Dwinell Grant (1912-1991) began making abstract animation films in 1940 in Ohio as an extension of his paintings. His nine abstract film compositions range from the 1941 *Contrathemis* with its intricate geometrical configurations in the style of Fischinger to the 1943 *Color Sequence* which consists entirely of pure color fields in dynamic alternation. He also made scientific illustration films and commercials to support his abstract painting and filmmaking.

**Composition 4 (Stereoscopic Study No. 1)** dates from 1944-1945, extending the complex imagery of *Contrathemis (Composition 2)* into the literal as well as illusionary world of perspective. The right and left eye information were animated side by side on the same film frame, and a prism used to overlap the projected images and code them for polaroid glasses. Grant successfully creates smooth movements and "realistic" interactions between his mutating non-objective figures.

Norman McLaren (1914-1987) began making abstract animation film in England in 1933 by drawing directly on the surface of the blank film strip. During World War II he emigrated to the Canada, where the newly-founded National Film Board allowed him the freedom to pursue a complete range of experimental films over the next 40 years.

The Festival of Britain in 1951 commissioned two 3-D films from McLaren for the Canadian pavilion. **Now is the**
Time helps introduce the audience to the concept of stereoscopic film, and Around is Around mixes hand-drawn imagery with oscilloscope patterns in an abstracted deep space. Louis Applebaum's musical score was also created in stereophonic sound, with parallel "depth" effects.

Oskar Fischinger (1900-1967) began making abstract films in the early 1920s in Germany, and emigrated to America in 1936 after some 25 successful films. In the U.S. he worked for Paramount, MGM and Disney (on Fantasia), also designing abstract episodes. His 1947 masterpiece Motion Painting No. 1 was awarded the Grand Prize at the Brussels Experimental Film Festival in 1949.

Immediately after finishing Motion Painting, Fischinger began experiments to learn the "calligraphy" of three-dimensional phenomena, using staged photographs to calculate depth displacements. He painted a series of canvases which contain right and left eye information on two side-by-side images. In 1951 he constructed a special animation stand that would allow him to paint and film two right/left images at the same time, in the same technique as his Motion Painting, shooting a single frame each time a brush-stroke was made. During 1952 he sent out his half-minute test Stereo Film to different possible funding sources, but despite the theatrical 3-D craze, he never received backing to complete a stereo project.

Hy Hirsh (1911-1961) began his career as a still photographer and cameraman, but after the Art In Cinema festivals at San Francisco Museum of Art, he was inspired to begin making his own experimental films. Two of his
films, *Gyromorphosis* and *Autumn Spectrum*, received awards at the Brussels World Fair in 1958. *Come Closer* was prepared during 1952-53 at the time of the 3-D craze in Hollywood. Hirsh used oscilloscope patterns in complex optically-printed combinations. In keeping with the Caribbean carnival music, Hirsh makes abstract ribbons as if they were confetti and streamers, but he also delights in push-pull color effects and "realistically" impossible relationships between two objects, which whimsically pass through each other.

Harry Smith (1923-1991) turned his skills as painter and anthropologist to animation after the 1946 Art in Cinema at the San Francisco Museum of Art, when, inspired by Fischinger, he started painting abstract images directly on the film's surface. In 1950 he received a grant from the Guggenheim Foundation and moved to New York, where he completed several more films including an animated collage feature *Heaven and Earth Magic* in 1958.

Film No. 6 (1951) records a live performance in which paper cut-outs were suspended in real space and lit by red and green lights to create anaglyphic shadow images on a screen. Pre-filmed images and slides were also projected using red-green coding for depth displacement. Smith's interest in Alchemy led him to design "magical" configurations that do not necessarily correspond to ordinary experiences. The film was originally much longer, but only this fragment survived (in the estate of Hy Hirsh).

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