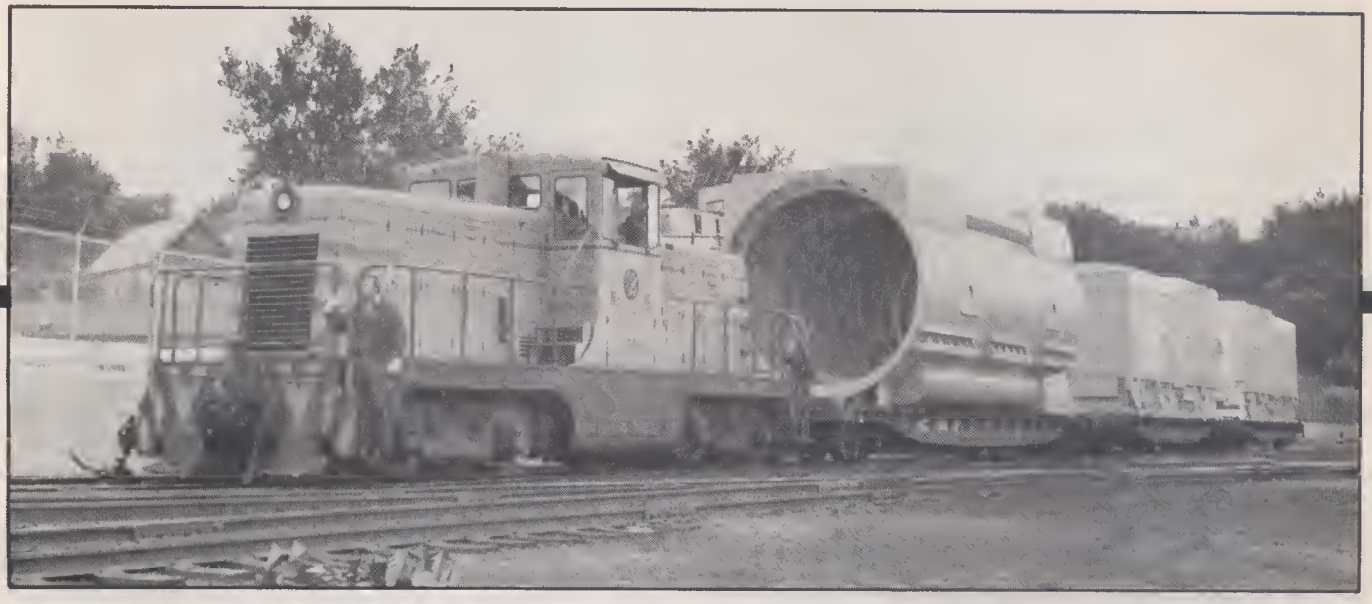


PHOTOS COURTESY OF GE

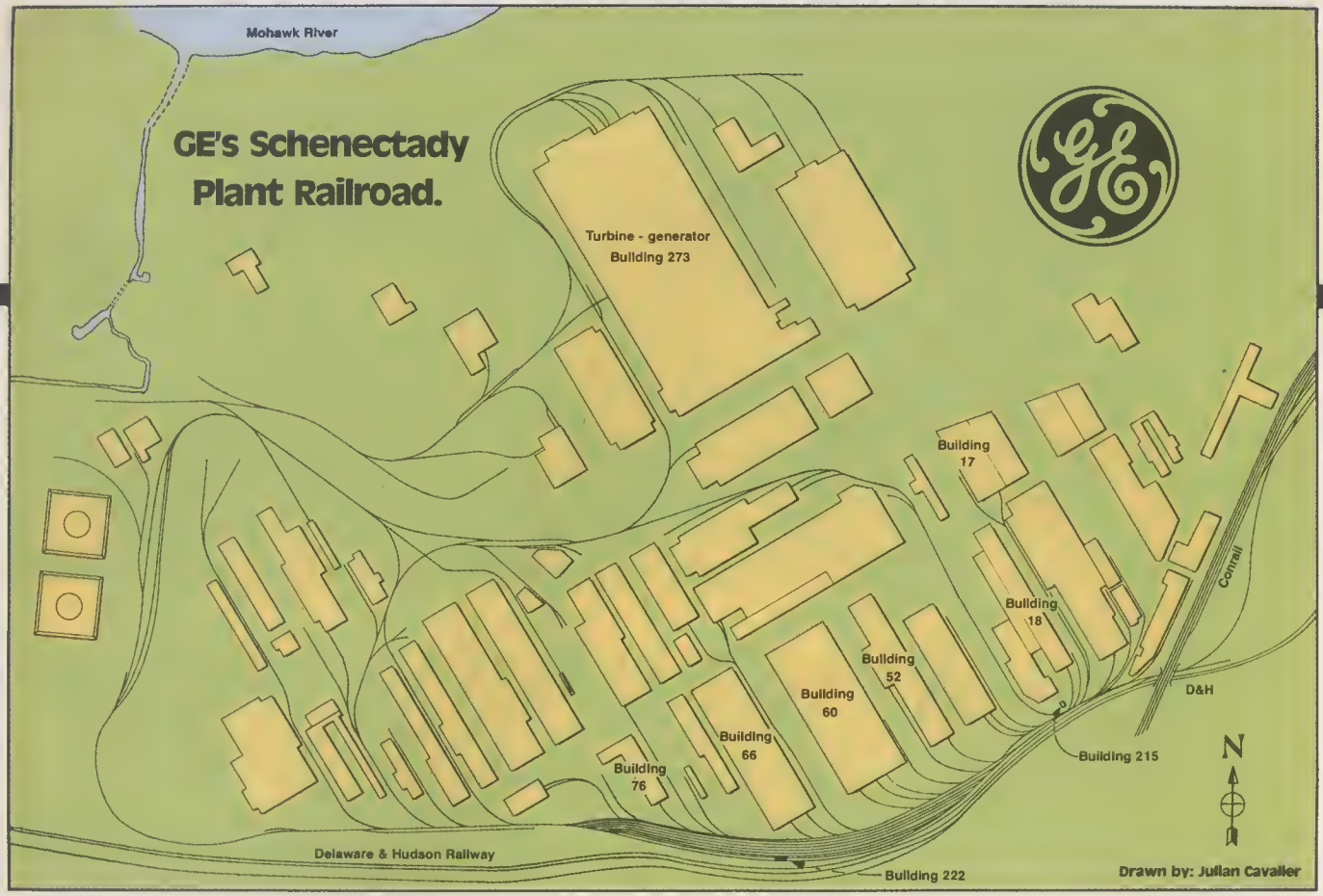
GE's Schenectady Industrial Railroad

This railroad handles a variety of chores at GE's Schenectady, N.Y. and Nott Street plants/**Ken Nelson**

There is a hissing sound of exhausting air as the engineer releases the independent brake and gently opens the throttle on engine 20, a General Electric 85-ton industrial switcher. Under the watchful eye of the conductor and brakeman, the 600-horsepower locomotive begins to move 1,315,700 pounds. The single car being handled is GEX 40010, a 20-axle Schnable car borrowed from the Pittsfield General Electric Plant, and the load is a new generator stator destined for delivery to Arizona Nuclear Power Company in Arlington, Arizona. For the next 45 minutes or so, the crew will be busy carefully transporting this load from the huge turbine-generator Building 273 to the switching yard on the opposite side of the General Electric Schenectady Plant.

Officially known as the Railroad Unit of the Schenectady Utilities Operation, the Schenectady G.E. Industrial Railroad is a privately owned and operated rail system that actually comprises two separate, non-connected subdivisions. The principal portion of the operation is performed on 16 miles of track and 126 switches, 25% of which are laid with 115 pound rail. Three locomotives are used to provide rail service to the many product departments of the Schenectady Plant for moving direct shipments from outside suppliers and satellite General Electric plants to department locations and handling heavy product movement within the Schenectady Plant to keep production at the most efficient levels. Outside rail connection is provided by Conrail and the Delaware and Hudson Railroads, both of which service the Schenectady Plant. In addition, there is also occasional rail service to the Nott Street Plant, about two miles northeast, where machining and some turbine assembly is performed. This plant is one of the main buildings of the former American Locomotive Company (Alco), and since leasing the facility, G.E. has not only left the majority of the tracks that were previously used in loco-

GE's Schenectady Industrial Railroad



motive production, but still utilizes the former Alco number 5 switcher. Since the only rail connection between the two plants is via Conrail (a former D&H connection to the ex-Alco plant has been removed), the crew, when needed, travels to Nott Street via pick-up truck, does their work, and then returns.

Presently the railroad operates with two overlapping shifts, each with a three-man crew. The first crew goes on duty at 7:00 a.m. and spots the incoming cars for unloading and some empty cars to be loaded. The peak period is between the hours of 12:30 and 3:30 p.m. when loaded cars are pulled out and respots are made. Two crews are needed to make the necessary moves in a timely manner. Between 3:30 and 9:00 p.m., the second crew weighs outbound cars and places them on an appropriate track in the switching yard where they await movement by the D&H or Conrail.

Some years ago, coal trains of up to 100 hoppers would arrive at the plant, and one crew using one or two engines, would spend an entire shift spotting and unloading the cars at the power plant. However, a change to oil has cancelled the need for this operation. Although rail facilities are available for emergency unloading of oil, the fuel is generally shipped by truck from nearby Albany. Today the items most often moved by the railroad are flat cars of lumber, turbines, or motors; tank cars of liquids (paint and varnish); covered hoppers of foundry sand; and box cars of general merchandise.

In addition to the Alco, the Schenectady Utilities Operation lists three locomoties in its present fleet. Units 20 and 21 have both been purchased within the last five years and are each bright yellow, 85-ton, center cab units with twin Cummings engines which develop 600 horsepower. Number 19, built in 1947, is used whenever one of the other two units is in for service.

In addition to its locomotive fleet, Schenectady G.E. also operates two 104-foot depressed center flat cars (81021 and 81022), three very large depressed center flat cars of over 150-feet each (80000, 80002, and 80003) for interchange movement of large turbine generators, and a caboose (80004) purchased used from the Lehigh Valley and completely reconditioned for use by the crew which travels in special trains with oversize loads which may require shifting enroute. Noninterchange equipment includes a group of over 70 flat cars an 13 gondolas used for in-plant movement of lumber, skids, scrap, and other such loads. Moreover, the Gas Turbine division owns some 17 flat cars and the Steam Turbine Generator Department operates 10 of its own.

Let's climb aboard engine 20, tour part of the railroad, and see what is involved in some typical operations. Railroad foreman Art Kaszubski leads us from Building 215, the center of rail operations for SUO and introduces us to the three man crew. We find ourselves on track 1 of the switching yard. On our right, tracks switch out in curves sometimes reaching as sharp as 22 degrees to serve various buildings and shops, while to our left are eight other parallel tracks. Track 6 is generally reserved for the empties which are brought in from interchange. Track 8 is the scale track and is used to store cars waiting to be weighed, while track 9, because of its wider spacing, is used to hold oversize loads. Other tracks are used as needed. As we travel west on track 1, we pass the cripple track on our left, where we find engines 17 and 18 parked in storage. Looking again to our right, we see the so-called horn tracks which curve around to serve the other side of the plant. We now are traveling the back track and climbing a 4% grade. In the days of the coal trains, only about two or three cars could be handled at a time on this grade. As we circle around the west end of the plant, we pass the tank farm where oil is stored for the powerhouse. Traveling close behind us is the night crew which has just come on duty. They are preparing to enter the track serving the foundry in order to respot a sand car. At one time, tracks were to have left this side of the plant to connect with Rotterdam Junction, several miles to the west, but the Depression changed all that and the project never did come to fruition.

A call comes over the radio to move a G.E. flat from Building 18 to Building 66. This completed, we next couple to a cut of flats loaded with various skids (a wooden framework fabricated to support different types of loads). The crew experiences some difficulty in making a coupling on the sharp curves, but the job is fulfilled and we move on. Our engi-

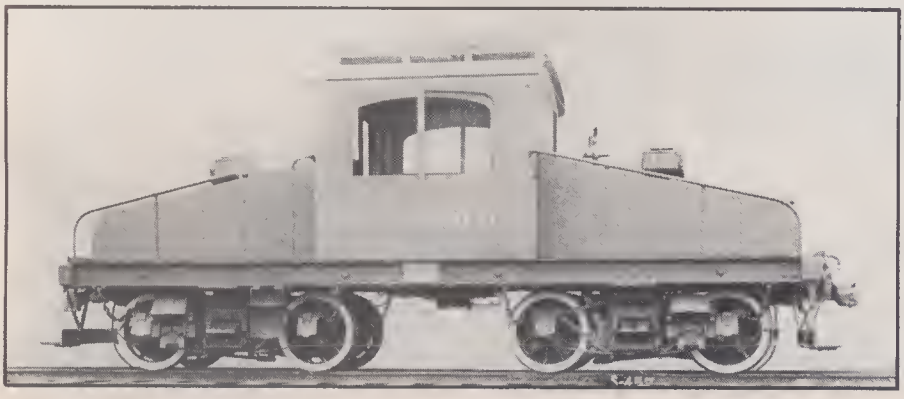
neer explains that most moves today are one or two cars at a time, whereas many years ago, it was not unusual to handle ten or more at once. The automatic brake (train air) is used with any loads over 100 tons; otherwise its all done with the independent. Again the radio cracks and we are asked to move a flat from "52 platform track." However when we arrive, the conductor discovers loose blocking on the car. We can't move that one until the blocking is arranged properly and so we're off to yet another move. We remove a gondola load of scrap from Building 17 and replace it with an empty gon. As we back down 17 track with the gon, we notice a Conrail U23B waiting to enter the G.E. property for its afternoon pick-up and delivery. Upon our return, the Conrail cars are blocking the runaround track, so we fly by the loaded gon of scrap into track 8 where it will later be weighed. As a Delaware and Hudson northbound freight rolls by just outside the fence, our comparatively small engine moves slowly forward to Building 60, door No. 16, and couples onto a D&H heavy-duty depressed center flat, number 16159, with a large motor ready for shipment. We weave our way through the yard to track 8 and weigh the load plus the gondola of scrap at the scale house. Now the motor is returned to just outside Building 60 where it will await the necessary paperwork prior to being shipped. After throwing the turnout, the conductor signals a go-ahead, and we proceed to pick up another flat car of skids, take it to 60-16 (Bulding 60, door 16, where we earlier picked up the D&H flat), wait five minutes for it to be unloaded, and return the now empty flat to Building 76.

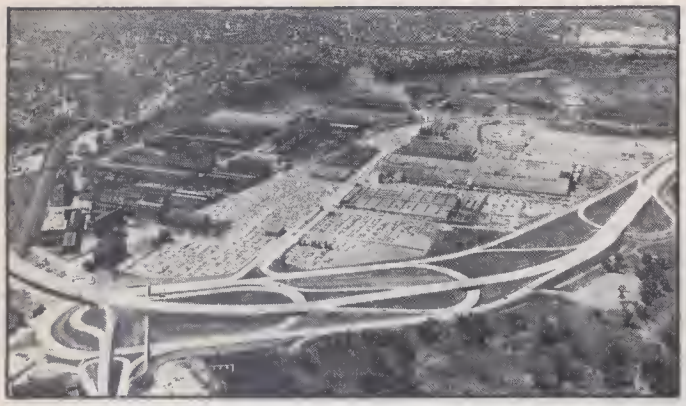
Al Van Eps, who does most of the clerical work in Building 215, explains that SUO has seen basically three types of power since its beginning in the late 1800's. It is believed that locomotives 1 and 2 may have been saddle tank steamers. Numbers 3 to 12 were electrics which operated on overhead wire, collecting their power from a rather unique bow pantograph developed by G.E. Alco did the body work for many of these units (number 6-10), while G.E. naturally did the electrical work. When tracks extended beyond the end of the wire, such as the sand track inside the foundry, an extension cord was fed out the back of the engine by a brakeman. Numbers 11 and 12 had the ability to switch to battery power for short periods of time in order to avoid such problems. Skipping the number 13, the first diesel, purchased in the early 1940's, was assigned the number 14. Soon afterward, the overhead wire was removed and the diesel has been king ever since. In addition, there was at one time a narrow gauge rail system which was used for heavy material movement. This has been replaced for the most part by an internal trucking system.

Unfortunately for the railfan and modeler, there are very few spots from which the G.E. rail operation can be viewed. One can get a somewhat distant view of the switching yard from some of the side roads just off Broadway, and an excellent view of the outside of the giant turbine-generator building while passing on Interstate 890. Cameras are forbidden on the property.

The future of the rail operation looks bright. Although many of General Electric's products are shipped by truck or piggyback, there is still a substantial amount of traffic which is too large and too heavy to travel on anything but the railroad. The Railroad Unit of the Schenectady Utilities Operation should continue to play an important role for many years to come. I would like to acknowledge the excellent cooperation I received from the General Electric Company and thank them for the help which they gave me in researching and writing this article. Special thanks go to Mr. Mike Ross, Mr. Robert Czub, Mr. Jack Mikus, Mr. Al Van Eps, and Mr. Art Kaszubski. G.E. was also kind enough to provide photos. ⊂

From the turn of the century until the early 1940's, the switching chores were handled by electric freight motors. Both the view **above** (which dates from the 1920's) and the photo of No. 10, **below**, show the unique bow style pantograph developed by General Electric for better contact.



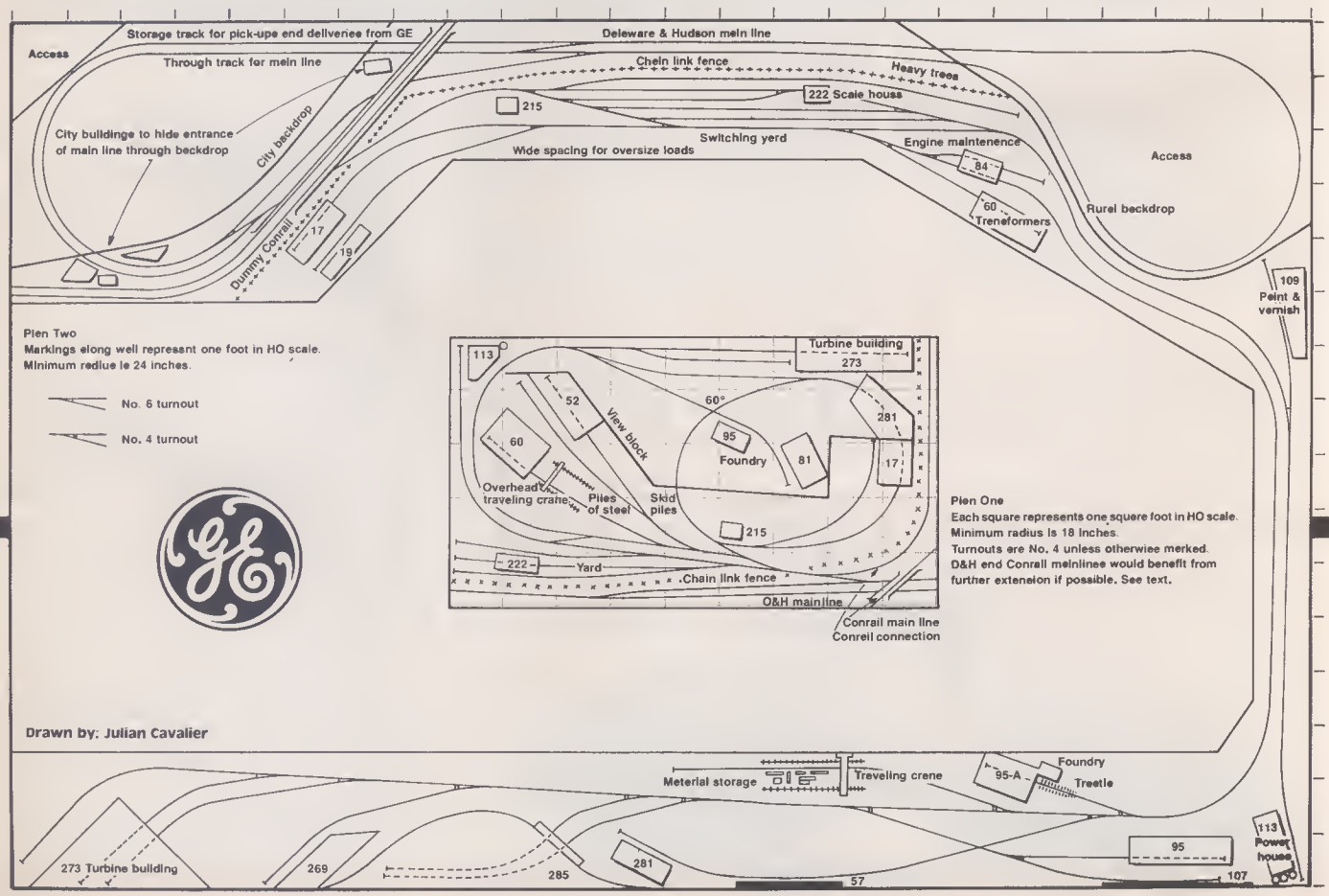


Modeling GE's Schenectady Railroad

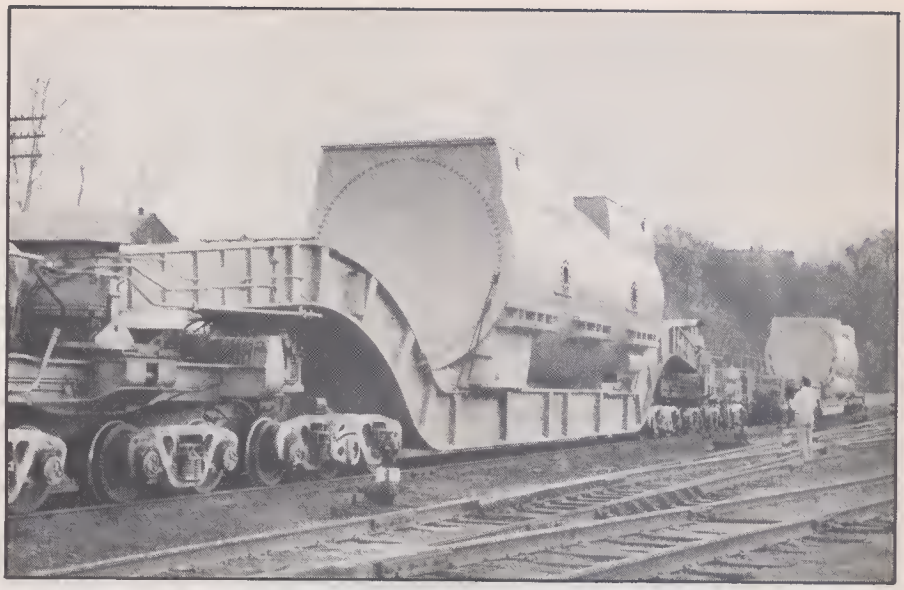
An interesting railroad you can build two ways/**Ken Nelson**

If a model railroader has been in the hobby for a while, he has probably built and operated one or more table-top layouts with an oval or figure eight track plan, become bored with watching the engine chase the caboose around in circles, collected a varied assortment of freight cars and small switch engines, and grown impatient waiting for that "some day" when he will have the necessary space to build his dream pike. Such a modeler will find an industrial railroad a blessing with the built in advantages of a variety of operational possibilities in a small space, a logical explanation for the sharp curves and bowl of spaghetti appearance of so many small track plans, and a place to use one or more of the many diesel switchers and 0-4-0 steam shifters he may have accumulated. The industrial railroad can be built independently, or it can be a major complex on a larger existing or future railroad.

The Schenectady General Electric Industrial Railroad, with its 16 miles of track, several small locomotives, an interchange with



The two aerial photographs (**page 66**) show an overall view of the plant. The buildings are built from pre-cast concrete and brick. They can be easily kitbashed or scratchbuilt following Wayne Wesolowski's article on casting plaster walls in the September and October 1980 issues of RMC. Large turbines, such as the one pictured here (**right**), are shipped across the country on these manmouth flat cars. Below (**left**) is a view of the yard looking west. The scale house (Building 222) can be seen on track eight in the upper lefthand corner of the picture. The engine on the right is working on track one. Looking east from the same spot (**below right**) the railroad's headquarters, Building 215, can be seen at the end of the ladder track.



two major common carriers, and the use of almost every type of freight car, would seem to serve as an inspiring example of a modern, well-run industrial rail system and a good prototype for modeling. As a bonus, this railroad gives the modeler an opportunity for some very intersting flat car loads, although most will have to be scratch built. This also includes, in some cases, the cars themselves.

Because of the massive size of the G.E. complex, selective compression is a modeling necessity. The two suggested track plans approach this necessity in different ways.

Plan Number One is an island-type plan for a five by nine foot space in HO and could be most easily built on a flat table top. If one wishes to suggest the few grades which are present on the prototype, he could use the cookie-cutter method of slicing out the roadbed for that track with a saber saw, inserting risers under it to bring it to the desired height. Care must be taken, however, not to have a grade where cars will be spotted unless a way is used to prevent their rolling away. There would certainly be nothing wrong with constructing the entire railroad on a level surface.

Plan Number Two is an around-the-wall design for a basement or family room where the center of the room is to be saved for pingpong, pool, or other activities. In this case, it would be advantageous to raise the D&H main an inch or so above the G.E. property in orer to make it more obvious. It need not operate, but continuous operation is possible. Here is something for a second enginer to do, or an electrical timing device could automatically send a train over the D&H at certain intervals, hiding between trips behind the backdrop. The large road units would contrast well with the small industrial engines.

In the interest of visual variety on both layouts, it might be wise to use code 70 track within the G.E. property, with code 83 or 100 being laid to represent the Delaware and Hudson and Conrail trackage. The railroad main lines should be well ballasted, perhaps with different colors of gray, while the G.E. trackage might be done with cinders, covering most of the ties. On the prototype, the track passing under the Conrail girder bridge and through the gate is a few feet lower than the D&H main and is referred to as the depressed track. This allows for overhead clearance of oversize loads. There are times when the D&H uses this track, instead of the main, in order to get such loads through this area. In the case of the island type plan, if the space is available to continue the D&H and/or the Conrail connection further along the wall or out of sight, it will provide a place to take cars which have been picked up from G.E.

Scenery for a railroad such as this will consist mostly of buildings and the roads between them. Most, if not all of the buildings, should be of brick and/or cement block construction. Many available kits in HO could be adapted and the scratch builder could have a heyday. What one chooses to put in the various buildings is somewhat optional. Each of the track plans makes some suggestions, based on their approximate location on the prototype. Some structures which you will certainly want to consider include the scale house, the two-story control center (Building 215), kitbashed perhaps from an interlocking tower, the power house with its several tall smoke stacks, the turbine building, the foundry, the locomotive and truck shop, the wire building (be sure to include many spools of wire outside), and perhaps a few which are unidentified so that anything can be taken in or out. One track could serve a traveling overhead crane used to move heavy pieces of steel and machinery. The suggested use of backdrop and low-relief buildings on each of the plans should help to increase the apparent size

of the layout, save space, and cut down on the number of complete buildings which must be constructed. Interstate 890 is a very busy highway which touches at least two sides of the G.E. property. If you wish, you could model it almost anywhere on the plan, assuming of course you are using a modern era. The prototype I-890 bridges and the already-elevated Conrail (with Amtrak service) trackage would add an element of height to that end of the plan. It also passes right next to the turbine building.

Careful choice of each of the buildings' functions will permit using a variety of rolling stock, including hopper cars or tank cars (coal or oil for the power house), covered hoppers (foundry sand), gondolas (lumber and scrap metal), flat cars of all sizes (turbines, transformers, wire, motors, lumber, and parts), chemical tank cars (paint and varnish), and box cars (general merchandise). G.E. even owns its own caboose, recently purchased used from the Lehigh Valley and painted yellow with a black roof. It is used by crews accompanying oversize loads and in transit would be coupled directly to one of the large depressed center flat cars. This could be sent out with a flat carrying a generator stator and return later with the empty flat.

Besides the caboose, the General Electric-owned cars include several of their large drop-center flats for shipment of turbines and transformers, many small flats used for transportation of lumber and parts around the property, and so-called white liners. These are mostly box and flat cars lettered for and purchased from other roads which are used for storage or transportation in non-interchange service. They have a white line drawn through the reporting marks and number, but are otherwise unchanged. All other freight cars should be lettered for other roads, with an emphasis on Penn Central, Conrail, and Delaware and Hudson.

The type of locomotives used to move all of these cars will vary depending upon the era modeled. If one goes back into the turn of the century, saddle tank steamers might be appropriate. From about 1900 to 1940, electric switches with pantographs did the job. Stringing overhead on wood poles should keep you busy, although a few of the electrics had the ability to switch to battery power for a short period of time where overhead was not available. Since the 1940's, diesel power has done the work. The G.E. engines seldom leave the property; a variety of center cabs have been available, especially in HO scale. Pick-ups and deliveries are made by both the D&H (RS3's and RS11's have both been common in recent years) and Conrail (ex-Penn Central U25B's are the usual motive power).

Wiring the layout could be fairly simple or as elaborate as one wishes. Unless one desires to operate two switch engines simultaneously, the entire industrial area of the railroad could be wired as one section. Selective control turnouts would allow leaving an unused switcher on one of the sidings. Turnouts could be either powered or hand-thrown, but some sort of walkaround control would be advisable in order to properly spot the cars.

An industrial railroad, such as this, would lend itself very well to some system of card order operation. Take a stack of 3″×5″ cards and put on them the type of directions that might come over the radio from the control center. (Note: On the prototype, all of the buildings are numbered, as suggested on the plan, and these numbers appear in large numerals on at least one side of the building. This might help visiting engineers understand the operation faster.) Include on the cards such directions as:

Take loaded hoppers to power house (113) and return empties to yard.

Move large flat loaded with turbine from turbine building (273) to scale track.

Switch empty depressed center flat car from yard to turbine building (273). (On the larger plan, specify the track.)

Switch flat car of skids to turbine building (273) for unloading.

Switch flat car loaded with transformers from Building 60 to scale track (222).

Put switch engine in the clear to allow delivery by Conrail (or D&H).

Move any cars that are on the scale track (222) to another yard track.

Move covered hopper of sand to the foundry (95).

Pick up gondola of scrap from Building 17 and replace it with an empty gon.

These are merely suggestions. Make up as many as you can think of, based on the cars and sidings you have available, then shuffle them and start drawing them off the top. If possible, perform the operation. If a car which you are asked to move isn't where it is supposed to be (or hasn't been loaded correctly) discard and draw again. Other prototypically-oriented systems may be developed using the D&H/Conrail interchanges regularly.

Whether you build the industrial railroad as a layout in itself, or as part of a larger system, it will furnish the opportunity to duplicate a large amount of prototype action in a small space, yield something which is not exactly like everyone else's railroad, and perhaps most important, supply a challenge to the modeler's consruction and operational abilities.

Caboose 80004 was purchased by GE from the Lehigh Valley Railroad and is used in conjunction with special train movements that involve oversize loads which may require shifting enroute. The inside of the caboose has been completely remodeled and contains all of the comforts of home.