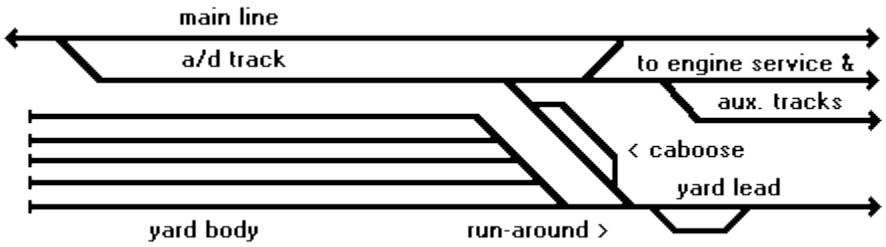
The Ten Commandments of Model Railroad Yard Design

By Craig Bisgeier

Sample Yard Layout



You may find it helpful to print out this diagram before reading the article. Having a hard copy of the diagram to refer to as you are reading will probably be a big help for some of the more difficult concepts. This is definitely a case of a picture being worth a thousand words...

One of the most often modeled -- and misunderstood -- layout design elements is the yard. Nearly everyone has one on their layout, whether it's used simply for car storage or as an actual operating tool. Unfortunately, many of them don't work very well. Common design mistakes are made over and over again by beginner and intermediate modelers. They can't be faulted, though, because the info on how to design a good yard is very hard to find. Even when the hobby press gets it right, it's short-lived, because if you missed the issue you didn't see it. Most of the time you see poor examples (like the hated Timesaver) which are often published by the hobby press without comment, and therefore accepted by those who do not know better as good design.

So the "secrets" of good yard design are difficult to for most to uncover, because the good nuggets of information appear in wildly different places like out of print magazines or books, special interest publications, or even word of mouth among advanced modelers. not many modelers have that kind of library or access. What is needed is a repository where all the good ideas can be collected, stored, edited and presented as one all-encompassing primer on the subject. It is my hope that this article is one source of that information for you.

Note: For the most part, these ideas aren't mine, but those of leading modelers in our hobby and of other modelers I've read about, spoken to or communicated with, or ideas

I've heard about even fourth or fifth-hand. The sheer number of persons responsible is far too large to acknowledge everyone, so I'll just say thanks to the community at large for sharing this knowledge with me, and allowing me to share it with you.

What kind of yard to model?

The educated student of yard design will realize there are as many types of yards out there as there are types of jobs that need to be done. From small weedgrown branchline yards where the main track is the only lead, to industrial yards used as parts or materials warehousing on wheels and rails. From dedicated coach yards where passenger trains and cars are serviced and lay over for their next assignment, to sprawling division point freight yards with humps that take up many square miles. Each is different in form and is designed to perform one or more necessary jobs the railroad needs done.

The design rules that follow apply primarily to flat classification yard design. 'Classification' in this context is defined as the sorting of railroad freight cars into like groups bound for one or more similar destinations. This is the most common type of yard found on model railroads, and is also one of the most interesting to operate -- when executed well. **If your interest is in a different type of yard, some or all of these commandments may not apply, and the designer is warned to carefully consider the purpose and operation of the yard to be built and what is expected from it.**

These "Commandments" should serve to drive and inspire the design process, rather than enforce blind obedience to an arbitrary list of commandments. In other words: Read these rules, understand the reasons why things work the way they do, then apply the knowledge to your specific needs. Then apply them as you see fit, based on what you need done on your layout. Some compromise is inevitable. If you can do that, you'll never make a bad design.

Before starting, click here to learn about Compression: Why it's evil and why you need it.

1: Thou Shalt Not Foul The Main

Most modelers don't usually consider the main line as a part of the yard, but it is the most important track in it, or around it. The main line is the artery that carries the life blood of the railroad, passengers and freight. Just as in the arteries of a living thing, if the mains become obstructed it causes major problems to the system. Prototype railroads go to great lengths to keep the mains clear, and so should you. Therefore, when beginning the design of any yard, we consider the first commandment before any other design rule. Ideally the main line should only have two turnouts leading to the yard, one at each end. And they are only used when complete trains either enter or leave the yard. I cannot stress the importance of this rule enough! The yard designer would do well to obey this rule religiously.

Exception to Commandment 1: When planning a yard for a lightly used branchline, or a small stub-end terminal yard, it isn't always necessary to keep the main clear. If the branch only supports one or two trains a day, and trains must operate per rule 93 (Movements within yard limits -- all trains must proceed at restricted speed and ready to stop for any obstruction) there usually isn't a problem with using the main, even as a lead track (see Commandment 2). Like all things, use common sense. David Barrow's South Plains District layout in Model Railroader a couple of years back is a good example.

2: Thou Shalt Provide A Dedicated Lead Track

After the main line, the most important track in the yard is the lead. The lead is the backbone of the yard, it is the track all others either connect to or branch from. The yard switcher should always be able get to any track in one forward move, and to escape back to the lead from almost anywhere in the yard in one reverse move. Therefore, as many turnouts off the lead that can be arranged so should be facing-point turnouts.

Confused? Try this. Think of the yard as a garden rake. The yard lead is the handle, the various tracks that make up the yard are the tines. As you go forward up the lead (handle), all tracks (tines) radiate up and away from the handle. None turn back in the other direction (unless it's a really old rake...). In this example, all the turnouts off the lead would be facing-point turnouts, with their movable points "facing" the base of yard lead.

Doesn't sound important? If you think about it, any track on a trailing-point switch that has to be served from the lead requires the switcher either to run around a car or cars, or to make a reverse move off of the lead to serve that track, and leave the lead. At the very least, this usually means two additional moves (delay), limited access to the track(s) being worked, and the possibility of fouling moving traffic across other tracks. As an example, see in the diagram below how the yellow switcher would have difficulty serving the trailing-point turnout on the left. The switcher, while classifying railcars or building trains, should never have to leave the lead track under any circumstances and should almost always work railcars from only one end (the front) where possible.

Because the switcher uses the lead to "drill", or move railcars in and out of the body tracks, the lead must be as long or longer than the longest yard track. This way the switcher never has to "double" a cut of cars to move it from one track to another. The lead can be disguised as a branch line or other kind of track if desired, but its true purpose should always be foremost in the designer's mind. Now, I understand it isn't always possible to have a full-length lead, but it is an important goal to strive for and believe me, your yardmasters will thank you for it.

3: Thou Shalt Not Foul The Yard Lead

Now that we've cleared the main and given the switcher a track of it's own to work from, we have to ensure the switching crew can do their job no matter what lunacy is going on around them. Therefore we try to keep the yard lead clear at all times. While designing the yard, try to avoid including crossovers or other trackage arrangements that interfere with the yard lead or the switch crews' ability to keep on classifying indefinitely. Yards with active tracks that cut across the lead will constantly be delayed and in turmoil. It can't always be avoided, but if you start off with this in mind it will help you avoid situations where this becomes necessary.

4: Thou Shalt Use Arrival / Departure Tracks

OK, if we can't use the main for anything, and we can't use the yard lead to move trains in and out, how the heck do we get trains off the main into the yard, and vice-versa? We have to include a special track, or tracks, called arrival / departure, or A/D, tracks. A/D tracks are sidings off the main with a connection to the yard lead, where trains are stored -- temporarily -- while they are broken down or built up. The yard switcher should be able to cross over from the lead, grab a cut of cars (or the whole train sans power) from the A/D track and pull it directly onto the lead to classify it, or pull a cut from the yard body and kick it into the A/D track in just two moves. The A/D track should never be used as an extra classification track because this will subvert its purpose as a holding track off the main. It may work for a while but as soon as another train arrives or you need to put another one together, you have nowhere to put it.

If you have space, it's good to have more than one A/D track so you can handle making or breaking more than one train at a time. Just make sure you can get to each one via the yard lead in just one move. I find it usually works well to place the A/D access track from the lead on the near end of the first A/D track, near where it joins the main, and then build a ladder track just beyond that for all the other A/D tracks.

5: Thou Shalt Provide A Caboose Track

Whether it's a double-ended siding or a stub, you need to have a place to store cabooses out of the way while classifying trains, but accessible enough to get to them fast. Usually the Caboose track is located off either the yard ladder, the yard lead or one of the A/D tracks. My personal favorite is off the A/D (where you are building or breaking a train anyway), but any easy to get to location will work. It's a great place to display all your caboose models too. If it is a stub track, make sure it is accessed easily from the yard lead and that it is from a facing-point turnout.

6: Thou Shalt Provide A Run-around

Somewhere on or off the lead, be sure to provide a short siding or set of facing crossovers to an adjacent track. This allows the yard switcher to run around a car or two, especially a caboose. If there's no run-around it can be very difficult to tack a caboose onto the back of a departing freight train without making the engineer back his whole train into the caboose track, which is not very prototypical and upsets all the other conductors. A run-around is also very important if you have yard or industry tracks with trailing-point switches within yard limits. Provide enough length to run around at least

one passenger car if possible. The longer the run-around the better, and more than one is better yet. However, if space is at a premium, just enough space to run around one long car is probably enough.

7: Thou Shalt Be Able to Reach Everything

Hey – it's a fact of life, derailments happen. Regardless of how good your trackwork is, there's always a super-light flatcar being shoved behind a heavy boxcar, or a hopper with out-of-gauge wheelsets somewhere waiting to pick a switchpoint or be forced off the track. S-curves conspire to throw your passenger cars off the rails. Locomotives stall on spots of dirty track, or on turnouts that have insulated frogs. None of these things are much of a problem as long as you can reach the spot of the accident, because it's quickly and easily fixed. The trouble starts when you locate tracks and turnouts outside your reach. Placing a critical turnout 36" or more from the layout edge doesn't seem like a problem when you have pencil to paper, but once the yard starts to operate, I guarantee it'll be your biggest headache.

Save yourself a ton of trouble and misery by planning your yard (and the rest of your railroad) so that your operators can reach everything easily. 24-30" is about the realistic limit for most people to reach and manipulate objects, any farther and they are likely to do more harm than good. Cars on tracks near the front of the layout get knocked over and scenery gets damaged by leaning people. If you must have tracks that extend past 30" deep, make sure the turnouts leading to them are in reach, since that's where most problems happen. And just because you are tall and can reach farther doesn't mean your friends or visitors can too, better take that into account. Layout height makes a difference too, as does distance between decks on multi-level designs. Plan for success.

If you must make your yard wider than you can reach from one side, all is not lost. Consider a shallow operators' aisle on the other side of the yard. This is a great solution for double-track layouts, and can allow you to split the yard into two manageable halves, and do more work with two switching crews. Just 16" of aisle is all that's necessary, and a few feet to either side allowing the operator to reach the critical points around the turnouts. This can be a duck- or crawl-under without access to the rest of the aisles, as a yard operator generally stays in one place during a session.

A pop-up, however, is not a substitute. Don't design a yard that needs one to reach distant tracks because you'll be using it far too often. Either have a permanent operator back there and give him space to work, or don't bother.

8: Thou Shalt Provide Auxiliary Yard Tracks

Some of the best local operation in a yard comes from the auxiliary tracks often found in yards that don't directly contribute to revenue-producing activities like classifying cars. For instance, a RIP track (Repair In Place) is a feature of every decent-sized prototype classification yard but is seldom modeled. Usually several cars each day come through

that need minor repairs, like fixing dragging equipment, replacing worn brake shoes or a damaged wheel bearing, or changing a cracked air hose. These cars are directed to the RIP track, where the problems are corrected. A short time later the car is sent on it's way. If you think of it as an industry track, it is an ideal element because it hosts any type of railcar, and is switched often. Other kinds of Auxiliary yards tracks are ready tracks for wreck trains or snowplows, icing tracks for reefers, a cleaning track for house cars, etc.. All of these make great additions if you can find room for them. And they don't need to be immediately adjacent to the yard either.

When you operate a classification yard set at a crew change or division point, you quickly find that a lot of engines spend a lot of time in your yard laying over -- especially in the steam era. Whether they are waiting for trains to pull out, getting much needed service, or just on standby, you need a place to hold them out of the way until they are needed. Your engine service tracks should allow direct escape from and to the A/D tracks so locomotives can get away fast and easily. These tracks can be dressed up with water towers or columns, coal docks, sand towers and houses, diesel fuel racks, ash pits and cinder conveyors, etc. You don't need to include a diesel house, roundhouse, or car shops (unless you have room for them!). These large space-hogging buildings can be implied by having the tracks run off the edge of the layout to where the building should be.

If you have more than one service track, concentrate the services along one of the tracks -- this will be the inbound lead. Locomotives are generally serviced as they arrive at a yard, not as they are leaving.

9: Thou Shalt Not Overcrowd The Yard

All yards have a certain threshold number of railcars they can hold and continue to function well. Go beyond this threshold amount and the yard quickly clogs, making it very difficult to work with. Now, all yards have busy times where several trains arrive at once and the yard crew is overwhelmed for a short time. A clogged yard quickly becomes a bottleneck, brings the railroad to a standstill and frustrates everyone.

A good rule of thumb is to calculate how many average length cars you can hold in the body of the yard when all tracks are full, without fouling any of the turnouts. Then take that number and divide by two. This number is your threshold amount. Depending on your yard design it may be slightly higher or lower, but generally a yard that's half full -- is full. Start getting more crowded than that and things get clogged up fast. But don't be afraid if traffic surges now and then, driving the number of cars beyond the threshold -- as long as the yardmaster can clear some cars out of the yard in short order it isn't usually a big problem. If the condition becomes chronic, it's time to start pulling cars off the railroad.

A yard is a dynamic object, constantly in motion. Remember that the purpose of a classification yard is to collect incoming railcars, rearrange them and get them on trains that will take them to their destinations. But there is usually a limit to how many cars a yardmaster can classify in a set period of time, both on the prototype and model. If more cars are coming into the yard than the yardmaster can handle, the situation deteriorates and becomes unworkable fairly quickly. So, you could say there is a threshold amount of cars that can be run through the yard within a set period of time as well.

This threshold number depends upon the size and physical restrictions of the yard, how good the modeler is at classifying cars, and if the train schedules allow the yardmaster to get rid of cars regularly on outbound trains as quickly as they arrive. The schedule, or timetable, becomes very important as you start pushing the upper limit of throughput. Remember that on a large model railroad layout a big yard might have as many as 300-400 cars through it in a four hour operating session -- but if nothing happens for 3 of those hours and everything converges on the yard at once, no yardmaster is going to be able to keep up with that. Scheduling carefully can keep things busy most of the time without overwhelming the crew.

10: Thou Shalt Make It Easy To Run

OK, lets say you've followed all the commandments and designed yourself a great yard. You owe it to yourself and others who will operate the yard to give some thought to making the model-human interface simple and easy to run. After all, the best yard in the world won't get used if no one can figure out how to make it work. Here are some things you can do that will really help operability:

- Provide a large, easy to read schematic control panel with color-coded track lines to differentiate what each track is. For instance, make the body tracks white, the yard lead red, the A/D tracks green, etc.. Label anything that might be unclear or vague. Physically separate adjacent tracks with different purposes to emphasize their difference.
- Keep the mechanical complexity down. Wherever you have a crossover where two turnouts always operate together, control them with one toggle switch. Use a diode-matrix panel or similar control structure to automatically throw turnouts in a yard ladder for a particular arrangement. "But isn't that complex?" you ask? Yes, but it makes a stressful job easier at ShowTime, so it counts as a simplicity plus.
- If the panel continues to be complicated despite your best efforts, think about breaking it up into two or more sub-panels, especially if there are distinct groups of turnouts more than 2-3 steps apart. For instance, I recently operated on a layout where the entrance to the yard, an area with about 7-8 switches, was controlled by a separate panel from the yards' throat and ladder tracks. It helped keep the complexity on the main panel down, a welcome break.
- Be very careful with your trackwork. Good trackwork makes running a yard fun and challenging, but bad trackwork can take a good design and render it useless. If cars keep derailing every time they are pushed over a bad turnout, or over a spot that's out of gauge, neither you or anyone else will want to work in your yard. As long as you're making an effort to design a good yard, put some effort into building it well too.
- Provide a handout with a schematic diagram of the yard and a line or two describing the different functions of each track to new operators. It will help them get familiar with the routine and up and running in less time than if they had to puzzle it out for themselves. You can also distribute this handout to visitors, allowing them to gain an insight into how the operation really works.
- Design to be able to reach everything easily, either from the front of the layout or from an operators aisle behind. Derailing a few cars in a spot you can only get to with a long stick is sure to ruin your night, and maybe other people's too. If you have to stand on your tippy-toes to reach and can only nudge it with your fingertip, it's too far away.

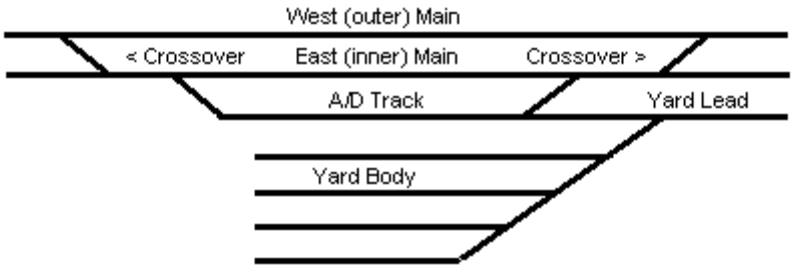
- Before operating sessions, try to provide a schedule to the yard crew describing the types of trains arriving and departing during the session, approximately the time they come and go, and what type of freight or passenger equipment they drop off or pick up. This will help the yard crew organize their work, and be able to properly block the cars in most trains. A properly blocked train is easier for the road crew to run, and gets it's work done faster.

What about planning a yard for a double-track layout?

All of the examples thus far are based on a single-track railroad. Double track mains on the prototype often mean there are similar but separate yards on either side of the main, one for each direction of traffic. The only time the two yards interact with each other is usually on transfer runs, where cars that have to go back the other way get handed off from one side to the other. This happens a lot, with backhauls often being the primary reason. On the prototype each yard often has its own set of crews, with one yardmaster who supervises both of them.

Track arrangements vary, but for the most part you find the main tracks usually both go through the center of the yard, or they split apart at each end and each goes around its own yard. Either method allows trains moving in one direction not to be fouled by trains moving in the other direction. Obviously this is impractical on the model railroad. Most of us can't model two separate yards in a space we are hard-pressed to build just one (but there are notable exceptions). So the first compromise is often to use just one yard regardless of whether the railroad is single or double track.

The next question is likely to be where to place the yard in relation to the mains. Ideally, you would like to route each main around the outside of the yard (located in the center), with separate A/D tracks to either side, all of which are connected to the yard lead. However, like a separate yard, this is probably not practical because of space considerations. The second compromise is to have both mains pass on the same side of the yard, with a pair of crossovers from the far main to the near main at either end, which allow trains on the far main to cross the near main and move into the A/D track(s). See the image below:



It is not an ideal solution but is probably the most practical, taking up the minimum amount of linear space to accomplish (only 2 extra feet to either end assuming a pair of #6 crossover turnouts, in HO scale). If you can afford the space, by all means route the mains around either side of the yard and include the extra A/D tracks. It's also a good

idea to route the mains to the back of the yard, so traffic moving by will not be menaced by the ubiquitous stray elbow or shirtsleeve.

There are some other considerations to take into account in the interest of keeping traffic moving smoothly in your yard. Double track railroading means a significant increase in traffic over single track. The layout designer should keep in mind that unless separate directional yards are implemented a single yard will quickly be overwhelmed. As discussed earlier, most model railroad yards will have a cars per hour limit they can move successfully that won't change regardless of the number of mains in service. Consider having several through trains in the schedule that do not stop at this yard, but run nonstop through from staging at one end of the railroad to the other, or stop at a different yard. This will keep the traffic density on the mains high without slamming your yard personnel.

To help improve the cars per hour ratio, there are a few things you can do:

- Assuming you have the space, design the yard to be at least partially double-ended, and include a moderate length switching lead on the far end. Assign a switcher (and crew) there whose responsibility is to handle activity on that end of the yard, like pickups and setouts, picking and setting cabooses, blocking of outbound trains and other tasks that might be difficult for the primary switcher crew to get to. This allows the primary switching crew to focus more on classification. If the secondary lead has an escape track for the switcher, road engines can also use it to hook up to their trains or escape to service.
- A running track to get to the other end of the yard and a decent-sized runaround are absolutely essential. A double-ended caboose track that adjoins the running track is also very important.
- An answer to needed cars per hour improvements may be to have several leads that can switch different areas of the yard at the same time. Useful for very large yards, there may be a lead and ladder for tracks 1-5, and another parallel lead and ladder for tracks 6-10. They would share an interchange track between the two body areas where they could switch off cars bound for the other's tracks. This doubles the amount of work that can be done, but suffers a bit from inefficiency, and it may be problematical to move cars in and out of A/D tracks. The net improvement is probably closer to 50%, assuming the crews can work in concert. A potentially serious drawback is the need for two switching crews to occupy the same space in the aisle. But with proper planning this difficulty might be minimized

Last Thoughts:

I realize that it takes a pretty fair-sized yard to fully implement many of these concepts. The modeler with a smaller space, however, still has much to gain by using these criteria to help design the small yard. Perhaps there isn't room for a full length caboose track. But an extra 18" track off the end of the ladder track will hold 2, maybe 3 hacks, and the inclusion of a short run-around, possibly also used for a nearby industrial switching area, lets you do quite a lot of operating within a little space. You don't need 2

or 3 A/D tracks, having one that also functions as a siding off the main line will work, even if it's not ideal. But no matter the size, you always need to have a lead as long as your longest body track. The trick is to be creative in how you design, and do the most with the space you have.

The Timesaver -- An Example of How Bad Design Gets Promulgated

By Craig Bisgeier

If you haven't already heard of the Timesaver, read the next paragraph, otherwise skip to the next.

The Timesaver was a switching puzzle invented by either John Allen or Frank Ellison (I have to check my sources, if you remember please write and tell me) in the 1960's for competitions at National Model Railroad Association (NMRA) meets. It was designed to be a standalone unit, about 12" x 36-48" (today we'd call it a module) with exacting clearances between tracks and switches that would only allow the switcher and one or two cars enough room slip between adjacent tracks. In operation it is something between a Rubik's Cube and a Time Trial. An operator is given a starting position with a single switcher engine and a few standard boxcars, and is told where the boxcars and switcher have to end up to finish. The clock starts, and the operator is timed on how long it takes him to get to that solution, and the number of moves back and forth are counted (coupling / uncoupling is counted as a move). In the end the operator with the fewest moves and / or the shortest time is awarded a prize.

The Timesaver in itself is not evil. When used for it's designed purpose, it is a challenging and difficult game that tests the operator's ability to think ahead and plan complicated switching moves. The game was a bit hit, it was talked about in the hobby press at length and plans were published so that other modelers could make their own Timesavers. Many folks did just that, and there were Timesaver modules all over the place for people to play on.

As long as the Timesaver remained a small module that sat under the layout and only got brought out for modeler's meets or practice, it was fine, it threatened to one. Unfortunately, this is the story about something good that got perverted into one of the worst layout design mistakes ever. I imagine it went something like this...

It started when some bright guy got the idea in his head that if he hooked his Timesaver up to his layout, he could practice his moves without having to set it up on the wife's dinner table. He took his module and attached it to the end of his layout, so he could play with it but also run trains onto or off of it, just to vary the engines or boxcars used.

A little later, a friend of his comes over and sees what he's done, and thinks this is a great idea. He goes home and decides to build one into his layout too so he can practice. But this guy is a little more inventive, and decides not only to drop in the Timesaver, but to disguise it as a town so it won't look too odd on his layout. Not much trouble to drop in a small factory here next to one track, a station there, and presto, it's a

town with a complicated switching. Oh yeah, this guy's isn't removable like the first guy's, he figures he'll just play with his friends' module when they go to meets.

The seed of evil has been planted.

Lo and behold, this guy is a pretty decent modeler and his layout gets picked to be photographed for one of the hobby rags. The photographer dutifully photographs all the nice scenes on the layout, one of which is the town with the built-in Timesaver. The photographer, who's tied into what's going on, recognizes the Timesaver for what it is, as do the editorial staff. They include it because it looks good, and people have been talking about the timesaver for a while now. Folks will recognize it, and folks in the know realize how clever the idea is.

It works. Lots of guys who have been to NMRA meets or even local train shows see it and get a good chuckle out of it. A few even decide to do the same, figuring it's a good way to fill an empty space and get a little practice in once in a while.

But there are many other modelers out there who have never been to an NMRA meet, whose only exposure to the modeling world comes once a month in the mail, in the form of that hobby rag. He's never really been down to the tracks to look around, besides to watch the trains go by. The magazine is his link to that world. He has have been reading it for a few years, marveling at the big names like Armstrong, Allen, Ellison and the like, always looking for something in the magazine they can use to improve their own layout.

Now here comes this guy with a nice-looking railroad in this month's issue, and "Hey, look at that town! Looks nice. Hmm. Says here that John Allen made up that design. He's a pretty good modeler, that John Allen. If he designed it, it must be pretty good. Timesaver, huh? I think I remember reading something about that last year... Don't have that issue no more though. Oh well. Looks like I could make that fit on MY layout. Hmmm..."

The seed of evil has taken root.

In a week or two this guy has a Timesaver (or something like it) installed on his own layout. He doesn't really understand what it is for, all he really knows is that it looked good on the other guy's layout in the magazine, and that right smart fella John Allen made it up. And by gum that's good enough for him. He didn't quite get it right either, but that's OK because he doesn't really operate much beyond watching the trains go round and round on his loop layout. So the fact that it is a pain to switch it doesn't really faze him.

After the first article there are others who take the ball and run with it. Many know full well what the Timesaver is, and include it even though they never actually intend to play with it -- it's just a trendy thing now. The Timesaver starts appearing in the magazines every few months, scenicked in many different ways, long after the initial hubbub about

the game has trailed off. Editors stop including references to the game that inspired it because that ground has already been covered many times. And the legend of the Timesaver begins to grow. It picks up steam every time a picture of it is shown, every time the thing gets mentioned along with its inventor.

Eventually, the original game concept becomes so blurred that the plan becomes accepted as a convention many modelers feel they need to include on their own layout, because so many other folks have it. It becomes a badge of acceptance, showing you are 'hip' to what's going on. "Look! See, I've got a Timesaver too! I'm with the IN crowd! I know what's going on!" And of course, they really don't. It is so ubiquitous that it even becomes accepted as a good bit of layout design -- maybe the first real LDE (Layout Design Element) ever. People stick them in layouts without even really thinking why -- it's just that everyone else is doing it so I need to have it too.

The seed of evil has now bloomed into a poisonous plant.

So all these folks have these Timesavers of all shapes and sizes built into their layouts all across the country. And eventually, some of them get bored with watching the trains chase their tails, and want to do something else with their layouts. They start to do some sort of basic operations, which is working great until they get to the Timesaver. And after an hour or so trying to move a boxcar in and out of the mess that is the Timesaver, they get frustrated and decide to go fishing or watch TV instead. I wonder if this isn't one of those things that has given operation as bad name for so many years.

That's the real problem here -- **the Timesaver was never, ever meant to be used as the track plan for a town or industry on a model railroad.** It is an interesting game but it is an extremely **BAD** plan for a switching district. Anyone who has ever tried to do real switching in one (as I have) will tell you it is both frustrating and discouraging. It bears NO resemblance to any type of track plan you would ever find in the real world, and there are few people who understand layout design who would get behind it and recommend it to anyone. It will bring all but the most determined operator to his or her knees. Owners will avoid working it and those who come to help operate will quickly refuse to take that job again. In short, it's no fun to operate a Timesaver as part of an operating layout. And sadly it isn't until it is far too late to easily change it that the truth is discovered.

And yet -- because of the magic and mystique of John Allen, and all those years the Timesaver was shown in print over and over again, you still see it popping up in layouts being built in the 21st Century. I have to think these folks don't really understand what they are doing. If they had any idea of the abuse they are inflicting upon themselves I'm sure that plan would quickly be round-filed and some other -- any other -- solution would be in the works.

Now, the truly scary thing about all this is that the Timesaver isn't the only pitfall that is out there for the uninitiated designer. There are many other conventions out there that you may have included in your plan without even realizing there are not only

alternatives, but quite possibly better and more realistic solutions. For instance, have you considered a point-to-point shelf switching layout for a narrow space, instead of trying to shoehorn an oval loop layout into your 8' x 10' rumpus room? Have you considered that you might have alternatives to thick, wide turnback loops at the ends of your peninsulas? That maybe there's a better way to reach the middle of your layout than that 3 foot deep crawl-under?

Think about it. What have you designed into your plan that could come back and bite you later? Have you considered every alternative before you pick up a saw and nails? Better think some more, my friend. Wood isn't cheap, and your time costs even more these days.

So now that you have been enlightened about the trap of the Timesaver and other design horrors, I hope you will abandon any foolish notions about putting them in your own design, and will caution any other unwary neophytes on the dangers of including things you don't understand on your layout plan. Question everything. Don't just do things because everyone else is doing it. Don't be afraid to try something different -- or at least don't be afraid to ask if it is a good idea or not. Try new things. Make NEW mistakes.

JUST SAY NO TO THE TIMESAVER!

Compression: Why it's evil, and why you need it

At this point I'm going to introduce a bad word: **Compression.** Compression is going to be the watchword throughout the design process. It is our evil but necessary friend. Why, you ask?

We can't hope to include a true scale model of almost any yard on our layouts any more than we can expect to have more than a few scale miles of track to represent a division of 100 or more prototype miles. Something has to be left out (for the railroad, usually the long, boring miles in between interesting spots) in order to fit it into the average layout room. Yards are no different -- they are big places with miles and miles of track, which we can't hope to model in its entirety.

Real classification yards are huge, often consisting of many smaller special-purpose yards that make up the whole complex. A common plan uses three separate double-ended yards strung one after the other to move traffic efficiently: an arrival yard, a classification yard, and a departure yard. As might be expected, an arrival yard is where arriving trains drop off the cars of their train. They are picked up there and moved to the classification yard, being switched back and forth as necessary to get the right cars onto the right trains. As the trains are built out, they are moved to the departure yard, where they get a new caboose and locomotive and proceed to their next destination. Often an identical set of yards will exist on the other side of the main, serving trains moving in the other direction.

Since (almost) no one can model this, it's necessary to compress the essence of the operation down to a manageable and modelable level. What most folks do is compress the three yards into the space of one, forcing one or two tracks to do the work of many miles of prototype track. as you might imagine, this makes for a lot of pressure on the people you choose to operate your yard. They will often have to do nearly as much work as a prototype crew to get through a session.

Please use the Back button on your browser to return to the Yard Design page.

John Allen’s TimeSaver

Mention “switching puzzles” to a group of model railroaders and the conversation inexorably drifts to the one standard of the genre. There are numerous examples of “Timesaver–like” layouts all over the internet and the magazine press. There are countless examples of scenicked and plain-jane Timesaver clones as well. What other thirty-five year old layout engenders such admiration, nostalgia and amusement?

What is the Timesaver?

Perhaps we should start by explaining what the Timesaver is NOT:

- The Timesaver is NOT a layout design element.
- The Timesaver is NOT a module or domino.
- The Timesaver is NOT designed as a part of a larger layout. Some modelers may incorporate one into a larger layout (I did) but it was not DESIGNED that way.

So then, what did it look like, how was it constructed, how was it played?

The Timesaver is meant to be a puzzle, a game, a diversion. That’s how John Allen designed it. It was intended to be a game to be played after operating sessions on the Gorre and Daphetid, when operators climbed the stairs to John’s kitchen. The game had a simple layout, simple rules, and a complex solution that changed each time it was played.

There was always a small wager (usually a whole nickel, as I recall) between the players, with each trying to predict who would solve the night's puzzle in the quickest time. With John holding the ever–ticking stopwatch, the pressure to find the right moves in the shortest time often lead to language best learned on a battleship or in a foxhole. John’s good-natured ribbing, grunts, and even stage yawns if the time went too long, added to both the enjoyment and the anguish.

For an object of near veneration among model railroaders, this was (and is) one of the plainest, even ugliest, little railroads ever built. It was built primarily from commercial HO scale components mounted on a plain wooden sheet, with no ballast, no scenery, and no buildings. It had a simple toggle switch for operation of the locomotive and an old train controller connected to the end of the board by two unhidden wires provided power and set the speed.

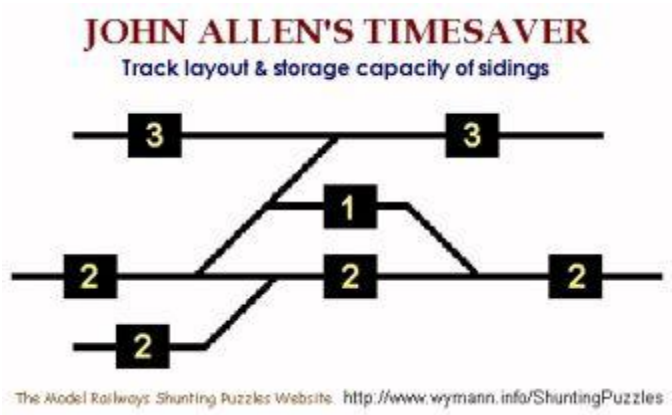
The only unique element in its construction was the use of wye turnouts for the single runaround. This shortened the length of the board and reduced the space available for engine and cars to the minimum. Uncoupling magnets mounted between the rails were the only “legal” uncoupling points and small cardboard strips marked the target locations for the cars.

The double Timesaver is shown here at the 2000 PCR Convention with the late Alan Fenton (right) who was its custodian from the time of John's death and the fire until he passed away.

Some further notes on the Timesaver

The Diagram

Diagrams of the Timesaver are available in many locations on the Internet, but the most accurate (and simplest) is provided at the Model Railways Shunting Puzzles website. It is reproduced here by permission. This website has additional excellent information on the Timesaver, its construction and operation and many examples of Timesaver clones. It also features the “Inglenook,” a fiendish, simple-looking British switching puzzle with as many devotees as the Timesaver. I highly recommend Inglenook Sidings to any aficionado of switching puzzles.



Note the single runaround and the explicit lengths of each siding. These were just long enough for the designated number of cars but had no bumpers, so a little extra “oomph” on a pushing move would result in a derailment and time penalty.

The Rules

The rules were equally simple:

1. You may not touch any equipment except the toggle switch and the turnout levers.
2. Time begins when the timekeeper indicates. “Thinking time” is included in your score.
3. Move all cars and the engine from the starting positions to the end positions designated by the markers.
4. Only time is counted. Do not count the number of moves.
5. There is a time penalty for derailments through closed turnouts, derailments at the end of a spur or touching the equipment, in addition to the time required to rerail the cars and/or locomotive.
6. Occasionally the Baker couplers did not couple correctly. Derailments caused by equipment malfunctions do not count.
7. This is supposed to be fun. Stop sweating. (Actually, I added that one to represent my own experience.)

Want to build your own TimeSaver? Here's how

INGLENOOK SIDINGS

The classic British "shunting puzzle", Inglenook Sidings, is the brainchild of Alan Wright, who kindly enough provided me with first-hand information on the origins and principal features of his layout.

In his Model Railway Manual (first published in 1994, last reprinted in 2000) Cyril J. Freezer links Inglenook Sidings with A.R. Walkley's 1926 suitcase layout - an origin which is "attributed" and, in fact, wrong. Although the track layouts share certain similarities, Alan Wright himself has pointed out to me that he had never heard of Walkley or his work when he built his first small railway, the Wright Lines, in the early 1950s. It was on this small layout (consisiting of a "dented" oval and two sidings) that the principle of a five wagon train on the main line and three in the sidings was developed. The layout was developed over a couple of years, was described and illustrated in the Railway Modeller in 1958, and made a couple of appearances at exhibitions in the North of England.

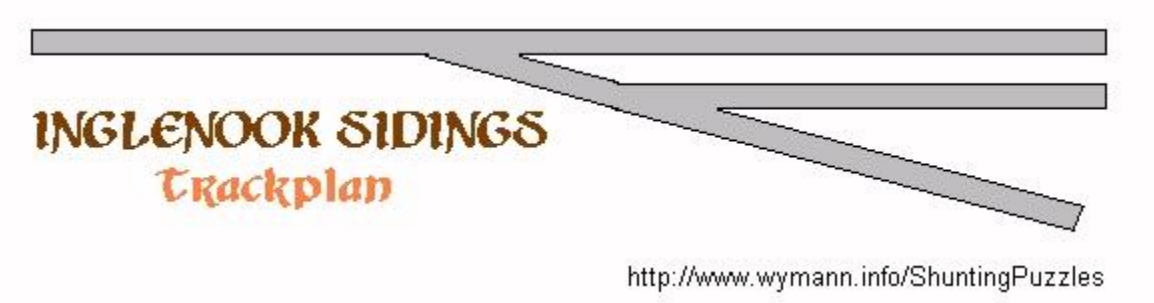
The actual way Inglenook Sidings came into being is quite amusing and, in Alan Wright's own words, took place as follows:

> *"In December 1978, with the Manchester show approaching, my colleagues at work asked what I would be showing that year and when I said "nothing" I was taken to task and the next day one produced a blockboard off cut 4'0" by 1'0" and challenged me to build a railway on it and show it. Having some odd pieces of track and a couple of points Inglenook was born and the 5/3/3 formula was adopted. It was a roaring success at the show, I*

had the small controller on a six feet long lead and stood among the crowd listening to what they had to say and then carried out the movements they wished would happen.. The aura of magic such operation produced made the crowd wonder if it was worked by someone watching on television or was it a computer?"

Alan Wright won an award with the model that year and later went on to build several layout variations on the Inglenook Sidings scheme.

The inspiration for the basic scheme came from an actual location, Kilham Sidings, on the Alnwick-Cornhill branch (Coldstream branch) of the North Eastern Railway NER. In its original form, the 5/3/3 formula was therefore worked on the main line and two sidings (as on the Wright Lines layout). On the minimum space Inglenook Sidings layout this then turned into a stub line ending in three sidings.

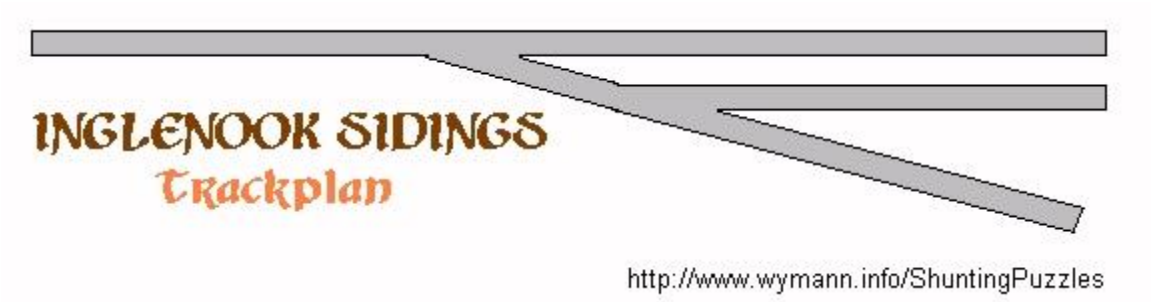


An illustrated article on the second Inglenook Sidings layout (basically a mirrored trackplan [headshunt going off to the right, whereas the headshunt on the 'original' 1978 layout went off to the left]) appeared in the December 1992 Railway Modeller ("Inglenook revisited", unfortunately out of print). A couple of pictures of the 1978 layout appeared in C.J. Freezer's Model Railway Manual (first published in 1994, several reprints since) and in the December 1984 issue of Scale Model Trains. Alan Wright recounts the Inglenook story "so far" in the May/June 1999 issue (#22) of Model Trains International.

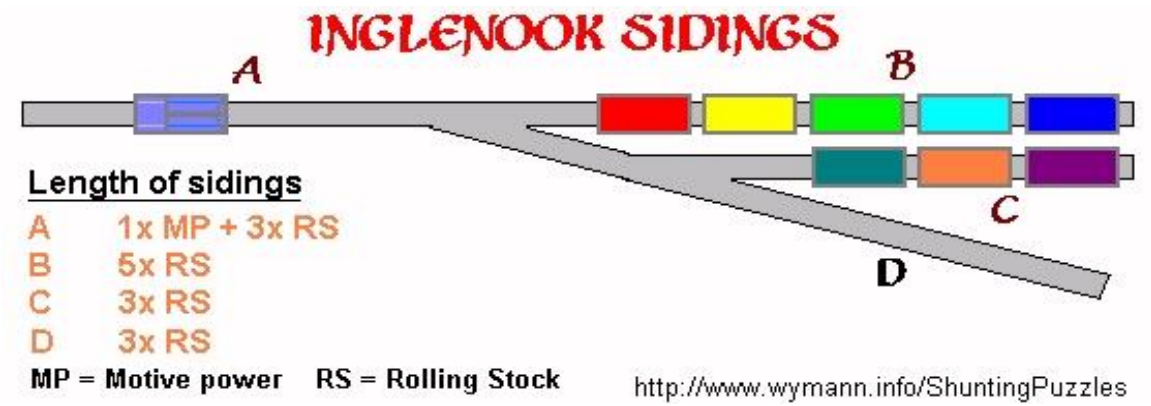
Alan Wright's Inglenook Sidings is still considered to be one possible approach to "perfect railway modeling", and quite rightly so. In this ad, a picture from the second version (left-branching) layout takes center stage.

TRACKPLAN

The trackplan is deceptively simple, consisting of only two points and three sidings.



As with most shunting puzzles, the length of the sidings is determined by the operating rules. In the case of Inglenook Sidings, the longest siding holds 5 wagons, while the two others have a capacity of 3 wagons each. The headshunt allows for the engine plus 3 wagons (when operating, a total of 8 wagons plus one engine will be used).



LAYOUT SIZE

The resulting overall size of the layout is small by any standards, but can vary considerably as the actual length of the sidings is determined by the common length of the rolling stock to be used on the layout - the longer the rolling stock used, the longer the sidings will need to be.

Left: A preserved private owner 10t open coal wagon (10'-0" wheelbase) [September 1992. Didcot] / Right: A Departmental ZRA 29t van (20'-9" wheelbase) [May 1990. Bristol East Yard] (Both photographs copyright and courtesy of the Tony Dunkley Collection)

Alan Wright's original layout only measured 1' by 4' (30cm x 120cm). This was achieved by using standard goods wagons of the British steam/diesel transition era which are comparatively short: the standard wheelbase measures 10'-0" (3m), which gives a total length over buffers of 20'-6" (6,15m). Scaled down to 00 gauge, this translates into goods wagons about 3,2" (8cm) long. Therefore, a siding with a length of 20" (50cm) will easily hold 5 pieces of rolling stock.

Modelling modern image (or a completely different prototype), things can get a little bit more complicated. There might still be some items with a 10'-0" wheelbase and hence a model length of approx. 3,2" (8cm) around, but the majority of stock will be longer (the ubiquitous VDA for instance has the "modern standard" wheelbase of 20'-9", which scales down to a total model length over buffers of approx. 6" / 15cm), and this will have to be reflected in the length of the tracks. Tank wagons and special purpose stock will also be of differing lengths. Therefore, the longest type of rolling stock to be used will have to serve as the standard rolling stock length in order to define the length of the sidings, i.e. multiples of 5 and 3 thereof.

In the case of rolling stock of various length being used, an additional rule needs to be introduced in order to prevent chance constellations where it would in fact be possible to squeeze e.g. 6 wagons onto the 5 wagon siding.

The choice of locomotive used will, of course, depend on the prototype being modelled, but small to medium sized shunters are a logical choice. Most British layouts seem to feature 0-6-0 tank steam engines or 0-6-0 Class 08 diesel shunters, while the General Electric 44-ton four-axles switcher is a common favourite for US layouts.

A Cl 08 shunter fresh from the paintshop shunts a short-wheelbase VEA van in the sidings at Little Bazeley.

SMALLEST INGLENOOK POSSIBLE?

The set-up of Alan Wright's original Inglenook Sidings only required a layout space of 4' x 1' (120cm x 30cm). As pointed out above, modelling a modern rather than a steam/diesel transition period prototype will inevitably result in a longer layout due to the longer rolling stock used. If, however, you do not have more space at hand, you might wonder if cutting down on the 3-3-5 formula might make a modern Inglenook possible within the same 1' x 4' (120cm x 30cm) layout limits. The answer is yes, but certain points need to be observed.

Carl Arendt, master of micro layout design, has subjected the Inglenook formula to some practical testing and found that it can be cut down to 3-2-2 with a 2 cars plus loco headshunt and still provide operating interest, forming a four car train from a total of six cars randomly placed in the sidings.

This example illustrates just how flexible the Inglenook formula is: you can fiddle around with the track capacities, and you can alter the total number of freight cars on the layout, together with the number of cars to be assembled in order to set up the departing train.

Bob Hughes' N Scale San Vince de Rey (a tongue-in-cheek reference to the fact that this layout is actually built on a sandwich tray) works on a 3-2-2 "reduced" Inglenook Sidings formula. Set in California, it portrays a small yard in Union Pacific territory. A micro layout by any standards, it can be kept virtually anywhere.

Even a "reduced" Inglenook layout offers an operational challenge and is fun to operate, even though the reduction in complexity of the shunting puzzle which results from such alterations is far more significant than most people would suspect:

	number of cars	number of different arrangements of cars	number of cars in train to be made up	number of possible different trains to be made up
Classic Inglenook	8	40,320	5	6,720
Carl Arendt Micro	6	720	4	360
"Minimal Inglenook"	5	120	3	60

The reasons for this drop in complexity are explained in further detail on the shunting puzzle theory page.

The conclusion to be drawn from this is, perhaps, that from an operational challenge perspective it is better to stick with the original formula if at all possible. On the other hand, even a "minimal Inglenook" is better than no Inglenook...

One thing, however, which needs to be observed very strictly, is the capacity of the headshunt, i.e. the track leading up to the points. This needs to hold at least the loco plus the number of cars equivalent to the capacity of the two shorter sidings (i.e. 3 in the classic formula). If this rule is ignored and the capacity of the headshunt reduced, there are a number of car arrangements will actually prevent the loco from pulling out the last car from the long siding, turning it into a sitting duck.

INGLENOOK SIDINGS
RULES & OPERATION

The object of the Inglenook Sidings shunting puzzle is fairly simple, the order for the shunting crew being:

"Form a departing train consisting of 5 out of the 8 wagons sitting in the sidings."

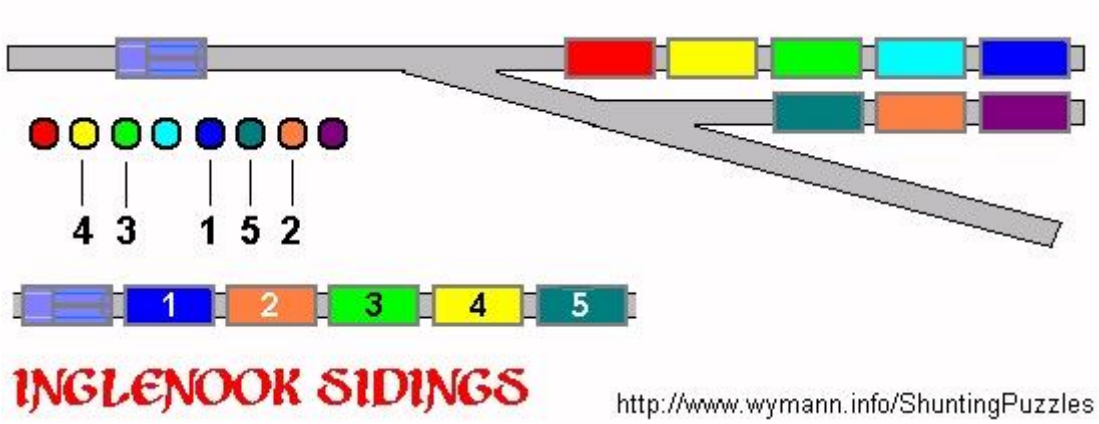
In addition (and this is where the "game element" of the puzzle comes in) the shunting order states:

"The 5 wagons are selected at random."

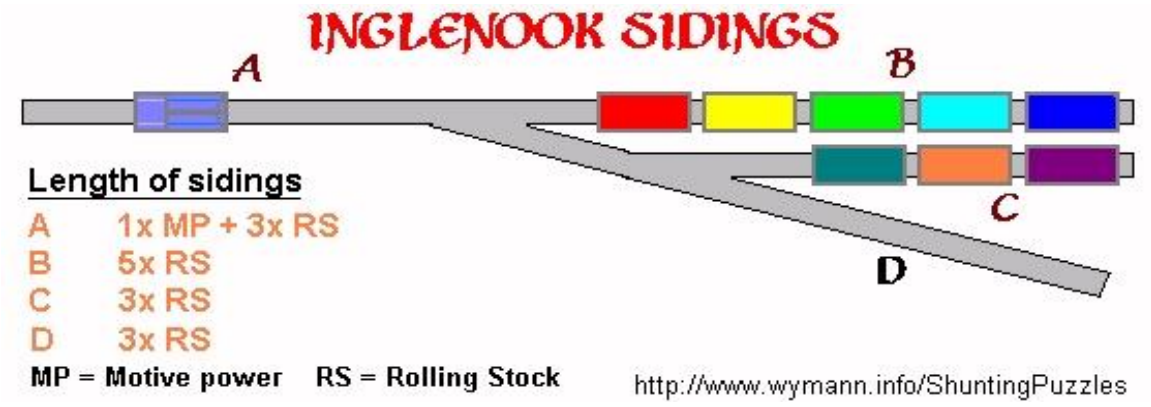
On the original Inglenook Sidings, Alan Wright employed what he called the "Tiddlywink Computer" for this task, i.e. distinct tokens for each wagon drawn from a mug. No matter how these 5 items of rolling stock are determined, the order in which this happens is important because:

"The train must be made up of the 5 wagons in the order in which they are selected."

An example of what this can look like is given below, illustrating that despite its simplicity, this shunting puzzle can produce some combinations which require a certain amount of thinking and a number of moves:



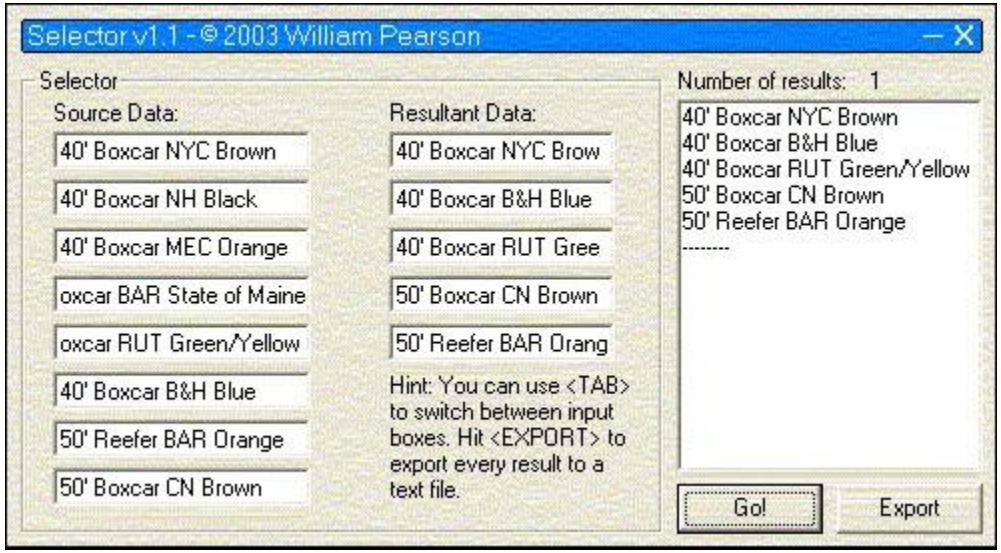
The challenge of fulfilling this shunting order is linked to the fact that some advance thinking is required due to the fact that there is limited space available to juggle around the rolling stock, as determined by the lengths of the individual sidings and the headshunt.



What looks like a simple task can provoke quite a bit of headscratching. The number of possible combinations regarding the positions of these 8 items of rolling stock, by the way, is a mere 40'320, so it should take some time before a feeling of "oh yes, I know this one" grabs the operator. Once the train is made up, the five items of rolling stock are either simply redistributed on the sidings wherever there is room for them, or replaced with five other items if the headshunt leads to somewhere, e.g. a fiddleyard or perhaps even a larger layout.

You can get a first-hand impression of what it's like to operate an "Inglenook Sidings" layout straight away, thanks to Neil Machin's virtual "Inglenook Sidings" shunting puzzle.

If you already have a working Inglenook layout, you will find that the *Inglenook Random Wagon Selector*, a sleek piece of software (runs on Windows PCs), allows you to leave the shuffling of whatever kind of tokens you use to the computer. The screenshot below shows an example list of cars on the layout and how the *Selector* produces a random list of cars in the order in which they are to be shunted.



This software is (c) William Pearson and now available in an upgraded version which also allows you to save your source data. You can get it here as a downloadable zip-file (with kind permission and courtesy of Mark Kendrick).

INGLENOOK SIDINGS
LAYOUTS & VARIATIONS

Layouts – Variations

Layouts

As you are using a computer to browse and read this website, it's quite fitting to start with a *virtual* Inglenook Sidings layout. Terry Franks (TaF Web) has created a faithful reproduction of the original layout for the railway simulation *Trainz*.

Click for larger images.
Screenshots are © Terry Franks / Taf Web. Reproduced with kind permission.

Quite a number of layouts based on *Inglenook Sidings* can be found on the web:

- Alan Wright, spiritus rector of Inglenook Sidings, is featured with his 0/16,5 scale narrow gauge layout Ober Bucherschrank Bahn on Chris MacKenzie's Virtual Narrow Gauge MREX - the layout incorporates many elements of the 00 gauge classic shunting puzzle
- Rolf Kramosch's Rendsburg layout (#1 scale [1:32], German Railways in the 1960s)
- Martin Fischer's Leintwardine bi-level layout (HOn30, US narrow gauge prototype) features a variation of the Inglenook

Sidings concept on its upper level yard

- Mark Fielder's Clive Road Sidings (2mm finescale, UK prototype)
- Trevor Foster's Clairmont Old Quay (7mm narrow gauge, UK prototype)
- Battersea Sidings (00 gauge UK prototype) combines the Inglenook formula with a passenger shuttle track front on a lower level track

click for larger images

One really nice thing about the Inglenook Sidings puzzle is that it is so simple that you can actually set it up in no time as a temporary layout on a rainy Sunday afternoon (much the same way you would get out the Monopoly game board) using pieces of set-track (i.e. the "snap together" type that comes with any train set).

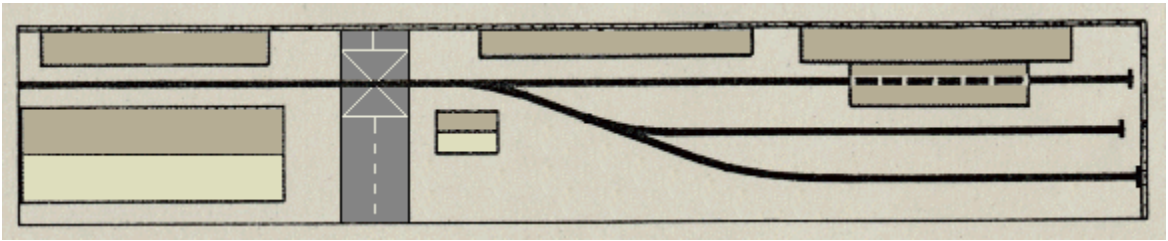
In the example shown on the right here I used Kato N gauge "Unitrack", which in this case has the advantage of offering track pieces with ready-installed Micro-Trains (Kadee for the larger scales) uncoupling magnets, which together with Micro-Trains freight cars and an Atlas GP9 with added MT couplers allows for hands-off coupling and uncoupling. Five minutes to shake the box, set it all up and get the loco going, and presto, an instant shunting puzzle on your dining room table. No scenery, no frills, just pure shunting puzzle operation fun - and a quick and easy alternative to a fully scenicked Inglenook Sidings layout such as illustrated below..

Scenicked Little Bazeley (00 scale UK prototype) shunting puzzle based on *Inglenook Sidings*

Variations

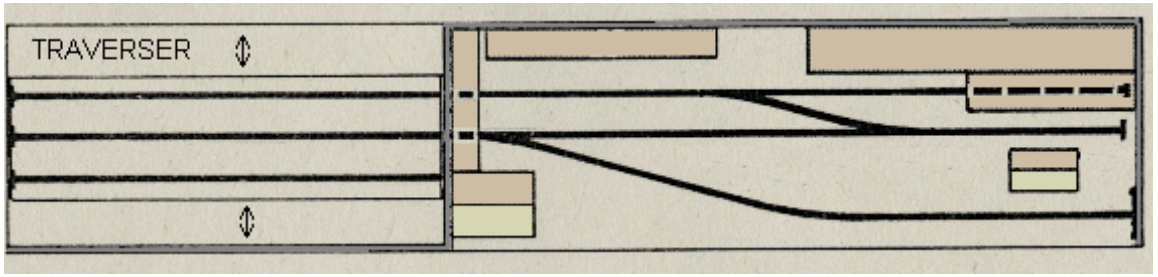
There's more to be found on variations of the Inglenook Sidings layout in the specialised printed magazines. For example, the June 1998 issue of *Railway Modeller* featured an article on Southampton Docks and how the "general atmosphere" of such a railway setting could be incorporated into modelling a small shunting layout.

The first track plan suggestion isn't really a variation of *Inglenook Sidings* but rather very much the real thing with some added buildings (including a warehouse with covered or even enclosed loading dock on the "5-capacity-siding") and a level crossing for added scenic interest.



The second track plan suggestion illustrates nicely how layout schemes based on the Inglenook mould can quickly evolve into something more complex which seems to offer more operating potential at first sight but actually provides less possibilities on

second, closer inspection. In this case, a traverser offers the possibility of using a larger variety of rolling stock and motive power.

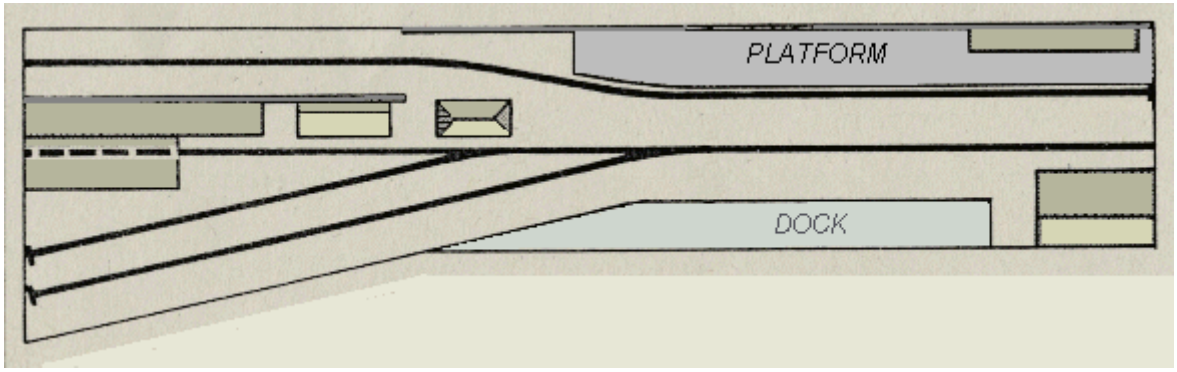


While this is certainly no bad idea, the attempt to include a runaround track by means of inserting an additional set of points on the scenic part and using the traverser to complete the runaround move, isn't quite as good an idea as it might seem to be to start with.

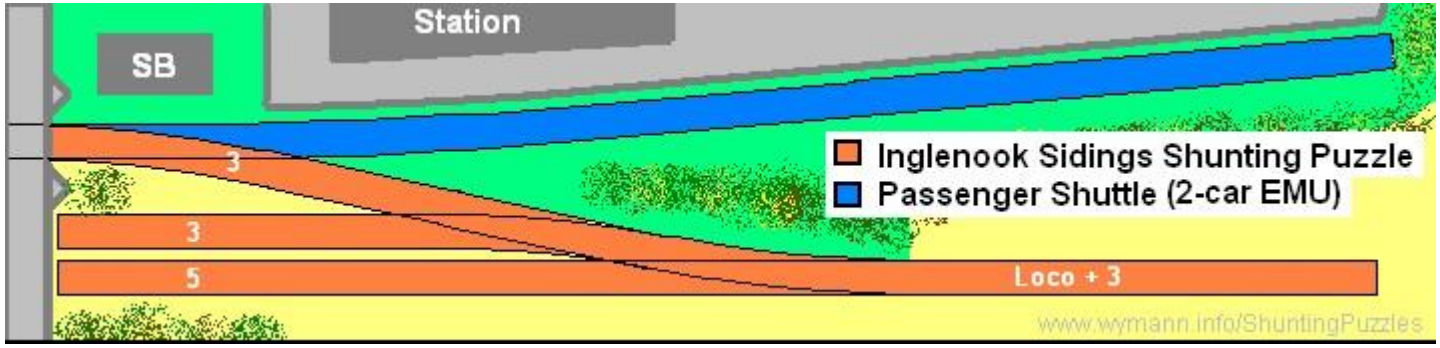
The main problem is that these two additional points effectively halve the capacity of the two uppermost sidings. If the length of these two sidings (one being the "5 capacity siding") isn't extended accordingly, the 5-3-3 formula will no longer work. Furthermore, the traverser needs to be used constantly for stock moves in order to access all three sidings - certainly a matter of taste and not every operator's cup of tea.

Much more to the point is the third trackplan variation of the article in question: a mirror image of the original Inglenook Sidings trackplan is complemented by a single line serving a small seaside passenger terminus.

The first impression that the operating potential is increased is, in this case, correct: apart from shunting, this type of small layout also offers the possibility of running a passenger stock shuttle (preferably one or two-car EMUs or DMUs) from the left hand corner (where it disappears behind a row of low-relief buildings) to the terminus platform to the right.



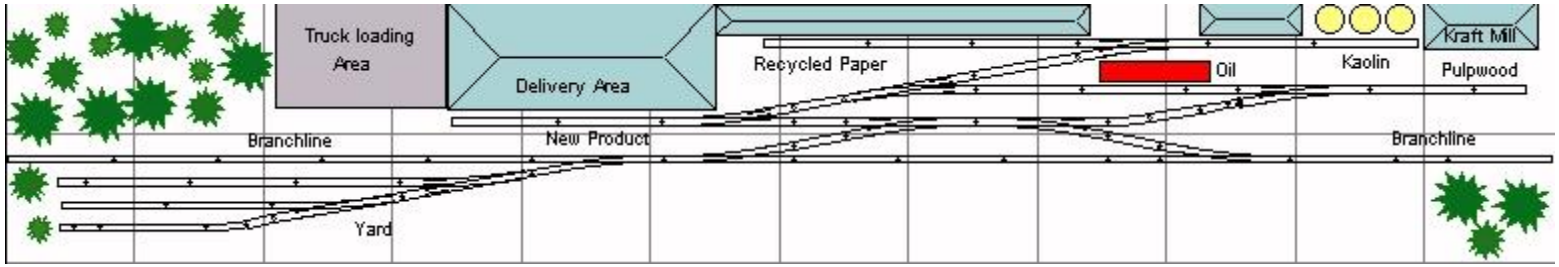
The combination of freight and passenger operations, separated in the layout above, can even be connected in a way which adds an additional momentum of operational interest.



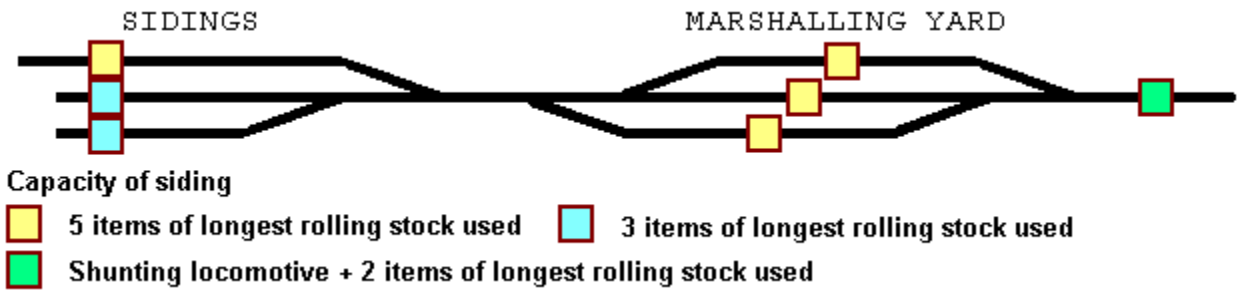
This trackplan separates the shunting puzzle tracks and the passenger service shuttle track to a large extent, but not completely. The uppermost track of the shunting puzzle arrangement forms part of the main running line (a complication - and potential source for dangerous situations - usually avoided on the prototype, but not always possible to eliminate completely), which means that shunting moves may have to take into account the arrival or departure of a passenger train at platform 2 and clear the line for this well in time.

There are several ways of introducing the effects of this complication. You can either limit the number of shunting moves (i.e. after 10 moves the uppermost "siding" must be cleared because a train is due for arrival or departure), or - if using a card or token system to select cars - you can introduce a special token/card which, when drawn in the process of determining the shunting order, rules that the uppermost siding must be cleared once (or even each time) the car which was drawn just before the special card/token is involved in a shunting move. This operational complication is a bit like "chance" cards in a game of Monopoly and can at times add quite a bit of added headscratching to the process of solving an *Inglenook Sidings* shunting puzzle...

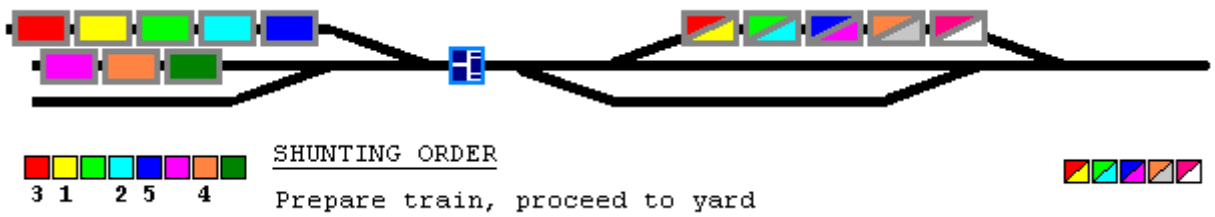
Another interesting variation which comes to mind is, of course, to combine the two classic shunting puzzles, i.e. Inglenook Sidings and the Timesaver, and double the fun. Straightforward as this may sound, it's not that easy to come up with a really working combination. Paul Van Hove not only managed to do this with his trackplan for an N scale layout he is currently building, he also gave the whole layout a credible industrial background: the Timesaver layout is a paper mill, and the Inglenook Sidings layout becomes a yard serving this paper mill.



This trackplan hints at the fact that an Inglenook shunting puzzle need not be small. As illustrated below, if space permits the addition of a marshalling (classification) yard can greatly increase the complexity and variation of the shunting and spotting orders to be generated from the layout:



The following shunting cycle illustrates the operational possibilities of such an "extended" Inglenook layout:



SHUNTING ORDER

Prepare train, transfer to sidings

INGLENOOK SIDINGS
PROTOTYPE EXAMPLES

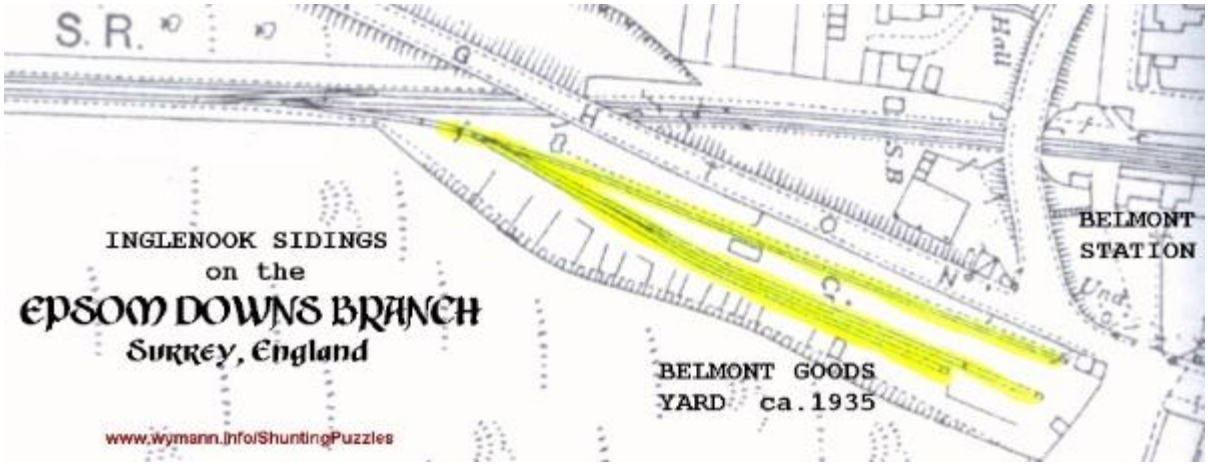
Given the simple track layout and the basic operating principle of simply picking up and dropping off wagons, the thought that this layout may not be very prototypical, i.e. far removed from what really happens on the railways of this world, could well come up. However, the really nice thing about *Inglenook Sidings* is that, in fact, it is perfectly prototypical and highly flexible at the same time.

Any layout based on Inglenook Sidings will be prototypical in as much as any railway needs sidings somewhere which serve the sole purpose of providing the space to temporarily store rolling stock out of the way of the rest of the railway (which can also account for a very motley accumulation of different rolling stock which normally would not be found together on the same piece of track). From time to time, some of the rolling stock will be picked up again and moved on while other wagons are dropped off again. In fact, even the chance element of which wagons are to be picked up is quite possible in real life (where, of course, the logic and logistics of making up a train will dictate which wagon is to be picked up), although this will only seldom happen in a strict order of which wagon is to come first, second etc.

But all in all, this last point doesn't weigh too heavy in terms of modellers' licence. The fact that these sidings are rather short is simply a reminder of the amount of compression almost every model railway layout represents.

Railway modelling, after all, is the art of compromise.

The essence of the track layout of Inglenook Sidings can be found in many prototype locations, sometimes as a set of sidings used to temporarily



Survey map of around 1935 showing the track layout of Belmont goods yard [click for a larger image].

store rolling stock, sometimes as a set of sidings serving one or more customers.

For more information on this branchline (still up and running today) visit the Epsom Downs Branch Website

A perfect prototype example for this classic English shunting puzzle could be found on the Epsom Downs branch in Surrey in the form of the goods yard at Belmont.

Belmont goods yard, ca.1935
(Lens of Sutton) [Click to enlarge]

This 1930s view shows some open goods wagons being shunted by what appears to be a Southern Railway E4 0-6-2 tank engine - a scene which could (almost) be replicated with ease using Hornby's ready-to-run SR E2 0-6-0 tank engine (the black liveried model would be more appropriate than the olive example pictured here).

Belmont Goods Yard closed in 1969, with goods trains seemingly operated by steam right up to the end of freight services on the branch, but with just a little bit of modeller's licence it could be argued that the yard survived into the modern era as storage and stabling sidings for civil engineering purposes.

* * * * *

Anyone intending to build and operate a model railway layout along the lines of the Inglenook Sidings mould has a wide choice of location and is by no means restricted to running British motive power and rolling stock. The following examples from different countries are intended as an illustration of the flexibility and prototypical diversity offered by a shunting puzzle layout

based on the Inglenook Sidings trackplan, combined with examples of motive power and rolling stock which could be used.

- **ITALY**: Montevarchi, 35 km South of Florence, is a perfect example to show that you can have a layout which is shunting puzzle and prototype modelling at the same time

- **U.S.A.**: The Milwaukee Road's Docks Yard at Tide Flats / Tacoma illustrates how even a big classification yard consists of elements which can be used as prototype inspiration for an Inglenook Sidings shunting puzzle layout.

- **ITALY**: Asti, capital city of the province of the same name, is another interesting example with lots of "mini scenes" and one or two interesting modelling aspects.
- **U.S.A.**: The BNSF Railway's trackage at Selby, South Dakota, incorporates an Inglenook Sidings track arrangement and provides lots of inspiration for a shunting puzzle layout.
- **CANADA**: The Canadian National Railway's trackage at Bayers Lake Yard in Halifax, Nova Scotia, not only features a genuine Inglenook but also has a neat - in modeller's terms - exit to fiddle yard as well.