

## ENGINEERING

# Describe Car of 1980

► THE AUTOMOBILE of 1980 may be lighter, roomier, quieter, cheaper, more streamlined.

It will differ as much from the car of today as the car of today differs from its 1936 counterpart. Application of aerodynamic principles will make it more maneuverable at any speed and safer to ride in. This will mean continued use of tail fins for directional stability.

These were the predictions made by J. E. Charipar of the Plymouth Division of Chrysler Corporation at the Society of Automotive Engineers meeting in Detroit.

Mr. Charipar foresees tomorrow's car as having clean contours, with flush windows and ornamentation. Body surfaces may be extended like a skin all around the car, including the underside. Engines will be more powerful but lighter and smaller, affording more room for passengers and cargo. Improved road pavements will enable manufacturers to build cars with chassis clearances of as little as four or five inches.

Instead of sprayed-on surface paints, the car of 1980 may have a tinted oxide film coating, a "color-filled" metal surface that would never require polishing or repainting. Brake flaps may be used in the car of the future.

Increased use of glass and glass-like materials in upper body areas was also predicted by Mr. Charipar. Another speaker at the meeting, however, George B. Watkins of Libbey-Owens-Ford Glass Company, de-

clared that glass as manufactured today failed to meet the dependable strength properties generally required of structural materials. But he, too, foresaw that research would ultimately yield a transparent material laminated with glass which could be used as a structural member in automobile bodies.

In a special session on the "aerial jeeps," M. O. McKinney of the National Aeronautics and Space Administration, reported such a flying automobile may be feasible from stability and control standpoints in that it could be made to fly satisfactorily in both hovering and forward flight. A certain degree of artificial stabilization might be required, however, he said.

John V. Gorton of the Chrysler Corporation said the evolution of the Chrysler aerial jeep project appeared now to require accomplishment of planned research and development in these areas:

1. Powerplant—Although designers have succeeded in producing powerplants capable of delivering three horsepower per pound of engine, he said, some way must be found to cut their high costs.

2. Safety—Some method must be found to enable flying cars to land safely after engine failure.

3. Flight Experience—Actual flight tests are needed to back up wind tunnel and analogue computer simulations of flight performance.

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## AERONAUTICS

# Electronic Devices in Planes

► PASSENGER-operated hearing aids and "Dictaphone-type recorders" may be used aboard commercial airplanes without interfering with the plane's intricate instrumentation.

A special Radio Technical Commission for Aeronautics committee, set up to investigate the degree to which portable radios, recorders and similar equipment interfere with an airplane's radio receivers, is about to issue a recommendation to its member organizations that hearing aids and recorders be given clearance for airline use.

Among member organizations are the Federal Aviation Agency (formerly the Civil Aeronautics Administration), the Federal Communications Commission and the Air Transport Association of America. The RTCA's findings are submitted as recommendations, not rulings.

The recommendations on hearing aids and recorders are the only two agreed on by the committee thus far. At another meeting late in February the following problems will be considered:

1. Frequency bands that may be critical.
2. Levels of interference on these bands that can be tolerated.
3. Establishment of test procedures to de-

termine levels of radio frequency radiation of any portable device.

Passenger use of portable radios and other electrical devices has been discouraged or prohibited by most airlines ever since recent cases of interference to aircraft communications, navigation, and integrated flight instrumentation systems had been traced directly to passenger operated portable recorders and radio receivers.

Most airlines do not flatly forbid use of portable radios, but notify their flight service personnel to watch for passengers who might be using them.

Such passengers are either asked not to use them during the entire flight or during portions of the flight, or are carefully watched by the stewardess who informs the pilot of the existence of a radio on board. They do insist that such devices not be used during take-off or landing when reliance on instruments is especially important.

Pending complete investigation of this serious problem, the Federal Aviation Agency, in "Airman's Guide," published bi-monthly, has "strongly urged" that action be taken by all aircraft operators to "preclude the use of all such portable electronic devices during flight." Most airlines have heeded this warning to some extent.

In addition to finding hearing aids and recorders unobjectionable, the RTCA has found indications that FM radio receivers and radios using vibrators are especially disturbing. No conclusions in the form of recommendations governing their use have been reached as yet, however.

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## DEMOGRAPHY

## Pill Could Squelch Population Explosion

► THE EXPLOSIVE INCREASE in world population could be squelched by a tiny pill.

The pill may be the contraceptive tablet described in a conference on the population problem and the control of human fertility held by the American Academy of Arts and Sciences in Brookline, Mass.

The pill and related clinical evaluations were discussed by Drs. Hudson Hoagland and Gregory Pinkus, co-directors of the Worcester Foundation for Experimental Biology, and Dr. John Rock, professor emeritus at Harvard Medical School.

The pill contains recently discovered compounds called 19 nor steroids. These steroids block ovulation successfully when the pill is taken by mouth daily, the meeting was told.

Experiments in the West Indies and Puerto Rico indicate that this contraceptive pill will prevent ovulation without causing serious harmful effects. Some women have taken the pill for three years. Until the pill has been taken for a longer period, however, the exact long-range effects will remain uncertain, Dr. Hoagland said.

Currently, the pill must be taken daily. Eventually, researchers hope to be able to develop a pill with prolonged action so that fewer pills will do the job. Also, presently, the pill is relatively expensive, he pointed out. The price could be reduced considerably, he believes.

Each of the 48 states now has its own laws governing the sale of contraceptives. Eventually, this pill may be sold, without prescription, over the drug store counter, in those states that allow such purchases of contraceptives, he speculated.

Japan, in order to cut its galloping population movement, legalized abortion, Dr. Hoagland mentioned. Other countries are becoming increasingly aware of the population problems that face future generations.

Population "bombs" have created explosions in the number of people in the world.

The tremendous and dangerous increase in world population is due primarily to advances in medicine and technology. More people are simply living longer than they did a few years ago.

Antibiotics, increased interest in public health measures, and agricultural expansion have added the effects of their benefits to a rapidly growing population. Each country will become increasingly dependent on its resources to support larger numbers of people in the future, Dr. Hoagland predicted. (See p. 51.)

Even now, more than 50% of the world population is undernourished. This is particularly true of the younger age groups in underdeveloped countries.

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