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LASERDISCS

On the Way to a Digital Video Future

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The story of LaserDiscs is inextricably bound with the rise of cinephilia and a huge public interest in viewing movies, mostly at home. They can now be looked at as taking an important role as one of the steps in a longer process, the shift in media from analog to digital. As for a time LaserDiscs were available with digital audio tracks, they can actually be seen as a hybrid medium, although other advantages of LaserDiscs over VHS tapes were more important; widescreen letterboxed transfers, many of newly restored prints, individual frame access on CAV (constant angular velocity) discs and rapid access on all of them, and innovative special features are among the things we can remember and celebrate.

Our view of “obsolete technology” might be more complex than it first appears, particularly in the age of the Internet and eBay. Initially, it can seem like we are feeling nostalgic for earlier periods in our lives, our histories caught up with our use and enjoyment of the devices themselves, much as the association with music or movies from our younger days has an inevitable connection with the times when we experienced them. We want to think that there is still some life in old technologies, in whatever form, because it means that they are no more obsolete than our memories of times past (and not to mention ourselves). Whether we consider them truly dead, or transitions to newer technologies, can also affect our sense of obsolescence. Radio is still alive and well, but changed in terms of the devices themselves, and has left many casualties in its wake. We can love the wooden consoles and beautiful dials of old radios, or even feel nostalgic about early transistor radios, but those feelings are for the lost objects themselves, rather than what we used them for. Maybe old radios with large booming speakers sound better to us, just as other analog experiences may allow for the same feelings, but this has little to do with our love for a particular medium, which may be marvelously thriving. With radio, one has only to look at (and listen to) [radio.garden](#) on the Internet to see the tremendous opportunities now afforded to us. And since everything seems to be available on eBay for under \$50, no matter how expensive originally, there is a false sense that no technology is ever obsolete.

It can be difficult to acknowledge that certain technologies can become obsolete for legitimate reasons, especially as digital technologies have offered tremendously improved alternatives. Film editors can still love Steenbecks and splicing tape, but it is hard to argue that Avids or Premiere cannot do the same job better. We can chart the pros and cons of the old and the new, and if there are enough pros to the earlier stuff, we can certainly miss what we once had. Especially with technology and media, though, it is difficult not to acknowledge that things have greatly improved—that televisions are better, that cable is better than

our previously limited over-the-air broadcasts, and yes, DVDs, Blu-ray discs, and streaming offer much that VHS tapes and early LaserDiscs could not. So we can look back to the special pleasures of old devices, but we can also consider how they sowed the seeds of what was to come.

So, we can try, if we are able, to separate our love for the physical objects from what we actually used them for, as difficult as that might be. In the case of LaserDiscs, we would probably want to start with the desire to have prerecorded content available when we wish. This would go back to watching movies in theaters, where we could only go at specified times (and places), and where repeatability meant staying for a second showing or coming back another day. As much as we can love 35mm film in theaters, we have to acknowledge that they offer a certain kind of fixed experience which was limited in relation to what we have available for us in movie watching today. (Now, when a new movie is released in theaters, it can feel as if it is not really available until there is a DVD out.)

Technological obsolescence in the film-video arena happens at both of what we now more commonly call the hardware and software levels. Pioneer LaserDisc players currently appear on eBay in the category of “Vintage Electronics”, the same place where they stick pushbutton telephones and vacuum tubes.¹ While some can be had as cheaply as \$40, “AS IS” is affixed to most listings of them, so you can guess what that is likely to mean. When the players go, the discs either remain as collectibles or curiosities. (The same has happened with VHS, surprisingly quickly given how ubiquitous the format was, although in a way it is enjoyable to see a poor quality video delivery system die a death it has long deserved. So much for obsolescent technology nostalgia.)

After theaters, television, of course, brought films into the home, and while it was also a technology that first could be decried for lesser picture quality, the greater availability of product as well as their being free (just all those pesky commercials) made serious and extensive movie watching possible in ways that movies in theaters could not. It is wonderful, for example, in *A Personal Journey with Martin Scorsese Through American Movies* (1995) to hear him recount the times and circumstances when he saw certain films, often beginning with or including viewings on an “Afternoon Movie” program, which offered its own pleasures and opportunities not supplanted for him by later screenings under better circumstances.² Serious cinephilia begins then, even if it was still possible before, and has certainly expanded since.

The next major step in the ability to see movies (both in terms of availability and cost) was videotape, which started, as many of these technologies do, as too expensive for middle-class consumers until it eventually trickled down. Three-quarter-inch tape recorders and players (especially what Sony called their U-matic devices) first appeared on the market in the early 1970s, and while still somewhat expensive, offered the first home possibilities for off-the-air recording and the opportunity to build a collection. (U-matic machines can still be found on eBay in the \$50–\$100 range, and some of them might actually still work.) As this was also the time of the first movies available without commercials through cable, the timing is hardly accidental. Machines to record movies and better quality versions of the movies themselves went hand in hand. Also, boutique cable offerings, such as the “Z” Channel in Los Angeles, were the first place to see movies on television in letterboxed format and also in “director’s cut” versions, two attractions that were advanced by LaserDiscs but not started there.

We might see the rise of VHS tapes, which began in 1976 in Japan (and a year later in the U.S.) as a step backward, as it was rare to find a widescreen film ever letterboxed (the infamous pan-and-scan was the typical VHS treatment), but one cannot deny the huge impact of an inexpensive technology which offered both the ability to record off the air and to view commercial tapes. (And put a couple of machines together, and you could even

make degraded copies.) The late 1970s, again not coincidentally, saw the rise of video rental stores, where films could be rented for a few days (and for a few dollars), demonstrating a huge public appetite for viewing films at home. (The aptly named Blockbuster video rental chain, taking a cinema term into the video world, was the most popular, having at its height in 2010 over 6,500 worldwide stores.)³ This led to the availability of titles which were not sufficiently commercial for broadcast TV, or had content deemed unsuitable for over-the-air viewing. The widest manifestation of this impulse was the great popularity of pornographic adult content on VHS (well documented in many histories of television).⁴ VHS was also part of the great VHS–Betamax debate, where the latter (and superior) Sony tape cassette technology quickly lost out to the cheaper and RCA-supported VHS. (We will see a similar battle in LaserDisc vs. VHD, in Blu-ray vs. HD DVD, and even in the great and continuing discussion of Apple vs. Windows). These competitions were both commercial and cultural, forcing the user to determine where cost considerations and sometimes minor technological differences enter into one’s preferences and purchase decisions. That VHS demonstrated conclusively that lots of people wanted to see a wide variety of films had an impact on all subsequent video-viewing technologies, including LaserDiscs. Whether enough people would be attracted by various forms of superior cinematic experiences became the question that LaserDiscs, as with subsequent technologies, looked to answer.

A Little More on the LaserDisc and Film Studies

If we are looking at parallels, we can see another overlapping history between LaserDiscs and film studies, and most particularly, the desire to engage in close visual analysis (sometimes called textual analysis). The rise of auteur criticism and a strong interest in *mise-en-scène*, carrying over from French film criticism to the American academy, showed a hunger for freezing the (high-quality) image, playing it backwards and forwards, jumping around from example to example. That this preceded (just barely) the popularity of the LaserDisc among film scholars can be demonstrated by a rare and almost forgotten (and expensive at the time) piece of equipment, the 16mm analysis projector. A popular model was offered in the mid-1970s by a company called NAC Image Systems, who billed their products as “Videographic Motion Analysis Systems”, and proudly advertised the ability of their projector to present 16mm films “FLICKER-FREE at all projection speeds – forward and reverse”.⁵ Kodak also offered a similar product.⁶ In order to project film slowly and not see it burn up (as in Bergman’s *Persona* (1966)), a high-volume blower kept cool air aimed at the hot projection lamp. It was thus possible to engage in slow and repeated analysis of a chosen sequence, although, of course, if one wanted to do the same with a sequence elsewhere in the movie, it was necessary to unthread and then rethread the film (a quite cumbersome task), possibly with pieces of white tape to mark where one wanted to go. Analysis projectors are interesting not just as historical curiosities, but as demonstrating what film scholars wanted to do before there was really a suitable technology to do it. Equivalent technologies might be 19th-century devices such as the zoopraxiscope showing so clearly the hunger for moving images satisfied soon after by the Lumière brothers.

When LaserDiscs fulfilled this desire for analysis, without any damage whatsoever to the disc, it also became possible to capture still images for the purpose of writing about a film. (There were also cumbersome devices for this which could print images from individual movie still frames; again, a device whose presence demonstrated the desire to use existing technologies in ways that were about to become much easier.) No wonder popular film critics Gene Siskel and Roger Ebert in the 1980s extolled the superiority of LaserDiscs as

a medium to study film, also anticipating the coming of higher-definition television as an outgrowth of what LaserDiscs demonstrated.⁷ As this was also the time of the so-called film school generation of directors, there was a ready group of creative artists who could see the link between the films they made and the public interest in studying them further. Once again, Martin Scorsese, a dedicated preservationist as well as great film director, a graduate of the NYU film school, is but one example among many who showed a serious concern for (and involvement with) how their films were presented on LaserDisc, clearly knowing that they would be given a different kind of attention there than in theaters, and could be presented in a scholarly context.

Not to get caught up in LaserDisc obscurity, we should at least briefly note the quite bizarre competing system called Selectavision, on which RCA reportedly spent over \$600 million in 1970s dollars to develop and market, which competed briefly with LaserDiscs before dying a well-deserved death. Using what were called CED discs (for Capacitance Electronic Disc, in case anyone cares), they resembled vinyl records and were made of the same material. Similarly, they used a needle at the end of an arm which physically read the surface of the disc as it turned. A rather large problem with this was that after as few as 10 or 12 plays, the discs would then show signs of wear on the screen when played. (A nice review of this format is on one of the Retro Tech programs on YouTube, where it is decided that this format was never very good in the first place and never worked very well.)⁸ But, this is a moment of transitional obsolescence worth noting as well, as the last grooved medium, which started with the Edison Cylinder Phonograph, patented in 1877. While vinyl audio has enjoyed a recent resurgence, this is the same technology as it has always been. Indeed, its retro nature has been part of its recent appeal. No nostalgia for grooved video vinyl will likely ever occur, even if one were to locate a player, as this is one of the rare cases where a more expensive superior technology (the LaserDisc) beat out the cheaper inferior alternative.

One can see where libraries and rental outlets would prefer a more permanent medium like LaserDiscs, which did win out despite rampant tales of potential “laser rot”, a not entirely apocryphal phenomenon which certain individual LaserDiscs were subject to, owing to manufacturing defects. By the end of 1990, there were reportedly over a million players sold. As the VHS market was in the \$5 billion dollar range during this period, it is clear that LaserDiscs were always a niche market, but that market had an impact on movie fans and scholars that was arguably far stronger than its lesser numbers would suggest.

LaserDiscs had unique capabilities which strongly affected the form that DVDs and even streaming media have taken today, so a look at some of these is useful, as well as paying homage to an innovative company whose existence alone made LaserDiscs so important.

Deleted Scenes and Director’s Cuts

These two features go hand in hand, and were both major bonuses that LaserDiscs first offered. These are among the notable “Supplementary Features” which now abound on DVD—some titles have special features which, together, are longer than the films they discuss. From the LaserDisc era on, this was one of the reasons to buy the title, for either those fans who had seen the film many times before or who already owned a VHS tape version (which rarely had special features because they had to be stuck on the end of the tape and could not be easily located or accessed). These added elements are also part of a completist impulse well served by multiple versions and alternative abandoned segments; the database-like and archival underpinnings that began with LaserDiscs. The CD box sets of today, with every version of a song now collected, or every work by the artist in question, is one form

of this combination of scholarly attention and marketing savvy which starts with LaserDiscs, as do the box sets of television and movie series, and collections by actor or genre. (While there were tape versions attempting similar things, it was on shiny discs that sufficiently large quantities could be collected and easily accessed.) One fine example, that still has never appeared on DVD, is Francis Ford Coppola's *The Godfather Trilogy 1901–1980* (1992), a chronologically recut version of his trilogy with additional scenes. The LaserDisc was labelled and came out in 1992.⁹ The movie in this form is a whopping 583 minutes and took up no less than 11 LaserDiscs. (There also were two additional LaserDiscs, including a 73-minute documentary, a rare example of additional discs devoted to special features.) This LaserDisc version is still the only way to see the films this way, the story time rearranged to present the 79 years covered by the story straight through, rather than in flashback and alternating sequences (although a VHS version with a somewhat cropped image was also released).

Director's cuts were an interesting development, in that the promise of a release version of a film being the director's cut (also for a film release called "final cut"), has been the holy grail of Hollywood filmmakers for decades. The idea that LaserDiscs could be the place where scenes could be restored and a film put into the form their directors originally wanted was an inviting possibility. Not surprisingly, directors whose films were often badly shortened or recut by studios (that is, great and often adventurous directors) had a particular chance to present something closer to what they originally wanted. Orson Welles, Terry Gilliam, Michael Cimino, Francis Ford Coppola (as mentioned), Sergio Leone, and Sam Peckinpah all had opportunities to see extended versions of their studio-cut films. These could also be described as directors interested in making longer films and/or films with ambitious time structures. In 1991, the director Peter Bogdanovich both added seven minutes and re-edited other sequences for the LaserDisc release of *The Last Picture Show* (1971). Rather than simply including deleted scenes as a special feature and placing them separately from the films themselves, these new or extended versions offered the promise of restoring what had never been seen before, in the way the filmmakers had intended. This practice also anticipates our digital era, when no media work need be considered finished, which has led, for example, to six different versions of Ridley Scott's *Blade Runner* (1982) getting video releases. Scott was also amusingly involved in a director's cut of his film *Alien* (1979) in 2003 which was actually a minute shorter, as Scott has offered in interviews that he is quite happy with the original version, but that the studio requested this recutting so that there was an alternate video version. This feels similar to reports of "extra" scenes now being filmed for new movies with the specific intention of including them as "deleted" scenes. LaserDiscs set in motion all these possibilities; restoring deletions, recutting by directors, and tacking on abandoned material.

Director (and Other) Commentaries

Another feature that began on LaserDiscs took advantage of the technology's capability to offer alternative soundtracks. One opportunity this afforded was for directors to add their own voice-over commentary to their films. This was done extensively, so much so that many of these tracks are still only available on LaserDiscs and were not carried over later to DVDs of the same films.¹⁰ These include commentaries by directors such as Louis Malle, Terry Gilliam, John Schlesinger, and Sydney Pollack. (Pollack, for his film *They Shoot Horses, Don't They?* (1969) when it was released on LaserDisc as a "Limited Autographed Edition", personally signed 2,500 copies, each given an individual number. The director Robert Wise did the same in 1995 for the LaserDisc release of *The Day the Earth Stood Still* (1951).) A number of LaserDisc titles, particularly from the Criterion Collection, had commentary

tracks from noted film scholars, such as Robert Carringer, Howard Suber, Maurice Yacowar, and Jeanine Basinger. This use of scholars has sometimes carried over to DVD, but far less frequently, and none of the LaserDisc scholar commentaries were carried over. It should be remembered, though, that the very first audio commentary was on the Voyager Company's 1991 release of *King Kong* (1933), by film historian Ron Haver, so scholars got there ahead of directors.

LaserDiscs usually had one supplementary track, which has expanded on DVDs to allow for multiple additional audio tracks. For a brief time, roughly around 1997, there were simultaneous releases of some titles on both LaserDisc and DVD. When the film *Contact* (1997) was released, the LaserDisc included a commentary by its director Robert Zemeckis and the film's producer, which was included also on the DVD version, which also had another audio track of Jodie Foster and others not on the LaserDisc. Some might feel that additional tracks are a useful technological advance. Once again, though, it was LaserDiscs which began the practice and where there was more experimentation.

It is worth noting that once LaserDiscs allowed for director commentaries, it also allowed for directors to refuse to do director commentaries. Stephen Spielberg has never done one, saying that films should only be shown with their original soundtracks, so as not to distract the audience. Similarly, Woody Allen has refused to do commentaries to any of his films.

Making-Of Documentaries

There has been an extensive number of fictional and documentary films about the making of other movies. What has become a form of its own, perhaps too rigid a form, are the approximately 20-minute featurettes which have become a staple of "special features", a practice begun with a vengeance on LaserDiscs. You know what they look like: some on-the-set footage, interviews with a director and a star or two, perhaps some background information on the film's subject. Like other special features, these have greatly expanded on DVDs and Blu-ray discs, to become sometimes-hours-long, as for example, *The Beast Within: The Making of 'Alien'* (2003), included with the 2003 DVD box set, *The Alien Quadrilogy*. It runs 171 minutes long, a good deal longer than any of the *Alien* films themselves. Special DVD and Blu-ray releases of Hitchcock films have also had hour-long documentaries (at least) about the making of each film.

While sometimes well done and informative, going back to the days of LaserDiscs, these documentaries are primarily indicators of that desire mentioned elsewhere to provide added features, in order to entice fans and film scholars who might already have copies of the films on VHS, which rarely ever had these extras. Starting with LaserDiscs too, making-of documentaries were especially of interest on science fiction titles and other effects-dependent features, where there was always interest in how effects were accomplished, particularly as we were then moving into the age of CGI.

Other Special Features

LaserDiscs were an experimental playground for seeing what could be done interactively. Maps, "slide shows" of historical material related to the films, complete shooting scripts, storyboards, filmographies, and visual essays were just a few of the efforts. Buying the LaserDisc of *Fellini Satyricon* (1969) also got you some pages on screen from the original Plutarch. If you owned the LaserDisc of the William Wyler western *The Big Country* (1958), you also got the entire Jerome Moross score on a separate track, so that you could watch the film

with music alone. To give just one only slightly extreme example, included on the 1992 Voyager LaserDisc of *The Player* (1992) were these listed features (in addition to the new widescreen transfer):

- Audio commentary by director Robert Altman, screenwriter Michael Tolkin, and director of photography Jean Lepine
- Video interviews with Altman, Tolkin, Lepine, and stars Tim Robbins, Greta Scacchi, and Whoopi Goldberg
- Interviews with 20 Hollywood screenwriters about their real-life experiences in “the industry”
- Six deleted scenes
- “Map of the stars” charting the film’s 65 star cameos
- Annotated photo history of films about Hollywood
- American and Japanese trailers and TV spots

The plethora of offerings were both an undeniable thrill to scholars and fans, and also suggested the era to come, when websites would supplement what a film offered and DVDs could pack so many special offerings that they could not fit on the same disc with the movie, as in the case mentioned of *Alien*. (LaserDiscs did not usually include additional discs for special features, except in rare cases. They were part of the same disc as the movie, in this technology which could at most offer an hour of material per side. So a feature film in the long play CLV format might leave just a little room for any extra stuff.) What is evident too, as was discussed a bit earlier, is that there had been a symbiotic relationship between film schools and disc producers which still continues today with DVDs and Blu-ray discs, where a prime market for LaserDiscs was schools and their professors, and they also prompted the interest in additional materials (and were often contributors to them, as were their students).

Video might have killed the radio star, but LaserDiscs killed 16mm, or to put it another way, Voyager killed Films Inc. It is hard to imagine there was once a time when companies made large amounts of money sending out film titles for brief periods for showing in schools. LaserDiscs, which sold for about 25% of what a single film rental cost, killed that market quickly, especially because discs offered high-quality video which neither the 16mm prints nor VHS could match. Now, you cannot even find a major film rental company like Films Inc. on Wikipedia. One of its competitors, Blackhawk Films, defunct in 1987 and originally with stronger roots in preservation, at least gets an entry.

Voyager and the Criterion Collection

The Voyager Company, started in 1983, put out their first two LaserDisc titles that year in what they called “the Criterion Collection”, which were *Citizen Kane* (1941) and *King Kong* (1933). Beginning so auspiciously, the Criterion Collection released about 200 titles over the next 15 years, concluding not so well with *Armageddon* (1998). (Still not on DVD is the LaserDisc’s commentary track, where, besides the director Michael Bay, one of the stars of the film, Ben Affleck, also appears; mainly, as I recall nearly 20 years later, to complain a number of times about plot holes in the film, such as whether one can learn to be an astronaut in a week.) In association the next year with Janus Films, the Criterion Collection was more than reason enough to own a LaserDisc player. As their next two discs were Hitchcock’s *The 39 Steps* (1935) and *The Lady Vanishes* (1938), a cinephile in those days went broke with the newly available titles. The uncut and beautifully widescreen version of Max Ophuls’s final

film *Lola Montes* (1955) (their #12 release), was enough to put most of the people I knew into a serious swoon. The Criterion Collection depended in good part on the art house titles Janus Films had previously rented on 16mm, from such stalwarts as Bergman, Fellini, and Antonioni, which itself was a major contribution. They went well beyond that by releasing beautiful versions of classic American films such as Lumet's *12 Angry Men* (1957), Kubrick's *The Killing* (1956), and of course Frank Capra's *It's a Wonderful Life* (1946). (If you were a Capra fan, you could also go for Voyager's discs of *Arsenic and Old Lace* (1944) and the lesser-known *Lady for a Day* (1933).) While sometimes Criterion titles were already available on LaserDisc from other companies, what also made the Criterion Collection so great was their devotion to exhaustive additional materials, well beyond the conventional special features so common to other LaserDiscs.

Titles from the Criterion Collection have already come up frequently in this essay, because their releases have most interesting uses of LaserDisc technology for commercial titles. To speak of the Criterion Collection is to recall what made LaserDiscs innovative and great, both in uses of the technology and in available titles. Experimental special features, close cooperation with directors on approved editions, scholarly commentaries, production stills, storyboards, ambitious "making-of" documentaries are all to be found on their titles. The company has since re-released a good number (but far from all) of their titles on DVD and Blu-ray, and it is a tribute to the LaserDisc versions that the additional materials have often been carried over intact.

Many of the early Criterion Collection titles are now difficult to locate, as are most early LaserDiscs (though I just noticed on eBay a new, sealed copy of Renoir's *The River* (1951) for just \$1.99). Another great Voyager experiment was an entirely audio-only disc, in order to cram in as many radio shows as possible, the 1988 disc *Orson Welles and the Mercury Theater of the Air*. This included 15 radio programs and further audio of reminiscences from former Mercury Theater players. To release an audio-only LaserDisc (seemingly an oxymoron) required putting mono sound (fine for old radio shows) on each of the two available audio tracks and the additional digital audio tracks, for a total of about nine hours. It was smart, though, to do this on LaserDisc, where the name Orson Welles already meant quite a lot, even though the LaserDisc had no video.

Criterion still exists as the best of the companies releasing DVD and Blu-ray disc titles, and its commitment both to world cinema and to collections of lesser-known titles by important directors remains unparalleled. Once again, though, LaserDiscs are both where this started and where the major contributions were first made.

Interactivity

The significant role of interactivity in modern digital technologies, especially video games, received a major boost from LaserDiscs, in a variety of forms. LaserDiscs are not only a transitional technology between VHS and DVDs, they mark a significant step forward to active viewer control and engagement. For one, the technology allowed for the first time the notion of accessing databases rather than just watching or skipping around a film. One great example of this is the Voyager Company title, *Vienna: The Spirit of a City* (1991), produced by the filmmaker Titus Leber. The LaserDisc included 15,000 images of art works in Viennese museums, as well as 20 minutes of motion video. Any frame could be accessed by number (an index in booklet form was provided) and then held on the screen for extended viewing. This was possible owing to another significant advance that LaserDisc technology allowed: a still frame was just a laser light over a spinning disc, so no harm was done

to the disc when viewed this way. Still frames were virtually impossible with VHS tapes, because freeze frames would cause stretching of the tape. (Some VHS machines, the better ones, even had a feature that automatically disengaged the still image after a few seconds, to protect the tape.) The combination of the ability to store large numbers of images (and moving image sequences) together with this still frame capability was a powerful step forward afforded by LaserDiscs.

Probably less known, but equally important, was the appearance of LaserDisc players with a serial interface, which allowed for computer control of the disc. While there had been Betamax systems able to control movement of the tape by computer as early as 1979, a LaserDisc and a computer was a much more powerful combination, owing not just to the ability to access still frames, but to do so very rapidly, usually in under a second. It was this fast access that also made LaserDiscs suitable for video games, using computer control. *Dragon's Lair* (1983) was the first very popular example, later to have a life on subsequent game systems. (Let us not forget Dirk the Daring making his first appearance on the 1983 LaserDisc arcade version.) What the serial interface (also known in computer circles as RS-232, a still popular communications protocol) also made possible was programming access to specific frames and sections, rather than entering long numbers by hand with a remote control, and presumably having to keep track of each number. (This would be the difference between entering a number like 39856 to get to the Rosebud sled in *Citizen Kane*, or pressing a button on a computer screen to do exactly the same thing.) Pioneer Electronics was the major LaserDisc player manufacturer offering some versions (at a greater price) of LaserDisc players equipped with this serial interface capability. These players were generally advertised as being for educational uses, as home players were, sadly, never equipped with this ability.

This is a good time to discuss the idea of “chapters”, itself a LaserDisc innovation. Because of the high numbers involved in accessing individual frames (as well as needing to remember those numbers), LaserDiscs incorporated the notion of chapters, sometimes called “scenes”. These could be employed by disc manufacturers so that easy access was afforded to sections of a disc. Chapters generally totaled around 15–20 per disc for most movies, so these numbers were much more easily entered by hand (or reached by clicking “Next”). This segmentation was also commonly used for music discs, in order to easily access specific songs. This was a sort of acknowledgment of the difficulty of entering numbers on a remote control for more specific passages, as the chapter designations were completely arbitrary and a creation of the disc publisher. One such educational application was the “Periodic Table Videodisc” produced in 1995 by the Department of Chemistry at the University of Wisconsin. The LaserDisc came with a computer program to present each element of the periodic table, which were all on the LaserDisc. Such applications today would undoubtedly be entirely done digitally, with LaserDisc segments being replaced by digital video directly within the program, thus eliminating the need for the cumbersome hybrid system of the computer-LaserDisc player. That, however, is one of the pleasures of looking back at now obsolete technologies. Doing things first required genuine invention, not just a more efficient way of doing things. And, of course, these early efforts paved the way for later applications with more powerful newer technologies.

As computer-controlled disc players allowed for creating as many segments as the program-creator chose, these systems also made part of the program the interface to those locations. What the Pioneer system allowed was a set of simple commands to replace all the capabilities of a remote control. Remarkably, the same computer commands (such as sending “P” to play a disc, or “SF” to step forward a single frame), have been kept consistent by Pioneer as the technology has moved on to DVD players and even current Blu-ray models. As before

with LaserDiscs, not all DVD and Blu-ray players have a serial interface, but those that do, employ basically the same commands as computer-controlled LaserDisc players from the 1990s. Technologies can become obsolete, but may live on in evolving forms. It is not just a matter of whether a given device has been replaced; those new technologies can often be closely dependent upon concepts created by their predecessors.

The software to control LaserDisc players was essentially the product of two companies, Microsoft and Asymetrix. The latter, a company begun in 1990 by Paul Allen, one of the founders of Microsoft, had a product called “ToolBook”, an authoring application not unlike Apple’s Hypercard. ToolBook, though, had a robust programming language built in which could be used to send commands to a LaserDisc player, among other devices (including CD players to control music). Sample ToolBook applications were included in the 1990s by IBM in their Advanced Academic Systems, computers that were marketed to universities. Microsoft had already developed its Visual Basic as an easier-to-use and more powerful offshoot of the Basic programming language, and serial control was also available there. Microsoft further developed what it called VBA, or Visual Basic for Applications, which meant that all the programs in the Microsoft Office package, including Excel and Access, could also incorporate this same language. That this was possible in the early 1990s to control LaserDiscs continues to be an amazingly early combination of video material and computer control, which can easily be seen today in everything from YouTube to every HTML web-based application on the Internet. LaserDiscs were where all this interest in incorporating video into digital applications began.

Another project made possible by LaserDisc technology, highlighting these new interactive possibilities, was the “Aspen Movie Map” produced in 1978 at MIT, in what was to become the MIT Media Lab. Using the group’s own form of computer control of a LaserDisc, the user could drive streets in the city of Aspen, turning when they wished, and stopping at any building in order to view more closely what went on within. This was certainly an ingenious and innovative accomplishment, and not so far from how video games employed these devices, especially travel, branching, navigating, and employing a deep database of possibilities. So university projects developed innovative uses for LaserDiscs that sometimes paralleled what entertainment and game companies were also exploring.

A Few Final and Amusing LaserDisc Features

To some, LaserDiscs meant karaoke, a connotation is still has today. Pioneer marketed special LaserDisc machines (called, not surprisingly, LaserKaraoke) which had a direct microphone input on the front of the player, so that mixing a voice with the music on the disc was easily accomplished. Pioneer also sold a series of disc sets called “50’s Hits” on through to the 1980s. Each decade had six discs, so 40 years’ worth of bar sing-along material took up 48 discs. If that was not enough, Pioneer also had a five-disc set of country songs as well as a Christmas set. (I have seen listings elsewhere for over one hundred LaserDisc Karaoke titles.¹¹ For a last mention of eBay, each multiple disc set is advertised as selling for \$12, with the seller (sadly) reporting that he found them at an estate sale.) The same machines could play regular LaserDiscs, as well as music CDs, as they were basically regular players with the extra audio inputs. (All LaserDisc players could also play audio CDs, although in those days if you had a LaserDisc player, you very likely also had a CD player. Now it seems fitting that two obsolete technologies could reside together in one machine, a double obsolescence.) In another odd carryover from the analog to the digital, there are websites that present karaoke-ready songs copied directly from LaserDiscs. They also provide an opportunity, should one

wish, to see what a LaserKaraoke was like.¹² LaserDiscs can take the credit (or the blame) for what is now an extensive industry for digital karaoke, everything from portable mp3 versions to wireless bluetooth systems.¹³

As it took a while to appear for HDTVs (and is now in the process of disappearing there), 3-D also had a brief experimental life on LaserDisc. It required the plastic anaglyph red-cyan glasses that both 1950s 3-D movies employed as well as a few 3-D comic books from that time. If you bought a 3-D LaserDisc title, there were usually two to four paper glasses included, which kept the size of your 3-D viewing parties pretty small, unless you found ways to order more. Like a reversion to the early affinities between movies and carnivals, or the first few offerings in the early 1950s of three-screen Cinerama, a prime 3-D LaserDisc from 1995 was *World's Greatest Roller Coaster Thrills*, which was a disc of exactly what it sounds like. (Volume 2 followed a year later.) There were a few 3-D movie titles, such as the inevitable *House of Wax* (1953), as well as *Jaws 3-D* (1983), *Amityville 3-D* (1983), and *Freddy's Dead: The Final Nightmare* (1991). Even music LaserDisc titles sometimes were in 3-D. I will shamefully admit to having owned *The Judds – Love Can Build a Bridge* (1991), which only came with two pairs of glasses. As with karaoke, Pioneer produced some 3-D LaserDiscs of their own.¹⁴

These offshoots of regular LaserDiscs, besides being amusing to recall, are interesting for again asserting the transitional and hybrid nature of LaserDiscs. Both karaoke and 3-D are now to be found in superior digital versions (if anything about karaoke can be described as superior). Both existed before LaserDiscs, but found homes for a time on a technology well suited to the niche consumers who went for this sort of stuff. While there were VHS karaoke tapes, once again, you had to sit there and skip from title to title to find the song you were ready to sing, and 3-D on VHS, also occasionally attempted, suffered once more from inferior video quality in comparison to LaserDiscs.

Conclusion

I will confess that the more one thinks about LaserDiscs, the more one misses the darned things. There was a quirkiness and experimental quality to the offerings, so that one cannot help seeing the transition to the digital as a reduction of the initial fun. The brief era of LaserDiscs is like early television, a time we have gotten past but cannot help but marvel at, for the possibilities so quickly put on display that were (maybe) lost as the technology developed further. It feels a little like preferring the kid to the adult it becomes, even if we recognize the maturity and added intelligence that follows childhood. LaserDiscs represent, for those who were around to enjoy them, an innocent time, when the joy of viewing high-quality movies with the chance to interact with them eventually led many to careers related to the stuff they were watching.

Notes

- 1 www.ebay.com/sch/Vintage-Electronics/183077/bn_1643015/i.html
- 2 https://en.wikipedia.org/wiki/A_Personal_Journey_with_Martin_Scorsese_Through_American_Movies
- 3 https://en.wikipedia.org/wiki/Blockbuster_LLC
- 4 See, for example, Alan Abramson, *The History of Television, 1942 to 2000*, North Carolina: McFarland Publishing, 2003, page 190.
- 5 A brochure is preserved at www.nacinc.com/datasheets/archive/DF-16C.pdf.
- 6 A brief YouTube demo of which can be seen at www.youtube.com/watch?v=AsUIQdM40pc.
- 7 www.youtube.com/watch?v=AGigrMXElcs

- 8 www.youtube.com/watch?v=0LrPe0rwXOU
- 9 [https://en.wikipedia.org/wiki/The_Godfather_\(film_series\)](https://en.wikipedia.org/wiki/The_Godfather_(film_series))
- 10 The website LaserDisc Database, valuable in its own right, at <http://forum.lddb.com/viewtopic.php?f=32&t=82> and <http://forum.lddb.com/viewtopic.php?f=13&t=81> offers lists of over 100 films whose commentary tracks were still not made available on DVD as of 2010.
- 11 See, for example, <https://discount99.us/laserdisc%20karaoke>, where everyone from John Tesh to ZZ Top can be found.
- 12 <https://archive.org/details/karaoke1> is a good offering from that 1950s set.
- 13 A website listing the Best Karaoke machines as of September 2018 can be found at www.lifewire.com/best-karaoke-machines-4118378. Regrettably, there is not a remaining videodisc version among all the available choices.
- 14 A bizarre 40-minute non-3-D YouTube of “3D Museum Pioneer LaserActive” can be viewed on YouTube at www.youtube.com/watch?v=bF2Y6v6GXhE.