

## **Appendix A: The Way it Was**

The legacy of presenting has largely been forgotten, as old time presenters from the 40s, 50s and 60s are dying off, or at least moving on to something else as their skills are considered buggy whips. To remind us of how painful it used to be, here are some comments on the ancient technologies, some of which are still being used.

### **Posters & Signs**

This is probably the earliest way to do visual aids. Large pre-printed posters or boards hanging on the wall or sitting on easels were originally hand drawn by the local sign painter. They were kind of bulky and not very easy to carry, but you could put your message on them and they become the wallpaper in front of which you'd do your presentation. But they could only be as big as you could carry, and for a big audience that could be a problem. Hmm. We still do those today – large format inkjet printers create large banners that are glued to foam core boards do the same thing, only much prettier, faster, and lighter in weight. Of course if there's a misspelling you have throw the whole thing out and start over, just like with the painted sign. The more things change, the more they stay the same.

### **Flannel Boards**

Does anyone remember the Flannel Board? In a flannel board we had basically the first movable sign. It was a big board covered with fuzzy, usually black, flannel. For visuals the teacher would write out words on heavy paper, or cut out big pictures and then glue strips of flannel to the backs of the objects. When placed on the board, the flannel would stick together holding the words or pictures in place while the instructor would build an image in real time – kind of like a “build” animation in PowerPoint.

### **Flip Charts**

The flip chart is a close cousin to the poster, allowing the instructor to scribble big notes on them and flip them over to get a clean page. Not terribly painful, and a very, VERY mature technology. Sometimes pre-printed flip charts were used to present a sequential show. Similar to the poster, they are only so big, so for a large venue you have to write really big. What do you know; flip charts are still around today, only now you can get them with PostIt™ adhesive so you can tear them off and stick them on the walls. They're very effective for brainstorming workshops.

### **Charts & Maps**

Similar to posters, the infamous chart or map on the wall would be used in classrooms for eons. In the past charts and maps were hand drawn onto window shade material so they'd roll up and out of the way. Now, of course, they're created using modern large-format printing methods, but are usually mass produced because of expense. I've never seen a custom roll up chart in use.

### **Chalk boards**

What would school be like without the chalkboard? Who can forget Mrs. Smith writing her name in elegant cursive on it at the beginning of the school year? Or the fingernails on the chalkboard? Or the squeaking chalk? Or cleaning the erasers? How about the math drills? Chalkboards have been with us since they found slate and a white flaky rock they called chalk.

Why the chalkboard? It allowed instructors to put key words in front of students as they talked about them, and to draw diagrams to show how things worked. And the ability to erase and draw something new provided flexibility for teaching a variety of subjects. Today chalk boards still exist, in blue, green, brown and black, and of course the new white boards and their grown up siblings "smart boards," with their smelly dry-erase markers. Talks with chalk can be effective – but you have to watch size, which we talked about in chapter 5.

Chalk boards have grown up. There are now electronic white boards that digitize what you write and display it on a projector, or transmit it via Internet to a remote classroom. "Smart Boards" combine the electronic white board with a projector and allow presenters to control the computer with gestures or by writing on the board. Smart boards and electronic white boards are large, heavy and bulky. Those with projectors take special alignment, making the whole thing impractical for run-and-gun presentations. But as a part of a training/presentation facility, these can be an interesting tool for instruction or brainstorming.

### **Overhead Transparencies**

Everyone remembers overheads. (Well, maybe not?) They had a big light box with a Fresnel lens that would beam light up into an overhead mirror/lens assembly that would shine on the screen. You'd put a large paper-size clear transparency film on the stage and whatever was written or drawn on it would appear on the screen. Using special markers you could write on a transparency like on a chalkboard. Some units even had transparent film on rollers that you

could write on, then crank the roller to clear the screen. You could also buy professionally-made transparency sets.

In the 60s, hippies would put a shallow tray of water with colored dye and jiggle it around in time with the music, creating the original “light show.”

We even used to do MOVING overheads by creating a transparency with polarized sections and mounting a 2<sup>nd</sup> rotating polarizing filter near the lens. The polarizing material would create a moving or flashing appearance.

Most of the time, people would make transparencies by typing up a sheet of paper, then copying the typewritten copy to a clear sheet of specialized plastic on a photocopier. This would make for extremely tiny type. And usually they’d put too much on the screen, so they’d cover it up with a sheet of paper and slide the paper down to reveal the point they’d want to make. Does any of this sound similar to the features in PowerPoint???

To make a professional-looking color transparency before the days of inkjet or laser printers, we’d use the same process used to copy blueprints, known as Diazo. Type was created on transparent film and pasted up on a transparent background. This was then sandwiched with the photo-sensitive Diazo film and exposed to UV light. The Diazo paper then was sent through a developing chamber that had an atmosphere of ammonia, and out would come the transparency with white type on a colored background. If you wanted a multi-color transparency, you’d have to do multiple films then sandwich them together by taping them to a cardboard overhead frame. What a party that was!

Overheads are still used by some. Laser or inkjet printers with transparency material make it easy to create transparencies, but it’s an instructional technology that is on the decline.

### ***The Magic Lantern***

This invention pre-dated the Overhead by 300 years. As early as the 1600s in China, and much later in the West, the Magic Lantern was invented. Using a gas flame it projected light through a hand painted transparency onto a screen and gave birth to concept of projection, both of still pictures and the motion picture. Magic Lantern Picture Shows amazed audiences as traveling projectionists would put on a show with either etched slides, or as photography came into being, black & white and hand-colored transparencies of sights from around the world. It was the birth of the travelogue. Because the film was

sandwiched between two thin pieces of glass, they were called “slides” both because they resembled microscope slides, and because you’d slide them into the projector gate, with the accompanying horizontal sliding visual effect. In the 1900s these slides were usually 4x5 inches, and you did not want to drop them! Projection was also a dangerous thing back then, because the film was based on nitroglycerine, and if you got one too hot. Poof! (That’s why projection booths in old theaters still have foot-thick concrete walls and steel shuttered doors that will slam shut if a fire breaks out.)

### ***Movies***

I grew up showing 16mm movies in school for teachers who couldn’t figure out how to run a projector. They were the DVDs and YouTube videos of the 50s and 60s. Instructional films had to go through the filmmaking process of shooting, editing and printing, so they were quite expensive to make too. The biggest problem with movies was hauling the heavy projector and cart up and down the steps.

Making 16mm movies for a custom application was really out of reach for most uses. The problem had to do with the movie-making workflow. You had to shoot negatives, make “daily” prints to edit from, then match the rough edit to the negatives and cut together the master A & B rolls, then print the whole thing to release prints. It was a very costly and time consuming process; hence a whole industry of educational films arose to meet the need. With mass duplication, production costs could be spread across hundreds of copies, but you couldn’t economically do one film for a single use. (During the days of Multi-Image we could make a multi-projector slide show and have it transferred to 16mm. This was the beginning of low-cost custom filmmaking.)

### ***Filmstrips***

How can we forget filmstrips? Using 35mm film you’d thread the filmstrip into the machine, then push a button or turn a knob to flip to the next frame. Filmstrips were the pre-packaged PowerPoints of the 50s and 60s. You would usually receive a script, and so you’d talk through the lesson flipping the knob at each paragraph break. If they were fancy they’d also include a phonograph record, and you’d use a DuKane filmstrip projector with a turntable on the back. The projector would play the record and it would flip the frame on a sub audible (50Hz) cue. If you weren’t lucky enough to have an automatic projector, you’d flip the record over and use the audible beeps and manually advance the projector. Later in the 70s filmstrip projectors used cassettes to advance the frames. Filmstrips were not

easy to make. Using movie film processing techniques, they'd make a negative and then print positive release prints, just like with motion picture film. That meant you couldn't customize a filmstrip on the fly.

### **Slides**

Eastman Kodak made popular a revolutionary film called "reversal" film. Prior to this shooting a picture would give you a negative that had to be printed to another piece of film to make a positive transparency. Kodak's reversal film used a chemical process to flip the image during developing, so that the film in your camera became the slide in your projector. This led to a huge consumer market in slides and projectors that grew to its peak in the 50s-60s, making projectors and screens an affordable part of a presentation toolkit.

Making graphic slides for a presentation was somewhat of a headache. Some people would type up a sheet of paper and photograph it with slide film, making for really amateur-looking results – rather like those old overheads. Professionals would turn to more intensive graphic techniques. In the early 70s when I started my career, we would painstakingly set type using a manual phototypesetter, paste up the text on a cardboard cutout, shoot the text using a 35mm camera on a copy stand, exposing a pure black & white film called Kodalith, which would yield white type on black background. We could mount those into slide mounts and project them with dazzlingly high contrast (for the time). If we wanted color type, we used water color dyes from a company called Dr. Martin's. Using a cotton swab or a tiny paintbrush, we'd paint color onto individual words – just like hand painted Magic Lantern slides, only smaller. If we wanted white type on a color background, we'd use the Diazo process which was even funkier (see Overheads). Eventually we started using a dichroic colorhead used for slide duping and re-exposed the Kodalith negatives onto color film, double and triple exposing to create some astounding effects. But it was very expensive and time consuming. And if anything was misspelled you had to throw it all out and start over. The final stage in the evolution of slides was to create the slides on a computer and use a device called a film recorder to print the image to film. Film recorders are used today, but mostly to print feature films that were created in a computer.

Projecting slides was just as interesting. Early projectors worked like the Magic Lantern, projecting one slide at a time. A projectionist would have to manually pull the old slide out and put in the new one. Semiautomatic slide changers came along, using linear trays. You'd

slide the old one out, advance the tray with the turn of a knob, and push the next one in. Automatic changers would do that for you at the touch of a button. Jamming was always the real danger. If one got stuck it would really interrupt the show, which is why Kodak invented the Carousel projector which revolutionized the slide industry. Using gravity, the slide would simply drop into place. When the button was pushed, the slide would be pushed up into the tray and the tray would rotate to the next one. This made for a much quicker slide change and a lot better reliability. And with the tray being round you could have a continuous slide show. Plus it was much less prone to jamming. (Of course if a cardboard mount got dog-eared or a glass mount warped, they'd still jam. You'd have to take the tray off, use a paper clip formed into a hook and pull the slide out of the gate. Then the tray bottom would be unlocked so if you weren't careful, all the slides would fall out as you rotated the bottom. That was so much fun!)

The Carousel had an interesting remote interface with two extra pins that would actually control the lamp, and that gave birth to the dissolve control, or "dissolver." The dissolver was a glorified light dimmer that would connect two projectors and crossfade the lamps (fading one down while the other faded up – the brightness perfectly matched so that the intensity stayed the same.) While the one projector was dark the slide would advance, then the crossfade would go back. You could have continuous light on the screen without the annoying blackout. In the late 70s and 80s with the advent of computers that could control and synchronize slide changes to a soundtrack, this grew to an incredible art form known as Multi-Image, which would use 2, 3, 4, 9, 12, 32, 64, or hundreds of projectors on huge screens, not only providing superior image quality, but also real time slide animation. When I think of the "good old days," these are they! In fact in 1982, Advent Media was founded, making Multi-Image.

## **VHS**

I may as well describe the early days of making video. For most commercial videos, it was shot and edited on film then transferred to broadcast through a "film chain". Broadcast video began using 2" videotape, with ever evolving formats. But for the "instant" or instructional video market, the first big invention to come along was known as EIAJ-1 video format. This was a reel-to-reel tape deck, using half-inch videotape, big and bulky, to which we would hook up a black & white video camera and get what by today's standards would be a fuzzy black & white picture. But it was a picture, and it would reliably reproduce on a black & white TV. The problem was

editing. There were no editing machines for this format. Believe it or not we'd have to splice it just like film. We would mark the tape where you'd want to cut, and then using a demagnetized razor blade, physically cut the tape on the mark. But that was never enough. We had to "develop" the tape with a special magnetic fluid which would show the control track marks, and cut on the mark. Then using a special tape, we'd splice the tape back together, then the picture would kind of "wipe" from the bottom of the screen to the top with the new scene. Failing to match control track marks resulted in an ugly flickering while the machine lost sync. They later made color versions of this format but because of the lack of editing, it mainly was used for time-shift recordings of lectures or other talking heads.

As time went on we went through lots of different video formats of varying quality. The best instructional tapes were created using broadcast techniques normally used with TV shows. (The pioneering show in electronic editing was Rowin & Martin's Laugh In in the 1960s – the first network TV show to use time code.) Eventually the time code technology trickled down to VHS, and we were able to edit VHS, from a new acquisition format called Super VHS, which was much higher in quality. Editing became a copying process, but for each generation, there was a considerable signal loss.

Using a special purpose computer called an editing controller, we needed a player and a recorder deck. We'd "mark" (electronically) where we wanted the next video to start on the recorder, and mark the in and out points on the player. Then the machine would roll the tapes back, synchronize them, and at the "in" point start recording until it reached the "out" point. Then it would stop and wait for us to mark the next points. This was known as "assemble editing."

To achieve effects like dissolves and wipes, we had to use "A-B roll editing" which worked somewhat like film editing only you had two source tape machines and one master recorder. The first clip was done like a basic assemble edit, then we'd set up in and out points for the "B" roll (which is where that terms come from.) The computer would sync up and roll all 3 machines. When it got to the point, it would start recording from the A roll and perform a dissolve to the B roll while the recorder captured it all on the master. Yes it was a pain, but that's why they paid editors the big bucks.

The next big technical hurdle was the transition to digital video. At first were the extremely expensive digital formats such as "D1" which digitized the video and stored it on the videotape as a digital signal rather than analog. This made lossless video editing possible, though at an incredible price, keeping it in the hands of professionals.

The breakthrough that democratized video was the ability to digitize or take the digital video tape signal and copy it to a hard disk on a computer, then play it from the computer. This gave birth to non-linear editing, making video editing almost as easy as building PowerPoint, though you still need very powerful computers and lots of disk space and memory. Now video editing can be done from just about any laptop sold on store shelves with quality (if the source was shot right) better than the professional video of the 1970s.

### **PowerPoint & Computer Projection**

Which brings us back to Microsoft's famous PowerPoint, which in many ways takes all the prior technologies and rolls them into one happy little program that's part of Microsoft Office. PowerPoint is just one of a genre of "slideware" programs that you might be using, including Harvard Graphics (the original presentation program), Corel Presentations, Lotus Freelance, OpenOffice.Org Impress (from Sun Microsystems), or Apple's Keynote.

PowerPoint started as a Macintosh program known as "Presenter," written by Bob Gaskins and Dennis Austin and released in 1987 by their company called Forethought. Later in 1987 both the company and the product were purchased by Microsoft, who has continued to refine it. So amazingly, PowerPoint is more than 20 years old.<sup>10</sup>

The program has undergone some remarkable transformations, as has all computer software, so that now it's a very capable tool. And so, might I add, are the other programs I mentioned. I won't go into some of the tricks we had to do to make PowerPoint do what we wanted to back in the 90s and early 2000s, but I will talk about the challenges projecting PowerPoint were back then.

The problem was the lack of ability to put PowerPoint on the screen. Back in 1987 when PowerPoint was invented, for the cost of a Lamborghini, you could buy the only large-venue video projector available, called a Talaria, made by General Electric. It was a "light valve" projector that scanned electron beams on pools of oil. Light from a theatrical Xenon lamp would reflect off the oil pools and shine out through the lens. It was an inherently unstable design that could only be used by trained technicians, but it was bright enough to fill movie theater screens with video images (if the lights were off), and in later years it was adapted to accept computer inputs. But its bulk and quiriness meant it could never be used for an average business presentation.

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<sup>10</sup> <http://en.wikipedia.org/wiki/Powerpoint>

The other projection option you had at the time was the 3-tube CRT projector. These monsters had three super-bright black & white cathode ray tubes attached to very large lenses, filtered red green and blue. They had to be positioned a very precise distance from the screen, and if they were moved, you'd have to do a "convergence" adjustment to line up the red green and blue lenses. That would take a good technician about an hour. These were NOT "run and gun" machines. Eventually their resolutions reached computer standards, so PowerPoint would look OK, but it was still a very painful experience, and their brightness would never punch through room light. (Ironically, Henry Kloss, who left KLH to form the Advent Corporation making loudspeakers, brought to market the first 3-tube CRT video projector for home entertainment, known as the Klauss Novabeam. It originally sold under the Advent nameplate, and units can routinely be found on eBay. Advent Media, Inc. is not related to the original Advent Corporation...though we still have two Advent speakers in the shop.)

Around about 1990, Liquid Crystal technology had begun to appear and the laptop computer display had been invented. Someone had the "great" idea of why not take the laptop display and put it on an overhead projector? So the early LCD "panels" were marketed. Because the early LCDs cut a lot of light back, overhead makers had to make ever brighter projectors, some even resorting to Xenon HID lamps.

Mid-1990s the first "real" LCD projectors were introduced, but they had low resolution chips, 640x480 or 800x600. The "Screen Door Effect" was coined because you could clearly see the pixel rows, even at a distance. Also because of the low resolutions, type was badly "aliased" – wherever there was a curve or diagonal shape, you'd clearly see a stair step of pixels. These things were also quite dim, with brightness less than that of a Carousel slide projector. That's why most presenters would have their PowerPoint content converted to slides and just use a Carousel.

It wasn't until the turn of the century (2000) when the manufacturing capability reached critical mass, and LCD and DLP video projection quality equaled, and eventually exceeded a the quality of a slide projector. Then as prices fell, quality rose, and size shrunk, we have a projection technology that's affordable and portable.

Now, 10 years later, high definition projectors are becoming available, as are high definition flat panel displays that are large enough to use for some venues without a projector.

### ***TV Sets & PowerPoint***

I didn't dwell much on the ubiquitous CRT TV set, which started from the black & white models of the 40's and 50's, added color in the 60's, stereo in the 80s and finally put to rest by 2010. Now they're replaced by flat panel High Definition displays that are all multi-tasking. Nearly every HDTV has the capability of plugging into a computer and showing PowerPoint. The emerging technology as of this writing is the 3D TV systems, which along with specialized 3D glasses can provide depth. PowerPoint in 3D is coming soon to a screen near you!

There is one thing I can say for certain about technology: it will continue change! And the change will be more and more rapid! But the basics of how people perceive images on a screen will not. The essentials of Presentations are discussed in the beginning chapters of this book, and no matter the medium, they'll never change.