June 16, 1982

Dear Alan:

Following are some incidental thoughts.

- About ten days ago I attended a very interesting panel discussion at the "First International Visual Music Festival." Panel members included Ed Emshwiller, John Whitney, James Blinn and Dave Em. Most interesting at this particular session was Whitney who talked about the development of visual music. He was using the phrase not to mean pictures + sound, but as an analogy to aural music. He is now working on the development of an equivalent to musical notation, scales, etc. for visuals. As I understand it, he is working toward a system that will produce visuals in real-time the way musical instruments (including voice) produce sound. [Our ears have a complementary output device - the mouth or even clapping hands - but our eyes alas have none - at least not one that you can play in real time].

  I mention this because I find it interesting in its own right, but also because of something I thought of later, when I heard that James Blinn is teaching a course in computer graphics/art at the Pasadena Art Museum this summer. He'll be using Ataris loaned by the Atari Institute. Why don't we seek out others like Whitney and Emshwiller and if they are interested lend them Atari systems for use with their students (Whitney is at UCLA, Emshwiller at Cal Arts). At the least it would open up a potentially significant dialogue between these artists and Atari. At best, they and their students might actually push out the boundaries of what can be done with existing hardware and help shape future developments as well.

  Blinn has never used an Atari before. It should be very interesting to talk with him after the summer and hear his summation. I'm going to arrange to go to his class one night.

- Let's do some <u>informal</u> research into how people use existing, commercially available systems (Compuserve, The Source, Dialog, videodisc players, encyclopaedias). The basic purpose would not be to produce publishable research but to provide useful data which we can chew over to sharpen our gut instincts during the initial stages. We don't want to come up with a "last word"

as much as help in formulating the design of early products which shouldn't/ can't wait years for research results. Put another way, it looks like much of the long term research for the "intelligent encyclopedia" will be based on actual products that we put on the market in the next several years. The point here is to do some "guerilla" research to help get the initial products off in the right direction. Among the things we could do are:

- focus group interviews with users of Compuserve, The Source, Nexus, Dialog etc.
- observation of experienced and novice users of these same online systems
- observation of people using encyclopedias; both trained and untrained people, each looking up the same facts, ideas etc.
- observation of children and adults using various videodiscs [How about putting a player at one of the camps, perhaps with an interface for the Atari]

We could do this with a couple of sharp college/graduate students plus a minimal amount of money for organizing and carrying out the work. A lot could be done with $10,000 or so over a three month period.

- Probably the most interesting thing I saw at CES was a private showing by RCA of their videodisc player reconfigured to do everything that the laser system will do and then some (mainly greater capacity). The laser system has an inherent elegance that makes it more attractive, however what is important here is that for all intents and purposes, program producers will soon be freed of having to make the "heads you win, tails I lose" choice between the sophisticated programming possible with the laser system (and VHD) and the broader market represented by RCA. The same program will basically be transferable to all three formats.

- I am making good progress in learning about TIES, QUBE, etc. Unfortunately the more I learn the stickier things look. To make it short, as presently configured the QUBE systems are not capable of any significant two-way communications - unless you want to call 150 bits per minute (including bits for address and error correction) significant. As I understand it now, even if a lot of money were spent to increase the amount of upstream (to the head end) data flow, or if you were to adopt a hybrid system using the telephone for upstream communication, there would still be the question of where you are going to get the

prodigious amount of computer power necessary to deal with the wide range of sophisticated services being offered to thousands upon thousands of subscribers in a given area.

I am looking forward to extensive discussions in NY with people from QUBE, TIES etc, to try to nail some of this down. I think it would be good if someone else from the research group (either from Sunnyvale or NY) could go with me to some of these meetings. I have a pretty good sense of what we want to do, but am still weak on a lot of the technical questions. If there is anyone with a decent understanding of at least basic telecommunications practice and theory, together we might be able to get a fairly sharp picture of what is going on. The more I get into it the more I realize how important this is, since it would not serve us well to assume that "xyz" is going to be in place as a delivery system, if that's not true - and it may not be. Perhaps we could even influence the direction things take.