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Collecting Basics A Guide to the History, Collecting, Handling and Storage of Motion Pictures Films

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INTRODUCTION

In the early 1950s I graduated from Los Angeles High School and entered college. In high school I had been the quintessential “audio-visual nerd” as I volunteered each semester to serve as a projectionist. Those were the days of the brown wooden-cased Bell & Howells and the silver hammertone finished Victors. Being an avid moviegoer and a member of the school stage crew, I learned to appreciate the importance of showmanship in the screening of films. In my senior year I was able to purchase one of the school’s two original 35mm silent auditorium projectors, a beautiful Powers No. 6b machine. I cajoled a friendly independent theater equipment dealer in Los Angeles’ long gone “film row” (Vermont Avenue south of Washington Blvd.) into selling me at reasonable prices an old Peerless low intensity arc lamp to replace the old Powers vertical carbon arc lamp, and an elderly Western Electric sound head. Soon I had converted the silent Powers into a respectable sound projector and could screen films at my parents’ house. I suppose this qualifies as an early “home theatre.” My bible at the time was a copy of F. H. Richardson’s venerable “Handbook of Projection” that I found in the school library.

By the time I was in college and in need of part-time work, my thoughts turned to my love of the movies and I sought some training as a real projectionist. Thus I made the acquaintance of an elderly gentleman, a Mr. White, who presided over the booth of a third-run downtown Los Angeles theatre, and I was introduced to Brenkert projectors and lamphouses. Mr. White agreed to school me in return for my working pro bono several nights a week so that he could concentrate on his part-time real estate business which he ran from a roll-top desk in the booth. He even had his own telephone! I was taught the need for cleanliness, how to splice, how to thread, to make good changeovers, and a host of “tricks of the trade” like keeping a supply of carbons in each lamphouse to dry them out prior to use, like regularly cleaning the lamphouse reflector with a warm moistened cotton towel, like placing a piece of a “sanitary napkin” at the bottom of the projector head to absorb the small amount of oil that leaked past the seals, etc. Mr. White was himself a perfectionist of a projectionist, and, on the several occasions that I

failed to live up to his expectations, I was sent home early – a terrible punishment for one thirsting for knowledge.

I learned much during the time I spent with Mr. White, to the end that I was able to pass on my first try the grueling Los Angeles City projectionist exam (two parts, a written test and an inquisition in a tired 35mm booth in City Hall), and was issued a coveted City projectionist's license. Moreover, Mr. White recommended to the owner of his theater that I be offered a position as relief projectionist at others of the gentleman's low-end non-union venues.

During the following year I became exposed to a variety of equipment, until I was finally able to obtain, with the help of a well-connected friend, a "permit" from IATSE Local 150 that enabled me to "work union" (though not as a full member and without benefits) as a relief projectionist in a better class of house. Thus I spent my college days, my hours in the booth affording time for study as well as unspeakable pleasure.

After graduation in 1956 I left my theater avocation for a real job, and my career propelled me into the 1970s as an electrical engineer.

In 1972 a friend and I decided to lease two long-closed neighborhood theaters and try our hand as independent exhibitors. My friend made this venture his full-time job, while I continued to work as an engineer, so I filled the tech support role, trained his sons as projectionists, and worked several nights in each house as relief projectionist. This venture lasted for two years and ended only because my friend felt a need to feed his family on a regular basis.

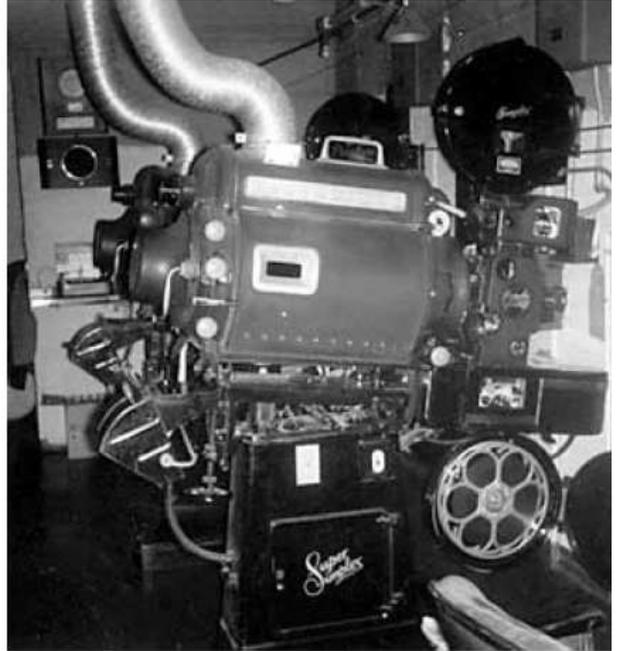
One of my long time interests is railroading and I have been involved in railway museums since the 1970s. In 1994 our museum conceived the notion of renting and screening feature films that featured railroad action for the enjoyment of our volunteers. This grew into a yearly series of volunteer appreciation events, and I quickly determined that I could purchase 16mm films on the collector's market for not much more than the going rental cost. Through ads in "Big Reel" I began to collect railroad-themed movies in 16mm, and later in 35mm. I wanted our museum retrospective shows to replicate the neighborhood movie house experience of the 50s, something with which I could happily identify, so I included preview trailers and posters in my collecting goals, along with projection and sound equipment. In the museum's exhibit hall we erected a 14' wide "lace and grommet" screen masked to Academy ratio and we secured permission to utilize a part of the transportation collection, a horse-drawn dray, as a seasonal "projection booth." Picture, if you will, a wagon not unlike that used in Laurel & Hardy's "The Music Box" with 16mm or 35mm projection equipment where the crated player piano was loaded in the back. Curious, corny perhaps, but functional.

About that time I discovered several Internet web sites devoted to movie projection and/or film collecting (visit www.film-tech.com , www.film-center.com , www.16mmfilmtalk.com and www.35mmforum.com). These resources are a veritable gold mine of information and contain many valuable links, but are rather a lot for the new collector to assimilate, suggesting the desirability for a compilation, in a single document, of such information as might serve as a tutorial resource for the neophyte collector.

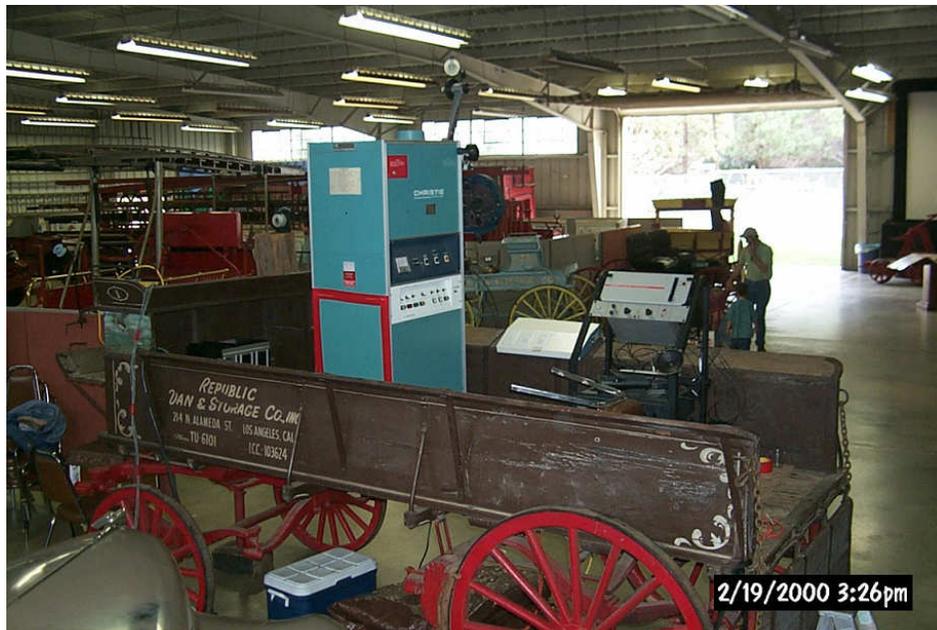
I hope this amalgamation of tidbits from many knowledgeable forum contributors over the past years, combined with my observations and recommendations, helps to serve that end. Read on and enjoy...



The author in a 1970s changeover booth.



Another view of the same booth.



The museum's setup using an unorthodox "seasonal projection booth" – the platter is out of sight on the floor at the left, and the corner of the screen can be seen at the upper right.

I. HISTORICAL PERSPECTIVE

NICKELODEON DAYS

In the earliest days of the public exhibition of movies, films were shot on George Eastman's early 35mm film using Thomas Edison's primitive cameras. These were distributed to exhibitors on 1,000-foot reels. The makers of these early films limited their running time (at "silent speed" which varied since cameras and projectors were hand-cranked, but later became more or less

standardized at around 18 frames per second) to the capacity of a single reel (about 12 to 14 minutes), the Nickelodeons having but one projector. The moving image was the attraction, so even a twelve-minute show was a novelty worth at least a nickel! The “photoplay” with a plot and characters was yet to be born.

EARLY ADVANCES

As the film production and exhibition business developed, filmmakers turned their interest to more complex stories rather than simply the novelty of moving images. Multi-reel comedies and primitive “feature” films were distributed, and theaters equipped themselves with two or more projectors to afford continuous running. Soon after the advent of the “talkies” feature films were being distributed on 2,000-foot reels, while “shorts” such as newsreels and cartoons continued to be, by virtue of their lesser length, distributed on 1,000-foot reels. Building codes mandated separate “rewind rooms” for fire safety, based on the assumption that this reduced the quantity of film in the booth itself.

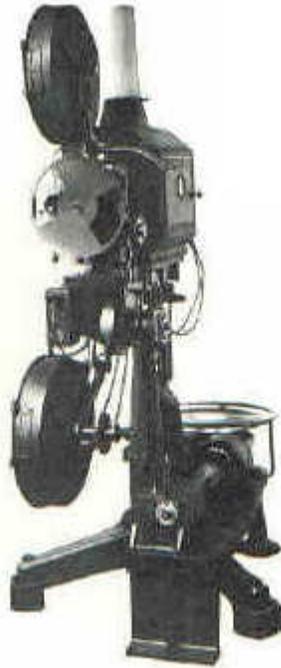


In a classic silent comedy, Buster Keaton portrays a befuddled projectionist in a booth typical of the early 1920s

A 1,000 foot reel runs something less than 10 minutes (35mm sound speed of 24 frames per second = 90 feet per minute), and a 2,000 foot reel something less than 20 minutes. This convention was necessary because of the limited burning time of the carbon electrodes in carbon arc lamps. A new "trim" (positive and negative) of carbons, depending upon their size and the current at which they were operated, might last anywhere from 20 to 50 minutes or so. It was always economically desirable to burn as much of each carbon as possible since operating cost has always been a big factor to theater operators large and small. "Carbon savers" (tightenable sleeves of copper) were sold so that one might "splice" two stubs together to lengthen a stub enough to fit the jaw (carbon holder) and burn for a full reel or at least a short. There may have been a flicker or two when the sleeve melted, should the projectionist have miscalculated, but a penny saved was, and continues to be, a penny earned. Only little stubs of carbons were discarded!

REVOLUTION

In 1927 the industry was shaken by the advent of “talking pictures.” Early versions of synchronous sound recording and reproducing equipment included phonograph disks synchronized with film and optically-recorded sound on film. The Western Electric sound projector system of 1928 afforded facilities for both! Since pitch is related to film speed, a standardized constant film speed was required, and a speed of 24 frames/second was adopted as standard, and it remains the standard today for 16mm, 35mm and 70mm formats.



A 1928 projector featuring facilities for both sound-on-film (sound head below projector head) and sound-on-disk (turntable beneath lamphouse)

THE MAGIC OF THE “CHANGEOVER”

Multiple reel films required the projectionist to change reels every 7 to 18 minutes or so during a show. How was this done reliably and innocuously? By providing a timing (countdown) leader at the head of each reel, and cue marks at the end of each reel. The old "Academy" leader has a START frame followed by equally-spaced numbered frames 11 through 3 (16 frames apart), followed by three feet of black and then, voilà!, actual footage, while the newer SMPTE universal leader has a start frame followed by equally spaced numbered frames 8 through 2 (18 frames apart), each having a moving “clock hand” for precise timing.

There is a period of about 8 seconds of running time (at 90 feet per minute = about 12 feet) between the START frame and the first picture frame. And, there is a period of about 7 seconds of running time between the first and second set of cue marks. These are little circular dots or marks at the upper right hand corner of the projected picture applied to four frames [at 24 frames per second = 1/6th second] which is enough to not miss even if you blink (the average blink time is 3 tenths to 4 tenths of a second). Cue marks are applied during the negative

process so they are “built in” except for trailers. Often a projectionist with vision problems (there’s a scary thought!) would “enhance” the innocuous cue marks, either by augmenting them using a “cue maker” (a jig with four holes and a pin for sprocket hole alignment, and a hollow scribing tool that was inserted in the holes and rotated, thereby scraping away emulsion to form a white circle), or more casually and less professionally by manually scratching an “x” or other inartistic visual augmentation over the mark, forgetting that these marks were supposed to be innocuous to the audience.

Projectionists' reaction times vary, as do the starting times of projectors, so that a projectionist will, based on trial and error, determine which number frame to thread up at the projector picture aperture plate to ensure that the changeover between reels is "just right." When the scene fades to “black” at a changeover and then back to “white,” you know you've got it right if the scene as projected indeed fades to “black” and then fades back to “white” evenly as the director intended.

Thus, except for the first reel of a show, which was sometimes threaded up at or just before the 3 frame, all reels were threaded up at that pre-determined number. Shortly before (say a minute or two) the end of a reel, a mechanical end-of-reel alarm sounded whereupon the lamp was lighted and the screen was watched, and, at the first cue mark the projector was started. Then, the lamphouse manual douser was opened (the light was not allowed to “cook” the electric douser blade for too long lest it warp). At the second cue mark the changeover button was pushed to operate the electric dousers (one opens and the other closes) and the sound changeover, if not integral with the douser action, was operated. Then, the picture was checked for focus and framing. (Remember that there are four sprocket holes per frame in 35mm and five per frame in 70mm, and the intermittent movement uses a sprocket, so it is possible to thread up “out of frame” if one is not careful.) The other projector’s manual lamp douser was then promptly closed, the lamp extinguished, the projector stopped, the film removed and rewound, the lamp “re-trimmed,” and the whole process started over. Thus lived the projectionist in his booth at the back of the theater. If he did his job correctly and professionally, no one ever noticed, but let him screw up just a little and the howls from the audience reminded him of his frail humanity!

SHOWMANSHIP

In addition to threading up, making changeovers, etc., projectionists were also true “showmen” of their time. Their artistic control of the house lights, footlights, title curtain, and sometimes special projected “scenic effects,” as well as appropriate “non-synch” music before and after the show and during intermissions, was the trademark of a well-run movie palace. Even the most humble neighborhood theaters had many of these amenities. It would have been unthinkable not to close the title curtain between shows, or to switch the house lights on and off abruptly.

The “megaplexes” for the most part abandoned the elements of showmanship. Instead, their forte is “in-your-face” big screens and thundering, ear-splitting sound that will draw the home TV audience in for so-called “blockbuster” entertainment.

PROGRESS

Movie film stock used to be a material called cellulose nitrate. Nitrate film was flammable, so projectors were built with fireproof “magazines” to accommodate the supply and take-up reels, and fire rollers were provided between the magazine and the projector head (and sound head) to prevent possible fire initiated at the projector head from reaching the reels. Since fire safety

was an important issue, the NFPA and local building codes required projection booths to be of fireproof construction, to be provided with a second exit, and to contain a lavatory and a toilet since the projectionist was prohibited from leaving the booth at any time that film was running. Even the projection and observation ports in the wall had steel fire shutters arranged to close automatically in the event of fire, and a separate “rewind room” was required. In 1949 nitrate film was retired in favor of slow-burning cellulose acetate safety film. Yet even today you will find code requirements for signs to be posted in the projection booths of modern megaplexes that read “Safety Film Only – This Booth Not Approved for Nitrate Film,” or words to that effect.

With the advent of the short-arc Xenon lamp as a projector light source, the old 2,000-foot reel magazines (obsolete since the use of flammable “nitrate” prints was abandoned in favor of nonflammable “safety” film prints) were removed and 6,000-foot reel arms applied. Then, every three 2,000-foot reels of a feature could be spliced together onto one 6,000-foot reel for a running time of a bit less than one hour. Since there were no carbons to adjust periodically or to replace, the projectionist could now leave the booth and work elsewhere for 45 minutes or so.

It was inevitable that someone should eventually devise a “platter” system that allowed an entire feature plus sorts, preview and policy trailers to be spliced together for continuous showing, thereby requiring only one projector. And, it was inevitable that automation would soon be added to control the entire show, from lights to the movie to the “non-synch” music. This enabled one projectionist, and in most cases one non-union projectionist-manager, or worse one teenage snack bar attendant, to run multiple screens, which is where we were until recently except in some première first-run venues and retrospective cinemas.

Today “digital cinema” has replaced the last vestiges of “film cinema” except in retrospective cinemas and the screening rooms of film collectors.

Goodbye, projectionists and showmanship! You will be missed by those old enough to remember you.

II. A GUIDE TO BUYING FILMS

INTRODUCTION

This is not intended to be an exhaustive guide to buying films, but rather a basic guide designed to get you up and running. If you read and understand what’s here, then you’ll be far ahead of most of the people who have film for sale.

Unfortunately a good number of sellers, especially since eBay evolved, have come on the scene who are either honestly uninformed about a film’s condition or trying to greedily avoid telling you what’s wrong with the print. In determining a film’s value or price, nothing will help you more than experience and you’ll become good at it as time goes on. However, as to a print’s quality, no matter how inexperienced you may be, you have the right to honest, accurate information from the seller. He may not volunteer it, so you have to know what to ask. If a seller tells you he hasn’t looked at the print in a long time or is otherwise unresponsive, then forget doing business with him. Know what you’re buying. There is a big difference in value between a print that is original and one that is a dupe. A print suffering from so-called “vinegar syndrome” is potentially one step removed from the trash bin.

Film collectors are forced to become buyers, sellers and traders of their films. It is the way they

build up their collections. Most collectors are honest people who have no problem in telling you truthfully about their prints and selling them with the understanding that you can return a print for refund if it is not as represented and your request is a prompt one. Some dealers, on the other hand, don't bother to inspect their prints and set asking prices as high as possible based only on the title of the print. These are the same dealers who love eBay. The best advice is to refer to Brad Miller's **Film Condition Chart** on the following page and require any potential seller to honestly rate his films in accordance with the rating system on the chart. Then avoid any seller who will not guarantee you a refund if you find the film to be less than he represented.

FILM CONDITION CHART

"New" ...a print which has never been run through a projector.

"Lab mint" ...a print that is virtually indistinguishable from ever being run through a projector. There must be absolutely NO splices anywhere within the feature, NO scratches anywhere within the feature, NO dirt anywhere within the feature and NO handling marks, particularly at the reel changes. The only acceptable "defect" is if the leaders have been cut off and spliced back on from running on large reels of a platter transport system. Bear in mind, if your lamphouse in your screening room is not capable of lighting the screen with the SMPTE standard of 16 footlamberts of light, what you see may look "lab new", but in fact may have defects. Also to note here is the projected aspect ratios in your screening facility. If you do not have the capability of presenting the films in their full aspect ratio (as an example, if your "scope" projected image is only 2.15 to 1 as opposed to 2.39 to 1 for 35mm and 2.21 to 1 for 70mm), then do **NOT** classify a print with this description unless you can verify there is no damage outside what you are seeing on your screen. If you have not prescreened the print **in its entirety**, then do **NOT** classify a print with this description. If you do not have the capability to project the print with a full 16 footlamberts of light, then do **NOT** classify a print with this description. **VERY FEW** prints should ever be classified as "lab new" condition.

"Mint"...a print that is very close to "lab new", and must not have any splices (lab splices excluded) or any scratches whatsoever. Very light dirt at the reel changes is acceptable to be classified as "mint" condition.

"Very good" ...a print that is a very nice print and has only minor wear. Only occasional **hairline scratches** (very thin and black only) are allowed. Some dirt buildup at the reel changes is to be expected with a print classified as "very good", but there should be no more than 1 splice per reel (lab splices excluded).

"Good"...a print which is not quite perfect and can have up to 3 splices per reel. Light base side (black) scratching is to be expected as is some dirt buildup, but it should not be to the point where it distracts from the film. Diagonal scratches (commonly called "platter scratches") are still not acceptable at this level.

"Fair"...a print that has of multiple splices within the reels, emulsion scratches (colored and/or diagonal), some dirt...but is complete.

"Poor"...a print which is complete with no other guarantees of quality.

FINAL NOTES:

- **The original head and tail leaders of every reel** MUST be included with the print or the lack thereof should be noted in your description. (No one likes getting a print with randomly thrown together leaders from other titles. Missing leaders will cut into the value of a print.)
- **Any vinegar smell** must be noted in your description.
- **Any color turning** must be noted in your description.

When listing a 70mm magnetic print, please provide information regarding the quality of the magnetic track.

WHAT TO ASK THE SELLER

Now let's discuss other things you should ask a seller.....

1. Is it an Original or a Dupe?

There is a brief discussion about dupes (duplicates made from original prints) later in this tutorial. Never attempt to judge a film by holding it up to the light or even using a magnifying glass. Such an inspection will provide you nothing more than a date code and film stock. You must project the film to judge it. When you project a small picture, a good dupe will be very hard to tell from an original. When you project a larger picture, say 8' wide, you'll see the difference. A dupe usually lacks detail, especially in faces. The whites tend to "bloom" out, smearing into high contrast blacks which lack detail. Additionally, a poor dupe may look grainy, have inconsistent light balance, poor focus and any other problem imaginable. A dupe's soundtrack can be good, but most often is on the poor side. Remember, all of this is subject to the skill and equipment of the lab doing the dupe. You will find horrible dupes that have dirt marks from the negative which are printed directly on the positive. Some dupers did excellent work, printing superior images and even improving the soundtracks. You have to evaluate each print on its own merits.

In film collecting, an original print is the best, but its condition will vary and its value diminishes accordingly. A dupe is "next best" and its quality and value will also vary. An excellent (quality) condition dupe will be of greater value than a poor original. Value is also determined by a title's rarity, the buyer's desire to purchase and the seller's willingness to sell. Setting a value on any print is extremely difficult given the subjective factors at play in the process.

2. Any Lines and Splices?

Most folks don't mind an occasional line or scratch when viewing a print, but a 15-minute emulsion scratch running down the center of the picture is another story. There are places that you'd expect a splice, such as between lab reels, which generally come conveniently at the end of a scene and preferably between a fade out and fade in. However, a "jump splice" in the middle of a song or important dialogue is not expected. How much of this type of defect is

present in a print is vital information as it can mean the difference between a "mint" top price print or a "poor" piece of garbage.

3. Does it have Vinegar Syndrome?

The dreaded vinegar syndrome is discussed later. The only thing you have to know for "buying" purposes is that you must ask the question. Don't be fooled with an evasive answer. Vinegar is easily detected by a smell. If you smell it, then it's there. Just like there is no such thing as a "little bit" pregnant, there is no such thing as a little bit vinegar. What value you want to place on a vinegar print is going to be your own personal decision, the same as if your buying a print which is fading or turning color.....which takes us to the next subject.

4. How's the color?

Most of the color film stock that you will encounter as a collector is "Eastman". You can determine the stock and manufacturing date of a film by the printing along the sprocket hole edge of the film. Every few feet you will see the name of the stock and a date code and it is helpful to have a magnifying glass to read it. You can take your projector's lens out, turn it around and read the film edge easily with it.

Unfortunately, almost without exception, all Eastman color stock manufactured prior to 1982 has faded or will fade. Numerous attempts to restore faded film have failed. Once the film has faded it cannot be reversed. Some projectionists use color filters in front of the lens in an attempt to restore the original color. It is an ineffective remedy.

Happily, however, all Eastman color stock manufactured since late 1982 is automatically low fade, so color fading should not be an issue with post 1982 stocks.

There are two exceptions to pre 1982 Eastman stock fading. Stock bearing a "4b" on its edge is still holding up well. This stock is usually found on MGM titles printed between 1969-74 and includes cartoons. There is no explanation as to why "4b" stock is holding up and all the other Eastman prior to 1982 fades. The other exception is some Eastman stock made in 1982 which is LPP but does not bear LPP markings on the edge. LPP is a no fade stock that has a yellow-green bias in its color balance. Some collectors report that individual "airline" Eastman prints from the early 1970's, which used Mylar® (polyester) as a base, are holding up well. However, many such airline prints are fading and the group cannot be labeled an exception.

There are several color film stocks that have proven themselves to be low fade, they are: I.B. Technicolor, distinguishing itself as the real champ in holding its color. You can easily tell this stock by its appearance. Early stock had a blue sound track and usually soft focus and the more abundant later stock has sharp focus and a solid black sound track. Fuji stock has a purple bias in its color balance and seems to hold up nicely. Eastman LPP is considered low fade. Kodachrome and Anscochrome are holding up nicely. Bear in mind, any stock, even I.B. Tech, will change when subjected to high heat and humidity. Kodak SP stock may be expected to fade.

The only way to fully arrest color fade in the fading stocks is to freeze the film. Second to that, one should store their films at as low temperature as possible and under controlled humidity conditions as hereinafter recommended.

In summary.....

THE BEST: IB Technicolor® (imbibition)- black soundtrack, clear sprocket side

NEXT BEST: Kodachrome, Eastman Rev I and II, Anscochrome.

THEN: LPP, AGFA, FUJI

THE WORST: Pre 1982 Eastman Kodak SP

Through experience you will develop your own values as to how much you will spend for a print whether it is faded or pink or glorious IB Technicolor. Some collectors won't put any money into a print that has, will, or might fade. Others put a price limit on how much they would pay for any such print regardless of the title. These are personal considerations that you must determine for yourself.

5. Is it Scope or Flat?

Unlike 35mm, an understanding of 16mm aspect ratios is very basic. Unless you have an expensive theatrical 16mm projector, your projector will have a fixed permanent aperture plate with an aspect ratio matching standard 16mm stock film, which is 1.33:1. That is, the width of the frame is 1.33 times the height, so if you project a 16mm image that is 1' in height, then it will be 1.33' wide.

What about those wide screen or Panavision films? Can I get and show them in 16mm? Yes, but remember this... a film can be a scope "title", such as "Three Coins In The Fountain," which was photographed in scope, but the 16mm print may be printed in one of three ways:

- It can be done "flat", that is the entire 1.33:1 stock 16mm frame is printed with a picture that is approximately half (actually 57%) of the original 2.35:1 scope picture. A flat print is usually made with an attempt to keep the important story visual information within the 16mm frame... doing a "pan and scan". You do not need an additional "scope" lens to show this kind of print.
- A scope picture (2.35:1) can be "letter boxed" into the 1.33:1 16 mm frame. This is called "adapted scope." The wide-screen picture appears in the frame with an upper and lower black margin. You do not need an additional "scope" lens to show this kind of print. Some collectors consider this the best way to have a scope title on 16mm, others frown on it as much of the frame is wasted and blowing up only the middle section results in a loss of resolution.
- Just like 35mm film, the width of the scope image is optically squeezed down into the frame and when projected the operator places a "scope" lens in front of the projector's primary lens which un-squeezes the image to it's proper width. A 16mm scope lens will expand the width 2 times, which makes the image a 2.66:1 picture. This is the kind of print that requires an additional scope projector lens for viewing (unless you enjoy watching very tall, skinny people, buildings, cars, etc.). True scope 16mm prints are becoming rare

and are eagerly sought after by niche collectors who are taken with the wide screen scope process.

6. What is the Film Stock?

As noted earlier, nitrate film was in common use until 1949, when safety film gradually became universal. Most 35mm prints available on the collectors' market, and all 16mm prints, are on safety film. However, some older 35mm nitrate features and shorts are still to be found.

Most sellers will so identify their films, but it always pays to check any older (say pre 1950) 35mm print to ensure that the words SAFETY FILM appear along the sprocket hole edge of the film. The absence of the words SAFETY FILM is a sure indicator that the film is nitrate. Should you acquire a nitrate print, it must be stored in a fireproof container, and shown only in a booth and using equipment that are approved for nitrate film. Don't even think about running a nitrate print unless the equipment and booth are approved for its use! Your life and your equipment are at significant risk if you do.

Within the generic SAFETY FILM category are to be found cellulose triacetate and polyester stocks. Most SAFETY FILM stocks through the 1990s were acetate, while most from the 1990s on were polyester. Kodak identifies its polyester as ESTAR. How do you tell the difference?

Acetate stock is slightly thicker than polyester (about 5.6 mils) and tears easily. The thickness can be measured using an inexpensive micrometer. Tear resistance can be checked by trying to tear a piece of the leader (assuming it is the same stock as the remainder of the film). Acetate will be easy to tear crosswise.

Polyester stock is slightly thinner than acetate (about 4.7 mils) and is virtually impossible to tear crosswise without cutting or nicking the film first.

Also, if you hold a reel of film up to a light and look at the edge of the film with the light behind it, polyester stock will appear more transparent than acetate stock.

MORE DETAILED INFORMATION ON SCOPE AND OTHER FORMATS.....

1. Scope

Scope is a nickname derived from CinemaScope®, a wide-screen format introduced by 20th Century Fox in 1953. This process uses an anamorphic lens to film the picture that compresses the image horizontally by a factor of 2 as earlier explained.

For 35mm film with a magnetic soundtrack, which has an actual frame aspect ratio of 1.275:1, the resulting CinemaScope screen image is 2.55:1.

For 35mm film with an optical soundtrack, which has an actual frame aspect ratio of 1.175:1, the resulting CinemaScope screen image is 2.35:1. This is what was used in most theaters.

For 16mm film, magnetic or optical, which has an actual frame aspect ratio of 1.33:1, the

projected image with the anamorphic lens is 2.66:1. The 16mm CinemaScope image loses a little off the top and bottom of the original 35mm CinemaScope image.

2. Flat

Flat means “not scope,” but alone it doesn’t tell you all you need to know. In 35mm, “flat” can mean everything from the Academy ratio of 1.37:1, established as standard in 1932, to “widescreen” ratio of 1.85:1, and everything in between. To avoid confusion when screening a flat film, it is a good idea to follow “flat” with the actual aspect ratio (for example, “FLAT 1.85,” “FLAT 1.66,” or “FLAT 1.37”) when marking the leaders with titles and reel number.

3. Adapted Scope

This is a treatment used to create a non-scope print when the original image was anamorphic, resulting in a 2.35:1 aspect ratio. The 2.35:1 image (which obviously would not be able to fit into a nearly square film frame) is reduced in size until the sides meet the sides of the square film frame. The top and bottom of the now reduced image now no longer meet the top and bottom of the square aperture, not unlike television’s “letterbox” format. This is done only in 16mm to accommodate the non-theatrical/non-professional market that does not have the lenses and/or screens necessary to screen real scope prints. It is a poor system since much of the frame does not carry image, thereby reducing resolution.

4. Scanned Wide Screen Prints

Some studios re-release prints of older Academy ratio (1.37:1) titles in hard matted 1.85:1 versions because the vast majority of megaplex theaters didn’t have the aperture plates or the lenses to show Academy ratio pictures. All they knew was “flat” and “scope,” flat being (if you are lucky) 1.85 – lots of them actually show both scope and flat at 2:1. After hard matting at 1.85:1, placing the familiar black bars on top and bottom of the original image, the image is moved up and down as needed to keep significant portions of the image in the 1.85:1 aperture.

5. Adapted Academy

This is another method of adapting older Academy ratio films to work with a projector outfitted with a 1.85:1 aperture plate and a lens with a focal length to produce that aspect ratio on the screen. The top and bottom are not cropped, but the entire image is reduced so that it becomes a small square in the middle of the 1.85:1 aperture. When this is projected it becomes a 1.37:1 image fitting correctly in the middle of a wide screen. This is obviously better than scanning since none of the image is lost, but what you wind up with is an image area that basically is only a little bigger than 16mm. For a short subject like a 7-minute cartoon you might put up this resolution and light loss, but you should be aware of that when buying. This is only a problem with 35mm prints.

FORMAT CAVEATS

In order to minimize disappointment with what you get in a print, it is best to know what the original picture format was when the film was shot and played initially in theatres. Knowing

release dates will be very helpful in this. Then try to discern how the print you are getting is formatted. Both should be the same. Then show it in that format.

A good rule of thumb is that any picture prior to 1955 or so will have been shot in 1.37:1 and is intended to be shown that way. If the print you are looking to buy was made before 1955, and it was re-released recently, you need to ask if it is hard matted at 1.85:1. That tells you that you are getting a scanned print and you will be missing about a third of the original image. If in doubt, visit www.imdb.com, a site you will find very useful, enter the title of the film in question, and scroll down to "Technical Specs" where you will find running time, sound mix, aspect ratio and more.

35MM Format Table

Format	Aspect Ratio	Aperture Size in mm
Flat Academy Ratio	1 : 1.37	15.2 x 20.9
Flat Widescreen 1.66	1 : 1.66	12.6 x 20.9
Flat Widescreen 1.75	1 : 1.75	11.9 x 20.9
Flat Widescreen 1.85	1 : 1.85	11.3 x 20.9
CinemaScope Optical sound	1 : 2.35	18.2 x 21.3
CinemaScope magnetic sound	1 : 2.55	18.2 x 23.4
CinemaScope Combi print	1 : 2.35	18.2 x 21.3
SuperScope	1 : 2	18.2 x 18.2

FILM DATE CODES

A chart showing film date coding may be viewed and downloaded from www.filmcenter.com.

THOSE "TV" PRINTS

Many 16mm prints are to be found in which the title footage refers to "C & C TV Corp." rather than the original studio logo/identification. Knowing the history behind these prints serves as a good lesson as to what is a TV print as opposed to a "theatrical print." Around 1956 Hughes sold RKO and the first thing the buyers did was sell the library to broadcast TV. Individual stations could buy an entire package of 16mm prints and had license to play them for the life of the print. This was the first major studio package of films made available to broadcast TV and where buyers broadcast the package under a format called "MovieTime USA". C and C Cola was the major advertiser, and so "C & C TV Corp." was born. Until then, TV broadcast public domain films, Republic Westerns and a handful of near "A" titles that independent producers had sold, such as Hal Roach's "Topper," "One Million BC" or Edward Small's "Corsican Bros," "Man In The Iron Mask," etc. Once a station had purchased the C&C RKO MovieTime USA package they ran these prints "ad nauseam" and the handful of popular titles, like "King Kong" or "Citizen Kane" were popping up at 3:00 AM most every night of the week.

These were the days of early B&W TV and tele-cine film chains could not handle normal contrast "theatrical" prints. The video of the day demanded low contrast prints in order to have a

video picture that showed detail in the shadows. Compared to a black and white "theatrical " print, a low contrast TV print appears to be gray and white. The RKO prints were printed on low density film stock from source material that had the original RKO logos removed and titles were edited to remove RKO from the header, and in their place "C&C Films, Inc.," "CC&C TV Corp." or "MovieTime USA" was put in. These prints are considered originals in spite of their low contrast and appearance of soft focus. (Actually the focus is not soft, rather the nature of low contrast is such that the focus gets compromised and appears soft.) These C&C prints are nice to have, but chances are you have a dupe of a C&C print. The original C&C prints, widely distributed to TV station libraries across the country became the source material for an army of basement dupers whose quality control varied from horrible to pretty good.

CONCLUSION

If you have absorbed this dissertation and have a reasonable understanding of the material, you'll have no trouble in the film buying market. Yes, you'll make some mistakes, but they will become valuable lessons that will never be forgotten.

I have left for last the most valuable tip I can give..... learn as much as you can about your seller. Visit the Internet film forums and ask for references from people who have dealt with that seller. There are some bad apples to avoid but the overwhelming majority of collectors and dealers are fine, honest people who love the thrill of showing film on the big screen. If you have yet to experience that thrill, jump in now and join us.

IV. HANDLING, STORING AND PRESERVING FILMS

HANDLING - "WITH KID GLOVES....."

I'm not kidding. Film must be handled with the greatest of care, and cotton gloves will protect film from both dirty and oily hands. Your projection booth, film storage room, etc., must be maintained immaculately clean. We've all noticed the lines and specks that appear inexorably at the beginning and end of every reel of films. These are the result of poor film handling techniques, dirty booths and uncaring projectionists.

"Projectionist!" In the heyday of the movies this guy was king. He worked his changeover magic, skillfully handling curtains, foot lights, house lights, non-synch (intermission) music, and his very art ensured his anonymity. We've talked about this already.

The term "film handler" perhaps better described the megaplex "projectionist," since handling the films is what he/she did. Films arrived on 2,000-foot cores or reels, and each reel is spliced to the next and loaded on the platter. Trailers (policy, preview and advertising) were appended to the front of the feature, and electronic cue tapes were added to interface with the theater automation that controls everything. Once on the platter, the film stayed on the platter for the week's run after which it was broken down to its original 2,000-foot increments (hopefully with the correct heads and tails spliced on so the next booth to receive it wouldn't have to solve any problems). The only attention the film received during the run was re-threading for each show. Indeed, film handler is an accurate description.

When you buy a 35mm film, it will likely be on 2,000-foot reels or cores. For the safe handling of cores, you will need a 35mm split reel. Some collectors will store their 35mm films on reels, some will store on cores and transfer to 2,000-foot or 6,000-foot reels for screening, and the

very wealthy may even have lots of those expensive split reels and use them for screening their films on cores. If you use a platter, you may want to make up your features on 6,000-foot reels, and then load them to the platter, as this requires but a single splice when loading the platter. Once “plattered,” they can be clamped and left intact, though they are bulky and difficult to handle, or made up on a Goldberg “Show Shipper” reel, which is a safer and more convenient.

When you buy a 16mm film, it will likely be on reels ranging from 400-foot to 2,000-foot capacity. The most common size is 1,600-foot, which holds about 44-minutes worth of film. Some screen their 16mm features on a single portable projector, re-threading and starting over with each reel. A few use 16mm projectors fitted with electric dowsers and arranged for changeover use. And a very few use professional projectors with 6,000-foot reel capacity. An entire program and shorts, trailers and a feature can thus be accommodated on a single reel. Unlike platters, however, the reel requires re-winding between showings. Such projectors are popular with porno and art houses that screen 16mm films.

FILM TIMING

There follow some helpful hints for proper film handling.

- For 16mm, multiply 0.02766 x total feet = running time in minutes
- For 35mm, multiply 0.01111 x total feet = running time in minutes

CUES (See also http://en.wikipedia.org/wiki/Cue_mark)

- For 16mm, place end-of-reel cues 4'-9" apart
- For 35mm, place end-of-reel cues 11' apart (90 feet/minute = 1.5 feet/second x 8 seconds = 12 feet) and 22 frames before the last frame.

FILM STORAGE

Please reread the caveats about nitrate film stock.

It is wise to store 35mm acetate, and especially polyester film, on reels or cores with the emulsion (dull) side “out,” never in. While this is in contradiction to SMPTE and Kodak recommendations, it is founded on the experiences of several respected authorities. 16mm film does not appear to be as sensitive and may be stored with the emulsion side in or out.

If a 35mm film has been stored emulsion in, it may be rewound emulsion out and left for several months prior to showing lest it drift in and out of focus. Thereafter, films should be stored heads out, so rewind after every showing. While this is relatively important with 2,000' reels, it is especially important with 6,000' reels.

Those thirsting for authoritative information of proper storage for film should visit www.imagepermanenceinstitute.org/imaging/storage-guides. Download the IPI Storage Guide for Acetate Film. It is in PDF format so you can print a copy for your reference.

The Guide also discusses the use of A-D Strips, film base deterioration monitors that enable a qualitative evaluation of the degree of VS in a film. You may want to use them to test newly acquired film that may not yet smell of vinegar but still be infected.

The best storage is considered by many to be storage in sealed containers with recommended number of Kodak molecular sieve packets placed in the container. Kodak molecular sieve packets may be purchased from Kodak:
(http://motion.kodak.com/motion/Support/Technical_Information/Storage/molecular.htm#order).

Use them per Kodak's recommendations.

The sieve packets act as "selective desiccants" that absorb the acetic acid emitted by cellulose acetate film as it ages, thereby delaying the onset of the inevitable dreaded "vinegar syndrome." Molecular sieve packets should also be used when storing polyester film, as they will help maintain low humidity (remember, they are desiccants) for optimum life of the gelatin and dyes. Every time I take a film out of storage to view (I often keep a film out of storage for several months), I use new molecular sieve packets when re-packaging it for storage. The molecular sieve packets come from Kodak in a moisture-proof metal "paint can" and are enclosed within a polyethylene bag within the can. If you are careful to close up the interior bag and to close the "paint can" well after removing some packets for use, the packets' shelf life should not be degraded.

Caution - be sure to read the instructions, as the material within the packets can react violently with water, liberating extreme heat. Do not use damaged or torn packets. Also, if you cut the packets, do not release the contents. Observe the Material Safety Data Sheet provided.

Others maintain that the best storage is in ventilated containers so that the film can breathe, or even in open racks. If you choose ventilated or open storage, the use of molecular sieves would be a waste.

Above all, the storage area must be clean and free of dust or other airborne contaminants.

The ideal storage temperature for film is low and relatively constant, with a constant relative humidity. For home storage, I would recommend about 60 degrees F at 45% RH. Now, temperature is fairly easily controlled by the use of a through-the-wall packaged air conditioner or a wine cooler unit. You may want to store your wines with your films! However, air conditioners often tend to wring moisture from the air, which accounts for the water that drains from the condenser coil. If the ambient humidity is low, moisture must be added by the use of a humidifier with a "humidistat" controller. A large humidifier might be connected to a permanent water supply, but for our purposes, a small manually-filled humidifier will serve nicely. On the other hand, if the ambient humidity is high, moisture must be removed by the use of a dehumidifier.

Alternatively, you can arrange for controlled storage at a commercial film vault. For an idea of what is available and the cost, visit www.hollywoodvaults.com. While utilization of facilities such as these may not be appealing to the modest collector, it says a lot about the need for proper storage conditions.

The last word – do the best you can with what you have available to preserve your collection.

MORE ON THE DREADED VINEGAR SYNDROME

Acetate film is susceptible to a hydrolysis reaction commonly called Vinegar Syndrome.

Vinegar syndrome (VS), once begun, is self-catalyzing and the decay cannot be stopped or reversed, except as noted below. The film stock will begin to shrink, causing separation from the (non-shrinking) emulsion, and it will become “un-projectable.” Once a print begins to exhibit “vinegar syndrome” (emitting the aroma of vinegar), the storage temperature must be lowered to preserve the film stock, and irreplaceable prints should be copied.

Some collectors recommend freezing as a means of slowing decay. However, special steps must be taken to dry and package the film, and to “thaw” it for screening. Remember, however, that once “thawed,” the decay continues at its normal rate until the film is again frozen.

Recently a chap in Hollywood, Bill Stewart, began marketing a chemical agent called VitaFilm that he claims will, in most instances, halt VS. The original VitaFilm formula was thought lost, but Bill tracked down the owner and obtained the rights to manufacture it. I have used this material on prints exhibiting advanced VS and have experienced good results – shrunken prints have become dimensionally stable and are again projectable. Still, only time will tell if the effects are lasting.

Film-Tech’s FilmGuard also seems to slow VS. I have a print that reeked of vinegar when I bought it, and successive applications of Film-Guard effectively slowed the decay and minimized the smell, and, as of this writing, there is no aroma and the print is still projectable.

SPLICING

1. Cement Splices

The earliest splices were “wet” splices using a solvent to “weld” overlapping ends of film together, the same technology as used to join plastic pipe today. The trick here is to remove the emulsion from the emulsion (dull) side of the film stock (the other side is more shiny). The emulsion may be scraped away with a razor blade. If the emulsion is not completely removed, the cement will not penetrate the film base and a weak splice will result. Some folks still prefer cement splices to tape splices. Use relatively fresh cement, however, as the shelf life of film cement is not eternal.

2. Hot Splices

An interesting variant is the hot splice. Most of today’s hot splicers use a conventional cemented overlap joint but add heat to speed and strengthen the joint. Expensive hot splicing machines were sometimes used by editors but are seldom seen in the collectors’ market.

3. Tape Splices

Perhaps the most common splice today is the “tape” splice. Pre-perforated tapes can be found but the best tape splices are made with a professional splicer having sprocket hole alignment pins and a hole punches and blades to trim and finish the splice. Don’t be a cheapskate when looking for a splicer. A good Neumade professional splicer will cost you \$500 or so new, maybe

\$300 used if you can find one. A good splicer will make good splices with a little help from you. A cheap splicer will.....well you get the idea.

For repair and editing splices use a good plain clear tape, preferably Film-Tech whose splicing tape adhesive makes it easy to remove cleanly when required, while in no way sacrificing permanence. Apply the tape to both sides of the film and make sure there are no air bubbles. If your film has been treated or cleaned with a non-evaporating medium, be sure the ends to be spliced are clean or the tape adhesive will fail to adhere.

When removing splicing tape, remove the tape on the film stock side first (NOT the emulsion side), then bend the splice to facilitate removal without scratching the emulsion. NEVER cut frames when breaking down a plattered film! Always remove the tape. If you store your films on reels or cores, you can tape the heads and tails on one side only to save time, assuming, of course, that the next showing will be on a platter. It is unrealistic to expect a splice taped on one side only to survive a trip through the projector.

4. Really Expensive Splices

I would be remiss in this discussion if I failed to mention ultrasonic splicers designed for use with polyester film. These splicers actually fuse the film ends together and are arguably the best splicers for permanent splices made. I make that emphasis because when films are made up for platter use, splices made with removable splicing tape will ensure that no further loss of frames occurs. When I describe these splicers as "expensive," I mean \$3,000+. Oh, to win the Lottery!

FILM CLEANING

1. Hand and Machine Cleaning

Cleaning during rewinding is recommended for newly acquired prints. There are several excellent available cleaning solvents:

- Solvon and Edwal (Larry Urbanski at <http://members.tripod.com/~Moviecraft/index-6.html>) are volatile cleaners that evaporate quickly. They are well suited to the initial cleaning of a dirty print. All newly acquired prints (and all prints returned from loan) should be cleaned before being shown, and occasionally several passes are required. An Ecco Applicator placed between the rewinds is useful for this, or 4" x 4" Webril cotton wipes, may be used. Neumade products and Ecco applicators, as well as a host of other film-related products, are sold by Larry Urbanski.
(<http://members.tripod.com/~Moviecraft/index-6.html>).
- Filmrenew, also available from Larry Urbanski, is a non-volatile cleaner/lubricant with excellent penetrating qualities. It is well suited to rejuvenating older prints that have curled or dried. It may be applied by an Ecco Applicator, by using Webril cotton wipes, or entire reels may be literally soaked (immersed). Be cautioned that soaking softens tape splices and ruins plastic reels, but metal reels are unaffected.
- FilmGuard (Brad Miller at <http://www.film-tech.com>) is a cleaner/lubricant that also fights static buildup, enhances film life and improves the projected image. It is best applied by using a Kelmar dry web media cleaner, mounted on the projector or platter ahead of the projector head, by spraying the material onto the rolls of Brad's special cloth cleaning

media in accordance with the instructions that come with the bottle. This is the most expensive of the materials mentioned here, but it vastly increases print life, ensures zero “shedding” at the gate so that the projector head remains clean, enhances the projected image, etc. Both FilmGuard cleaner and FilmGuard media rolls are available at most cinema equipment dealers.

- VitaFilm (Bill Stewart at <http://www.stewartmps.com>) is also a cleaner/lubricant that also claims to halt VS. It is best applied with Webril wipes while rewinding, or by immersion (like FilmRenew – the same caveats apply) depending on circumstances. Read Bill’s instructions for details.

For cleaning while rewinding, Webril 4” x 4” wiping pads are excellent choices (<http://www.ultrafineonline.com/weha4x100pa.html>). They are soft, lint-free, inexpensive and disposable.

Be sure to acquire, read and understand the Material Safety Data Sheets (MSDS) associated with these cleaning products and follow their ventilation and skin protection recommendations for your safety!

2. My Recommendation

Hand clean all newly acquired prints with Solvon or Edwal. Use Filmrenew or VitaFilm on older prints that are dry, brittle or curled. Use VitaFilm on prints with VS. Use FilmGuard on all prints thereafter at every showing.

DIGITAL EXHIBITION AND THE “DEATH” OF FILM

As a film collector you may soon notice perturbations in the availability of films and film supplies as the “industry” moves toward all-digital exhibition. During this transition I would advise keeping adequate supplies of projector lamps and parts, splicing tape, and other consumables on hand to support your hobby for as long as you may wish to enjoy it.

V. ENJOY YOUR NEW HOBBY!

By now I hope you are a “collector” of motion picture films and the owner of some sort of projection equipment. You will derive immense enjoyment from screening your films for yourself and for your friends. You will see how liberating it is to watch movies as they were intended to be watched – on a big screen, not a television set. All but the biggest and priciest of today’s television “home theater” systems pale when compared to the projected image of film!

So, what’s next? You can easily stop at this point and enjoy your collection on a portable screen. Some collectors screen their films in their living rooms or garages. Some collectors construct home theatres or adapt existing living spaces into screening rooms.

Perhaps a few collectors will be moved to replicate the “art” of projection in their home theaters, complete with the amenities of showmanship that we used to take for granted. Here are two examples to whet your appetite:

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In the late 1950s I attended a first run screening at the long gone Fox Beverly Theatre in Beverly Hills. When I entered this sumptuous movie palace, I marveled at the gold velour title curtain softly illuminated by amber footlights which accented the pleats and folds, and the subtle “non synch” music which filled its need without calling attention to itself. Then the house lights began to dim slowly, almost imperceptibly. At about 20% brightness, the slow dimming paused for 30 seconds or so, as if to alert customers that the show was about to begin. Then they dimmed more rapidly and the non-synch music faded. Just as the house lights were extinguished, the logo of the feature appeared on the curtain. As the logo faded to the opening titles, the curtain began to part majestically, and the footlights dimmed in step with the curtain so that they were extinguished just when the curtain was fully opened. At the end of the feature, the process was reversed. It was a truly “seamless” presentation!

§

In the early 1960s I attended a special screening of Buster Keaton’s “The General” at the Wiltern Theatre in Los Angeles. This screening was sponsored by the American Theatre Organ Society and the American Guild of Organists to celebrate the just completed restoration of the Wiltern’s Kimball pipe organ. A newly struck 35mm print from a preserved negative was utilized, and the featured organist was the renowned late Gaylord Carter. (Up in the booth, the projectors had been geared to the appropriate speed and fitted with the proper silent aperture plates, while the screen had been masked to the proper silent aspect ratio.) As the house lights dimmed, Gaylord began playing an “overture” as the console rose from the orchestra pit bathed in white by a booth spotlight. When the overture ended and the applause died down, the spot light was dimmed, the console lowered and the picture began to play as the curtain opened and the footlights dimmed. Within minutes, the audience was oblivious to the fact that this was a “silent” picture, and enjoyed the film as it was meant to be enjoyed. Again, a truly “seamless” presentation!

In time, you may want to think of a dedicated space for a real “home theater.” To this end, the following tutorial will address building your own real home theater, a place where you can express your love for your films and show them to your family and friends with as many amenities as you wish.

Whatever your budget, whatever your preferred film format, however extensive your collection, treat yourself to all the amenities you can afford to help you and your friends enjoy your new hobby!

EPILOGUE... IN HONOR OF F. H. RICHARDSON

In my Introduction, all too many words ago, I alluded my “bible at the time” – the “Handbook of Projection” by F. H. Richardson.

Who was Frank Herbert Richardson? I did some research to learn more about the author of my “bible,” and I learned that he is indeed the grandfather of modern projection, having literally grown up with the emerging industry. He was active with the Society of Motion Picture Engineers (SMPE), the predecessor of today’s Society of Motion Picture and Television Engineers (SMPTE) of which I am a member, from its founding in 1916 until his death in 1943.

He wrote defining technical papers and articles concerning all aspects of then cutting-edge motion picture projection and equipment, with emphasis on quality of presentation and faithful representation of the cinematographer's art. He was a regular columnist for the trade magazine "Moving Picture World." (I have begun a more detailed biography which is spotlighted on the home page.)

Some years ago I acquired copies of the Fifth Edition (1927) and the Sixth Edition (1935), and, most recently, the Seventh (last) Edition. In re-reading these excellent textbooks, I was struck with the depth of Mr. Richardson's treatment of the subject material, from electrical and optical fundamentals through booth equipment installation, maintenance and operation. The early projectionists who took the time to read and digest Mr. Richardson's wisdom were equipped to handle most everything they would ever encounter, a far cry from today's megaplex staff for whom threading in frame is often a mind-boggling challenge.

Mr. Richardson's dedication in the Sixth Edition gives a glimpse of the spirit of his time:

"I happily dedicate this 1935 edition of my BLUEBOOK OF PROJECTION to the International Alliance of Theatrical Stage Employees and Motion Picture Machine Operators of the United States and Canada in the hope that it will aid its members to further improve the efficiency and quality of their work, thereby giving substantial aid to the motion picture industry and doing honor to themselves."

What a change 65 years has wrought! Yet, new quality incentives such as THX certification, along with substantial investment in new and improved venues that feature fewer, but better, screens, may herald a renaissance of exhibitors "doing honor to themselves."

As a collector, perhaps by now imbued with a desire to screen your films the very best possible way, you may be developing an interest in learning more about the art and science of projection. If so, I could make no better recommendation than to encourage you to find a copy of the Sixth or Seventh Edition of the "Bluebook of Projection" in your local library or purchase a copy from a purveyor of used books.

Finally, the Sixth Edition has a forward by no less a film legend than Adolph Zukor, then Chairman of Paramount Pictures, who summarized the art and honored the author. His are words well worth reading.

"There comes in the career of every motion picture that final occasion when all the artistry, all the earnest constructive endeavor of all the man-power and genius of the industry, and all the capital investment, too, must pour through the narrow gate of the projector on its way to the fulfillment of its purpose, the final delivery to the public.

"That delivery is a constant miracle of men and mechanism in the projection rooms of the world's fifty thousand theatres. That narrow ribbon, thirty-five millimeters, flowing a twenty-four frames a second through the scintillating blaze of the spot at the picture aperture and coursing by at an exactly-precise 90 feet a minute past the light slit of the sound system, demands a quality of skill and faithful, unfailing attention upon which the whole great industry depends.

"The projector lens is the neck in the bottle through which all must pass. The projectionist

presiding over that mechanism is responsible for the ultimate performance upon which we must all depend.

“The projector must not fail, and more importantly still, the man must not fail or permit it to waiver in its performance. It is to the tremendous credit of the skill of the modern projectionist that perfect presentation of the motion picture upon the screen is today a commonplace, a perfection that is taken as a matter of course.

“For more than a quarter of a century now F. H. Richardson, author of this and the Bluebooks that have gone before, has been the philosopher, friend and guide of the projectionists. He began in the nickelodeon days when the two-pin Edison projector was considered a wonderful machine, and he has continued, becoming himself an institution along with the developing art, into this day of the amazing complexities and large responsibilities of the modern projection room, with its maze of machinery and all the delicate, intricate devices that are involved in sound picture reproduction.

“It is appropriate that here in this place one who has shared and experienced these years of the building of the screen into its world dominion as an amusement medium should record the industry’s recognition of Mr. Richardson’s long and diligent service and his valued contributions to the progress of the motion picture art.”

Amen.



Frank Herbert Richardson