

# Reconciling Art, Music, and Machinery

An Interview with John Whitney

By Maureen  
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**M**: When people talk about you, they usually mention that you are interested in technology and that you worked for IBM. Could you comment on any technology or inventions that made your work possible?

**John Whitney:** I was sort of skillful at using equipment and tools, and I built a device for generating motion picture soundtracks. It was a very odd thing and nothing significant has come from that invention. But for my brother [filmmaker James Whitney] and me, it was very meaningful because we made a set of five abstract film exercises, the soundtracks for which were made on this pendulum soundtrack recording device. So that was a very significant boost to our self-confidence because we had first prizes at

the international experimental film competition in Belgium, the first major competition. Oskar Fischinger got a prize that year, too. But our prize was for the unusual soundtrack, because it was subsonic—that is, it recorded mechanically a pattern which when played back would create sounds in the standard optical soundtrack amplifying devices of a motion picture process. We were able to compose both sound patterns and graphic, abstract design patterns in total coordination, or literally note for note. We called them *Five Abstract Film Exercises*, and they fell into the category of experimental films (that's what they were calling them at that time). The awards encouraged us to go on and subsequently we got a Guggenheim Fellowship. I have really devoted the rest of my life to these concepts of abstract design and music.

**M:** What were the initial technologies that you built from?

**J:** When I was in my late teens, I had become interested enough in film to have taken the trouble to inform myself. I read lots of textbooks and knew all about, in a superficial sense, the technology of sound recording. This was in the '30s and early '40s, and this was a time when sound technology was kind of a scientific frontier. Most outstanding developments were taking place there.

All those engineers who subsequently became involved in military projects, in computers, were attracted to the Hollywood motion picture sound industry.

**M:** What sort of sources did you use?

**J:** There were technical journals and books being written all the time during those years and I followed those carefully. I was always an outsider. One or two times, I tried to get a job but I wasn't really qualified—I wasn't in any way a trained engineer. I was much more interested in art than in the engineering aspects. I thought it rather a painful disappointment that I couldn't arouse any interest in the engineering community in Hollywood. I thought they should be interested in what I was doing but they were profoundly disinterested. The entire Hollywood industry, all through that time and to this very day, is interested in one thing and that is making the face the right color and absolutely convincing you of a faked reality. So all the energy and the terrific ingenuity goes into special effects: faking, creating, falsifying, or recreating a reality. That's an area that doesn't interest me in the least. And what I've been doing doesn't interest the professional people in the least.

**M:** How did you think your experiments could have benefitted the industry at that time?

**J:** I wrote an article for *California Arts and Architecture* trying to say that the world of cinema should range from pure drama to pure abstract design, a range from music to drama. I assumed that the time would come when that area would be as interesting as the other area. Well, strangely enough, that area has a peculiar popular commercial attraction right now in music videos. But it's still not doing a damn thing with the idea of creating an abstract art like abstract expressionist painting, which can be tied with music.

**M:** What do you think about MTV? I look back at some of the early abstract filmmakers and wonder if any of the videomakers have seen their work—Len Lye, for example.

**J:** And Oskar, of course. And there were others in Germany—[Walter] Ruttmann and [Viking] Eggling. They all thought like I did. It was by no means my own independent thinking. There was a theme of that sort pervasive in the art circles of Europe, and among the avant-garde filmmakers like Man Ray and Fernand Léger. All those, at that time, envisioned an abstract cinema that was just as significant as the cinema of drama, of storytelling.



Catalog



**M:** I know, as you said, that the emphasis in Hollywood is on recreating reality. How does this relate to viewers and the sense of aesthetics?

**J:** It hurts me to think that there will never be a full-blown, popular art of abstract design because it seems to me that abstract design is the essence of music. We are immensely moved by the abstract structure of melodic patterns. We hear them and they mean a lot to us. At the present time, in music video, for example, they are so overwhelmed at the idea of telling a story of boy meets girl and the whole business of nostalgia and commentary about the world. This is all very legitimate but there is room for more.

**M:** Yes, it seems there would be. It's a bit of a leap, but I'd like to discuss the work you did at United Productions of America. Was this your first industrial position where you were making films?

**J:** Yes, it was and it looked like a unique opportunity to go along with these very ideas I've been telling you about. They had a CBS contract; they were going to become mainstream and be on television. They were going to have one of those Sunday special hours, a regular weekly show of animation, all created in great volume by UPA studios. They hired me because they knew the kind of filmmaking I had been doing. In the early '50s I had done a series of animations by another gadgetry, a thing I had rigged up. It was a means by which I could run the camera in an animation stand overhead, looking down onto a field. And on that field I could do manipulations of paper cutouts, putting one over the other with a light table below. I also invented a flat tray of oil, so that the oil would lie in a quarter-inch thickness in this flat tray, and I could draw in that with a stylus or even my finger. It would push the oil away and the oil had enough red dye in it so that the light would be obliterated.

It would be a black field until you pushed the oil away with a stylus or with your finger, and then the light would come through. You made a tabula rasa, a constantly refreshing, constantly clearing animation field. I manipulated things to music and made several little films. I think those were the kinds of things that got me the job at UPA as a director. But once they got into the hard-nosed business of trying to make a popular prime-time show, those ideas didn't seem to have nearly as much possibility as *Gerald McBoing-Boing* and the little sentimental stories that they finally ended up with.

**M:** You mentioned that there were several factors which prevented the UPA series from being aired.

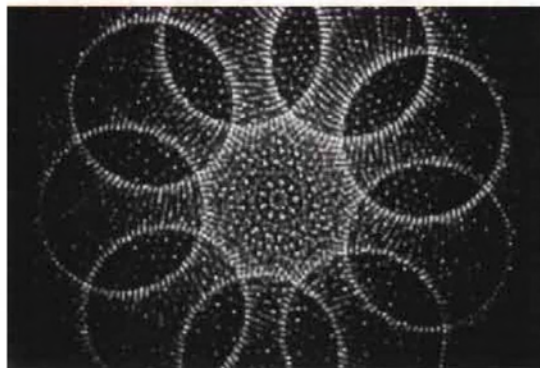
**J:** Yes, the endless, terrible problem of supply. You just cannot produce things in enough volume to come out with a whole hour every week. It's out of the question.

**M:** Did they produce any?

**J:** They had *Gerald McBoing-Boing*, which ran a few episodes. But it died—it wasn't that popular even. All the people at UPA were drop-outs, more or less, from Disney, who disliked the saccharine stuff that made Disney successful. They hated it all and they wanted to make animation really something worthwhile. So they had pleasant little stories about the life of painters and they wanted to bring in literature and high quality music. And they wanted to do a lot of things which, in the '50s, were being tried on television, but mostly unsuccessfully. It was the idea that you must provide entertainment for the twelve-year-old mind, then becoming an obvious fact of life for the producers of television shows. There would be a lot of talk back and forth, asking "Why isn't it possible to do really serious, but good, animation? Why do they always have to play with mice instead of getting into issues?" And, in fact, two or three UPA productions were really that.

**M:** Were any of these shown theatrically?

**J:** Well, at just about this time, a terrible economic disaster impacted the animation business. There were several companies around besides Disney. There were animation studios at almost every one of the major studios—at Columbia, Warner Bros., and MGM. They were doing *Tom and Jerry* and so on, and they were selling them. The world of animation shorts was a given, an understood fact; when you went to a movie you saw one feature film and an animation short and possibly a newsreel. At that time, a major government law—the anti-trust legislation—took the own-



ership of the theaters away from the studios and broke up the sweet situation that made it practical to even, if necessary, subsidize shorts to go along with feature films. They began the process of two films per night, the double feature. That really wiped out the animation industry in a very short time. So here was UPA coming into existence at the time of the double feature and the breakdown of the old patterns, so they had no way to sell their product as shorts anymore.

**M:** How was your interaction with the commercial industry?

**J:** Well, it was strained and imperfect. When I ran out of money, I would try to get some jobs. I had begun to lose all interest in motion pictures, or at least

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the processes of animation. The standard idea of cels I had never been involved with, but the standard idea of one frame at a time with the motion picture camera didn't seem to me to offer any future for this idea of abstract design, fluid and related to music. Instead, I felt that something else had to be invented. There was something missing, so I began to try to make animation machines, mechanical systems that would manipulate. I became very successful at that, leading to my brother's film, *Lapis*, and my catalogue of techniques done with these animation devices called *Catalog*. Moving in that direction, it finally became clear that I was actually struggling to invent a computer. I began to fully realize that all these mechanical systems were just a tedious way of doing something that could be done absolutely in a perfectly natural way with computers and computer graphics. That's what led to the major change in my life, which was the grant from IBM beginning in about 1965.

**M:** I was wondering how the area of cybernetics research or WWII technology in general affected you.

**J:** It was in a very peculiar way. I backed into it, I was not aware. Here I had been building these mechanical things and then I began to see that I could build much more elaborate mechanical things by applying the World War II hardware. And that hardware, I slowly began to realize, was the forerunner of the modern computer. There were very elaborate and sophisticated mechanical devices that did what a computer can do. But these were mechanical devices that solved ballistic equations, the problems of how to get a bomb out from a site down onto the ground. Or to get a cannon to fire at a certain angle so it will land on target. These called for very, very complicated equations. As Bucky Fuller points out, wars have always caused enormous leaps ahead in the world of technology. Out of all that came the conscious awareness of the possibilities of the computer and where we are right now.

**M:** Did you go anywhere in particular to get equipment, or was it mostly just the theory?

**J:** Yes, but then there was the introduction to full speed with the grant by IBM. That grant was very meaningful and changed my life because it included not only a modest annual income, but also access to the most advanced computer facility. It was at UCLA in the Health Sciences Computing Facility, and included too, the support of the technology experts. So I had a Ph.D.-in-Physics man who developed the first composing program that I learned to use. *Permutations* was the first film and my *Experiment in Motion Graphics* was finished about a year or so later.

**M:** Were there any other people that you can recall that were trying to use the equipment, or who were interested but never actually used it?

**J:** I can't single out anyone but, for example, my brother and Jordan Belson. And Harry Smith, for that matter. It's interesting—both Jordan Belson and my brother followed sort of parallel directions. They acquired a certain patient skill in working in the mechanical way, in a very rudimentary simple way. They were able to get motors and a little pulley to wrap filament around and around, and then attach paper to it so that they could make something move very smoothly and slowly. But at the same time, I was learning a much more advanced technology. That field of points in Jim's film, *Lapis*, was all my development, all my invention. In that case, this was the most advanced of the mechanical WWII surplus equipment. I had a device that was moving things around in a very, very elaborate motion and a strobing light that would put one exposure of a random pattern over another, over another, over another, all on one frame of film. Then, having gone through a complete cycle of exposing one frame of film with great fields of points, the camera would jump ahead to the next frame and it would start doing the same thing all over. It had slight mechanical changes so that as each cycle would advance incrementally, there was a differential adjustment for each frame

drawing. They could never imagine that or work that out. After I made several films, I think I had done *Catalog* completely, then I decided I knew enough now to make a much more elaborate machine. I gave the old machine to Jim, and with that old machine, he made the best film that was ever made with those technologies.

**M:** *Lapis* took a long time to make, did it not?

**J:** Yes, he worked over quite a long period of time, but he worked on and off. Part of the problem was that he was so frustrated by it; it was over his head in a way. It was for me a lot of the time, too. He would work on it for a period of a year or two and then give it up, more or less. And so it was not a consistent period of work.

**M:** You've mentioned Jordan Belson and Harry Smith. Were there any other people who you would consider as being part of a community of filmmakers you worked with or talked with?

**J:** Not really. We saw each other from time to time. If we had any association with anyone it was especially Jim and Jordan Belson. They had quite a lot of exchange and understanding. But like those various filmmakers on the East Coast and Stan Brakhage, we had practically no contact with them.

**M:** Why was that?

**J:** Well, just physically, and even intellectually, for that matter, because I disagreed with many of the filmmaking ways of most of the other people. I was very much on my own, following my own nose.

**M:** I understand that amateur filmmaking was very big here during the 1950s. Did you ever talk to any of these people or show your films?

**J:** A little bit, but it didn't leave much of an impression on my memory. The best thing to describe are the goings on that took place on Hollywood Boulevard at the American Contemporary Gallery, which was on that little street, a little arcade about three blocks down from Musso & Frank's. In fact, the Pickwick



Book Shop is in that same block. There was an arcade back there and at the back of the arcade was a space: the American Contemporary Gallery. There were shows there all the time. Henry Miller had a show there. And there were film showings, mostly films rented from the Museum of Modern Art Library. This was during the war. I knew Man Ray at that time and he had a show there and showed his films. Often enough I did the projecting. My brother and I both showed our films. I met my wife, Jackie, when she had a show there. She was interested in film and that's why we hit it off but she had a great little exhibition along with three other girls who had won competitions.

**M:** So people from the community who had an interest in films could come to these shows?

**J:** That's right. This was probably the first of that kind of gallery environment. There had been the same film showings at Art Center. They weren't much publicized, nor were these showings at the American Contemporary Gallery. But that was about the earliest beginnings of the idea of the avant-garde—essentially they were avant-garde, they weren't called underground—and film showings of this sort.

**M:** That's around when Maya Deren was getting started.

**J:** That's right. We knew Maya Deren and she was out here in California at these showings. In fact, she wanted me to help her on two or three things. Then, coincident with that, my brother and I were living over where Barnsdall Park is. This was Eileen Barnsdall's second house, that she had built on the West side, down the slope of the Barnsdall Park hill. She had built the Hollyhock house on the top and she owned the entire square, which subsequently she gave to the city of Los Angeles. Though the top house, the Hollyhock house, was in disrepair, at least it was locked and wasn't being vandalized. But the house on the west slope of the hill, where we moved, was pretty well devastated. At that time, a photography student named Edmund Teske was so enthralled

to come out from Chicago and find this Barnsdall house that he took it upon himself to move in. He took over the south wing. He got Eileen Barnsdall's permission to stay after he had squatted there, and then gave my brother and myself permission to move in. So that's where we finished the last of the *Exercises* using the pendulum machine and the optical printer; we have pictures of us living there in a room where we had dug up two or three feet of rubble and put glass in the windows. This building was quite extraordinary. Frank Lloyd Wright had started it, then Eileen ran into some kind of conflict with him and Schindler finished it. It was never looked upon as a pure Frank Lloyd Wright work but it had an atrium, a courtyard open to the sky, and a wonderful arrangement of planes. It became an ideal place, at night, to have projections and we had a lot of parties there and showed films. I still run into people who remember going to those films. A lot of very important people went to those films, artists and filmmakers. That was another place that became fairly well-known as a place for showing avant-garde films—the war was still going on. Man Ray came and once we had a visit from Bertolt Brecht. It was a wonderful time. We didn't really make a splash among the famous German colony, though, which included Thomas Mann. We were sort of on the ragged edge of activities. I did get to meet Arnold Schönberg, but he never came to any of these things. Sidney Janus and his wife came to the parties; they were very influential and were among several people, including the editor of *Art and Architecture* magazine, John Intenza, who were influential in getting my Guggenheim grant. These parties may have been '47 and '48, or rather even earlier. Around in that time.

**M:** So they helped get you started on the funding, which made it possible for you to focus on your work?

**J:** Well, it really wasn't that available. I didn't really get the availability of resources until '65. In fact, all through the '50s—I hardly made any films during the '50s. I had children growing up

and I did these various commercial things. I worked on developing and inventing and improving this technology of mechanical film machines, which really are the forerunners of the whole concept of motion control and slit scan. In fact, clearly I am the inventor of slit scan, the techniques that were used most wonderfully and successfully in *2001*. That is only infrequently mentioned because the true success of *2001*, and the credit for that, the actual work that was done, was done by Doug Trumbull, who has become very famous for his special effects work. My relationship to all of that is that I did supply some footage to Stanley Kubrick, suggesting this kind of possibility and there was the potential—if the samples that I had shown were recognized as being mine instead of Doug Trumbull's, I could have been invited there because several of my friends whom I had been associated with and worked with, including Trumbull, did go to England to work on that film. But had I been invited, I would have refused. I would not have gone because that coincided with the period when I had my IBM research grant. That was in the mid- to late-'60s, and there was no way I would have given up the advantage of the support of IBM.

**M:** One last question. You seem so familiar with engineering. When you were in school, was it for engineering?

**J:** I was a drop out! One time after another, I dropped out of school. No, it was a strange thing—I had this great enthusiasm for engineering, for mechanical things, for building. Then, as I came to the end of my teens, I became so deeply interested in music and in art that I felt for a while I was sort of miserable because I couldn't reconcile my interest in such diverse areas to me, at that time. How could I be interested in telescopes and motion picture cameras and be so deeply moved by music and art? I couldn't see how I could make something out of that. But, in fact, at the very same time I was miserable over it, I was resolving it. I see all that in hindsight.

[This interview took place in March, 1992]