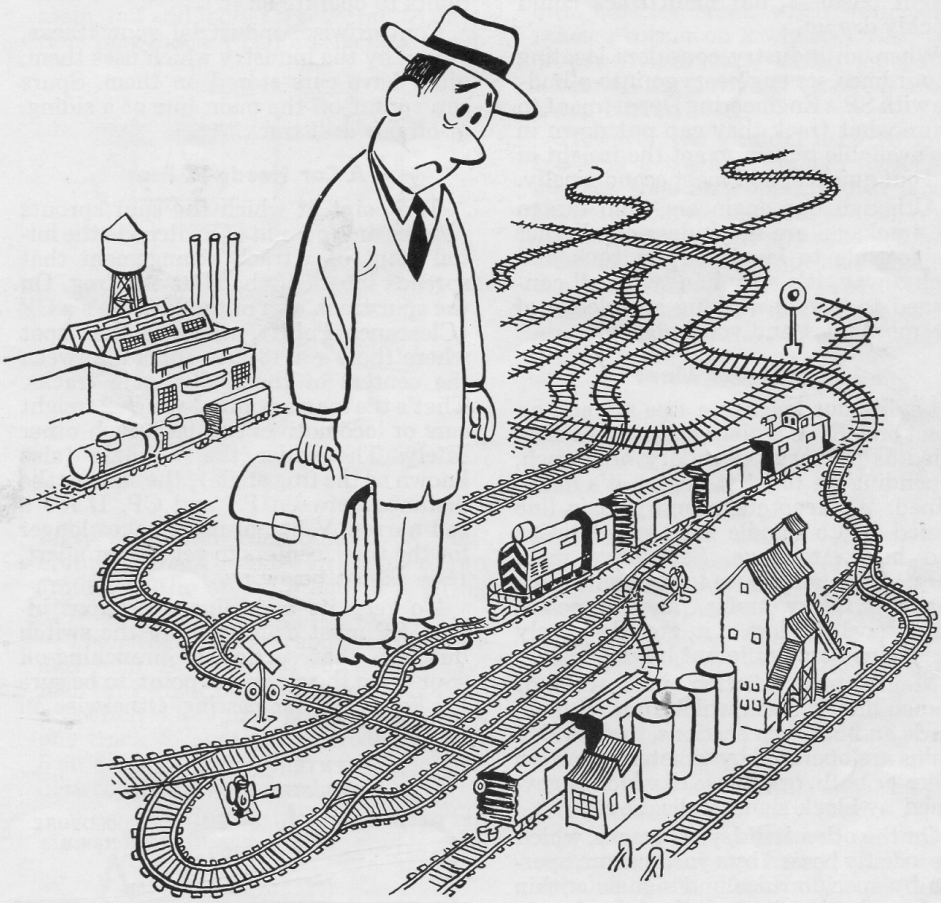
Confused about industry tracks?



Ask Southern Pacific!

Team, Tail, Turnout ... We Build Them All

(Reprinted from Southern Pacific Transportation Company's INSIDE TRACK, October 1971.)

As the brook is to the river, so the industry spur track is to SP's main line. Without thousands of spurs feeding us freight business, our main track could quickly dry up.

When an industry considers locating on our lines, its engineers go into a huddle with SP's Engineering Department to figure what track they can put down in the available terrain to get the freight in and out quickest and most economically.

Although our engineers, who design the trackage, are the judges of whether it's feasible to lay it out in such and such a way, it's very handy for all concerned to have a working knowledge of the mechanics and vocabulary.

What's Our Line?

Laying out track is a fine art and an exact one. Even a plain main line is classified as primary, secondary or branch, depending on to what degree it's maintained. We keep our primary main line beefed up to handle high speed trains and heavy tonnage. Secondary main lines, which don't have to cope with such hot and heavy traffic, and branches, which have still less of it, are adequately maintained on a different basis.

Main track, whether main line or branch line, is track which runs through yards and between stations, upon which trains are operated by timetable or train order or both, or the use of which is governed by block signal indication.

On the other hand, yard tracks, which are usually bossed by a yardmaster, operate by specific rules and signals within certain defined limits other than main track, and are used for making up trains, storing cars, etc.

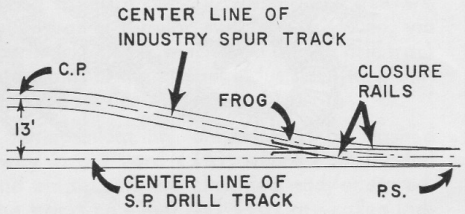
Drill track, which branches off our main line or a siding, is also owned by SP, and keeps clear for traffic at all times. (It's laid on land which we either own or have an easement on; i.e., we have rights to operate on it.)

Contrariwise, industrial spur tracks, owned by the industry which uses them, often have cars stored on them. Spurs can sprout off the main line or a siding, or off our drill track.

A Car Needs 13 Feet

The point at which the spur sprouts (PS, meaning Point of Switch) is the initial point of a track arrangement that spreads into a V-shape at the frog. On the spur track arm of the V there's a CP (Clearance Point), which is that spot where there's a 13-foot spread between the centers of the 2 diverging tracks. That's the magic point at which 2 freight cars or locomotives can pass each other safely. The wider the V angle (also known as the frog angle), the shorter the distance between PS and CP. If it's a tall narrow V, it naturally takes longer for the track centers to get 13 feet apart. (See sketch below.)

To keep its main line operations intact, SP must own not only the switch but also that section of branching-off spur up to the clearance point, to be sure it's kept clear for passing. Otherwise an



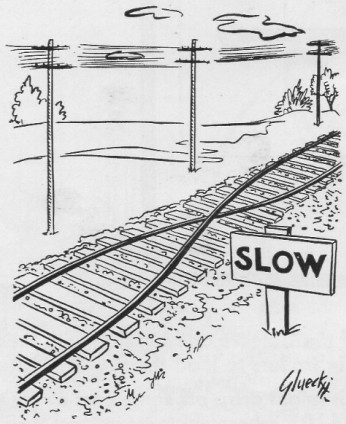
***A TURNOUT** is made up of a switch and a frog, with closure rails. (The frog actually looks like a real frog in mid-hop, with its heels furthest away from the switch.)*

***This particular turnout** is an industry's spur track sprouting off SP's drill track. To keep the drill track clear for passing traffic, SP also owns spur track from PS (Point of Switch) to CP (Clearance Point). CP marks the spot where 13-foot spread between centers of tracks allows cars or locos to breeze by each other. (See above.)*

industry owning the track could legally store cars on it right down to the point of switch, and stymie traffic on the main drag.

A real pro could expound for hours on some 30 different kinds of track, all of which are listed and described in our official Engineering Department reference books.

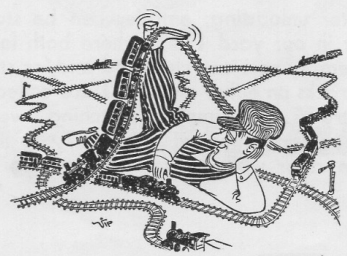
Actually he can be pretty impressive by boning up on just the basic garden varieties that grow up around an industrial tract. Besides the abovementioned main, drill and spur, there are house, team, tail and ladder tracks, not to mention piggyback (TOFC) facilities, sid-



ings, wyes and runarounds. (A runaround is track used by an engine to run around to the opposite end of a string of cars.)

Then there are turnouts, crossovers and such. A turnout (which most laymen and small boys with train sets call a "switch") lets rolling stock scoot from one track to another. A crossover (see 5 on diagram, next page) is a connection between 2 adjacent tracks.

When plotting a track layout, an engineer also fusses about grades and



curves (gradients and alinements if you want to be fancy). A .0015 (.15%) grade is just gradual enough so that a roller bearing-equipped car won't "drift", or take off on its own. It's better we don't build grades any steeper than this in yards; otherwise we're forever racing around tying down cars (setting brakes). These tie-downs, plus difficulty in loading and other operations, cost time and money. On less complicated industry track a car could be tied-down more easily, but in general the less tilt to tracks the better.

If a track is too curvy, it's rough on equipment . . . wears out wheels, trucks and itself to boot. (Consider how your own muscles creak when your jalopy takes a corner on 2 wheels.) Also some of our freight cars, which are getting longer all the time, can't make it around sharp curves.

However too gradual a curve makes too long a track. Although diesel road engines shouldn't operate over a more than 19° curve, a diesel switch engine can take just about any spur track. Incidentally, the reason our modern diesels can take sharper curves is that they're more sinuous. They don't have as rigid a wheel base as the old steam engines.

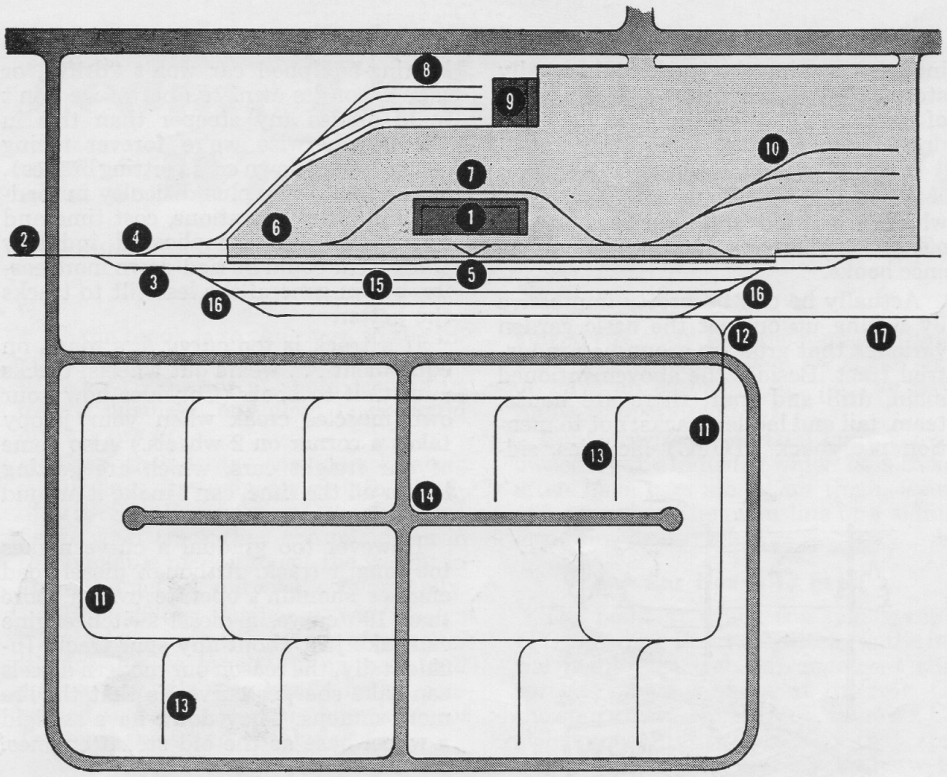
Know-How & Can-Do

Our engineering and design service, free to qualified developers of industrial tracts and prospective customers thinking of settling along our lines, advises them on not only track but also plant and property planning. Since efficient track layout can have a lot to do with a plant's profit, our know-how can be very valuable to them.

We like to install rails onto the property in time to be ready (and very willing) to move shipments of building materials, plant machinery, construction apparatus, etc. Especially since a railroad is superlative at moving the kind of mammoth "high & wides" that often go into today's plants, industry also likes to have tracks completed before building begins.

Huge multi-million dollar spreads like Spreckels Sugar at Mendota, Calif. and General Motors at Fremont, Calif. are vast complexes of many segments of track, designed to handle thousands of cars a week. They look like small railroad terminals.

(Please turn the page)



In this purely hypothetical track layout serving an industrial tract, a freight train barreling up to the station **(1)** on the main line **(2)** might swing out onto the passing track **(3)** to let another train go by, or pull into one of the yard tracks **(15)**. Or use the turnout **(4)** or the crossover **(5)** to pass over to the side track **(6)**. That's a double crossover **(5)**, by the way.

A side track and a passing track are both called sidings; i.e. track which is auxiliary to the main. Difference between them is that we use a passing track for meeting and passing trains, but we use a side track for other purposes, such as getting over to the team tracks or piggyback facilities, etc.

When the train has halted, a switch engine sneaks up to snatch the caboose off its rear end and extract cars, and the train goes on its merry way. After which the switch engine might swing around behind the station on the house track **(7)** and drop off one car to be unloaded into the freight station **(1)**. Or sashay over to the piggyback (TOFC) facilities **(8)**, with a paved area roundabout, where our PMT tractors can back up on the ramped platform **(9)**, haul piggyback trailers off the flatcars and buzz off with them, or bring in trailers to load them.

Or it might drop off some cars at the team tracks **(10)**, where shippers unload their own freight out of our cars and truck it away, and where PMT performs unloading and distribution services for our customers (or brings in shipments to be loaded).

After which this eager-beaver switch engine might head for the 3-cornered wye **(12)** leading into SP's drill track **(11)**. (On a wye a smart loco can do a little samba to get itself going head-first instead of having to back up with a string of cars.) It picks up and delivers, usually on a regular switching schedule, via spur tracks **(13)**, which lead off our drill track into plants of the various industries. The plants are also serviced by roads **(14)**.

After unloading, empties can be stashed away in our yard **(15)**, where both loaded and empty cars are classified and/or stored. The tracks on either end **(16)** are called ladder tracks. To simplify switching, we can place a car on the tail track **(17)** to hold it in the clear while we're maneuvering other cars.

Southern Pacific

Serving the Golden Empire with TRAINS • TRUCKS • PIGGYBACK • PIPELINES

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