Audio

A-D CONVERTER
Short for Analogue / Analog to Digital Converter. Changes a continuously varying electrical signal into a stream of binary data. Found in computer soundcards, Minidisk & CD Recorders etc..

AB
A technique used to record in stereo. Two (identical) microphones are placed next to each other, parallel to each other, and pointing in the same direction. As you're looking at the action, the one on the left is panned hard left on the mixer and the one on the right is panned hard right. There are some problems with this technique, such as reflections off each microphone, leading to comb filtering and also a narrow coverage. Some sound techs try to overcome the coverage problem by spacing out the microphones, although this can lead to 'muddy' sounds due to delays. See COMB FILTERING and X.

ABSORPTION
The ability of a surface to absorp sound. The absorption coefficient of a material is a figure between 0 and 1, representing its degree of absorption.

ABTT / A.B.T.T.
The Association of British Theatre Technicians.

ACOUSTICS
The behaviour of sound and its study. The acoustics of a room depend on its size and shape and the amount and position of sound-absorbing and reflecting material.

ACTIVE
In electronics (particularly audio), an "active" circuit operates with an external power supply and is usually low power, while a "passive" circuit operates directly on the signal using the inherent power of the surrounding circuitry.
This is why an **active crossover** is usually placed before the amplifiers, with integrated circuits and line level signal processing (100 Ohms impedance or greater), while a passive crossover acts after the amplifiers where the power level is much greater (16 Ohms impedance or less). Amp to speaker level is generally between 2 and 16 Ohms, while preamplifier electronics are generally 100 to 100K Ohms.

ADAPTOR
1) Connector which allows two or more electrical devices to be connected to a single power outlet. The connection is normally parallel, that is, each device is fed the same voltage, but the current is divided between them. Sometimes known as a "Twofer". A three-way splitter is known as a "Threefer". A Series splitter is also available where a voltage is shared equally between two loads.
2) Also an ADAPTOR can be the same as a JUMPER.
See SERIES SPLITTER, JUMPER and GRELCO.

ADDRESS*
Each item of equipment controlled by DMX512 has an address, which is the first DMX control channel to which it will respond. For example, in a situation where you have three 6-way dimmer racks, the first should be addressed to 1, the second to 7 and the third to 13.

AGC
Automatic **G**ain **C**ontrol. Circuitry within recording equipment which compensates for differences in volume in the incoming sound signal by adjusting the gain automatically. Helps to reduce wild swings in volume.

AMBIENT NOISE
The sound heard in a given room with no sound sources. Each space has a particular sound which aids our identification of the kind of space we're in.

AMP
Abbreviation for ;
1) AMPERE, the standard unit for measurement of electrical current passing through a circuit. Written as "I" in equations. Cables, fuses and switches are designated by their current carrying capacity. (Following phrase refers to UK standards). Square pin plugs are rated at 13 Amps maximum and Round pin plugs at either 5 Amps or 15 Amps maximum, depending on the size of the pins. If a cable rated at 5 Amps is used with a load of 15 Amps (for example), the cable will overheat and possibly catch fire.
2) AMPLIFIER - sound equipment that converts the low voltage, low current signal from a tape deck, mixer etc. into a higher current signal suitable for driving speakers. See Power Amplifier, Crossover.

AMPLITUDE
The strength of a vibrating wave; in sound, the loudness of the sound.

ANALOGUE SIGNAL
A continuously variable signal that can have any value over a given range.
1) In lighting: an analogue voltage within the range 0 to 10 Volts can have values of 0, 2, 8.785 or any value between. Most dimmers require an analogue voltage in order to operate (from 0 to -10V or 0 to +10V depending on the manufacturer). Most lighting control desks produce a digital multiplexed output, which is converted by a demux box to an analogue signal for the dimmer. See also Digital dimmer.
2) Sound: An analogue recording will record the exact waveform of the original sound, simply converting it to an electrical signal at the microphone, and back into air movement at the speaker. See DIGITAL.

ARRAY
A set of loudspeakers flown in a performance space. See also CLUSTER.

ATMOSPHERE
The normal background sound at any location.

ATTENUATE
To reduce the intensity of a sound signal. This is what the "PAD" switch does on a sound desk.

AUTOMATION
1) Facility available on larger sound mixing desks allowing channel muting or even fader moves to be taken under the control of a computer to ensure accurate and repeatable mixing.
2) Describes the method used instead of stage crew for moving bits of set around shows with a big budget.

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AUXILIARY INPUT or RETURN
A route back into the sound desk for a line level signal sent to a piece of outboard equipment (usually effects processor / EQ unit etc.) via an auxiliary send.

AUXILIARY OUTPUT or SEND
An additional line level output from a sound desk which can be used for foldback or monitoring without tying up the main outputs. Each input channel will have a path to the Aux buss. Also used for feeding a signal to an effects processor. See Auxiliary Return.

BACKLINE
Backline refers to the equipment which stands at the rear of a live band when they are performing. Guitar amps, bass amps etc. are standard backline equipment. Basically, everything a live band needs apart from the instruments the band hold (e.g. guitars), the PA (and front of house desks etc.) and the band themselves is backline.

BAFFLE
1) A sheet of material used to prevent a spill of light in a lantern or in part of a set.
2) A panel in a loudspeaker cabinet designed to reduce back interference noise by isolating the front and rear of the loudspeaker diaphragm.
3) A panel in an auditorium positioned so as to reduce sound reflections and improve the acoustics of the space.
4) What most of this jargon will do to any non-technical theatrical type.

BALANCED LINE
A method of carrying sound or data signals which reduces interference by using a third conductor, the shield. In the balanced line the shield, which is grounded, is in addition to the two signal- (or data-) carrying conductors. Balanced lines are less prone than unbalanced to interference. In balanced lines, one of the signal wires carries the audio signal, while the other carries an out-of-phase (inverted) copy. When the signal reaches the destination, the inverted copy is flipped and added to the original. Any noise added by interference is also inverted. When combined with the non-inverted noise, the two noise signals cancel each other out. See UNBALANCED LINE.

BANDWIDTH*
The range of a piece of sound equipment. If an equalizer has cutoff frequencies of 200 and 2000 Hz, then the bandwidth is the difference between them, in this case 1800 Hz.

BASS
Lower end of the musical scale. In acoustics, the range (below about 200Hz) in which there are difficulties, principally in the reproduction of sound, due to the large wavelengths involved.

BASS BIN
Slang for a speaker cabinet containing a Woofer designed for Bass sound reproduction (see also Subwoofer).

BEAT
1) In acoustics, a periodic variation in amplitude which results from the addition of two sound waves with nearly the same frequency. Also affects radio reception.
2) A deliberate pause for dramatic / comic effect.
3) A measure of time when cueing (e.g. "the LX cue needs to go four beats after the door is closed").

BELTPACK
Part of the communication ("cans") system in a theatre, the Beltpack contains the controls and circuitry to drive the HEADSET worn by crew members. Each beltpack connects into the headset ring and back to a PSU (Power Supply Unit) which is powered from the mains.
See also CANS.

BI-AMPLIFICATION
A way of optimising the efficiency of a speaker system by separately amplifying the High Frequency (HF) and Low Frequency (LF) portions of the sound signal (after the crossover) and sending them down two pairs of cables to the speaker. Multipin Speakon connectors have been developed to do this.

BINAURAL
Sound reproduction using two microphones usually in a "dummy head" (to emulate the shape and the response of the human hearing system) feeding a pair of headphones, so that the listener hears the sound he or she would have heard at the recording location.

BNC
(Bayonet Neill Consulman - after original inventor) Coaxial connector used for carrying a composite video signal or radio frequency signal. BNC is also thought to stand for "Bayonet Nut Connector".

BOOM
1) Vertical scaffolding pole (usually 48mm diameter) on which horizontal boom arms can be mounted, carrying lanterns. Often used behind wings for side-lighting etc. Booms have a base plate (known as a TANK TRAP) or stand at the bottom and are tied off to the grid or fly floor at the top (not always necessary for short booms). Booms can also be fixed to the rear of the procenium arch (Pros. Boom) or hanging from the ends of lighting bars. Sometimes known in the US as a light tree. A light tree mounted upstage of a Tormentor is known as a Torm Tree.
2) An arm mounted on a microphone stand.

BOUNDARY MICROPHONE
A microphone mounted on a flat plate which acts as a reflective surface directing sound into the mic capsule. Used for general pick-up over a large area. A PZM (Pressure Zone Microphone) is an omnidirectional boundary mic for picking up sound from all around. A PCC (Phase Coherent Cardoid) picks up only from in front of the microphone.
See also THREE TO ONE RULE and COMB FILTERING.

BREAKOUT
A connection at the end of a multicore cable which allows the connection of many items to it. (e.g. there is a breakout box at the end of a sound multicore cable which allows you to plug microphone cables into it).

BRIDGE
A walkway, giving access to technical and service areas above the stage or auditorium, or linking fly-floors.

BRIDGING
Technique for getting more power out of a stereo amplifier by feeding it a mono input signal and then connecting the outputs together. The amplifier is said to be "BRIDGED". Check the owner's manual of the amplifier before trying this. Some amplifiers have a switch which does the bridging internally.

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BUSS
A signal line within a sound mixing desk that can receive its signal from a number of sources. eg the Aux 1 buss carries the signals from the input channels to the Aux 1 Send master control.

CABLE
Wiring, temporarily rigged, to carry electrical current. Depending on the size of the cable (current carrying capacity), cables are used to supply individual lanterns, whole dimmer racks, or carry signals from a microphone etc.

CABLE TIE
Lockable (and sometimes releasable) plastic strap used to tie a bundle of cables together, amongst many other things.

CANS
1) Headset earpiece, microphone and beltpack used for communication and co-ordination of technical departments during a performance. (e.g. "Electrics on cans", "Going off cans", "Quiet on cans!").
The common system in the UK is produced by Canford Audio under the TechPro brand. In the USA, ClearCom is commonly used.
2) Any headphones.
3) Short for PARCANs.

CASSETTE
Originally, Compact Cassette. Popular domestic 1/8" tape format. Difficult to cue up accurately, so awkward for live theatre, but cheap, so often used by small scale touring companies as sound effects source. A different cassette is used for each effect. However, Minidisk prices are coming down to the extent that cassettes are rarely used for sound effects now

CD (Compact Disc)
Digital sound storage medium introduced in 1982. Provides a high quality source of music, sound effects etc. Also used as a playback medium for sound effects etc by large theatres with long running shows, although CDR (Recordable CD) is becoming more affordable by the day.

CHANNEL
A complete control path for signals in lighting or sound equipment.
In a lighting desk, the channels are directly controllable by the lighting operator. Within the desk, the channels are "patched" to a dimmer or dimmers which the desk then sends a signal to depending on the level of the channel.

CHECK
1) Opposite of Build; a smooth diminishment of light or sound level.
2) See Prefade Listen.

CLICK TRACK
Technique for reinforcing the live sound of a musical or band with recorded sound from one track of a tape. The other track of the tape consists of a click used by the musical director to keep the live band and cast synchronised with the recorded band or cast.

CLIPPING
Distortion in a sound signal caused by an amplifier or mixer being unable to handle the level of signal being fed to it.

CLUSTER
Generic name for a grouping of loudspeakers hung in a performance space. (e.g. The central cluster). Also known as ARRAY.

COMB FILTERING
An effect caused by the same sound arriving at a given point at slightly different times. This could be the listening position or a microphone. Comb filtering can be reduced in the case of sound from speakers by employing delays, and in the case of microphones by following the three to one rule. See THREE TO ONE RULE and DELAY.

COMPANDER
Outboard sound equipment. Combination of a COMPRESSOR and an EXPANDER.

COMPRESSOR
A piece of sound processing equipment that ensures all wanted signals are suitably placed between the noise and distortion levels of the recording medium. It evens out the unwanted changes in volume you get with close-miking, and in doing so, adds punch to the sound mix. A Limiter is used to stop a signal from exceeding a preset limit. Beyond this limit, the signal level will not increase, no matter how loud the input becomes. A Limiter is often used to protect speaker systems (and human ears) by preventing a system from becoming too loud.

CONDENSER MIC
(Capacitor Mic) A microphone that uses the varying capacitance between two plates with a voltage applied across them to convert sound to electrical pulses. Condenser microphones need a power supply to provide the voltage across the plates, which may be provided by a battery within the case of the microphone, or it may be provided from an external phantom power supply. A condenser mic is more sensitive and has a faster reaction to percussive sounds than a Dynamic mic and produces a more even response. See Electret Mic.

CONTACT MIC
A microphone that directly picks up the sound transmitted by a solid material. See Boundary Mic, PCC, PZM.

CONTROL ROOM
Room at the rear of the auditorium (in a proscenium theatre) where lighting and sometimes sound is operated from. Known in the US as the BOOTH. The stage manager calling the cues is very often at the side of the stage (traditionally stage left) but in some venues he/she may be in the control room also. The control room is usually soundproofed from the auditorium so that communications between operators cannot be heard by the audience. A large viewing window is obviously essential, as is a "show relay" system so that the performance can be heard by the operators. Obviously if sound is being mixed, the operator should be able to hear the same as the audience, so some control rooms have sliding or removable windows, or a completely separate room for sound mixing. Where possible, the sound desk is moved into the auditorium so that the operator can hear the same as the audience.

CROSS FADE
Bringing another lighting state up to completely replace the current lighting state. Also applies to sound effects / music. Sometimes abbreviated to Xfade or XF.

CROSSOVER
1) A route leading from one side of the stage to the other, out of the audiences view.
2) An electronic filter in a sound system that routes sound of the correct frequency to the correct part of the speaker system. Different speakers handle high frequencies (tweeters) and low frequencies (woofers). Sometimes known as a crossover network.

An active crossover splits the signal from the mixing desk into high, mid and low frequencies which are then sent to three separate amplifiers.

CROSSTALK
A leakage between two audio circuits (e.g. between two channels on a sound mixer).

CUE
The command given to technical departments to carry out a particular operation. E.g. Fly Cue or Sound Cue. Normally given by stage management, but may be taken directly from the action (i.e. a Visual Cue).

CUE TO CUE
("Topping and Tailing") Cutting out action and dialogue between cues during a technical rehearsal, to save time.

CUEING
There is a standard sequence for giving verbal cues :

"Stand-by Sound Cue 19" (Stand-by first)

"Sound Cue 19 Go" (Go last).

DAISY-CHAINING
Connecting items of equipment together by linking from one to the next in a chain. Used for connecting demux boxes to dimmers etc.

DAT (Digital Audio Tape)
See DIGITAL RECORDING.

DBX
A tape-recording noise reduction process.

DCC
(Digital Compact Cassette) Manufactured by Philips in the Netherlands, this format was supposed to be the successor to the compact cassette, but Mini Disk won the marketing war. DCC was discontinued for mass market use in 1996. See DIGITAL RECORDING.

DEAD ROOM
A room with very thick sound absorbers, causing a very dull sound with no reverberation.

DECIBEL (dB)
Relative measurement for the volume (loudness) of sound. One dB is the smallest variation in loudness that the human ear can detect. Also used to measure the difference between two voltages, or two currents. See ZERO DB.

DECK
1) Stage/Rostrum Floor (e.g. "Fly that flat in to the deck")
2) Tape deck/Record deck.

DELAY
Outboard sound equipment that can momentarily stores a signal being sent to part of a P.A. system so that delayed reinforced sound reaches the audience at the same time (or just after) the live sound from the stage. Using the "Haas Effect" the audience cannot detect the sound as amplified.

DI BOX / D.I.BOX
Interface unit to convert the high impedance unbalanced output of an instrument (e.g. Electric guitar) into a low impedance balanced signal of low level suitable for connection to the microphone input of a mixing desk. Usually has an output jack socket so that the instruments unprocessed signal can be passed direct to the musicians amplifier. DI = Direct Injection.

DIAPHRAGM
1) See IRIS.
2) The part of a microphone which responds to sound waves.

DIGITAL
Many electronic devices use digital logic. Information is handled in separate bits (either ON or OFF) rather than continuously variable analogue signals. Most computer lighting boards give a digital multiplexed output, and more and more sound equipment is going digital.

DIGITAL EFFECTS
Reverb, Delay, Phasing, Flanging, Harmonising, Chorusing. More information coming soon !

DIGITAL RECORDING
1) **ADAM** : (Akai Digital Audio Multitrack). 12 track recording onto Video 8 tape. 16 bit, 44.1 or 48kHz sampling rate.
2) **ADAT** (Alesis Digital Audio Tape) Digital 8 track multitrack recording format introduced in 1991. There are two formats of recording: Type 1 (16 bit) Type 2 (20 bit) at two sample rates (44.1kHz and 48 kHz) onto standard SVHS video tapes.
3) **DAT** (Digital Audio Tape) Cassette-like system which has much higher quality than standard audio cassettes. Introduced in 1987, and widely used in gathering sound effects, for news gathering, and for playback of music.
4) **DCC** (Digital Compact Cassette) Rival to DAT which also plays standard audio cassettes. DCC was discontinued in 1996.
5) **Mini Disk (MD)** : Uses magnetic disk technology, rather than tape. A laser heats an area of magnetic disk which is then written to by a magnetic head. When cooled, the magnetic information is read from the disk by laser. Tracks can be named, and are instant start. Very theatre-friendly system.
6) **Direct to Disk** : Uses the hard disk present in most PCs as the recording medium.

DIN
Deutscher Industrie Normen. European standard covering audio connectors and tape equalisation characteristics.

DISTORTION
Usually undesirable result of overloading sound equipment. Reducing the levels can remedy the situation.

DIVERSITY
A way of maximising the quality of received radio signal by using two receivers and aerials tuned to the same frequency - the circuitry automatically silently switches to the strongest signal.

DOLBY
Trade name for a series of noise reduction systems that have become standard on many tape playback machines. Most film soundtracks are produced using this process. Different varieties are found from Dolby B on most personal cassette players, to Dolby SR and Digital, the current state of the art for cinema.

DOOR SLAM
A small wooden box with a heavy door and various bolts and locks used to simulate slamming and other door sound effects offstage.

DRESS REHEARSAL
A full rehearsal, with all technical elements brought together. The performance as it will be "on the night".

DUBBING
The process of copying a sound from one medium to another (eg onto videotape) or for backup purposes, or simply copying sound tapes.

DYNAMIC MIC
Robust type of microphone which picks up the sound on a diaphragm connected to a coil of wire which moves within a magnet. An alternating current is induced into the wire which provides the electrical output. Most dynamic mics have low output impedances of 200 Ohms. See CONDENSER MIC and ELECTRET MIC.

EARTH LOOP
Normally refers to audio interference resulting from a situation where two pieces of sound equipment are connected together over a long distance. The earths of the equipment are at different potential, and this results in an audible hum or buzz. Can be cured by removing the screen connection on one end of the signal cable. Electrical earth connections must never be removed.

EARTHING
Electrical safety requirement that metal parts of electrical equipment are connected to a common earth or ground point so that in the event of a fault, excess current can be carried away, causing the fuse to blow. Known in the USA as Ground.

ECHO
A repeated sound received late enough to be heard as distinct from the source. See REVERB.

EFFECTS, SOUND
1) **Recorded** : Often abbreviated to FX. There are many sources for recorded sound effects, from Compact Discs, to downloading from the internet. May form an obvious part of the action (train arriving at station) or may be in the background throughout a scene (e.g. birds chirping).
2) **Live** : Gunshots, door slams, and offstage voices (amongst many others) are most effective when done live.
See Door slam, Thunder Sheet, Rain box.
See also Compressor, Digital Effects, Exciter, Noise Gate, Reverb.

ELECTRET MIC
A condenser microphone where the capacitor plates are given a charge during manufacture which they retain, therefore requiring no external power supply.

ENHANCER
Sound processing equipment which increases the presence of the vocal track in a mix by adding to the treble information in the signal. Also known as an Exciter.

EQUALISATION
The process of adjusting the tonal quality of a sound. A graphic equaliser provides adjustment for a wide range of frequency bands, and is normally inserted in the signal path after the mixing desk, before the amplifier. See FEEDBACK.

FADE
A fade is an increase, diminishment or change in lighting or sound level.

FADER
A vertical slider which is used to remotely set the level of a lighting or sound channel.

FEED
A power supply to a piece of equipment or installation is termed a "feed". Sound equipment and sensitive computer equipment should have a clean feed - that is, a supply that is free from interference from other equipment.
A signal from one system to another is also known as a feed (for example, an audio signal from the FOH desk to a TV company videoing a concert is known as a feed.)

FEEDBACK / HOWLROUND
A loud whistle or rumble heard emanating from a sound system. It is caused by a sound being amplified many times. (E.g. a sound is picked up by a microphone and amplified through the speaker. The microphone picks up this amplified sound and it is sent through the system again). Feedback can be avoided by careful microphone positioning, and can be reduced by use of Equalisation to reduce the level of the frequency band causing the feedback.

FEEDER
In the US, a main power cable to an installation is known as a feeder.

FIBRE OPTICS
A method of directing light down a very thin glass fibre. Fibre Optics are used mostly in communication, but find theatre applications in star cloths which are black backcloths with the ends of optical fibres poked through, to create a mass of pin pricks of light. A large bundle or harness of fibres may be fed from one light source, sometimes with a motorised colour or flicker wheel.
New technology enables digital sound signals to be sent down optical fibres, replacing heavy and expensive multicore cables.

FILLS
Term for speakers additional to the main PA to improve the sound in particular locations (e.g. "Front fills" add sound at the front of the auditorium which might be just out of range of the main PA stacks at the sides of the stage).

FILTER
1) See Colour. 2) Electronic device to isolate and redirect specific frequencies in a speaker system.

FLIGHTCASE / FLIGHT CASE
Metal framed wooden box on wheels with a removable lid used for transporting equipment between venues. Flightcases

are very strong, and have reinforced corners and edges. Care should be taken when lifting flightcases as they can be very heavy

FLOATS
Early form of footlights using burning wicks floating in oil across the front of the stage. Now applies to anything rigged on the front edge of the stage (eg Float microphones, Uplights / footlights etc.)

FOLDBACK
Means by which musicians can part of the rest of the sound mix (including voices) and how their instruments sound after being amplified. Also enables actors on stage to hear musicians or effects when they cannot hear the output of the auditorium sound system.

FREQUENCY
(measured in Hertz - Hz - cycles per second) The number of times a sound source vibrates each second. A high frequency (HF) sound has a higher pitch and is uni-directional. A low frequency (LF) sound has a lower pitch and is omnidirectional.

FX
Abbreviation for Effect, usually referring to Sound Effects, but can also mean special stage effects.

GAFFA TAPE
Ubiquitous sticky cloth tape. Most common widths are .5" for marking out areas and 2" (usually black) for everything else. Used for temporarily securing almost anything. Should not be used on coiled cables or equipment. Originally known as Gaffer's Tape, from the Gaffer (Master Electrician) on a film set. See PVC Tape.

GAIN
1) The level of amplification given to a signal or of a system.
2) A control of the amount of pre-amplification given to a sound signal on its way into a mixer.

GROUP
A subdivision, permanent or optional, of a lighting board control preset, or a sound desk.

GUN MIC
A highly directional condenser microphone.

HAAS EFFECT
A psychoacoustic phenomenon whereby an audience will focus on an actual sound source if the reinforced sound from speakers arrives 10 - 15 milliseconds later. The setting up of delays can be time-consuming but the Haas Effect can make a vast difference to the perceived quality of the sound in a show. The delays are set up by experimentation rather than by using distance/speed/time formulae.

HEADSET
1) General term for theatre communication equipment.
2) A headphone and microphone combination used in such communications systems with a beltpack

HUNDRED (100) VOLT LINE
Way of sending speaker signals over long distances without losing signal strength. Transformers are used in each speaker cabinet to convert the signal from 100 Volts to a more usable level. (100V is used in the UK, 70.7V in the USA

IN EAR MONITORS
Small headphones worn inside the ear by members of a pop band so they can hear the monitor mix (or the backing track they're miming to) without having lots of monitor speakers onstage. The advent of in-ear monitoring has improved the sound quality of the monitoring for these band members as they no longer have to try to hear the monitors over screaming from the audience. Each member of the group can have their own monitor mix which is guaranteed to be the same in every venue on the tour. Known as I.E.M.s or IEMs for short.

INDUCTION LOOP
System which amplifies audio frequency currents (from a microphone over the stage) around a large loop of cable (around the auditorium) to generate a magnetic field which can be picked up by a hearing aid switched to the "T" position.

INSERT
1) An additional route into a sound desk.
2) An extra lighting state added into the sequence later. See POINT CUE.

INTERCOM
Usually refers to microphone/headset communications equipment. Abbreviated to "comms". Also known as "cans".

INTERVAL MUSIC
Music played in the foyer and/or auditorium during intervals. Most usually Vivaldi's Four Seasons.

JACK
1) Segmented audio connector. Mono Jacks have two connections - tip and sleeve, and are unbalanced. Stereo jacks have three connections - tip, ring and sleeve.
B-type jacks (also known as Bantam jacks) were originally designed for use in telephone exchanges and provide a high quality (and expensive) connection in jackfields.
A-type jacks are cheaper and more common, but more fragile. A type jacks are available in 2 sizes : quarter inch and eighth inch.
2) (US) A hinged brace. In the open position, it holds up a flat or other unit of scenery. A Tip Jack is a combinaton of a jack and castors so scenery can be supported or rolled. When it is in position, it is tipped to vertical. When rolling, it leans backwards.

JACKFIELD
An array of jack sockets ("jills"), providing connections to equipment/outlets etc. A patch panel.

JUMPER
An adaptor from one type of electrical connector to another. For example, a 13 - 15A jumper has a 13A plug and a 15A socket at either end of a short cable. Also applicable to sound cables.

KILL
To switch off (a light/sound effect); to strike/remove (a prop).

KILOWATT
1 kilowatt (1kW) is equal to 1000 Watts. The WATT is a measure of electrical power.

LAVALIER MICROPHONE
Originally, a mic worn around the neck on a string. Now applies to a small "tieclip" microphone. These microphones are used for TV and also in musical productions requiring the amplification to be "invisible". The mic is worn in clothing, in hair / wigs, over the ear or on the face (heavily made-up).

LEADER TAPE
Non-magnetic plastic tape used to begin and end sound tapes and to separate cues on tape. Clear leader tape is used to activate the automatic stop on some playback machines. Leader tape is available in a variety of colours.

LEMO
A small metal multipin connector used for connecting radio microphone heads into the transmitter pack.

LINE LEVEL SIGNAL
"Standard" level at which the inputs and outputs of domestic and professional sound equipment operate. Slight variations are that some equipment works at +4dB, some at -10dB. See MIC LEVEL SIGNAL.

LINE-UP TONE
Signal of known frequency and level used for setting up sound recording equipment levels accurately.

LOUDSPEAKER
Device for converting the electrical signal from an amplifier back into sound waves, most commonly by vibrating a paper cone. Most speaker systems are composed of a number of sources - each designed to handle a specific range of frequencies. See Tweeters and Woofers, Bi-Amplification.

MASTER
1) An overall control on a lighting or sound control board. The Grand Master takes precedence over all other controls. See Submaster.
2) An original (e.g. Master tape, master plan) which should be used only to make a copy from which to work.
3) A Department Head (e.g. Master Carpenter, Master Electrician).

MATRIX OUTPUT
Set of outputs on a mixing desk which allows the user to preset a number of output configurations. eg on a 8 x 8 matrix, each of the 8 group outputs from the channels can be routed to any or all of the matrix output.

MIC LEVEL SIGNAL
Low level audio signal produced by circuitry in microphone. Needs boosting either by a pre-amp or a mixing desk before it can be amplified. Susceptible to interference over long cable runs.

MICROPHONE
Device for converting sound into electrical pulses which can then be amplified or recorded onto tape. Signals from a microphone are very low level and are amplified in the mixing desk to line level. See Dynamic Mic, Condenser Mic, Phantom Power, Pick-up, Radio Mic.

MICROPHONE CAPSULE
An interchangable microphone head that fits onto a pre-amplifier. Many capsule types are available, all of which fit the same pre-amplifier.

MIDI
Musical **I**nstrument **D**igital **I**nterface. Control system established in 1984 for linking musical instruments or other electronic equipment and computers together and storing the control signals the equipment produces for subsequent playback. See MSC, MMC, SYSTEM EXCLUSIVE.

MIXDOWN
The process during which a multitrack recording is balanced and transferred to two tracks (stereo) for playback or reproduction.

MIXER
A desk comprising a number of input channels where each sound source is provided with its own control channel through which sound signals are routed into two or more outputs. Many mixing desks can also change the quality of the sound (see EQUALISATION).
A **Powered Mixer** has an amplifier built into it. Sound sources of varying levels are accepted which can be amplified if necessary.
Also known as a Sound Desk or Sound Board. (See Line Level, Gain).

MMC
MIDI Machine Control. A variation of the MIDI language designed for controlling mechanical equipment (eg Tape Players).

MONITOR
1) An onstage speaker which allows a performer to hear the output of the PA system, or other members of a band.
2) A video display screen (not normally able to receive broadcast TV pictures) used with a CCTV system or a computer.

MONOPHONIC (MONO)
Single channel sound recording, as opposed to STEREOPHONIC, which uses two channels (left and right).

MS
MS stands for Mid and Side. It involves the use of two different types of microphone capsule - a cardioid for the M and a figure-eight for the S. The biggest advantage is that centre sounds are not 45 degrees off-axis as with XY, because the Mid capsule points along the centre-line. This means that there isn't so much of a 'hole' in the centre of the stereo image. The Side capsule is placed at right angles to the M capsule. The M is connected to a mixer channel. The S is split into two and connected to two mixer inputs. The M is panned centre. One of the S inputs must be phase-inverted. Find out which is the left and which is the right and pan hard left and hard right respectively. If set correctly, there will be no noise if the M is switched off because the two S channels cancel each other. Originally, there were problems with reflections and due to the use of two different capsules, although single-point MS mics have been developed which overcome the problem quite effectively.

MSC
MIDI Show Control. A control language which is an extended version of the original MIDI language. In addition to a "go" command, cue numbers and other information can be sent as well (in addition to fault reports and safety checks).

MULTI
Short for MULTICORE.

MULTICORE
A flexible electrical cable composed of several well-insulated cores covered in a strong PVC or rubber covering. Enables a number of different circuits to be carried down one piece of cable. Both lighting and sound multicores are available. Sometimes known as a Multi or Snake.

NAB
National American Broadcast. Standard for tape recording equalisation characteristics.

NOISE GATE
A piece of sound processing equipment that reduces background noise by muting a sound signal when it falls below a certain level, restoring it when the level increases again. Must be used on vocal microphones with care, because it may cut the signal off, although the vocalist is still singing quietly. Also known as an Expander.

OHM
The unit of electrical resistance.

OMNIDIRECTIONAL
See PICK-UP.

OVERHEADS
1) Microphones positioned above a drum kit to pick up the cymbals etc. without getting hit.
2) Microphones positioned over the stage to pick up the overall sound of the concert / production.

PA SYSTEM
Short for Public Address System.

PAD
A switch on a mixing desk input channel which attenuates (reduces the level of) a signal. Used if a loud / high level signal is causing the desk to be overloaded.

PAGE
1) See PAGING. 2) Some theatre announcement systems use the term "PAGE" to mean making a call (e.g. "Can you page Simon to come to the fly floor")
3) A way of increasing the functionality of a control on a lighting desk. For example, most computerised lighting desks with SUBMASTERS will allow you to store more than one lighting state in each submaster. Each group of submasters is given a page number which is used to select which set you want to use. See also SUBMASTER.

PAGING
The act of holding a tab etc. back to allow large items or actors offstage. Also preventing microphone etc cables from getting entangled by pulling / releasing them from offstage as performer walks around.

PAN
1) A control on a mixing desk which allows the operator to position the channel's output in the final stereo image (L - R).
2) A horizontal (side-side) movement of a camera or a moving light. See also TILT.

PARAMETRIC EQUALISER
Equalisation control where the range of frequencies to be boosted or cut can be selected. Allows the "fine-tuning" of the equalisation.

PASSIVE
Opposite of ACTIVE. See ACTIVE.

PATCH
1) (verb) The act of plugging a lantern into a dimmer (e.g. "Can you patch circuit 12 into dimmer 18 please").
2) (noun) The system for connecting lanterns to dimmers (The Patch).
The term also applies to sound - a PATCH BAY is used to connect outboard equipment into the sound desk and to connect sound desk outputs to amplifiers, and amplifiers to speakers.

PATCH PANEL
A board consisting of rows of sockets into which plugs can be connected to route sound signals or power for lighting circuits. Some American systems use a Pin Plug patching system. See also PATCH.

PATCHING
1) To cross-connect lighting circuits around the stage area to a chosen dimmer. Connecting lanterns to dimmers.
2) Using a cross-connect panel which enables any stage lighting channels to the control desk to control any dimmer or group of dimmers. Some large lighting boards have the facility for **soft patching** - a totally electronic way of patching. Some Rock Desks have a **pin patch** which allows groups of dimmers to be allocated to a particular control channel. Also applies to routing of sound signals.

PCC
Phase Coherent Cardoid. See BOUNDARY MICROPHONE.

PFL
See PRE-FADE LISTEN.

PHANTOM POWER
Some condenser microphones require a power supply in order to operate. If this supply is not from a battery within the microphone body, it is known as a phantom power supply. It is usually 48 Volts DC (can be 9 - 52 volts from most mics), and is supplied either by a separate battery pack, or by the sound desk. The supply is termed "phantom" because it is "invisibly" carried down the same microphone cable as the sound signals.

PHASE
Two identical sound waves which are slightly apart in time are said to be out of phase; two identical waves are in phase.

PHASES
Electricity is generated and supplied to large installations as three separate supplies, known as phases.

PHONE PLUG
(US) 1/4" Jack plug

PHONO PLUG
An unbalanced audio connector used for connecting line-level equipment together (eg CD player, tape recorder). Unsuitable for professional use due to lack of durability. Also known as RCA connector, Pin Plug.

PICK-UP
1) Device which, when attached to an acoustic musical instrument, converts sound vibrations into an electrical signal.
2) A way of describing the directional sensitivity of a microphone. An Omnidirectional microphone has equal pick-up from all around, a Cardoid microphone is more sensitive from the front, a Hypercardoid has very strong directionality from the front. A figure-of eight microphone picks up front and rear, but rejects sound from the sides.
3) The action of turning a followspot on a performer. (e.g. "that was a good pick-up", "your next pick-up is downstage left"). A BLIND PICKUP is on a moving performer and requires good hand-eye co-ordination. A SET PICKUP is on a specific area, is preset, and is made on a cue from the stage manager. A SIGHT PICKUP is made visually by the operator to a preset position.

PIN PLUG
See PATCHING, PHONO PLUG.

PINK NOISE
Random sounding audio noise containing all frequencies in the audio spectrum tuned to the response of the human ear. Used with a Spectrum Analyser to set equalisation equipment for a large PA installation. However, the human ear is still a better judge of how a system sounds. See also WHITE NOISE.

PITCH CONTROL
Facility on some sound playback devices for changing the speed of playback, and thus the pitch or frequency of the sound, to match an existing sound, or to fit a particular timeslot. Some Professional CD players have tempo controls which speed up the playback, and then compensate for the resulting increase in frequency using a pitch change. This results in the ability to match the beat of a CD in a disco situation, without the "Pinky and Perky" effect.

PLATE REVERB
Reverb effect produced using a large metal plate. A signal is supplied to an acoustic transducer at the edge of the plate, causing vibrations which are picked up by transducers at other locations on the plate. This type of reverb can be simulated by some digital effects units.

PLOT
1) List of preparations and actions required of technical crews during the performance (eg Sound Plot = list of sound cues and levels in running order.) In the US, the term plot refers to a plan. (eg Light Plot = scale plan showing lighting instruments). See also RUNNING PLOT, STATE PLOT.
2) The basic story thread running through a performance / play which gives the reason for the character's actions.

PLOTTING SESSION
Time during which the plot for each department is prepared (eg Lighting Plotting session)

POINT CUE
A cue inserted during / after plotting between two existing cues. (eg 8.5 is inserted between cues 8 and 9). Most computer lighting desks have the ability to either insert an additional cue in a sequence, or to link to another cue out of the sequence, and then link back again. Inserting cues into a plotted sequence on a manual lighting desk is more awkward, because it is a running plot (where only the changes between cues are noted down).
Sound cues within a sequence should have lettered cues (e.g. 8A is a fade up of Cue 8 and 8B is the fade out).

POP SCREEN
A thin gauze screen placed between a singer and a microphone to reduce vocal "popping" and other breath noise. This noise is particularly produced by pronunciation of plosive sounds (P, B, T).

POP SHIELD / POP FILTER
A foam shield placed over the end of a microphone to reduce the pick up of vocal "popping" and external wind noise.

POWER AMPLIFIER
Converts sound signals of line level (approx 1 volt) into tens of volts, with currents of around 1 Amp to drive speakers.

PPM
(Peak Programme Meter) Meter, often with green/red LED's, giving an accurate indication of the electrical nature of an audio signal (see also VU).

PRE-FADE LISTEN
Often shortened to PFL. Control on a sound mixing desk which allows the user to check the presence of a signal, and its quality before bringing up the fader. Also vital for fault-finding, where the route of a signal can be PFL'ed around the desk until the point where the fault occurs. Also known as CHECK and CUE.

PREFADE / POSTFADE
An output from a sound desk is said to be prefade if it is independent of the channel fader. If it is postfade, the level of the output is relative to the channel fader.

PSU
Power Supply Unit.

PUBLIC ADDRESS SYSTEM
The venue auditorium sound system. Usually shortened to "PA". Most theatres will have a separate sound system for

emergency announcements in all public areas of the theatre. This system may also be used for Front of House calls. The Rear of House calls system often also acts as a SHOW RELAY, conveying the sound of the performance to remote parts of the theatre building.

PUNCH IN
A facility on multitrack recorders which allows you to "drop in" a sound onto a track whilst playing through the tape, sometimes controlled by a footswitch. Useful for correcting mistakes in an already recorded tape.

PZM
Pressure Zone Microphone. See BOUNDARY MICROPHONE.

QUADROPHONIC
A sound system which uses four independent speakers (or sets of speakers). The fore-runner of today's Surround Sound. See Stereophonic.

RACK
A cabinet of standard width (19") into which various components can be bolted. Racks are ideal for touring equipment, are neat, and they allow easy access to the rear and front panels.

RADIO MIC
Device consisting of a microphone **head**, transmitter **pack** with batteries, aerial and mains receiver unit which allows actors and singers to be amplified with no visible means of connection. Almost universally used in musicals where the singers have to be amplified to be heard over the orchestra / band. Used in non-musical shows for sound reinforcement.

RAT STAND
Illuminated music stand.

RCA
See Phono Plug. (RCA = Radio Corporation of America)

RCD
Residual Current Device. Protects the user against short circuit (earth faults) and earth leakage caused by damaged cable or faulty equipment. A RCBO is a combined MCB and RCD, protecting against earth leakage/short circuit and overload. Known as a GFI (Ground Fault Interruptor) in the USA.

RESOLUTION
1) The point during a drama when the plotline reaches a conclusion, and conflict is resolved.
2) A measure of the quality of a video display
3) The quality of a sound sample is measured by the sample rate (e.g. 44.1kHz is CD quality sample rate) and the resolution (either 8 bit or 16 bit normally).

RETURN
1) Flats joined to the DS edge of flats of a set or unit that "return" into the wings. They help mask and also keep the DS edge of a set from looking raw.
2) A financial report given to theatre management staff by the box office manager on a daily or weekly basis setting out the takings for performances.
3) Route for an auxiliary signal back into a sound mixer.

REVERB
(Reverberation) Effect which may be added to sound effects during recording or to a voice during performance. Sustains the sound longer than normal, as if the sound was reverberating around a large building (eg cathedral). Persistance of sound after the source has ceased.

REVOX
Brand name of the once industry standard reel to reel tape recorder. Still enormously popular and universally known.

RF
Radio Frequency.

RIAA
Record Industry Association of America. The standard equalisation to be applied to a signal from a record deck pick-up. Phono pre-amps have RIAA circuitry built-in.

RIBBON MIC
Delicate mic not suitable for high sound pressure levels. Consists of a corrugated conductive foil strip suspended between opposing magnetic poles which is excited by pressure differences between the front and rear of the microphone and induces a current.

RIDING THE FADER
Sound operating technique where the operator constantly adjusts the fader level to maximise level while minimising feedback and background noise.

RIFLE MIC
See Gun Mic.

RT60
Also known as reverberation time, the RT60 is the time taken for an impulse sound to decay by 60 dB. For speech, the RT60 of a space should be lower than for a room used for music. In general, as the volume of a room increases, the RT60 time can be longer. The RT60 time of a room can be estimated using mathematical formulae.

SAMPLER
Electronic device for recording a series of sounds digitally so that they are available instantly for playback. Samplers for theatrical use have a number of independent outputs (normally 8) to which any sound sample can be sent at any time. Samplers can be controlled by a MIDI keyboard or by computer control.

SAMPLING
The technique of recording a sound digitally (translating the analogue audio waveform into a series of electrical ons and offs that can be manipulated by a computer) for subsequent processing, editing and playback.

SEQUENCING
A act of recording digitally and manipulating the MIDI information required to remotely play a synthesizer keyboard or similar device. A sequence of notes.

SFX
Abbreviation for SOUND EFFECTS.

SHIELD*
In an audio cable, a conductive cylinder around one or more center conductors that protects against unwanted electrostatic fields that could induce a signal, heard as a hum or buzz, across the conductors of the cable.

SIBILANCE
Undesirable characteristic of some performer's speech when s, sh or ch sounds are emphasised.

SIGNAL TO NOISE RATIO*
Signal-to-Noise Ratio- The ratio, usually expressed in decibels, of the average signal (recorded or processed) to the background noise (caused by the electronic circuits).

SMPTE (pronounced "Simptee")
Society of Motion Picture and Television Engineers. A timecode for synchronising a piece of music etc on a tape to almost anything else.

SNAKE
See MULTICORE.

SNAP
A lighting or sound cue with no fade time - the cue happens instantly.

SOCAPEX
A multipin connector which can carry a series of lighting or sound circuits. Very robust and designed for touring. Available in 19 pin (6 circuits) and 37 pin (12 circuits) configurations. Sometimes shortened to SOCA. See also LECTRIFLEX.

SOLO
1) On a sound desk, the solo button on each input channel silences all other inputs so that channel alone can be heard. Dangerous to use during a show, but can be useful for fault-finding or testing equipment.
2) On a lighting desk, SOLO mode kills all other channels except the single dimmer you're working with. Again, can be useful for identifying a channel in a large rig, but can be dangerous during a show. Some desks allow you to assign flash buttons to SOLO mode which will turn off all channels except those loaded into that flash button or submaster. This can be used for a quick lightning effect (but it's a bit tacky). On Strand Lighting memory desks, the solo function is called REMAINDER DIM (or REM DIM).

SOUND BOARD
See MIXER.

SOUND CHECK
A thorough test of the sound system before a performance. This will include checking each speaker cabinet individually, and each playback device. In the case of a live concert, this is the session when each instrument is played in turn for the sound engineer to check and fine-tune the sound.

SOUND REINFORCEMENT
Amplifying a voice just enough so that it can be heard, without the audience being aware that it is being amplified.

SPDIF or S/PDIF
Sony and Philips Digital Interconnect Format. Digital link between (usually) CD players and recording equipment. The S/PDIF format can cope with sample rates of up to 96kHz (CD is only 44.1kHz) and 24bit (CD is only 16 bit). S/PDIF followed on from AES/EBU (similar data stream, but different connector).

SPEAKER
See Loudspeaker.

SPEAKON CONNECTOR
Manufactured by Neutrik. A type of shielded, locking multipin speaker connector which can safely carry the high currents from an amplifier needed to drive large speaker systems. Available in 4- or 8-way types, and ideal for bi-amplified systems. The cable version of the connector is male, and the panel mount connector is female.

SPL (Sound Pressure Level)
A measurement of the loudness of a sound.

SPLICE
A join or edit in a sound tape. A splice may be between leader tape and audio tape or between two pieces of audio tape. Splicing tape is the adhesive tape used, a splicing block is used to hold the tape and guide the single-sided razor blade when making the cut.

SQUELCH
Control on a radio microphone receiver for fine-tuning the reception according to the surroundings.

STAGE BOX
A connection box at the end of a lighting or sound multicore cable.

STAGE LEFT / RIGHT
Left/ Right as seen from the Actor's point of view on stage. (ie Stage Left is the right side of the stage when looking from the auditorium.)
Stage Right = OP (Opposite Prompt) French: Cot⁄ Jardin, Netherlands: Toneel Links (translates to Stage Left!)
Stage Left = PS (Prompt Side) French: Cot⁄ Cour, Netherlands: Toneel Rechts (translates to Stage Right!).
NB: The Netherlands and Germany use the opposite to the rest of Europe; i.e. Stage Left UK = Stage Right. The directions are seen from the director's perspective, NOT the actors.

SUB-BASS
That part of a speaker system designed to extend the low frequency range of the system. See also SUBWOOFER.

SUBWOOFER*
(often just SUB) - Speaker dedicated to reproducing very low frequencies. The large cabinet is often placed on the floor

SX
Used by some as a shorthand for SOUND, in the same way LX is a shorthand for Lighting. However, when calling cues, stage management should always say "Sound Cue 12 GO" rather than "SX Cue 12 GO". "Sound" has one less syllable to say, and SX sounds too similar (no pun intended) to LX.
SXOP can be shorthand for Sound Operator. Many venues use FX in the same way, but this can also refer to Stage effects like smoke, pyro etc.

SYSTEM EXCLUSIVE
Part of the MIDI protocol which allows control of one device by another.

TAKE-UP SPOOL
The empty reel on the right hand side of a reel to reel tape deck onto which is wound the tape as it plays through the machine.

TALKBACK
1) On a sound desk, the talkback section enables the sound engineer to talk via a microphone to selected outputs of the desk. If the sound desk is used to feed on-stage monitor speakers for a musical group, the engineer can select a particular monitor feed (e.g. the drums) to politely ask the musician (drummer) to play quieter.
2) Term sometimes used interchangably with HEADSET for the communication system between technical crew on the production.

TAPE LOOP
A continuous loop of tape which produces an "everlasting" sound effect when played. Used for any long sound needed (eg rain, wind) without having to continuously repeat a short effect.

TASCAM
Manufacturer of recording and mixing equipment.

TDIF
Tascam Digital Interconnect Format.

TECHNICAL REHEARSAL
Usually the first time the show is rehearsed in the venue, with lighting, scenery and sound. Costumes are sometimes used where they may cause technical problems (eg Quick changes). Often a very lengthy process. Often abbreviated to the Tech. A DRY TECH is without actors to rehearse the integration of lighting, scenic changes etc. It follows that a WET TECH is a full technical rehearsal with actors and all technical elements, although this term isn't used as often as DRY TECH.

THREE TO ONE RULE
In order to get maximum gain (level) out of a PA system, microphones which are picking up the same sound source (e.g. a chorus on a large stage) should be three times further from each other than from the sound source. This minimises COMB FILTERING.

THUNDER RUN
Long channel down which a cannonball is rolled to give a realistic thunder rumble effect. Built into the roof of some older theatres, but mostly now unused (for safety reasons).

THUNDER SHEET
Large suspended steel sheet with handles which produces a thunder-like rumble when shaken or beaten.

TIE LINE
A sound connection between two patch panels in different parts of the building. For example, there are tie lines between front of house mixing position and the stage to reduce the need for additional cables through the auditorium.

TRACK
1) Metal structure with rails on which curtain runners are placed to enable curtains to open and close smoothly.
2) A sideways movement of a flying piece, or flown actor. See FLYING HARNESS.
3) Separate audio recording channel. Most playback / recording devices have two tracks - left and right. Some are used for MULTITRACK RECORDING and allow either four or eight tracks to be recorded onto standard media (see also DIGITAL RECORDING). Many more tracks can be recorded onto computerised systems. The most important feature of a multi-track system is the ability to record and playback at the same time (e.g. Recording vocals on track two with a pre-recorded piano on track one.)

TRANSDUCER
A device that converts energy from one form to another. A microphone is a transducer that converts sound wave energy into electrical pulses.

TRIPE (bundle)
Bunch of cables tied or taped together into a single unit.

TWEETER
Part of a speaker system designed to handle the high frequency part of the signal.

UPSTAGE
1) The part of the stage furthest from the audience.
2) When an actor moves upstage of another and causes the victim to turn away from the audience he is "upstaging". Also, an actor drawing attention to himself away from the main action (by moving around, or over-reacting to onstage events) is upstaging.

VCA
Voltage Controlled Amplifier. Way of controlling sound level remotely from a physical fader. With a VCA sound desk, the faders control the VCA, which then controls the sound signal. Any faults etc in the fader do not affect the clarity of the output. More desk automation is possible with VCA's, as a particular VCA (or group of VCA's) can be allocated to any fader, or can be controlled by an outside controller.

VISUAL CUE
A cue taken by a technician from the action on stage rather than being cued by the stage manager. Often abbreviated to "Vis".

VOLTAGE
The pressure at which electric current is available. The UK standard voltage is 230 Volts. The American standard is 110 Volts.
The scientific name for Voltage is Electromotive Force.

VU METER
(VU - Volume Unit). Pointer and scale meter which indicates the average level of a signal. Misses any transients and spikes that lead to a clipped signal. See PPM.

WALLA
General background hubbub sound effect - named after the sound actors make to create the effect.

WATTS
Unit of electrical power derived from the current (or "quantity" of electricity) multipled by the voltage (or "pressure" at which the current is delivered). Stage lighting equipment is rated in Watts (or Kilowatts - 1kW being equal to 1000W). This refers to the amount of power required to light the lamp. A higher wattage lamp requires more power and gives a brighter light output.

WAVELENGTH
The distance from one point on a vibrating wave to the same point on the next wave. The lengths of the sound waves (wavelengths) we can hear range from one inch to 40 feet. High frequency sounds have short wavelengths (and are more directional), low frequency sounds have long wavelengths (and are less directional). In lighting terms, blue light is short wavelength, green is medium and red is long wavelength. Beyond visible light are the short wavelength Ultra Violet light and the long wavelength Infra Red light. Wavelengths of light are measured in Angstroms.
See also FREQUENCY.

WEDGE
A wedge-shaped foldback speaker. Angled so that it can sit on the stage floor and point up at musicians

WHITE NOISE*
TO BE DEFINED. See also PINK NOISE.

WOOFER
Part of a speaker system designed to handle the low frequency parts of the signal.

WORKSTATION
1) A PC and Monitor.
2) A synthesiser keyboard which also contains a sequencer and other MIDI software.

XLR
Multipin metallic connector. (3 pin for normal sound use, 5 pin for DMX, Colour Scrollers etc). Sometimes called Cannons after the original manufacturer.
The UK standard for wiring the 3 pin connector is as follows : Pin 1 (Screen), Pin 2 (+ve / "hot"), Pin 3 (-ve, "cold"). (Xternal, Live, Return).
A 5 pin connector for DMX512 use has the following connections: pin 1 = screen, pin 2 = data -ve ("cold"), pin 3 = data +ve ("hot"), pin 4 and 5 are not used by many manufacturers. A comparison is made between the signals carried by the two data cables, and any differences are cancelled out, meaning that noise/data error reduction is very effective.

XY
A stereo technique whereby two identical microphones are placed next to each other with each mic being pointed 45 degrees off-axis from the centre-line of the action. This technique attempts to overcome the coverage problems of AB, although it is still affected by reflections off the two mics. The other disadvantage is that sounds from the centre of the stage arrive 45 degrees off-axis, where the response of a mic is not as good as 0 degrees. This can appear to leave a 'hole' in the middle of the stereo image. The mic on the left (as you are facing the action) picks up sounds from the right, so it is panned hard right at the mixer, while the other is panned hard left. See AB and MS.

ZERO DB
The common reference point when discussing sound levels. Levels above 0dB are expressed as positive (+5dB) and those below as negative (-20dB)

Lighting

ACN
Advanced Control Network. New show control protocol being developed by ESTA using ethernet. Designed to improve on the limitations of DMX512.

ADB
(Manufacturer) Belgian manufacturer of lanterns, control desks and dimming equipment. Named after the initials of it's founder, Adrian de Backer.

ADDRESS*
Each item of equipment controlled by DMX512 has an address, which is the first DMX control channel to which it will respond. For example, in a situation where you have three 6-way dimmer racks, the first should be addressed to 1, the second to 7 and the third to 13.

AERO
A type of high intensity Par lamp that derives its name from its use as an aircraft landing lamp. The true Aero is 28V and 250W, although there are many variations. The lamp has a very tight beam.

ALPHAPACK
(Trade Name) Portable 3 way dimmer pack manufactured by Zero 88.

AMX-192
See MULTIPLEXED SIGNAL.

ANALOGUE SIGNAL
A continuously variable signal that can have any value over a given range.
1) In lighting: an analogue voltage within the range 0 to 10 Volts can have values of 0, 2, 8.785 or any value between. Most dimmers require an analogue voltage in order to operate (from 0 to -10V or 0 to +10V depending on the manufacturer). Most lighting control desks produce a digital multiplexed output, which is converted by a demux box to an analogue signal for the dimmer. See also Digital dimmer.
2) Sound: An analogue recording will record the exact waveform of the original sound, simply converting it to an electrical signal at the microphone, and back into air movement at the speaker. See DIGITAL.

ANGSTROM
Unit of measurement of length (e.g. for wavelengths of light). 1 Angstrom is equal to one ten billionth (1×10^{-10}) of a metre. The unit is named after the Swedish physicist Anders J. +ngstr˜m.
See WAVELENGTH.

ANSI / A.N.S.I.
American National Standards Institute. Three letter ANSI codes are used in the US to identify lamps.

ARC LIGHT
See DISCHARGE LAMP.

ARCHITECTURAL LAMP
A type of linear filament lamp with contacts at 90 degrees to the filament which can gives the appearance of a continuous line of light (similar to neon, but dimmable).

ARCLINE
(Trade Name) A coloured plastic tube containing a number of small strobe units which, when triggered, flash in sequence down the tube. Many tubes can be connected together.

ARTISAN
(Trade Name) Moving light control console made by Vari*Lite.

ARTNET
Ethernet-based lighting control protocol, developed by Artistic Licence. ArtNet can carry up to 256 DMX512 universes on the ethernet saving on cable runs. With the development of wireless networking the possibilities are endless.

AWG
American Wire Gauge. US system for measuring the thickness of wire. The lower the number, the thicker the wire.

BAFFLE
1) A sheet of material used to prevent a spill of light in a lantern or in part of a set.
2) A panel in a loudspeaker cabinet designed to reduce back interference noise by isolating the front and rear of the loudspeaker diaphragm.
3) A panel in an auditorium positioned so as to reduce sound reflections and improve the acoustics of the space.
4) What most of this jargon will do to any non-technical theatrical type.

BALLAST
A unit used in conjunction with discharge lamps containing capacitors, inductors and other start-up circuitry. The inductor is initially used to develop a high potential (voltage) to strike the discharge and is then used to limit the current flow while the lamp is lit.

BALLYHOO
(US) Swinging a followspot beam around in a figure of eight pattern. A more random effect is sometimes known as an RKO (after the searchlights used in the RKO Pictures movie logo.

BARE ENDS
Term to describe an electrical cable which has no connector at one end (for example, a SPEAKON to BARE ENDS cable is used to connect the terminals of a speaker cabinet to a speakon socket, and a 63A socket to bare ends might be used to wire in a temporary supply from a power distribution board before connecting equipment. Any installation work of this sort should only be carried out by a qualified electrician, and should never be done "live".

BASE PLATE
A metal plate which prevents damage to floors when using scaffolding or trussing.

BAUD
(Bits per second) Measurement of the speed of electronic communications protocols. DMX512 operates at 250,000 baud (i.e. 250,000 electronic signal changes per second).

BIFOCAL SPOT
Profile lantern with two sets of shutters, one of which produces a hard edge, and one a soft edge. Not necessary in zoom profiles, because this requirement is fulfilled by two lenses.

BINARY*
BIT = Binary Digit. More information coming soon.

BLEEDING
1) Dimmers which are incorrectly trimmed are said to bleed. That is, the dimmer still gives a small output, causing the lantern to glow, when the control signal is at a minimum.
2) A contrasting colour paint still showing through a newly-applied top coat is said to be bleeding.

BLONDE
2000W open-faced flood lamp used in film / TV lighting. So-called because of it's yellow/gold paint finish. See also REDHEAD.

BOWENS
Short for Bowens Flash Unit. Instrument which produces a bright white flash when triggered. Used by professional photographers. Unlike a STROBE, the Bowens unit needs to charge up between flashes (around 10 seconds) so is unsuitable for the same applications, but is ideally suited for recreating bright lightning flashes on stage.

BOX BOOM
US term for a front of house vertical lighting position (predominantly sidelight).

BOX TRUSS
See TRUSS.

BUBBLE
1) (especially TV and Film) Jargon for a replacement lamp.
2) The glass part of a lamp.

BUSBAR
Metal bar carrying incoming electrical supply into which portable dimmer racks or other large power requirements can be wired directly. An enclosure containing busbars is a Busbar Chamber.

CABLE GRIP
A U-shaped clip and saddle used for terminating wire rope. Also known as a Bulldog, Dog Grip or Wire Rope Clip.

CAMLOCK
(Trade Name - Crouse Hinds - CAMLOK) Single pole connector used on professional power distribution & dimming systems. A separate connector is used for each phase/neutral of the supply.Originally developed for touring concerts, as power demands increase it's finding more use in theatres.

CAN
Advanced Control Network. A new (2003) ethernet-based control protocol between control desk, dimmers & moving lights. Developed by ESTA and Strand Lighting. DMX nodes are used to communicate with non-ethernet devices.

CAST LIGHTING
Canadian creators of WYSIWYG software.

CHAIN HOIST
Manually operated or electrically driven hoist for lifting scenery and lighting equipment. The chain hoists are rigged to fixed points in the venue. Commonly used to lift lighting truss into position for touring shows or concerts.

CHIAROSCURO
(n.) In Lighting or Scenic design (and the Art world), Chiaroscuro means the use of contrasts of light and shade, especially in order to enhance the depiction of character and for general dramatic effect. Many painters are said to be masters of Chiaroscuro (especially Rembrandt, Caravaggio etc.) From the Italian words *chiaro* 'clear, bright' and *oscuro* 'dark'.

CHOPPERS
(Followspot term) Two horizontal masking shutters used in followspots to shape the beam above and below.

CID
(Compact Iodide Daylight) A high intensity discharge lamp that produces a light similar in colour temperature to daylight approx. 5500K). A 1000W CID lamp produces 2.5 times more light than a 2000W tungsten halogen source.

COLOUR CORRECTION
The use of colour filters to compensate for the different colour temperatures of different light sources. Important in lighting for TV and film.

CONCAVE
Lens shape. Edges are wider than the centre of the lens. Useful to remember that "caves" go inward.

CONDENSER LENS
Loosely applied to any spotlight lens which condenses diverging rays into a beam, but more correctly to the short focus combination of two or more lenses in a jacket used for illuminating a slide or effect disc. Also used in some profile lanterns and followspots to produce a smoother light (especially for gobo work).

CONVEX
Lens shape. Edges are thinner than the centre of the lens.

COVE
US for front of house catwalk lighting positions. Also "Balcony Rail".

CROSBYS
US for saddle and "U" cable clamps (from the manufacturers name).

CSI
(Compact Source Iodide) A high intensity discharge lamp. Most often used in followspots, because it has a colour temperature (approx. 4000K) close to that of the tungsten halogen lamps.\

CUE STACK
Section of a lighting desk which allows a list of pre-plotted lighting states to be "played back" on the push of a button. These lighting states normally have fade times allocated to them. Lighting desks designed for theatrical use will have this

as the primary control, but a rock desk will have more "hands on" control as a priority, only providing a cue stack for occasional use.

D54
See MULTIPLEX.

DAISY-CHAINING
Connecting items of equipment together by linking from one to the next in a chain. Used for connecting demux boxes to dimmers etc.

DIMMER DOUBLING
A system designed by ETC where two ETC lanterns can be connected to a single ETC dimmer, and have different intensities. It only works with 115V / 60Hz supplies (e.g. USA). A special adapter ("twofer") is connected to the dimmer output. This contains a series of diodes which split the AC sine wave into two halves (positive and negative). Each half is sent to a separate socket on the adaptor and from there to a modified ETC Source Four lantern with a 77 volt lamp. Using these lower voltage lamps means that full intensity is achievable using only half the AC wave. The system will not work in the UK or other countries with 50Hz power supplies as the flickering of the lamps is too noticeable.

DIMMER LAW (Control desk)
The dimmer law in a lighting desk defines the relationship between the control value (fader position) and the console output value (outgoing DMX level).
Submitted by Andre Broucke

DIMMER LAW (Dimmer)
The dimmer law defines the relationship between the incoming DMX control value and the dimmer output RMS voltage. Common dimmer laws are "linear RMS voltage" and "linear light output". Around the rated lamp voltage the light output is quite sensitive to voltage variations (a slightly lower voltage can also improve lamp life). If the dimmer is set to "linear light" and you fade from 100% to 95%, the light output will be reduced by 5%. If you set the dimmer to "linear RMS voltage" and you fade from 100% to 95%, the light output will be reduced by more than 5%.
Submitted by Andre Broucke

DISCHARGE LAMP
A high-powered source of light produced by means of an electrical discharge between two electrodes. An arc light, for example uses a discharge between two carbon rods which are manually or automatically fed together as they are burnt up. The use of this type of lighting is restricted to non-dimming applications such as followspots and projection, where dimming is achieved by mechanical means. Many of the new generation of moving lights use discharge lamps, dichroic filters and mechanical dimming shutters.
See BALLAST, CSI, CID, MSR, HMI, HTI, Xenon, MBI.

DISCONNECT
(US) Also known as a COMPANY SWITCH, this is a large capacity power connection point on/near the stage which touring companies can use to connect their equipment.

DISTRIBUTION BOARD
System of interconnected fuse carriers and cabling that routes an incoming power supply to a number of different outputs. Known colloquially as DISTRO.

DISTRO / POWER DISTRO
See DISTRIBUTION BOARD.

DMX512-A
See MULTIPLEXED SIGNAL.

DOME
1) (Aus) Follow spot location usually at rear of the upper gallery. Also referred to as BIOBOX (shortened version of BIOGRAPH BOX, after it's original function as a cinema projection box). 2) (Aus) A Followspot in any location (from the above).

DONUT
A metal plate with a hole in the middle inserted in the colour runners of a lantern to sharpen focus (in the case of a profile) or reduce spill.

DOUSER (US)
A metal flag used in larger followspots and projection equipment to cut off the light beam without cutting off the electrical supply. Discharge lamps need a period of cooling down when they are turned off before they can be turned on again, so they should not be switched off if needed again within about two hours.

DRIFT WIRE
A length of suspension wire of standard length with eyelets at each end between the counterweight bar and the top of the scenic piece flown from it.

EARTH SPIKE
Copper rod inserted into the ground to maintain earth continuity (especially when using generators etc.)

EARTHING
Electrical safety requirement that metal parts of electrical equipment are connected to a common earth or ground point so that in the event of a fault, excess current can be carried away, causing the fuse to blow. Known in the USA as Ground.

EGGS
Slang term used for Strand Pattern 123's, due to their shape.

EMF
Abbreviation for **E**lectro**m**otive **F**orce, or VOLTAGE.

EQUITY LIGHT
See GHOST LIGHT.

ERF / E.R.F.
(US) Short for Ellipsoidal Reflector Floodlight. See also ERS.

ETHERNET
Computer networking protocol which is installed on many new lighting desks, to allow networking between the main desk, dimmers, and remote desks around the theatre.

EXCITER
1) See ENHANCER.
2) **Exciter Lamp** - the lamp in a film projector that shines through the optical soundtrack and enables it to be read by a light sensor.

F.B.O.
Abbreviation for Fade to Blackout.

FEEDER
A main power cable to an installation is known as a feeder.

FESTOON
1) See Swag
2) Describes tabs which adopt a sculpted shape.
3) A length of cable incorporating a number of lamp holders used for outdoor party lighting etc. Available in multi-circuit form so that the lamps can be "chased".

FIBRE FRAME
A gel frame made from heat resistant fibres, which doesn't get as hot to the touch as a standard metal frame.

FIELD
Refers to the spread of light intensity across a beam. Most profile lanterns have an adjustable field. A Flat field has an even distribution, a peak field has a "hot spot" in the centre of the beam. A flat field is essential when using gobos. See Profile.

FLOATS
Early form of footlights using burning wicks floating in oil across the front of the stage. Now applies to anything rigged on the front edge of the stage (eg Float microphones, Uplights / footlights etc.)

FLOORPOCKET
An electrical socket mounted under a flap in the stage floor.

FLUORESCENCE
The property of some materials to glow when subjected to light. This normally refers to ultraviolet light, although blue visible light (along with many other colours) can cause fluorescence. The materials degrade the UV wavelengths into longer and therefore visible reflected rays. See also Phosphorescence.

FLYING PIG SYSTEMS
(Manufacturer) Makers of the Wholehog / Hog range of lighting control desks.

FULL UP FINISH (FUF)
A shorthand note for manual desk lighting operators to bring all relevant dimmers to full for the end of a song / finale of a show to "draw the applause". Still applies for the snap build on the last beat of a song.

FUZZ LIGHT
A lamp with a revolving mirror and a coloured plastic dome. Gives a "police light" effect. Usually 12 Volt or 240 Volt operation.

GALAXY
(Trade Name) Large computerised memory lighting desk. Previously manufactured by Rank Strand (now Strand Lighting)

GAM
(Manufacturer) USA based manufacturer of lighting gels, gobos and accessories. GAM stands for Great American Market. See COLOUR FILTER, GOBO.

GEMINI
(Trade Name) Medium size computerised memory lighting desk with 180 channels. Previously manufactured by Rank Strand (now Strand Lighting)

GENIE
(Trade Name) A range of mobile access platforms or lifting devices with either hand-cranked or compressed air lifting mechanisms.

GHOST LOAD
A lamp or group of lamps used to smooth out the waveform from electronic dimmers when using an inductive load(ballasts, transformers) rather than a resistive load (lamps).

GHOSTING
A method of determining the exact position of a followspot∆s beam by faintly exposing it on a darker area of the stage or upon the drapes. Often done just before a "pick up" so the operator can have the lantern aimed and ready. A more professional practice is to use sights to line up a followspot.

GHOSTLIGHT / GHOST LIGHT
(US) A light left burning overnight on stage to keep friendly spirits illuminated and unfriendly spirits at bay. Also believed to keep the theatrical muse in a "dark" theatre, and to stop people tripping over bits of scenery when they come into the theatre in the morning.
Also refers to the light emitted by a lantern when a dimmer has not been "trimmed" correctly, and is leaking.
Also known as the "Equity Light". See link below for more information.

HALOGEN CYCLE
Chemical process occurring in Tungsten Halogen lamps which makes them possible. During the lamps life, Tungsten evaporates from the filament, and would normally deposit itself on the glass wall of a Tungsten lamp, causing it to blacken, and causing the output of the lamp to reduce until it finally blew. In a Tungsten Halogen lamp, the Tungsten combines with the Halogen gas elements present in the lamp envelope and is re-deposited back onto the filament. This process needs a very high temperature to operate, so Tungsten Halogen lamps are able to be a lot smaller, and run a lot hotter, than their Tungsten equivalents. See also Tungsten Halogen.

HIGH HAT
See TOP HAT.

HOOK UP
A Hook Up is paperwork generated by the Lighting Designer for a show. It lists connections or layouts between number systems. For example, a Channel Hook Up lists the channel numbers used on the lighting plan alongside the dimmer numbers into which they're connected, and a brief text description of that channels function.

HOWIE BATTEN
(After Howard Eaton) This is a two circuit (two colour) 120V per circuit MR16 batten developed by Howard for lighting cloths at close proximity. A row of these hung above a cloth allow you to light the cloth where there is little space. They have also become popular as footlights.

IMPEDANCE
A term for the electrical resistance found in a/c circuits. Affects the ability of a cable to transmit low level (e.g. sound) signals over a long distance. Measured in Ohms. Speakers are rated according to power handling capabilities (Watts, W) and impedance (Ohms).

INSTALLATION
1) An electrical system in a particular building (e.g. "the stage lighting installation was tested last year")
2) A piece of art designed to transform a particular room or building into something other than a room in an art gallery. Installations often use complex audio-visual equipment and can be intensely immersive experiences. As with all art, they can also be rubbish.

JONES PLUG / JONES SOCKET
Type of multipin connector used on some lighting desks for analogue outputs.

KICKER LIGHT
Lanterns placed to the side of the actor to maximise the sculptural quality of the light are sometimes known as KICKERS.

KVA
Kilo-**V**olt **A**mps. Unit of electrical power.

LASER
Acronym of **L**ight **A**mplification by **S**timulated **E**mission of **R**adiation. A very high energy beam of light that remains virtually parallel throughout its length. Visible in the air only when a haze of smoke or dust is introduced. Great care is required when using lasers as this energy can cause permanent damage to the retina of the eye.

LCL
Abbreviation for Light Centre Length. This measurement (in mm) is the distance between the top of the lamp base and the optical centre of the filament. This measurement is critical as it ensures that for a particular lantern, the filament is at exactly the correct position for maximum light output and efficiency. Many different lamp types exist, but there are far fewer lamp-base types, meaning it's possible to insert the wrong lamp into a lantern very easily, resulting in poor output and efficiency.
See also MOL.

LED / L.E.D.
Light Emitting Diode. LED technology is becoming extremely useful in the areas of architectural lighting and video walls. LED light sources are becoming brighter and cheaper. They are extremely efficient, and give off very little heat, making

them ideal for display or architectural work. LED video walls are in use all over the world - they are more efficient and lighter in weight than projection alternatives.

LEE
(Manufacturer) UK based manufacturer of lighting gels. See COLOUR FILTER.

LIGHT JOCKEY or LJ
Danish slang for Lighting Designer.

LIGHTJOCKEY
Club / DJ control and visualisation software by Martin.

LINK
See POINT CUE.

LINNEBACH PROJECTOR
Optically simple lensless system for projecting a shape from a gel or glass slide etc. onto a set or cloth. The slide is placed in the front runners of the projector which is a floodlight (with a point source lamp, and no reflector). Often used for shadow effects or simple scenic projection. The projector was developed in Germany by Adolphe Linnebach (1876-1963) in 1916 at the Court Theatre, Dresden. In order to get a sharp image, the lamp filament should be as small and as bright as possible, with adjustment to move it towards and away from the slide. A high intensity low voltage lamp is often used for this purpose.

LOBSTERSCOPE
A mechanical device that reproduces the flashing "motion-freezing" effect of a strobe. See also KK WHEEL.

LOW SMOKE
Smoke that has been chilled as soon as it comes out of the smoke machine. This causes the smoke to lay close to the floor. Use fast dispersing smoke for this effect because when the smoke heats up in the air, it will rise.
Low Smoke is much safer to work with than DRY ICE, which produces a longer-lasting effect but is more expensive.
See also DRY ICE.

LUX
A measure of the level of illumination on a surface (1 lumen spread over 1 metre).

MAINTAINED LIGHTING
See Secondary lighting.

MAROON
An electrically detonated pyrotechnic device giving the effect of a loud explosion. Made from gunpowder encased in stout cardboard or string. Must be used within a metal bomb tank. Originally developed in the second half of the last century to simulate the sound of cannon. It was often used to call out the volunteer lifeboat crew in an emergency.

MASK
1) Form of theatre where actors faces are covered with masks.
2) Early word for GOBO.

MAXXYZ
Moving Light console produced by Martin.

MBI
Metal Halide discharge lamp. See also DISCHARGE LAMP.

MEATRACK
Wheeled rack for transporting a number of pre-rigged six-lamp bars or lanterns.

MIMIC
The VDU associated with most medium and large lighting desks has a detailed mimic of the level of all dimmers and other associated information.

ML
Short for MOVING LIGHTS.

MOGUL BASE*
A type of lamp base. More information coming soon‡

MOL
Abbreviation for Maximum Overall Length. This measurement (in mm) is the length between the ceramic lamp bases at each end of a double ended (linear) lamp, such as that used in floods and some discharge lamps.
See also LCL.

MOLEFAY
(Trade Name) 8-lamp flood lantern used for washing large areas of stage with colour, or as an audience "blinder" for a concert. Sometimes fitted with colour scrollers for maximum flexibility. Consists of 8 PAR 36 ACL (AirCraft Landing) lamps.

MR16
A 12 Volt lamp dichroic lamp commonly used in place of a Par 16 lamp in BIRDIES. See BIRDIE.

MSDS
Material Safety Data Sheet. Form available from manufacturers of, for example, smoke fluids. Lists any hazardous ingredients and other safety-related data about the product.

MSR
(Medium Source Rare earth) High efficiency discharge lamp with a high colour temperature (approx 5600°K). Provides around 50% more light output than a incandescent lamp of the same wattage.

MULTI
Short for MULTICORE.

NEON
1) A type of discharge lighting generated by a high voltage across two oppositely charged electrodes at opposite ends of a long, thin glass tube filled with neon gas. As the electrical charge flows between the electrodes, electrons collide with neon atoms causing them to give off energy in the form of visible light. Different colours can be obtained by mixing other gases, or by using fluorescent coatings. Mostly used for advertising signs - the glass tube is bent to form letters.
2) A small mains voltage indicator lamp.

NEUTRAL DENSITY FILTER
(ND) Lighting filter which reduces the brightness/intensity of a light source without changing its colour value. Used extensively in TV/film for reducing the intensity of discharge lamps or natural light sources (e.g. windows). Rarely used in theatre as dimmers fulfil a similar function (although as incandescent lamps are dimmed, the colour temperature gets warmer).

OHM
The unit of electrical resistance.

OVERLAY
(Followspot term) The wider of two followspot beams covering the same performer.
(i.e. lamp one in a pink 'bust' (head-to-shoulder) and lamp two in a blue full-body overlay (head-to-toe).

PAN
1) A control on a mixing desk which allows the operator to position the channel's output in the final stereo image (L - R).
2) A horizontal (side-side) movement of a camera or a moving light. See also TILT.

PAR BAR
See SIX LAMP BAR.

PARABOLIC REFLECTOR
See PAR.

PARALLEL
1) The folding frame that forms the base of a readily portable platform.
2) The opposite of SERIES when referring to wiring two loads into one outlet. The two loads share the available current, but are both given the same voltage.

PARNEL
Brand name for a wash light manufactured by ETC. It's a cross between a soft-edged focussable Fresnel and a ETC Source Four PAR.

PEPPER's GHOST
Trick used to make a ghost appear on stage next to an actor. A sheet of glass is hung across the front of the stage so that the image of an actor standing in the orchestra pit appears to float on stage. First shown at the Royal Polytechnic Institution in London by J.H.Pepper on Christmas Eve, 1862. Following many subsequent events, Charles Dickens used it during readings of *The Haunted Man*. Several plays were written specially to use the effect around 1863, but the long-term future of the effect was limited by the fact that the ghost couldn't speak. Peppers Ghost is now used to great effect in smaller scale applications like the Haunted Mansion in Disney theme parks.

PHOENIX
A family of medium to large computerised lighting consoles manufactured by ADB. The desks use ISIS software running on an external PC-based processing unit which allows advanced networking possibilities.

PHOSPHORESCENCE
The property of some materials that can store light energy and glow in the dark.

POLE OPERATION
A mechanical means whereby pan (horizontal rotation), tilt (up and down) and focus of a lantern may be adjusted by a pole from floor level. Commonly used in TV & Film studios where fast resetting of positions is necessary.

PREFOCUS CAP
A type of lamp base which ensures that the filament is correctly lined up relative to the reflector and lens.

PREHEAT / PRE-HEAT
Smoother lighting builds from zero are achieved when a lamp filament has been warmed (at approx 15%) in the previous state.
Preheating lamps MAY prolong the life of the lamp by reducing the thermal "shock" of going to 100% instantly. It's good practice to preheat lamps where possible, and some computerised lighting desks provide this function at the push of a button.
See also RIG CHECK.

RDM
Remote Device Management. New lighting control protocol (officially ANSI E1.20 standard) currently under development at ESTA, which allows two-way communication over standard DMX512 cable. See also MULTIPLEXED SIGNAL.

REDHEAD
800W open-faced adjustable flood lamp used in film / TV lighting. So-called because of it's red paint finish. See also BLONDE.

REMAINDER DIM
A command used on Strand Lighting memory control desks which is comparable to the SOLO function on other desks. For example, entering CH 5 REM.DIM will put channel 5 at full and will put everything else at zero.

RFU
Remote **F**ocus **U**nit. Name used by ETC for a remote control for the lighting desk. Same as RIGGERS CONTROL.

RIGGERS CONTROL
A remote control for a lighting desk which enables dimmer channels to be called up from the stage when rigging or focusing. Usually battery powered, sometimes with infra-red (cordless) control. A Designers Control allows whole memories to be called up and/or played back, as well as individual dimmers.

ROCK DESK
Lighting control desk designed for rock concerts, the main feature of which is the ability to group a set of dimmers under the control of a series of flash buttons, enabling the operator to "play the lights" in time to the music. These desks usually have a very good lighting effects capability.

ROSCO LABS
(Manufacturer) USA based manufacturer of lighting gels and scenic products. See COLOUR FILTER.

SAMOILOFF EFFECT*
TO BE DEFINED

SCANNER
General name for a moving mirror lantern, especially those used in discos, rather than the more flexible units used in theatre.

SECONDARY LIGHTING
Separately powered lighting system for use throughout the building in the event of failure of the primary system. Usually battery powered. **Maintained lighting** is on all the time, regardless of changes in the stage lighting, and is battery backed-up.
Non-maintained systems only light in the event of power failure or an alarm condition.
Secondary lighting systems should be regularly checked by an electrician to ensure they operate correctly.

SEMIOTICS
The study of signs - many conventions in lighting design rely on signs (blue must be night-time, red is evil etc.)

SHORT NOSE
Normally refers to a Short-Nose Parcan - a lighting instrument that uses a normal size PAR lamp, but has been shortened to either make it less obtrusive, or to get a wider beam angle.

SIGHTS
A pair of metal rings attached to the side or top of a followspot which enables the operator to accurately line up the beam (by looking down the length of the followspot through the rings) before turning it on. See GHOSTING.

SILHOUETTE
1) To light the cyclorama or a piece of upstage set in such a way that the actors are cast into shadow. Can be a very dramatic effect.
2) (Trade Name) A range of 2000W lanterns manufactured by CCT in the UK.

SIX LAMP BAR
An internally-wired lighting bar, designed for touring, with six socket outlets terminated in a multi-way connector (e.g. SOCAPEX or LECTRIFLEX). Often pre-rigged with lanterns (eg Parcans). Stored in Meatracks. A bar pre-rigged with Parcans is sometimes known as a PAR BAR.

SOCA
See SOCAPEX.

SOFT PATCH
See PATCHING.

SOLO
1) On a sound desk, the solo button on each input channel silences all other inputs so that channel alone can be heard. Dangerous to use during a show, but can be useful for fault-finding or testing equipment.
2) On a lighting desk, SOLO mode kills all other channels except the single dimmer you're working with. Again, can be useful for identifying a channel in a large rig, but can be dangerous during a show. Some desks allow you to assign flash buttons to SOLO mode which will turn off all channels except those loaded into that flash button or submaster. This can be used for a quick lightning effect (but it's a bit tacky). On Strand Lighting memory desks, the solo function is called REMAINDER DIM (or REM DIM).

SOUND TO LIGHT
A facility which can link the effects panel on a lighting board to an audio input which detects treble, mid and bass beats, and can flash lights or trigger effects in time to those beats. First used when electronics allowed it cheaply in the late 1960's/

SOURCE FOUR
(Trade Name) (Also known as S4) Range of lanterns manufacturer by ETC.

SPOT SEAT
Chair for suspending followspot operator above a stage / auditorium. Normally rigged on a truss system. The operator gets to the seat up a wire rope ladder, and is strapped into the seat. He or she will normally wear a harness when getting to the chair for extra safety. The seat itself is an adapted car "bucket" seat.

STEP
1) A control on some lighting effects boards which enables the operator to "step" through a chase effect in time to music etc.
2) Each separate component of a lighting effect is called a step. A chase effect with four channels flashing on will have four steps.

STRIPLIGHT
1) A thin linear filament lamp similar to an Architectural, but having contacts at the ends of the lamp. Available clear or opaque.
2) (US) See BATTEN.

SVOBODA
Low voltage lighting batten used to create a light curtain. Named after Josef Svoboda, the Czech scenographer (1920 - 2002). The original Svoboda light batten is still manufactured by ADB. Josef Svoboda contacted ADB when he was looking for a manufacturer for his idea.

SWARBIES
3 or 4 , 500 or 1000 watt flood lamps mounted on a wooden skid,used as cyclorama bottom lighting or in between scenery groundrows. Probably derived from German theatre lighting company, Schwabe.

SWL
Safe Working Load.

THREEFER
An adaptor which enables three pieces of equipment to be connected to a single outlet or cable. Great care should be taken not to overload the circuit. See also TWOFER and GRELCO.

THYRISTOR
Also known as an SCR (Silicon Controlled Rectifier). An electronic switch which will pass current when triggered until the current passing through it falls to zero. See also TRIAC.

TOP HAT
Also known as HIGH HAT or SNOOT. Cylinder of metal inserted into colour runners on the front of a parcan or other lantern to limit spill light.

TRIAC
(Triode Alternating Current switch) Electronic Semiconductor device which is an integral part of modern dimmers. When a current is applied to a triac, it starts conducting, and continues until the current passing through it falls to zero. Whereas a thyristor can only conduct half of the AC wave, a triac (as long as it's triggered at the appropriate point) will conduct both halves of the wave.

TRUNKING
Metal or plastic wall-mounted enclosure for cables. Box shaped in cross-section.

TWOFER
A two-way adaptor. See GRELCO.

VARI*LITE
Trade name for a range of "intelligent" moving lights and control equipment. Identified by VL numbers. The VL1 model was introduced in 1980 for a Genesis tour by Showco, USA.

VARIAC
A trade name for an autotransformer (formerly) used to dim lighting by tapping a selected reduced voltage off the transformer's winding. Not to be confused with resistance dimming.
Submitted by Peter Neilson

WARP
The first zoom profile spotlight with ring control and 4 framing shutters which are fully rotatable.

WATER CRACKER*
Device which produces a thin haze in the air by "cracking" water droplets.

WAVELENGTH
The distance from one point on a vibrating wave to the same point on the next wave. The lengths of the sound waves (wavelengths) we can hear range from one inch to 40 feet. High frequency sounds have short wavelengths (and are more directional), low frequency sounds have long wavelengths (and are less directional). In lighting terms, blue light is short wavelength, green is medium and red is long wavelength. Beyond visible light are the short wavelength Ultra Violet light and the long wavelength Infra Red light. Wavelengths of light are measured in Angstroms.
See also FREQUENCY.

XENON
High output discharge lamp commonly used in Strobe lighting. Some followspots also use Xenon lamps. Xenon lamps have colour temperature of between 5600 - 6500°K.
See also DISCHARGE LAMP.

YO-YO
A device used for remotely moving a gobo in one plane whilst it is in the lantern. Gives the effect of a lateral movement (door opens, train passes etc.)

Video

BNC
(Bayonet Neill Consulman - after original inventor) Coaxial connector used for carrying a composite video signal or radio frequency signal. BNC is also thought to stand for "Bayonet Nut Connector".

CHROMINANCE
The quality of a color without regard to brightness.

COMPOSITE VIDEO
Single signals with both picture and sync information

CONTRAST
The degree of difference between dark and light areas of an image

CRT
Cathode Ray Tube. Refers to a TV/monitor using a traditional tube (rather than a TFT / flat design)

DLP / D.L.P.
Digital Light Processing. Digital technology licenced from Texas Instruments which enables video projectors to deliver a brighter, sharper, more detailed digital image. The first DLP projectors arrived in 1996.

STR Group
Multimedia and Staging Services

DPI
Dots per inch. A measure of the resolution of a printed or computer image.

DV
Digital Video. Professional video format.

DVD
Digital **V**ersatile **D**isc.

DVI
Digital Visual Interface. New interface connection standard between computer and display device.

FIREWIRE
FireWire is another name for IEEE 1394, a high speed data transmission protocol developed in the mid 1990s by Apple which is used extensively on digital video and audio equipment and now on PCs. The new FireWire 800 (IEEE 1394b) operates at 800Mb per second and can transmit data over 100m cables.

FPS
Frames per second. In the USA, the TV standard is 30 fps.

HI-8
A video format made by sony using 8mm tape

LCD / L.C.D.
Liquid Crystal Display. LCD displays are in use on electrical and electronic equipment across the world, and LCD technology is also used in video projectors.
See also TFT.

LED / L.E.D.
Light Emitting Diode. LED technology is becoming extremely useful in the areas of architectural lighting and video walls. LED light sources are becoming brighter and cheaper. They are extremely efficient, and give off very little heat, making them ideal for display or architectural work. LED video walls are in use all over the world - they are more efficient and lighter in weight than projection alternatives.

LUMEN / LUMENS
A measure of light output from a source. The brightness of video projectors is stated in Lumens.
See also LUX.

LUMINANCE
The photometric radiance of a light source

STR Group
Multimedia and Staging Services

MINI-DV / MINI DV
High quality domestic camcorder digital video format. See also DV.

NI-CAD
Nickel cadmium battery

NTSC
North American Television Standards Committee. TV standard in the USA.

PAL
Phase Alternate Line. TV standard in the UK and Europe.

POWERPOINT
(Trade Name) Microsoft program for displaying slides on a PC. Has become the standard for simple slide-based presentations.

PREMIERE
(Trade Name) Software program by Adobe used for editing of digital video.

PROJECTION
1) **Slides** are used to project still archive images or textures. Libraries of slides contain images for every occasion. Kodak Carousel projectors are the industry standard, and some types can be linked to a controller to perform complex dissolves and fades from one projector to another. More powerful projectors are available using very intense discharge sources and large format glass slides to produce a massive image.
2) **Lighting effects** : Moving cloud / rain / fire effects can be achieved using a powerful lantern known as an effects projector with a motorised glass disc painted with the required effect. An objective lens is required in front of the disc to focus the image. See Effects.
3) Gobos : See GOBO.
4) **Film** : 35mm film projection is common in many theatres as a device for keeping the building open to the public when productions are in preparation. 16mm film projection is used in smaller venues. Film projection can, of course, also be integrated into a performance.
5) **Video** : Video projection is now being used to bring television pictures to the large screen. Cheaper than using film, but the image quality is not as good. Video projection equipment can also be more difficult to set up. Images can be front projected or back/rear projected depending on the amount of space and the effect required. For example, if actors are required to walk in front of the screen and not have the image appearing on them, back projection is the only answer. See LCD, DLP, SCREEN.

RGB
Red Green Blue. Video connection standard using three connections for the three colours which make up the final image. Provides a higher quality image than standard composite video.

S-VHS
Video format launched by JVC in 1987. S-VHS resolution is 400 horizontal lines. See also VHS.

S-VIDEO / S VIDEO
Video signal in which the luminance is separated from the chrominance information

SCART
SCART is a 21-pin connector standard which transmits full video and audio signals. Also known as Peritel, Peri TV, or Euroconnector. SCART cables are sometimes uni-directional, and care needs to be taken to ensure the correct cable is used for a particular application. The cables are notoriously unreliable in heavy duty situations, and pins get broken or pushed in fairly easily. However, handled with care, and left in equipment, they are perfectly fine.
Main definition submitted by Stephen Bourke.

SECAM / S.E.C.A.M.
Television standard used mainly in France and former USSR. Stands for "Sequential Electronic Colour Activating Mechanism".

SVGA
Super Video Graphics Array.

TFT
Thin **F**ilm **T**ransistor. Technology used in flat screen displays (laptop computers, flat screen monitors, colour screen handheld computers and mobile phones). TFT screens are better resolution than LCD panels, but are more expensive. Sometimes known as Active-Matrix LCDs.
Each pixel is controlled by up to four transistors.

VGA
Video Graphics Array. TO BE DEFINED.

VHS
Video recording format invented by JVC (Japan Victor Company) in 1976. The name stands for VIDEO HOME SYSTEM. VHS resolution is 250 horizontal lines.

VHS-C
Compact VHS tape cassette camcorder format using the same tape as VHS in a smaller cassette. Adaptors are used to extend the cassette size so that it can be viewed in a full-size VHS player.

XGA
Short for e**X**tended **G**raphics **A**rray. Computer display standard introduced by IBM in 1990. XGA offers a resolution of 1024x768 pixels with 256 colours, or 640x480 with 16 bit colour.
XGA-2 was added later and offered 1024x768 pixels with high colour, and 1360x1024 with 16 colours.