

struction, using alloy material of high tensile strength, thus reducing the weight of cars as compared with older types. All cars are equipped with high-speed, electro-pneumatic brakes and roller bearings, and with air-conditioning.

General Motors now has a traveling train which it is exhibiting at various cities throughout the United States that it calls the "Train of Tomorrow." General Motors does not build cars, but it builds much of the equipment that is put into them, particularly electrical and air-conditioning units. It calls the new trains an experimental project to try out ideas for the improvement of railroad travel. It does build many diesel locomotives for mainline traffic.

In addition to riding comfort, railroad officials know travelers enjoy viewing the country-side through which they are passing. Particularly they enjoy expansive farm lands and mountain valleys. For that reason, observation cars have been added to trains, and bigger and better windows provided in coaches. G. M. goes a long step ahead—with an "Astra Dome" on its cars.

The Astra Dome car has a double deck in its center section. Passengers on the upper deck ride with their heads above the ordinary roof, protected by a special transparent covering. Their elevated position gives them a superior viewing advantage. The seats give them the same comfort as those below.

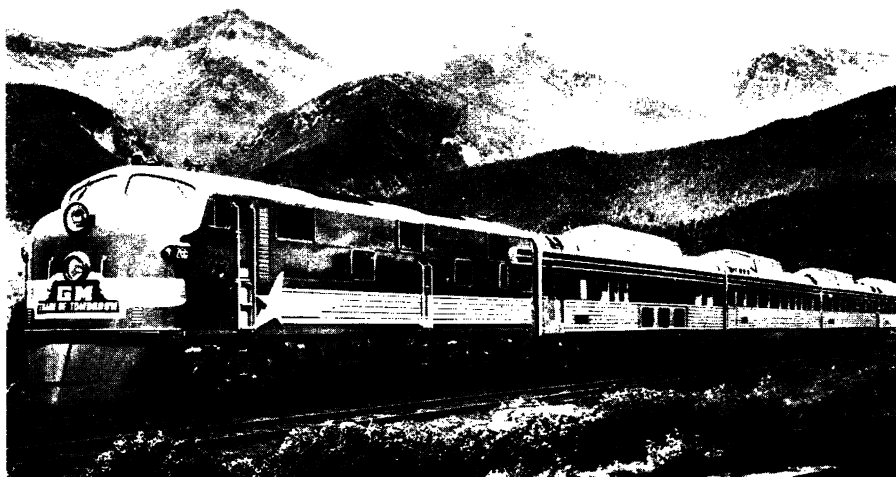
#### Above Roof Level

The dome itself is two feet above the car roof level. It is 30 feet long and 10 feet wide. There are 24 seats for passengers in the domes on sleeping, chair and lounging cars, and tables and seats for 18 on dining cars.

Its glass covering is double. The outer panel is polished plate glass containing special ingredients to absorb the heat rays of the sun. It is especially tinted to cut the sun glare. It has been heat-treated to give it perhaps four times the strength of ordinary plate glass.

The inner pane of the double glass covering is similar to laminated automotive safety glass. It is made up of two layers of plate glass with a layer of a transparent plastic between. The plastic used is thicker and tougher than used in automobile glass, and is tinted to give it glare-reducing properties.

Present and coming improvements in railroading were emphasized at the recent ten million dollar railroad exhibit at Atlantic City. Two floors of a conven-



**ASTRO DOME**—If you take your vacation trip on one of today's new trains, you can have a much better opportunity to see such gorgeous scenery.

tion hall and half a freight yard were filled with equipment, including new locomotives, aluminum cars and refrigerators, ranging from railroad iron for tracks to paper drinking cups for passengers.

Many trains in America are now in constant touch by radio with the train dispatcher along their routes, and engineers and conductors on the same train are in touch with each other. Switch engines in freight yards are also controlled by radiophone. A system, installed by the Farnsworth Television and Radio Corporation of Fort Wayne, Ind., has been in operation over a year in the Potomac Yard, across the river from Washington, D. C. This is one of the world's three largest classification yards. All switch engines making up great freight trains receive orders direct from the control tower by telephone of the radiophonic type.

On the "Cincinnatian," a Baltimore and Ohio new train between Baltimore and Cincinnati, and on other trains as well, loud-speaker systems call all station stops for the benefit of passengers, and are used by dining car stewards to announce "Dinner is now being served." Between times they bring radio programs to the passengers.

Smokeless locomotives will bring comfort to passengers and to the countryside as well. New developments for the ordinary coalburner makes smoke unnecessary. Giant electric and diesel locomotives coming almost daily into use belch no smoke. Steam turbine and gas turbine locomotives, which may soon become common, are smokeless. Then there is the new coal-burning gas tur-

bine which will be ready for the rails in 1948. Its fuel is a highly pulverized coal which burns under conditions where no smoke is produced.

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#### MARINE BIOLOGY

### Male Limpets Change Sex To Grow into Motherhood

► SEX LIFE among the limpets must be just a bit complicated. Like their distant relatives the oysters, as well as other mollusks, limpets change sexes during their lifetime. With them, sex seems to be a matter of size. Dr. G. Bacci of the Zoological Station of Naples reports in *Nature* (July 19), that the smaller, and presumably younger, limpets are usually males. As they gain size they apparently become fitted for the burdens of motherhood, and change into females.

Limpets are small mollusks protected by single flattish cone-shaped shells that look like miniature volcanoes. They cling so tightly to tideline rocks that to "stick like a limpet" has become proverbial. During the war, the name limpet was given to a highly successful sabotage device consisting of an explosive charge with time-fuze, attached to a magnetized base. Shoved against the side of a ship below the waterline by a quiet swimmer, this device would cling to the steel hull until it exploded. Limpets of this dangerous variety are still being used by terrorists against British vessels in the troubled waters of Palestine.

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