion are the two most important," he wrote (Wilfred, p. 252). But Wilfred was not alone. The 20th century, like the 19th, began with a burst of inventiveness.

Two American painters, Morgan Russell and Stanton Macdonald Wright, having created the school of synchromism to focus special attention on the role of color in abstract painting, turned their attention to building kinetic light machines as a way of animating their synchromies. They envisioned an art in which the medium would be pure light. Stanton's brother Willard Huntington Wright wrote about it in his 1923 essay *The Future of Painting*.

> The Synchromists were the first "school of painting" to foresee this future of the color-art. Also, they were the only modern school which was not antagonistic to the older painting. Many of their canvases were frank restatements, in color, of masterpieces by Rubens and Michelangelo. And it is a significant fact that the leading exponent of Synchromism has long since discarded pigments and canvas, and for years has been devoting his energies towards the achievement of a color-instrument which can be used to produce color-forms as the orchestra is now used to produce sound-forms [p. 50].

The 20th century continued to see the invention of new visual music instruments. In addition to Wilfred there were important innovations from Mary Halock-Greenwalt, Geroge Hall, Laszlo Moholy-Nagy, Ludwig Hirschfield Mack and others. But this century belonged to the film-makers. The first abstract film-makers, Viking Eggeling and Hans Richter, were scroll painters who turned to film in order to make their forms move. Inspired by Chinese scrolls and ideograms, they became interested first in implying sequence and movement and then in realizing them. Following on their 1919 debuts were abstract films by Walter Ruttman in 1921, Oskar Fischinger in 1927, and John and James Whitney in 1939. These films addressed such visual problems as elementary forms, counterpoint, continuity, tension-release, figure-ground, implied causality, and changing perspective using purely abstract forms. They were followed by works from Harry Smith, Jordan Belson, Mary Ellen Bute, Norman Mclauren, Larry Cuba, Brian Evans and countless others drawn to the emotional impact of abstract forms moving rhythmically. But film is fixed, each showing of a film very like every other, while music is not.

The goal of color music's earliest inventors was to create an art as powerful in its effects as music is. As Oscar Wilde noted in his 1911 *Essays and Lectures* "music is the art in which form and matter are always one, the art whose subject cannot be separated from the method of it expression, the art which most completely realizes the artistic ideal, and is the condition to which all other arts are constantly aspiring" [p. 163]. But relatively few well-known composers have involved themselves in visual music.

Georg Philipp Telemann was supportive of Castel's ocular harpsichord, expressing certainty that its play of colors would please. Arnold Schönberg's 1909 musical drama *Die Gluckliche Hand* (*The Happy Hand*) included a light storm, created by projecting colored light. And a part for changing lights is integral to the score of Scriabin's 1911 *Prometheus, the Poem of Fire*. In 1919 Vladimir Baranoff-Rossiné gave an optophonic concert in Moscow. In 1926 Leopold Stokowski directed the Philadelphia Orchestra in a presentation of Rimsky-Korsakov's *Scheherazade* that was accompanied by Thomas Wilfred playing his Clavilux. In all of these, the visuals remained subordinate to the music, never attaining the position of equality that was envisioned by the art's early pioneers.

In 1958 Edgar Varèse composed *Poeme Electronique* to be part of a sound and light environment created in collaboration with the architect LeCorbusier, for the Brussels World's Fair. Light images were projected on the walls of the pavilion while music moved in sweeping arcs through the pavilion. No attempt was made to synchronize light and music. More recently this is changing. With the spread of VJing and the near ubiquity of music videos, some bands and musicians are showing an interest in controlling the visual element of their performances.

With the ability of computers to project color graphics of high resolution in real-time and to respond to input from an unlimited variety of controllers, we are re-entering the age of the visual music instrument inventor. What was difficult in the 18th century is no longer so difficult. What is more, we have almost 300 years of thinking and experimentation to guide us. This art, while not entirely imitating painting or film, music or dance, draws on

each of these. Audiences are watching, and musicians are playing along, as we create abstract visuals that move. The possibilities can be seen in Golan Levin's *Audiovisual Environment Suite* and J. Walt's *Spontaneous Fantasia*; in Paul Kaiser and Shelley Eshkar's *Biped* and Scott Draves' *Spotworks*; in Sue Costable's live performances with Max and Jitter and in countless clubs and concert halls.

As the variety of interfaces grows and the modes of interaction multiply, it seems that Wright was onto something in 1923 when he predicted that "the art of color will be a new art only in medium; and until the day comes when an artist is great enough to express the profound form of a Rubens, or a Michelangelo, or a Beethoven, through the modern medium of light, the art of color will remain inferior to the other arts. That day may not come for many decades—perhaps a century. But this fact should in nowise constitute a stricture against the art of color….Painting will continue to serve a decorative and representational purpose. But the art of color will be for occasional reaction and stimulation, like symphony concerts and the drama" (p. 53-54). Let the playing begin.

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Web sites

Fred Collopy's RhythmicLight (http://RhythmicLight.com)

Scott Draves' Spotworks (http://spotworks.com/)

Paul Kaiser and Shelley Eshkar's Biped
(http://www.openendedgroup.com/artworks/biped/biped.htm)

Golan Levin's Audiovisual Environment Suite
(http://acg.media.mit.edu/people/golan/aves/)

J. Walt's Spontaeous Fantasia (http://www.johnadamczyk.com/performance.html)

Biography

Fred Collopy designed the first version of Imager—software for playing abstract visuals in the way that musicians play with sounds—for the Apple II computer in 1977. His work has been presented at ISEA, SIGGRAPH, Sonic Light, and the IEEE Symposium on Visual Languages and been published in *Leonardo* and the *Journal of Visual Programming Languages*. He has performed visuals live with the jazz ensemble Kassaba, electronic musician Dino Felipe, experimental composer Henry Warwick and others. He has been a visiting scientist at IBM's Thomas J. Watson Research Center. He teaches about technology and design at Case Western Reserve University. His web site is located at RhythmicLight.com.