

TRANSPORTATION

Tomorrow's Commuter

The commuter of the future will travel both faster and farther than his present-day counterpart, thanks to new forms of transportation now on the drawing boards or in the works.

By JONATHAN EBERHART

► **PITY THE POOR COMMUTER!** With today's hoards of rush-hour soldiers becoming more and more embattled in the fight to capture the high ground of office and home, where can he turn?

There have been fewer major advances in commuter travel than in almost any other area of public concern. An occasional high-speed monorail or helicopter airline can scarcely be expected to even dent the passenger volume. The vital commuter railroad lines serving the vast metropolitan New York area have been crying for years that they are losing millions of dollars and would rather stick to freight.

Even the airlines would be quite content to leave the short hops to other forms of transportation. The problem of getting to and from the airport has kept airlines from getting their share of the short-haul market.

If future rail service or other forms of transportation can cater economically to the commuter who has to get where he is going right NOW, says William R. Nesbitt, United Airlines' chief economic analyst, "we will not object to getting out of short-haul."

Mr. Nesbitt believes that high-speed trains will take at least a small chunk of the airlines' present business. Not so, says former Federal Aviation Administrator Najeeb Halaby, who enthusiastically supports such projects as the 120-mph Tokyo-Yokohama-Osaka train.

He sees the northeastern U.S. becoming one huge megalopolis extending from Boston, Mass., all the way down to Richmond, Va. As this takes place, more and more rail lines will go right out underneath air terminals, enabling passengers to take full advantage of the airlines' intercity speed.

Both Mr. Halaby and Mr. Nesbitt, however, are discussing systems in which increased speeds have made intercity commuting a commonplace thing. How could the local commuter take advantage of the wide-open spaces between his house in the suburbs and his downtown office?

Helicopters, Maybe?

Supposedly, the helicopter is the obvious answer. Since it needs no airfield to speak of, acres of unused building tops could greatly add to a city's available parking space.

Mr. Halaby says no. For 18 years, the Federal Government has been subsidizing helicopter lines in New York, Chicago and Los Angeles, in an effort to keep fares down to a reasonable level. But every year, the helicopter manufacturers and operators have promised an economic breakthrough, without success.

Even the most economic of the many military helicopters now being investigated would cost twice as much per passenger-seat mile as competing surface transportation.

Variations on the helicopter theme, how-

ever, may offer more hope. Lockheed Aircraft has designed an "airbus," which is a cross between a helicopter, a fixed-wing plane, and a jet.

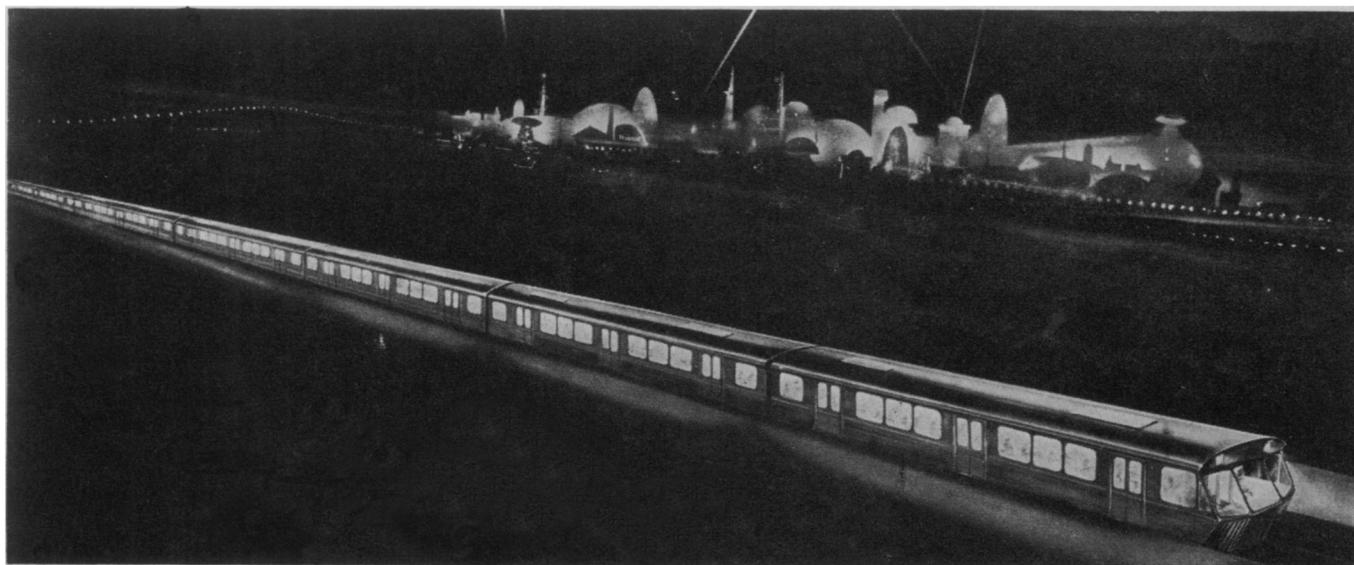
The airbus would take off from any reasonably level surface—a heliport, a flat roof, or even an open field—using its helicopter rotor. Once at cruising altitude, the jet engine would take over; the blades of the rotor would stop in mid air, swing back into a stack lined up along the fuselage, and drop out of sight through a trapdoor.

With predicted speeds of 500 mph, the airbus could provide the speed of today's jet airliners without the problems of getting to and from the airport.

Mr. Halaby goes even further with the idea. He calls his airbus a "metroplane," and envisions it landing on special platforms built over railroad terminals or even straddling automobile freeways. "We could get double duty out of present facilities . . ." he says, "and we'd have a really integrated system of air and surface transportation."

So how about the car? One far-out scheme after another comes along, but no one will let himself be quoted as suggesting a substitute for the trusty automobile. In fact, a study by Harvard University for the Rand Corporation, Santa Monica, Calif., concluded that the best approach is to use our present crowded highways, by applying various "decongestant" traffic-control schemes. These included spacing traffic at entrances to major highways, encouraging the use of car pools, and taking the bus.

For smaller cities, even if the average commuter drove only a tiny "car puddle" of 1.6 persons, costs would still be lower than either bus or rail transit. The report took a dim view of new or extended



Westinghouse Air Brake Company

AUTOMATED TRANSIT SYSTEM—The Expo Express, a fully automatic transit system, is being constructed for the 1967 World Exhibition in Montreal, Canada. The train's dispatching devices, which can send out more trains during crowded hours, might well find their way into large-scale future railroad lines.

railroad systems, suggesting that almost anything else is cheaper, even if it is less convenient.

Lots of people favor the automobile as the optimum commuting device, but not necessarily in its present form. If traffic gets much worse without something being done, drivers could be driven in sheer self-defense to one of the various "safety cars" that have been announced from time to time with only a condescending nod toward Detroit.

Perhaps the best known is the one created by the Cornell Aeronautical Laboratory, Buffalo, N.Y. It has been designed, redesigned, tested and fussed over for years, and a roadful of them ought to protect even oblivious holiday motorists from their common foe: each other.

Every possible exposed surface is padded, the visors collapse, the windshield pops out, the steering wheel collapses and most importantly, the car is built like a tank. In fact, that is a pretty good description of it. "Forward Looks," "Futuramics," "Dyna-sweeps," and other esthetic debaucheries have been completely ignored, and the vehicle is designed with one thing in mind: to keep its driver alive.

Another such vehicle makes at least a token effort to appeal to the eye. This is hardly surprising, however, since it came from the drawing board of Pininfarina, the Italian coachbuilder responsible for many of the world's most exotic looking automobiles, including a long string of Ferraris.

Pininfarina's car achieves its modicum of appeal at the expense of some protection. The Cornell vehicle's chassis and frame are most strongly stressed and braced in the places that are most likely to need it. This is only partly true for the Italian vehicle, though padded ceilings, shoulder harnesses, multiple door locks and other features are common to both cars. As a result, while you may stand a better chance of walking away from a 10-car rush-hour crack-up if the cars are the Cornell model, you are more likely to buy the less safety-oriented Pininfarina machine.

Down With Drivers

All right, if so many people are concerned about driver-caused accidents, let's take control of the car away from the driver. By this time, almost every highway engineer in Detroit has discussed automatic highways with cars following signals radiating from cables buried beneath the pavement. Such a system would make it relatively easy to control traffic spacing at peak rush hours, without so much as interrupting the commuter's perusal of the sports page.

Harry Chesebrough, Chrysler Corporation's vice president for product planning and development, envisions an automobile that is almost more like a space capsule. His commutermobile of tomorrow would be completely enclosed, air-tight, with its own controlled atmosphere. It would run on battery power, but instead of a gasoline engine, the battery would be fed by solar cells or chemical fuel cells, perhaps similar to those aboard the Gemini spacecraft.

In case the battery runs down anyway, it could be recharged through a socket on the

front of the car. The motorist would simply drive the car onto a prong protruding, for example, from the garage wall. "This operation," says Mr. Chesebrough, "is compatible with the evident preference most people have to park their vehicles by running into some barrier—such as the other fellow's bumper."

Instead of highways, he sees the car running in tunnels, tubes or covered trenches, completely unruffled by the weather.

A Mind of Its Own

Fully automatic, driverless vehicles are not at all remote, at least in the case of mass transportation. London's first new subway in 50 years, a 10.5-mile line reaching from Victoria station to the northeast outskirts of the city, will be controlled by an electronic brain aboard the train. A coil on the front of the leading car will pick up impulses transmitted through the tracks and relay them to the brain, which in turn will do all the work of a human engineer, even braking differently for varying passenger loads.

The British are not completely confident of their train, however. A live motorman will go along for the ride in the cab, with the rather menial job of opening and closing the doors, as well as watching over the (electronic) brain.

President Lyndon B. Johnson's planned Northeast Corridor line has received considerable attention, as have various super-trains designed by railroads, steel companies, and the like.

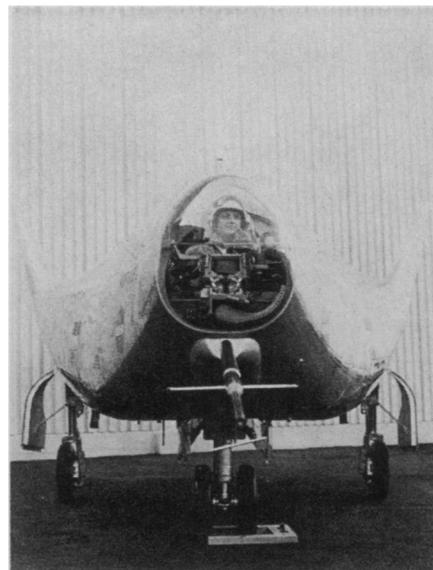
One such train, originating, of all places, in the U.S. Navy's bureau of weapons, borrows ideas from monorail vehicles as well as ground effects machines, which ride a few inches above the ground on a cushion of air created by huge fans.

Bernard Smith, technical director of the bureau, suggests a train that rides over a single rail, but is held slightly away from the rail by an "air-layer" that both filters out bumps and eliminates friction. A 200-mph train with no bumps, rattles or . . . just imagine speeding along, counting the telephone poles, without the sound of the breaks in the ties. Such trains, says Mr. Smith, could easily displace present inter-city air shuttles such as those between Washington, New York and Boston, or between Los Angeles and San Francisco.

Commuting is changing. The commuters themselves, the means of transportation—but even the destinations are shifting, so that now large, multi-city areas are replacing small districts of cities. As Mr. Halaby sees the Northeast becoming one huge metropolitan complex, so most of the state of California encompassed between Los Angeles and San Francisco may merge in the future. United Airlines and Stanford University are jointly studying these changing patterns, but the trends are already clear.

Of course, tomorrow's world of communications may bring business associates so close together that transportation is almost unnecessary. And then where will the commuter be?

• Science News Letter, 89:139 February 26, 1966



Northrop Corporation

WINGLESS FLYER—A new vehicle, called a lifting body, achieves flight by its tri-finned configuration alone, eliminating the need for wings. Milton Thompson, chief test pilot for the National Aeronautics and Space Administration, is visible through the clear plastic nose cone. The craft will be used to determine potential problems of future spacecraft after reentry.

SPACE

Scientists Should Visit Planets or Hover Nearby

► IF SCIENTISTS CANNOT actually land on the moon or planets to make direct observations, they should be in a spacecraft orbiting as nearby as possible, a National Academy of Sciences-National Research Council advisory group reported in Washington, D.C.

The Academy's Space Science Board investigated the relative merits of training scientists as astronauts, or astronauts as scientists. Its members concluded that for tasks where technical know-how or observation is important, suitably trained astronauts could do these jobs.

However, looking farther into the future than the Gemini earth-circling orbits and the Apollo manned moon flights, the board concluded that now is the time to consider training "scientist-passengers" for space crews. The board recommended gradual relaxation of the stiff medical requirements for a scientist-passenger "to the point where a candidate would be disqualified only for defects that would make him a hazard to the mission."

The board, noting that man is essential in space exploration, called for the development of a series of manned orbiting research laboratories carrying six to eight men, some of whom would be medical experts. It also urged placing "modest" scientific experiments on the Gemini and Apollo vehicles.

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