

**BANFF MEDIA INSTITUTE
LIVING ARCHITECTURES
BETWEEN THE VIRTUAL AND THE REAL; MODELLING
SPACES, MODELLING METAPHORS
SEPTEMBER 24, 2000**

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Sara: So here we are. Excuse me; I'm having this candy, which is going to enhance our experience together. I am really happy to introduce this session, which is looking at the question of metaphors, and how we work between the virtual and the real and we have a really fantastic group of architects, architectural theorists, computer scientists and artists to share with us. The first speaker is Barry Pendergast and Barry has been an ongoing collaborative with the Banff Centre. He has been an architect since 1964 and he has really, in so many ways, (from blank on Tape 11 to Tape 12).....town planning and architectural planning so welcome back to Banff, Barry.

Barry: Thank you Sara. Because I'm daring to be dangerous today by using one of the new Macs and one of the things, Sara, I should ask is in the past, I've been accused of fondling the Mac while I make a presentation, and this would be very easy to do since this is very caressable. Because if you start caressing it, the thing turns off so that's another problem.

Sara: It turns off because it wants to go into another space with you.

Barry: It's been beside my bed the last few nights. So I'm going to hop all over the place, it's in my nature and I'm not even sure that anything I say is applicable to this group. I know I'm going to leave here fully charged up with a thousand wonderful ideas but with apologies to Don. I can definitely identify myself as an alien; I am an alien certainly by Doug's definition but I want to do things differently and I'm going to do them despite what happens in the real world.

Certainly I go back a long way with computers. In 1981, I got an Apple II. I started to play around with 3-D originally. I even had an Apple laser. I don't know if there's that many people in the room that are as old as I am but that was just a wonderful change. Apple gave me a huge step forward between 1985 and 1991, playing with Macs, trying to show how they could be used. We did a lot of dreaming but some incredible things came out of that period for me. Certainly throughout the whole period, I've always wanted to do things in an

interactive way so that we could involve people. Certainly, the electronic papers approach; we've written numerous research papers on it; never quite got to that stage of actually being able to do it in a really satisfying way. We're getting closer to it but nobody has wanted to live dangerously with us on that.

And then really one of the things I think that is a key for me, and I think Christine was talking about this notion of getting into construction and I really believe until we recast the building industry, we ain't going to make it work because what we've done essentially is we've taking a traditional process and we've computerized it and it doesn't work. And architects are the worst members of that group to affect change. I just work out of my house now. I used to have a practice with people and I got tired of organizing people so I now work in my house, I have virtual partners and we're starting to see some really nice tools to allow us to move stuff backwards and forwards including the software that we use. Just a step back and my Apple II, my laser, I loved that laser. Unfortunately it got stolen.

Just an image of kind of mediums; on the left is a drawing I did as a student where we even mixed our own ink for that; mixed it, strained it, took about four weeks and then the kind of drawing we do now where we can produce hundreds of things and work interactively with them. It's interesting to look back and I'm not sure it's an advantage to have the skills in both areas. Maybe someone could comment on that. This notion of interactive design – we try to do everything we can in front of a client, with a client from day one and I think I'm going to talk about some of the frustrations Richard feels in the civic process because I think that's the.....to get people involved in what we do. The problem is, in our field, we're cash-poor architects; we hate to collect fees because the clients are going to say that we did a lousy job and we're unwilling to share our data with other people which is kind of sad. We talk about sharing electronic drawings and, "Oh, copyright is a major issue. I'll get Sue, or you'll use my plans", forgetting about the whole potential for sharing data and actually making it a stronger profession. I just find that so frustrating that we could all be sharing 3-D versions of our buildings around the world, so that when I do a new building, I'm not going to be starting from scratch. It will strengthen our profession, not weaken it. And I think our profession will die without a major retool. We're just not part of this new century.

I think we're missing opportunities in the world that we do to get even into the kind of stuff you're doing. I think I'm going to go back and become sort of a more visual artist after this, but I know Doug Macleod and I and a group of us, when we were working on a project recently, we were talking about starting to do fantasy houses for people

that can never be built because the majority of us, and I suspect most of you in this room, have never had an architect design a house for you. But you could design a fantasy house; have all the fun of designing that fantasy house, put it in a subdivision that doesn't have to have civic approvals, Richard, and it opens up some incredible possibilities for you to enjoy the pleasure of working with an architect without having to pay as much as you would with a real building. You probably couldn't sue me either.

But just some quick thoughts. My notion for the data that we use in 3-D is to do a concept to demolition so it hews through the life of the building; it's not something we suddenly do for some fancy graphics; we're using it constantly in the process. Also the fact, this is an obvious one, you build before you build in 3-D. There's a lot of sense in that; not just pretty pictures again. You build the whole construction. Okay, I've mentioned about the problem of the way we converted the computers and again, this notion of having a comprehensive database of buildings that exist so that we can share the data, not just 3-D actually but a whole series of intelligent data. Then this terrible question, "Is architecture just for architects?" and of course, we know what the answer that comes out if you ask most architects. I think I was talking to someone in the room at the lunch table the other day and they were complaining about how unfair clients are and how rational they are and it's true, but we have to work with them.

And then something that's really sobering is the cost of a building over its life, 90 percent goes into the operation; very little goes into the up-front part of it. We kind of miss the opportunities to all sorts of fun and wonderful intelligence; things that when all that money is going to the process and architects usually shut off when they get AutoCAD. This is the thing that Richard and I argued about at times but I think it's had a horrible constraining effect on the way that architects use computers because it's usually used by a bunch of backroom technicians and that's all they know how to do is draw lines with it. They certainly don't know what they're drawing much of the time and the architects have got somehow cut off from the design creative processes. So I'd like to have that instantly taken out of the world; it's certainly a very difficult sterile interface to use for anybody who uses it. Richard does incredible things so he's an exception and it is used mainly for 2-D. It's controlled in my offices by architects and it's almost like a power base in most architects' offices, which you can't break into or change.

One of the things which I feel very strongly about, and just a few years ago, I was talking to Scott Bentley who is the salesperson and the Bentley brother in charge of sales. He was telling me they were

building a new building in Huntsville and I said, "Oh, you are using microstation?" He said, "No, the guy's who's really good with microstation is not creative enough so we've had to use a creative architect and we're not using microstation." Here I believe is a challenge to any software company that if you can do anything at all, prove to the rest of us that the software really works. Don't make us do the dirty work for you. You know, I could quote hundreds of examples of companies who are not walking the walk. The same goes with universities and governments. I think Richard has gone through this even recently, he was very kind; Mark Green was telling the horror stories of putting out menu computing science building where they don't listen to people; they've got virtual reality and other tools.

People in government have a lot of responsibility to encourage new technologies and I'll talk a little bit about how Lynne Sutherland helped me in one project, how she got out of that normal semi-government role to investigate new ideas. It would be lovely if we could work with one application. This is the series that we work with. The ones in blue are the ones I use often; I just added Firewire to the video part. Those of you who don't know anything about Firewire, it starts on the mags but it's an incredible way to work with digital video; it even allows me to do some really, very easy, very fast, four-framed, four-motion; you don't worry about capturing video anymore with it; it's almost like having a hard drive on your computer.

The program we use; I used to write my own software, but we use Archecare, comes out of Hungary, it seems to do everything we want from visualization through to the production drawings. You can do some incredible things with cutting sections, doing everything you want to do graphically, not a very good representation of the user interface but you do work in 2-D and 3-D. You've got all of the geometry functions, war functions; you're constantly working in 3-D. The thing I wanted to show up here and I don't have an example of it, teamwork is a tremendous way in which multiple people can collaborate around the world or whatever and you can both be working on the same document very seamlessly at the same time. So people can be working on furniture on one office, another one could be working in other aspects and you can even draw marquees around the plant for one person to work on this area and another one to work on that. It's incredibly nice to work with. It gets away from all the other problems of sharing files and having some kind of protocol for doing it. It's built into the software. And then this whole connection because we still unfortunately have to produce two-dimensional plans in our field. We have to have plans that the traditional people want to work with, but every object that we draw within this software is really a 3-D object which, in this case, the kitchen is really more like this even

though we're using 2-D representation, and we've got objects that come in a library.

So again, one of the thing that is very useful to be able to do is to take a part of the plan and look at complex junctions in 3-D and this software allows us to do that. This is a particular project we're working on currently which is very complex.

Sara: Five minutes or so, Barry.

Barry: Is that right? I'm going to have to rush. An interesting thing we did a few years back was to take a house that was built 25 years ago, West coast style, and put it into the computer and start to analyze it. We used all manner of techniques of quick time VR which I kind of like the graphic effects alone of quick time VR, but sort of comparing the model or the rail with the model, using some of these techniques again of quick time VR to sort of analyze, how the thing feels externally and so on. Just find a really powerful series of talks, just some of the actual house. That very quick study on the left there was a sun study; you could see the part of the house we wanted to have; the effect of sun coming in so important. And we talk about movement, of whether we're in a house is incredible and our house in a sense, you can experience the movement of the weather, which is pretty incredible in this part of the world. Again computer verses, we found that looking at both, we learned a lot from it, that the computer is relatively rival. Again the quick time VR of the real and the computer model really interesting.

Ability to cut sections, which architects don't want to do that, it tells us a lot about the design. We've worked a lot in health care simulation but it's never been used wide-scale, considering that we spent a huge amount of money on hospitals and yet we never test them in a 3-D environment. There's a neonatal unit we worked on some years back to involve nurses in the design process. It was kind of interesting going to the advanced media lab last night. I worked with Doug Macleod on that, took Doug's ideas and we started to make it work. What did intrigue me was putting all of the mechanical systems, making this a very real model at that space. It looks a little bit dusty and sad at the moment compared to the vitality it had when we first did that.

Again, getting into an exciting project of World Fair in Calgary, I'm going to skip through some of this because I think there's some other interesting data.

Conflict resolution and this is an interesting challenge. We were quite involved quite a lot in drawing detail models of areas that cause

conflict in the planning process. Here's the new Safeway store that was invading the apartment block. The apartment block gave us the role to try and defend it in the planning process and here we are, we have a couple of old dears in apartments who look out onto this wall. We couldn't convince the Council or the Planners that this was pretty drastic. Their solution to it was to paint a mountain scene on this concrete wall. They somehow couldn't see the obvious. (laughter)

An exciting possibility within the software we're using is what is called parametric design and you can actually design a city where each object is library object and it's got intelligence to it so you can adjust the use, the number of stories, some of the appearance and it also throws out data like parking requirements, open space requirements and so on – a very, very exciting possibility if you want to do interesting things with civic design.

Again the project I was involved with Lynne Sutherland on the new Alberta Research Council Building in Calgary. We modelled it, we used it in a very interactive process with the staff and it was a very nice process – open from the beginning, here's the finished building. I think the colours here are not really coming out that well but we'll ignore that. Lynne particularly wanted to try out VRML on it and we produced VRML models that were available on the web that I still have to look at. Obviously, some problem with navigation with VRML; I never quite figured out how to do that reasonably well. I think Jacob had a lot of answers to that. In fact, we did use very technically, the modelling term, to signage. We used it in lighting, just learned a lot about the building in terms of attacking the building very scientifically. I wish we would have had more time to do that. But even the tele-health part, which I believe someone's going to talk about later, we model that component to explain it to other people about how that unit would work with an Alberta Research Council and a couple more of the graphics there.

Always the dilemma – this is the rendering I did for the new Hyatt Hotel for the architect but, of course, I was intrigued about saying what was the site like before and this was what we produced. Not an exciting graphic but it was horribly close to what it ended up looking like. (laughter) I shouldn't say it was a relief but it was. And then the new Convention Centre that we were involved in. Just a very quick animation sort of floating around this thing. I felt there was a lot more we could have done with this model. We spoke about the Convention Centre about turning this into an electronic centre for data and contact around the world. It never quite got to that which is kind of sad in some ways. I didn't see the model as an animation or a visualization; I saw it as a repository about data for that Centre. Hopefully, sometime somebody will look at that and sort of get into it.

Another project that I'm working on right now is a way of taking retail space and using quick time VR and we tend to send the models now to the clients so they can actually look and them. They can run them with different colour, send them different options. It's kind of a nice medium. A very simple virtual medium to display ideas to people. One thing, I put this in last night because of Sarah's comments about the handicapped, I do a lot of work with handicapped clients. This is a recent brain injured young man of 23, T-boned by a lady in a car who had had ten beers and Prozac. Very, very sad story. But we worked with him to actually work out a reasonable form of housing for them throughout their lives and, of course, it's used in the statement of claim. I've worked with about 20 clients now, different kinds, in fact I have a young lady that is brain injured, again in a very sad car accident. It's a completely different way of using the graphics but people like this young man appreciate the way they can get involved in something. You know, they might never build this but it gives them something when they wait the five-year period between the accident and getting into court, a very, very difficult thing to be involved in.

Again, using the products that we use in terms of urban design, particularly transportation, be very, very excited about the possibilities of using all manner of graphics and virtual work. And it's interesting, this is a recent project at an interchange, we were involved in merely doing the signage but in fact we started looking at some of the other things. You know, I get very, very excited about the possibilities of transportation and the very vital images that come out of the that. Very, very exciting.

Also, very quick here, just a couple more slides. I worked again with Doug MacLeod. Doug was the brains behind this. We never got it off the ground for Hanover for the World Fair, but again, this was kind of a nice way of looking at a potential rave but in a very different kind of way. Doug can maybe talk about this after. It was a frustration. It didn't get off the ground but was very exciting to work on.

And lastly, this was a very complex project we're working on now. Multi-family, hillside site, using the graphics not just for the graphics but they are the working graphics as well. And certainly some very, very exciting things happening. We're going to use a number of designs on virtual show suites, way ahead of construction. But still we've got the conventional production drawings there. And then again, our ability to cut sections in some pretty interesting ways, plus do all manner of other kinds of studies with the file, which again as I say is both a production file but it's also a graphics file. And that's certainly something we're learning a lot about is the way in which we have to work with two sets of data; one for the building industry, one

for civic approvals. But the other one, which is used for marketing, and I think this is the last slide here, again this ability to use the quick time VR, which I really think is a very powerful tool for this kind of situation where we can just isolate a piece of the site and look at the complex relationships in them.

And I think that's basically the presentation, Sarah, thank you.

Sarah: Thank you very much, Barry. (*applause*)