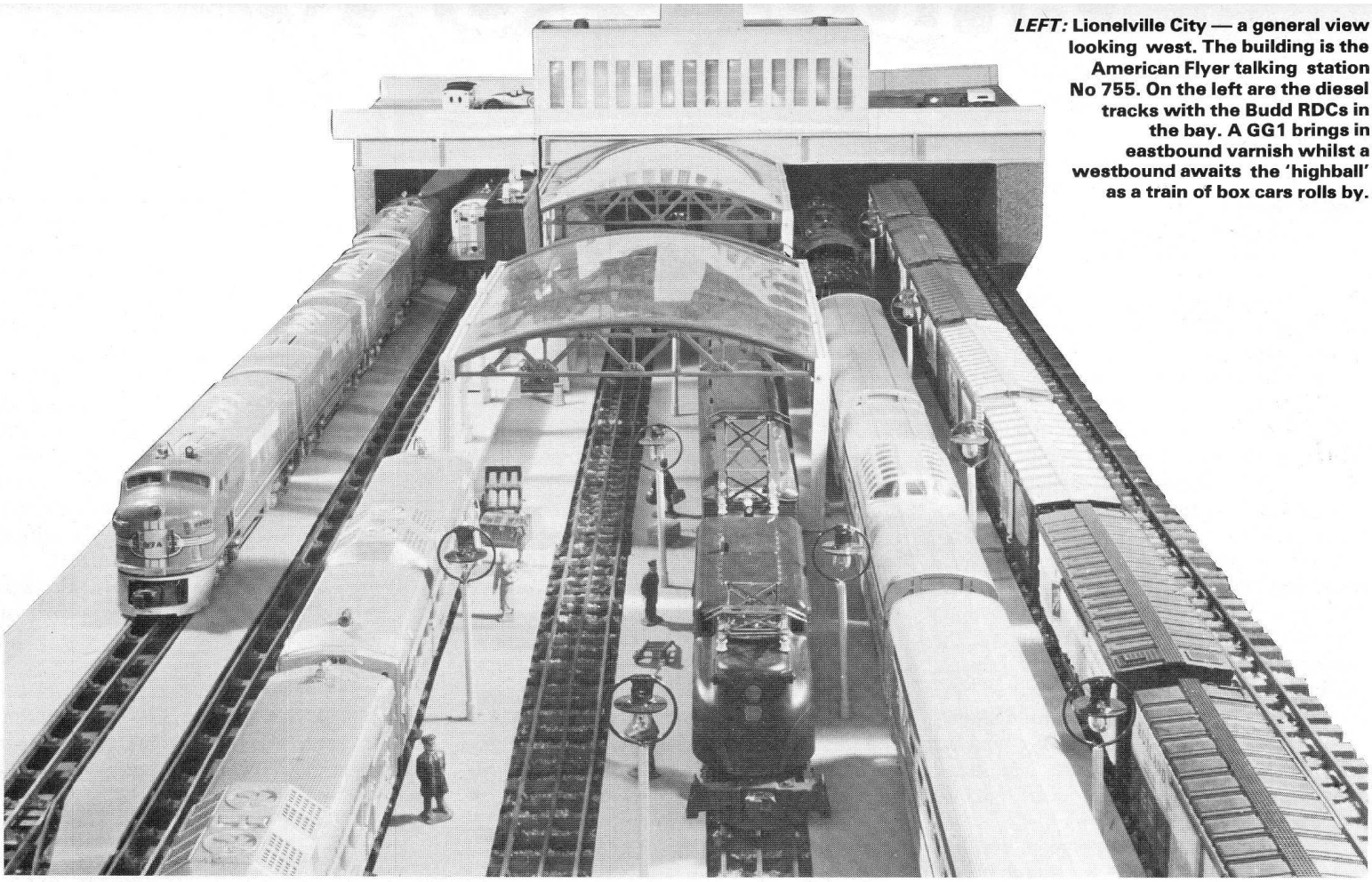


LEFT: **Lionelville City — a general view looking west. The building is the American Flyer talking station No 755. On the left are the diesel tracks with the Budd RDCs in the bay. A GG1 brings in eastbound varnish whilst a westbound awaits the 'highball' as a train of box cars rolls by.**

G&J Shortline

Lionel-The Standard of the World

G. C. Bull
Photographs: **Brian Monaghan**

ONE OF THE things which enthusiasts say about the G&J is 'once seen never forgotten'. Not always knowing what prompts such a remark does not alter the vindication of the original concept developed over the last six years. In the beginning my son Jeremy and I were asked to help out by providing a layout for a local show and as our OO layout was a fixture, we heaped together Hornby tinplate track, some locos and wagons lying almost forgotten in the attic.

The Hornby ran genteely until trains were reversed and everything came off the track. A large Marklin Baltic Tank charged uncontrolled round the circuit, its overscale size being almost frightening, whilst the Basset - Lowke steamers, due no doubt to our carefree mood that day, did their best but periodically tried to set the hall alight.

The Lionel trains ran well, slogging round without fuss, reversing without trouble, whistles and horns blowing on demand. The 20V Hornby transformers were not up to the Lionel task but at least we made toast on them for tea. The pleasure we had at the show ensured we were hooked on exhibitions and with the fun ultimately in perspective it was reasonable to try and get the right answer to the obvious question — what to exhibit in future that might add to the model scene.

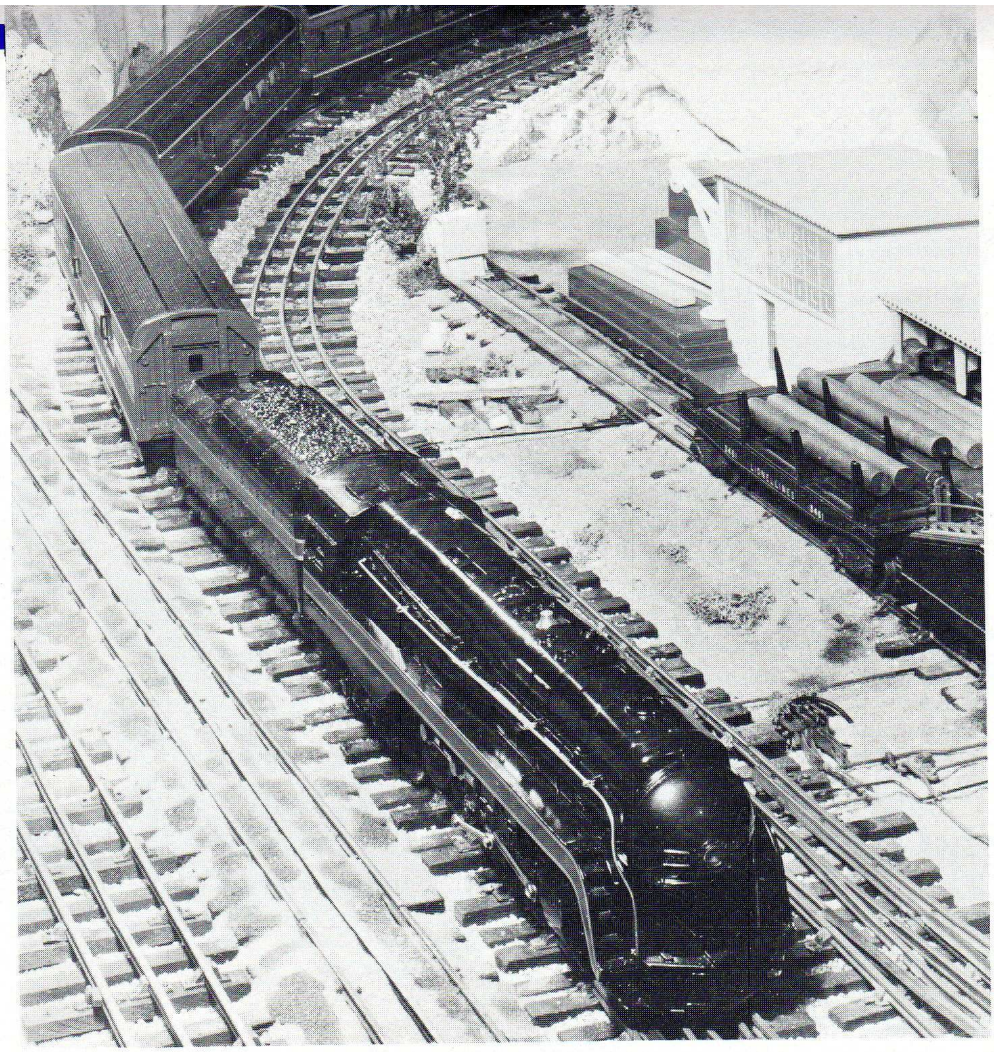
It was not so difficult as it might seem, and subsequent events made our decision seem right. At the time British themes predominated, mainly 'OO' but also other gauges. Continental layouts were appearing more frequently, with very occasional American HO, but never Lionel, which seemed strange, as ours impressed us in every way. So it would be Lionel, known in America as 'the Standard of the World'. We would combine their products in a fully scenic layout operated as far as possible to prototype North American practice. We did not know what we were letting ourselves in for! As we got deeper into Lionel we discovered that the range was enormous. Many trains and accessories had been made specially in the postwar heyday and in fact are still being made, with the regular introduction of new attractive items. Obviously we could not hope to obtain everything, so we decided to concentrate on the postwar period up to 1969 when the original Lionel Corporation finally went out of the model train business. We have added the best new items, but also kept a selection of prewar tinplate. The trains we run are typical of American practice in the mid 1930s right through to the present time and combine excellent modelling, workmanship and value for money. So the G&J became a 'not-so-very-shortline' with a lot of interest and fun in it for almost every taste.

Baseboards and track

On any large layout this fundamental item must be designed to meet the various demands to be made upon it with an eye to the future. We wished to provide real action entertainment for the visiting public at large (not all visitors to railway shows are modelling buffs) but also to be of interest to model

RIGHT: **Lionelville motive power depot. The coaling unit on the left comprises No 397 diesel loader and No 456 coal ramp, seen with an empty hopper about to be released. The big 'Hudson' is moving out on to the main track.**
Brian Monaghan

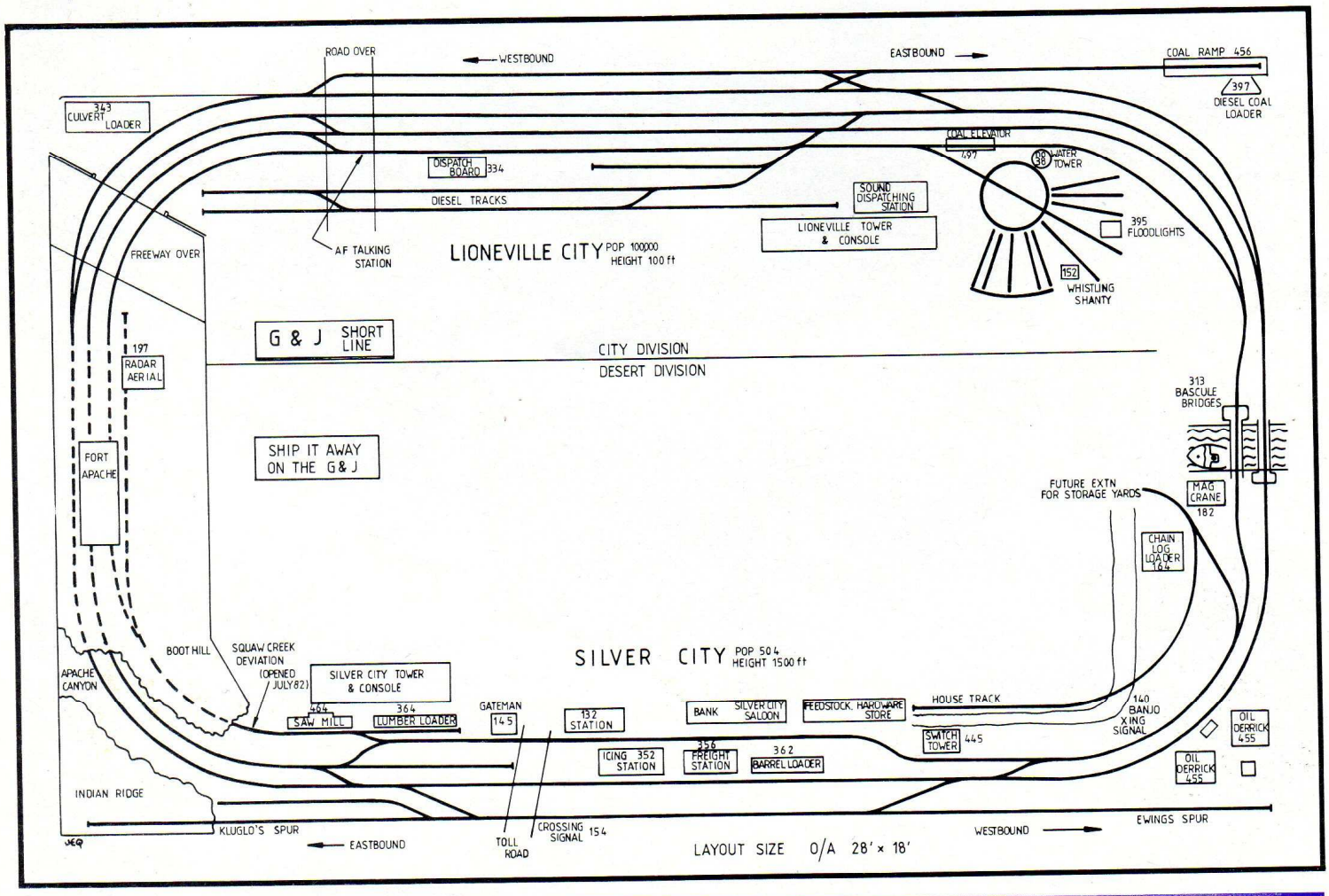

LIONEL LINES
G.S.J.
SHORT LINE



RIGHT: **Head end of train No 2 'The Powhattan Arrow' hauled by 'J' class 4-8-4 No 611. The livery bears a striking resemblance to the LMSR. This is a recent introduction by Lionel and is superb in every respect, with up-dated electronics although the basic power unit is the same rugged construction. Norfolk & Western's luxurious streamliner ran through the Allegheny & Appalachian Mountains with winding curves and steep grades but was still capable of 90mph on the level.**

train enthusiasts and to provide us with enjoyable operating sessions as well as the fun of building and developing a fairly unique railroad.

It was essential to have a 'tail-chaser' to keep the trains moving and this would be an advantage for long trains — some of our coal drags can be 30ft long, working up to a nice steady speed. How the youngsters love to count the cars as the trains growl past them! Some short commuter trains work end-to-end, like the Budd diesel cars running eastbound to Silver City and return. Yard trackage was desirable but presents problems of space — bearing in mind it is a two man operation and the senior partner is getting old! So it had to be reasonably easy to carry, transport and erect. We used twelve cheap 6ft by 2ft pasting tables which were dismantled and each half rejoined so that the legs are now at 3ft spacing and strengthened where desirable. Each table is dowelled to fit the adjacent one and the whole is bolted



together, the tracks locating precisely and being joined with fishplates. Four Lionelville tables are widened to 2ft 9in as a fixed addition. The remaining 10 tables have the 6ft 9in side additions detachable so that eight tables will stack together with an overall size 6ft by 2ft by 3½in with two special tables stacking on top. Each table varies in weight according to trackage, sand, ballast and scenery but all can be handled over short distances by one person. Although the structure is extremely lightweight in construction, it is very rigid when assembled and has stood up well to many miles on the exhibition circuit. The wiring was planned by Jeremy and is plugged and socketed on each table. Every circuit is loomed including all the operating accessories, and the layout can be erected by two of us and be operational within 2hrs. Putting on the accessories and stock takes a bit more time. The track is a motley collection of Bassett-Lowke, Bonds, Mills etc which we had by us for a long time. It all has bullhead rail and chairs. I cast a wary eye toward Jack Ray who once commented in *MRC* about 45 chairs per yard, but we should not really use chairs in any case so we're not being slovenly. Expense rules out changing to flat bottom rail and spikes — but we've never had adverse comment from the viewing public. The photographs may emphasise this aspect, but don't the ties look nicely weathered!

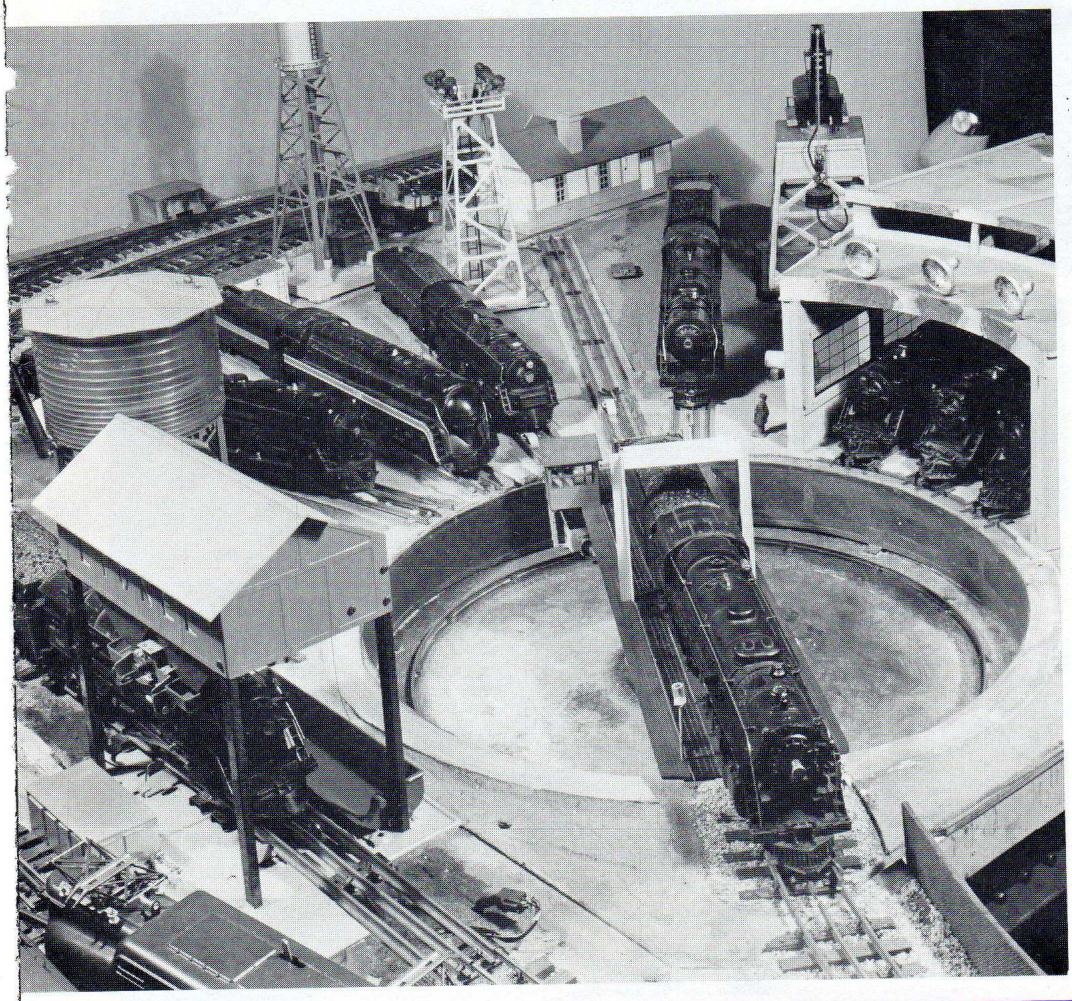
The track is pinned at intervals and bird grit and sand have been brushed into place and fixed with PVA to bond everything. Fortunately, American track is not always as neat as European. Running rails are common and used as a ground line which is also ring-circuited with heavy cable. The centre rail is sectioned into 50 at Lionelville and 30 at Silver City. This gives enormous flexibility to train operation and enables an intensive service to be maintained.

Locomotives can move up behind each other which facilitates switching cars from trains, or just stacking up. We are sometimes asked if it is electronic control — it is not — but Lionel did introduce an electronic set as long ago as 1946. Power operated points using H&M motors with extended cranks are used throughout, except where the lever frames are on the same board as points and rodding is used. Some point positions are repeated to the tower where they are not readily visible to the operator. All the power required is supplied by three transformers. A specially wound heavy duty one rated at 1000 volts to supply main traction, lights, accessories and point motors, and two Lionel 275 watt transformers for switching, secondary routes, loco depot etc. We use ac throughout except for a 50V dc control for heavy duty switching relays used for tower coordination and the 'panic' buttons. Six of these are located around the layout and momentary pressure on any one of them will cut off all traction power, which can then only be restored by the main tower at Lionelville. This is an essential part of operations as occasionally a train will part and the loco, especially when on full power, will leap forward like a rocket. This usually heppens when only one of us is working and is distracted from the layout talking to an interested spectator. This is in accord with the well known law of course!

There are two main tracks, east and west bound, running through a city station, Lionelville, with a desert depot called Silver City. The track diagram illustrates the two 'Divisions' with the track facilities extending to a considerable amount of route trackage, yards and loco depot at the city station. This allows five 'consists' to be kept made up and moved alternately on the main tracks to provide a busy schedule of different trains. Trains of up to 25 cars (over 25ft long) can be held in Lionelville passing tracks. Power is fed to main tracks and adjacent sidings at 20/25 volts depending on the locomotives being used. A train of 13 Pullmans with a big 'Hudson' at the smoky end will draw about 7-8 amps while running — this includes lights, smoke unit and whistle. So with a train in either direction up to 16 amps can be drawn out of the main transformer and if switching operations are involved at the same time at the two stations, using the Lionel transformers, considerably more power is consumed.

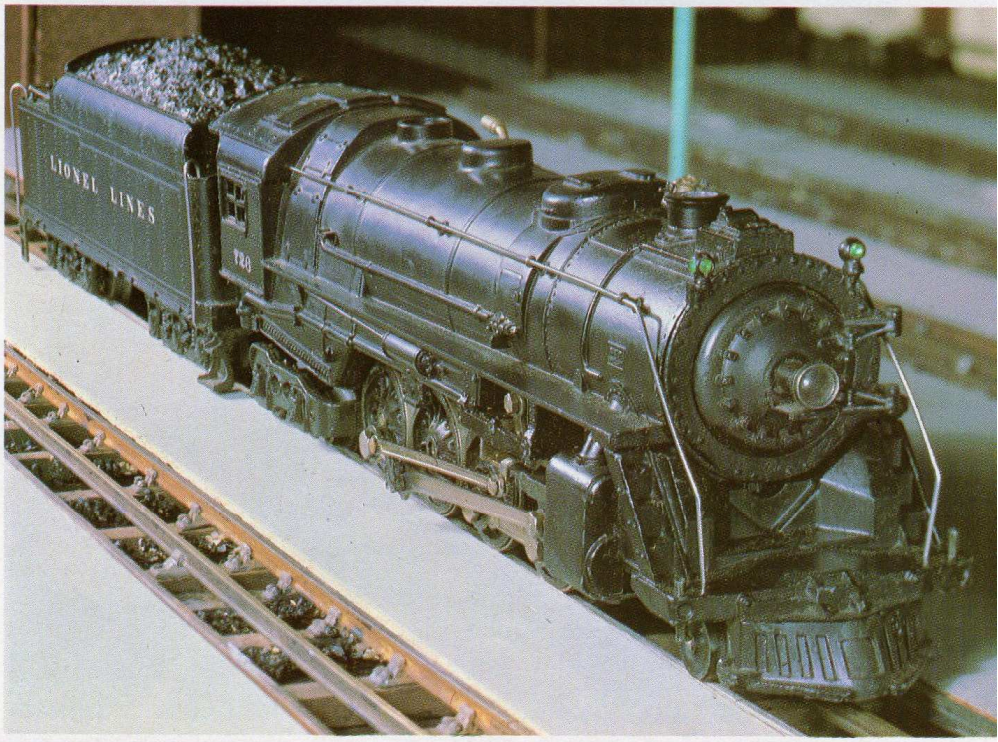
The 'Towers' (control panels) are linked by telephone to ensure that both Divisions can pass or hold trains appropriately. Extra phone points are provided at strategic positions to enable headsets to be plugged in, say in the event of a derailment, (fortunately rare) and the motive power depot operator also has a phone socket. Operators sit at the panels throughout an exhibition, the phones enabling us to maintain constant contact which is inaudible to the viewing public, so they are not distracted by operators moving about or shouting instructions at each other. Incidentally similar discipline is exercised over the disposition of loose stock, tools and refreshments. No tools are left lying about or stock put down off tracks, and we allow ourselves cups of tea or coffee but food must be consumed well off layout limits.

The boards are fully scenic. This has been produced in much the usual way by putting down sand, grit, imitation grass etc. Mountains have a wooden framework, covered by newspaper, laminated with a PVA glue, plastered, textured and coloured. Polystyrene sheet and blocks are hot wired into shape making convincing desert or mountain scenery. Two extra special boards provide for a river with real water so that the No 313 bascule bridges can be operated. The matching board at the opposite end is Fort



LEFT: **A general view of Lionelville MPD with big 'Hudson' No 773 coming off shed. Coal loader 497, Water Tower 38 and Magnetic Crane can be seen with other accessories. Various locomotives are stabled including N&W 'J' class 'bullet nose' and on the right 681 Turbine 6-8-6 and scale Hudson 763. A group of Pennsy K4s relax in the roundhouse.**

ABOVE: **Eastbound 'Hot-shot' fast freight No 108 hauled by four Santa Fe F3 diesels in A-B-B-A combination (B units have no cabs). This leading unit is dual motored with horn and working lights and was built in 1953. Lionel usually included the date of manufacture on their rolling stock as part of the 'works' information.**



RIGHT: **'Berkshire' 2-8-0 No 726 was built in 1946 at the beginning of a long production run, and included a host of refinements. Among these were scale handrail knobs, Baldwin disc wheels with nickel tyres, two axle drive, wiring for electronic control and a highly detailed die-cast tender.**

Apaché a preserved cavalry fort of the mid-west, now a tourist attraction just off the freeway.

Accessories

The track diagram shows the many accessories fitted into the scenery to give a natural blending of the more interesting operating pieces. Joshua Lionel Cowen, the incredible man who made Lionel *the* model trains of America, wanted to be sure that

boys of all ages got plenty of fun out of railroading, as well as just running trains, and he sure did that! If (as happens even with the best layouts) trains have to stop temporarily, we can still keep the audience interested and amused by pushing accessory buttons. It is not possible to describe all the accessories in detail but the following list describes briefly the action of some:-

38 Water Tower — lowers filler pipe and then circulates coloured water within a translucent double skin tank giving the effect of filling tenders.

132 Station — will automatically stop train and restart it after an interval of time.

140 Banjo signal — red light shines and swinging arm activates on approach of trains.

145 Automatic Gateman — Man comes out swinging red lamp to warn motorists of approaching train.

164 Lumber loader — will accept lumber automatically dumped and then elevate each piece by chains to a solenoid-operated dumper behind . Fascinating to watch.

182 Remote control magnetic crane — slews left or right, and raises or lowers the load — all from a remote control-panel.

197 Radar Tower — Aerial array rotates by Lionel's patent vibrator.

313 Bascule Bridges — Super pressed steel model can be raised and lowered. Switches off automatically when lowered.

334 Dispatch Board — Attendant crosses in front of board, turns and goes back. Indicator changes — displays eight alternate trains.

343 Culvert pipe loader — Loads pipes into gondola powered by Lionel's vibrator motor.

352 Icing Station — Man loads ice cubes into ice hatch of special reefer car. Likelike in action.

356 Operating Freight Station — Two baggage cars circulate around platform at intervals.

362 Barrel loader — Loads barrels into special gondola which also unloads the barrels as required.

364 Lumber loader — Automatic loading and unloading of logs from the operating lumber car 3451.

Coal Loaders

397 Diesel — Loads cars by means of a continuous rubber belt. Accepts coal from automatic ore dumpers and ingeniously reloads it.

456 Coal ramp — A very interesting piece usually used in conjunction with No 397 Diesel Loader. An operating hopper car is backed up ramp so that coupler locks with ramp coupler. The car is then remotely uncoupled from the one in front. The train draws away leaving hopper in position. The bottom doors can be operated unloading coal into bin of 397 below. Car can then be released so that it runs down ramp.

497 Coaling Station — Cars unload coal into tray which is then elevated to top and tipped into hopper. Hopper doors can be opened by solenoid, dumping coal in tenders. Works well.

445 Switch Tower — Man goes in from verandah while another man goes down stairs swinging a red lamp.

455 Oil Derrick and Pumper — A pressed steel tower with block and pulley, a working 'nodding donkey' pump and a glass tube filled with simulated bubbling oil.

464 Lumber mill — A very clever accessory. Logs are unloaded from lumber car and fed automaticlly into mill. Sawn planks come out the other side. Looks like it really saws wood!

All the accessories are masterpieces of ingenuity and are controlled from the appropriate 'Tower' on a separate console. The motive power depot accessories are controlled by the roundhouse foreman who is in charge of all types of locomotive and ensures the right power is available when needed. To facilitate turning and stabling, a handbuilt turntable is used and is the only non-proprietary accessory. The turntable is of steel construction with wooden decking and incorporates a split-field 12V ac induction motor driving the traversing wheels through an automatic dog clutch and reduction gearing. Flasher lights are positioned at each end and there is a permanent light on overhead. Control is through a set of eight key switches, one for each track and the table always takes the shortest route between tracks. This is determined by a split commutator disc of six rings underneath the board. Positioning at tracks is predetermined and precise. The heaviest locomotives handled are the big 'Hudsons' weighing 15lb all up, so the whole turntable has to be extremely rigid and stable and the circular track absolutely flat.

Freight rolling stock

There are five basic consists used on the layout although cars can be switched to make up way freights and other mixed trains.

Box cars. These are colourful and make up interesting trains. Company cars have various colour schemes as do the many privately owned cars.

Refrigerator cars (reefers), often white, but with interesting designs.

Gondolas and flat cars.

Hoppers and ore cars.

Tanks.

Trains of up to 25 cars including the caboose or 'crummy' at the end are run. We have a wide variety of tail-enders and nearly all are lighted, some having a smoke unit for the stove pipe. All the freight cars run on the usual archbar trucks (bogies to us). All trains are very stable and can be pulled or pushed round our curves at slow or fast speeds. Even starting and stopping on curves is easy if done carefully.

Passenger cars

We run the two types made by Lionel since 1945. The Madison 'heavyweights', considered to be Lionel's nicest model, are based on the big steel cars of the '30s. They are very heavy being moulded in substantial bakelite and running on six-wheel Pullman trucks. These cars were made just prior to and after World War 2. We run up to 13 on a train. Only three named cars were made,

LEFT: **Another general view of Lionelville. Dispatch board No 334 can just be seen between station canopies. No 1653, an 0-4-0 yard goat is switching two Evans auto-loaders off a train.**

Irvington, Madison and *Manhattan.* The second type is the aluminium extruded car with fluted sides representative of the postwar lightweight streamlined stock. All these cars run on four-wheeled metal trucks with excellent detail moulded in. All the unpainted aluminium cars carry the Pennsylvania road name. We also run a set painted in Tuscan red (maroon) with black roofs and gold striping making up a very sleek 'Powhatan Arrow' set of the Norfolk & Western Road. This was new from Lionel in 1981.

All the cars are lighted. We sometimes run a set of nine 2400 class cars which are smaller, plastic but very nicely moulded, on four-wheel trucks. Sold as 027 sets they were cleverly proportioned to look right even though small, but still O gauge of course.

Special cars

These are the flats, depressed centres like the 16-wheeled transformer car, work and wrecking cabooses, searchlight cars and eight- and 12-wheeled cranes. This group also includes a wide variety of operating cars providing plenty of action. The most popular are:

Operating milk car: man unloads milk churns.

Operating cattle car: cattle move from car on to cattle pen and back again.

Brakeman car: Crewman on roof lies down on approaching tunnel or bridge then stands up after car has cleared.

Cop and hobo car: Police Officer chases hobo round packing cases in gondola.

Searchlight car: searchlight rotates and is illuminated.

Generator car: generator in car hums and cooling fan rotates. Portable searchlight can be positioned off tracks to illuminate work area.

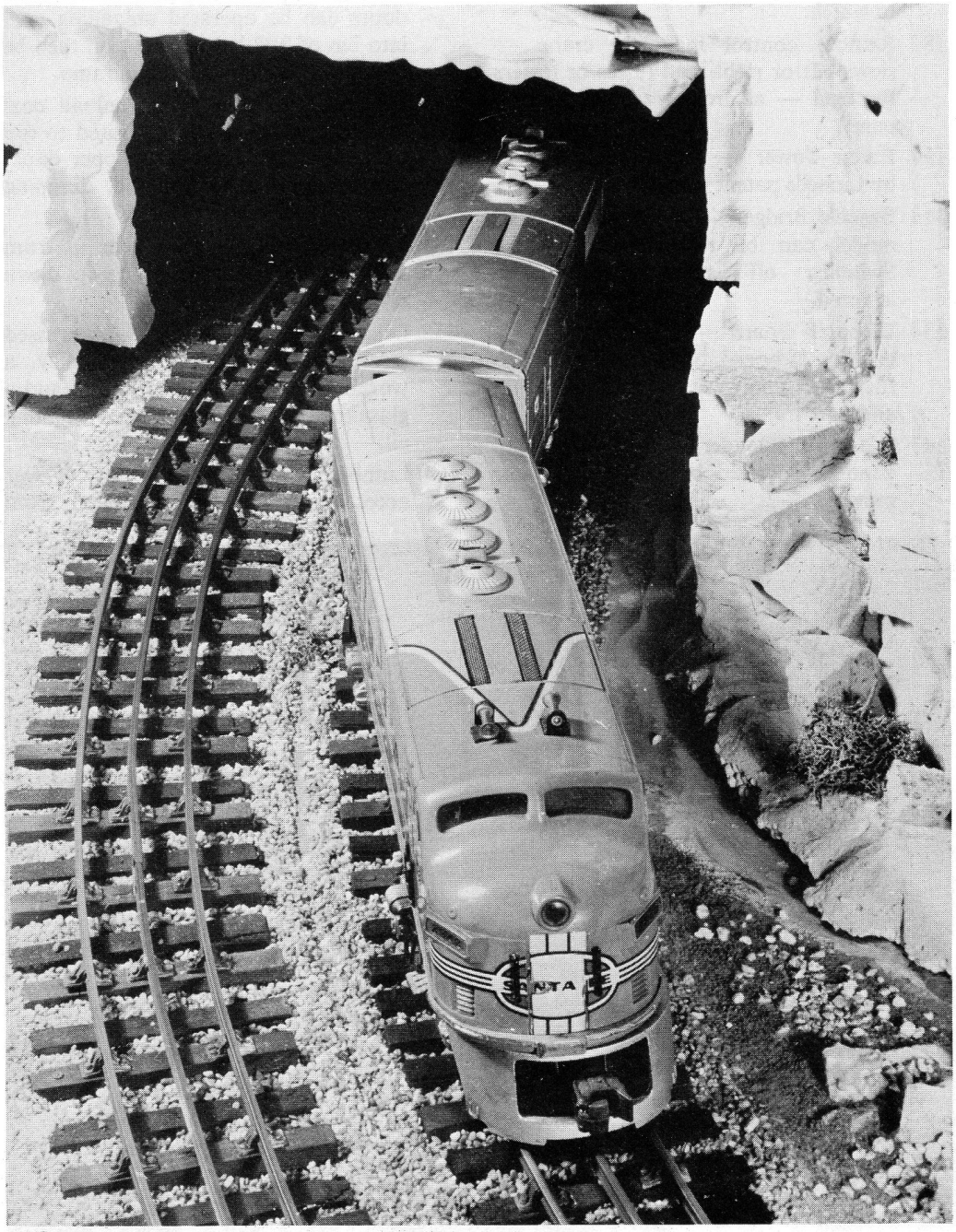
Aquarium car — fish swim past glass sides of car.

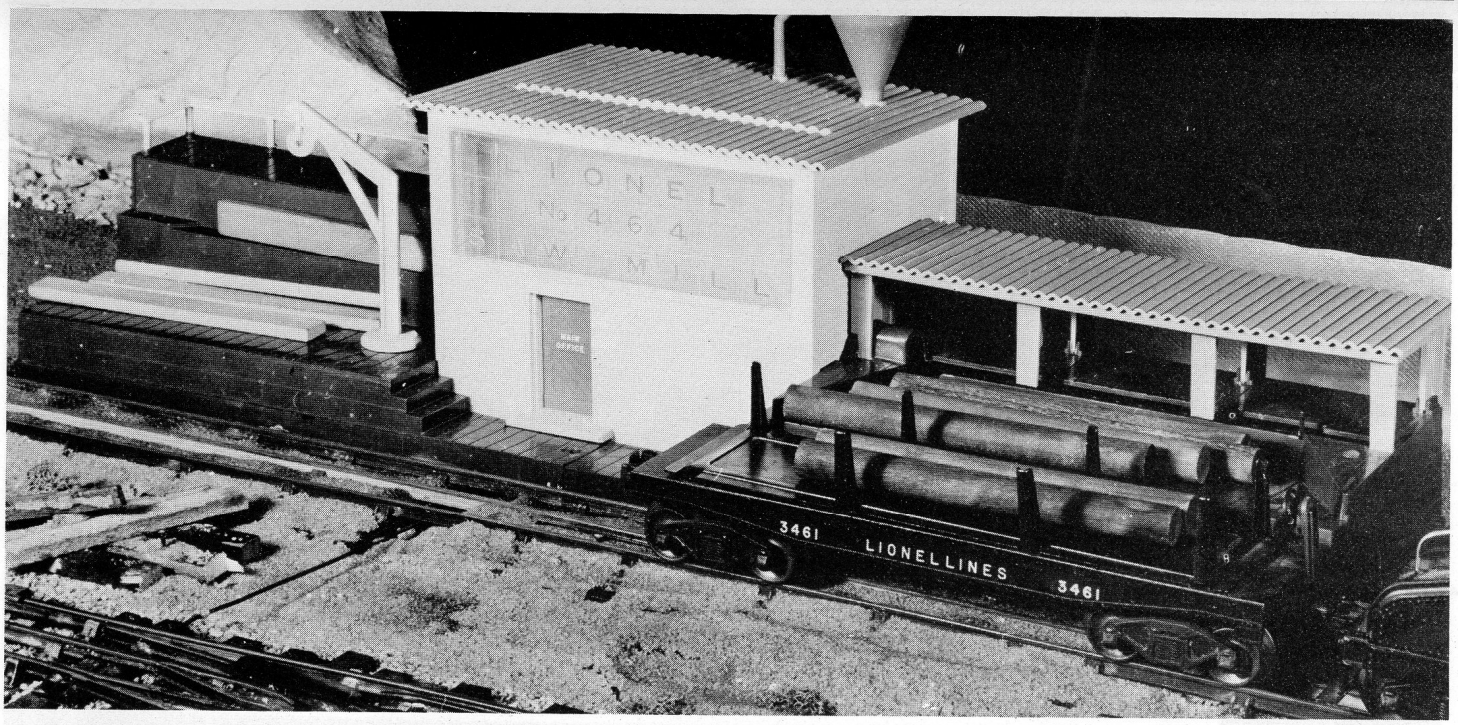
There are also the dump cars, log unloaders and hopper cars.

Locomotives

Lionel have made a wide variety of locomotives since 1945. Starting with steam outline, they quickly introduced the big-selling EMD F3 diesel followed by a GM switcher, GP7 and GP9s and to date a considerable number of 'lowhood' models. Their most impressive diesel was the Fairbanks-Morse 'Trainmaster', a superb model with correct pattern six-wheel trucks driven by two motors.

Lionel engines, like their accessories, have always been designed for an ac system at varying maximum voltage levels. Motors have always been rugged and well designed using the plate spur driven type favoured by Hornby, or the more sophisticated worm driven horizontal or vertical motor. All motors have wound fields in series with the armature resulting in very powerful torque at low speed. Reversing is effected by the Lionel 'E' unit, a three position sequence





ABOVE LEFT: **Dispatch Board No 334. When remote button is pressed attendant walks across in front of board, turns round, goes back to the original position and stops. Meanwhile indicator has changed to another one of the eight train indications.**

LEFT: **Sante Fe's crack 'Chief' leaves Apaché Canyon running wrong track due to westbound track repairs. These EMD F3 units are painted in 'Warbonnet Livery'. First introduced by Lionel in 1948, they are nice mouldings with metal frames and heavy diecast trucks (bogies). Each A unit has two motors and is an extremely powerful hauler and very fast. Various road names were used throughout the 19 years they were made with many changes and a reduction of detail over the years.**

ABOVE: **Lionel Saw Mill No 464 at Silver City. Lumber car 3461 dumps logs on receiving platform and when remote button is pressed mill gives realistic sawing sound and sawn planks come out, as seen at right of picture. This is always popular and works well.**

reverser — forward — neutral — reverse — neutral etc. A more positive method than Hornby because it was a separate unit that could be removed for cleaning. It is extremely reliable in operation. Only the very cheap Lionel locomotives used the movable field piece and then on one or two models only.

It is not within the scope of this article to describe the various locomotive features but these would be an interesting subject. A list of some of the locomotives used on the G&J is shown below. All the steam locomotives have lights, smoke and whistles, and the diesels and electrics have horns.

Steam

763 Big scale Hudson 1940 — Cracked varnish.

773 Big scale Hudson 1950; less detail — Cracked varnish.

746 Norfolk & Western 'J' Class 4-8-4 1959 — Streamliners orange/yellow stripes.

711 Norfolk & Western 'J' Class 4-8-4 1981 — Streamliners Tuscan/gold stripes.

726 Berkshire 2-8-4 1946 — General duties.

726 Berkshire 2-8-4 1954 — General duties.

681 Turbine 'S2' 6-8-6 1953 — General duties.

1656 Pennsy 0-4-0 Switcher — Yard Goat.

3100 Great Northern 4-8-4 1982 — General duties.

There is a back-up collection including 'K4' 2-6-2s, small 4-6-4s and bottom of the line work horses.

Diesels

These include EMD F3s in ABA groups in Santa Fe, NYC and Illinois Central Road liveries, and Fairbanks-Morse grey and red tops. All are dual motored and exceptionally powerful haulers used for passenger and freight. They will haul 25 car (25ft long) trains with ease. There is also a selection of diesel road shifters and switchers.

Electric

Top of the line is the all-metal 'GG1' with Lionel's classic two motors driving six axles. It will move anything we can put behind it. Used for top 'varnish' or freight and to head up the 'Congressional' set. Two 'Little Joes' are used for medium passenger and freight hauls.

I hope this gives readers a hint of the fascination of Lionel. Only part of the extensive range of models and accessories available has been described, and much of it we have never had the pleasure of seeing ourselves. What we have seen typifies the era of rugged romantic American railroading. The sheer weight and power of the trains make real noise. Sirens or horns wail at the push of a button. Lights from passenger trains spill out into the night as overnight Pullmans roar past and the engines leave wreathes of smoke behind.

Admittedly you have to have a leaning towards American trains, and perhaps for the so called 'toy trains' — although many Lionel models are excellent $\frac{1}{4}$in scale productions. If you like trains you can't help but admire Lionel, and like many others you might even get interested and find a lot of pleasure in operating. The Lionel Correspondence & Collectors Club was formed to give UK enthusiasts an opportunity to meet, help each other and further British knowledge and enjoyment of 80 years of Lionel model production.

Outside America Lionel has a unique position that makes a National Club desirable. Many original items are not obtainable over here. Data is not freely available and unlike Hornby, the originals are being overtaken by reintroduced items built to an equal standard by Fundimensions who make 'Lionel' under agreement and expand the available range annually. So those interested in Lionel have the best of everything. They can collect original Lionel made up to 1969 or Fundimensions current production and a start can be made surprisingly cheaply! We would always be pleased to hear from anyone interested.

Finally, but most importantly, our thanks to Brian Monaghan who took such excellent photographs in some very British weather conditions.