DEFINITION OF TERMS
Relating to Trackwork

Alignment. The horizontal location of a railroad as described by curves and tangents.

Branch Line. The secondary line or lines of a railway.

Closure Rails. The rails between the parts of any special trackwork layout, such as the rails between the switch and the frog in a turnout (sometimes called Lead Rails or Connecting Rails). Also the rails connecting the frogs of a crossing or of adjacent crossings, but not forming parts thereof.

Compromise Rail. A relatively short rail, the two ends of which are of different sections, corresponding with the sections of the rails to which they are to be joined. It provides the transition from one section to a different rail section.

Compromise Joint (Rail). A joint for uniting the abutting ends of contiguous rails of different sections, or of rails of the same section but of different joint drillings.

Connecting Track. Two turnouts with the track between the frogs arranged to form a continuous passage between one track and another intersecting or oblique track or another remote parallel track.

Crossing (Track). A structure used where one track crosses another at grade, and consisting of four connected frogs.

Crossover. Two turnouts with the track between the frogs arranged to form a continuous passage between two nearby and generally parallel tracks.

Curve, Simple. A continuous change in direction of alignment by means of an arc of a single radius.

Curve, Degree of. The angle subtended at the center of a simple curve by a 100 ft chord.

Derrail. A track structure for derailing rolling stock in case of an emergency.

Electric Railway (Track). Electric Railway denotes trackwork which accommodates rolling stock; the wheels have smaller flanges and/or narrower treads. The motive power is immaterial.

Elevation (of Curves) (Super-elevation). The vertical distance between the outer rail and the inner rail.

Fastenings. Joint bars, bolts and spikes.


Flangeway. The open way through a track structure which provides a passageway for wheel flanges.

Flangeway Depth. The depth of the wheel flange passageway, or the vertical distance from the top of the tread surface to the top of the filler or separator introduced between the tread portion and the guard portion of a track structure.

Flangeway Width. The distance between the gauge line and the guard line of a track structure, which provides a passageway for wheel flanges.

Flare. A tapered widening of the flangeway at the end of the guard line of a track structure, at the end of a guard rail or at the end of a frog or crossing wing rail.

Flare Opening. The distance between the gauge line and the guard line of a track structure at the wider end of the flare.

Foot Guard. A filler for the space between converging rails to prevent a person's foot from becoming accidentally wedged between the rails.

Frog. A track structure used at the intersection of two running rails to provide support for wheels and passageways for their flanges, thus permitting wheels on either rail to cross the other.

Gauge (Track Tool). A device by which the gauge of a track is established or measured.

Gauge (of Track). The distance between the gauge lines, measured at right angles. (The standard gauge is 4 ft 8½ in.)

Gauge Line. The gauge line can be determined in two ways: (1) A line ¾ in. below the top of the center of the running rail head, or (2) the corresponding location of tread portion of other trackwork along the side nearer the track center.

Guard Rail. A rail or other structure laid parallel with the running rails of a track. Used to prevent wheels from being derailed or to hold wheels in correct alignment to prevent their flanges from striking either the points of turnout, the crossing frogs or the points of switches.

Insulation. A device or material that prevents the flow of electric current in a track circuit from passing from one rail to the other or through switches and other track structures.

Joint Bar. A steel member embodying beam-strength and stiffness in its structural shape and material. Commonly used in pairs for the purpose of joining rail ends together, and holding them accurately, evenly and firmly in position with reference to surface and gauge-side alignment.

Joint Drilling. The spacing of holes in the ends of rails or other track structures to receive the bolts for the fastening of joint bars.

Joint, Rail. A fastening designed to unite the abutting ends of contiguous rails.

Joint, Insulated. A rail joint designed to arrest the flow of electric current from rail to rail by means of insulations, placed so as to separate the rail ends and other metal parts connecting them.

Main Line. The principal line or lines of a railway.

Main Track. A track extending through yards and between stations, upon which trains are operated by timetabled or train order, or both, or the use of which is governed by block signals.

Mate. A track structure having a fixed or immovable point and used on the opposite side of the track from a tongue switch, as its companion piece. (A mate is termed "outside" or "inside" depending upon whether it is placed on the outside or inside of the curve, the "inside mate" being comparatively little used.)

Passing Track. A track which is auxiliary to the main track, for meeting or passing trains. Same as siding.

Rail, Track. A rolled steel shape, commonly a T-section, designed to be laid end to end in two parallel lines on cross ties or other suitable supports to form a track for railroad rolling stock.

Switch, Single. A combination of a crossing with one right-hand and one left-hand switch and curve between them within the limits of the crossing and connecting the two intersecting tracks without the use of separate turnout frogs.

Slip Switch, Double. A combination of a crossing with two right-hand and two left-hand switches and the curved rails between them within the limits of the crossing, and connecting the two intersecting tracks on both sides of the crossing without the use of separate turnout frogs.

Special Trackwork. All rails, track structures and fittings, other than plain guarded track, which are neither curved nor fabricated before laying.

Spur. A stub track diverging from a main or other track.

Steam Railroad (Track). Steam railroad denotes track for rolling stock which has wheels and treads substantially in agreement with AAR standard wheels. The motive power is immaterial.

Switch. A track structure used to divert rolling stock from one track to another.

Switch, Split. A switch consisting essentially of two movable point rails with the necessary fixtures. (For details see Split Switch Terms.)

Switch, Spring. A switch with automatic spring device incorporated in the operating mechanism. This device returns the points to their original positions after the trailing wheels have passed over the flanges.
DEFINITION OF TERMS (continued)

Heel End of Frog. That end of a frog which is the farther from the switch, or the end which has both point rails or other running surfaces between the gauge lines.

Heel Length. The distance between the heel end and the half-inch point of a frog, measured along the gauge line.

Heel Spread. The distance between the gauge lines at the heel end of the frog.

Throat of Frog. The point at which the converging wings of a frog are closest together.

Toe End of Frog. The end of a frog which is nearer the switch or the end which has both gauge lines between the wing rails or other running surfaces.

Toe Length. The distance between the toe end and the half-inch point of a frog, measured along the gauge line.

Toe Spread. The distance between the gauge lines at the toe end of the frog.

Wing Wheel Risers. Raised portions provided on the top surfaces of the wings of a frog, more particularly when of manganese steel design, directly opposite the point and gradually sloping down to the general level of the running surface, thereby providing additional metal at those parts of the frog which usually wear out first, and also making the transverse contour conform more closely to that of the tread of a tapered wheel.

GUARD RAIL TERMS

Guard Rail (Frog). A rail or other device to guide the wheel flange so that it is kept clear of the point of the frog.

Guard Rail (Switch). A rail or other track structure laid parallel with the running rail ahead of a split switch and forming a flangeway with the running rail, to hold the wheels of rolling stock in correct alignment when approaching the switch.

Adjustable Separator. A metal block of two or more parts acting as a filler between the running rail and the guard rail and so designed as to provide varying widths of flangeway.

Guard Rail Brace. A metal shape designed to fit the contour of the side of the guard rail and extend over the tie. Has provisions for fastening in order to restrain the moving or tilting of the guard rail away from the running rail.

Guard Rail Brace, Adjustable. A guard rail brace which may be adjusted laterally with respect to the rail, to vary the distance between the guard rail and the running rail.

Guard Rail Clamp. A device consisting of a yoke and fastenings designed to engage the running rail and the guard rail and hold them in correct relation to each other.

CROSSING TERMS

Bolted Rail Crossing. A crossing in which all the running surfaces are of rolled rail, the parts being held together with bolts.

Manganese Steel Insert Crossing. A crossing in which a manganese steel casting is inserted at each of the four intersections, being fitted into rolled rails and forming the points and wings of the crossing frogs.

Solid Manganese Steel Crossing. A crossing in which the frogs are of the solid manganese steel type.

Single Rail Crossing. A crossing in which the connections between the end frogs and the center frogs consist of running rails only.

Two-Rail Crossing. A crossing in which the connections between the end frogs and the center frogs consist of running rails and guard rails.

Three-Rail Crossing. A crossing in which the connections between the end frogs and the center frogs consist of running rails, guard rails and easer rails.

Crossing Plates. Plates interposed between a crossing and the ties or other timbers to protect the ties and to better support the crossing by distributing the loads over larger areas.

Center Froses. The two frogs at the opposite ends of the short diagonal of a crossing.

End Froses. The two frogs at the opposite ends of the long diagonal of a crossing.

Easer Rail (or Easer). A rail placed with its head along the outside and close up to the head of the running rail and sloped at the ends to provide a bearing for the over-hanging portion of hollowed-out treads of worn wheels.

Guard Rail. A rail placed parallel with the running rail, with the flangeway between them.

Knuckle Rail. A bent rail, or equivalent structure, forming the obtuse point against which the movable center points of a movable point crossing or slip switch rest when set for traffic.

Movable Center Point. One of the movable tapered rails of a movable point crossing or slip switch.

Reinforced Rail. A bent rail placed with its head along the outside of and close up to the head of a knuckle rail to strengthen it and to act as an easer rail; or a piece of rail similarly applied to a movable center point.

Running Rail. The rail or surface on which the tread of the wheel bears.

TURNOUT TERMS

Turnout. An arrangement of a switch and a frog with closure rails, by means on which rolling stock may be diverted from one track to another.

Curved Lead. The distance between the actual point of the switch and the half-inch point of the frog, measured on the outside gauge line of the turnout.

Lead. The distance between the actual point of the switch and the half-inch point of the frog.

Lead (Actual). The length between the actual point of the switch and the half-inch point of the frog measured on the line of the parent track.

Lead (Theoretical). The distance from the theoretical point of a uniform turnout curve to the theoretical point of the frog, measured on the line of the parent track.

Lead Curve. The curve in the turnout interposed between the switch and the frog.

Turnout Number. The number corresponding to the frog number of the frog used in the turnout.
DEFINITION OF TERMS (continued)

Switch, Tongue. A switch piece consisting essentially of a movable tongue with a suitable enclosing and supporting body structure, designed for use on one side of the track, while on the other side there is used either a mate or another tongue switch. (A tongue switch is termed “inside” or “outside” depending on whether it is placed on the inside or on the outside of the curve, the “outside tongue switch” being comparatively little used.)

Switch Point Derrail. A derail consisting essentially of a split switch point with the necessary fixtures.

Switch Stand. A device for the manual operation of switching or of movable center points.

Tangent. Any straight portion of a railway alignment.

Tie Plate. A plate interposed between a rail or other track structure and a tie.

Track. An assembly of rails, ties and fastenings over which cars, locomotives and trains are moved.

Track Bolt. A bolt with a button head and oval or elliptical neck and a threaded nut designed to fasten together rails and joint bars.

Turnout. An arrangement of a switch and a frog with closure rails, by means of which rolling stock may be diverted from one track to another.

Wye. A triangular arrangement of tracks on which locomotives, cars and trains may be turned.

SPLIT SWITCH TERMS

Split Switch with Uniform Risers. A split switch in which the switch rails have a uniform elevation on riser plates for the entire length of the switch. Since there is no heel slope, the point rail rise runs off the back of the switch in the closure rails.

Split Switch with Graduated Risers. A split switch in which the switch rails are gradually elevated by means of graduated riser plates until they reach the required height above the stock rail, and therefore have a heel slope.

Manganese Tipped Switch. A split switch in which the head of one or both of the switch rails is cut away in the point portion and manganese steel pieces fastened to the rail to form the point.

Insulated Switch. A switch in which the fixtures, principally the gauge plates and the switch rods connecting or reaching from one rail to the opposite rail, are provided with insulation so that the electric track circuit will not be shorted.

Heel of Switch. That end of a switch rail which is the farther from its point, and nearer the frog.

Heel Spread. The distance, at the heel, between the gauge line of a switch rail and the gauge line of its stock rail. (This has been standardized at 6" in. for straight switches.)

Heel Slope. The inclination produced by graduated risers in that part of the switch which reduces the elevation (as the height of the risers decreases) toward the heel of the switch.

Point of Switch (Actual). That end of the switch rail which is the farther from the frog; the point where the spread between the gauge lines of the stock rail and the switch rail is sufficient for a practicable switch point.

Point of Switch (Theoretical) or Vertex. The point where the gauge line of the switch rail, if produced, would intersect the gauge line of the stock rail.

Point Rail, Switch Rail or Switch Point. The tapered rail of one switch.

Planing. Bottom. The cut planed at an angle on the bottom of the base of the switch rail from the point and towards the heel to allow the switch rail to rest on the top of the base of the stock rail when the switch rail is closed.

Planing, Side. The cut made on the sides of the head of the switch rail to form the taper.

Planing, Top. The cut made on the top of the head of the switch rail from the point and approximately to the head separation.

Planing, Chamfer Cut. The vertical beveling of the gauge side of the switch point to produce a sharp edge, so as to prevent wheel flanges from striking the point.

Rail Brake (Switch). A metal shape designed to fit the contour of the side of the stock rail and extend over the switch plate, with provision for fastening through the plate to the tie, to restrain the movement of the stock rail.

Rail Brake, Adjustable (Switch). A rail brake which may be adjusted laterally with respect to the stock rail, to compensate for variation in the dimensions of the rail and to permit adjustment for wear.

Stock Rail. A running rail against which the switch rail operates.

Stock Rail Bend. The bend or set which must be given the stock rail at the vertex of a switch to allow it to follow the gauge line of the turnout.

Switch Angle. The angle included between the gauge lines of the switch rail at its point and the stock rail.

Throw of Switch. The distance through which the points of switch rails are moved sidewise, measured along the center line of the No. 1 switch rod or head rod.

FROG TERMS

Bolted Rigid Frog. A frog built essentially of rolled rails, with fillers between the rails, and held together with bolts.

Spring Rail Frog. A frog having a movable wing rail which is normally held against the point rail by springs, thus making an unbroken running surface for wheels using one track. The flanges of wheels on the other track force the movable wing rail away from the point rail to provide a passageway.

Railbound Manganese Steel Frog. A frog consisting essentially of a manganese steel body casting fitted into and between rolled rails and held together with bolts.

Solid Manganese Steel Frog. A frog consisting essentially of a single manganese steel casting.

Self-Guarded Frog (Flange Frog). A frog provided with guides or flanges, above its running surface, which contact the tread rims of wheels for the purpose of safely guiding their flanges past the point of the frog.

Frog Angle. The angle formed by the intersecting gauge lines of a frog.

Frog Number. One-half the cotangent of one-half the frog angle, or the number of units of center line length in which the spread is one unit.

Frog Point. That part of a frog lying between the gauge lines extending from their intersection toward the heel end.

(a) Theoretical Point
(b) Half-Inch Point

A point located at a distance from the theoretical point towards the heel equal in inches to one-half the frog number, and at which the spread between the gauge lines is one-half inch. It is the origin from which measurements are usually made.