

One thing is certain about the public transport of the future: it must be more efficient than it is today. The time is coming when it will be quicker to fly across the Atlantic to New York than to travel from home to office. The two main problems are: what vehicle shall we use and how can we plan our use of it?

There are already some modern vehicles which are not yet in common use, but which may become a usual means of transport in the future. One of these is the small electric car: we go out into the street, find an empty car, get into it, drive to our destination, get out and leave the car for the next person who comes along. In fact, there may be no need to drive these cars. With an automatic guidance system for cars being developed, it will be possible for us to select our destination just as today we select a telephone number, and our car will move automatically to the address we want.

For long journeys in private cars one can also use an automatic guidance system. Arriving at the motorway, a driver will select the lane he wishes to use, switch over to automatic driving, and then relax - dream, read the newspaper, have a meal, flirt with his passenger while the car does the work for him. Unbelievable? It is already possible. Just as in many ships and aircraft today we are piloted automatically for the greater part of the journey, so in the future we can also have this luxury in our own cars.

A decade ago, the only thing electronic on most automobiles was the radio. But at present sophisticated electronics is playing a big part in current automotive research. For example, in every gasoline-powered car that General Motors Corporation makes there is a small computer continuously monitoring the exhaust. The device, about the size of a pack of cigarettes, adjusts the vehicle carburetor fuel intake to get the best fuel economy. Ford cars are equipped with an electronic instrument panel that, among other things, will calculate how far one can drive on the fuel left in the tank. It will also estimate the time of arrival at destination and tell the driver what speed he has averaged since turning on the ignition.

According to specialists these features made possible by microelectronics are only the beginning. Radar may control the brakes to avoid collisions, and a display screen may show the car's position on the road. Recently a radar to be mounted on lorries and cars has been designed in the USA. The radar aerial looks like a third head light placed directly above the bumper. Having summed up the information about the speed and distance of various objects ahead, the computer detects all possible dangers and their nature. A third component in the system is a monitor on the instrument panel. The radar only observes objects ahead of the vehicle. It is automatically turned on when the speed exceeds ten miles an hour. The green light on the panel indicates that the system is on. The yellow light warns of stationary objects ahead, or something moving slower than the car. The red light and buzzer warn that the speed should go down. Another red light and sound signal make the driver apply the brakes.

A Japanese company is designing a car of a new generation. When completed, the new model will have a lot of unusual characteristics. The car's four-wheel control system will ensure movement diagonally and even sideways, like a crab, at right angles to the longitudinal axis. This is especially important when leaving the car in parking places. To help the driver get information while concentrating on the road, the most important data will be projected on the wind screen. A tourist travelling in such a car will not lose his way even in Sahara with its impassable roads: a navigation Earth satellite will indicate the route.

A new ceramic engine has been developed in Japan. Many important parts as pistons, pressure rings, valves and some others have been made of various ceramic materials, piston rings made of silicon materials being in many respects better than those of steel. They withstand temperatures up to 1,000 °C. Therefore, the engine does not need a cooling system.