Film-Tech

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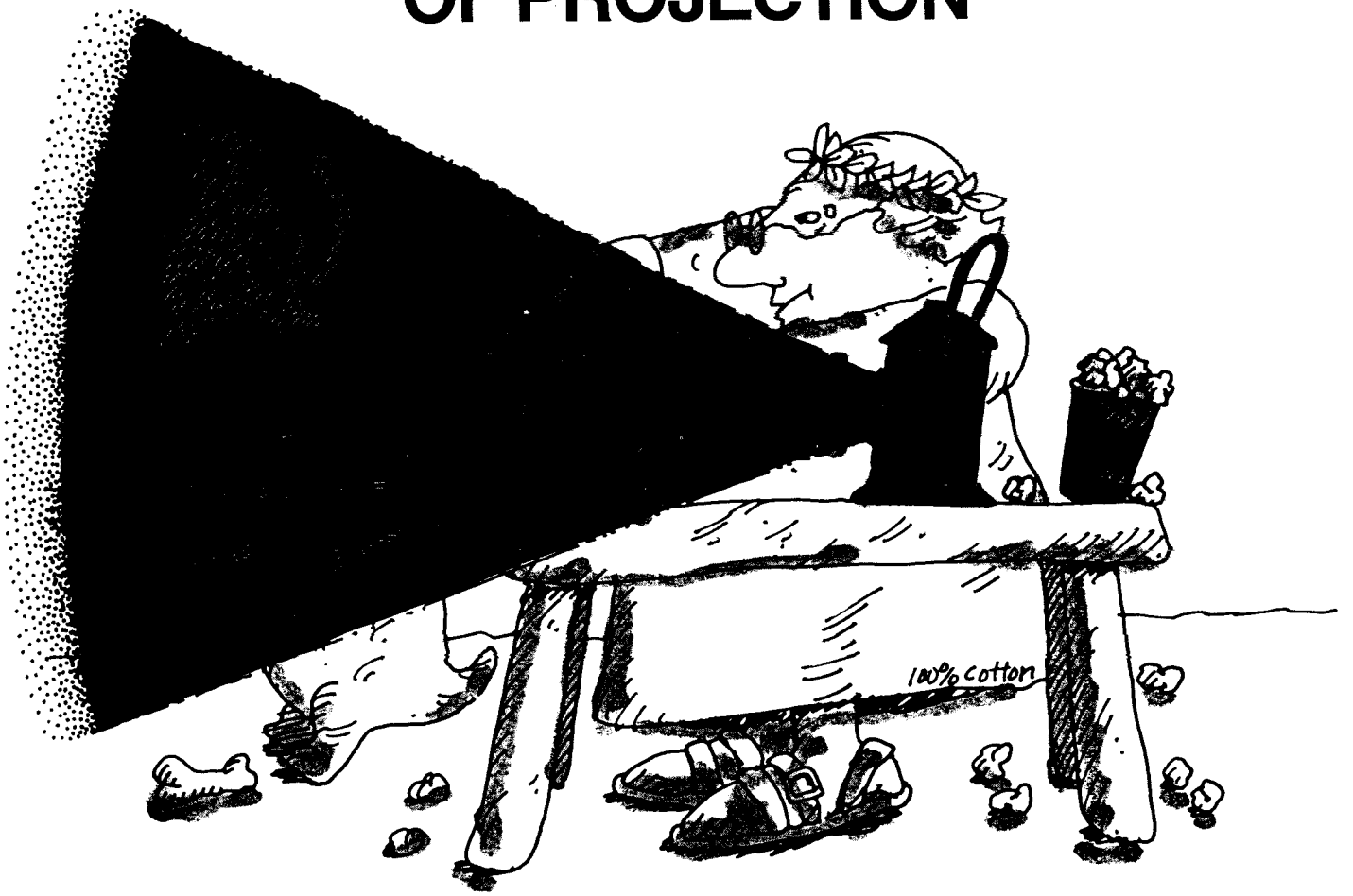
LEGENDARY LEXICON OF PROJECTION



Introduction

Since the name for this issue comes from the Greek language; that is, the word Lexicon (in Greek λεξις means diction, word, phrase) forms the basis for the English definition: a. A word book or dictionary; b. A vocabulary proper to some department of knowledge or sphere of activity, or simply a list of words or names,* we've decided to call the character you see on these pages "Lexi." We don't know what he calls his dog or the little bird of happiness that you'll see later on. The illustration of the cover shows Lexi communicating with his dog (probably one of the first hand-made "slide" shows).

We hope you enjoy reading and learning from the Legendary Lexicon as much as we did researching and learning from it when we put it together.

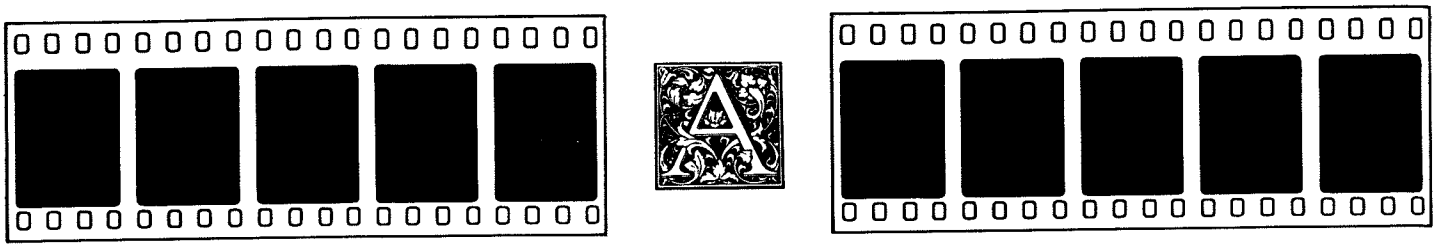
*From the Greek
λεξικον
lambda epsilon xi iota kappa omicron nu

The Only Movies to Win All Four Top Oscars—

It Happened One Night (1934): Best Picture
Clark Gable: Best Actor
Claudette Colbert: Best Actress
Frank Capra: Best Director

One Flew Over the Cuckoo's Nest (1975): Best Picture
Jack Nicholson: Best Actor
Louise Fletcher: Best Actress
Miles Forman: Best Director

Last Picture in Black-and-White to Win Best Picture Oscar—The Apartment *(1960)*



Abrasion: Scratches on film caused by dirt, improper handling, grit, emulsion pile-ups, and certain types of film damage such as torn perforations that can cause lost loops.

AC (Alternating Current): Electric power supply; 60 Hz in North America, 50 Hz in Britain and Western Europe.

Academy aperture: In projection, the aperture cutout, designed as specified by the American Academy of Motion Picture Arts and Sciences that provides for a screen image aspect ratio of approximately 1.37:1; also called "sound aperture."

Academy leader: A nonprojected identification and timing countdown film leader designed to specifications of the American Academy of Motion Picture Arts & Sciences, and placed at the head end of a print reel. The countdown cueing information is related to "feet" which, in the silent days, meant projection at 16 frames per second, or 1 foot per second. See Universal leader.

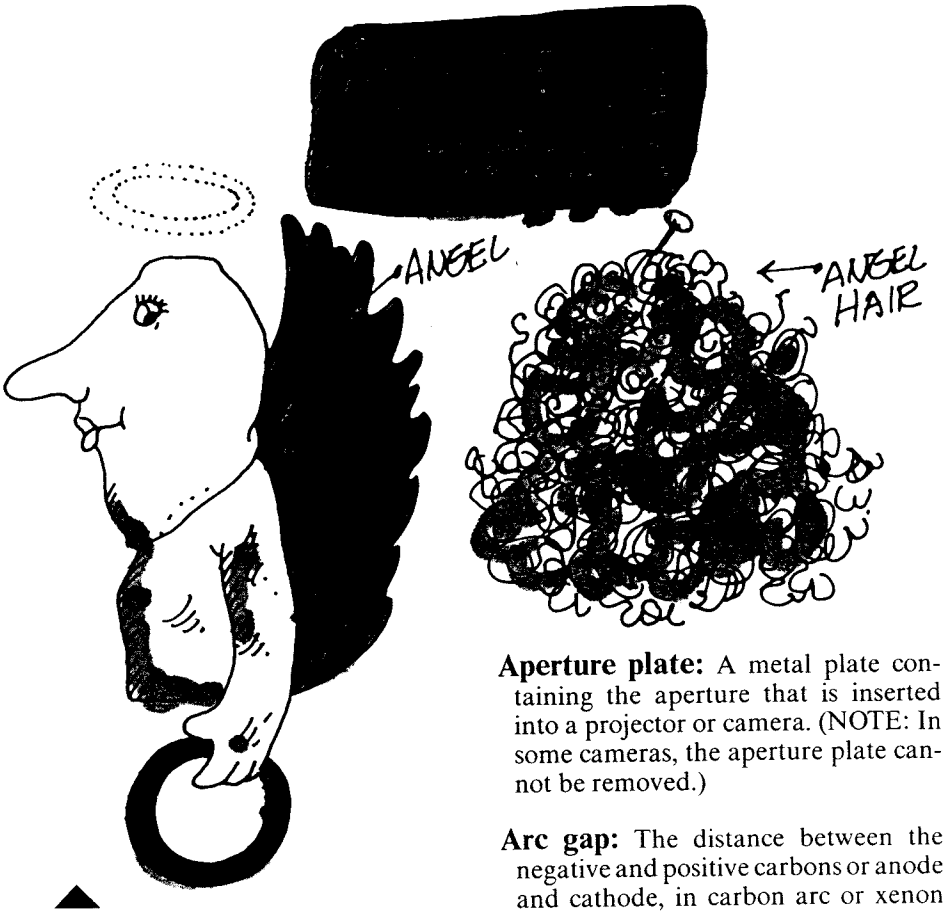
Accordion pleating: Film damage often caused when the film breaks in the projector and becomes tightly folded in a restricted space.

Acetate film: Any film with a support containing cellulose acetate esters—safety film.

Actinic light: Light that can form a photographic latent image or activate a photoelectric cell.

Amplifier: An electronic device to increase the intensity of audio signals and provide sufficient power to drive speakers. See Preamp.

Anamorphic lens: A lens having different magnifications in the horizontal and vertical dimensions of the image. In motion picture projection, a lens that spreads the screen image horizontally to provide a wide-screen image with aspect ratios that can vary from 2:1 to 2.55:1, according to Style B of ANSI document PH22.195.



Angel hair: Fine hairlike skivings, or slivers, caused when the film edge rubs against a sharp edge or burr in the projector. Also produced when excessive film/gate misalignment is present.

Anode: The positive (+) terminal or electrode in an electrical circuit—the positive carbon in a carbon arc or positive electrode in a xenon arc.

ANSI: American National Standards Institute

Aperture: The rectangular opening in a metal plate that determines the size of the (film) image to be projected or photographed. Also used to describe the dimensions on the film of the area to be projected or photographed. Also the adjustable iris (diaphragm) used in camera lenses to control the amount of light that reaches the film.

Aperture plate: A metal plate containing the aperture that is inserted into a projector or camera. (NOTE: In some cameras, the aperture plate cannot be removed.)

Arc gap: The distance between the negative and positive carbons or anode and cathode, in carbon arc or xenon arc lamps, respectively.

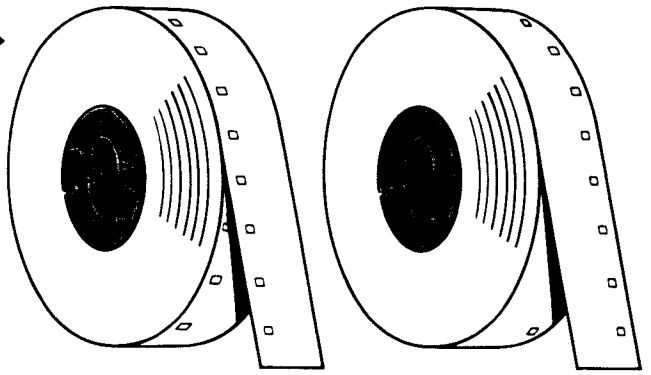
Arc lamp: A lamp whose light source consists of an open carbon arc or a closed xenon arc. The light is generated in a gas ball between two electrodes.

Aspect ratio: The size relationship between the width and height of a projected image such as 1.37:1 or 1.85:1, or 2.35:1.

Aspheric mirror: A mirror whose curvature has been designed to provide special optical characteristics and refinements that increase the reflective efficiency, as used in xenon arc lamps.

Automated: A projection system that, once threaded, is controlled entirely by electronic, electrical, or mechanical means. Usually a completely "hands-off" operation.

A Wind: When you hold a roll of 16 mm or other single-perf film so that the film leaves the roll from the top and toward the right, the perforations will be along the edge toward the observer.



B Wind: When you hold a roll of 16 mm or other single-perf film so that the film leaves the roll from the top and toward the right; the perforations will be along the edge away from the observer.

Backing: A coating applied to the base side of the film to provide improved characteristics and performance. Some backing materials are designed to improve rawstock handling characteristics and are removed during processing; others function throughout film life.

Backlash: An irregular, backward motion caused by worn gears in the projector or some other contribution to a "sloppy fit." The results usually are a chattering sound and poor projector performance.

Base: The transparent, flexible support, usually cellulose triacetate, on which photographic emulsions are coated to make photographic film.

Bicycling: See Circuiting.

Black: The absence of all visible light. Also the absence of any distinguishable colors.

Blacklight: Ultraviolet light.

Blistering: The effect of excessive incident radiant energy on the film emulsion, particularly on black-and-white film. Such damage appears as tiny bubbles and renders a print useless.

Blooping: The technique of applying a special opaque ink or tape over the sound track at the splice in a wide triangular or circular pattern to prevent soundtrack clicks and other annoying sounds caused by splices.

Breakdown table: A film handling unit that is one component of a platter system. It is used to unload (breakdown) the large film roll from the platter onto the individual shipping reels prior to shipment. The unit is also used in loading the platter (makeup). See Makeup table.

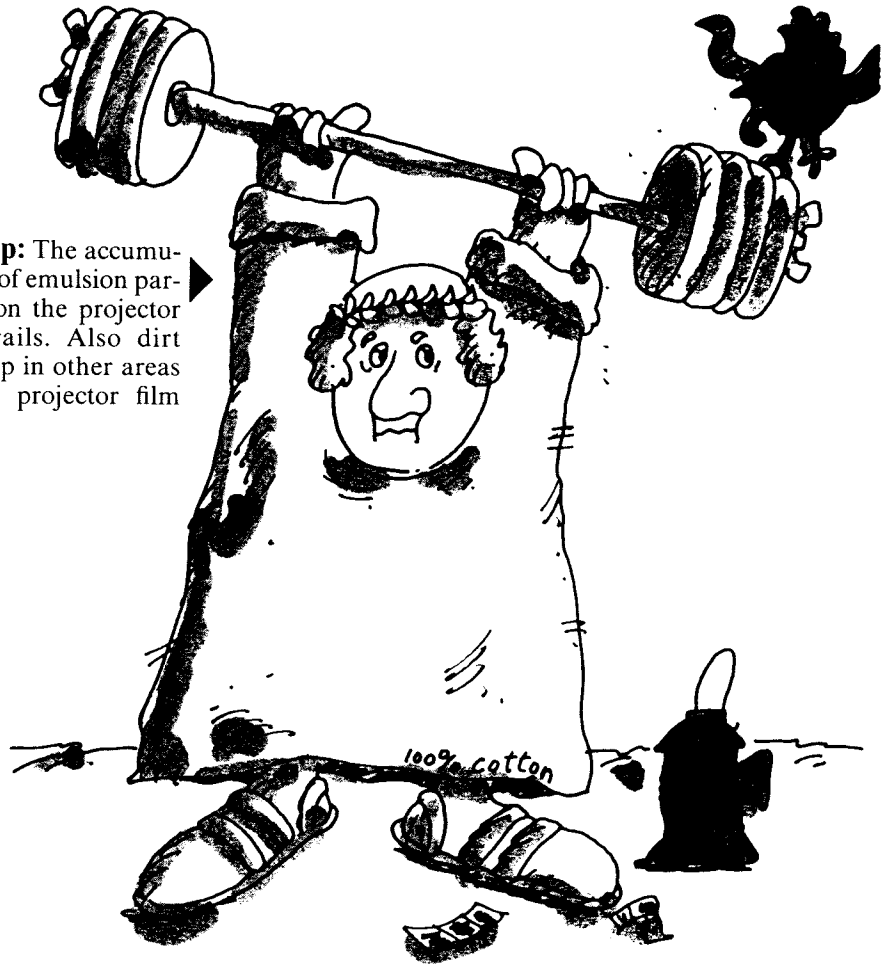
Buckle: A frequently misused term describing various types of film distortion (see Edgewave, Flute, Twist, Curl, Spoking, and Embossing). Actually, buckle is a specific but rare film distortion caused by the loss of solvent or moisture from the edges of the film during long storage such that the perforated edges are actually shorter than the centerline of the film.

Butt splice: A film splice in which the two precisely cut film ends are held together end-to-end with splicing tape and do not overlap.

Buzz track: A sound test film with a specially made sound track that is used for determining the proper lateral positioning of the scanning beam slit in relation to film travel.

CameraScope: A wide-screen presentation process compatible with CinemaScope-type presentations.

Buildup: The accumulation of emulsion particles on the projector trap rails. Also dirt buildup in other areas of the projector film path.



Burred tooth: Physical damage to a tooth on a projector sprocket. Usually caused by a blow from, or accidental contact with, a metallic object which causes a sharp protrusion to form on a tooth edge.

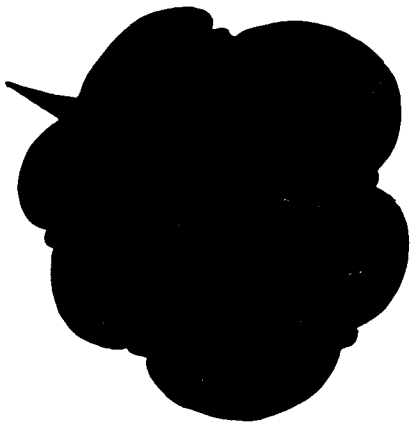
Candela (cd): International unit of luminance measurement (1 candela per square meter = 0.2919 footlamberts).

Carbons: Electrodes for carbon arc lamps, made from graphite and other forms of carbon, and usually cored or impregnated with rare earth compounds to control light quality.

Carbon tetrachloride: A hazardous solvent once used for film cleaning and lubricating mixtures.

Case, shipping: A heavy, reinforced metal case used to ship release prints.

Cathode: The negative (–) terminal or electrode in an electrical circuit—the negative carbon in a carbon arc or negative electrode in a xenon arc.



Caustic remarks, Expletives, Obscenities: Words like #%¢*? and &*#?! used by nearly everyone to describe whatsisface when something goes wrong. (It's always whatsisface's fault, isn't it?) Of course, you and I NEVER use such language.

Cement splice: A film splice made with a solvent cement to weld the overlapping film ends together.

Cement splicer: A device designed to splice film using solvent cement. Can also be used to make overlap tape splices.

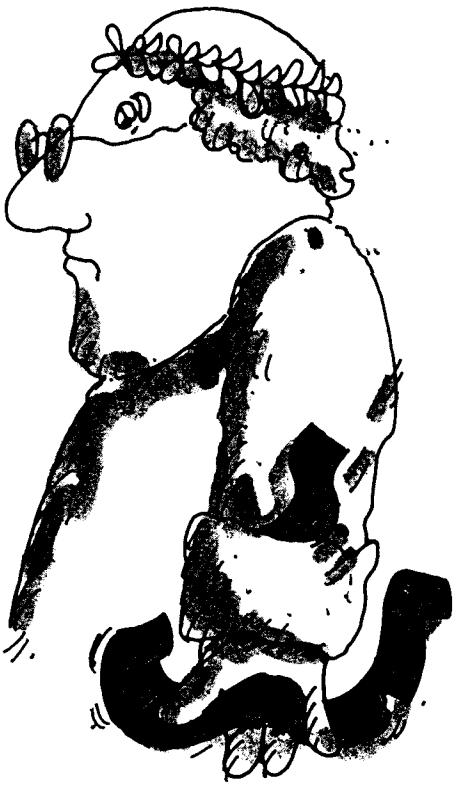
CFI: Consolidated Film Industries, a motion picture film laboratory located in Hollywood, CA.

Change-over: In projection, the act of changing from one projector to the other, preferably without interrupting the continuity of projection or the action being depicted.

Chemical splice: See Cement splice.

Cinch marks: Short scratches on the surface of the film parallel to film length—caused by improper winding of the roll that allows one convolution of film to slide against the next one.

CinemaScope: The first commercially successful anamorphic system for the presentation of wide-screen pictures combined with stereophonic sound. The 35 mm negative camera image is compressed horizontally by 50% using a special anamorphic camera lens. Upon projection, the 35 mm print image is expanded horizontally by the same amount using a similar anamorphic projection lens. Depending on the type of sound used in the print, the screen image has an aspect ratio of 2.35:1 (optical sound), or 2.55:1 (4-trk magnetic sound).



CinemaScope 55: A system related to regular CinemaScope and also developed by 20th Century-Fox Film Corporation. The system utilized a 55.6 mm wide negative in a special camera using a lens with a 2:1 squeeze ratio. The negative image was four times the size of the 35 mm CinemaScope negative image and on reduction printing to 35 mm, produced a print with very high resolution and definition. The complete process included 55.6 mm wide release prints made by optical reduction to accommodate the transition from an 8-perf camera pulldown to a 6-perf projector pulldown.

Cinemiracle: A wide-screen presentation, as in Cinerama, that used three separate 35 mm film strips projected on a large, deeply curved screen. One of the main differences, however, was the consolidation of the three projectors in a single booth away from the audience. This was accomplished by the use of mirrors on the two outer projectors to maintain picture orientation.

Cinepanoramic: A wide-screen process compatible with CinemaScope-type presentations.

Cinerama: Originally, a wide-screen presentation utilizing three separate 35 mm films, each containing one third of the total image (6 perforations high), and projected on a deeply curved and vertically slotted screen from three projectors located in booths on the main floor of the auditorium. The sense of involvement was extraordinary, but the ever-present seams between the separate projected images were quite distracting. Current Cinerama presentations use 70 mm film containing a single image that is purposely distorted. During projection, the image distortion is corrected by the deeply curved screen and the original Cinerama sensation is recreated.

Circarama: A special presentation system used at Disneyland. The spectators stand in the middle of a circle viewing a 360° panorama on a surround screen 8 feet high and 40 feet in diameter made up of eleven panels. The original negatives are made on eleven 16 mm cameras arranged in a concentric circle. The prints are projected by a ring of interlocked 16 mm projectors.

Circuit breaker: An automatic electrical switching device that acts like a fuse to cut off power at the first sign of an overload or short circuit.

Circuiting: The practice of shipping feature releases directly from one theatre to another without intervening inspection or repair.

Clatter: Noise caused by excessive gate tension and/or insufficient film lubrication as the film goes through the projector gate.

Claw: The name applied to the projector pulldown device that provides the intermittent motion to the film in the gate of most 16 mm projectors.

Cluster rollers: Two or more rollers comprising a single unit, such as those used on platter transport systems.

Clutch: A mechanical device used to transfer rotational motion from a power source to a driven source. In projectors, the device on the takeup spindle that is used to adjust the tension on the film during takeup. When using reels with a hub-to-rim ratio of more than 1:3, the clutch adjustment can be critical if film damage is to be avoided.

Collimated: A beam of light is said to be collimated when all of its rays have been made parallel.

Color: The general name for all sensations, other than those related to spatial distribution, arising from the activity of the eye and its attached nervous system. Examples of color are the sensations: red, green, blue, black, white, and grey. Also, that aspect of the appearance of objects and lights which depends upon the spectral composition of the radiant energy reaching the retina of the eye and upon its temporal and spatial distribution.

Color negative: A negative (or opposite) record on motion picture film of the light-and-shade and color values of an original scene. The colors in the negative are the spectral complements of the original colors in the scene.

Color positive: A positive photographic record of the color values and light intensities in a scene.

Color saturation: A term used to describe the brilliance or purity of a color. When colors present in a film image are projected at the proper screen brightness and without interference from stray light, the colors that appear bright, deep, rich, and undiluted are said to be "saturated."

Color sensitivity: The ability of eyes or a raw stock photographic material to respond to various wavelengths of light.

Color temperature: One means of describing the color of a light source or illumination by the use of one number. Commonly expressed on the absolute scale in degrees Kelvin. For example, mean noon sunlight in Washington, DC, is 5600°K and the average light bulb used in the home is 2950°K. When precise descriptions of the color of light are required, color temperature alone may be sufficient.

Complementary colors: When light representing a chosen color is removed from white light (which contains all colors) the sensation of what remains is called the complementary color. For example, cyan, magenta, and yellow are complementary colors for red, green, and blue, respectively.

Condenser: A lens used in a carbon arc lamp, instead of a mirror, to concentrate the light source on the projector aperture.

Contrast: The general term for describing the separation of adjacent tones in a print in relation to a given difference in the light-and-shade of the negative or subject from which it was made.

Core: A 2″ or 3″ diameter plastic hub with a 1″ diameter center hole and keyway; used to store motion picture film during manufacturing and processing.

Crater: Cup-shaped hollow at the end of the positive carbon containing the incandescent ball of ionizing gases that provides the light.

Creasing: Lengthwise physical deformation of film usually caused by improper threading, or by cupping the film too tightly during inspection.

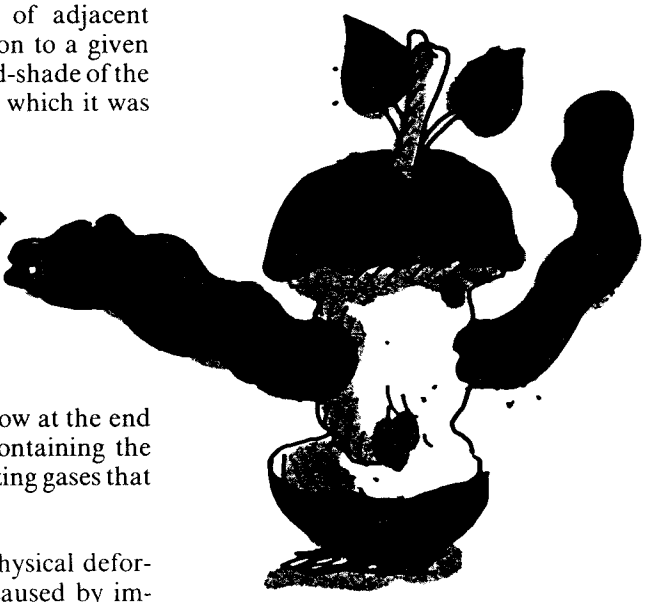
Cropping: To change, delete, or otherwise alter the size of an image being projected or viewed as a print. In theatrical projection it is usually the result of "home made" aperture plates, improper screen masking, wrong focal length lenses, etc.

Cross abrasions: Short scratches across the film width that occur when sections of the roll shift from side-to-side during shipment.

Crossover: An electronic network that separates the amplifier audio output signal into the proper frequency bands to match the speakers, such as the woofer and the tweeter.

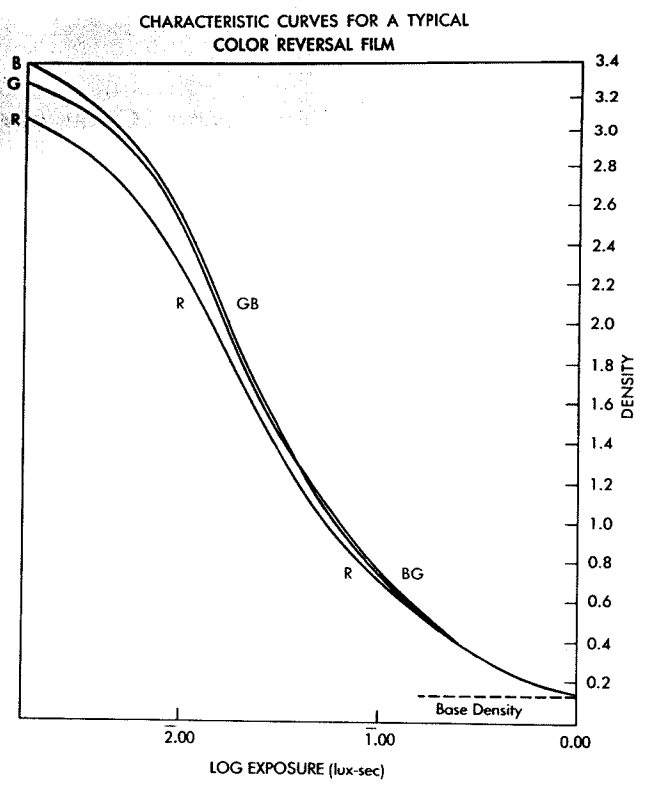
Cue marks: Unobtrusive marks placed on the film in accordance with ANSI document PH22.55 to help the projectionist maintain continuity when making a changeover from one projector to the other. In automated and semiautomated systems, the cue can be a small strip of metal foil placed on the edge of the film, or a metal disc placed in the center of the appropriate frame.

Curl: A type of widthwise distortion caused by dimensional differences between the emulsion layer and the support. It results from changes in moisture content of the emulsion layer and support with variation in relative humidity of the atmosphere. When motion picture film is stretched out in a straight line, the curl makes that film look like a strip cut lengthwise from the wall of a cylinder.



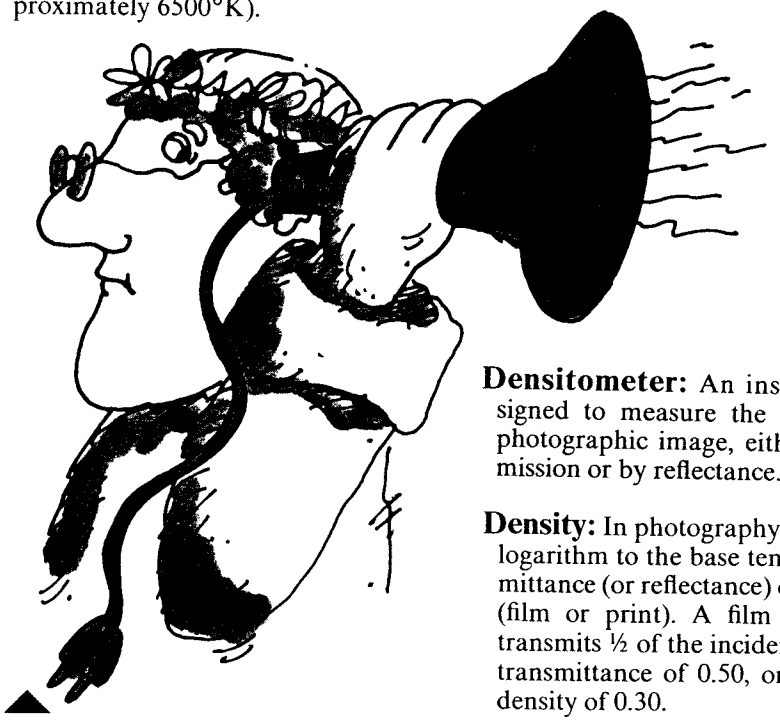
Current: The magnitude or volume, of an electrical flow, usually measured in amperes.

Curve (H&D): The characteristic curve developed by Hurter and Driffield that depicts how faithfully a photographic emulsion has reproduced the tonal scale of the original scene.



Cyan: The preferred color name for the minus-red subtractive primary used in three-color processes; often described as blue-green.

Daylight: Light consisting of a natural combination of sunlight and skylight (approximately 6500°K).



Decibel (dB): Unit of loudness measured on a logarithmic scale. The human ear can perceive 1 dB changes in loudness in the aural range.

Delrama: A wide-screen process compatible with CinemaScope-type presentations.

DeLuxe: Short for DeLuxe Laboratories, as in the phrase "Color by DeLuxe," a motion picture laboratory in Hollywood, CA.

Densitometer: An instrument designed to measure the density of a photographic image, either by transmission or by reflectance.

Density: In photography, the negative logarithm to the base ten of the transmittance (or reflectance) of the sample (film or print). A film sample that transmits ½ of the incident light has a transmittance of 0.50, or 50%, and a density of 0.30.

Depth of field: The range of object distances within which objects are in satisfactory sharp focus in a photograph.

Depth of focus: The range through which a photographic film or plate can be moved forward and backward with respect to the lens while retaining satisfactory sharp focus on an object at a given distance.

Diagonal scratches: Slanted cross scratches on the film usually caused by the film riding over the edge of a roller flange. More common in platter transport systems.

Dichroic: A type of coating that when applied to glass can produce a so-called "cold" mirror for use in projector lamphouses that permits greater screen brightness without the risk of radiant energy (heat) problems. Usually, the rear surface of the mirror is treated by depositing very thin layers of a special coating material designed to transmit infrared (IR) radiation effectively and reflect visible radiation. Alternatively, by selecting certain other materials for the deposit, IR radiation can be reflected and visible radiation transmitted, thus providing an efficient heat filter for arc radiation devices.

Diffraction: The spreading of light as it passes the edges of opaque objects or through narrow slits. Light also is diffracted when passing through a lens. The effects of this distortion on images is greater as the aperture becomes smaller.

Diffusion: The scattering of light rays from a rough reflecting surface or by transmission of light through a translucent material.

Dimension 150: A special 70 mm system developed in 1963 that consisted of special optics used in printers and projectors. The manufactured prints could be shown on deeply curved screens such as those used in Cinerama.

Direct current (dc): For applications where current must flow in one direction only, such as arc lamps.

Dirty picture syndrome: 1. A manifestation of dirty minds and deeds such that the film in your booth tends to get dirty (or tends to stay dirty if received in a dirty condition). This does not work to the advantage of the film—hence, the dirty picture—and, hence, the syndrome. 2. A propensity for dirt on, at, or about the place where pictures are shown (or on the pictures themselves). Causes whatsisface great consternation; causes patrons to go home (or at least to not come back again). Extreme cases, when proven,

have been known to cause loss of revenue and/or employment. See Murphy's Law and Zoo.

Dishing: A loosely wound (or sometimes very tightly wound) roll of film that has slipped edgewise to form a concave/convex form similar to a dish. Of great concern to cameramen whose film magazines have very little widthwise tolerance.

Dolby system: Trade name for an audio noise reduction system that has been recently adapted to motion picture sound use.

Dowser: A device in the lamphouse used to interrupt the high-intensity light source when the projector is not in operation; used to protect the shutter and film from severe heat damage when the film is not moving.

Dubbing: Recording lip-synchronized dialogue against existing film picture. Also, duplicating (duping) of master tapes and sound tracks.

Dupe: A duplicate made from a master negative or positive.

Dusting: The formation and accumulation of fine particles in the projector gate area. Can be caused by material scraped from the film due to misalignment of film in the gate, excessive tension, lack of proper lubrication, etc. See Angel hair.

Dye: In photography, the result of color processing in which the silver grains or incorporated color couplers have been converted into the appropriate dye to form part of the color image.

Edge numbers: Sequential numbers printed along one edge of a motion picture film outside the perforations to designate the footage.

Edgewave: A condition that occurs when one or both edges (along the length) of a film are longer than the center portion.

Edgewax: The recommended method for lubricating theatrical release prints. A solution of 50 grams of paraffin wax per litre of trichloroethane applied only to the edges of the emulsion side of the film is the recommended edgewax treatment.

Elliptical mirror: A mirror whose curvature produces a magnified image of the light source at the film plane; usually from 4X to 6X for motion picture applications.

Embossing: A permanent film deformation caused by repeated projections with very high-intensity lamps. This distortion has not been observed to have a detrimental effect on screen image quality.

Emulsion: A light-sensitive photographic material consisting of a gelatin emulsion layer(s) containing silver halide and any other ingredients that may be required to produce the desired image properties.

Emulsion side: That side of a motion picture film on which the emulsion has been coated.

Endplay: The undesirable lateral movement of the starwheel shaft containing the intermittent sprocket in professional motion picture projectors. If the condition cannot be corrected, a replacement unit or repair is strongly urged.

ESTAR Base: The trade name applied to the polyethylene terephthalate film base manufactured by Eastman Kodak Company.

Exchange: A depository and inspection/distribution center for theatrical release prints. Exchanges are located in approximately 35 regional areas within the United States roughly dependent on theatre and population density.

Exciter lamp: A DC operated incandescent lamp that provides the light source for the sound scanning beam.

Fader: A rheostat used to raise or lower the sound volume; creates fade-outs or fade-ins.

Failsafe: In theatrical projection, a device that senses damaged or broken film and stops the projector.

Fall-off: The gradual reduction in luminance from the screen center to the edges and corners.

Fast: In photography, having a high ASA, DIN, or ISO film speed; a film with sufficiently high sensitivity to light that can form usable photographic images at low or very low-light levels. Can also apply to processing, optical components, and in a different vein, resistance to the action of destructive agents. For example, a dye image may be fast to light, fast to heat, or fast to diffusion.

Feed sprocket: Any driven sprocket that withdraws film from a supply reel or magazine.

Film cement: A special combination of solvents and solids used to make overlap splices on motion picture film by its solvent action and subsequent welding of the film at the junction.

Film exchange: See Exchange.

Film (motion picture film): A thin, flexible, transparent ribbon with perforations along one or both edges; it bears either a succession of images or a sensitive layer capable of producing photographic images. See Raw stock.

Fire doors: Solid metal or metal encased doors used to separate potentially hazardous and fire-prone areas from other areas in a theatre or building. Also the metal shutters over the projection room viewing ports that are held open by fusible link chains and weights.

Fire rollers: See Valve rollers.

Fire shutter: A small shutter placed just behind the film aperture in the projector gate. It is governor controlled to open only when the projector has reached operating speed, or close when the projector speed drops below safe operating level.

Flaking: The removal (chipping away) of emulsion particles from the edges of the film that tend to redeposit in the image area while the film is going through the projector gate. Flaking is caused by a lack of proper edgewax lubrication.

Flange: The rim on a roller used for guiding the film. Also, a large disc used on a rewind to take up film on a core. A pair of flanges (discs) that screw together is called a split reel.

Flicker: Random or constant short variation of luminance intensity on the screen.

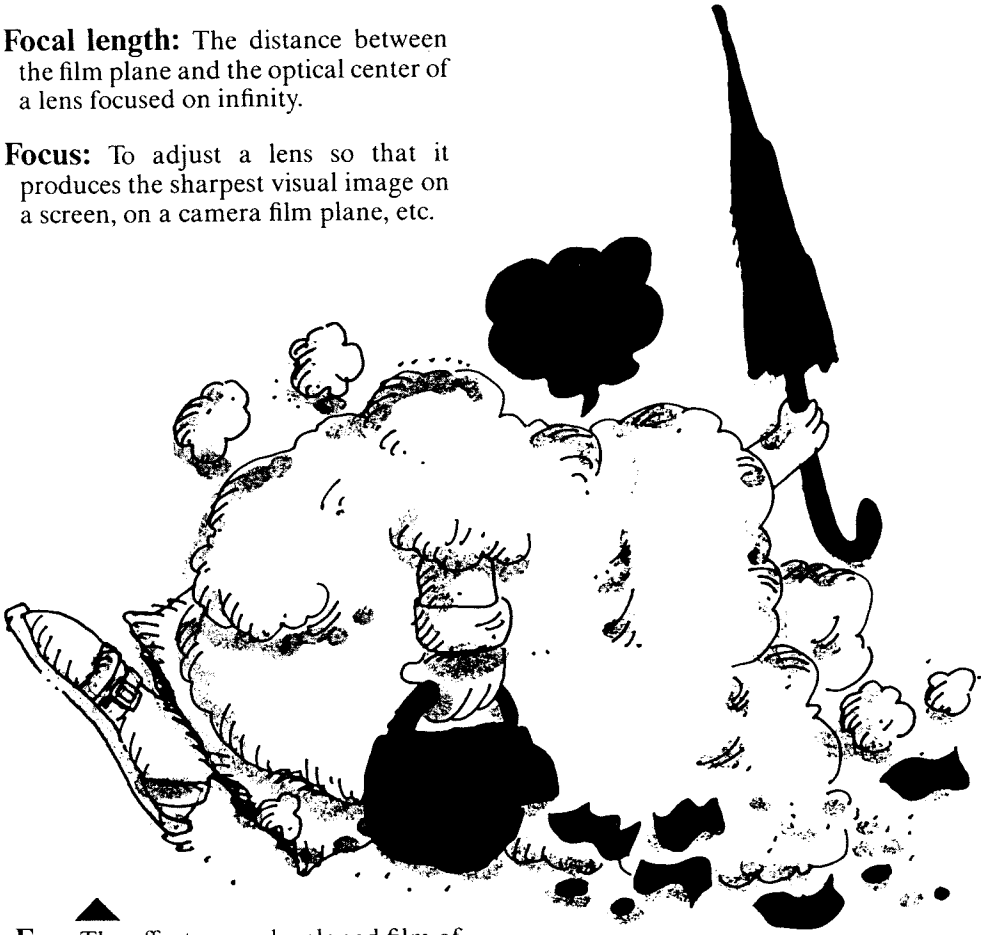
Flute: See Edgewave.

Flutter: Softening of screen image sharpness during projection due to unstable film positioning in the projector aperture. It is caused by high-energy absorption by the film and cannot be corrected by focusing.

***f*-number:** A symbol that expresses the relative aperture of a lens. For example, a lens having a relative aperture of 1.7 would be marked: *f*/1.7. The smaller the *f*-number, the more light the lens transmits.

Focal length: The distance between the film plane and the optical center of a lens focused on infinity.

Focus: To adjust a lens so that it produces the sharpest visual image on a screen, on a camera film plane, etc.



Fog: The effect on undeveloped film of accidental exposure to light or to a chemical fogging agent; causes overall density changes in the processed film.

Foil cues: See Cue marks.

Footlambert: US luminance measurement unit (1 footlambert = 3.425 candelas per square meter). See Candela.

Format: In theatrical projection, a description of the size and type of the screen images. It includes the width of the film being used; it may also describe the sound as optical, magnetic, or stereo, and the screen image as anamorphic or flat.

Frame: A single picture image on a strip of motion picture film.

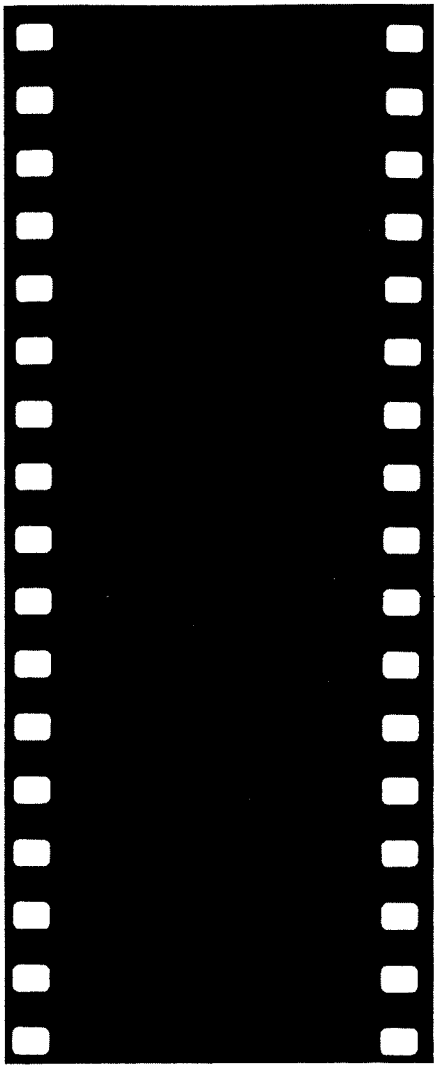
Frame line: The separation between adjacent image frames on motion picture film.

Frame line marking: A mark placed on the edge of the film between every fourth perforation as an aid to splicing in frame when no image or frame line is visible. On 70 mm film, a small punched hole placed between every fifth perforation.

Framing: Aligning the film image on the projector gate aperture so that the projected image appears centered on the screen.

Frequency response: The ability of equipment to transmit or reproduce faithfully all or part of the frequencies of a sound signal.

Fuse: A device designed to interrupt or disconnect any electrical current flow that exceeds the capacity of the wiring and/or equipment. An electrical safety valve.



Fusible link: A type of fuse that contains two sections held together by a low melting-point alloy. When placed in the head of a sprinkler, or in a weighted cable holding up a safety shutter, excess heat will melt the alloy and activate the sprinkler or drop the shutter in place.

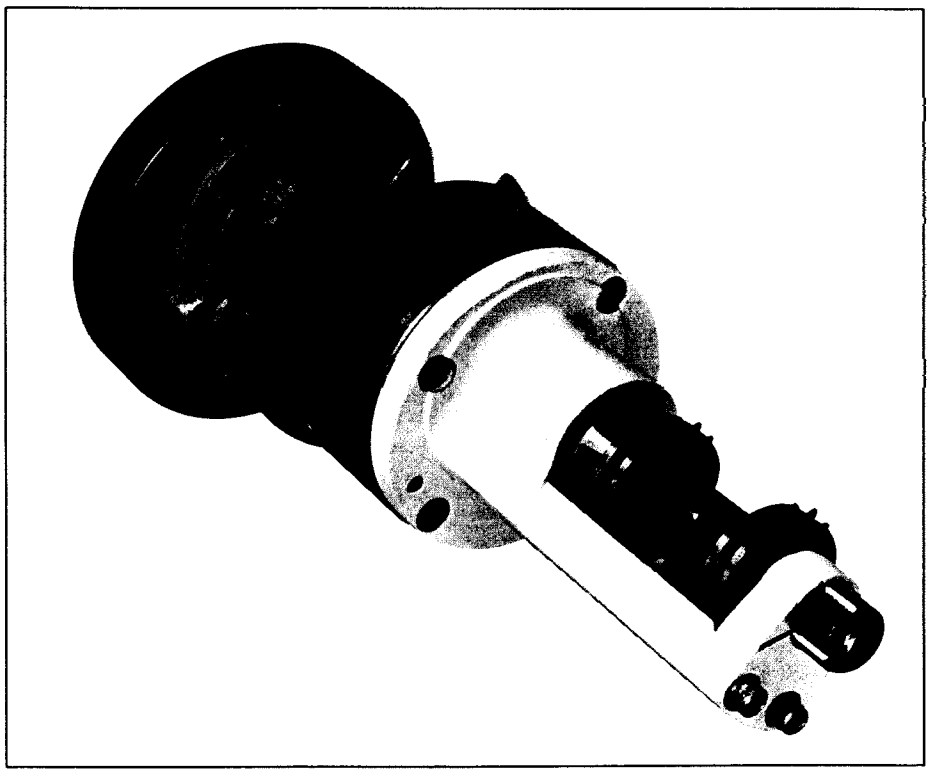
Gain, screen: The measure of a screen's ability to reflect the light incident to it. A perfect screen would reflect back all the light that was incident to it at all angles. Such a screen would have a gain of 1.0. In practical use, however, most matte screens that allow wide viewing angles have a gain of about 0.85. Special metallized or directional screens can provide up to about 15 times more reflected light than a common matte screen, but their viewing angles are generally very limited, making them unsuitable for most theatrical applications.

Gate: The projector assembly that holds the film at the aperture, rigid and perpendicular to the optical axis, ready for projection. In professional projectors, the moveable component of the gate assembly.

Gate tension: The resistance to film movement produced by adjustable spring-loaded rails in the projector gate.

Gelatin filter (Gel): A light filter consisting of a gelatin sheet in which light-absorbing pigment or dye is incorporated.

Glove: A white, lintless, cotton glove used when handling motion picture raw stock and new release prints in the laboratory. Should be used in all film handling situations and changed frequently.



Geneva movement: A mechanical device that produces intermittent film movement in the projector. The principle behind the movement involves a rotating cam and pin that intermittently engages in a four-slotted star wheel, also known as a Geneva cross or Maltese cross. During the pin/slot engagement, the star wheel shaft containing the intermittent sprocket rotates 90°, or one frame. At normal projection speed, this intermittent rotation occurs 24 times per second.

"Green" print: A newly processed print on which the emulsion may still be a little soft. If projected the first time without proper edgewax lubrication, perforation damage can result.

Grooved tooth: A tooth on the intermittent sprocket that has a groove worn at the base on the pull-down side as a result of wear. It normally appears on all the teeth. The sprocket should be replaced although film damage does not always occur immediately.

Guide rails: Vertical rails located on both sides of the projector trap that restrict lateral movement of the film as it passes through the projector gate.

Guide roller: Any roller with flanges that is used to guide or restrict the position of motion picture film as it moves through a camera, projector, or printer.

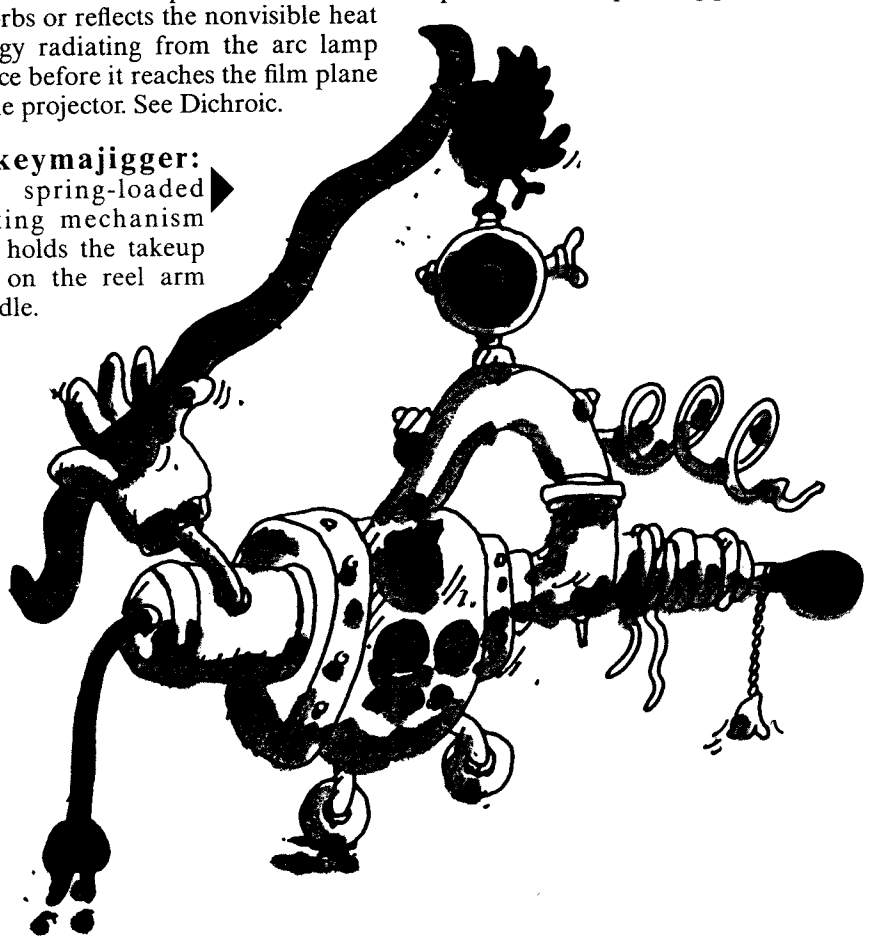
Halation: The scattered light that causes a local fog around film images of light sources or sharply defined highlight areas. It is produced by the image-forming light being scattered as it passes through the emulsion or by reflection at the emulsion and base surfaces or, in some instances, from the camera pressure plate.

Hard: In photography, an emulsion or developer having, exhibiting, or producing high contrast. See Soft.

Head end, Heads: The beginning of a reel where the film image is upside down when the film is threaded into a projector for showing.

Heat filter: An optical device that absorbs or reflects the nonvisible heat energy radiating from the arc lamp source before it reaches the film plane of the projector. See Dichroic.

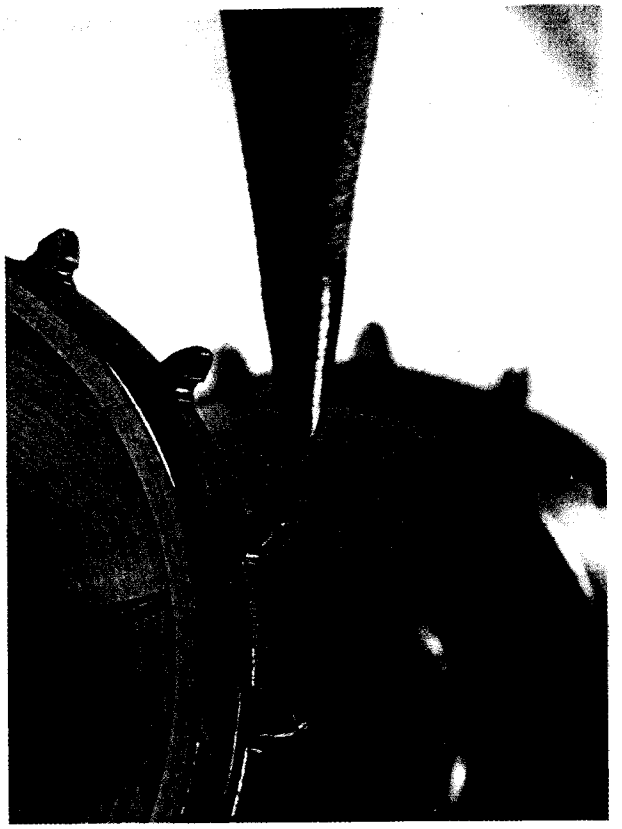
Hickeymajigger: The spring-loaded locking mechanism that holds the takeup reel on the reel arm spindle.



Holdback sprocket: Any sprocket that prevents the action of the takeup from being transmitted through the film to pull down on the sound scanning point.

Hooked tooth: A tooth on the intermittent sprocket that is so worn it looks like a hook. This condition calls for immediate replacement of the sprocket before major damage occurs to the film perforations. See Grooved tooth.

Horizontal lamp: A lamphouse light source designed to operate in a horizontal position, such as the xenon closed-arc bulb.



Hot spot: A highly concentrated light flux centered on the film image in the projector gate and caused by the improper positioning of the lamphouse and/or the mirror-to-arc distance. It produces an unpleasing picture with a bright center and dark edges. Unless corrected, it can seriously damage (blister) black-and-white film; some of the new high-intensity xenon lamps are capable of blistering color film also. Ideally, the light flux should be adjusted so that the screen image brightness at the edges is at least 75% of the center brightness.

House reel: A precision, heavy, cast metal reel with a nominal capacity of 2000 feet used in many theatres because it resists deformation and provides smooth film winding. Ordinarily, it never leaves the theatre (house).

Humidity: A term referring to the presence or absence of moisture in the air. For instance, low humidity describes conditions in a desert. Conversely, high humidity is related to tropical rain forest conditions.

Idler roller: Any undriven roller whose sole function is to support a film web or change its direction.

Ignitor: A device on a xenon arc lamphouse used to ignite the arc.

Illuminant: The source of light used to project the film image, such as carbon arc, xenon arc, incandescent bulb, etc.

Imbibition print: A color print produced by the transfer of magenta, cyan, and yellow dyed matrix films in register on a specially prepared clear film base or paper–Technicolor process and KODAK Dye Transfer process.

In and Out of focus: The erratic positioning of individual film frames in the projector gate that causes the screen image to appear alternately sharp and unsharp. It is usually caused by excessive heat energy and cannot be corrected by focusing.

Infrared: Nonvisible, long wavelength radiation from a carbon or xenon arc that contributes to the heating of the film and equipment.

Integrated circuit (IC): A miniature electronic circuit containing multiple electronic components and semiconductors in a single package.

Intensity, light: A term referring to the power (strength) of a light source . . . the total visible radiation produced by the light source.

Intermittent: Not continuous but equally spaced (sometimes random) motion, as the intermittent (24 fps) motion of film through a projector.

Intermittent sprocket: Any sprocket that imparts an intermittent motion to the film, as in a projector. See Geneva movement.

Jaws, carbon: The mechanical support that holds the rotating positive carbon (anode) in position in the lamphouse. Older lamps often used air-cooled copper jaws, but the modern counterparts contain water-cooled silver jaws. Silver is used today because the silver oxide formed at the contact areas by the high currents is a good electrical conductor; copper oxide is not.

Keystoning: Geometric image distortion caused by the projected image striking a flat surface (screen) at an oblique angle.

Lace: To thread a projector. See Thread.

Lamphouse: A complete light unit containing either a carbon arc or a xenon arc, appropriate optical components, and operating controls, etc.

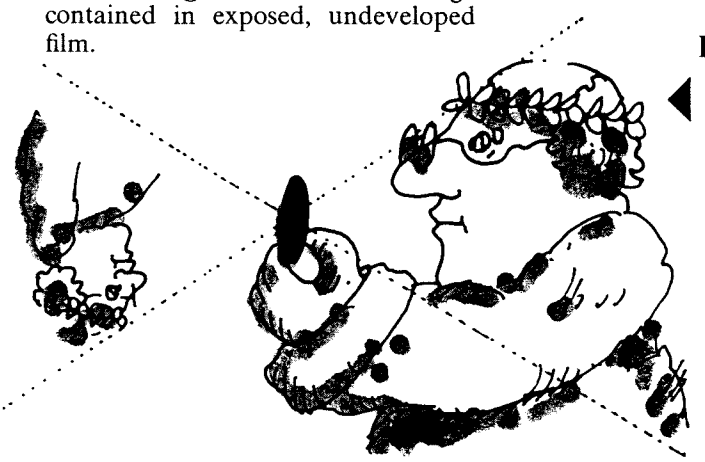
Latent image: The invisible image contained in exposed, undeveloped film.

Lateral scratches, Transverse scratches: Scratches running across the width of the film.

Latitude: The exposure limits within which a photographic film can produce a usable image.

Leader: A film or strip of material used for threading a motion picture projector. The leader may consist of blank film but generally has specific information printed onto it to identify reels of theatrical release prints.

Lens: An optical device designed to produce an image on a screen, on a camera film, and in a variety of optical instruments. Also used to converge, diverge or otherwise control light rays in applications not involving images.



Light filter: A light-absorbing transparent sheet, commonly consisting of colored glass or dyed gelatin that is placed in an optical system to control the spectral quality, color, or intensity of the light passing a given plane.

Lip sync: Simultaneous precision recording of both pictures and sound such that the sound *appears* to be accurately superimposed on the screen image (particularly of a person speaking toward the camera). See Synchronization.

Liquid gate: A special gate used in laboratory printers during the printing exposure in which the film is immersed in a thin layer of special liquid that has the same index of refraction as film base. This technique effectively eliminates the appearance of fine negative scratches on the positive print. Similar gates have been used on projectors for highly specialized uses such as background projection.

Longitudinal scratches: Scratches running along the length of the film.

Low key: A scene in which most of the tone range is in the high-density portion (shadows or other dark areas) of the film image. For instance, outdoor night scenes, etc.

Lumen: The measure of luminous flux (the rate at which light pulses are emitted or received). For instance, one candela of light covering a square foot of surface. See Footlambert.

Luminance: The measured value of brightness; reflected light measured on motion picture screens as footlamberts or candelas per square meter.

Magazine: An enclosed container on a projector that holds a film reel for projection and for takeup. Magazines were mandatory when nitrate film was available, but are no longer used with current projection equipment. Also, a lightproof container feeding film raw stock through a motion picture camera and taking it up after exposure. Magazines for 35 mm cameras have nominal capacities of 400 ft and 1000 ft.

Magenta: The preferred color name for the minus-green subtractive primary used in three-color processes; often described as blue-red.

Magnetic head cluster: The component in a 35 mm magnetic sound head that contains the four magnetic heads used to play back the four separate magnetic tracks on a release print. In 70 mm applications, the cluster holds six magnetic heads.

Magnetic sound: Sound derived from an electronic audio signal recorded on a magnetic oxide stripe or on full-coated magnetic tape.

Magnetic sound head: The magnetic sound reproducer installed above the projector head but below the supply reel support arm or magazine.

Magnetic track: The linear path of a magnetically recorded audio signal on a magnetic film stripe or tape. The number of "Mag tracks" can vary from one to six depending on the picture format.

Mag-optical print: A composite release print containing both optical and magnetic sound tracks.

Makeup table: A film handling unit that is one component of a platter system. It is used to assemble (makeup) the individual shipping reels into one large film roll on a platter for uninterrupted projection. See Breakdown table.

Maltese cross: See Geneva movement.

Masking: Restricting the size of a projected image on a screen by the use of black borders around the screen. Also the restriction in size of any projected image or photographic print by the use of undercut aperture plates or masks and borders.

Methyl chloroform: A nonflammable, moderately toxic solvent widely used in film cleaning and lubricating solutions.

MGM: Metro Goldwyn Mayer, a film production company and processing laboratory, located in Culver City, CA.

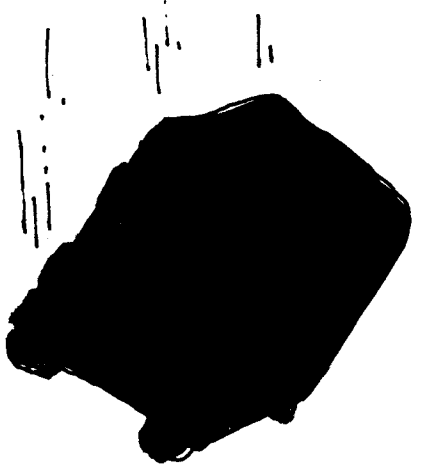
MGM Camera 65: A motion picture production method developed at the MGM Studios using a 65 mm negative with an image height of five perforations and a horizontal compression ratio of 1.33:1. A 65 mm or 70 mm contact print could be shown on an appropriate 70 mm projector equipped with a 1.33:1 anamorphic lens. Using special reduction printing techniques, 35 mm prints could be made for CinemaScope-type presentations.

Mirror: An optical device designed to focus and/or reflect light from the lamphouse to the film plane in the projector. Any material with a reflecting surface of sufficient optical quality to produce an undistorted image.

Motorboating: The distracting sound heard when the film becomes misaligned over the sound drum and causes the sound scanning beam to "read" the film perforations instead of the sound track.

Movielab: The name of a commercial film processing laboratory with locations in both Hollywood and New York City.

Moviola: The proprietary name of a film editing machine. A device that can run two separate films, one with the picture and the other with the sound track, in synchronism.



Murphy's Law: If anything can go wrong, it will—at the worst possible time; that is, the film will break *and* the takeup drive motor will burn out just *before* General Custer shouts "Charge!"

Negative-positive process: Any photographic process in which a positive image is obtained by primary development of a latent image made by printing from a negative.

Nitrate film: A highly flammable motion picture film that has not been domestically manufactured since around 1950. It is still present in large quantities in storage vaults and archives and must be very carefully stored to prevent spontaneous combustion, explosions, or other forms of destruction (perhaps your destruction)!

Noise reduction: The process of reducing inherent audio system noises by the use of special electronic circuitry. See Dolby.

Nonsync sound: In theatrical projection, the amplifier channel selector position used when playing record or tape music during openings, intermissions, and closings.

Negative film: Motion picture film designed and used primarily for making the original camera records of a negative/positive process. These are often called camera negatives.

Negative image: The processed image resulting from the camera exposure made on negative film. The negative image is dark where the original scene was light, etc.

Notching: The practice of making a "V" cut to remove damaged perforations split to the film edge rather than to remove the damage and make a splice. The practice of "V" cutting should be avoided because of further damage that often occurs.

Oil: A good thing for the projector . . . a bad thing for the film. Keep your films clean!

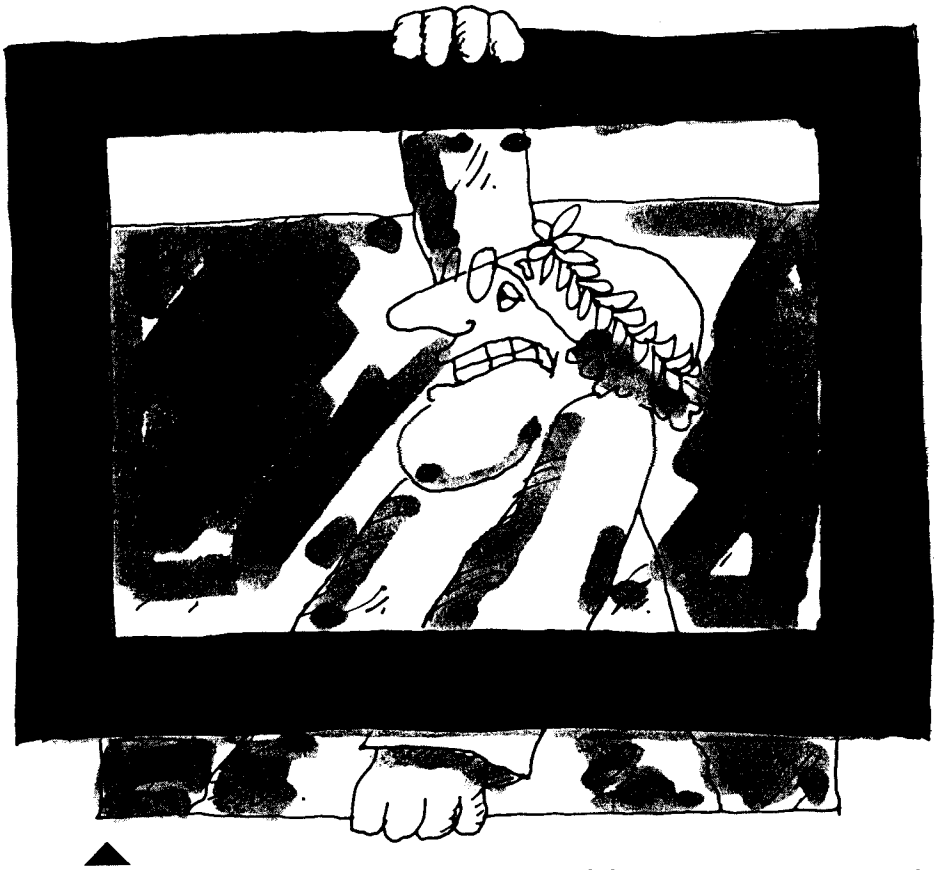
Opaque: Of sufficient density so that all incident light is completely absorbed (the opposite of transparent).

Optical sound: A system in which the photographic sound track on a motion picture film is scanned by a horizontal slit beam of light that modulates a photoelectric cell. The tiny voltages generated by the cell, in turn, produce audio signals that are amplified to operate screen speakers.

Optical track: A sound track in which the record takes the form of variations in the density (variable density track) or width (variable area track) of the track to be scanned. *(Editor's Note: For all intents and purposes, variable density tracks are no longer being produced.)*

OTF: The initials for Optical Transfer Function. A more recent technique used to measure the performance characteristics of projection lenses; more informative than "resolving power."

Outboard reels: Very-large-capacity reels that are mounted on a vertical power drive unit generally to the rear and independent of the projector.



Out-of-frame: A condition that exists when the projected image is not vertically centered on the screen causing a portion of the adjacent frame to be visible near the top or bottom of the screen. In the worst situation, the frame line bisects the screen. See Framing.

Overcoat: A thin, clear or dyed layer sometimes applied on top of the emulsion surface of a film to act as a filter layer or to protect the emulsion from abrasion during exposure, processing, and projection.

Overlap splice: Any film splice in which one film end overlaps the other film end.

Ozone: A chemically active form of oxygen that can be produced in arc lamp houses by the action of the intense arc radiation on the oxygen present in the lamphouse. Concentrated amounts can be harmful so adequate lamphouse ventilation should be provided.

Pad roller: A roller designed to hold the film against a sprocket.

Panavision: The trade name of a professional motion picture camera and lens manufacturer.

Panavision 35: A 35 mm process using 35 mm negative film and photographed through a Panavision anamorphic lens with a compression of 2X. Contact 35 mm prints are compatible with anamorphic systems such as CinemaScope.

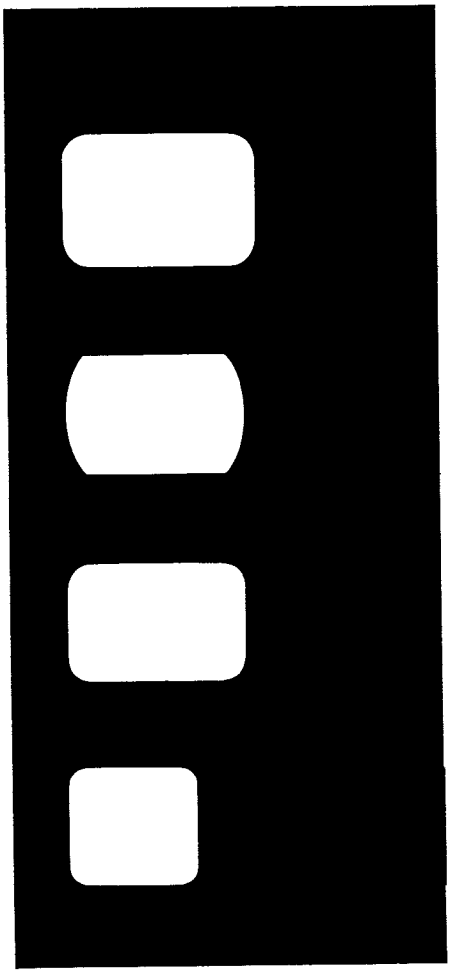
Penthouse, Penthouse head: The popular names assigned to the magnetic sound head. See Magnetic sound head.

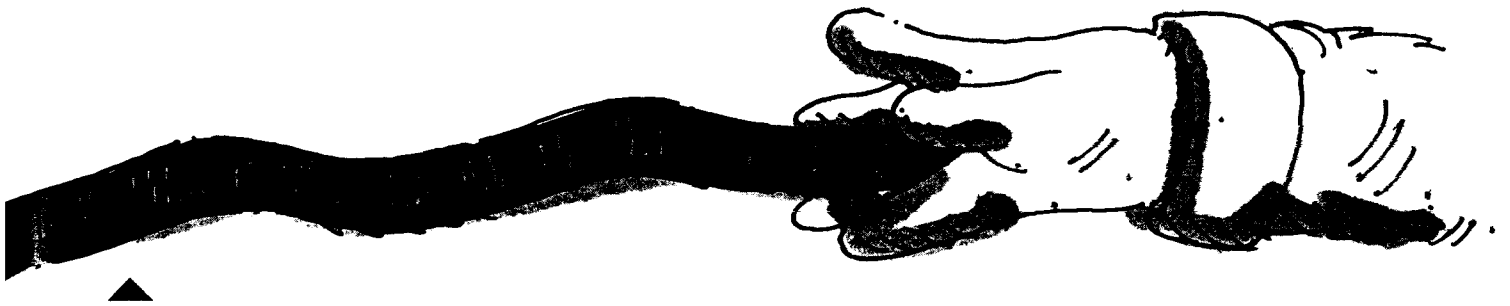
Perforations: The symmetrical, high-precision holes punched into the edges of motion picture film to accept the teeth of the driving sprockets or claws in cameras, projectors, printers, etc. The four most common 35 mm perforation types are the positive (Kodak Standard–KS), the negative (Bell & Howell–BH), the special purpose (Dubray-Howell–DH), and the CinemaScope (Twentieth-Century Fox–CS). The positive perforation is the only one generally used in 70 mm applications. The 16 mm and super 8 formats each have their own unique perforations.

Perspecta Sound: A system of recording that produces a form of stereophonic reproduction by using a single optical sound track carrying three subaudible control tones that can shift the one track sound source to the left, center, or right speakers with the appropriate reproducing equipment. The system is compatible with normal single track sound reproducers.

Photocell: An electronic device that, when modulated by visible light, produces electrical impulses that can be amplified to drive audio speakers.

Photometer: An electrooptical device used to measure light intensity (a light meter).





Pitch: In motion picture applications, the distance from the leading edge of one perforation to the leading edge of the next perforation. In sound, refers to the frequency of the sound waves.

Plasma ball: The highly intense light created by a closed xenon arc when dc current flows from the cathode to the anode in a quartz envelope that contains a positive (high pressure) atmosphere of xenon gas. Also the glowing gas ball in a carbon arc crater.

Platter: A film transport device consisting of at least three horizontal platters, each capable of holding up to 25,000 feet of film and providing up to 4½ hours of continuous projection.

Polalite (3D): A three-dimensional 35 mm presentation first introduced by Universal-International in which the two images necessary to produce the 3D effect were contained on the same film. The system simplified the 3D projection process and corrected most of the problems encountered with the two film/two projector systems although the special polarizing glasses were still necessary.

Polyester: A name for polyethylene terephthalate developed by E.I. duPont de Nemours & Co. (Inc.) A film base material exhibiting superior strength and tear characteristics. Cronar is the trade name for Du Pont motion picture products; ESTAR Base is the trade name for Kodak products.

Positive film: Motion picture film designed and used primarily for the making of master positives or release prints.

Positive image: The processed image resulting from the negative printing exposure made on the positive film. The positive image looks like the original scene.

Power supply: In theatrical projection, refers to any source of electrical current other than the normal ac current available in the house circuit. For instance, the dc generator or rectifier and the electronic dc supply for the exciter lamp.

Preamp (preamplifier): Electronic equipment for boosting very weak signal voltages to useable amplifier levels.

Projection angle: The angle formed by the central axis of the projection beam and the projection room floor, or other horizontal reference.

Projection lens: A lens designed specifically for motion picture projection. It differs from a camera lens in that it is corrected for color aberrations to suit the eye rather than the film.

Proud edges: One or two convolutions of film that protrude above the smooth surface of a firmly wound roll of film and are susceptible to damage.

Pulldown: The action of the intermittent sprocket on the film in the projector gate.

Quartz: A material similar to glass that has the capability to withstand much greater radiant energy levels than glass without breaking. Used as the envelope for xenon arc bulbs, as a protective filter in condenser carbon arc lamps, and in the making of certain other heat resistant filters. It is also transparent to ultraviolet radiation.

Racking: See Framing.

Raw stock: Unexposed and unprocessed motion picture film including camera original, laboratory intermediate, duplicating, and release print stocks.

Recommended practice: An SMPTE engineering committee recommendation specifying good technical practice for some aspect of film or television.

Rectifier: An electronic device designed to convert ac current into the dc current necessary for operating carbon arcs, xenon arcs, exciter lamps, etc.

Reduction printing: Making a copy of a film original on smaller format raw stock by optical printing; for example, printing a 35 mm original onto 16 mm stock for use in libraries, etc.

Reel band: A stiff paper strip with a string loop tie that contains the release print number, title, and reel number and is used to keep the film snug on the shipping reel.

REEL PEOPLE: As in "Film Notes for the . . ." A trademark of Eastman Kodak Company. Thank you all for your continuing support for this publication. *Editor.*

Reel tension: The resistance applied to the projector reel spindles to provide slack-free supply and windup of the film.

Reflectance: The brightness reflected from a surface such as a motion picture screen. See Luminance.

Reflector: Any surface that reflects light. Reflectors can be constructed of cardboard, metal, cloth, or other material. In motion picture projection, primarily the lamphouse mirror and the screen. See Mirror.

Refraction: The change of direction (deflection) of a light ray or energy wave from a straight line as it passes obliquely from one medium (such as air) to another (such as glass) in which its velocity is different.

Rejuvenation: A process offered by some laboratories whereby a damaged and dirty print can be rendered useable for further projection.

Release print: Any of numerous duplicate prints of a motion picture film made for general theatre distribution.

Relief image: The slightly dimensional image that can sometimes be seen on the emulsion side of a color print film viewed under a glancing light reflected towards the observer.

Resolving power: The ability of a photographic emulsion or an optical system to reproduce fine detail in the film image and on the screen.

Reticulation: The formation of a coarse, crackled surface (wrinkled appearance) on the emulsion of a film during improper processing. If some process solution is too hot or too alkaline, it may cause excessive swelling of the emulsion that may then fail to dry to a smooth, unblemished layer.

Reversal process: Any photographic process in which the camera image is developed to provide a negative silver image, then bleached and the remaining silver halide converted to a positive image by a second developer. The bleached silver and any traces of halide are removed with hypo. In effect, the direct production of a positive image from the original camera film without using the negative-positive printing process. In color films, the principle is the same, but more complicated. Most color transparency and all amateur movie films are reversal processed.

Reverse anamorphic: An optical device which, when placed in front of a prime lens, reduces the size of the projected anamorphic image rather than magnifies it, as with a normal anamorphic attachment. This feature allows the use of short focal-length prime lenses with larger apertures resulting in added screen luminance of up to 40%. See Anamorphic lens.

Rewind: An automatic console or set of bench mounted spindles used to wind film from reel-to-reel.

Rewinding: The process of winding the film from the takeup reel to the supply reel so that the head end, or start of the reel, is on the outside. If there are no identifying leaders on the film, upside-down images will signify the head end.

Roping: A continuous sprocket tooth indentation along the length of the film usually caused by a poor splice or other damage forcing the film to ride off the sprocket and remain in that position (usually until someone notices the condition or the film runs completely off the sprocket). See Run-off.

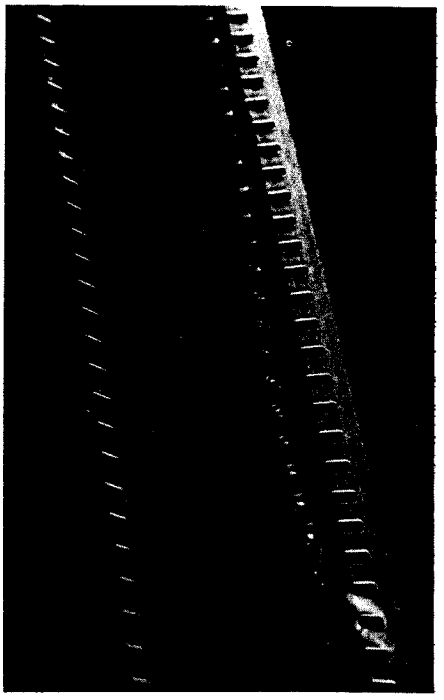
RP-40: The recommended practice sponsored by SMPTE titled, "Specifications for 35 mm Projector Alignment and Screen Image Quality Test Film." Also, the name usually referred to by projectionists for the test films made to these specifications and available from SMPTE as Projector Alignment and Image Quality Test Film, 35-1Q-200.

RP-82: 16 mm version of above, except test film is identified as 16-PA-100. Also available from SMPTE.

Run-off: A situation in which the film briefly jumps off the sprocket causing sprocket tooth indentations as with Roping.

Safety film: A photographic film whose base is fire resistant or slow burning as defined by ANSI document PH1.25, PH22.21, and by various fire codes. At the present time, the terms "safety base film," "acetate base film" and "polyester base film" are synonymous with "safety film."

Saturation booking: The simultaneous availability and showing of a new feature release in all the major theatres in the country. Such a release can involve more than 1,000 new prints.



"S" bends: Kinks in the film layers caused by pulling the end of the film on a loose roll in order to tighten the roll. Especially damaging to film containing oil deposits since no slippage is possible (oil deposits cause film to stick).

Scanning beam: A collimated narrow slit (0.1 mm or less) of light that scans the optical sound track of a motion picture film.

Scapegoat: Whatsisface.

"Scope": A diminutive term used to describe any anamorphic projection system or film. See CinemaScope.

Screen: The reflective surface on which theatrical motion pictures are projected. A special translucent material for rear-projection applications. Also, to view a motion picture for critical examination.

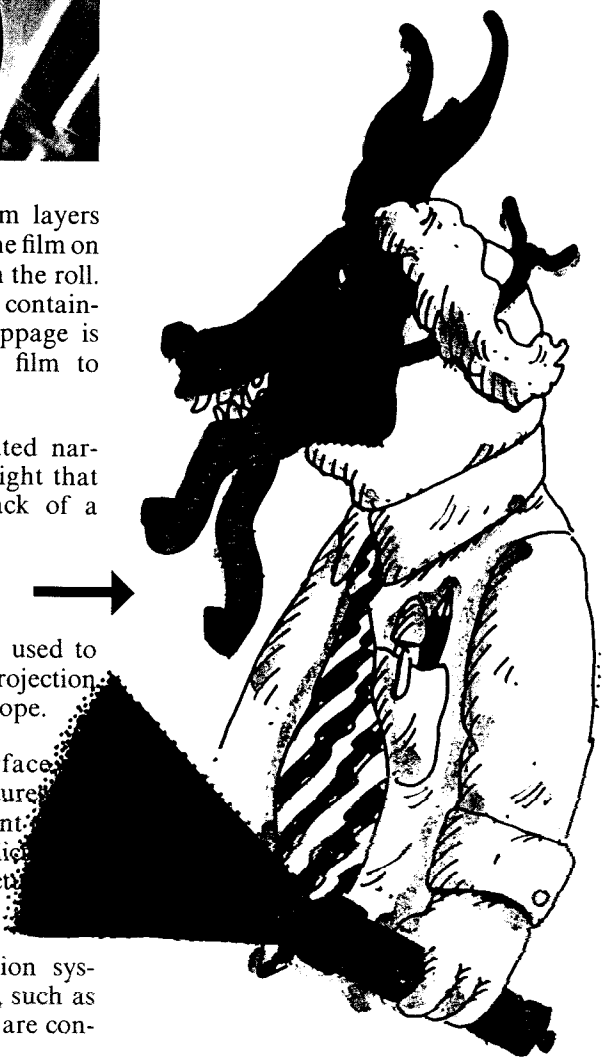
Semiautomated: A projection system in which some functions, such as changeover or start and stop, are controlled electronically.

Sensitometry: The study of the emulsion characteristics (speed, resolving power, etc) of exposed and processed photographic film.

Sensor: A device used to activate an electronic circuit or a mechanical system to start, stop, or alter a normal operating procedure. In theatrical projection, used for automatic changeovers, shutoffs, and for automated operation.

Shipping reel: A universally used film reel with a nominal capacity of 2,000 feet used to ship release prints from the distributor to the theatre and back. See House reel.

Shrinkage: Reduction in the dimensions of motion picture film caused by loss of moisture, support plasticizers and solvents as well as heat, use, and age. In current acetate films, shrinkage rarely exceeds 0.5% and causes no problems with normal uses of the film. Polyester base films exhibit considerably less shrinkage (under 0.1%).



Shutter: In theatrical projection, a two-bladed rotating device used to interrupt the light source while the film is being pulled down into the projector gate. One blade masks the pulldown while the other blade causes an additional light interruption increasing the flicker frequency to 48 cycles per second . . . a level that is not objectionable to the viewer at the recommended screen brightness of 16 footlamberts (55 candelas per square meter).

Silicone: A family of chemical compounds used as a lubricant in many applications. Not suitable or effective for use on 35 mm release prints.

Silver reflector: A lamphouse mirror backed with a metallic coating that reflects all of the incident radiant energy. Not as widely used since the introduction of the dichroic mirror. The term "silver" is a misnomer since that metal tarnishes easily and is no longer used in making reflectors. Most metallic reflective coatings are of metals such as aluminum. See Dichroic.

Singing sprocket: The noise caused by film under excessive tension coming off the teeth of a sprocket. Usually the holdback sprocket of a projector operated with excessive takeup tension will be the "singing sprocket."

Skivings: Fine threadlike particles found in the vicinity of the projector gate and caused by physical abrasion against a sharp burr or nick on a component in the film path. See Angel hair.

SMPTE: Acronym for the "Society of Motion Picture and Television Engineers."

SMPTE Test Materials Catalog: A comprehensive list of test materials used to check the performance of projectors, optical and magnetic sound systems, image quality and alignment, television color reference and test patterns, plus other helpful items such as the SMPTE Universal Leaders.

Snake track: A common name for a scanning beam test film used to check the uniformity of illumination across the scanning slit.

Soft: A photographic emulsion or developer having, exhibiting, or producing a low contrast. A roll of film wound very loosely. Also, an out-of-focus photographic image. See Hard.

Sound aperture: See Academy Aperture.

Sound drum: A flat roller in the sound head designed to keep the film precisely positioned at the point where the scanning beam slit scans the sound track. Also called the scanning drum.

Sound gate: The gate used in an optical sound head, instead of a sound drum, to keep the film sound track precisely aligned on the scanning beam slit during sound reproduction.

Sound head: The optical sound reproducer mounted beneath the projector head, but above the takeup reel support arm or magazine.

Sound sprocket: Any sprocket that pulls the film past the sound scanning beam slit.

Sound track: The photographic/optical sound track running lengthwise on 35 mm film adjacent to the edges of the picture frames and inside of the perforations.

Special effect: A term broadly applied to any of numerous results obtained in the laboratory by combination and manipulation of one or more camera records to produce an imaginatively creative scene different from what was in front of the main camera. The making of special effects may involve techniques such as double printing, fades, mattes, vignetting, etc.

Spectral output: The range, intensity, and characteristics of wavelengths emanating from a light source.

Spectral response: The measure of the ability to differentiate among wavelengths and characteristics emanating from a light source. The ability of a camera film to record various wavelengths (colors) of light.

Specular: A reflecting surface is said to be "specular" if it is nondiffusing, like a mirror. A beam of light containing parallel rays is said to be "specular" if such a beam can be conveniently aimed in any direction by reflecting the light from a small distant source with a moveable plane mirror.

Splice: Any type of cement, tape, or mechanical fastening by which two separate lengths of film are united so that they function as a single piece of film when passing through a projector, camera, or processing machine.

Splicer: A device used to splice the ends of motion picture film accurately by the use of film cement, tape, or mechanical means.

Splicing: The joining together of two or more pieces of film so that the joined film segments will pass through a projector, film processor, or camera without interruption.

Splicing tape: A special tape designed to make overlap or butt splices without the need for film cement or mechanical fasteners. The tape consists of a special nonoozing adhesive coated to a very thin polyester base. It is available crystal clear, translucent, or opaque orange in a variety of sizes, with or without perforations.

Spoking: A distortion of film on a reel caused by loose winding of film that has a high degree of curl.

Sprocket: A toothed wheel used to transport perforated motion picture film.

Sprocket hole: See Perforations (preferred usage).

Stabilization: The influence of a magnetic flux in steadying the flow of electrons in a carbon arc. The action of a damping roller or other device in reducing wow and flutter in a soundhead.

Static electricity: The presence of an electric field due primarily to the presence of electric charge on materials. If the materials are nonconducting, then the electric charge will remain indefinitely (static charge) or perhaps accumulate on the material. Under ambient room conditions, the presence of a static charge on film can result in the ionization of air and possibly cause electric sparks.

Steel film:* A steel tape, precisely dimensioned and perforated, used to align motion picture equipment.

Stereophonic: Sound recording and reproduction using multiple microphones and speakers and designed to simulate the actual dimensional sound experienced in the original location.

Stray light: Any light that does not contribute to the purpose for which it was intended. In theatrical projection, all of the nonimage-producing light hitting the screen.

Stripe, magnetic: A narrow band or bands of magnetic oxide usually coated towards the edges of the base side of motion picture film, for the purpose of accepting audio signal recordings in the form of magnetic impulses.

Subtractive process: Any color process in which a reproduction is made by a combination of images, each of which absorbs light in proportion to the absorption of light of the same color by each part of the scene. In a three-color subtractive process, the colors of the images are yellow, magenta, and cyan. All current color release prints are of the subtractive process.

Sunlight: Light reaching the observer directly from the sun. To be distinguished from Daylight and Skylight which include indirect light from clouds and refract the atmosphere.

Super Panavision: Similar to Panavision 35, but photographed flat in 65 mm. The 70 mm prints produce an aspect ratio of 2.25:1 with 4-channel sound and a ratio of 2:1 with 6-channel sound.

SuperScope: A 35 mm anamorphic release print system adopted by RKO Radio Pictures that produced a screen image with an aspect ratio of 2:1 or 2.35:1 when projected with a normal anamorphic lens. The original camera negative was photographed flat, but special printing produced the anamorphic print.

*Two 35 mm formats of "steel film" are available (KS or CS perfs) from Eastman Kodak Company, Central Parts Services, 800 Lee Road, Rochester, NY 14650. Other formats are also available; please tell us your particular needs. Prices vary according to size and length required.

Supply reel: The reel holding the film before it is projected in a projector.

Surround channel: The specific sound channel in a sound reproduction system directing audio signals to speakers placed at the sides and at the rear of the auditorium to provide the added realism of surrounding area sounds.

Surround sound: See Surround channel.

Surround speakers: Speakers placed at the sides and at the rear of an auditorium to increase the realism of a stereophonic presentation, or to produce other special effects.

Swell: The increase in motion picture film dimensions caused by the absorption of moisture during storage and use under high humidity conditions. Extreme humidity conditions and subsequent swelling of the film aggravates the abrasion susceptibility of the film surfaces.

Synchronization: A picture record and a sound record are said to be "in sync" when they are placed relative to each other on a release print so that when they are projected the action will coincide precisely with the accompanying sound. See Lip sync.

Tail ends, Tails: The end of a film. The film must be rewound before projection if it is tails out.

Take: A scene that has been photographed. Usually many "takes" are shot so the producer, director, and editor will have sufficient film to get the best possible performance for the final version of the movie.

Takeup reel: The reel onto which the already projected film is wound up in a projector.

Tape splice: A film splice using special splicing tape applied to both sides of the film.

Tape splicer: A device designed to join film using special splicing tape. Most units use unperforated tape that is cut and perforated at the time the splice is made.

Technicolor: The name of a specific motion picture film laboratory with locations in Hollywood, CA, and New York City. Also the trade name of a three-color imbibition process used to make release prints; no longer used in this country or Europe, but still being used commercially in China.

Technirama: A 70 mm release print technique developed by Technicolor and printed from a horizontal double frame 35 mm negative with a 1.5:1 horizontal compression. The 35 mm reduction print image had a 1.33:1 compression ratio and produced a 2:1 aspect ratio when projected on equipment designed for CinemaScope. Some 70 mm prints were also available to be shown at a 2.2:1 ratio.

Techniscope: A system designed to produce 35 mm anamorphic prints from a 35 mm negative having images approximately one-half the height of regular negative images and produced by using a special one-half frame (2 perforation) pulldown camera. During printing, the negative image was blown up to normal height and squeezed to normal print image width to produce a regular anamorphic print that provided a projected aspect ratio of 2.35:1. The system was designed primarily to conserve negative raw stock.

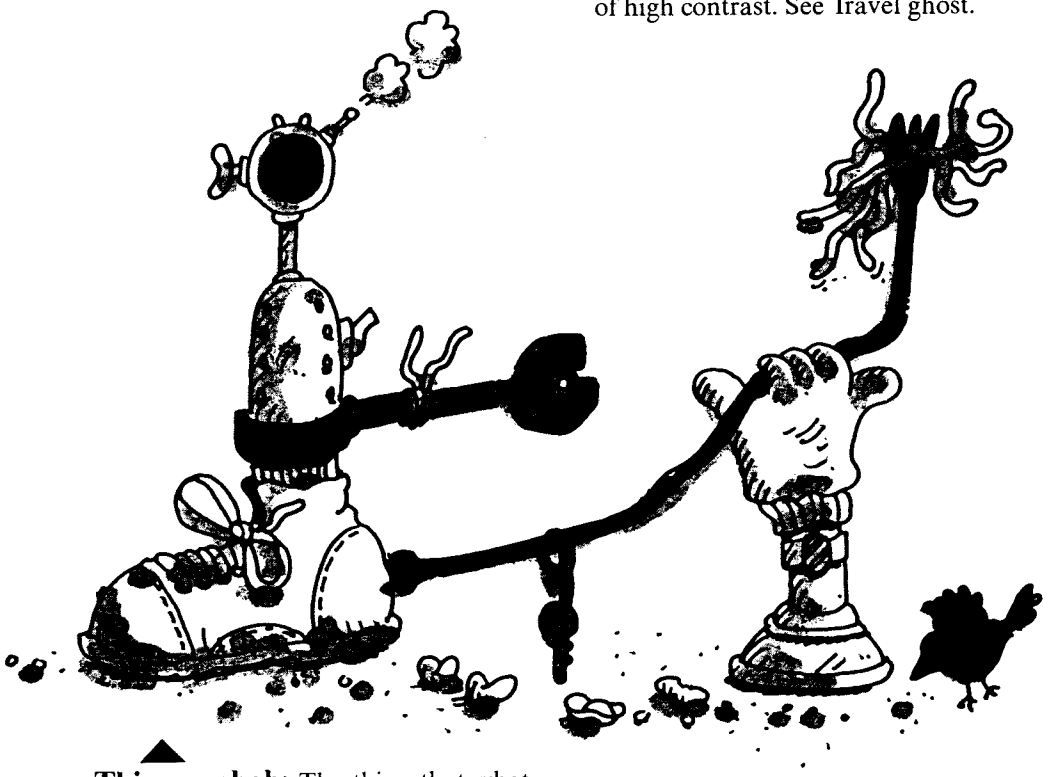
Tension: The resistance to linear motion of the film caused by restraining forces such as tension pads, drive sprockets, take-up drive motors, spring-loaded guide rails, and the like, built into projectors, cameras, and other film handling equipment.

Tension pads: The spring-loaded pads installed in the gate component of a 35 mm projector gate assembly. The pad pressure is usually adjustable and should be set tight enough to produce a steady image, but loose enough to avoid a loud clatter at the intermittent sprocket.

Thin: As applied to a photographic image, having low density. As applied to the physical properties of film, thin base film materials provide for more film per given roll diameter.

Timing: In projection, the adjustment of the rotating shutter so that the screen image does not show any vertical movement from the pulldown cycle, or ghost images in adjacent areas of high contrast. See Travel ghost.

Todd-AO: A flat, 70 mm print system developed by Magna Pictures Corporation and American Optical Company to produce a 2.2:1 screen image of high resolution, sharpness, and brightness. The print was made from a 65 mm negative exposed in a specially designed camera. The extra width of the print film was intended to provide room for the six magnetic sound tracks contained on four magnetic oxide stripes. Todd-AO is considered the first commercially successful 70 mm film system and was introduced in 1955 with the release of "Oklahoma."



Trailer: A length of film usually found on the end of each release print reel identifying subject, part, or reel number and containing several feet of projection leader. Also a short roll of film containing coming attractions or other messages of interest.

Transmittance: The relative amount of incident light that is transmitted by a medium, commonly expressed as percent transmittance.

Trap: The fixed component of the film gate assembly in a professional projector.

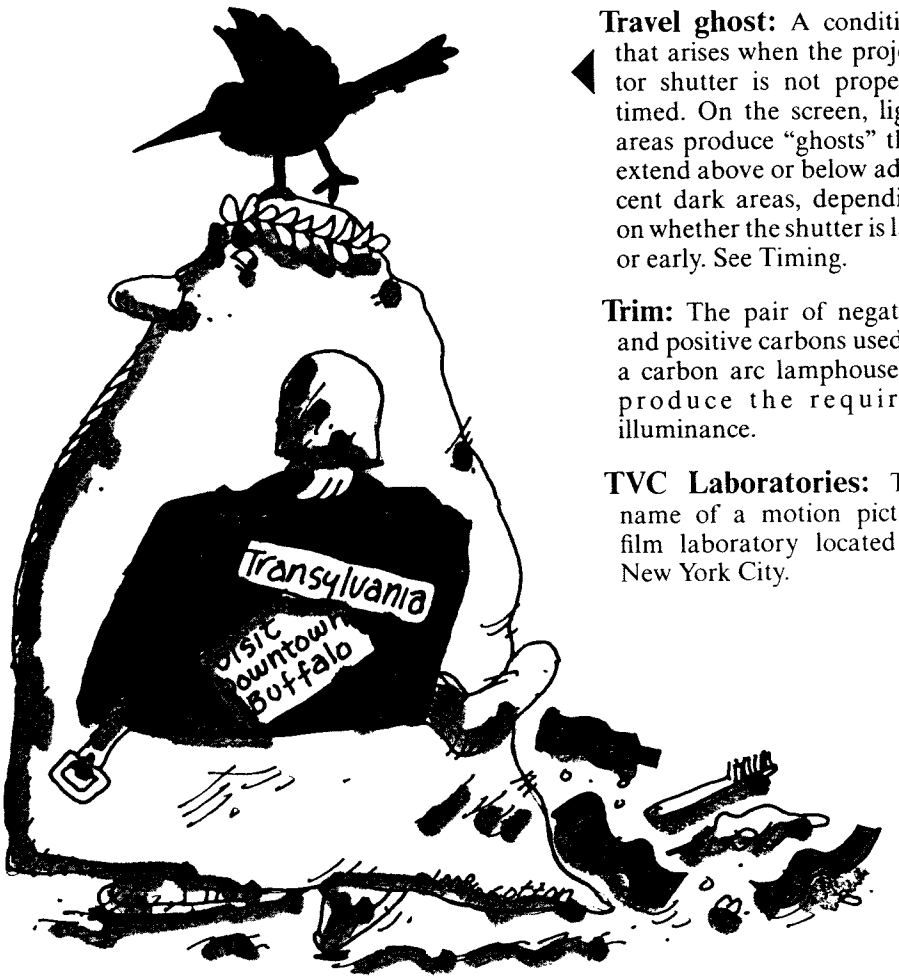
Thingamabob: The thing that whatsisface gave you to put on the projector that is supposed to cut your work in half but you never got a round tuit. (You are now running 8 projectors at once and don't have time to install thingamabobs.)

Thread: To place a length of film through an assigned path in a projector, camera, or other film handling device. Also called lacing.

3-D: The common term applied to three-dimensional (stereoscopic) images projected on a screen or viewed as a print. There have been several systems shown in theatres but the discomfort attributed to the necessary eyewear, along with other equipment limitations has, more or less, relegated the present systems to novelties.

Throw: In theatrical projection, the distance from the projector aperture to the center of the screen.

Tight wind: Relating to film wound tightly on a core or reel to form a firm roll that can be handled and shipped safely without danger of cinch marks or other damage to the film.



Travel ghost: A condition that arises when the projector shutter is not properly timed. On the screen, light areas produce "ghosts" that extend above or below adjacent dark areas, depending on whether the shutter is late or early. See Timing.

Trim: The pair of negative and positive carbons used in a carbon arc lamphouse to produce the required illuminance.

TVC Laboratories: The name of a motion picture film laboratory located in New York City.

Tweeter: A common term describing a loudspeaker designed primarily to reproduce only the high frequencies of the audio spectrum.

Twist: An effect that is produced in new prints by loose winding of the film, emulsion side in, under dry air conditions. If the film is wound emulsion side out under the same conditions, the undulations do not alternate from one edge to the other but are directly opposite one another. See Edgewave.

U

Ultra Panavision: Similar to Super Panavision but the 65 mm negative has a compression ratio of 1.25:1 that can provide a potential aspect ratio of 2.75:1 on the screen. The 70 mm print is projected with an anamorphic lens having a 1.25 image spread thus producing an extremely large screen image. Reduction prints to 35 mm are compatible with standard anamorphic systems.

Ultrasonic cleaner: A device designed to transfer ultrasonic sound waves to a suitable cleaning liquid or solvent which, in turn, by its cavitating action, literally dislodges imbedded dirt on an object immersed in it.

Ultraviolet light: Energy produced by the invisible portion of the electromagnetic radiation spectrum whose wavelengths are in the range of 100 to 400 nanometers. UV radiation has the property of producing fluorescence in many materials. Also popularly known as "black light." The ultraviolet light produced by carbon and xenon arcs is removed from the screen image by lenses, filters, and port glass, but the projectionist must avoid direct exposure or risk severe "sunburn" effects.

Universal leader: A film projection leader, designed according to ANSI document PH22.55 for the current projection rate of 24 frames per second (1½ feet per second), and recommended for use on all release prints. It was designed to replace the Academy leader originally conceived when the motion picture projection rate was 16 frames per second.

Unsteadiness: An objectionable amount of vertical motion in the screen image.

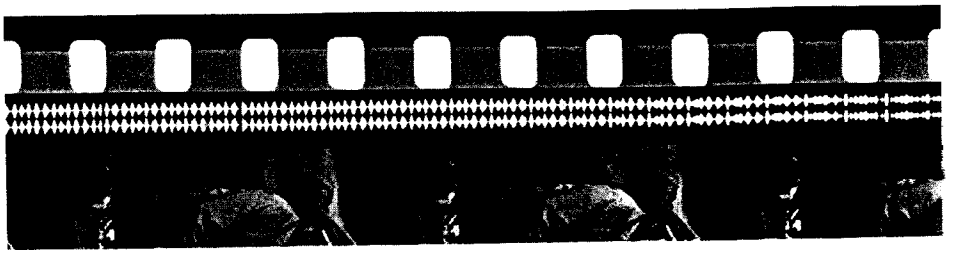
Ultravision: A 35 mm custom system designed to provide a high definition and improved contrast film presentation on a slightly curved screen. Ultravision was designed as a complete system in which theatre design was an integral part. Projectors, lenses, and lamphouses were also modified.

Uneven wind: A reel of motion picture film in which many of the film convolutions are protruding from the roll edge. The exposed film edges are vulnerable to damage from dropping and from reel flange pressure when shoved into a dished shipping case. See Proud edges.

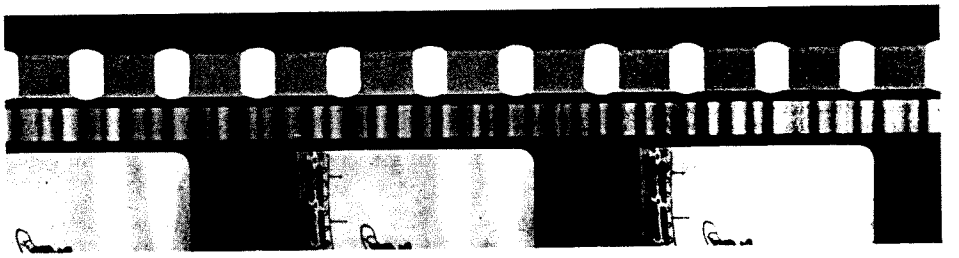
V

Valve rollers: A cluster of three or four small rollers located at the entrances of the film magazines and designed to prevent fire from reaching the film reels. Since nitrate prints are now quite rare, and are actually unlawful to use in some areas of the U.S., use of valve rollers, or fire rollers, is no longer essential on domestic projection equipment.

Variable-area sound track: A photographic sound track that consists essentially of one or more transparent lines of variable width that run the length of a motion picture film within the prescribed sound-track area. (The most commonly used.) See Magnetic track.



Variable-density sound track: A photographic sound track that is constant in width but which varies in density along the length of a motion picture film within the prescribed sound-track area. (No longer used in current motion picture productions.)



"V" cut: See Notching.

Venting: Providing the proper movement of air to effectively cool the inside of a xenon or carbon arc lamphouse. Applies to all lamphouses containing a high-energy light source confined in a small area.

Vertical lamp: Refers to the position of the light source in a lamphouse and the direction in which the light emitting element is oriented. Primarily applies to xenon arc bulbs and to many tungsten bulbs. Carbon arc sources are mostly used in the horizontal position, as are many of the earlier xenon arc lamp sources.

Vidoscope: A wide-screen process compatible with CinemaScope-type presentations.

Vignetting: The partial masking, or blocking, of peripheral light rays either by intent, or by accident. In theatrical projection, the blockage of peripheral light rays in a projection lens due to a lens barrel that is too long, or to a lamphouse optical system that is not correctly matched to the limiting aperture of the projection lens. In photography, the intentional masking of peripheral light rays to soften and enhance a photograph.

VKF sprocket: The trade name (Very Kind to Film) applied to a 35 mm intermittent sprocket designed as an alternate for the standard intermittent sprocket specified in ANSI PH 22.35. The teeth are 0.055″ wide with rounded corners . . . a departure from current tooth design.

VistaVision: A presentation system designed by Paramount Pictures to provide a screen image with very high resolution and sharpness. The 35 mm negative film passed through the camera horizontally and contained an image about twice the size of a typical 35 mm print film image. During reduction printing, the negative image was reduced to normal 35 mm print size thus reducing negative grain and enhancing sharpness and resolution. Normal projection aspect ratio was 1.85:1. In a few showcase situations, double-frame release prints were projected in specially designed horizontal projectors.

Vistorama: A wide-screen process compatible with CinemaScope-type presentations.

Warping: Synonymous with the misused term "buckle" when describing film distortions. These terms are too vague to be helpful in communication.

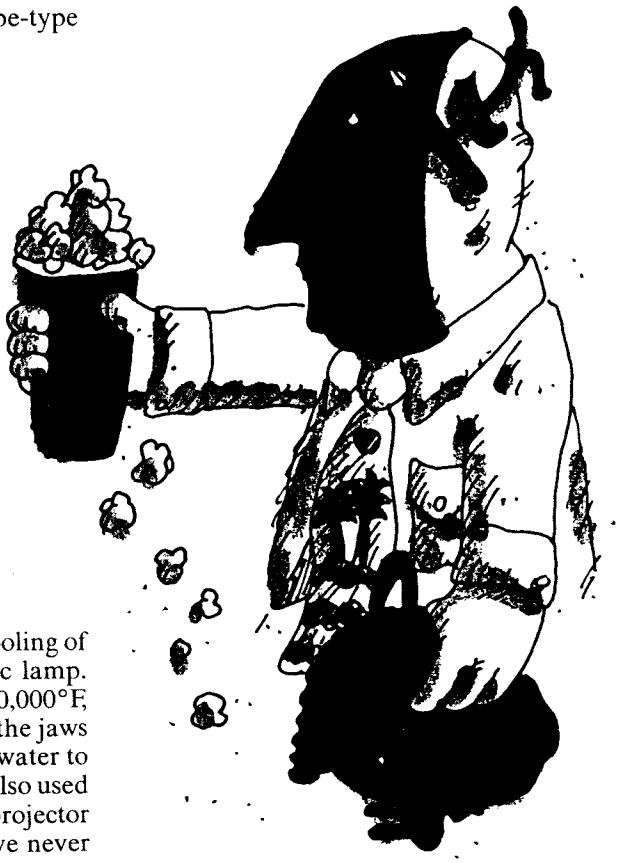
Watchamacallit: The technical term for Pulsed Xenon Light Source, used more recently in place of a carbon arc in projector lamphouses.

Water cooled: Refers to the cooling of the silver jaws in a carbon arc lamp. With a crater temperature of 10,000°F, the proximity of the source to the jaws requires the use of circulating water to keep the silver from melting. Also used in some projectors to cool the projector gate although the benefits have never been proven in terms of improved screen image quality.

WD-40: The trade name of an oil-based compound, usually packaged in an aerosol container, designed to penetrate and loosen tightly fitting parts such as nuts and bolts. Definitely *not* suitable as a film lubricant.

Weave: Horizontal motion in the projected screen image. Generally less objectionable than vertical unsteadiness.

Whatsisface: Your manager, his manager, the owner, or the person (your best friend) you introduce to a newcomer in the booth.



Woofer: A loudspeaker designed primarily to reproduce the low frequencies in the audio spectrum.

Workprint: In a motion picture studio or processing laboratory, a rough cut print (approximately cut to the script) of a motion picture film used for editing and study of action and continuity.

Xenon arc: A short arc contained in a quartz envelope in which dc current, flowing from the cathode to the anode, forms an arc in a positive (high pressure) atmosphere of xenon gas. The spectral distribution in the visible range closely resembles natural daylight.

Xenon bulb: The quartz envelope containing the two electrodes that produce an arc in a high-pressure environment of xenon gas.

Yellow: Color name for the minus-blue subtractive primary used in three-color processes.

Zoo: The projection booth when something goes wrong. (Call whatsisface immediately.)

Round Tuit: My boss asked me to put all these words in alphabetical order, but I didn't get a round tuit (as in around to it).

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