

## TECHNOLOGY

# Moving the Masses

With American cities becoming clogged with vehicles and pedestrians, the transportation problem is growing acute. Los Angeles to combat congestion with a new monorail train.

By ALLEN LONG

► SINCE PREHISTORIC time, man has been concerned with moving himself from one spot to another. To get where he has wanted to go, man has used his feet, animals, sleds, carts, buggies, trains, automobiles, ships and airplanes.

Now in the 20th Century, man still has transportation woes. Our streets are clogged with cars. Suburban living has added to the difficulty of getting between home and work. Congestion slows our moving around.

To solve his moving problems, man today is experimenting with monorail trains, gyroscopic buses, conveyor-belt subways, piggy-back helicopters, automatic elevators with "brains" and propeller-driven sleds.

Los Angeles, for instance, has received approval from the California legislature to build an overhead monorail system to San Fernando 44 miles away. When completed, it will be the second of its kind in the world.

With the bottoms of its cars dangling at least 16 feet above street level, the electric train will whisk passengers from downtown Los Angeles to Van Nuys in 28 minutes, allowing for nine station stops en route. Although Van Nuys is only 15 miles away, heavily populated suburbs lie between it and the big city. Buses require 63 minutes to make the trip.

## Patterned After German Model

The Los Angeles monorail is to be patterned after its German predecessor. This 52-year-old overhead railroad supports pendant cars that shuttle between Elberfeld and Barmen in the Ruhr district. It has carried 310,000,000 passengers without a single fatality traceable to its unique design.

Plans for the Los Angeles system call for a top train speed of 100 miles an hour. Each car in the train will seat 60 and provide standing room for 40. In operation, it will streak along its gleaming rail quietly and with no vibration. There will be no danger of collision with automobiles, trucks or buses.

Its operating cost will be low: a 10-car monorail train requires a crew of only one motorman and two "guards." Car and engine replacements will be virtually nonexistent. Maintenance costs will plunge to a new low.

Many Los Angeles residents have wondered why such a railroad has not been installed before now. Executives of Monorail Engineering and Construction Corpora-

tion and the Southern California Monorail and Transit System, backers of the proposed venture, reply that subways and elevated lines have been adequate until recently but now are heavily taxed. The monorailroad seems the best remedy.

In Akron, engineers at the Goodyear Tire and Rubber Company, working with officials of the Stephens-Adamson Manufacturing Company, have created a conveyor belt subway designed to replace shuttle subways in congested cities. A working model was built, tested and found satisfactory.

Passengers step on an endless conveyor belt moving one and a half miles an hour—half the speed at which many persons walk. They enter large, closely spaced cars moving at the same speed next to the belt.

The cars, each seating 14 persons, "run" underground on conveyor belts, except at acceleration and deceleration points where banks of rubber-tired wheels serve as the conveyor.

At top speed the cars travel only 15 miles an hour. However, the "batching" characteristic of subways is absent since there

always is a string of empty cars waiting to pick up passengers. Because of this, more persons can be transported during rush peaks than some subways can handle.

Officials of the two companies point out that a nine-foot-wide belt can carry 16,000 persons an hour with no stopping, waiting, jamming or shoving. They have suggested the conveyor system offers a better way of serving 80 car-clogged blocks in downtown Cincinnati, and would provide better shuttle service between New York's Grand Central Station and Times Square.

## Spinning Flywheel for Energy

Trolley buses have proved their worth, but small towns frequently cannot afford the large capital outlay required to put up the trolley wires. To get around this, a Swiss engineering firm has produced a "gyrobus" that runs on electrical energy stored in a spinning flywheel.

Before beginning the run, the motorman presses a button to raise contact rods on the bus to an electrical station serviced with commercial three-phase electricity. Within three minutes, a powerful little motor brings the 3,300-pound flywheel up to 3,000 revolutions a minute.

The contact rods are lowered and the



**CONVEYOR-BELT TRAIN**—Pretending they are harassed New Yorkers, these Aurora, Ill., citizens try out a prototype endless train of cars that runs on conveyor belts instead of rails. Such trains are said to hold many advantages over today's short shuttle subways.

motor attached to the flywheel becomes a generator. It feeds motors attached to the gyrobus' wheels and can power the bus at 30 miles an hour for about three miles without "recharging." Passengers enthusiastically report the bus provides a vibrationless, noiseless, odorless ride.

Strap-on piggy-back helicopters some day may lift soldiers high into the air and drop them quietly behind the enemy's lines. A 65-pound "heliglider" now is being developed by Bruno Nagler, 51-year-old Austrian engineer who has taken up quarters at New York's Westchester County Airport.

Powered by pairs of rockets that go off in series, the heliglider climbs like a helicopter and comes down dead-engined, its thrashing 15-foot rotor blades braking the fall. A kite-like rudder sticks out in the rear to prevent the airborne user from twirling like a top. By adjusting the rudder and the angle of inclination of the swishing rotor, the soldier can select the direction in which he will glide back to earth.

Although he is still perfecting his invention, Mr. Nagler states that a soldier probably will be able to drift five miles at 50 miles an hour from an altitude of 10,000 feet.

Another up-down apparatus has been created to speed businessmen quickly to and from their floors in tall office buildings. It is the Otis "autotronic" elevator.

**Operatorless Elevators**

Working from a small electronic "brain," a bank of operatorless autotronic elevators "knows" when almost everyone is going "up" in the building. Thus at 8:30 in the morning, the elevators give heavy preference to "up" traffic, but at quitting time, preference goes to "down" traffic. Similarly, they have other operational personalities during coffee breaks and lunch periods.

The idea is to make automatic elevators more efficient. The new system capitalizes upon the ability of electronics to make fewer errors in judgment than human operators.

The blowmobile was the answer of a Seabee outfit to slippery snow-covered ground that made walking difficult around Point Barrow, Alaska, during the winter of 1952.

Dubbed the "It Won't Work," the blow-

mobile nevertheless did work and skied across glistening snow at 45 miles an hour. It was powered by an airplane propeller driven by a 95-horsepower automobile engine. Similar sleds have cropped up previously to serve other persons having transportation problems on ice and snow.

These devices are some of the unusual forms of transportation that man has created so far to help him get around. Do they represent the ultimate of man's ability to develop ways and means of offsetting his human handicaps? Or are they merely the forerunners of new, almost fantastic transportation modes which lie just beyond the horizon?

Science News Letter, January 9, 1954

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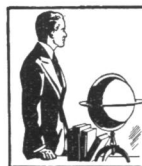
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